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Introduction

The Archaeology of Island Colonization

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The timing and drivers of colonization into previously uninhabited areas are central themes in archaeological research (for example, Anderson et al. 2010; Broodbank 2006; Dawson 2014; Fitzpatrick 2004; Leppard 2014; Rockman and Steele 2003). Questions of how, when, from where, and by whom different regions were initially settled remain important research topics as these form a baseline from which we construct explanations of the past. The intricacies of colonization are often contentiously debated, as archaeological, linguistic, paleoenvironmental, and biological perspectives can present substantially different, and sometimes conflicting, information, particularly regarding the timing of initial settlement (for example, Anderson 1994, 1995; Anderson et al. 2018; Kirch and Ellison 1994; Napolitano et al. 2019; Prebble and Wilmshurst 2009; Siegel et al. 2015). Further complicating the issue, archaeological evidence of colonization is often ephemeral and difficult to find, especially if sites are small or located along coastal margins where rising sea levels pose increasing risks for inundation (Bailey and Flemming 2008; Erlandson 2008, 2012). However, recent methodological and theoretical advances in remote sensing (see chapter 5), biomolecular studies (see chapter 8), material culture analyses (see chapters 9 and 11), experimental modeling (see chapters 5 and 12), and increased precision of chronometric dating techniques (see chapters 6 and 7) allow for increasingly detailed and fine-grained reconstructions of colonization events.

Islands provide particularly rich and unique settings to study human colonization of new landscapes, as reaching them typically involved a suite of distinct innovations and adaptations, including the use of specialized watercraft,

development of maritime skills and technology (for example, wayfinding), the translocation of domesticated plants and animals, and long-distance interaction networks. Human arrival upon uninhabited islands often resulted in dramatic changes to endemic island ecosystems that were quite significant (for example, Bartlett et al. 2016; Braje et al. 2017; Cooke et al. 2017; Crowther et al. 2016a; Hofman and Rick 2018; Leppard 2017; Rick et al. 2013). In many cases, island ecosystems, which tend to be depauperate in terrestrial resources compared to continental landmasses, created unique challenges to colonizing groups, and these constraints are often more pronounced on smaller and more remote islands (for example, Fitzpatrick et al. 2016; Thomas 2019). Given these characteristics, the colonization of islands is arguably different from the settlement of uninhabited contiguous terrestrial areas and warrants specialized study.

The purpose of this volume is to highlight some of the recent work on colonization studies taking place in island regions around the world. A contribution that focuses on initial human occupation of islands from a global perspective is long overdue, as most recent works have been regionally focused and intended for a limited audience. Some notable exceptions include Fitzpatrick's (2004) *Voyages of Discovery: The Archaeology of Islands*, Anderson et al.'s (2010) *The Global Origins and Development of Seafaring*, and Rainbird's (2007) *The Archaeology of Islands*, all of which adopted global approaches to discussing island archaeologies. One of the ultimate goals of Fitzpatrick's (2004) volume was to establish island archaeology as a distinct subdiscipline. In the 17 years since it was published, island archaeology has become increasingly accepted as a distinct field of archaeological inquiry, and made significant contributions to other disciplines, as evidenced by the creation of several academic journals (see *The Journal of Island and Coastal Archaeology*, *Island Studies Journal*, *Journal of Maritime Archaeology*, among others).

Island archaeology has continued to develop in sophisticated ways both theoretically and methodologically, and has also been the subject of greater interest, particularly with regard to smaller and more remote islands that have often been overlooked in the archaeological literature (Fitzpatrick et al. 2016). More recently, islands have become a focal point in the race to mitigate the threats of sea level rise by helping to both highlight and lead efforts to protect and conserve cultural heritage, often in collaboration with island nations and descendant communities (for example, Douglass and Cooper 2020; Erlandson 2008; McCoy 2018).

The chapters in this volume provide an overview of the initial colonization of different island regions and highlight the wide variety of approaches now

used to study these events and place them in a comparative perspective. Our goal is not to provide an exhaustive review of colonization events around the world (*sensu* Keegan and Diamond 1987); instead we focus on recent research and trends across different geographical areas. We have intentionally sought out different methodological and theoretical approaches to explore current debates in the study of island colonization, drive discourse, and provide comparative views across different island regions.

Understanding islands as appropriate units of analysis is also a critical component of island archaeological research. Drawing on MacArthur and Wilson's (1967) foundational work on island biogeography, islands were originally seen as ideal "laboratories" in which to examine culture change because they were conceived as discrete and isolated landforms that could be compared to one another (Clark and Terrell 1978). A major shortcoming of this approach was the assumption that islands were isolated without much, if any, ecological or social interaction. Continued archaeological research on islands has shown that only in rare circumstances were island societies truly isolated (Fitzpatrick and Anderson 2008). Now, islands are better understood as model systems (for example, DiNapoli and Leppard 2018; DiNapoli et al. 2018; Fitzpatrick and Anderson 2008; Fitzpatrick and Erlandson 2018; Kirch 2007; Vitousek 2002). This approach considers islands to be relatively isolated compared to continental-based populations, but not completely so, and that these conditions better account for the dynamic nature of human-island interactions over time in a relatively circumscribed context.

For the purposes of this book, we utilize Terrell's (1999: 240) definition of islands as "habitats surrounded by radical shifts in habitat." While we acknowledge that biogeographic islands can be defined in multiple ways, here we specifically address human colonization on landmasses surrounded by water. The biogeographic definition of islands tends to be overly restrictive as it defines islands as *never* contiguous landmasses, and that plants and animals arrive *only* by nonresident colonists (Saddler 1999: 953; Rosenzweig 1995: 211); therefore, we have chosen to take a broader interpretation. The above definition ignores how fluctuations in sea level have, at times, "created" islands that were once contiguous landforms by inundating areas of low elevation. In such a scenario, newly isolated islands are populated with endemic plants and animals.

Moreover, sea-level lowstands can reveal previously unavailable contiguous landmasses (for example, land bridges or entire islands) for occupation by immigrant plant and animal species—including humans—that would not require colonization in the biogeographic sense, especially for islands located

near continental landmasses. Both processes trigger the development of productive ecological niches like shallow offshore reefs and estuarine habitats that would have been attractive for human use (for example, Dickinson 2004). For example, gradual sea-level rise off the southeastern coast of North America inundated low-lying areas and allowed for the formation of a chain of barrier islands off the coast of what is now Georgia and northern Florida (Oertel 1979; Thomas 2008). A productive estuarine marsh habitat containing hundreds of small islands, what we can think of as an expanded range (see chapter 2), developed between the mainland coast and newly formed island chain, the latter of which was quickly occupied by Archaic-age hunter-foragers (DePratter and Howard 1977; DePratter and Thompson 2013; Napolitano 2013; Thomas 2008; Thompson and Turck 2010).

The biogeographical definition of islands can also neglect to consider the human role in island building and modification. In the Ten Thousand Islands region of southwestern Florida, fisher-hunter-gatherers constructed complex “shell works”—artificial islands containing mounds, ridges, water courts, canals, and raised platforms made up of discarded mollusks—that were the proximate mechanisms or impetus for connecting people socially, politically, and ideologically (Schwadron 2017). While situating human occupation of shell islands within island colonization studies is not as clear as identifying the first human occupation of a naturally formed island, it is important to recognize the impacts that human arrival has on the surrounding environment, including the exploitation of existing landforms, the creation of new ones, and the historical ecology of long-term landscape change.

The second key concept that requires definition is colonization. While colonization may be simply defined as the point when humans first step foot on previously uninhabited islands, using this simple definition in practice can be problematic (Anderson and Sinoto 2002; Stein 2005: 7). Colonization is often used indiscriminately and applied to a number of different events ranging from evolutionary ecological concepts (see chapter 2; MacArthur and Wilson 1967) to the violent European expansion into other continents and islands around the world (chapter 4). Lipo et al. (chapter 3) argue that uses of colonization are often based on ambiguous and intuitive understandings of the assumed process whereby people “arrive to live in a new land.” In this sense, they argue that establishing the needed evidence for detecting colonization in the archaeological record tends to heavily rely on plausibility, and not strictly on unambiguous empirical evidence, leading to claims that are difficult to falsify, rather than hypothesis-driven research. Lipo et al. (chapter 3) also argue that “coloniza-

tion” should be viewed as an archaeological classification of time, or a kind of “temporal systematics,” that requires specific archaeological data that can only be explained by the arrival of humans. Similarly, Rieth and Hamilton (chapter 7) define island colonization as the beginning of the island’s archaeological record, while Cochrane (chapter 2) argues that different movement types should also be defined via explicit classification criteria. These explicit classifications or systematics approaches require archaeologists to think critically about what types of data are suitable for identifying colonization.

In the absence of direct archaeological data, proxies are often used to establish human arrival because the changes to island ecologies and biodiversity are often immediate and dramatic, even when founding populations are small (for example, Boivin et al. 2016; Braje et al. 2017; Connor et al. 2012; McWethy et al. 2014). Changes in macro- and microcharcoal concentrations may be used to infer initial landscape modification to establish an agricultural base (Burney 1997; Dodson and Intoh 1999; Gosling et al. 2020; Hunt et al. 2012; Siegel 2018; Siegel et al. 2015). Evidence for the presence of domesticated or non-native plants and animals that are closely associated with humans can also be used to confirm human presence, reconstruct potential homelands, and serve as evidence for interaction in the past (Prebble and Wilmshurst 2009). For example, barley grains found on the Faroe Islands have been used to clearly indicate human arrival and agricultural activity (Church et al. 2013). Similarly, the presence of Southeast Asian domesticates like Asian rice (*Oryza sativa*), mung bean (*Vigna radiata*), and Asian cotton (*Gossypium arboreum*) in the Comoro Islands and Madagascar have been used to infer human arrival (Crowther et al. 2016a; see also discussion in chapter 12). When compared with genetic evidence, these data indicate that the Comoros were the first point of interaction between Austronesian groups from Island Southeast Asia and Bantu-speaking groups from the African coast (Brucato et al. 2018; Hurler et al. 2005; Msaidie et al. 2011; Tofanelli et al. 2009). The remains of endemic fauna—when found modified by or in close association with humans—can also be used to both identify human arrival and document newly available resources that shift the cost and benefits of dispersal or nondispersal (chapter 2). For example, the Wairau Bar site in New Zealand contains human burials closely associated with the bones and eggs from moa (Aves: *Dinornithiformes*), large endemic flightless birds that went extinct within centuries of human arrival (Holdaway and Jacomb 2000; Holdaway et al. 2014). In conjunction with the presence of other extinct endemic fauna, the evidence

suggests that the individuals found here likely represent one of the first generations of New Zealanders (Higham et al. 1999).

What these and other studies demonstrate is that proxy data can and have been used as important lines of evidence for both identifying the presence of humans in island environments and describing the available resources in expanded human ranges. However, proxy data must be used cautiously. In many instances, these data precede archaeological chronologies by centuries or millennia and can lead to misleading results (for example, Cañellas-Boltà et al. 2013; Kirch and Ellison 1994; Siegel et al. 2015). For example, elevated charcoal levels associated with widespread forest clearance have been used to argue that humans arrived on the Caribbean islands of Grenada and Tobago as many as 2,000 years before any archaeological evidence (Siegel et al. 2015). Even if elevated charcoal levels in the absence of secure archaeological data could be used to infer human arrival to an island, not all groups may have engaged in forest clearance immediately upon arrival to an island, especially nonagricultural groups (for example, Douglass and Zinke 2015). Taken together, these examples underscore the importance of using multiple lines of proxy evidence with archaeological data from well-stratified and rigorously dated contexts (Gosling et al. 2020; Prebble and Wilmshurst 2009; Sear et al. 2020).

Major Issues in Island Colonization Studies

How Did People Colonize Islands?

One of the most important but difficult questions to resolve in island colonization concerns *how* peoples reached islands in the past. The earliest island occupations may have simply been opportunistic given growing evidence of coastal settlement and marine resource use in Africa during the Pleistocene and subsequent dispersal(s) out of Africa (for example, Erlandson 2001; Macaulay et al. 2005; Marean et al. 2007). As watercraft technologies and wayfinding skills improved and population sizes increased, the intentionality behind such ventures likely ranged widely: from wanting to obtain food or prized resources (for example, obsidian), to adapting to population growth or limited ecological carrying capacities, to escaping persecution, among others (Anderson et al. 2010). One attempt to conceptualize how islands were colonized is Broodbank's (2006) *seagoing*, *seafaring*, and *voyaging*. *Seagoing* refers to simple water travel over relatively short distances that did not require any sophisticated technology or intentionality; *seafaring* describes the regular use of relatively sophisticated watercraft (for example, propelled by paddles or sails) over relatively long dis-