Ancient cities sprung from marshes, researcher finds

February 24 2011

For more than a century, archaeologists have believed that ancient Mesopotamian cities – places like Uruk and Ur – were born along the banks of the great rivers of the Middle East and depended mainly on irrigation of surrounding deserts for their survival.

Dr. Jennifer Pournelle, a research assistant professor in the School of the Environment at the University of South Carolina, has a different theory. She believes that the great cities of southern Iraq grew and thrived in vast lowland marshes fed by those rivers, not along the banks of rivers themselves.

Last fall, Pournelle led the first American research team of archaeologists to visit Iraq in more than 25 years. And what she and her colleagues found has caused the start of a shift in thinking about how ancient urban landscapes evolved.

“Clearly, the earliest cities were not strung out along rivers like pearls on a strand. Rather, they were spread across the river delta within and along the margins of marshlands,” said Pournelle, who combines excavation records and archaeological site maps with aerial and satellite imagery, in order to reconstruct ancient environments.

The research team, which included archaeologist Carrie Hritz (Pennsylvania State University) and geologist Jennifer Smith (Washington University in St. Louis), explored the lowlands of the Tigris-Euphrates river system in southern Iraq. Pournelle’s work pieces together

the contribution of wetland resources to the emergence, growth and reproduction of cities in the earliest, longest-lived urban heartland in the world.

Most of the previous archaeological data in Iraq was collected from 1900 through the 1950s, when little attention was paid to plants and animals, she said. The environmental contexts for museum objects and architecture were largely undocumented. When recorded at all, they emphasized grain agriculture and domesticated livestock.

“Things like reeds, fish, shellfish, birds and turtles – the things that make up wetlands – were thought of as unimportant and so were largely ignored,” she said. “But at the very least, marsh resources were the ‘third leg’ of a triad that also included conventional agriculture and grazing livestock across desert rangelands. The rise of multiple cities around 3000 B.C. was due in part to their proximity to the rich marshes – and I would argue that their long-term survivability was utterly dependant on them.”

Pournelle’s work was funded by a grant from the National Science Foundation’s High Risk Research in Physical Anthropology and Archaeology Program. During the trip, Pournelle and her team visited 17 field locations in southern Iraq and received permission to open a collaborative, three -year geo-archaeology effort with faculty from the universities of Baghdad (geology) and Basrah (geology and marine sciences) and the Iraq State Board of Antiquities and Heritage.

“Our mission was to meet with the local representatives, site curators, guards and others, and ask, ‘What are the needs? And what are the attitudes toward Americans resuming work?’ ” said Pournelle, a former Army officer and civilian development advisor who said she started looking for signs of progress in Iraq about 18 months ago. “The political landscape of Iraq has been largely remade since the 1980s. We need to

build new working relationships."

What she found was an openness toward researchers desiring to study the area and learn about its past and present. For example, at Basra University at the head of the Persian Gulf, faculty members have reached out to the English-speaking world, looking for opportunities to collaborate across multiple departments. Pournelle said the University of South Carolina's School of Earth, Ocean and the Environment is pursuing multi-disciplinary research projects and opportunities in Iraq.

"The archaeology is exciting, but this goes way beyond archaeology," she said. "Iraq's strategic importance is not going away, and this state has already made a huge investment there. Southern Iraq's current problems are a lot like our own – water resources management, coastal and port development management, pollution control and environmental management, given extremely limited budgets. The difference is we've been juggling these concerns for a few hundred years; they've been juggling them for a few thousand. We have a lot to learn from each other.

Pournelle is planning a multi-year project in Iraq to do further research, including taking a closer look at densely packed building foundations, fields and canals previously submerged beneath Lake Hammar.

"In form, scope, scale and state of preservation, this archaeological landscape is unique," she said. "It is worthy of inscription on the United Nations Educational, Scientific and Cultural Organization's World Heritage register.

"Iraq is a place we can study, from its deep past through its foreseeable future, in order to understand the impacts and consequences of natural and human interactions with environments," she said. "I want to investigate the role of wetlands in the long-term sustainability of cities

everywhere. In southern Iraq, we have an 8,000-year-long archaeological record and a 5,000-year-long historical record of how that worked. There's nowhere else like that in the world."

Provided by University of South Carolina