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Sick Rams Used as Ancient Bioweapons

Rossella Lorenzi, Discovery News

Nov. 28, 2007 -- Infected rams and donkeys were the earliest bioweapons, according to a new study which dates the use of biological warfare back more than 3,300 years.

According to a review published in the *Journal of Medical Hypotheses*, two ancient populations, the Arzawans and the Hittites, engaged "in mutual use of contaminated animals" during the 1320-1318 B.C. Anatolian war.

"The animals were carriers of *Francisella tularensis*, the causative agent of tularemia," author Siro Trevisanato, a molecular biologist based in Oakville, Ontario, Canada told Discovery News.

Also known as "rabbit fever," tularemia is a devastating disease which even today can be fatal, if not treated with antibiotics. Its symptoms range from skin ulcers, swollen and painful lymph glands to pneumonia, fever, chills, progressive weakness and respiratory failure.

The disease affects animals such as rabbits, sheep and donkeys and it is passed on to humans through various routes, most commonly through the bite of infected ticks and deerflies.

First isolated in 1911, *Francisella tularensis* is highly infectious and is now considered one of the pathogens most likely to be used in bioterrorism attacks.

According to Trevisanato, the bacterium flourished in the Eastern Mediterranean toward the end of the 14th century B.C., when a long-lasting, deadly epidemic plagued most of the Middle East.

Known as the Hittite plague, the epidemic is clearly described in letters to the Egyptian king Akhenaten. A letter, dating around 1335 B.C., reports a pestilence in Simyra, a city near today's border between Lebanon and Syria.

Despite efforts to contain the epidemic -- donkeys were banned from being used in caravans -- the disease contaminated an area stretching from Cyprus to Iraq and from Israel to Syria. Subsequently, wars spread the epidemic to central and Western Anatolia. Finally, Aegean soldiers fighting in western Anatolia returned home to their islands, further spreading the epidemic.

"A disease lasting 35-40 years, infecting humans and animals, causing fever, disabilities, and death, spreading via rodents aboard ships as well as donkeys, points to *Francisella tularensis*. Moreover, there is evidence that tularemia can be traced as far back as 2500 B.C. in the same area, implying that the region was endemic for the bacterium," Trevisanato said.

According to the researcher, the Hittites, whose empire stretched from modern-day Turkey to northern Syria, were severely hit by the disease after they attacked a weakened area around Simyra.

"The booty and prisoners of war left a contaminated trail," Trevisanato said.

Indeed, the plague spread in the Hittites homeland, and two kings died from it within a few years.

The weakened Hittite empire attracted the Arzawans from Western Anatolia and a new war, which lasted between 1320 and 1318 B.C., began.

It was at this point that the Hittites used disease-ridden rams and donkeys with the purpose of infecting the enemy.

Records indicate that rams mysteriously began populating the roads in Arzawa. According to Trevisanato, they were sent off by the Hittites, who realized that the animals were involved with spreading the disease.

"The Hittites were weak when the Arzawans attacked them, yet they smashed the enemy within two years. Which kind of secret weapon did they know of to do this Bronze Age blitzkrieg, given their weakened troops and political mess?" posed Trevisanato.

To support the bioweapon theory, tablets dating to the 14-13th century B.C., describe how a ram and a woman attending the animal were sent on the road, spreading the disease along the way.

"The country that finds them shall take over this evil pestilence," the tablet said.

The practice was soon understood by the Arzawans who also reacted by sending their own infected rams on the road in the direction of the enemy troops.

"I agree that infected rams or donkeys driven into enemy territory by the Hittites may well have been the earliest documented biological weapon in the Near East," classical folklorist Adrienne Mayor, the author of "Greek Fire, Poison Arrows & Scorpion Bombs: Biological and Chemical Weapons in the Ancient World," told Discovery News.

"Even older evidence for ancient understanding of contagion comes from Sumer (modern Syria). Archaeologists have found several royal letters on cuneiform tablets from the archives of Mari, a town on the Euphrates River.

The letters, dating to 1770 B.C., forbid people from plague-ridden towns to travel to healthy towns, and warn people not to touch or use the personal belongings of infected victims," Mayor said.

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