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The Possibility of Pacific Rim Origins for New World Ancestral Populations

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The colonization of the Americas by the ancestors of today's First Nations has been a central theme of investigation for centuries. In the last 20 years, archaeologists working on the issue of initial arrival in North and South America have shown the increasingly high probability of an entry from Asia via a coastal route along the North Pacific continental edge (Davis et al., 2012; Madsen, 2015; Davis et al., 2019). The first human communities of the Americas were recent migrants and, in turn, were the descendants of trailblazing populations that rapidly radiated out of the mother continent of Africa sometime after 70,000 years ago (Lopez et al., 2015). Following a route that passed through the 'lost' subcontinent of Beringia, these Upper Paleolithic hunter-gatherers left their homelands on the shores of the Western Pacific during a time of climatic and social instability. Recent investigations on Isla Cedros, Baja California (Des Lauriers, 2010; Des Lauriers et al., 2017; Des Lauriers et al. 2020) have discovered several sites that date to the Terminal Pleistocene and contain evidence for specialized technology for harvesting offshore marine resources. Combining the implications of recent research demonstrating that 1) the "ice-free" corridor was not available as a route for the initial migration to the Americas (Map 3); 2) that shell hooks were used during the last glacial period in southern Japan (Fujita et al. 2016) and across the Western Pacific Rim (Smith and Allen 1999; O'Connor et al., 2011); and 3) given that these were also used in Cedros Island in the final centuries of the Pleistocene, we must consider the possibility that the initial routes of movement into the Americas had at least some of their points of origin among the coasts and islands of the Western Pacific Rim, instead of exclusively originating in the interior of Siberia.

La colonización de las Américas por los antepasados de las Primeras Naciones actuales ha sido un tema central de investigación hace varios siglos. En los últimos 20 años, los arqueólogos que trabajan en el tema de la llegada inicial a América del Norte y Sur han demostrado la probabilidad cada vez mayor de una entrada inicial desde Asia a través de una ruta costera a lo largo del borde continental del Pacífico Norte (Davis et al., 2012; Madsen , 2015; Davis et al., 2019). Las primeras comunidades

humanas de las Américas fueron migrantes recientes y, a su vez, descendientes de poblaciones pioneras que se irradiaron rápidamente del continente madre de África en algún momento después de hace 70,000 años (López et al., 2015). Siguiendo una ruta que pasó por el subcontinente 'perdido' de Beringia, estos cazadores-recolectores del Paleolítico superior abandonaron sus tierras natales en las costas del Pacífico Occidental durante una época de inestabilidad climática y social. Investigaciones recientes en Isla Cedros, Baja California (Des Lauriers, 2010; Des Lauriers et al., 2017; Des Lauriers et al. 2020) han descubierto varios sitios que datan del Pleistoceno Terminal y contienen evidencia de tecnología especializada para la cosecha de recursos marinos en alta mar. Combinando las implicaciones de investigaciones recientes que demuestran que 1) el corredor "sin hielo" no estaba disponible como ruta para la migración inicial a las Américas (Mapa 3); 2) que los anzuelos de concha se utilizaron durante el último período glacial en el sur de Japón (Fujita et al. 2016) y en todo el borde del Pacífico occidental (Smith y Allen 1999; O'Connor et al., 2011); y 3) dado que estos también se usaron en la Isla Cedros en los siglos finales del Pleistoceno, debemos considerar la posibilidad de que las rutas iniciales de movimiento hacia las Américas tuvieran al menos algunos de sus puntos de origen entre las costas e islas que rodean el borde del Pacífico occidental, en lugar de originarse exclusivamente en el interior de Siberia.

The Great Diaspora and the Furthest Migration

The first human communities of the Americas were, by definition, recently arrived migrant populations and the descendants of trailblazing modern human populations that rapidly radiated out of the mother continent of Africa sometime after 70,000 years ago (Lopez et al., 2015). Following a route that passed through the lost subcontinent of Beringia, these Upper Paleolithic hunter-gatherers, left their homelands on the shores of the Western Pacific during a time of climatic and social instability. To get from the north Pacific Rim to South America, these settlers were forced to cross borders between inhospitable, barren, truly unknown and desolate lands. There was a lack of advance knowledge of the details of landscape, of flora and fauna, sources of reliably potable water, and deposits of raw materials. The ancestral migrants overcame these shortcomings, learning and adapting with a masterful skill, found only among determined people. Only their existing knowledge and skill could be brought with them from their ancestral homelands. These "communities of practice" (Wenger, 1998) thus would have predated the arrival in the Americas. Human history in the Americas is a history of migrants, a history of how and why various aspects of the cultural systems that they brought with them changed or persisted.

The first settlers arrived as complete societies, not blank slates; they were communities in transit, communities with great funds of knowledge (Vélez-Ibañéz and Greenberg 1992), looking for a new life in a new world. It is not easy to begin to overcome boundaries of unknown scale, but the ancestors of the original people of the Americas did exactly that. There exsits a reciprocal relationship between the cultural legacies of a people and the conditions encountered in a diasporic context. It is the degree to which the new situations can be accomodated within pre-existing systems of knowledge, technology, and social organization that largely determines how much selective change, or adaptation, will be required of the migrating population.

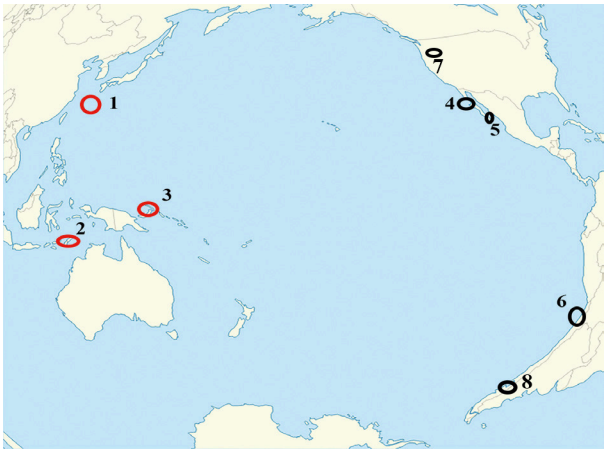
Settlement of the Americas

The colonization of the Americas by the ancestors of today's First Nations has been a central theme of research for centuries. In the last 20 years, archaeologists working on the issue of initial arrival in North and South America have shown the increasingly high probability of an initial entry from Asia via a coastal route along the North Pacific continental edge (Davis et al., 2012; Madsen, 2015). Recent discoveries at the Cooper's Ferry site in Idaho clearly show human presence south of the North American ice sheets by ~16,000 cal yr BP (Davis et al., 2019) – more than 1000 years before the opening of an ice-free corridor. This and other recent discoveries further support the hypothesis that people initially migrated into North America along a Pacific coastal route (Map 14.1).

Early sites like Cooper's Ferry, Idaho (Davis et al., 2019), Monte Verde, Chile (Dillehay, 1997, 2000), and Paisley Caves, Oregon (Jenkins et al., 2012) among other localities, hold evidence that humans were present in the Americas before the appearance of Clovis Paleoindians. Despite the fact that Clovis peoples were not the first inhabitants of the Americas, the Clovis Paleoindian tradition is a very interesting historical and anthropological phenomenon in terms of the brevity of its few centuries of history (Waters and Stafford, 2014), and its geographical extension from the Sonoran deserts with the extraordinary site known as El Fin del Mundo (Sanchez et al., 2014), to the forests of the Pacific Northwest and the Great Lakes between Canada and the United States. There are even limited numbers of isolated fluted points from the Baja California Peninsula, though their connection to the larger Llano tradition is unclear (Gutiérrez and Hyland, 2002; Des Lauriers, 2008). The Clovis Culture is still fascinating, but now it is also recognized that the mammoth hunters seen in countless museum dioramas were not the first inhabitants of the Americas, but the descendants of the pioneer groups

Map 14.1.

Some of the archaeological sites or geographic locations mentioned in the text. (1) Ryukyu Archipelago, Japan; (2) East Timor sites; (3) New Ireland; (4) Isla Cedros, Baja California, México; (5) La Paz region sites, México; (6) Morro Colorado, Chile; (7) Cooper's Ferry, Idaho, USA; (8) Monte Verde, Chile.



that had different life paths, and a route of entry to the Americas that only recent findings in sites in North and South America have brought to our awareness.

The earliest archaeological evidence for the arrival of people in the Americas has been discovered at the Cooper's Ferry site in western Idaho dating to 16,000 years ago, more than 1,000 years before an "ice-free corridor" opened between the two North American Continental glacial masses (Davis et al., 2019). This may be interpreted to support the hypothesis of the Pacific migration route to the Americas along its coasts, since the antiquity of the find precludes an interior route of arrival for the earliest occupants of Cooper's Ferry. If the initial human migration to the Americas actually followed such a coastal route, then we might expect to find the first sites along the coast and that these sites should produce evidence that the first

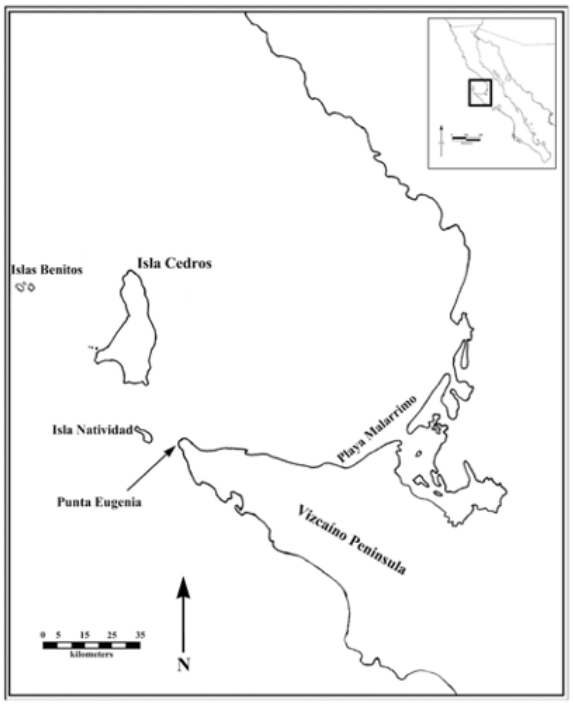
coastal settlements possessed deep traditional ecological knowledge about marine environments and their resources. Critics often point out that the Pacific coastal sites are not as early as Clovis and other previous inland sites; however, in recent investigations on Cedros Island, Baja California (Des Lauriers, 2010; Des Lauriers et al., 2017; Des Lauriers et al., 2020), several late Pleistocene sites have been discovered that date close to and overlap with the Paleoindian Clovis Tradition period.

Isla Cedros, Baja California, México

Cedros Island, Baja California (Map 14.2), is a unique and special place. Measuring 35 kiliometers north-south and by 16 kilometers east-west, it also reaches to almost 1400 meters in elevation. It is a large, rocky, 'high' island in the Pacific Rim sense of the term. Marine layer fog consistently blankets the island, shrouding its flanks with a thick, life-giving girdle of water, upon which the plants of the island rely almost entirely, for it very seldom rains. Its vegetation ranges from desert flora at sea level, to small pockets of pine forest along the crests of the central spine. Its surrounding seas are prodigiously rich, and sea life abounds. In the thinking of the Cochimí, the contact period indigenous inhabitants of the region, this island was the Western Mountain, a sacred place, and cradle of origin of one of their lineages that gave structure to their social life. It is, in fact, a mountain drowned by the rise in sea level, becoming an island during the final centuries of the Ice Age, when the glacial masses of the Northern Hemisphere were rapidly ablating.

Map 14.2.

Isla Cedros, Baja California, México.



Four sites on Cedros Island have revealed human occupation dated to the final centuries of the Ice Age: Cerro Pedregoso (PAIC-44); Richard's Ridge (PAIC-49); Sitio Peregrino (PAIC-88); and Colina Castor (PAIC-91). In 2019, a binational team led by Matthew Des Lauriers (California State University, Northridge), Loren Davis (Oregon State University, Corvallis), and Antonio Porcayo Michelini (National Institute of Anthropology and History), conducted excavations in three of these sites (-44, -88, and -91). The results of these investigations have been surprising with extremely relevant findings for our understanding of the entry and settlement of some of the first human communities on the coast of the Americas (Des Lauriers et al., 2017).

In all coastal regions, throughout time, people have found essential resources necessary for the flourishing of human communities. Even along the most arid coastlines, it is water that is often a limiting factor, not food or other nutrients. As global ice masses began to melt at the end of the Würm glaciation, many archeological sites associated with these first coastal occupations of the Americas were incontrovertibly submerged or destroyed by rising tides (Westley and Dix, 2006). To the great benefit of our

investigations, however, Late Pleistocene sites on Isla Cedros display a pattern of being located in the vicinity of ancient springs (now extinct), located several dozen meters above even current sea level. Archaeological excavations show that the people who occupied these sites fished, hunted and collected marine food resources and took them inland to live next to these springs. Our research has focused on these ancient occupations because they are surviving evidence of early coastal occupations that have more often been submerged on the continental shelf. Rather than live closer to the source of marine foods, the early inhabitants of Isla Cedros appear to have prioritized potable water and decided, based on available labor power and technology, that it was easier to move the food to the water than the converse. Observations like this one become of increasing interest as we pursue lines of investigation that focus on the nature and process of migration and settlement (sensu Rockman, 2003), rather than simply prospecting for radiocarbon dates. Excavations at these early sites show a series of cultural material buried and stacked in fine sands and silts, which reflect the repeated human occupations around the springs within a dry coastal environment. It was the attraction of water that caused these early inhabitants to move large quantities of seafood, raw materials, and other resources to relatively stable campsites in immediate proximity to large freshwater springs, paralleling early settlement patterns in other arid regions bordering the Pacfic Basin (i.e. Veth, 1989). In regions of the Eastern Pacific Rim where fresh drinking water was not as scarce (e.g. Fedje et al., 2011), it is possible that occupations may have been more fluid in terms of location, and quite possibly located closer to the now drowned paleocoastline. This would have the effect of making early coastal sites in these more well-watered regions more susceptible to inundation and destruction by eustatic sea-level rise. The constraints of the arid landscape of Baja California may have resulted in a higher survival rate for Terminal Pleistocene residential sites.

At Cerro Pedregoso (PAIC-44), one of the most salient and surprising discoveries of the 2019 field season was shockingly abundant evidence for the manufacture and use of single piece shell hooks (Figure 14.1), and the exploitation of a wide range of marine and terrestrial resources between the Terminal Pleistocene and Early Holocene. Early sites on Isla Cedros show a varied lithic toolkit that includes abundant bifacials, knives, projectile points (Figure 14.2), 'conchotechnic' tools produced by flaking of thick *Tivela* clam shells and uncommon examples of ring-shaped, enigmatic groundstone artifacts. Of special interest is the unifacial lithic industry (Figure 14.3), which is the single most diagnostic artifact type for the Terminal Pleistocene sites on Isla Cedros. The microscopic analysis of the unifacial lithic scraping tools reveals wear and polish on their margins resulting from the processing of *Agave* fibers to make ropes, nets, fishing line, etc (Elzinga, 2011).

Figure 14.1.

One of the most well-preserved shell fishhooks from Isla Cedros, Baja California. It is among 38 other similar hooks manufactured from both Mytilus and Haliotis shell from 3 Terminal Pleistocene-aged sites on the island.

Figure 14.2.

Common projectile point forms from Terminal Pleistocene sites on Isla Cedros, Baja California. Scale in cm.

Figure 14.3.

Diagnostic unifacial tool (in early use-life stage) from Terminal Pleistocene sites on Isla Cedros. Scale in cm.

To date, Cerro Pedregoso has a collection of faunal remains that is the most diverse compared to any other archaeological site on Cedros Island over the last 12,000 years. The site has given thousands of fish remains identified in 25 different taxa, accompanied by a wide range of mollusks, crustaceans, marine mammals, sea turtles, birds, rabbits, and endemic deer that still inhabit the island. Outside of mollusks, fish, and crustaceans, the most consistent faunal elements recovered are those of turtles and marine mammals.

Shell fishhooks are among the first specialized technologies in evidence on Isla Cedros and were used during a period of dramatic changes in climate, ecology, and coastal geomorphology (Mandryk et al., 2001; Westly and Dix, 2006; Fedje et al., 2011). The lower layers in the Richard's Ridge (PAIC-49) are dated in excess of 12,700 years old, while Sitio Peregrino (PAIC-88) has produced the oldest date thus far obtained for a cultural deposit on the island that would place occupation at least as far back as 13,400 CalBP. Our data indicate that hook and line technology appears on Cedros Island at least in the late Pleistocene along with harpoons, as suggested by bifacial projectile points, turtle remains and marine mammals, in conjunction with nets probably made of fiber from *Agave*, which are further evidenced by the vertebrae of abundant small fish (Atherinopsidae). Other sites in Baja California Sur, notably on Espiritu Santo Island in the Sea of Cortez, have produced shell fishhooks dating to the early periods of occupation. These other hooks date in excess of 10,000 kya (Fujita, 2014), but have not yet been recovered from contexts as old as those on Isla Cedros. Likewise, single-piece shell fishhooks form the earliest recognizable fishing tackle along the Pacific Coast of South America, but dating to between 8,000 and 9,000 years old (Flores et al., 2016).

During the late Pleistocene and early Holocene, the bathymetry near the shore of the paleo-Island lacked the

steep topographic relief that would have been necessary to fish deep-sea species. Between 13,000 and 10,000 years old, there were an extremely small number of places where deep water of 25 meters was less than about 1 kilometer distant from the Paleo-shoreline of the island. Along the southern part of the island, and in almost all other areas, the first foragers would have travelled by boat at least 2 kilometers offshore to find waters of that depth to fish (Des Lauriers et al., 2017).

The abundant remains of shallow water species associated with muddy or sandy substrates, in addition to sea turtles associated with seagrass meadow habitats, support the interpretation that the environment near the shores of the Paleo-Cedros Island was not exclusively dominated by a steep and sloping bathymetry, or deep water. However, ocean whitefish (Caulolatilus princeps) is one of the representative fish in the icthiofaunistic collections for the early period, and is a species that is most commonly found in waters that they measure between 28-62 meters deep near rocky reefs and offshore banks in Alta California (Wertz and Kato, 2004), and in waters between 80-150 meters deep in Baja California Sur (Elorduy-Garay et al., 2005). The only practical method for harvesting them in the Terminal Pleistocene would have involved the use of hooks, stone weights and fishing line, as well as the use of boats to reach the outer edge of the kelp forest and deep rocky reefs.

Of special importance is a significant contrast with some of the early sites on the coast of Peru (e.g. Reitz et al., 2016) – the remains of fauna from Cedros Island are characterized by an extreme diversity, not only of species, but of entire classes of fauna. The consistent and sustained exploitation of a wide range of resources represents a long familiarity with the ecozone, which indicates one of two possible explanations: 1) they arrived in the peninsula of Baja California without a maritime adaptation, but arrived long before they developed any of the archaeological evidence that we have recovered so far, provided an adequate period of time for landscape learning (Rockman, 2003; Milne 2008, 2011), and the always associated development of technology and traditional ecological knowledge; or 2) the human populations that migrated along the Pacific coast of North America were already familiar with aquatic resources (Ames, 2002) and simply adjusted existing strategies and technologies to the needs and restrictions of the new ecological conditions and availability of raw material. The second possibility would have dramatically reduced the duration of landscape learning required for pioneer groups to establish stable ecological and social structures, both essential for a rapid and successful dispersion of human beings along the Pacific coast of the Americas. Both explanations remain viable, since human occupation in places like Paisley Caves, Oregon, (Jenkins et al., 2012) is dated at least 500 years before the oldest sites thus far investigated on the Baja California Peninsula. Testing these two possibilities against one another will only be possible though further investigations on the Peninsula and other portions of the North Pacific Rim, where geography, climate, and steep continental shelves provide enhanced opportunity to discover sites dating to the Late Pleistocene. Beringia itself lies largely beyond the practical range of even underwater archaeology, but the Pacific Coast of Mexico and the Japanese Archipelago are among the ideal regions to search for connections. This is especially true, since there have been nearly 17,000 Late Pleistocene deposits identified in Japan (Nakazawa, 2017, p. 545), and these range geographically from the Ryukyu Islands in the south to Hokkaido and Sakhalin in the north – a substantial portion of the Pacific Rim.

The Wider World and Traditions of the Sea

Archaeological sites in the Western Pacific, such as Lene Hara Cave in Indonesia (O'Connor and Veth, 2005; O'Connor et al., 2011) along with other Melanesian sites (Smith and Allen, 1999) have produced single-piece shell fishhooks dating to the Terminal Pleistocene. Even closer to the North American coastline by way of the Pacific Rim route is the site of Sakitari Cave on Okinawa, largest of the islands in the Ryukyu Archipelago (Fujita et al., 2016). At this locality, not only does evidence for the manufacture of single-piece shell fishhooks extend back further than at any other deposit on the Western Pacific Rim (and quite possibly the world), but the insular context demonstrates unequivocally that seaworthy watercraft were employed by the inhabitants, who harvested a diverse range of marine resources with a sophisticated technological system enabled by a depth of ecological knowledge borne from long residence in the dynamic coastal environments of the Pacific Rim seas bejeweled with inspiringly beautiful islands.

Figure 14.4.

Typical flaked shell tool from Terminal Pleistocene contexts on Isla Cedros. Scale in cm.

The similarities between the Terminal Pleistocene Okinawan assemblages (Fujita et al. 2016) and the Isla Cedros material (Des Lauriers 2010; Des Lauriers et al. 2017) are not limited to the generalized idea of "fishhook." Both sets of hooks are manufactured from nacreous shells of abalone, though the Cedros hook assemblage also includes mussel shell as a raw material. Both sets also have the same types of attachment shanks. Both sets appear to conform to a very similar range of size and form, within which both populations would have recognized similar design characteristics. Additionally, even the faunal assemblages from both Okinawa and Isla Cedros share interesting lines of convergence, including crustaceans as a significant resource and the use of shell (Figure 14.4) as a raw material for flaked tools (Takamiya et al., 2019). In fact, it would appear that the kind of broad-spectrum adaptation so clearly demonstrated in the Isla Cedros assemblage (Des Lauriers, 2010; Des Lauriers et al., 2017), where every kind of plant and animal available to the Terminal Pleistocene inhabitants was actually harvested, was paralleled in the Okinawan deposits (Takamiya et al., 2015; Fujita et al., 2016).

Island populations necessarily demonstrate a settlement pattern that runs counter to our expectations of Pleistocene hunter-gatherers, being locations were the legendary 'highly mobile' foraging groups would have been severely constrained by the very nature of insular geography. As a result, we have to reconfigure our image of these populations, and create one where while some mobility may have been employed seasonally for convenience, it would not have resulted in movements of any great distance, certainly nowhere near the scope and scale of the mobility practiced ethnographically by populations in the high Arctic (Binford 1977, 1978) or arid regions of Africa (Lee 1972) and Australia (Allen 1997; Veth 1989). In the latter cases, however, mobility is still constrained by

available water sources, even when physical barriers to movement are minimal. No, for those groups occupying the Western Pacific Rim, and their descendants in the Pleistocene landscape of the Americas, would have had strong senses of "place," and their active acquisition of knowledge about the new lands before them would have proceeded as that of expectant new residents rather than the cursory examination performed by peripatetic visitors (Rockman, 2003; Fujita and Ainis, 2018).

New Perspectives, New Routes

By discarding some of the assumptions and misapprehensions of previous generations of scholars, we may be able to form an increasingly complex and historically accurate image of the timing, and nature of human population movements and socio-ecological adaptations that we include under the heading of "Peopling of the New World." No longer confined to points of origin in the Taiga of Siberia and ways of life predicated on a terrestrial mode of production, we can expand our search and interpretive processes beyond the orthodoxy of the 20th Century. Shifting our view in this way would suggest that the image of the initial migrants into the Americas which held our attention for so many decades was seriously flawed. While some of the descendants of the early settlers did indeed forge a new lifeway focused on big-game hunting in the interior of the North American continent, it was one which flowered and faded in one glorious, but brief, cultural spring. The Clovis phenomenon was one which occurred at least a thousand years after the initial arrival of people on the continent, adding further strength to the suggestion that the apparent rapidity of its spread was due to it being a technology that spread among populations already in possession of the land and a detailed knowledge of basic resource distribution (Amick 2017).

Combining the implications of recent research demonstrating that the "ice-free" corridor was not available as a route for the initial migration to the Americas (Map 3); that shell hooks were used at the height of the last glacial period in southern Japan and across the Western Pacific Rim (O'Connor et al., 2011) and that these were also used in Cedros Island in the final centuries of the Pleistocene, we must consider the possibility that the initial routes of movement into the Americas had at least some of their points of origin among the coasts and islands of the Western Pacific Rim, instead of exclusively originating in the interior of Siberia. Interesting parallels in specific functional uses and manufacturing processes in lithic technology have even begun to tie some of the early traditions of Hokkaido (Buvit et al., 2014; Nakazawa 2017) to early archaeological sites along the Pacific Slope of the Americas (Davis et al., 2019). Some recent genetic results may actually support multiple points of origin for the settlement of the Americas, with some participants in fact derived from Pacific Rim populations (Skoglund et al. 2015). Additionally, studies of human skeletal morphology actually provide some evidence for population links between the pre-Jōmon occupation of the Ryukyu Archipelago (Takamiya, 2015, 2019) and Austro-Melanesian populations (Kaifu et al. 2011). In practical terms, both as regards their demonstrated possession of transportation technology in the form of seaworthy watercraft and the fact that their homelands were more immediately susceptible to Terminal Pleistocene climate disruptions than those people living hundreds of kilometers from the ocean, the people of the late Pleistocene Pacific Rim were undoubtedly among the populations that were forced into diasporic movements as geography changed in face of global climate change.

This is a story within which we are not merely observers, and we may faintly hear echoes of our collective past and glimpse images of our possible futures, both potentially enlightening and disturbing at the same time. As we

continue to search for and investigate new Pleistocene-aged deposits in Baja California and elsewhere in Latin America, we may find that the first inhabitants, like other Pleistocene peoples of the Pacific basin, were always seafarers. Their great funds of knowledge (Vélez-Ibañéz and Greenberg, 1992) and far-flung communities of practice (Wenger, 1998), instead of being erased by the experience of migration, were precisely what empowered them, allowing them to begin the settlement of some of the first truly unknown lands since our ancestors ventured beyond the mother continent of Africa.

Map 14.3.

The Northeastern Pacific Rim at approximately 12,000 CalBP. This is shortly after the opening of the corridor between the Cordilleran and Laurentide Ice Masses. Sites dating to this time are found throughout the Northeastern Pacific Rim, from British Columbia to Baja California Sur (see Fujita and Ainis, 2018).

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