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**This Week**

**Trojan war final act in world war zero**

Colin Barnes

The Trojan war was perhaps grander than even Homer would have us believe. In fact, the epic conflict may have been a real act in what one archaeologist has dubbed "world war zero"—an event ripe with the idea of bringing the eastern Mediterranean world to its knees 3000 years ago. And the catalyst? The Luwians—a mysterious and arguably powerful civilization overlooked by archaeologists. So says Iberhard Zangger, head of the non-profit foundation, Luwian Studies, in Zurich, Switzerland. The story goes like this: the world during the 2nd millennium BC civilization had taken hold in the eastern Mediterranean. The Egyptian New Kingdom coexisted with the Hittites of central Anatolia and the Mycenaeans of Greece. Then in little more than a generation, all of them had collapsed. Was the culprit climate change? Earthquakes? Social unrest? Experts can't agree. Zangger says that because he is a crucial piece of the puzzle is missing: the Luwian civilization in western Anatolia played a crucial role in the downfall. And he has built a case. The literature shows that western Anatolia was rich in mineral and metal ore deposits, making it an important region in antiquity, he thinks. Through studies of satellite imagery, Zangger has found that the area was densely populated. Only a handful of the 350 large cities (the sites he has identified) have been excavated. "Some of these sites are so large you can see them from space," says Zangger. "There's so much waiting to be found." It's really just mind-boggling." We know from Hittite texts that the Luwian cities sometimes formed coalitions powerful enough to attack the Hittite empire. Zangger thinks that 1500 years ago the Luwians did just that and destroyed the Hittites. Shortly after, Egyptian texts document an attack force they termed the "Sea People." Zangger thinks these were also Luwians, continuing their campaign for wealth and power and, in the process, destabilizing the Egyptian New Kingdom.

The Mycenaeans, perhaps anticipating an attack on their territory, formed a grand coalition of their own, says Zangger. They sailed across the Aegean and attacked the Luwians, destroying key cities like Troy—events immortalized in Homer's Iliad. On returning to Greece, in the sudden absence of other threats, Zangger believes the Mycenaeans squabbled and fell into civil war. Other archaeologists praise Zangger for bringing attention to this region, but question his grander conclusions. "He's really getting the ball rolling in to longer holistic studies of the area," says Christopher Relphshuler at the University of Oxford. "Archaeologists will need to discover similar examples of monumental art and architecture across western Anatolia and ideally texts from the same sites to support Zangger's claim of a civilization." The textual evidence available is from the 2nd millennium BC and can be interpreted as supporting or undermining Zangger's theory, says Ira Yakinne, a historical linguist at the University of York, Germany.

**Sun-skimming comet might be an asteroid**

When is a comet not a comet? It's a question astronomers are asking themselves more and more often. It now seems one of these supposedly rare objects might actually be an asteroid that gets within a cosmic body's breath of the sun—more than a billion kilometers from it. The two limits of space rules are traditionally thought to be very different. Comets are loose piles of rock and ice on long, elliptical orbits that heat up and develop a tail of gas as they near the sun. Asteroids, on the other hand, are hunky bodies of rock and metal that mostly orbit the sun at a distance that falls somewhere between Mars and Jupiter. But an increasing number of objects are being discovered that blur the line between the two. The latest is comet 252P/2010 L1, discovered in 2009 by the Solar and Heliospheric Observatory. But CODE's view is shielded to protect it from intense sunlight and its resolution comparatively low, meaning it can't get a good look at 252P during the comet's closest approach to the sun. Now, Matthew Knight at the University of Maryland in College Park and his colleagues have used ground-based telescopes and the Spitzer space telescope to take another look. They found there were no signs of coma from 252P as it got close to the sun. They also found that "a rising number of objects are being discovered that blur the line between comets and asteroids." Its density is at least 1000 kilograms per cubic meter, which is the same as that of Earth's moon. The situation is complicated by the fact that the comet's orbit intersects the Earth's orbit, and may be a target for a future mission. Further studies are needed to determine the nature of this object.

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