CIVILIZATION'S DOUBLE-EDGED SWORD

Recent archaeological finds from the Near East to Southeast Asia of ancient massacres raise questions about how violence changed as societies became more complex

THE CORPSES WERE LEFT TO ROT BY THE hundreds in the hot Syrian sun. The victors whittled three dozen or more of the human arm and leg bones into pointed sticks, perhaps as tools to further desecrate the skulls. After at least a few weeks, the decomposing remains were dragged a short distance and pushed into a trash pit. Then the victors butchered cows, sheep, and goats for an extravagant barbecue. When they were done, the celebrants hurled the picked-over animal bones and the ceramic plates, made especially for the occasion, onto the decaying heap. Then they returned to their homes in the nearby prosperous city.

As fighting engulfs the cities of modern Syria, the scene above is stark proof that mass warfare and civilization share a 6000-year history. The killing field at Tell Brak, about 500 kilometers northeast of Damascus near the Iraqi border, documents what is perhaps the world's oldest known large massacre or organized battle. When the violence occurred in about 3800 B.C.E., this settlement was evolving into one of the world's first fledgling cities.

What took place here and at other sites where complex societies were starting to coalesce is of particular interest to researchers studying human violence. Some scientists argue that civilization replaced tribal anarchy with a more organized way of life that reduced rates of violence (see p. 829).

But recent finds around the world suggest an upsurge, not a decline, in violence during the key period when societies transitioned from the simpler organization of tribes and chiefdoms into complex urban life.

Even in the Near East, which has been intensively excavated for more than a century, scientists still grapple with fundamental questions about violence. There has been surprisingly little physical evidence for warfare, massacres, or even widespread murder here between the rise of agriculture around 10,000 B.C.E., when people were living in less complex groups, and the emergence of the Akkadian Empire around 2300 B.C.E. Recent finds in northern Syria, however, suggest that violence flared as urban life first began to take hold between 4000 B.C.E. and 3200 B.C.E.
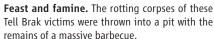
The large settlement of Hamoukar was destroyed around 3500 B.C.E.; a team there found hundreds of what they maintain are sling bullets (*Science*, 31 August 2007, p. 1164). Even more startling, in 2007 and 2008, University of Cambridge archaeologists found three mass graves dating from about 3800 B.C.E. to 3600 B.C.E. at Tell Brak. The oldest and largest grave was at

Making their point. Tell Brak dig director Augusta McMahon examines a human bone shaped into a pointed tool.

Feast and famine. The rotting corpses of these Tell Brak victims were thrown into a pit with the remains of a massive barbecue.

least 20 meters long and 4 meters wide, and included a jumbled pile of at least several hundred people—by far the earliest undisputed example of an event of mass violence. In a 2011 paper in the *Journal of Field Archaeology*, dig director Augusta McMahon and colleagues note that the majority of the dead were between the ages of 20 and 35. Although poor bone preservation makes it difficult to establish gender and cause of death, the state of the disarticulated bones suggests that the individuals all died at the same time and were left in the open for weeks or months. Many of the victims had previous head injuries that had healed.

The bodies' exposure, delay in burial, the careless collection of the rotting corpses—which ignored smaller bones from the hands and feet—and the casual disposal all "show an extraordinary disregard" for the victims, McMahon says, implying "that the dead were enemies." That is underscored by the fact that more than 40 human bones were whittled to make tools, which McMahon suggests were used "to deflesh and empty trophy skulls," given that some skulls have deep scratches. The apparent victors then celebrated an astonishing feast involving as many as 75 cattle and 300 sheep and goats. The remains of this repast were tossed on top of the corpses and then covered with dirt.

Whether the victims were locals or outsiders remains unclear. Study of tooth enamel from the bodies shows that at least some suffered from malnutrition. Tell Brak sits in a region prone to long-term drought and may have stored a surplus that drew hungry mobs; it also had workshops that harbored a wealth of beautiful objects that may have attracted envious invaders or spurred civil war.

McMahon suspects internal strife because Tell Brak was so populous in this period that it was not very vulnerable to outsiders. She notes that the callous treatment of corpses may have been "a useful control device" to deter internal discontent. Whatever the fight, it was clearly an organized killing field. "Here you see mass violence … motivated or controlled by central authorities," says archaeologist Henry Wright of the University of Michigan, Ann Arbor.

Peaceable kingdom?

On the other side of Asia, in the jungles of Thailand and Cambodia, complex society

arrived several millennia later. Small villages predominated here for centuries, until about 900 C.E., when the first complex society arose around Angkor Wat in Cambodia.

Until recently, there has been a remarkable dearth of evidence for violence here during the region's Iron Age before the rise of Angkor. In that period, which began about 500 B.C.E., iron tools and weapons appeared, and tribes appear to have coalesced into more organized chiefdoms run by an elite.

But recent work shows that Southeast Asia was no peaceable kingdom just before or during the rise of Angkor. At a site in Cambodia called Phum Snay, about 80 kilometers northwest of what became the capital of Angkor Wat, archaeologists from Australia and New Zealand have found an array of sophisticated military artifacts such as swords (some more than 1 meter in length), daggers, spearheads, and epaulettes, as well as signs of violent conflict dating between 100 C.E. and 300 C.E.

Researchers estimate that of 30 skeletons from the town's cemetery, nearly a quarter had traumatic bone lesions, with males having more than females. Given the location and type of injury, these wounds are more likely due to interpersonal violence than accidents, says biological anthropologist Kathryn Dommett of James Cook University in Townsville, Australia, lead author of a 2011 *Antiquity* paper on the subject. And because soft-tissue wounds are not recorded, the level of violence likely was even higher.

This data meshes with the results from digs across the border in Thailand. Combining satellite imagery with fieldwork, archaeologists have mapped dozens of large settlements surrounded by elaborate moats and ramparts from this era. "This is a period of intense political development and possibly increased competition," says archaeologist Dougald O'Reilly of the Australian National University in Canberra, who led the Cambodian dig and has published on the Thai finds.

That is borne out at the Thai site of Noen U-Loke. Archaeologist Charles Higham of the University of Otago in Dunedin, New Zealand, found evidence for intercommu-

nity conflict in a sudden proliferation of iron projectile points in the Iron Age, including one lodged in the spine of a young adult male; an older female had her head cut and smashed. Other sites, such as Ban Wang Hai, a village just to the north, have yielded iron swords and other weapons not associated with hunting.

O'Reilly says that the prevalence of

Remains of the day. Murder victims at Phum Snay show traumatized wounds and are examined by O'Reilly (*inset, on left*) and a colleague.

"blunt force wounds" in this period points to either ritual warfare or a scramble to control resources such as iron. "There is a lot of evidence of increased warfare" just before the rise of Angkor, Higham says. O'Reilly believes that such conflict arose as populations increased along with competition for resources. As at Tell Brak, when other types of social complexity rose, so did the scale and complexity of warfare.

Archaeologist Glenn Schwartz of Johns Hopkins University in Baltimore, Maryland, notes that "early complex societies were able to organize much more effective killing machines, given their administrative and technological capabilities and large populations." So while laws, fortifications, and armies may have protected the bulk of the citizenry, when warfare did take place, it could be on a greater scale and ferocity than among the preceding smaller groups. "The nature of warfare changes," says anthropologist Patrick Nolan of the University of South Carolina, Columbia. "The frequency may decrease but the scale goes up."

Historian Azar Gat of Tel Aviv University in Israel warns that the spectacle of large battles may mask the more important truth that a given individual in a complex society would be less likely to die from violence. "Ramses II took 20,000 troops to fight the Hittites," he says of the 13th century B.C.E. Egyptian king. "But the population of Egypt was 2 or 3 million. They were largely sheltered."

Even as they document cases of violence in early states, archaeologists are hesitant to generalize about long-term trends because archaeology can provide only glimpses of the past. For example, ancient texts describe bloody battles in the Near East in the 2nd millennium B.C.E., but archaeologists have found few sites to support the textual history. That's why single finds, such as the one at Tell Brak, can quickly rewrite old views—but should be considered cautiously, researchers say. "Serendipitous data discovery in archaeology frequently refutes statistical laws," says Yale University archaeologist Harvey Weiss.

Instead of trends in rates of violence, some researchers focus on how it assumed new forms, such as institutional slavery and human sacrifice, that are not seen in simpler societies. "Warfare and slavery go hand in hand" in the ancient world, Nolan says. Most slaves, he says, were captives of war, often the wives and children of slain soldiers. Brutal human sacrifice also appears as early states consolidate and display their power (see p. 834).

Many complex societies quickly developed moral codes and written laws designed to protect the young, the poor, and the defenseless. But they also found a galaxy of reasons to punish nonviolent behavior with violence, as U.S. sociologist Steven Spitzer and French philosopher Michel Foucault have noted. Sexual deviance, religious heresy, and betrayal of the state all could be punished with tortures and extended imprisonment undreamed of by our ancestors in simpler societies. The rise of civilization was indeed a double-edged sword.

–ANDREW LAWLER