AFTER 2,000 YEARS OF SILENCE

THE DEAD DO TELL TALES AT VESUVIUS

OUT OF A TIMELESS, musty dark, an ancient Roman victim of Mount Vesuvius stares into the 20th century, her teeth clenched in agony. Nearby lie charred and tangled remains of scores of others buried in the wet volcanic earth. The scene is Herculaneum, lesser known sister city of Pompeii. Both cities were destroyed by the A.D. 79 eruption of Vesuvius. The wall painting from Pompeii depicts the wine god, Bacchus, and the mountain's profile that Romans knew before the disaster. Macabre new relics of that eruption were discovered two years ago, as Italian workmen began to excavate a series of seawall chambers that lined ancient Herculaneum's beachfront. Since then many other fragments of lost lives have emerged along the beach: a noble lady with her jewels; a Roman soldier carrying sword and tools; lanterns, coins, and even an intact Roman boat. These discoveries do more than reveal the moving last moments of a terrified population. They bring to the light of science a wealth of new details that already are telling us much more about how people lived, as well as died, in the lost cities of Vesuvius.

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AMID DEATH'S SHADES, THE GLINT OF GOLD…

AND THE ECHO of love. "She was certainly homely, but someone cared enough to give her beautiful things," says Dr. Sara Bisel, the physical anthropologist who examined the skeleton of this 45-year-old woman (right), found with a treasure of jewels. A bird struts across the carnelian set in one of her two gold rings (below), while jasper enhances the other. Jasper also gleamed as eyes on the snake heads of her two gold bracelets (facing page). Pearls probably adorned the golden tips of earrings, made for pierced ears.

FROZEN IN AN EMBRACE
1,900 years old, victims of the Vesuvius eruption that entombed Herculaneum cling together, part of the company of 150 skeletons recently discovered on or near the ancient beach

BAUBLES AMONG THE BONES

A DESPERATE retreat to the back of a boat chamber (left) proved futile, as lined-up skeletons testify, appearing like souls "floating down River Styx", in the words of one observer. Costume jewelry of beads, stones, and amber (right)was found near a skeleton (below). Decoration rare for Roman times, Gorgon heads adorn several beads.

A LIFE SNUFFED OUT BEFORE BIRTH

"BLOW ON a dead man's embers and a live flame will start." The thought, expressed by poet Robert Graves, holds true for Herculaneum, where the breath of science coaxes flames of knowledge from bare bones. "An attractive young woman, "Dr. Bisel judges on studying this skull (Left). "A 25-year-old blonde- see the patch of hair on top- and pregnant with her first child."

Putting together her seven-month-old fetus, below skull, was like handling broken eggshells- "it was that fragile."

Fragile, too, was the life of a baby whose skeleton was found in the charred crib (right), rocking today as 1,900 years ago. Here displayed in a Herculaneum residence called House of the Mosaic Atrium, for its

beautiful floors, the crib has since been stored for safekeeping.

THE STAGE HAS BEEN DARK for nearly 2,000 years. Yet enough light shines down through an old shaft to show me that this buried Roman theater had been grand. Surely it once blazed with spectacles. I close my eyes and see the elegantly marbled proscenium, the acrobats, the preening athletes on exhibit, the bawdy mimes. I hear the lyres, flutes, and cymbals, and the jingling bracelets of dancers. I see a famous actor from Rome, mask in hand and regally clad, waiting to make his entrance.

I open my eyes, and the steady drip o groundwater onto the stage reminds me that I am 30 meters (100 feet) underground. This theater, once the opulent pride of the ancient seaside town of Herculaneum, lies beneath a succession of pyroclastic flows and surges. These glowing avalanches began roaring down the slopes of Mount Vesuvius about midnight of August 25 in A.D. 79, scorching and smothering the countryside, including the neighboring city of Pompeii.

My escort, assistant supervisor Vittorio De Girolamo, takes me down a corridor leading to the costume depository. He points his flashlight upward at the hardened volcanic flow overhead. A haunting face stares back down. It is only an imprint, made by the head of a statue that the glowing avalanche picked up as it invaded the theater. Yet this impassive visage testifies that the last performance on this stage was indeed a tragedy.

One can argue that this stage was also where modern archaeology was born. All traces of Pompeii and Herculaneum had been lost until 1709, when a well digger accidentally struck the stage. Tunnels were dug, and

soon the ruling nobility of Naples began to loot the theater. They stripped away its multicolored marble facings for their villas and carted off the bronze and marble statues. These royals treasure hunters used hundreds of laborers, including some prisoners, to dig numerous additional tunnels out from the theater to plunder the rest of buried Herculaneum.

I walk along one of these narrow old corridors and feel as if I am caving back through time. I see the name of an earlier visitor-"Pihan, 1793"-etched into the volcanic wall.

Abruptly the tunnel is blocked by rubble. If I could continue my walk, however, this labyrinth would bring me into the heart of Herculaneum, much of which has been once again exposed to air by archaeologists over the past half century. I could walk past the Trellis House with its graceful balcony. I could continue to the House of Mosaic Atrium and stand in the elegant triclinium, where a wealthy family took their summer meals overlooking the Bay of Naples.

The bay today is nearly half a kilometer away. The same volcanic flows that buried Herculaneum covered the ancient beach to a depth of 20 meters.

In the past few years a strip of that beach has been excavated, and I could descend the steep stairs to the old coast. There in the seawall of the town are ten recently uncovered chambers, probably once used to store fishing boats. In those chambers today, however, lie some of Herculaneum's most important discoveries since that 18th-century well digger found himself on center stage.

Archaeologists have long held that almost all Herculaneum's population had the time to escape Vesuvius's wrath. Only a dozen or so skeletons were found in the town versus the hundreds that were excavated at Pompeii on the other side of Vesuvius.

Classical scholars had assumed that after Herculaneum's population fled, the town has been embalmed by airtight mud slides.

At Pompeii, they concluded, the people were felled over a period of hours by smothering snow of ash and pumice. These scholars knew nothing about glowing avalanches and their pyroclastic flows. Not until early in this century did scientists actually observe these phenomena, also called muees ardentes, which are made up of superhot gad and debris and which rush down mountainsides at hurricane speeds. Moreover, the cooled flows at Herculaneum do resemble hardened mud.

Haunting and mysterious, a noble face appears on the ceiling of a dank, chilling tunnel (facing page) in Herculaneum's theater. The image was imprinted in the soft volcanic flow by a statue that was toppled from its pedestal.

Vittorio De Girolamo, assistant supervisor, stands under the hole (above) made by a well digger who in 1709 accidently struck Herculaneum's stage beneath the town of Resina, now Ercolano.

In the early 1900s two American volcanologists suggested that glowing avalanches had occurred at Vesuvius. But archaeologists and volcanologists alike continued to gloss over the question of exactly what killed the people on the slopes of Vesuvius. Then, in 1981, Michael Sheridan of Arizona State University, working with Franco Barberi and a team of Italian volcanologists, corroborated the concept of glowing avalanches. In early 1982 striking human evidence for these volcanic storms emerged. Under the direction of Giuseppe Maggi, workmen began excavating Herculaneum's seafront chambers. The chambers, they found, were filled with the skeletons of people who obviously had met sudden death. *

Two years earlier Dr. Maggi's crew had unearthed three skeletons on the beach in front of the chambers. This had led Maggi to speculate that

*See "A Buried Roman Town Gives Up Its Dead" by Joseph Judge, in the December 1982 GEOGRAPHIC

Herculaneum might not have been as thoroughly abandoned as thought. Suddenly, faced with so many new skeletons, he had to ask whether anyone in Herculaneum could have had the time to escape.

In the summer of 1982 Maggi had led me into the first chamber. As my eyes adapted to the dark, a pitiful cluster of skeletons emerged from the wet volcanic ash at my feet. They seemed to have been huddled together. Maggi is convinced they were a household in flight: seven adults, four children, and a baby lying cradled beneath one of the adults. The most striking skeleton lay with head buried, as if sobbing into a pillow. “In this chamber nature has composed of pathos,” Dr. Maggi told me. “One is deeply moved by the postures. You can imagine each person trying to find courage next to another.”

If that chamber was one of pathos, the next was a chamber of horrors. A host of tangled, charred skeletons, including that of a horse (above), lay chaotically strewn. “I think these people descended the stairs terrified,” said Maggi. “In panic they tried to take refuge in this chamber.”

As I entered, I could almost sense a collective groan across the ages. I could almost hear the screaming as the fiery avalanche struck. It must have been like being trapped in a furnace.

NOW IT IS A YEAR LATER, and I have returned for the third time to Herculaneum. Now another chamber has been opened. Its many victims lie inexplicably aligned, as though in orderly streams. “They look like they are floating down River Styx,” says a colleague.

Outside the chambers, on the ancient beach, excavators have been uncovering many more skeletons. A Roman soldier had been found, flattened. Had he been trying to control the panicked flight? Within a young woman’s bones, diggers had discovered the tiny skeleton of her seventh-month fetus.

From a yet-to-be-excavated chamber extended the hand of a woman. She had been nicknamed the Ring Lady for her large jeweled rings. Exquisite gold bracelets were found beneath her (cover and page 561).

Perhaps the most significant find was the overturned hull of a Roman boat. Little is known about first-century Roman boat-building, and this craft promises to reveal much to archaeologists. Next to it lay the remains of a man with what appears to be an oar in his hands. Could he be the helmsman? Was this boat under said? Could it have been trying to evacuate fearful residents?

Provocative questions, these, fueled by so many clues, and as I walk the beach on this early summer morning, I see three detectives at work.

Sara Bisel, a physical anthropologist who specializes in the analysis of ancient bones, has been on site since my first visit. She was sent by

the National Geographic Society at Dr. Maggi's urgent request to preserve the newfound skeletons

The audience roars as masked player in Herculaneum's theater act out a comedy. The white-bearded father catches a young slave with a bag of ill-gotten money as bejeweled courtesan looks on. A pair of bronze cymbals lies on stage. The theater, seating between 2,500 and 3,000 was discovered and looted in the 1700s. (PAINTING BY LOUIS S. GLANZMAN)

To Dr. Bisel the beautifully preserved Herculaneum skeletons are as valuable as the treasures excavated here in the 18th-century. Very few other Roman skeletons have survived; the Roman's cremated their dead. Suddenly along this ancient beach lay an entire Roman population, democratically distributed among men, women, and children, patricians, freedmen, and slaves.

"Who says dead men don't talk?" Dr. Bisel had told me after her first look at the site. "These bones will have a lot to say about who these

people were and how they lived." Meanwhile University of Rhode Island volcanologist Haraldur Sigurdsson is in a tunnel, sampling the volcanic deposits that cover Herculaneum.

Scholars come to see for themselves the boat chambers, at night, when the new finds at Herculaneum surfaced, including a horse's skeleton (facing page). Dr. Giuseppe Maggi, director of the site, briefs the group from his perch on a railing. He faces a wall raised by Vesuvius's volcanic flows that pushed back the sea.

Sigurdsson, whose research is also being sponsored by the National Geographic Society, had just co-authored a new interpretation of the timing and nature of the A.D. 79 eruption when the skeletons were revealed. To him these human remains offer a unique opportunity. The way they lie in the ancient strata will help him work out a moment-by-moment scenario of how Vesuvius took those lives. Then, inside a corrugated metal shed that now protects the Roman boat, I find a third Geographic-sponsored scientist, Richard Steffy of the Institute of Nautical Archaeology at Texas A & M. The boat's blackened hull was severely charred by the glowing avalanches. It will be exquisitely difficult to excavate. Nevertheless, Steffy remains enthusiastic.

"This will be the definitive Roman boat," he says. We know more about what fourth-century B. C. Greeks could do than we know about this period.

"It's a good-size boat. More than eight meters [26 feet]. I think it's some kind of utility craft, a harbor tug, or maybe a fishing boat. Except the fancy design indicates it was used for something other than fishing. We'll know soon."

I REEMERGE into the bright Mediterranean sunlight and am struck by the sight of Vesuvius, which looms like a blue shadow behind the dig. Although its massive profile dominated the horizon along the Bay of Naples from Capri and Sorrento all the way around to Cape Miseno, nowhere does the volcano seem so inescapable. I have been sent here as a journalist to piece together the new story developing about this volcano's most famous eruption. Yet I have quickly learned that the story extends beyond this one mountain and that one eruption. In a geologic sense this entire bay is a stage, Vulcan's amphitheater, on which a long-running series of geo-dramas continue to be played out.

The bay of Naples is a crucible where the African Continent is crunching into Europe, creating a legacy of earthquakes and volcanoes. Vesuvius itself has been quiet since 1944. But the area remains shell-shocked from a severe earthquake that struck in 1980, paralyzing and demoralizing Naples. Moreover, in the past year tremors have wracked the nearby town of Pozzuoli. Half its residents have fled, and scientists cannot discount that the eruption of a new volcano, possibly even more violent than Vesuvius, may be brewing beneath the town (see the articles beginning on page 614). Nor do the residents of modern Herculaneum, known now as Ercolano, trust the slumbering Vesuvius. As Ercolano native Matteo Paparo tells me: "Where we live, there is a fire under out houses."

TWO THOUSAND YEARS AGO the people living on the slopes of Vesuvius had no such realization. Most probably did not even suspect that their mountain, peaceful for at least 300 years, was a volcano.

Even the great Roman naturalist Pliny the Elder, who lived across the bay in Misenum, regarded the large cloud that burst out of Vesuvius on that dreadful August 24 more as a novelty than a danger.

BIOGRAPHY BY BONES

AN EVENTFUL LIFE, say the bones of the Soldier, about 37 years old. Three missing front teeth suggest a fight. An abnormal hump in the

femur of his left leg, here separated and shown in front of its proper anatomical position, tells of a wound, possibly a stabbing, that penetrated to the bone and caused a blood clot that ossified. The femur has a rounded shaft indicating much exercise and good nutrition. The adductor tubercle (arrow) is slightly enlarged, possibly from horseback riding, shinnying up trees, or holding lumber between the knees as a soldier marine carpenter might do.

CONTINENTS COLLIDE IN A LAND OF PLENTY

A CURSE AND A BLESSING: Throughout history, earthquakes have leveled villages and volcanoes have paved this land with lava and ash, yet these same powers have given the region a stunning beauty and fertile soil. Then as now, Romans harvested grains, olives, grapes, and as many as four vegetable crops a year. Today two million people inhabit the area, sharing its charms and dangers. Two continents meet head-on here. The earth's African plate slowly grinds against the Italian peninsula, melting deep rock into magma that rises toward the surface. The process had formed a string of volcanoes (inset) from Sicily to north of Rome and a system of geologic faults that release stress through earthquakes-often disastrously.

As commander of the Roman fleet, Pliny ordered a ship to take him to the site to investigate the phenomenon and evacuate anxious friends.

The elder Pliny met his death in the disaster. But his nephew, Pliny the Younger, watching from his uncle's house, detailed the eruption in elegant, chilling prose. The history of Vesuvius really begins with that description. Only one other account of the cataclysm at Vesuvius has survived the Dark Ages. Indeed, if Pliny's letters had perished, no one

in the 18th century would have known that they were unearthing Herculaneum and later Pompeii.

So it seems fitting to seek out the oldest copy of Pliny's Vesuvius letters. I find them in Florence, in the Laurentian Library, which the Medici family established during the Renaissance to house their collection of works that had outlasted the barbarians.

HERE LIVE Virgil, Tacitus, Dante, everyone. Including Pliny," says the library director, Dr. Antonietta Morandini, as we enter what must be the ultimate rare-book room. "About 13,000 manuscripts are here. Every one is precious. We keep them only if they are autographed or very special."
An assistant brings her a large maroon leather book.

"We think this volume came from the monastery at Corbie in France," says the dowager *dottoressa*. "A monk coped it, probably in the tenth century, from some earlier version now lost."
She turns the lightly browned parchment pages, searching the Latin calligraphy for the first mention of the infamous name. "Ah, here it is,"

she says, reading: "It was not clear from which mountain the cloud was rising Vesuvium fuisse postea cognitum est- Later we knew it was Vesuvius.

Pliny's take of the catastrophe "which destroyed the loveliest regions of the earth" continues, even though, her writes, "my mind shrinks from remembering. "Presumably drawing on report from survivors who had accompanied the elder Pliny, he recounts how his "entirely

fearless" uncle hurried toward the volcano, "to the place everyone else was hastily leaving." His ship was cut off by a fiery ashfall and floating

TWO DAYS WHEN VESUVIUS WENT MAD

AT ABOUT ONE O'CLOCK on the afternoon of August 24, A.D. 79, Vesuvius roared like a monstrous cannon. Its cataclysm is recorded in layers of volcanic deposits at Herculaneum and Pompeii. Examining those deposits, volcanologist Haraldur Sigurdsson of the University of Rhode Island now reconstructs the eruption sequence for nearly 11 hours, he reports, the volcano hurled a column of pumice 20 kilometers (12 miles) into the stratosphere A. Day became night as Pompeii took on more than 15 centimeters (six inches) of ash and pumice an hour. Then, about midnight, the column collapsed for the first time B, sending down the mountainside a glowing avalanche of superheated gases, pumice, and rocks. The avalanche separated into fast-moving surge-which blasted through Herculaneum, killing its residents-and a slower, ground-hugging pyroclastic flow. Not until a fourth avalanche the next morning did a suffocating surge Pompeii.

1) *1:30 p.m., Aug 24 Pumice begins to fall on Pompeii*
2) *11:30 p.m. First fiery surge cloud kills Herculaneum victims; pyroclastic flow quickly follows.*
3) *12:30a.m., Aug 25 Second surge and flow.*
4) *5:30 a.m. Third surge reaches north walls of Pompeii; flow buries Herculaneum.*
5) *6:30 a.m. Fourth surge asphyxiates Pompeii residents; flow follows.*
6) *6) 7:00 a.m. Fifth surge and flow.*
7) *8:30 a.m. Sixth and final surge causes Pliny the Younger to flee Misenum; flow buries Pompeii victims*

As the volcano's chamber emptied and the crater widened, explosive, silica-rich magma (orange) gave way to less volatile, silica-poor magma (red), and the weakened eruption column periodically collapsed. Volcanic deposits found at the beach in Herculaneum, left, are compared in this diagram to deposits from southeastern Pompeii, right.

THE DAY BEFORE the terrifying eruption, Herculaneum enjoys a quiet afternoon is this artist's conception of the wealthy seaside town (previous pages). Fishermen pull boats onto the beach near a row of chambers 1, probably used for storage. In the Sacred Area 2 a ceremony is in progress, while patrons of the Suburban Baths 3 relax in several indoor pools.

On the terrace of the lavish House of the Mosaic Atrium 4, guests from Rome could enjoy a view of the sparkling bay. Sea breezes wash through the elegant garden of the House of the Stags 5, where hunting dogs attack deer in a pair of marble statues. Only wealthy patricians could afford seaside homes. Less prominent citizens live away from the beach in smaller quarters like the Trellis House 6. Craftsmen and merchants sleep above their stores on the main street, the Decumanus Maximus 7, where citizens come to seek justice or do business at the basilica 8. At the spacious palaestra 9 young athletes compete in wrestling, swimming, and foot races, while actors at the 2,500-seat theater 10 rehearse their lines.

Until 1982 few traces of these people had been found, suggesting most had escaped. But now scored are being unearthed at the seafront, where they fled. Some of the most dramatic finds (below): A a chamber where a group of 12 died together in the ash, B a chamber containing a horse and about 40 tangles humans, C a chamber where 26 skeletons were eerily lines up in rows, D the Ring Lady, E the Soldier, F a pregnant young woman, G a Roman boat, H the Helmsman, I the Pretty Lady, and J the woman called Portia, who may have been hurdled down from the town by force of volcano's blast.

City beneath a city, Herculaneum lies 20 meters below the surface of Ercolano, with less than half excavated so far. The old seawall, once on the waterfront, today stands half a kilometer from the bay. Beyond the excavation and surrounding trellised fields the twin peaks of Vesuvius rise against a profile of the volcano as it appeared before it threw six cubic kilometers of ash and pumice into the sky. A museum, at right, built in 1980 to exhibit the ancient city's treasures, has not yet been opened.

rafts of pumice, but eventually managed to land to the south at Stabiae. That night he tried to allay the fears of his local friends by telling them that the “broad sheets of fire and leaping flames” on Vesuvius were “nothing but bonfires left by the peasants in their terror.”

He then slept while his companions sat up all night debating whether to stay in their houses or flee. Finally the buildings began to shake so violently that Pliny and his friends put pillows on their heads to protect themselves from falling rocks and took flight.

Dawn had broken on the morning of August 25, yet Pliny found this dark day “blacker and denser than any ordinary night.” Wild waves made escape by sea impossible. Pliny grew tired and repeatedly asked for cold water. Then suddenly the “flames and smell of sulfur” drove

his companions to flight. The elder Pliny collapsed, perhaps of a heart attack. Two days later his body was found on the beach at Stabiae.

Meanwhile, Pliny the Younger and his mother, 32 kilometers away, saw a “fearful black cloud… rent by forked and quivering burst of flame” moving across the bay. They fled, along with most other terrified residents of Misenum. As the cloud descended, “many imagined there were no gods left, and that the universe was plunges into eternal darkness for evermore.”

Eventually the cloud lifted and the younger Pliny saw “everything changed, buried deep in ashes like snowdrifts.” “Of course,” concluded Pliny, “these details are not important enough for history.”

To volcanologist Haraldur Sigurdsson, Pliny’s details give remarkable geologic clues as to what was actually happening first at Pompeii and later at Herculaneum. They correlate beautifully with data made possible by new volcanological concepts developed in the 1970s and

corroborated since the eruption of Mount St. Helen. With Sigurdsson I return to Pompeii

The past shapes the present at Piano di Sorrento (left) and Herculaneum (right). Just as in ancient times, fishermen work off a beach liked with arches of boat chambers. From their Ercolano terrace, a family looks across the ruins of Herculaneum. Ever since the discovery of the buried town, some residents living atop it have had cause to fall its rebirth: Homes are at stake with each addition to the excavation area.

WE ENTER the city, like most tourists, through the old Sea Gate, and head toward the forum. We pass a lineup of what in ancient days must have been bars and storefronts in this busy Sarno River port. In Pompeii's prime, with its population ranging between 10,000 and 20,000, a babble of languages, from Germanic to Hebrew, mingled in the forum. They still do, as innumerable sightseers from America, Germany, Japan, not to mention Italy itself, march uphill and mob the town center.

Pompeii clearly has fallen on hard times again. The 1980 earthquake severely damaged many buildings. Along street after street, scaffolds brace crumbling houses. All closed to tourists, confining the throngs of visitors to an insufferable cramped area.

Little, if any, attempt is being made to reopen the closed areas. Weeds grow tall.

Exposed wall paintings continue to fade and decay. There is, we are told, inadequate money to maintain such a large monument, even though the city generates considerable tourist revenue.

"The great irony of Pompeii," says a visiting scholar, "is that as long as material is buried it remains beautifully preserved. We have to excavate in order to appreciate. But as soon as we excavate something, we assume its destruction."

Largely for that reason, new excavation proceeds extremely slowly. “We are using what poor money we have to restore what we can and save what can be saved,” explains Pompeii’s director, Stefano De Caro.

POMPEII was probably founded by the aboriginal Oscan people many centuries before the A.D. 29 eruption. Over time the city was conquered by the Greeks, the Etruscans, and by belligerent Italic rave called the Samnites, who greatly expanded it. About 80 B.C. the Romans made Pompeii a colony. They infused it with their culture and turned it into major agricultural center, specializing in the export of fish sauce and wine.

SALVAGING THE VICTIMS OF VESUVIUS

Like modern Naples, Pompeii’s economy was characterized by small manufacturing business, often family run and operating out of the home. A painting outside a former felt-making factory on the heavily commercial Via dell’Abbondanza testifies to Pompeii’s mercantile spirit” A winged Mercury alights bearing a bag of money.

When Vesuvius erupted, Pompeii was still recuperating from a devastating earthquake that had struck the region in A.D. 62.

The roof of Pompeii’s great basilica had collapsed, as had structures throughout the town. Seventeen years later the Pompeians must have noted with dread the minor earthquakes that probably preceded the imminent eruption. Little did they know that the danger this time would come from the same mountain whose fertility has blessed them with prosperity. How did the eruption begin? I ask Sigurdsson as we walk through the town.

“Probably the earthquakes became a continuous vibration, or a harmonic tremor,” he explains. “Then, I imagine there was a series of

small but spectacular steam explosions that opened a crater at the summit.

"In the early afternoon on August 24 the city would have been rocked by a tremendous 'Plinian blast.'" It is called that because the blast created the great umbrella-shaped cloud that Pliny saw from Misenum.

"This eruption column, laden with pumice and ash, must have risen 20 kilometers or more. About 30 minutes after the blast the falling pumice began to cover the city. There was no lava in this eruption. The magma was too expensive, too filled with steam and other hot volatiles. Steam turns magma to a froth we call pumice.

"Pumice is too light to hurt anyone, but lots of rocky projectiles, some the size of cannonballs, would have been torn from the sides of the volcano. That's why Pliny the Elder had pillows on his head.

"The pumice accumulated at 15 centimeters [six inches] an hour. After about four hours, or by late afternoon, roofs would have started collapsing from the weight. The eruption created close to total darkness."

We walk to a cemetery just outside the city walls. There excavators have cut through the volcanic blanket Vesuvius laid down, and have inadvertently revealed a stratigraphic record of the eruption.

Each phase of an eruption, volcanologists have learned, deposits a stratum with a characteristic range of grain sizes. As Sigurdsson puts it, "Grain sizes are the fingerprints of an eruption. They are my bones."

Sigurdsson kicks the bottom of this wall of earth. "This is the ground-the rich, fertile soil of A.D. 79," he says.

I reach down and pull from the bottom a light, airy rock-one of the first pieces of pumice that struck Pompeii. Over 17 hours, 2.7 meters (9 feet) of this pumice rained on the city. The worst was yet to come.

As the volcano's energy abated, it could no longer sustain the 20-kilometer-high eruption column, which began fluctuating like a giant

Beauty more than skin deep guided artist Jay H. Matternes in the fleshing out of a skeleton found on the beach and called the Pretty Lady by Dr. Sara Bisel. "In life she was about 35 years old," says Dr. Bisel, "with a lovely face of rare proportion, perfect teeth, and a dainty nose. Her bones were slender, and she stood about five feet." Since muscle use affects the shape of the bones, Dr. Bisel thinks that Pretty Lady probably was not a lady in the aristocratic sense.

"Her arms were well exercised, indicating that she worked, perhaps as a weaver."

To develop facial musculature and other anatomical structures, Matternes studied cadavers at a medical school in Washington, D.C. The diadem hairstyle is typical of the first century A.D. The size of the breasts is a guess, but their shape could have been influenced by whether the Pretty Lady had given birth, an unknown factor since her pelvic bones are missing. The artist has painted her as if she had been childless.

fountain. At the fountain's ebb, enormous quantities of fine ash and pumice collapsed onto the volcano's flanks, becoming those lethal glowing avalanches.

Several of those avalanches, Sigurdsson has recently determined, stopped before reaching Pompeii. One came right up to the walls of the town. These avalanches and the vegetation and buildings they ignited probably created the bonfires Pliny the Elder attributed to peasants. No doubt they triggered panic atop the pumice-covered streets of Pompeii.

Sigurdsson reaches up to touch a thin layer above the pumice in the cemetery strata. “This represents the first glowing avalanche that entered Pompeii,” he says. “Clearly that was what killed people here as well as at Herculaneum. I have found roof tiles it blasted off in this stratum. In all we see three avalanches within Pompeii. Each is separated with more ash and pumice.”

WANDERING BACK through Pompeii, I can see evidence of those surges everywhere I look. Just above head height, where the protective pumice blanket ended, many walls appear clipped off, as if by some huge scythe.

Glorifying the body, Romans took pleasure in portraying nudes, though clothes were sometimes painted on them. Here Venus (facing page) gets ready for her bath, supported by Priapus, the promoter of fertility, as her son Cupid sits at her feet. The goddess of love wear gilt arm bracelets, a fashion copied by Angela Borrelli (below) of Ercolano, who models jewelry recently recovered.

Then there are the many famous plaster casts of humans and even a chained dog at their anguished moments of death. In the 1860s chief excavator Giuseppe Fiorelli developed a technique of injecting plaster into hollows that his diggers came across in the volcanic eath. These hollows were, in effect, molds created as the bodies of victims decayed. Thus the plaster preserved the forms and postures of people as they fell.

For example, in the so-called fugitives Garden lie cast made in 1961 of seven adults and six children. They appear to be gasping and choking.

“These people would have been on the run, like those now uncovered at Herculaneum,” explains site director De Caro. “Until recently we did not think these deaths were so concentrated into one moment.”

Thus, many died at Pompeii because they waited too long inside their houses, where they felt safest. Some were killed when their roofs

collapsed. Others found themselves trapped inside by the pumice fall and then sealed in and asyphyxiated by the glowing avalanche. The death toll may actually be much higher than the 2,000 previously estimated.

“I think the majority of Pompeii’s victims have not been found,” says De Caro. “They are still out there waiting, beyond the city gates. They were in flight.”

Who were these people? Several times I return to Pompeii and roam the streets and houses to understand better those who died.

Certainly they could be poetic. Consider a piece of verse written on the walls beside the House of C. Julius Polybius:

> *Nothing can last in unending time.*
> *When the sun has shone brightly, it returns to the sea;*
> *The moon waves which just now was full. So the savagery of love’s passions often end up as a getle breeze.*

They could likewise be brazen. Outside the Thermopolium (or bar) of

Miraculous survivals, many home furnishings weathered Herculaneum's volcanic storms. Curiously, the hurricane-force surges of gas and pumice-a glasslike insulator-that killed the people protected the objects they covered the think, superhot flows that followed. The weight of the deposits caused the ground to give way beneath the atrium floor in the House of the Mosaic Atrium (above), which was graced with a spectacular view of the sea.

The heat carbonized a wooden cabinet (above left) in the upper floor of the House of the Bicentenary. An imprint in the wall above it, perhaps of a cross inspires the belief that Christians lived in the house; if true, it is one of the oldest evidences of the cross as a symbol of Christianity.

A wooden bed (far left) still retains the latticework pattern of slats that supported a mattress of fine-spun wool or sweet grasses. Raised panels at the head and one side protected against the chill walls.

A carbonized cloth press (left), now covered with glass, utilized the same principle as the printing press, invented 14 centuries later, while a bronze bathtub and a marble basin (below) set a style for plumbing fixtures that survives to this day.

Asellina, where bronze cups, lamps, and even petty cash were unearthed, are scrawled the names of three women, who presumably entertained their clients in the upstairs cubicles. Other insciptions indicate that they were soliciting support for a favored candidate in an upcoming election.

At the Taverna Lusoria, a popular gambling house among the owner marked his loans on the walls and offered rooms to amorous customers.

To us the Pompeians might seem immodest. Nudity was regarded as natural, the human body glorified, and atheles exhibited their

physiques with pride at the theater. The House of Vettii, among others, was adorned with statues and paintings that many people today would labe l obscene.

It is also clear to anyone who roam Pompeii that residents prized their gardens.

“They lived in their gardens, they ate in them, they made them a major part of their lives,” says Wilhelmina Jashemski, who has studied the gardens for decades. “After the A.D. 62 earthquake many people restored their garden space, imaginary garden scenes with elaborate fountains, luxuriant flora, and exotic birds were often painted on the walls of real Roman gardens.

“Sometimes it’s diffcult,” one expert tells me, “to reconcile these people who loved the out-of-doors and growing things with people who tool delight in the slaughter of the amphitheater.”

HUNT SCENES were another motif of the garden wall paintings. With Ian Sutherland, a Duke University graduate student, I see a huge mural in the garden of Marcus Lucretius Fronto. It depicts a bizzare assortment of animals: A lion attacks a bull, a tiger trails a deer. Bears, boars, snakes- all are dramatized.

“This is a melange of every animal they knew about that might have been vicious or combative,” says Sutherland. “That appealed to the Roman taste. They staged these same kinds of combats.”

Pompeians also showed a passion for the theater. In the wall paintings that decorated their inner rooms, theatrical themes seem almost as popular as mythology. As historian Margarete Bieber wrote: “The art of acting was highly developed among the Romans. The Italian natives have always had a special gift for mimicry. They are born improvisators, having lively gestures.”

Thus some wall paintings simply recreate the elaborately decorated prosceniums of theaters. Comic and tragic masks, along with mimes and pantomimes, were from the great Greek myths: Medea drawing a sword to kill her children. Priam kneeling before Achilles; Iphigenia preparing to be sacrificed.

The bad was yet another institution treasured by these people. It was far more than a cleansing experience. it was a social event, wherein one relaxed and met friends. A man like Pliny, for instance, would have regarded his leisurely afternoon hours at the bath as a vital part of his day.

Pompeii had at least three public baths. Yet perhaps the most sumptuous so far unearthed on the Bay of Naples lies on the other side of Vesuvius at Herculaneum.

I well recall my first visit to the Suburban Baths. A skylight in its delightful, atrium-like entry room illuminated a fountain featuring a delicate bust of Apollo. Remnants of wall-to-wall paintings still adorned the frigidarium, or cool bath.

Another room featured a swimming pool where patrons could have lounged and gazed out over the bay though panoramic windows. Now out those windows the only vista I had was of a six-story-high wall of solidified pyroclastic earth.

Other reminders of Vesuvius still haunted this bathhouse. A door leading to the frigidarium bulged with an invading a blob of the hardened avalanche. In the caldarium, or hot bath, the window frame was thrust inward where the glowing avalanche had burst through. Glass shards from that window were found in a heavy marble basin the avalanche had flung across the room.

I was visiting the bath that day with Sara Bisel. Just below us was Herculaneum's ancient beach and the chambers with all those bones that had brought her to Herculaneum. Later that day I crouched with her on the beach as she dug out her first skeleton, a female we nicknamed Portia.

ALAS, POOR PORTIA. Her skull was smashed, her pelvis crushed, and now Sara Bisel was playing what seemed like a grisly game of pick-up-sticks with her bones. Yet I felt oddly elated to see sunlight striking Portia's battered bones and to watch flies buzz about her for the first time in nearly 2,000 years.

"Portia had a great fall. I'd bet she was flung from up in the town," said Bisel as she worked. "She clearly landed on her face from some distance. There are roof tiles beneath her. Her thigh bone was thrust up to her clavicle. I don't know if I can put her together again, but I'll learn a lot about her.

"I'll determine her height by measuring one of her long bones. The state of her pelvis will tell her age and how many babies, if any, she had. I might even tell you whether she was pretty, but her face is shattered. Her bones should reveal she was well nourished, whether she had any of a number of diseases, and whether she had to work hard for a living. And she's just one person. There's a whole town here!"

On this and subsequent visits I wandered the streets of that town, which differs dramatically from Pompeii.

For one thing, the wet burden of earth, moistened by the copious groundwater that flows down Vesuvius, has sealed and preserved Herculaneum far better than the pumice blanket could protect Pompeii. Kept continuously wet and protected from air and climatic changes, many perishable items of everyday life remained intact, albeit often charred. Whole pieces of furniture-beds, cupboards, tables, and

chairs-along with fishnets and such foodstuff as cereals, bread loaves, eggs, vegetables, and even chicken bones, were unearthed much as they were when abruptly abandoned. Herculaneum thus gives us a more intimate look at Roman life.

The wet earth was also what kept Herculaneum's skeletons in such good condition. For as the victims decayed, the conserving mud compressed about the bones, rather than leaving mere hollows as at

higher and drier and ash-covered Pompeii.

Herculaneum still greets the visitor with the same unhurried air that one breathes now off-season at nearby Capri or Positano. Like the latter resort, it once descended steeply to the sea, making heavy commercial traffic impossible. Its vistas must have enchanted the wealthy Romans who came here on retreat.

Idyllic as Herculaneum was, it was more than a resort. Much fishing equipment was unearthed. Therefore, many of its 4,000 to 5,000 inhabitants lived off the sea. Herculaneum lacks the numerous small factories that characterized Pompeii; it seems more a town of craftsmen and artisans. Yet the many refined houses, and indeed the elaborate theater and baths, tell us that a corps of affluent, cultured people also made their home in Herculaneum.

One of these homes, the Villa of the Papyri, yielded to 18th-century treasure hunters numerous bronze busts and statues, including copies of earlier Greek masterpieces that are now lost. This villa's owner, obviously a wealthy and influential Roman, also kept a great library of papyrus scrolls. Many of these charred, but still legible, manuscripts were recovered. Others, however, many still remain buried in this grand villa. Toxic gases forced the early excavators to abandon the site and seal the tunnels leading to it. The villa's reopening and complete excavation, says Attilio Stazio, director of Naples' Institute of

Archaeology, is perhaps Italian archaeologists' highest priority. But the project will take many years.

More immediate discoveries continue on the beach at Herculaneum. Three months after Sara Bisel's arrival I return to the site to find her well into her analysis of the skeletons-the skulls, tibias, fibulas, and other osteal remnants of twenty men, eight women, and nine children-each in its own yellow box and lined up against a wall in her laboratory. The first 12 are the so-called household in flight. "In that chamber there were three adult males and four females," Dr. Bisel tells me. "I

A VILLA REBORN

WITH THE DISCOVERY in the 18th century of an enormous private villa overlooking the sea, hundreds of laborers, including some prisoners, were ordered underground to dig out the works of art, precious books written on papyrus scrolls, and rare marbles that were the glory of the fabulous home. Then toxic gas made the work deadly, and the tunnels were sealed. The Villa of the Papyri was "lost'-and remains so to this day. But, luckily, a Swiss engineer and one of the site's excavators, Karl Weber, drew its plan, making this artistic rendering possible (below). Italian authorities dream of complete excavation.

Incredibly, the villa's plan also provided the blueprint for an actual reconstruction, another seaside villa (right) filled with works of art-the J. Paul Getty Museum at Malibu, California. Here, within sight of the Pacific, the replicated building has been placed among gardens similar to those beloved by the Romans. Galleries display sculptures and mosaics from ancient Greece and Rome, just as did Herculaneum's villa.

estimate the men were 35, 31, and 25, and the women 42, 38, 16, and 14. There were five children, but I can't tell people's sex before they reach puberty. The three-year-old was wearing gold-and-pearl earrings. The five-year-old had cavities and an abscess. There were also nine-and a ten-year-old;

the latter had an iron house key near him, along with a seven-month-old baby.

“The baby was probably upper class,” she continues. “It wore jewelry and was being cradled by the 14-year-old, who I suspect was a slave. I say that because there are scars on the upper shafts of her humeri, where the pectoralis major joins the bone. That means she used those muscles for heavier work than she should have.”

Dr. Bisel pick up the girl’s skull. “See these grooves on her teeth? They indicate that she didn’t get enough to eat when she was about 11 months old. She almost died either from illness or starvation. She was a very good-looking girl. That probably complicated her life if she was a slave.”

Lifelike in grace and size, and all in bronze, young athletes stand before a line of Grecian ladies and a Roman bust-part of the rich harvest from the Villa of the Papyri, now in the Naples National Archaeological Museum. Eyes of glass paste (below) enhance the facial expressions of the young women who were found in the villa’s garden. They have been called dancers, but possibly represent water carriers.

ANOTHER seven months pass, and Dr. Bisel has now analyzed the bones of 45 adults and 10 children. “Except for the slaves, these people are very healthy,” she says. “There are few signs of anemia. They had enough to eat. Many of the presumed slaves, however, appear to have been dreadfully overworked.” She rummages through the bones in yellow box number 27. “This man we call the Helmsman, because he was found next to the boat. He was about 46 and probably a slave. He did not have good treatment, good food, good anything. I don’t think anyone who had any choice would like this. A free man would stop when his body hurt as much as this man’s must have.”

Dr. Bisel picks out his upper arm bones. “See these large crests on the bones? That’s where the deltoid muscles attach. They indicate he did heavy labor.

“It seems safe to say this guy did not have la dolce vita,” she says, while digging out a piece of the Helmsman’s spine. “Six of his middle thoracic vertebrae are fused. You can see the strain put on his arms and back.” She leads me to another box, number 46. “This is my Pretty Lady,” she says, picking up a skull. “Just look at her profile and that delicate nose. In your mind’s eye, spread a little flesh over these bones. She was lovely! I think she was a middle-class housewife. The way she used her arm muscles makes me suspect she was a weaver.”

Next Dr. Bisel goes to a skull most dentists would like to exhibit. It belongs to the celebrated, bejewelled Ring Lady.

“The Ring Lady was a relatively tall well-nourished woman of about 45,” Dr. Bisel explains, skull in hand. “her teeth had no cavities or abscesses. These people didn’t use sugar. But she did have periodontal disease, Look!” She points to numerous little pits on the bone along the Ring Lady’s gum line. “this is why you floss everyday.” I asked about Portia, the first skeleton Bisel had unearthed. “Portia was about 48, certainly not good-looking,” she replies. “She had extreme buck teeth. Also, certain of her pelvic bones show rather unusual and unexpected changes. I do not like to make accusations across 2,000 years, but Portia’s pelvic bones resembles those I once saw from a modern prostitute.” A less speculative finding is an extremely high, probably pathological, level of lead in Portia’s bones.

From the villa's library, a scroll of papyrus (above)-words sharply recorded in black ink-is among the 1,800 carbonized scrolls recovered. Science has unrolled a thousand, which scholars are studying with meticulous scrutiny (left). The writings are largely those of the Epicurean philosopher Philodemus, thought to have lived at the villa under the patronage of its presumed owner, L. Calpurnius Piso, father-in-law of Julius Caesar. This scroll expresses Epicurus's own philosophy, since it begins by saying "…god is not the world," a reflection of his belief that the gods have nothing to do with government nor do they feel anger or love toward men.

PRECIOUS PRIZE- A ROMAN BOAT

LIKE A DETECTIVE, Richard Steffy, a nautical archaeologist from Texas A & M, collect clues to piece together the story of this upended, carbonized boat, discovered on the beach of Herculaneum.

"This boat is unique," says Professor Steffy; "the inverted hull covers and preserves important information about its use and the steering techniques of small first-century Roman craft, of which we know little. Since most ancient wrecks have been discovered upright on the seabed, only the lower hulls were preserved." But raising the boat to uncover its secrets, scheduled for sometime this year, will be tricky, since the charcoal crumbles easily. A fresco from ruins of the ancient port of Ostia depicts a boat (top) reminiscent of the one at Herculaneum. The Ostia vessel, known as Isis Giminiana, is shown being loaded with grains, probably to be hauled from the port up the Tiber River to Rome. An iron remnant of an ancient anchor found on Herculaneum's beach provides a model for excavator's drawing (below).

Scholars have long debated, often furiously, whether lead poisoning could have been widespread among the Romans. Lead can cause

"A poor slave with nothing going for him," decided Dr. Bisel of the man whose skeleton (above) was found near the boat. Dr. Bisel's analysis: "A short man, about 45 years old, with bones flattened from overwork and poor nutrition. A slightly crooked back and fused vertebrae (drawing, near right) could have been caused by years of slave labor. He probably never enough to eat, and his rotting teeth kept him in continual pain."

A finished timber near the seemingly new boat and other timbers on the beach lead Steffy to speculate that there was a boatyard nearby.

brain damage. It has been suggested that the mad emperors Nero and Caligula suffered from lead poisoning. Now Dr. Bisel's chemical analysis of 45 skeletons show that Portia and one other person had lead levels high enough to have certainly caused them some problems. Six more people has significantly elevated levels.

The most plausible way these people would have ingested lead is via wine. Grape juice was often boiled down in lead vessels to make the thick syrup used to sweeten some wines. Stirring the boiling syrup would have scraped lead from the pots. Thus, heavy drinkers risked heavy lead intake.

"This is the first hard evidence that Romans may indeed have had trouble with excess lead," says Dr. Bisel. "In no way does it indicate that lead poisoning brought about the fall of the Roman Empire, but it does raise many questions that cannot yet be answered."

UNANSWERED QUESTIONS are everywhere. They also still surround that overturned Roman boat, and during the summer of 1983 Dick Steffy's problems seem to mount with each passing day.

Most important, the boat has proved to be fragile charcoal. If excavators try simply to lift it, Steffy estimates the boat will crumble into thousands of pieces. "I've never confronted a charcoal boat

before," says Steffy on the beach. "Obviously, we're going to have invent something."

For the time being, so much of the boat remains buried that Steffy cannot tell the bow from the stern for certain. Moreover, until the craft can be lifted, its interior remains invisible. And the interior, explains Steffy, holds most of the boat's secrets.

"It won't take me five seconds to tell you what this boat was all about once I see its insides," says Steffy. "I can tell you how it was built, how

it was steered, how repairs were made, where the mast was, whether the sail was square, and probably what it was used for. Right now I'd guess we have a harbor tug or a local wine carrier."

From its exterior alone, however, the Herculaneum boat is proving important. "It's longer than I thought at first," says Steffy. "I'm calling it a 30-footer. It has a beautiful, sweeping hull, with much pains-taking carving. The workmanship is on par with the Greeks', and their

shipbuilders were as a meticulous as cabinetmakers. I didn't expect to find that in the Romans." Steffy also suspects that a long-tapered timber lying near the boat could be its mast. That would indicate that the hull belonged to a boat that was built for both sailing and rowing. He is also intrigued by another timber found close by. That one is especially thick, 70 centimeters in diameter. It might be a building timber. But it might also be a mast belonging to a very large vessel.

"There could be many fascinating ships out there," he says. "We know, for instance, that the Romans had highly decorated grain ships that were more than 140 feet long. What a dream to find one of those!"

Both Steffy and Haraldur Sigurdsson note that the beach is littered with finished timbers. These could be part of a pier that led out from the stair that descends from the town. Sigurdsson has determined that the

ancient shoreline came right up to the city walls. Herculaneum thus had the narrowest of beaches. Waves must have tapped beneath the windows of the Suburban Baths.

The vast number of timbers, however, leads Steffy to wonder whether Herculaneum could have been a shipbuilding center. If so, the money it generates could explain the town's obvious but mysterious wealth.

Many of these timbers are aligned, as if driven by a great wave that roared around the corner of the bathhouse. Sigurdsson believes that not only the timbers but perhaps the boat as well were swept down from an unexcavated site not far away, possibly a shipyard.

Herculaneum, Sigurdsson notes, was built on a promontory, a tongue of land formed by a prehistoric eruption of Vesuvius. Small rivers flowed to the bay on both sides of the town. These river mouths could have served as small harbors.

Also, Steffy can find no teredo worm holes in the boat. Every other Mediterranean ship he has studied has been riddled with these borings. So the Herculaneum boat may have been newly built or hauled out of the water when not in use.

Could the boat have been trying to evacuate fearful residents? Sigurdsson's work now makes that doubtful. The boat and its so-called Helmsman lie in different layers of the glowing avalanches that swept the town. So the Helmsman clearly was not in the boat when he died. The boat was deposited-perhaps from an adjacent shipyard-anywhere from moments to minutes after the Helmsman died from the first lethal surge.

We can thus only speculate now who this insignificant, overworked man we call the Helmsman really was. We can, however, do much more than guess about how he and his fellow townspeople died. By the time

Haraldur Sigurdsson leaves Italy, his weeks of stratigraphic sampling on the slopes of Vesuvius will have created a detailed geologic post mortem.

In Herculaneum, Sigurdsson has found only a dusting of the early ash and pumice that barraged Pompeii. Being upwind from the mountain, Herculaneum was spared that first assault, even though it was in fact, much closer to Vesuvius's summit. Nevertheless, earthquakes and fireworks from this volcano, whose crater lay a mere seven kilometers (four miles) away, must have alarmed Herculaneum's population. No

vessels have been found in the boat chambers where the people took refuge, suggesting that at least some residents had fled by sea.

Examining exposed strata at quarries above Pompeii, Sigurdsson has found evidence that three major glowing avalanches roared down Vesuvius's slopes before one finally reached into Pompeii. Herculaneum was within their range, and thus it dies even hours before Pompeii.

Pompeii was hit, Sigurdsson says, in early morning on August 25. So Herculaneum was buried in the middle of the previous night. That explains why a lamp was found with the household in flight.

As a glowing avalanche descends a mountain, gravity segregates it into two phases that Sigurdsson terms "surges" and "flows". Both phases, which scientists have described well only in the past decade, leave distinctive stratigraphic fingerprints.

The surge strikes first. This turbulent, ash-charged torrent forms a high, billowing cloud as it steams down the slope at speeds of 100 to 300 kilometers an hour and temperatures of 100 Celsius (212 F) or higher.

Composed of air along with ash and the finer debris, the surge is made almost frothy by convection.

The denser, ground-hugging flow follows the surge, bearing the larger rock fragments and pumice both made fluid by temperatures as high as 400 C. Like a glowing river, the flow follows topographical features, such as streambeds, at slower speeds of 20 to 50 kilometers an hour.

Sigurdsson suspects that during the night the residents of Herculaneum may have been alarmed, like those at Pompeii, by several small glowing avalanches that did not quite reach the town.

Portrait of success, a young Pompeii couple pose holding a papyrus roll and waxed tablet to establish their importance.

"Seeing fiery tongues cascading down the mountainside would have gotten the people running to the edge of town," he says. "But I don't think they were in the streets long. One Skeleton the early excavators found in the town

was a baby in a crib. Another appeared to be a sickly, bedbound child. If the parents had had much time, these children would not have been abandoned."

UNDER THE EYE of its killer, Vesuvius, ancient Pompeii lies dead, its 160 acres in ruins, tattered reminders of once vibrant life-in homes, shops, marketplaces, baths, and theaters

The first surge to roll over Herculaneum would have killed everyone. As autopsies of surge victims at Mount St. Helens indicate, this dense ash could was the most lethal agent. It would have blasted down like a blinding sand storm, flattening people and forcing them to hold their breath to keep ash-saturated air from their lungs. The heat of the surge may not have been high enough to kill, but once the people had to gasp for air, ash would have formed plugs in their windpipes,

suffocating them. Other victims could have died as they were thrown down to the beach or struck by flying debris. No more than minutes after the first surge struck, the dense superhot flow hit the town. This first flow apparently was diverted around many upper parts of the city, but swept onto the beach just below the Suburban Baths. It was what washed the boat into its resting-place bedside the Helmsman. Its intense heat charred whatever limbs stuck above the surge layer and turned the boat to charcoal

Other surges and flows over the next few hours finished the burial of Herculaneum. In all, Sigurdsson finds that Vesuvius produced at least six glowing avalanches. The last one, he suspects, was the volcano's grand finale. It became the mammoth, sun-extinguishing black cloud that raced across the bay, leading Pliny the Younger, his mother, and other terrified residents of Misenum, 32 kilometers away, to suspect the world was ending.

Vesuvius has since erupted often, but seldom with such devastating glowing avalanches. Typically, it throws out spectacular but rarely lethal lava flows. Glowing avalanches, however, did accompany an almost unknown eruption in 472. They struck again in 1631, killing at least 4,000 people. Scientists feel confident that another Plinian eruption will occur in the coming centuries.

Illustrious citizen, Marcus Nonius Balbus repaired Herculaneum's basilica after an A.D. 62 earthquake. His equestrian statue in the Naples museum, where scaffolding testifies to today's earthquakes, lost its head, and his father's now sits in its place.

"Vesuvius certainly ended a cycle with its last eruption in 1944," says geologist Pio Di Girolamo of the Institute of Mineralogy in Naples. "Now it is in its longest interval of repose in modern history. It's impossible to forecast the next eruption. We do not think it will be soon."

IT IS LATE SEPTEMBER 1983 and my last day in Naples. Excavation at Herculaneum has slowed. For months site director Maggi has worried that the last pathetic scenes uncovered in the chambers will be forever lost if the skeletons are even temporarily removed for cleaning and preservation. Although the chamber with the household in flight has been cleared and many beach skeletons exhumed for Bisel, Maggi has resisted full excavation of the remaining chambers while tests a chemical spray that he hopes will fix the bones in situ. It has failed. Skeletons in the unopened chambers, however, still lie safe from the destructive atmosphere.

Horses and riders topple at Pompeii's Temple of Jupiter, part of an ancient marble relief (above) commemorating the A.D. 62 quake. Wooden beams bracing walls of the House of the Vettii (below) recall the 1980 earthquake that damaged many structures in Pompeii.

Also, the government of Italy has just changed, and new political forces are being exerted at Herculaneum. A new archaeologist is in charge of the boat, and its excavation has been delayed into 1984. Although the archaeological program and its funding at Herculaneum is proceeding, it awaits a more certain future.

On this last day I have walked through bumptious Neapolitan streets to the National Archaeological Museum, which houses most of the art treasures recovered from the buried cities of Vesuvius. It offers unequaled glimpses into the Roman times.

The museum's voluptuous statues of Venus, Apollo, and Hercules, which must have towered over the citizenry in public places, in many ways speak more of ancient Romans than do those skeletons. Herculaneum and Pompeii lived with these gods and goddesses, and

their images personify Roman concepts of physical beauty, strength, wisdom, libido, and pleasure.

I especially admire the equestrian statues of proconsul Marcus Nonius Balbus that must have dominated Herculaneum's basilica. The head of one has been lost and replaced with a likeness of his father. These aristocrats were the city's foremost citizens.

The younger Balbus, with his strong and youthful build and Apollonian face and bearing, is the idealized Roman youth. His father's face across the hall shows the same regally handsome features, except lines of age and beginnings of jowls speak of the passage of generations, the connections between family, and the ultimate erosion of time. It is through these statues and the surrounding art that I can reach these people and identify with them as inhabitants of the same planet.

Upstairs hang the wall paintings and mosaics that reveal many of the moments that created the textures of life on the flanks of Vesuvius. A teacher disciplines a student with a beating, a rough-cut man and his wife sit for a portrait, two men and a body receive a dole of bread, a couple drinking wine recline erotically on a couch, a tragic actor sits exhausted after a performance.

On the way to a new life, Ercolano newlyweds Anna Taccogna and Pirro Giovanni, with her sister assisting, pose before Herculaneum's ruins to reaffirm the importance of their heritage- life amid the splendors of a long-ago age.

THE ACTOR takes my thoughts back to Herculaneum's buried theater, and for a moment I sense the thrill that must have greeted those early excavators. Imagine such vivid images emerging as you are scraping in the dark deep underground!

Did the excavators, I wonder, notice the eyes in these paintings, busts, and statues? So many stare vacantly ahead. They remind me of that impassive face imprinted in the pyroclastic flow in the theater. These faces do not express much joy. Often they seem to be asking whatever gods are listening why there must be such sorrow in the world. From those eyes flows a sadness that sums up the fate of this “loveliest region of the earth,” that makes me want to say, “Alas poor Portia, alas Pompeii, alas Herculaneum.”