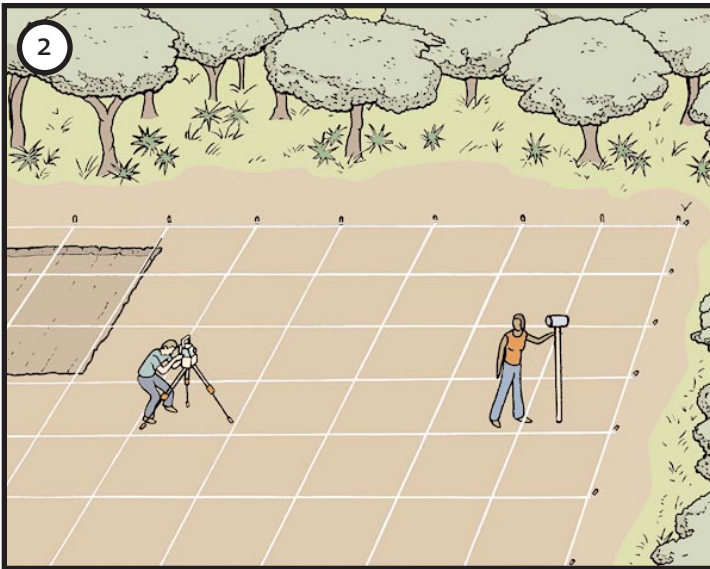


Tools of the Trade



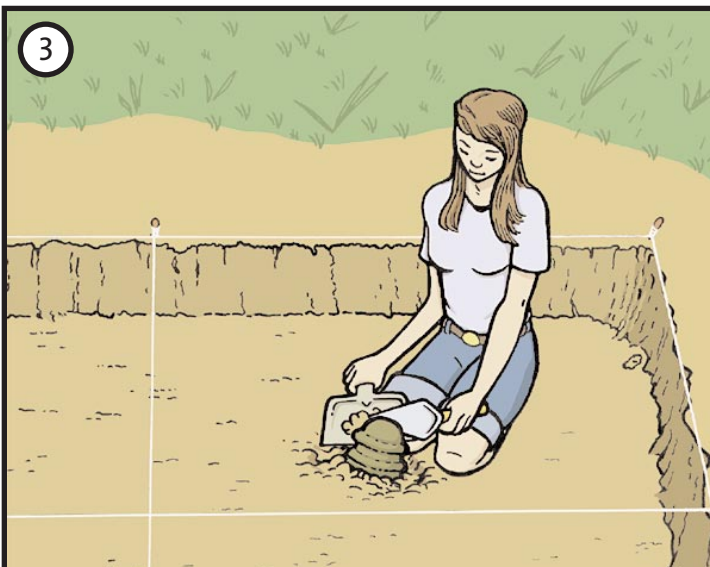
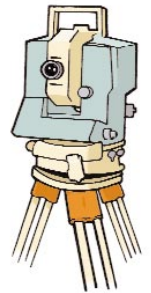
The Problem: All we knew from the old maps was that there was a mission somewhere on the island, but we had no idea where. We spent three years surveying the 14,000-acre island. We narrowed down our search to an area the size of 25 football fields, still a huge area covered in dense forest. **What tool helped us find what's underground and gave us clues about where to excavate?**

The Solution: We divided the area into a grid and walked along each section with a **magnetometer**. It picks up differences in the magnetic strengths of things underground, like buried metals or burned walls. We found three big changes in the readings. We dug at each spot and found the mission church, the kitchen, and then the well. The magnetic changes around the church were strong because it had burned down.



The Problem: After we found the church, we made a map of the site and decided where to dig. We divided the site into 1-by-1-meter grids. As we dug, we found lots of artifacts. But an artifact by itself only tells us part of the story. **What tool did we use to record the position and depth of each object?**

The Solution: A mapping tool called a **total station** shoots a laser that measures the depth and position of everything on a site. We used it to map the location of the artifacts we found. If we know where they came from, we can reassemble the site when we get back to the lab.

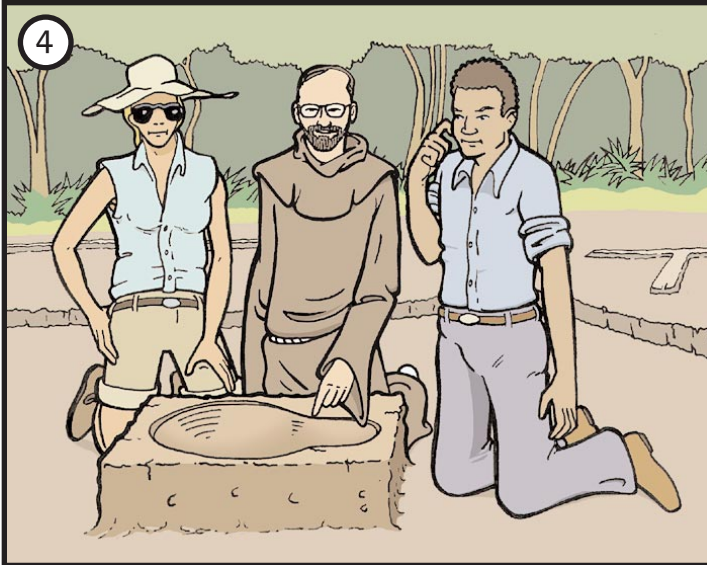


The Problem: Excavation is serious business. Every time we dig, we're destroying the site. I only get one chance to dig each spot, and it's my responsibility as an archaeologist to disturb the ground as little as possible. I also have to be careful not to damage delicate artifacts. **What tool helped me dig carefully without destroying evidence?**

The Solution: I used a **trowel** because its flat blade helps me scrape the soil carefully and uncover fragile objects. Like most archaeologists, I use the sturdy Marshalltown trowel, which comes in different shapes and sizes. Some archaeologists personalize their trowels by wrapping the handles or even burning their initials into them.

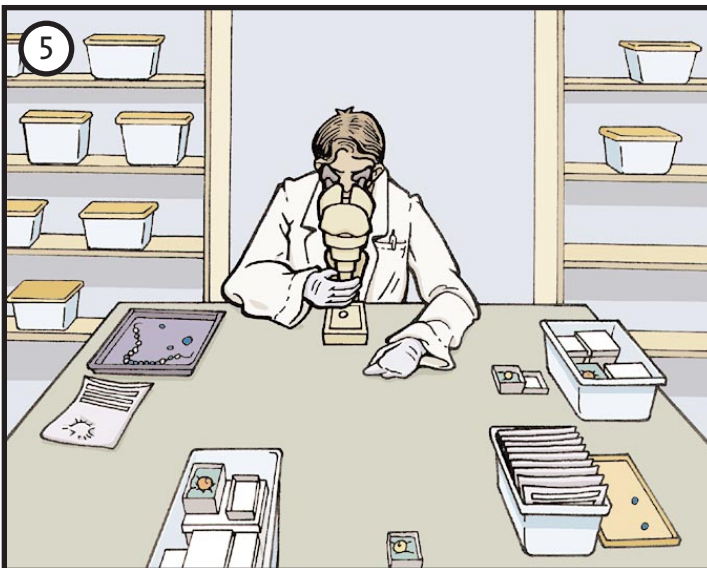
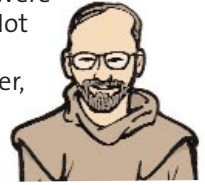


Tools of the Trade



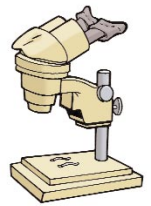
The Problem: Most of the time we can identify the artifacts we find. But some leave us stumped. One day while digging at the place where priests lived, we found a copper-lined basin in the shape of a pear. No one on our team knew what it was, so we preserved it in place and protected it for the future. **What would have helped us identify this artifact?**

The Solution: Lucky for us, a **Franciscan friar** named Conrad joined the dig. He immediately recognized it as a foot font, or a basin for soaking feet. The priests that lived at the mission 300 years ago were called the Order of the Barefoot Friars. Not wearing shoes was part of their strict, solitary life. When they gathered together, they soaked their feet. Father Conrad was familiar with these customs.



The Problem: We found all kinds of artifacts, including thousands of delicate beads buried deep in the dirt. We had to analyze each one to determine when they were made, where they were made, and what material they were made of. We knew this information could tell us a lot about the people who lived at the mission. **Which tool helped us closely examine the beads?**

The Solution: We used a **microscope** to classify the beads by material, color, shape, and size. Before the Spanish came, beads were made of shells and bones. When the Spanish arrived, they brought with them glass beads from Europe and Asia. So if we find beads made of glass, then we know that they're from thousands of miles away and were brought to the area by Europeans!



The Problem: Digging in the mission's kitchen, we found many ceramic pottery pieces. We recorded where each piece was found and gave it a number. Later, this information would tell us many things, like how the vessel broke. We can also learn a lot about how the pottery was used by looking at the vessel as a whole. **What tool helped us put the pieces together without damaging them?**

The Solution: We used a special kind of **glue** to put pieces of this artifact together. This glue is not permanent, which lets us take the pieces apart again. We want to be able to reverse everything we do to an artifact. At the same time, we want to help preserve these objects so they're around for another 400 years.

