

Time Travel, Trebuchets, and Atlatls

PLAYING WITH
THE PAST
THROUGH
EXPERIMENTAL
ARCHAEOLOGY

BY JAMES R.
MATHIEU

Recently I had a chance to read Michael Crichton's *Timeline*, a book recommended to me because it combined my interests in archaeology and the medieval world with an adventure similar to the now-famous *Jurassic Park*. The book was indeed fun to read since it toyed with the concept of time travel and every archaeologist's fantasy: to witness in person the ancient events and phe-

nomena we study today through archaeological excavation.

Though Crichton's book is a work of fiction, his brief discussion of 'experimental history,' the re-creation of "parts of the past, to experience it firsthand and understand it better" alludes to the real academic subfield of experimental archaeology.

During a recent stint of teaching at Washington and Lee University, in Lexington, Virginia, I was able

to spread my enthusiasm for studying the past, using this hands-on approach. Teaching a course on experimental archaeology, I introduced students to the opportunities available for understanding the past through the replication of ancient objects, behaviors, and processes.

For example, through a stroke of good luck, Grigg Mullen, a civil engineer at the nearby Virginia Military Institute, demonstrated the use of his half-size replica of a medieval *trebuchet* for our class.

Taking place just after Halloween, we launched leftover pumpkins 100 yards through the air towards an imaginary castle wall — producing wonderful, hollow-sounding detonations as they exploded on impact. (Visit <http://home.wlu.edu/~blackburnj/smashingpumpkins/> for video clips with sound effects of



RIGHT TO LEFT: The stages during the launching of a *trebuchet* — a medieval stone-throwing contraption that used the power of a counterweight and gravity to batter down castle walls.

the trebuchet in action.) Gasps of excitement and delight indicated the students were connecting with the past in a particularly tangible and satisfying manner, gaining a better appreciation of the medieval world's ingenuity, capability, and power. (See the NOVA video series, *Secrets of Lost Empires: Medieval Siege*, for an episode on the full-scale reconstruction and use of such siege engines.)


Another hands-on opportunity presented itself in the form of using an *atlatl* (spearthrower) to launch 7-foot darts at a target 30 yards distant. Each student had multiple chances to wield the spearthrower and target the bull's-eye. It took them a while to get used to the feel of the *atlatl* and its throwing motion, but after a little advice on compensating for the dart's tendency to sail to the right, most students were able to score some direct hits, fully penetrating the target cardboard boxes.

Our class's field day with these casual experiments paid unexpected dividends in our understanding of the past. One student, Sarah Schmidt, a finalist for All-American honors in the javelin, was inspired to pursue independent research on the usefulness of javelin techniques with *atlatls*. Interested in showing that the long, overarm, baseball pitch motion described in many academic studies of the *atlatl* was probably inaccurate, she tested what she thought might be a better, closer-to-the-body, javelin hurling technique. To make her experiments more useful for understanding the past, she compared a range of test subjects including both men and women, young and old, and those skilled in the javelin and those not. Each subject launched darts for both accuracy and distance trials with the same *atlatl*.

Her results? As she suspected, experienced javelin throwers consistently scored higher marks in distance and accuracy, suggesting that javelin technique improves *atlatl* performance. Though this cannot prove that past people used *atlatls* with a javelin thrower's technique, it does provide support to those who critique the appropriateness of, and the results obtained from, using a baseball throwing motion. Furthermore, she showed that differences in the throwers' experience, age, and sex

interacted in interesting ways to influence the effectiveness of the *atlatls*. For example, among the javelin throwers, older, more experienced men did the best in distance trials, followed by young men, and then young women, whereas among the non-javelin throwers older men performed the worst. This suggests that

experience may play a more important role in distance throwing than sexual differences. Alternatively, in the accuracy trials, though javelin throwers still did better as a group, the throwers' experience, age, and sex made little difference. This probably indicates that javelin throwing experience does not necessarily affect *atlatl* accuracy as much as it does distance throwing.

Returning to Crichton's novel, unfortunately time travel is not a possibility that archaeologists can pursue to understand the past. However, by using experimental archaeology, where parts of the past can be made to come alive, we can come into closer contact with past people, the lives they lived, the contexts they confronted, and the decisions they had to make. By putting ourselves into their shoes and 're-creating' their world, we give ourselves a better chance of understanding them. 

James R. Mathieu received his Ph.D. in Anthropology from the University of Pennsylvania.



Sarah Schmidt prepares to launch a dart with an *atlatl*. Theoretical studies and practical experimentation have shown that it improves the distance and force with which a projectile can be hurled.

SEQUENCE BELOW: JAMES MATHIEU; RIGHT: JAMES HEPNER



FOR FURTHER READING

Hutchings, W. K., and L. W. Bruchert. "Spearthrower Performance: Ethnographic and Experimental Research." *Antiquity* 71 (1997):890 – 897.

Mathieu, J.R., ed. *Experimental Archaeology: Replicating Past Objects, Behaviors, and Processes*. British Archaeological Reports, International Series 1035. Oxford: BAR, 2002.