



Radial route systems and agro-pastoral strategies in the Fertile Crescent: New discoveries from western Syria and southwestern Iran

Jesse Casana

Department of Anthropology, Main 330, University of Arkansas, Fayetteville, AR 72701, USA

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ABSTRACT

Radial systems of spoke-like pathways, often termed “hollow ways,” are frequently found surrounding mounded tell sites in northern Mesopotamia and have been explained as the product of a particular set of land use practices involving dry-farming agriculture and intensive ovicaprid pastoralism. Yet while similar subsistence strategies were very common across the Near East throughout much of the Holocene, classic hollow ways have only been previously documented in a small region and articulate almost exclusively with sites of the third millennium BC. This paper presents newly discovered hollow ways in western Syria and southwestern Iran, made possible through analysis of an online database of declassified, Cold War-era CORONA satellite imagery. The association of these previously undocumented ancient roads with archaeological sites dating to the Iron Age, Roman/late Roman and early medieval periods, suggests that the land use practices which produced radial route systems may have been quite widespread. Taking into account the wide geographic and temporal distribution of hollow ways, analysis explores various aspects of the agro-pastoral systems that disparate communities may have shared. Results confirm some aspects existing models of hollow way formation, while offering some refinements in terms of the roles that settlement organization, agricultural land use and pastoral strategies play.

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Introduction

While ancient roads are often viewed in purely functional or technological terms, recent scholarship has increasingly emphasized these features as revelatory components of built environments, connecting the sites and monuments that are more often the focus of archaeological inquiry into a dynamic “landscape of movement” (Snead et al., 2009). Analyses of ancient roads offer a window into spatial patterns of movement, and by consequence the connections among people—their social relationships, pathways of communication, and routes of exchange. Most archaeological research has necessarily focused on monumental, constructed roadways that are the product of central planning by political regimes or religious elites. From classic examples including expertly engineered Roman roads (Romolo, 2004), ingenious Inka roads of the Andes (Hyslop, 1984), and enigmatic Puebloan roads of the American Southwest (Kanter, 1997; Windes, 1991), to more recently documented road systems including the raised causeways of the Bolivian Amazon (Erickson, 2001, 2009), the Easter Island statue roads (Lipo and Hunt, 2005), and the desert roads of Amarna, Egypt (Fenwick, 2004), virtually all are products of top-down planning, motivated by prestige, power, and belief systems, and constructed with the coerced or cooperative support of multitudes.

However, the informal pathways that undoubtedly marked the repeated interactions, productive activities, and daily routines of ancient peoples throughout the world are rarely preserved in the archaeological record. Archaeologists who seek to study the mundane, quotidian movement of people across the landscape are generally either left to predictive models based on topography or other factors (e.g., Howey, 2011; Stanish et al., 2010; Branting, 2007), or on historic and ethnographic analogy (e.g., Darling, 2009). While offering some insights, these approaches may not reflect the actual patterned movement of ancient people across the terrain. Yet it is these very patterns that, if known, would reveal the most regarding subsistence strategies, exchange, and movement through ancient landscapes.

The radial systems of spoke-like pathways found surrounding mounded tell sites in the northern Mesopotamian plains (Fig. 1), generally termed “hollow ways” after Wilkinson (1993), are among the best-preserved informal route systems in the world (e.g., Wilkinson, 1994, 2003, 2007; Wilkinson et al., 2010; Ur, 2003, 2009, 2012). While incised, linear routes have been detected elsewhere in the Near East (Wilkinson, 2003: 111–117), the hollow ways of northern Mesopotamia are notable for their size, measuring up to 150 m in width and 5 km long (Fig. 2), their number, with more than 6000 km of roadway documented (Ur, 2012), and their configuration, as most hollow ways radiate out from sites to a distance of several kilometers and then terminate (Fig. 3). Nearly all

E-mail address: jcasana@uark.edu

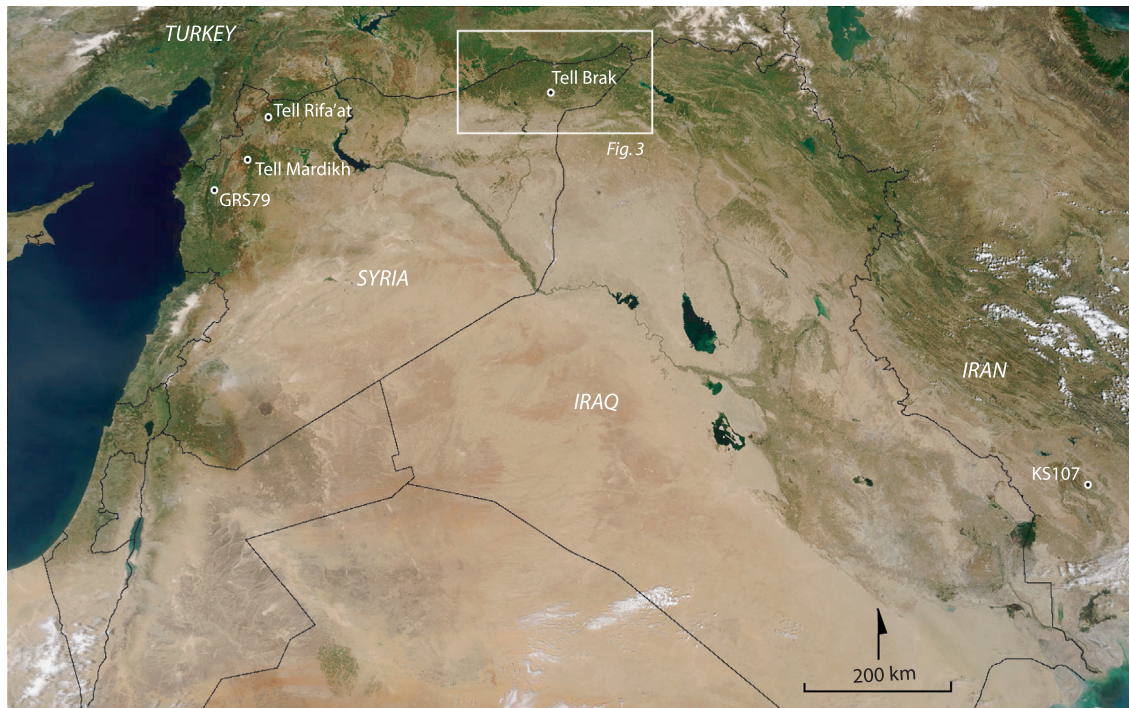


Fig. 1. Key sites discussed in text, plotted on a MODIS satellite image (courtesy NASA). Inset shows the part of the area where radial route systems are best preserved in the north Mesopotamian Jazireh region, illustrated in Fig. 3.



Fig. 2. The site of Tell Brak, eastern Syria, with extensive system of hollow ways, seen on the CORONA Atlas of the Middle East (corona.cast.uark.edu). Left side shows a December 1967 CORONA image while right side, using Swipe tool, compares it to modern Google imagery. Note how urban development and agricultural intensification have erased all trace of hollow ways in modern imagery.

previously documented radial hollow ways are located in the Jazireh region of eastern Syria and northern Iraq, and the vast majority of these distinctive features have been argued to date to the Early Bronze Age (third millennium BC). Wilkinson's (1993, 1994; Wilkinson et al., 2010) widely-accepted interpretation of hollow ways sees them as the product of a unique set of agro-pastoral strategies that, coupled with the climatic and geomorphic regimes of the Jazireh, resulted the preservation of these features within the relatively small area where they are today extant.

Hollow ways are difficult or impossible to see on the ground, and in many cases, modern, intensive agriculture has erased all trace of them. CORONA satellite imagery, declassified intelligence images acquired by the United States from 1960 to 1972 (Day et al., 1998), has proven to be an invaluable resource for the identification of hollow ways since it preserves a picture of the landscape prior to major transformations of recent decades (Fig. 2; Ur, 2003; Casana and Cothren, 2008; Casana et al., 2012). Despite the value of CORONA imagery in archaeology, difficulties

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