

Preserved bones reveal fiery death at Herculaneum

Since the discovery of Herculaneum in 1706, scholars had been confident that most citizens of this small, prosperous community on the flanks of Italy's Mt. Vesuvius escaped when the volcano erupted in August A.D. 79. But recent excavations reveal people trapped in passageways in the ancient town, and what then was the beach is littered with skeletons of men, women and children buried alive by cascades of volcanic debris even as they launched boats in a desperate attempt to flee.

Nearly 2,000 years ago the volcanic eruption destroyed Pompeii, Herculaneum and several other towns near the Bay of Naples. So far, more than 80 skeletons have been found at Herculaneum, researchers announced this week at the National Geographic Society in Washington, D.C. The discovery is notable because the bones are the first sizable group of Roman skeletons to be studied scientifically. Sara Bisel, a physical anthropologist who is leading the preservation and analysis of the ancient bones, says previous sources of information about the Romans have been writings, sculpture and paintings—but that few actual bones have been found. Analysis of bones can provide missing details about diet, life-span, stature and longevity.



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This Roman woman was trapped in a chamber when Vesuvius erupted in A.D. 79. Rings, still intact, shown on forefinger.

To demonstrate, she gestured toward the preserved skeleton of a soldier found face-down on the beach, his decorated scabbard still at his side. Flattening of spe-

cific bones indicates where thickened muscles flexed repeatedly as he threw a javelin and wielded his heavy shield. His teeth are in good condition, possibly because of the low sugar content of the Roman diet, she suggests. Like many other Herculaneans, he was rushing toward the shore when part of the volcano collapsed after the initial eruption, sending a mixture of hot gas and pumice flowing down the mountain. Haraldur Sigurdsson of the University of Rhode Island said the blast was 10 times more powerful than the eruption of Mt. St. Helens in May 1980.

When the first skeletons were found, Giuseppe Maggi, director of the excavation, called upon the National Geographic Society for assistance in preserving the bones, which decompose rapidly when exposed to air and water. So far, 36 skeletons have been dismantled and dipped in an acrylic-resin solution that slows their decay.

At Pompeii, 10 miles away, no skeletons have been found, but plaster casts made of holes in the ash deposits trace the agonized death postures of the buried people. Herculaneum was covered by volcanic mud flows, rather than ash. As the bodies decayed the mud closed around the bones and preserved them, Maggi said.

—C. Simon

The information revolution: Helping workers survive it

"I have no doubt that we are well within an information revolution which is going to be more important than its industrial-revolution predecessor," Michael Dertouzos said at a recent conference on technology. Director of the Massachusetts Institute of Technology's Laboratory for Computer Science, Dertouzos believes the computer and its applications will pervade our society "until finally we will be seeing ourselves in this gigantic information marketplace where information is pedaled as a fundamental commodity."

A Canadian-government task force has tackled the seemingly overwhelming task of sorting out how this revolution is affecting workers and makes a number of recommendations notable for their sympathy with worker rights and concerns. Issued by Labour Canada, the Canadian labor ministry, the Report on Microelectronics and Employment provides an overview not only of the benefits computers promise, but also of the pitfalls and social upheaval that may follow their rapid introduction.

Although computer technology will be likely to bring enormous gains in corporate efficiency, worker productivity—and ultimately a nation's economy—it would be unrealistic, the report says, not to expect these gains to be dogged by difficult periods of adjustment. Specifically, data

provided by the task force suggested there might be problems "generating enough new employment to compensate for possible short-term job displacements." And it's likely, the report noted, that many jobs created by the information revolution will require skills not already possessed by the displaced workers. Finally, "it was stressed to us again and again," the task force reported, "that women, who now constitute the bulk of information manipulators in the service sectors, might well bear the brunt" of the initial job displacements. "Women are particularly vulnerable because they are clustered in a few job ghettos, such as clerical, sales and services," which are in the front line of assault by office automators, the report said.

To prepare for and potentially ameliorate these social changes, the task force recommended creating a national Center of Technology, Work and Human Priorities. It would focus on creating jobs, monitoring effects of the computer revolution, and disseminating research. It would also conduct research into the impacts of computer technology on all economic sectors.

The task force's most radical recommendations, however, came in the area of how industry might cope with fears voiced by workers who today use video-display terminals (VDTs). "Currently the gravest

worry is that radiation from VDTs is the cause of an unusually high incidence of miscarriages, and/or children with birth deformities born to women, who during pregnancy worked with VDTs," it noted. Although the panel found no data suggesting a scientific basis for suspecting VDTs were a fetal hazard, it suggested employers take a precautionary approach until epidemiology had conclusively ruled out VDTs as a hazard: it suggested pregnant VDT operators be offered the right to be reassigned to another position without loss of pay, seniority or work benefits. And to alleviate stress created by poor human-factors design, the task force recommended that research be conducted into the design of an industry standard for electronic-office equipment.

Among its other recommendations, the Canadian panel said: workers should be assigned to VDT work no more than five hours daily, VDT workers should get hourly rest breaks, eyetests should be provided VDT workers annually and be paid for by the employer, special eyeglasses adapted to the visual demand of VDTs should be provided workers where necessary and, finally, electronic monitoring of an employee's work (such as computer surveillance of a VDT worker's productivity) should be prohibited "as inconsistent with human rights." —J. Raloff