

Archaeologists trace early irrigation farming in ancient Yemen

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In the remote desert highlands of southern Yemen, a team of archaeologists have discovered new evidence of ancient transitions from hunting and herding to irrigation agriculture 5,200 years ago.

As part of a larger programme of archaeological research, Michael Harrower from the University of Toronto and The Roots of Agriculture in Southern Arabia (RASA) team explored the Wadi Sana watershed documenting 174 ancient irrigation structures, modeled topography and hydrology, and interviewed contemporary camel and goat herders and irrigation farmers.

"Agriculture in Yemen appeared relatively late in comparison with other areas of the Middle East, where farming first developed near the end of the last ice age about 12,000 years ago," says author Michael Harrower, Department of Anthropology, University of Toronto. "It's clear early farmers in Yemen faced unique environmental and social opportunities and challenges. Our findings show farming in southern Yemen required runoff diversion technologies that were adapted to harness monsoon (summer) runoff from the rugged terrain along with new understandings of social landscapes and rights to scarce water resources."

The researchers used computer Geographic Information Systems (GIS) mapping to determine that ancient forager-herders developed expert knowledge of hydrology and targeted particular small watersheds and landforms for irrigation. Studies of contemporary land and water rights, including principles enshrined in Islamic law, suggest their origins lie at

the very beginnings of water management as tribal principles of water equity intertwined with changing ideologies and culture.

These and other discoveries in southern Arabia have recently helped document the diversity of transitions from foraging to agriculture that in Yemen later gave rise to powerful ancient cities and states with advanced irrigation technologies that transformed deserts into lush, bountiful oases.

The study findings are published in the current issue of the journal *Current Anthropology*.

Source: University of Toronto

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