Bronze Age tin mine found in Turkey

Excavation of a nearly 5,000-year-old tin mine in Turkey provides the first evidence of intensive local production of the metal in the Middle East during the Bronze Age, a University of Chicago archaeologist announced last week.

Although tin is crucial to bronze production, many scholars argue that Bronze Age residents of the Middle East generally imported tin from Afghanistan and more distant regions, according to Aslihan Yener, who directed work at the Turkish mine. It now appears that local tin industries complemented imported sources, she asserts.

The Bronze Age, which extended from around 3000 B.C. to 1100 B.C., witnessed the expansion of major city-states in Turkey, Mesopotamia, and elsewhere in the Middle East.

Underground mining shafts at the new site, known as Kestel, run for more than two miles, Yener holds. Shafts measure about two feet wide, offering adults a tight squeeze, she notes.

In fact, children apparently served as miners. Yener's research team found a grave inside the mine containing several skeletons of 12- to 15-year-old youngsters.

Analysis of these remains will address whether the children died of mining-related illness or injury, the Chicago scientist says.

Other evidence indicates that miners at Kestel lit fires next to veins of ore to soften them and then battered away at the ore with stone tools, Yener contends.

She and her colleagues have also found indications of high-grade tin production at the nearby Bronze Age village of Goltepe. Workers at the site ground up tin ore, heated it in covered crucibles, and removed tin globules that formed during this process. The residue was reheated, and any further tin was extracted, Yener asserts. More than 50,000 stone tools found at Goltepe reflect the massive use of these implements to crush ore and its residue, she remarks.

Fossil Lucy shows her age

About 20 years ago, investigators found numerous remains of the earliest known hominids, or members of the human evolutionary family, at the Hadar site in Ethiopia. These included a female dubbed Lucy and a group of 13 individuals called the "First Family."

Yet relatively precise dates for these fossils have only just emerged, thanks to an advanced technique for determining the age of volcanic ash deposits.

Lucy's Hadar kin lived as long ago as 3.4 million years, but Lucy herself dates only to 3.18 million years ago, reports Robert C. Walter, a geochronologist at the Institute of Human Origins in Berkeley, Calif. Thus, Lucy represents the most recent known example of her species, *Australopithecus afarensis,* unearthed at Hadar.

Walter places the First Family at approximately 3.2 million years old.

The new findings refute the suggestion made by some researchers that Lucy and other Hadar hominids lived between 2.9 million and 3.0 million years ago, the Berkeley scientist argues in the January GEOLOGY.

Walter employed a dating technique called single-crystal laser-fusion to analyze the ratio of two forms of the element argon in grains of volcanic ash taken from just above and below hominid deposits at Hadar. A laser beam melts the material, and a mass spectrometer generates data on its atomic composition.