

Seeing below Tambora

On April 10, 1815, Mount Tambora, on the Indonesian island of Sumbawa, exploded in the largest recorded eruption in human history. The eruption and its aftereffects extended all over the world, causing the deaths of as many as 100,000 people. Few, if any, of the estimated thousands of people living on the volcano's slopes survived, but new excavations there are shedding light on their lives.



Following ground-penetrating-radar surveys that helped locate the site, researchers excavate a settlement buried by the catastrophic 1815 volcanic eruption of Tambora in Indonesia. The team uncovered melted glass, pottery and incinerated timbers and bodies at the site.

Not one of the 200 people who live in the village of Tambora today is a descendant of the 1815 inhabitants. When Haraldur Sigurdsson, volcanologist at the University of Rhode Island in Narragansett, and his colleagues arrived at the village in 2004 to study the eruption site, they asked residents if they had seen potsherds or any other artifacts. This inquiry led the researchers to a nearby gully.

Along the gully the team ran several ground penetrating radar (GPR) surveys. Because flooding had washed away the thick overlay of ash flows covering the gully, at only one-half meter below the surface “we could easily see buried terraced soil horizons, which meant that people had been living there,” says Lewis Abrams, an oceanographer at the University of North Carolina in Wilmington, who was on the Tambora team. In other places, the ash and pumice layers were several meters thick, but below, the researchers could see these same buried soil surfaces.



They then “ground-truthed” the gully site by carefully digging. “It matched what we thought,” Abrams says. “As we worked our way through the gully, we found charred animal bones, melted glass jars, rice, potsherds, bronze bowls, burnt timbers and the remains of two adult bodies,” he says. The findings were part of a household that was fairly clearly delineated: One of the charred bodies was in an area like a kitchen and was holding a large metal knife, while the other body was on the doorstep.



The scene reminded Sigurdsson eerily of Pompeii, which was buried by the A.D. 79 eruption of Vesuvius — except that this was a much hotter, more destructive eruption. The surge of material streaming down the volcano was probably 1,000 degrees Celsius, Abrams says, and would have incinerated everything in its way.

In 1815, Tambora may have had up to 10,000 residents and been a small wealthy kingdom, known for its honey, horses, sappanwood (used to make red dye) and sandalwood, according to some historical descriptions from Dutch and British explorers. Sigurdsson suggests that if that is the case, there could be much more to uncover, including wealthy abodes and a palace, he noted in a press release.



John Miksic, an archaeologist and specialist in Southeast Asia at the National University of Singapore, urges caution before drawing conclusions regarding the significance of the area. “I have heard that much of the area has been looted by treasure seekers, so I am not sure how much is actually left,” Miksic says. Furthermore, he says, rather than being a major economic or political center with distinctive characteristics, Tambora likely formed part of a greater society encompassing several islands, including Bali and Sulawesi.

Sigurdsson’s and his colleagues’ excavations “so far seem quite limited,” Miksic says, “not enough to draw any conclusions regarding the economy or social structure of the entire region affected by the eruption.” However, he says, the excavations “are the first aimed at studying the remains of the society in the Tambora area on the eve of the eruption, so more research aimed at following up Sigurdsson’s initial exploration would definitely be beneficial.”

Later this year or early next year, Sigurdsson’s team plans to return to the site for further GPR surveying and excavations, Abrams says.