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– INVITED COMMENT –

A Deep History for the Pacific: Where Past, Present, and Future Meet

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INTRODUCTION

Imagine an ocean so huge that it extends nearly pole to pole, encompasses almost half the world's oceans and nearly a third of its surface, with over 20,000 km of coastline bordering five of earth's six continents. Imagine an ocean with ~25,000 islands – more than all of Earth's other oceans combined – of nearly every size, shape, setting, and climate. Imagine a region occupied by hominins for almost two million years, most of which was only colonised by humans between ~50,000 and 15,000 years ago, including many islands that were not settled until after 3500 years ago. Imagine a region with such deep history and environmental diversity that its cultures and landscapes instilled wonder in the minds of explorers for centuries. Imagine islands and seascapes so stunning, that they still inspire awe in the hearts and minds of people around the world. If you study the archaeology of this remarkable ocean, you explore the deep history of the Pacific – from Sunda and Sahul, to East Asia and Beringia, the western borderlands of the Americas, and the vast sea realms of Oceania.

In a region so large and so varied, what common themes of geography, ecology, and human history unite the grand endeavour that is the archaeology of the Pacific? Geographically, of course, what unites the Pacific Rim and Basin is the nurturing and dangerous waters of the Pacific Ocean itself. Bounded by a ring of fire, the Pacific Rim marks the margins of the great Pacific Plate, a long and linear zone of volcanism, mountain belts, ocean trenches, earthquakes, tsunamis, and dynamic coastlines. Those coasts range from the frozen shores of Antarctica and Beringia, to kelp forests, rocky shores, sand beaches, coral reefs, muddy estuaries, and mangrove swamps – juxtaposed with tundra, rainforests, deserts, and much more. If islands are laboratories, so are ecosystems and those of the Pacific offered an incredible array of choices for the humans who settled them. Confronted with such cultural and environmental diversity, what unity can we hope to find in the archaeology of the Pacific?

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Raised in California and Hawaii, and having worked, played, and traveled in the Pacific for decades, I've been pondering this question for many years. In 1989, armed with a brand new PhD, I taught a semester-long class at the University of Alaska, Fairbanks called Pacific Rim Prehistory. The class forced me to think about unifying themes for the diverse regions around the Pacific and later experiences led me to ponder the problem for the entire Pacific Basin. In this essay, I share my current thoughts on this topic, hoping to inspire you also to consider some themes that unite the Pacific in all its ecological and cultural grandeur.

GREAT MIGRATIONS: OUT OF ASIA

Today we generally accept Africa as the original home of our hominin ancestors, including anatomically modern humans (AMH, *Homo sapiens sapiens*). Evidence now suggests, however, that *Homo erectus* (or a closely related species) first reached the shores of the Pacific nearly two million years ago. Thus, the northwest margin of the Pacific region (East Asia) holds a history of our genus that is nearly as deep as that of Africa. This time depth provides a rich source of inquiry into the evolution of our genus and species outside of Africa, one that is still relatively poorly understood. As further discoveries are made, the East Asian record will provide comparative data of enormous significance.

Although hominids reached the Pacific nearly two million years ago, their distribution in the region was geographically limited compared to that of AMH, confined essentially to East and Southeast Asia. The discovery of Lower Paleolithic stone tools on the island of Flores may provide evidence that *Homo erectus* was the world's first seafarer, making two short salt-water crossings close to a million years ago. At that time depth we should be cautious in interpreting the geography of such short straits, however, and there is currently no evidence that these hominids dispersed any further in Wallacea than some other large mammals who are relatively good swimmers.

Human seafaring capabilities expanded by an order of magnitude with the appearance of AMH in Southeast Asia. Genetic evidence suggests that a rapid dispersal of humans from Africa to Southeast Asia occurred between roughly 70,000 and 50,000 years ago, a migration that fol-

lowed a 'southern dispersal route' and may have required boats or rafts to cross some large river mouths. Seafaring is more clearly implicated in the settlement of Island Southeast Asia and Greater Australia ~50,000 ± 5000 years ago, a migration that involved multiple sea crossings up to 80-90 km long (see Anderson *et al.* 2010; Erlandson 2010a). Even longer sea voyages were required ~40,000 years ago to settle western Melanesia (the Bismarck Archipelago and Solomon Islands) and the Ryukyu Islands between Taiwan and southern Japan (Erlandson 2010b).

A coastal migration may also have led maritime peoples from Japan or Northeast Asia to the Americas about 15,000 years ago. The coastal migration theory, long overshadowed by a terrestrial route following the 'ice-free corridor' from Beringia to the vast plains of central North America, has been elevated to centre stage in recent years by archaeological, genetic, and ecological evidence. The latter includes the kelp highway hypothesis (Erlandson *et al.* 2007), which argues that a coastal route entirely at sea level opened earlier and provided a similar suite of kelp forest and other marine resources that facilitated the migration of maritime peoples from Northeast Asia into the Americas after the end of the last glacial.

In the past 4000 years, another wave of maritime explorers surged out of Asia and into the remote Pacific, facilitated by the sailing technologies and agricultural baggage of Austronesian and Polynesian peoples. Without question, the settlement of the Pacific Islands ranks among the greatest feats of migration, seafaring, and navigation in human history. As proud as I am of my Norse heritage, I teach my classes that calling the Polynesians the 'Vikings of the Pacific' is a historically profound miscarriage of justice. Polynesian voyagers traveled further, settled far more territory, and began doing so earlier than the Vikings. If parallels must be made – and they do not need to be made – it would be more appropriate to call the Vikings the 'Polynesians of the Atlantic.'

ORIGINS OF AGRICULTURE & COMPLEX SOCIETIES

If seafaring and maritime adaptations are deeply embedded in the Pacific, so is a series of distinct origins of agricultural and complex societies. Traditional anthropological explanations for these developments called on global or regional processes related to postglacial environmental changes (climatic warming, sea level rise, etc.), population growth, resource stress, and other behavioral or social factors. But how can we account for nearly simultaneous developments of agriculture at the end of the Pleistocene and complex societies in the mid-to-late Holocene in multiple areas of the world with very different demographic and ecological histories? Around the Pacific Rim, agriculture and animal domestication develop independently in New Guinea, East Asia, Mexico, and the Andean Coast, paralleling similar developments in other parts of the world at roughly the same time. Later, complex chiefdoms and states also developed in multiple areas of the Pacific, occupied by both agriculturalists & maritime hunter-gatherers.

In my view, these worldwide and geologically simultaneous developments are best understood, first and foremost, by the common presence of AMH, with our history of rapid migration, intellectual and technological ingenuity, and rapid adjustment to new ecologies and environments. By themselves, the traditional explanatory drivers of culture change – migration, population growth, diffusion, environmental change, resource stress, territorial circumscription, and others – are simply not adequate. Ultimately, underlying any other explanation is the remarkable and restless ingenuity of our species, and a common biological, behavioral, and cultural repertoire our ancestors carried with them as they spread rapidly around the globe.

CLASH OF CULTURES: COLONIALISM AND GLOBALISATION

While much unites the Pacific region, its deep human history is also of keen interest for the relative isolation in which many of its cultures developed. This is certainly true for greater Australia, where interaction with Old World peoples was limited for nearly 50,000 years, and in Tasmania which was isolated by the flooding of Bass Strait about 10,000 years ago. To a lesser extent, it is also true for the Americas, where successive waves of colonists from northeast Asia – the last a Late Holocene spread of Arctic peoples through Alaska, Northern Canada, and Greenland (mostly outside the Pacific) – existed largely in isolation from Old World developments until the era of European exploration and colonialism. That is even more true of the relatively remote archipelagos of Melanesia, Micronesia, and Polynesia, where seafaring, fishing, and agricultural peoples colonised widely scattered islands from Niihau to New Zealand, from Palau to Rapa Nui, and virtually all points between and some beyond.

Archaeologists still debate the degree to which Pacific peoples were isolated or interconnected and whether Pacific waters provided barriers or opportunities for interaction. In my view these are not issues that can be generalised or dichotomised, they are the subject for detailed research in individual archipelagos or coastal regions, where the degree of isolation versus interaction waxed and waned in response to a variety of environmental, demographic, technological, and sociopolitical factors. Recognising that cases of true, long-term isolation were relatively rare in the Pacific, it is also true that the indigenous cultures of Greater Australia, the Americas, and Pacific Islands were comparatively isolated from biological and cultural interaction with Old World peoples for millennia. This isolation had dramatic – often tragic – consequences for indigenous peoples of the Pacific when European explorers and settlers descended on the region with guns and virulent new diseases.

The theatre of Pacific archaeology provides fertile ground for detailed and nuanced studies of the varying degrees of isolation versus interaction prior to European contact, as well as the dramatic cultural, demographic, economic, and ecological changes that occurred after contact. What evidence is there for trans-Pacific contacts prior to European exploration, for instance, and what were their consequences? What was the history and timing of early contacts with European or American explorers, colonial incursions, or commercial enterprises in various parts of the Pacific? How did these encounters affect indigenous and exogenous cultures, and how did such changes vary through space and time? What can archaeology tell us about the lives of indigenous peoples during this critical period, or those of whalers, sealers, missionaries, convicts, soldiers, and other settlers from many different lands? How did the multiethnic communities that emerged from these colonial encounters evolve into the diverse cultures and nations of the Pacific today? In the 21st century, the lens of archaeology is increasingly being turned on the records of World War II, the Cold War, and the continuing diaspora and culture change that still affect Pacific peoples.

General models of these processes can be valuable, but I prefer a focus on the many individual histories in the Pacific that need to be explored in their own right. In the archaeological record, there are narratives waiting to be written on conquest and collaboration, power and politics, resistance, resilience, and renaissance, stability and sustainability. In exploring the archaeology of the Pacific, we should explore the full range of interaction, change, responses, and outcomes that are the tapestry of human history, from the deep past to the present.

HUMAN IMPACTS ON ANCIENT ENVIRONMENTS

A final point I raise here relates to the extraordinary opportunities Pacific archaeologists have to continue to lead the development of interdisciplinary research on historical ecology and human impacts in island and coastal settings. Those contributions have already been substantial – exemplified by the work of Atholl Anderson, Patrick Kirch, David Steadman, and many others – and they demonstrate that humans have shaped Pacific ecosystems in various ways and to varying degrees for millennia. Recognising that prehistoric foragers and agriculturalists changed the terrestrial and marine ecosystems they lived in is one thing, but truly understanding the nature of those impacts is another. We need increasingly high-resolution chronologies and better environmental records, as well as careful consideration of the natural processes that can mimic the signatures of human impacts.

Without question, prehistoric humans contributed to a number of Pacific extinctions, although the causes of some extinctions (e.g., the Pleistocene megafaunas of Australia and the Americas) continue to be hotly debated. There is growing evidence for anthropogenic changes in terrestrial and nearshore ecosystems: resource depression, trophic cascades, reductions in range or the average size or age of shellfish or fish species, and other measurable impacts (see Rick and Erlandson 2008). The accumulation of evidence from multiple case studies also suggests, however, that there is no inevitable or predetermined outcome when it comes to human impacts in Pacific island or coastal ecosystems. In some cases, whole ecosystems collapsed, sometimes coincident with the human societies that lived in them. In others, local cultures, ecosystems, or both were more resilient and adaptable through time. If archaeological research has destroyed the romantic notion that indigenous peoples lived in total harmony with nature, it has also damaged recent anthropological theories that conservation did not exist in smaller-scale societies.

As my colleagues and I have argued for the historical ecology of California's Channel Islands, prehistoric human impacts can be contextualised by comparing them to the colonial practices of commercialised, industrialised, and globalised environmental catastrophes that accompanied 'western' conquest and settlement of the region. In most cases, the impacts of prehistoric peoples pale in comparison to the onslaught of extinctions and other ecological disasters triggered by colonial systems of economic exploitation – capitalist or communist.

Today, our charge is to help stop or reverse those ecological and cultural disasters, to help restore collapsing fisheries and ecosystems to a semblance of their historical abundance and structure, and to help create a more resilient natural world and more sustainable economies. Doing so requires deeper historical perspectives and ecological baselines to guide conservation and restoration efforts. This is a challenge archaeology is uniquely positioned to meet. We can contribute to interdisciplinary solutions to some of the most pressing issues of our time, and demonstrate the relevance of our discipline to the past, present, and future of humanity and life on earth.

CONCLUSIONS

Despite its varied and unique histories, the Pacific offers a host of common issues archaeologists contribute to through their research: human evolution and migrations; the origins, development, and diversity of seafaring, maritime adaptations, agriculture and complex societies; the effects of cultural contacts, colonialism, and globalisation on an amasing array of cultures; and a long history of human impacts on island and coastal ecosystems. In imagining an archaeology of the Pacific, consider that knowledge about the past that we create contributes to the collective wisdom and beauty of the present, and to hopes and dreams of our future.

Just as many non-archaeologists are beginning to recognise the importance of archaeology to understanding the profoundly interwoven histories of Pacific peoples and ecosystems, however, the archaeological, historical,

and paleontological records of Pacific coastlines face unprecedented threats. Even with stable sea levels, marine erosion damages hundreds of thousands of archaeological sites that store the knowledge we need to reconstruct the past and explore the issues I have touched on in this essay. With the latest models of global warming predicting a sea level rise of 40 to 200 cm (or more) for the 21st century, the destruction of coastal sites will be greatly accelerated (Erlandson 2010c). Archaeologists must take the lead in expanding awareness of this growing threat to the deep history of the Pacific, in planning appropriate responses, and in marshalling the collective will and resources to mitigate a catastrophic loss of our communal maritime heritage.

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