

## Out of Sunda? Provenance of the Jōmon Japanese

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This discussion attempts to reconcile various seemingly contradictory research results regarding the origins of Jōmon Japanese. The focus is on testing Oppenheimer's theory of Holocene outmigration from the former continent of Sundaland in present-day Southeast Asia against the evidence relating to Jōmon Japan and the "Out of Taiwan" hypothesis for Austronesian language dispersal. It is argued here that postglacial flooding of Sundaland prompted some former inhabitants to migrate from around ten or eleven thousand years ago, and that they followed the expanding belt of lucidophyllous forest, eventually to settle in what is now Japan during the Jōmon Period, in accordance with the theory of regional pockets of "laurilignosa culture." It is stressed that some of these people were probably speakers of Austronesian languages. Further, it is argued that the "Out of Taiwan" movement of Austronesian language speakers could have occurred later as a migratory counterflow accompanying the Holocene maximum, and that an "Out of Sunda" scenario of migration to Japan in the Jōmon period is not necessarily entirely incompatible with such an "Out of Taiwan" theory.

### Introduction

In the past quarter century or so the question of the relationship between the prehistoric inhabitants of the Japanese archipelago and others beyond its shores has been the topic of much scholarly debate. This discourse encompasses a wide range of evidence from different disciplinary sources, including in the fields of archaeology, anthropology, and historical linguistics. The various arguments intersect at several points but conflict at others. As yet there has emerged no clear-cut resolution to this debate. The present essay will attempt to navigate the reader through analysis of the arguments in some of these diverse literatures, in order to advance the discussion and to suggest probabilities that take into account both the overlaps and disjunctures in the evidence. The prevailing thinking has gone through several phases, which in some cases are tantamount to a volte-face. A brief overview is as follows.

First, a school of thought linked Jōmon 縄文 period (ca. 13,680–410 BCE<sup>1</sup>) Japanese and indigenous Japanese Ainu with "Austronesians," on the basis of cranial measurements.<sup>2</sup>

This view, led by Brace et al. (1990), was partly corroborated by Benedict's historical reconstruction of the Japanese language as having some Austronesian roots.<sup>3</sup> This line of research ultimately speculated that Jōmon Japanese were the ancestors of modern Micronesians and Polynesians.<sup>4</sup> Then Hanihara (1991) and Turner (1992) took the lead with their findings based mainly on dentition, to the effect that while Jōmon Japanese appeared to be most clearly related to Ainu and modern Southeast Asians, the population of the succeeding Yayoi 弥生 period (ca. 500 BCE–300 CE)<sup>5</sup> predominantly comprised Northeast Asians who had migrated to Japan mainly through the Korean Peninsula. At the same time it was recognized that this was a great oversimplification of the situation and that things were actually much more complex.<sup>6</sup> There seems to have been little exploration of the issue of how or why such Southeast Asian peoples went to Japan in the Jōmon period.<sup>7</sup>

Among views opposing the Jōmon/south–Yayoi/north taxonomy, it has also been proposed that it was later *Yayoi* people who accounted for Southeast Asian aspects of Japanese culture rather than the Jōmon.<sup>8</sup> While the situation in Jōmon Japan is by no means clear, that in Holocene Southeast Asia is no more so.

This question obviously interrelates with what was happening in Southeast Asia at that time. In the writing about that region, the preeminent view, championed by Bellwood (1997), argues for an “Out of Taiwan” scenario of Austronesian dispersal, originating in Taiwan and moving southward through Southeast Asia—more or less when the Hanihara–Turner scenario would have people moving in completely the opposite direction.<sup>9</sup> The “Out of Taiwan” school of thought is based on a combination of evidence from archaeology (particularly the appearance of pottery and agriculture), biological anthropology, and historical linguistics. It places aboriginal Taiwanese as the ancestors of modern Polynesians.<sup>10</sup>

The “Out of Taiwan” scenario is now in turn facing criticism. The reliance on the appearance of pottery has been challenged,<sup>11</sup> and it does not seem to explore adequately the links between Taiwan and Japan, where pottery is dated even earlier than in Taiwan.<sup>12</sup> The question of the dispersal of agriculture, let alone that it was by “Austronesians,” remains largely hypothetical.<sup>13</sup> The chief critic is Oppenheimer, on the grounds that it does not fit the genetic picture sufficiently well, either.<sup>14</sup> The theories cannot both be right, since the “Taiwan” theory has Austronesian speakers originating in the north and moving south, while the “Sunda” theory has Austronesian-speaking people originating in the south (currently thought to be around Wallacea)<sup>15</sup> and moving north, within approximately the same timeframe. In short, as research in this field has progressed, it has tended to demonstrate increasingly that the whole picture is exceptionally complex.<sup>16</sup> As an outsider, so to speak—a geographer originally—my view is that the theories outlined above are not necessarily “all or nothing” matters of proof or disproof; they may well all be both right and wrong in parts, and are not necessarily entirely mutually exclusive. A common-sense approach—that humans were never traveling in only one direction at any time—may accommodate many aspects of the various theories proposed.

### **The Approach of this Study**

The aim of this essay, then, is not to *refute* outright any of the above lines of reasoning, since they all contain much that is instructive. The aim is to explore the latest scenario proposed, which I call “Out of Sunda.” **Up to now those who have explored this have said little**

about Japan. The focus here is entirely on Jōmon Japan and its relationship to Southeast Asia. How plausible is Oppenheimer's scenario in respect of Japan?<sup>17</sup>

Thiel (1987) postulated that reduction of land area in Southeast Asia during the periods of rising sea level after the Ice Ages caused increased population density that led people to seek new lands.<sup>18</sup> Oppenheimer elaborated on this point and challenged several prevailing scholarly views—including the “Out of Taiwan” hypothesis—in his book, *Eden in the East: The Drowned Continent of Southeast Asia* (Oppenheimer 1998).<sup>19</sup> His main argument was that rising sea levels caused such pressure on the diminishing land that it forced some of the inhabitants of Southeast Asia to depart in many directions in search of new lands. However, his interest lies in a putative thrust across the Indian Ocean, and he says little about whether or not some might have gone to Japan. Does Oppenheimer's theory have relevance for the situation in Jōmon Japan?

The present essay will suggest that some of the migrants out of Southeast Asia who were fleeing from postglacial flooding ended up in the Japanese islands, eventually to settle and account for many or most of the Southeast Asian aspects of the Japanese population and culture that are recognized today.

If migrations took place, then the people of the time must have been equipped with the technology to travel safely and with purpose. It is now largely accepted that the prehistoric inhabitants of Southeast Asia were sufficiently advanced to be able to voyage intentionally eastward as far as the Solomon Islands as long as thirty thousand years ago. The period under scrutiny here is much later: it can be safely assumed that Southeast Asians during the Holocene were already sufficiently skilled seafarers.

The hypothesis proposed here, then, rests on several explicit assumptions. First, that *some* Jōmon Japanese originated in Southeast Asia. Strong evidence from biological anthropology, especially with the advent of DNA testing, has established that some portion of the population of Japan in the Jōmon period was overwhelmingly more closely related to present-day Ainu and Southeast Asians than to any others.<sup>20</sup> But where, more precisely, did they come from? When? After all, the Jōmon period lasted some thirteen thousand years. Can we deduce whether they arrived in a steady flow, or in waves, and if so, when, exactly? And *why* did they go to Japan? Whatever could have prompted them to leave their homeland and perhaps make a long and perilous voyage to Japan? These are questions that have so far not been adequately addressed or satisfactorily answered.

Second, I assume that the population of Jōmon Japan was by no means homogeneous. On the basis largely of cranial measurements, Howells (1986) concluded “that Jōmon peoples were varied locally or tribally, and . . . were entirely unlike modern Japanese.”<sup>21</sup> Pearson likewise states that “recent discoveries in Aomori and southern Hokkaido, the Japan Sea coast region, and Kagoshima have challenged the notion that there was a single heartland of Jomon Culture in the Chubu and Tohoku regions.”<sup>22</sup> Clearly, in discussing Jōmon Japanese, we are referring to the composition of the population spanning at least thirteen millennia across the whole of the present Japanese archipelago: Jōmon *peoples*, plural, is the operative phrase in the quotation above. I also believe that there is sufficient evidence to suggest that some spoke an Austronesian language or languages.

Third, I assume that Southeast Asians had the skill and competence to reach Japan by sea routes. I attempt to address the questions of *when* and *why* Neolithic humans risked such

a long voyage northward across the Pacific Ocean. Following Oppenheimer, I hypothesize here that the well-attested arrival of immigrants from Southeast Asia to Japan during the Jōmon period was largely, or at least in part, as a result of the flooding of the former Southeast Asian continent of Sundaland, Wallacea, and perhaps northern Sahulland at the end of the Ice Ages.

Fourth, I assume that whatever the predominant migration flows were at any one time, once destinations were explored or settled it is likely that there were counterflows, an important but plausible point that seems to be all but ignored in the literature. I should like to stress at the outset that I do not contend that at any given point in time, migrations to Japan were necessarily unidirectional. On the contrary, to judge by the diversity in the composition of the population and the conflicting evidence emerging from research, it seems that migrations have taken place both into and out of Japan to a greater or lesser degree, and probably both to and from virtually all directions that the existing population source(s), climate, ocean currents, and transport technology of the time allowed, ever since humans first arrived there.<sup>23</sup> This would account for the variability (*peoples*) noted above. My examination here of putative Southeast Asian migration to Japan in Jōmon times assumes that humans were traveling both to and from Japan to interact with other places at the same time. In other words, the theory that *some* Jōmon Japanese originated in Southeast Asia is not exclusive and in no way precludes the possibility that other sectors of the Jōmon population originated elsewhere. Nor does it exclude the likelihood that some prehistoric Southeast Asian influence on Japan dated from a different period.

### **Evidence for Southeast Asian Provenance for Jōmon Japanese**

The people who arrived in Japan sometime during, or throughout, the Jōmon period and who appear to have come from present-day Southeast Asia, were almost certainly not the first inhabitants of the present-day land of Japan. There is evidence, albeit scant, that human beings were present in Paleolithic times, arguably from as early as 35,000 BP.<sup>24</sup> With increasing remoteness in the past there is decreasing archaeological evidence, but on the basis of what little remains have been identified, it is believed by some that Paleolithic inhabitants in Japan were “proto-Mongoloid” populations, most closely related to the skeletal remains found at Liujiang, Guangxi Province, south China (possibly 67,000 BP), and the Niah Cave, Sarawak (ca. 40,000 BP).<sup>25</sup> Hanihara (1991) succinctly summarized the debate to date about the origins of the earliest Japanese. He supported the view that the 18,000-year-old remains of Minatogawa Man, excavated in Okinawa 沖縄 in 1971, were most closely related to Liujiang Man and Neolithic Jōmonese, and that both were similar to contemporaneous Southeast Asian remains.<sup>26</sup> Recently anthropologist Baba Hisao 馬場悠男 has declared Minatogawa Man to be most similar to the Wajak I skull from central Java.<sup>27</sup> Takamiya and Obata (2002) observe that “osteological studies have proposed the ultimate origin of these Western Japanese Paleolithic populations in Southeast Asia.”<sup>28</sup> Other evidence suggests that some Paleolithic Japanese were derived from Northeast Asia, around present Lake Baikal.<sup>29</sup>

Close biological links between Jōmon Japanese and Southeast Asians have appeared frequently in the results of comparative research. Howells (1986) indicates that cranial measurements of modern Japanese are close to those of Atayal aborigines of Taiwan and to Filipinos.<sup>30</sup> Hanihara (1991) reviews the evidence from a variety of approaches, including skeletal

morphology, somotometry, dentition, and genetics (such as comparisons of blood groups, marker genes, and mitochondrial DNA), and he maintains that the evidence overwhelmingly points to greatest commonality between Jōmon Japanese and Southeast Asian populations. He mentions in particular the Negritos of the Philippines, Malays, and Indonesians. Pietrusewsky (1994) placed Jōmon Japanese between Southeast Asians from Cambodia–Laos, Sula, Sulawesi, Java, the Lesser Sundas, and Borneo on the one hand, and more recent Japanese, Korea, Atayal, Anyang, Hainan, and Taiwan on the other.<sup>31</sup> More recently, Matsumura and Hudson (2004), using comparisons of dental traits, locate Jōmon Japanese as closest to Ainu and Negritos, Amami Okinawa, Indochinese, Dayak, and Thai.<sup>32</sup>

Peoples and cultures do not necessarily have to travel together. However, so many aspects of Japanese culture have been identified as of Southeast Asian origin, such as the architecture of Ise Shrine 伊勢神宮,<sup>33</sup> that it seems unlikely that they would all have found their way to Japan independently of people originating in the region. Some specific examples that have been identified between ancient Japan and the cultures of Austronesian-speaking peoples include among others the use of blowpipes,<sup>34</sup> bark cloth, especially mulberry bark, for clothing,<sup>35</sup> tattooing,<sup>36</sup> uxori-local marriage practices,<sup>37</sup> elements of the modern Japanese language,<sup>38</sup> and mythology.<sup>39</sup>

The largest and oldest Jōmon settlement site discovered to date is Uenohara 上野原遺跡, Kokubu-shi 国分市, Kagoshima Prefecture. It dates from ca. 9,500 BP,<sup>40</sup> and the houses that have been reconstructed bear resemblance to some traditional Timorese dwellings.<sup>41</sup> Among artefacts relevant to this discussion, the excavation revealed earthenware decorated with shell patterns, forty-six dugout canoes, and stone hearth remains including thirty-nine steam-bakers and fifteen linked earthen ditches for the smoking of foodstuffs.<sup>42</sup> The latter are believed to have been earth ovens for pit-cooking and smoking of foodstuffs by the use of heated rocks, a concept still enjoyed in Polynesian cuisine today.<sup>43</sup> It seems likely that the Uenohara site was occupied by people of “southern” provenance—though just how far south is a matter for conjecture.<sup>44</sup>

### **The Recession of the Ice Ages in East and Southeast Asia**

The freezing of the polar ice caps during the Pleistocene caused water to be redistributed globally in the form of ice, so that sea levels were much lower than at present. Maximum cooling of the last glaciation occurred around 20,000–18,000 BP. While there were some local glaciers in the higher mountain ranges, Japan itself was not under the north polar ice sheet. Even so, seasonal sea ice is thought to have reached as far south as northern Tōhoku 東北, and mean annual temperatures were around 7°C or 8°C lower than at present.<sup>45</sup>

Since the Japanese archipelago was putatively joined to mainland Asia during the Pleistocene, and not cut off by rising sea levels until around 12,000 BP, humans were able to enter this area via land routes there until then (see Figure 1).<sup>46</sup> It is no accident that the start of the Jōmon period coincides remarkably closely with the end of the Pleistocene (Ice Ages), accompanied by the rise in sea level that formed the Japan Sea and isolated Japan from the mainland as an archipelago. Hanihara (1991) notes: “The Jōmon age was contemporary with the postglacial age, with the Japanese Archipelago isolated from the Asian mainland by the rise in sea level.”<sup>47</sup>

At the same time, present-day Southeast Asia was joined to the mainland by a vast plain stretching from Vietnam, Kampuchea, Thailand, Burma, and the Malay peninsula, connecting these with Java, Sumatra, and Borneo. Together this area formed a subcontinent known as “Sundaland” (see Figure 1). Only narrow straits and an archipelago now known as Wallacea (comprising present-day Sulawesi and eastern Indonesia) separated Sundaland from another vast land mass comprising Papua New Guinea adjoined to northern Australia. This continent is termed Sahulland.<sup>48</sup> For the purpose of brevity in the present discussion I refer to Sunda–Sahul loosely to include Wallacea and northwestern Sahulland (i.e. including present-day Papua New Guinea but excluding Australia).

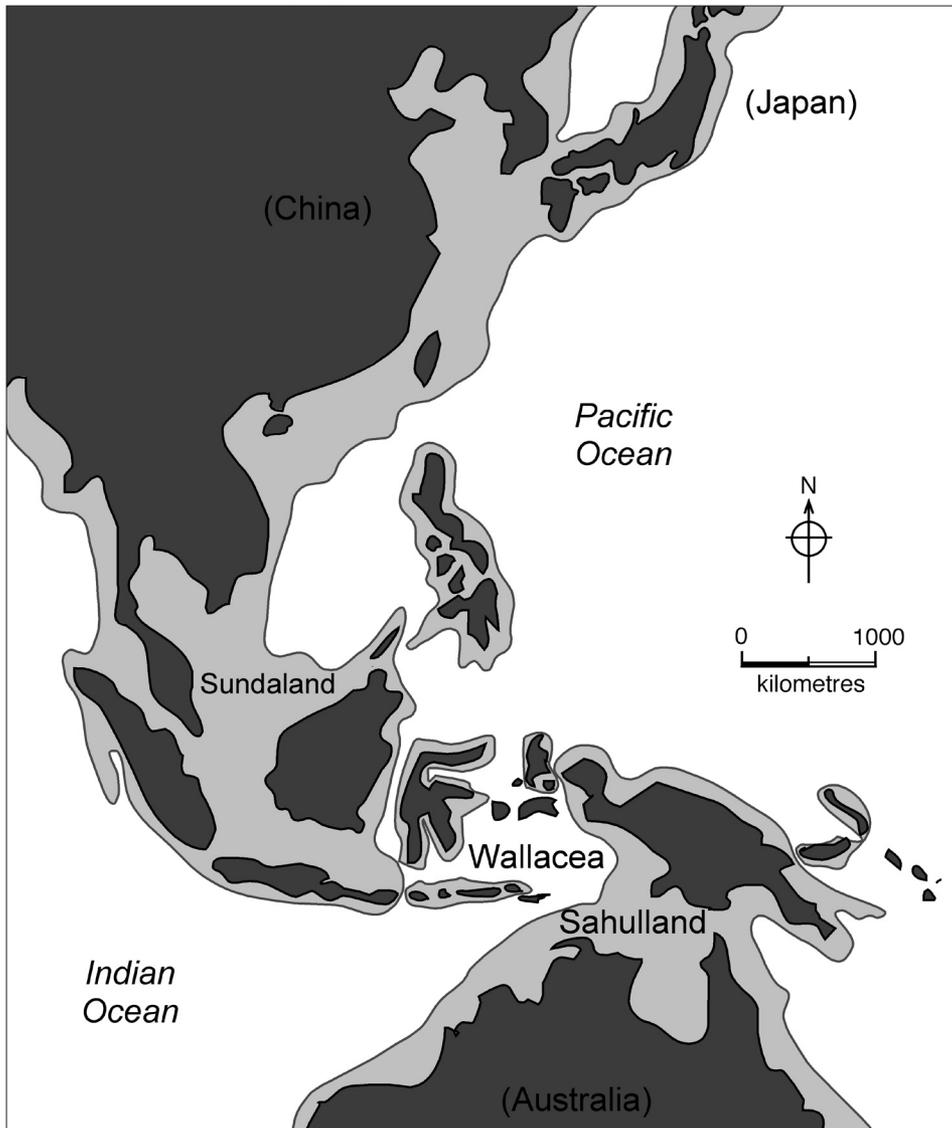


Figure 1. Putative Late Pleistocene Coastline of Asia.  
Source: Redrawn from Hanihara T. 1993, Fig. 18-1.

Mean sea levels at the glacial maximum were an average of 120–130 meters lower than they are now.<sup>49</sup> Warming from around 20,000 BP did not occur at a steady pace: rather there were setbacks with periods of “cold snaps,”<sup>50</sup> followed by periods of more intensive global warming, resulting in repeated cycles of “sudden” deglaciation (“floods”). Mean sea level rose around 13.5 meters 14,000 BP;<sup>51</sup> 7.5 meters around 11,500 BP; and a remarkable 25 meters around 8,000–7,500 BP,<sup>52</sup> in what are, geologically speaking, incredibly short spaces of time.

In recent decades oceanographers working on the mechanics of global warming toward the end of the last Ice Age came up with interesting results.<sup>53</sup> They found that the melting of the great northern polar ice cap occurred in such fits and starts that it produced sporadic cataclysmic flooding. This raised sea levels dramatically and in some places instantaneously and catastrophically. It has been demonstrated that around 7,500 BP, for example, the Black Sea was suddenly breached through the Bosphorus Valley and its water level rose by 150 meters.<sup>54</sup> It is estimated to have been a “wild cascade in a matter of months,” with “the force of 200 Niagara Falls.”<sup>55</sup> It beggars our imagination.

In areas of the world where there were low-lying, gently sloping or flat coastal plains, the rise in sea level is estimated to have occurred so rapidly there that it would have been visibly discernible to the inhabitants in many places.<sup>56</sup> It was this that flooded the land bridges connecting present-day Japan to mainland Asia and formed the Japanese archipelago as we know it today. It was also this that formed the present shallow continental shelf of Southeast Asia, known as the Sunda shelf. Indeed: “On the beaches of the Sunda shelf 8000 years ago sea water would have flooded inland up to a maximum of 4 kilometres within two days.”<sup>57</sup> The devastating “Boxing Day Tsunami” of 2004 provides some insight into the vulnerability of much of the coastal land in Southeast Asia, now as then.

The end of the Pleistocene was followed by a warmer period, 7,000–4,000 BP, when mean average annual temperatures were around 2°C warmer than at present: a period known as the “climatic optimum” or “Holocene maximum.” Sea levels rose above the present level, by an estimated six to nine meters in Southeast Asia. It is noteworthy, and no doubt not unrelated, that with global warming and the expansion of more benign environments for humans from then on, we see the worldwide blossoming of Neolithic culture.<sup>58</sup>

Sundaland had some glaciers in the highlands, but would generally have been a relatively warm environment even during the Ice Ages, albeit with less tropical and subtropical mountain forests in the upland areas than at present, but overall larger areas of monsoon tropical forest and large expanses of savannah grassland vegetation on the coastal plains that were later submerged.<sup>59</sup> Thus Sundaland could have supported a relatively large and dense population. With such rapid rise in sea level, however, Sundaland lost more than half its land area, an area “the size of India.”<sup>60</sup> The loss of productive lowland would have been so rapid that whole communities would have had to shift to new land or adapt to a marine way of life in order to survive. Oppenheimer deduces that Sundaland was a heartland of Neolithic migration in response to this “flooding.”<sup>61</sup>

The populations that were not drowned had several choices. Some would have retreated to the mountains and ultimately been isolated in the highlands of the newly forming islands as they were cut off, to become the ancestors of the present-day indigenous inhabitants of

the Malay Peninsula, the Philippines, Borneo, etc. Others would have adapted their lifestyles by building upward on stilts in shallow waters—as remains the case today in many parts of Southeast Asia. Others would have adopted a totally marine form of subsistence, and were perhaps the ancestors of the sea nomads still present in parts of Southeast Asian waters.<sup>62</sup> Yet others would have taken to ocean-worthy craft and migrated in all directions in search of new land.<sup>63</sup> It is well-attested that some moved south to the north coast of Australia; the later steady eastward migration into Melanesia, Micronesia, and Polynesia is well established as fact; and Oppenheimer argues that some went westward across the Indian Ocean to India, the Middle East, and Madagascar. He says little about those who went northward, other than to note that there were probably already coastal trade routes in that direction.<sup>64</sup> I surmise that at least some settled in the newly formed islands of Japan, and became some of those whom we now call Jōmon Japanese.<sup>65</sup>

In short, Oppenheimer argues that Sundaland was the cradle of antediluvian Neolithic culture, for which most of the archaeological evidence is now inaccessible under the sea; verification waits advances in marine archaeology. However, other evidence is suggestive. As the former inhabitants became refugees and scattered in all directions, they took with them not only their genes but also their languages, their superior navigational skill, boat-building and fishing skills, their relatively advanced techniques in horticulture and stone-working, and their customs and oral traditions.<sup>66</sup>

We have to ask how feasible it would have been to strike out from Sunda–Sahul in some kind of craft at that time. Southeast Asians were already skilled seafarers by the Pleistocene era.<sup>67</sup> The Bismark Islands, for example, were intentionally settled by at least 30,000 years ago.<sup>68</sup> The islands of the archipelagos in Sunda–Sahul were mostly intervisible in at least one direction, and required voyaging “blind” for not much more than 100 km, which helps explain the very early peopling of Southeast Asia and Australia, whether by island-hopping or by direct migrations. In other words, when sea level was low, distances from one island to the next were less than at present, and island-hopping was relatively easy. Thiel’s (1987) counter-argument to that theory is that when sea levels were *low* there was more land available and less incentive to risk sea voyages. It was when sea level was *rising* and pressure on land increasing that people had need of seeking new lands.<sup>69</sup> In my view, the two theories are not necessarily mutually exclusive, since the periods in question differ, and sheer curiosity would probably have prompted the exploration of visible islands if possible, irrespective of whether sea level was rising or falling.<sup>70</sup> Either way, the point here is that the inhabitants of Sunda–Sahul had already accumulated some 25,000 years of seafaring expertise before the end of the Pleistocene, and were by no means novice sailors by the time the Sunda shelf was inundated.<sup>71</sup>

Irwin’s (1992) thesis, supported by Turnbull (2000), is that eastward colonization of the Pacific into Polynesia occurred as a result of deliberate prior exploration by sailing out into open ocean *into* the wind to ensure the greatest chances of safe return. In other words, colonization was not accomplished by boatfuls of people floating out mindlessly into the wide blue yonder, like so much seaweed, in the vague hope of making landfall *somewhere*. Rather, it was achieved by intelligent and experienced mariners whose navigational skills included reliable methods of dead-reckoning and orientation, and whose survival strategies included carefully planned exploratory return voyages and feedback of information.<sup>72</sup> In the case of voyaging to Japan from Sunda–Sahul, they could have “strandlooped” along the coast of Vietnam and

China or “island-hopped” via the Philippines. And while the Kuroshio 黒潮 current would have carried vessels northward on the outward voyage, the seasonal reversal of the prevailing winds meant that they could choose to sail *with* the wind in both directions if need be, simply by returning at a different time of year. Arguably, then, it would probably have been considered less risky to set off northward than eastward during the Holocene—which is no doubt precisely one of the reasons why eastward expansion into the “remote Pacific” did not occur until much later.

Oppenheimer divides the former inhabitants of Sunda–Sahul into two distinct groups, and he hypothesizes that Austronesian speakers in eastern Sundaland “may have contributed sailing technology, magic, religion, astronomy, hierarchy and concepts of kingship,” while “the Austro-Asiatic speaking people [of western Sundaland] may have contributed the more down-to-earth skills of cereal-farming, and even bronze.”<sup>73</sup> Given the vast area of savannah lands that previously existed in western Sundaland, it is not implausible to make this claim as regards the likelihood of their having already developed some expertise in growing cereal crops.<sup>74</sup>

This is where Oppenheimer’s theory challenges the “Out of Taiwan” scenario, in which Austronesian speakers are thought to have arrived in Sunda–Sahul (initially from Taiwan) too late for this to have occurred (see Figure 2). Essentially the “Out of Taiwan” scenario argues that along with Holocene global warming, a Neolithic cultural complex developed

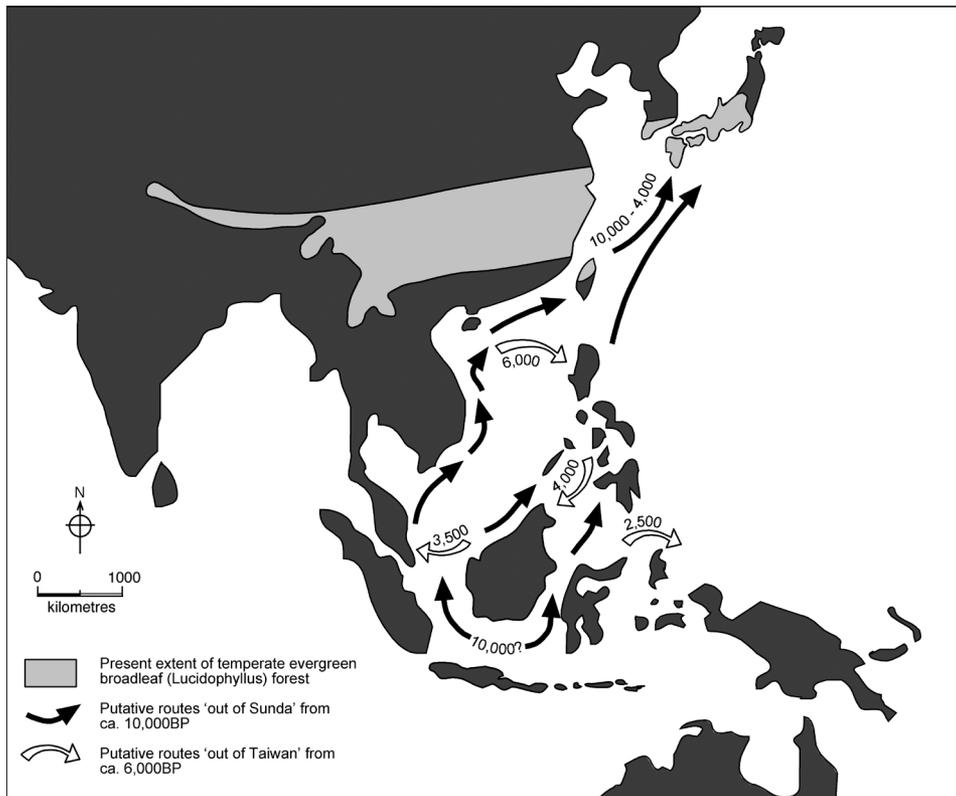


Figure 2. Putative Routes of Holocene Migrations in East and Southeast Asia to Japan.

among Austronesian-speaking people in Taiwan. This culture included the production of red-slipped pottery and rice-based agriculture. It is thought to have appeared in Taiwan around 6,000–5,000 BP; spread to the Philippines, 4,500 BP; Borneo, Sulawesi and the Moluccas 4,000 BP; the Malay Peninsula, 3,500–2,500 BP; Near Oceania 2,500–1,500 BP; and Polynesia 1,700–800 years ago.<sup>75</sup>

This view is partly based on historical linguistic reconstruction that Proto-Austronesian languages derive from Taiwan around 5,000 BP.<sup>76</sup> While acknowledging the difficulties inherent in lexicostatistics and glottochronology that make historical language reconstruction an inexact science, Bellwood (1997) presents a battery of evidence that Austronesian languages spread from Taiwan southward, as outlined above.<sup>77</sup> He mentions nothing of Japanese, other than to write, in somewhat incredulous tone, that “even Japanese receives periodic attention as having ancient Austronesian affiliations, although the evidence here is not widely accepted.”<sup>78</sup> To my mind, however, an Austronesian element to Japanese is, to the contrary, very clear.<sup>79</sup>

Bellwood also notes that others have posited Melanesia as the homeland of Austronesian languages.<sup>80</sup> I am here neither refuting nor supporting the prevailing linguistic view: but the situation with regard to linguistics is by no means clear-cut. However, Oppenheimer’s recent research on genetics suggests that the putative Austronesian-speaking people from Taiwan who are supposed to have moved down through Southeast Asian and eventually out in to the Pacific according to the “Out of Taiwan” scenario could not have done so in the timeframe indicated. One of his examples is his finding of the PM (Polynesian Motif: a pattern of mitochondrial DNA common in Polynesia) in Wallacea and New Guinea for more than 10,000 years—an estimate which predates the possibility in the “Taiwan” scenario by some six or seven thousand years.<sup>81</sup> This, he says, “has implications for models of Austronesian origins, since it implies that one of the main insular mtDNA clusters, haplogroup B, has been in the archipelago for more (probably considerably more) than 5000 years.”<sup>82</sup> In other words, there is the distinct possibility that Austronesian-speaking people originated not in Taiwan but in what is now Island Southeast Asia.

Oppenheimer also points out that the conventional view from historical linguistics is that the Tibeto-Burmese languages originated in central Asia, and were taken to Tibet before spreading down the Yangtze, Brahmaputra, Irrawaddy, and Mekong Rivers. On the basis of genetic and other Austro-Asiatic cultural evidence, Oppenheimer questions this view by arguing that the diffusion of these languages was more likely in the opposite direction, *up* those river valleys towards their headwaters, having been transmitted from the south, probably from the Austro-Asiatic western part of former Sundaland around and between present day Vietnam and the Malay Peninsula.<sup>83</sup> This also is not an unreasonable assumption, because while there is some debate among glaciologists as to whether or not the Tibetan highlands formed an ice sheet, it is likely that the region was too cold to be attractive for human habitation during the glacial maximum.<sup>84</sup> Human occupation would have encroached to ever higher altitudes only as global warming made it increasingly feasible, along with the postglacial spread of broadleaf evergreen forest from south to north.<sup>85</sup>

### Cultural Evidence: Sasaki Kōmei's "Laurilignosa Culture"

The northward expansion of Austronesian-speaking peoples along with the spread of postglacial broadleaf evergreen forest is a point that can be explored further in terms of the views of Japanese anthropologist Sasaki Kōmei 佐々木高明 on so-called "laurilignosa culture (*shōyō jurin bunka* 照葉樹林文化)."<sup>86</sup>

During the Ice Ages, the vegetation in Japan ranged from tundra in the north to steppes in central Japan and mixed coniferous and broadleaf forest in the far south.<sup>87</sup> From palynological evidence, Tsukada (1986) places the boundary between the Pleistocene and Holocene vegetation in Japan at around 10,500 BP.<sup>88</sup> He argues that deciduous broadleaf forest began to expand by migrating northward in Japan around 12,000 BP.<sup>89</sup> The spread of deciduous broadleaf forest in southern Kyūshū is linked with the start of the Jōmon period.<sup>90</sup> Tsukada estimates that deciduous oak and beech replaced boreal conifers and birch, advancing northward at a speed of around 200 meters per year; and he describes the delayed response of spruce extinction.<sup>91</sup>

Studies of fossil plants have found that the deciduous forest spread in the Japanese islands during the late half of the Jōmon period, about 5,000 years ago, when the transgression was passing over its climax.<sup>92</sup>

In short, there were time lags between global warming, the rise in mean sea level and the consequent spread of replacement forest cover.

With the climatic warming at the end of the Ice Age, a belt of warm-temperate lucidophyllous (glossy broadleaf evergreen or laurilignosa) forest expanded from the Himalayas through Taiwan to southern Japan (see Figure 2).<sup>93</sup> In Japan laurilignosa forest extended during the glacial period only across the southern part of Kyūshū and along the coast to Shikoku, but it started to expand northward from around 15,000 years ago, and took several thousand years to reach its northern-most limit, due to the time lag noted above.<sup>94</sup> Laurilignosa forest similar to that which had developed in southeastern China flourished in Kyūshū during the Initial Jōmon period, 10,000–6,750 BP.<sup>95</sup> "Climatically . . . staple and vegetable crops originating in Yunnan and its neighboring provinces could have grown in Kyūshū if humans transported them to Japan."<sup>96</sup>

With postglacial warming, crops could have been cultivated in more northerly locations where previously they would have failed. There is still debate about the origins of rice cultivation in Asia—let alone from where exactly it was later introduced into Japan<sup>97</sup>—but it seems safe to assume that even if there was already some cultivation of cereals, the staple crops of Neolithic gardeners in Southeast Asia were the sago palm and root crops such as taro and yams, and fruits and nuts, especially bananas and coconuts.<sup>98</sup> The most transferable of these, both in terms of portability aboard rafts or canoes, and in terms of growing conditions in new, more temperate, lands, would have been taro and yams.<sup>99</sup> Such areas include the expanding zone of laurilignosa forest. Sasaki cites the work of Nakao Sasuke 中尾佐助 as having established that this kind of "vegiculture complex" originated in Southeast Asia.<sup>100</sup>

Sasaki stresses that there are several cultural aspects in common to peoples of the resultant lucidophyllous zone. These include swidden farming;<sup>101</sup> reliance on vegiculture comprising legumes, yams, taro, and millet as staple crops;<sup>102</sup> a taste for *shiso* 紫蘇 (beefsteak plant, *Perilla*

*frutescens*); water bleaching of certain roots and nuts such as acorns and horse chestnuts to make them edible;<sup>103</sup> the use of lacquer,<sup>104</sup> gourds, and cluster-amaryllis (*Lycoris radiata*); use of *kōji* 麴 (*Aspergillus oryzae*) to ferment rice to make wine and soybeans to make *miso* 味噌; sericulture; diving for shellfish; tea drinking; and a preference for glutinous varieties of rice and millet.<sup>105</sup> He dubs this cultural complex “laurilignosa culture.” He notes that its customs appear to have included licentious *utakai* 歌垣 picnics, and the wearing of sarong-like skirts or waistcloths similar to those still worn in Malaysia, Indonesia, Myanmar, and among the Nagas of Assam in northeast India.<sup>106</sup> He acknowledges the contribution of mythologist Ōbayashi Taryō 大林太良 for identifying their commonality of flood myths, ghost tales, and belief in mountains as the realm of the gods.<sup>107</sup> And he argues that vestiges of this pre-rice culture (i.e., Jōmon period) upland lifestyle persisted in Japan until the 1950s.<sup>108</sup>

Sasaki observes the flourishing of laurilignosa culture beginning in western Japan in the Late and Final Jōmon period, i.e., from ca. 4,000 BP.<sup>109</sup> He posits two routes of transmission to Japan: one from the region of Hunan Province in southern China via the Korean Peninsula, and the other a maritime route with strong Indonesian connections via Taiwan, the Amami Islands, and Okinawa. He bases this on some differences such as the preference for rafts in the former region and the predominance of canoes in the latter area.<sup>110</sup> Further research is required to test whether the “Chinese route” confirms origins for an Austro-Asiatic cultural complex and the “Pacific route” origins for an Austronesian cultural complex. Either way, though, Sasaki’s and Oppenheimer’s observations broadly corroborate each other, and both also broadly accord with the thrust of Benedict’s reconstruction of an Austronesian contribution to the Japanese language.

It is plausible, then, that this cultural complex could have been taken northward to the laurilignosa belt in the first place by migrants from Sunda–Sahul, fleeing the flooding of their homeland. Those from the western plains of Sundaland (Austro-Asiatic people, according to Oppenheimer) were perhaps already efficient gardeners of cereals,<sup>111</sup> while those from the east (Austronesian speakers) were proficient at tropical rainforest arboriculture—or at least the exploitation of trees for crops. As experienced managers of forest products, it is not implausible that many of these migrants would have been attracted to the belt of newly expanding lucidophyllous forest that flourished in a widening band from the Himalayas to southern Japan.

Jōmon immigrants from Sunda–Sahul would have adapted their tropical cultivation techniques to the more temperate forest environment—hence the commonality of cultivation techniques and cultural attributes across the lucidophyllous zone, including southern Japan. Evidence for bleaching of acorns, for example, first appears in Kyūshū in the Incipient Jōmon period (12,500–10,000 BP), suggesting “the spread of stable life based on plant foods from the south, which accompanied rising temperature and the fluorescence of the temperate forest.”<sup>112</sup> Indeed, “the most fundamental feature of Jōmon culture was adaptation to temperate forests.”<sup>113</sup>

If the present hypothesis is correct, we might expect to see an increase in population in the Jōmon period some time especially after 7,500 BP (the last major rise in sea level), with the arrival of refugees from Southeast Asia. Indeed, Sasaki places the appearance of laurilignosa culture at around 6,000 BP, and notes a marked increase in population around 5,000 BP.<sup>114</sup> Archaeologist Imamura Keiji 今村啓爾 acknowledges a marked increase in the num-

bers of pit-dwellings and population in the Kantō 関東 district and Chūbu 中部 highlands, beginning around 6,000 BP and peaking sharply just prior to 4,000 BP. This he attributes solely to rapidly improving conditions of food production.<sup>115</sup> However, while this “sudden” population increase more or less coincides with the Holocene maximum that indeed favored an increase in edible vegetation, it is not improbable that some, at least, of the increase in population may be accounted for by immigration. On the basis of the aforementioned studies in biological anthropology, I suggest that some of these were people originating directly or indirectly from Southeast Asia. These migrants would have taken with them the whole cultural gamut from their homelands, including their language(s), social organization, technology, religion, mythology, customs, and daily lifestyle.

### The Puzzle of Timing

The discourse is currently dogged by problems of timing, which do not allow the two “scenarios” to be easily reconciled. We are presented with a puzzle. The “Out of Sunda” scenario suggests that people started leaving Sunda–Sahul in response to the rises in sea level that occurred by stages 14,000, 11,500 and 7,500 years ago respectively. It appears that some of those refugees eventually found their way to Japan, taking with them their culture and language, and the Uenohara site in Kagoshima Prefecture, dating from eleven thousand years ago (calibrated) arguably supports the possibility of such a scenario. The languages of Jōmon period immigrants almost certainly included elements of Austronesian, which some linguists have noted in Japanese. And their culture included aspects of the cultural complexes associated with other Austronesian speakers (such as bark fabric and tattooing), *laurilignosa* culture (such as lacquer ware, tea, and glutinous rice), or aspects common to both (e.g., sarong-style garments).

However, as things are currently conceptualized, Taiwan was the source of Austronesian languages and farming practices, dispersing southward through Southeast Asia only after six thousand years ago. Some arrivals in Japan from Mid-Jōmon onward could therefore have been Austronesian speakers from Taiwan or the Philippines. But there are many elements of Japanese culture that are related to former Sundaland, Wallacea and northern Sahulland. Logically, if we deduce according to the “Out of Taiwan” theory, earlier arrivals in Japan from the south would probably have been of pre-Austronesian-speaking inhabitants of Sunda–Sahul,—and there is no evidence at present to support such a likelihood.<sup>116</sup> The matter of timing therefore remains to be resolved. I tentatively consider one possibility below.

### Conclusions

This article sought to test the potential relevance with regard to Japan of Oppenheimer’s view that rising sea levels at the end of the Pleistocene caused people to flee from flooding there. None of the evidence examined refuted the notion that some would have headed to Japan. On the contrary, the pattern of postglacial vegetation and the dispersal of “*laurilignosa*” culture along with the expansion of lucidophyllous forest are strongly supportive of the likelihood of that having actually happened.

I have also sought to answer the question from the opposite perspective, geographically speaking, of *why* Southeast Asians would have been prompted to migrate to Japan in the

Jōmon period. I have suggested that the main reason was in response to the postglacial flooding of the lowland plains of the former continent of Sundaland after the Ice Ages.<sup>117</sup> Japan in the Jōmon period was probably only one final destination out of many possibilities.

I have also attempted to pin down more precisely *when* it was during the long span of the Jōmon period that immigrants from Southeast Asia are most likely to have arrived. Some seem to have arrived early on in response to the flood “events” of 14,000 and 11,500 years ago respectively. Oppenheimer’s genetic evidence from the Polynesian Motif in Wallacea possibly as much as 10,000 years ago could mark the start of this putative migration, and this might be corroborated by the Uenohara Site as a destination in Japan. They could have started arriving in small numbers as sea level rose. Then more might have arrived in still small but somewhat larger numbers, around 6,000–4,000 BP, in response to the further rapid rise in sea level around 7,500 ago. Some of these migrants might have “island-hopped” northward from the inundated former Sundaland via the Philippines, Taiwan and the Ryūkyū 琉球 Islands.

Immigration might well have peaked around 4,000 years ago as a result of the time lag in the growth of forest cover which some of the migrants steadily exploited as a food source as it spread northward via southern China and Taiwan into and through Japan during the Holocene maximum. Some refugees, then, appear to have “strandlooped” up the coast of the emergent Malay Peninsula, Vietnam, and southern China, northward into the expanding zone of lucidophyllous forest that emerged from around 5,000 BP, stretching in a belt from the Himalayas to southern Japan, subsequent to global warming. There was inevitably a time lag between the rise in mean annual temperatures and sea levels on the one hand and the growth of the new forest, which would have been reflected in the progress of these migrants northward and eastward through the lucidophyllous zone to reach Japan 5,000–4,000 years ago. This would account for the commonality of attributes observed among Austronesian cultures and so-called “laurilignosa culture,” including some aspects of Japanese culture, as observed by Sasaki.

Once these two routes were established, they probably continued to be used by smaller numbers of voyagers into later periods. Such a scenario also reconciles with some of Benedict’s ideas on the Austronesian and Austro-Asiatic origins of some aspects of the Japanese language; and it fits well with both the Hanihara–Turner hypothesis and Sasaki’s “laurilignosa culture” hypothesis. The culture they took with them remained pervasive well into the historical period, and vestiges of it are identifiable in Japan even today. In this sense, arguably, we might well regard the Japanese as being at least partially “out of Sunda.”

As for where in Sunda–Sahul, exactly, they went from, we shall perhaps never know. If those who migrated were predominantly those who were experiencing the loss of their homeland to the sea, the evidence is obviously lost to us—until extensive submarine exploration with appropriate technology takes place. They probably originated all over the former large land mass land of Sunda–Sahul, and so much of that was inundated that attempts at pinpointing *the* “homeland” are inevitably going to be approximations.

With regard to the discourse on the topic, this examination of the literature finds that Oppenheimer’s posited “Out of Sunda” scenario is not implausible with regard to Jōmon Japan. The scenario fits with what we know of the changing environmental conditions of Southeast and East Asia in the Holocene. We know that “Sunda” people entered Japan during the Jōmon period. If people(s) from Sunda–Sahul landed in Japan—which we know they

eventually did—it is not clear yet exactly where they came from, though they were most likely Austronesian-speaking and introduced elements of the Austronesian cultural complex. However, on the basis of my analysis of myth, I deduce that the region of eastern Indonesia is likely to reward further research.<sup>118</sup>

However, such a hypothesis runs counter to the “Out of Taiwan” scenario, which sends *prevailing* migration in the opposite direction at approximately the same time. If the “Out of Taiwan” scenario is *also*—at least in part—right (although the timeframe remains problematic), they must have been traveling in the opposite direction from the posited Austronesian dispersal and must have formed a counterflow. Thus I find the “Out of Taiwan” scenario less persuasive in the context of Jōmon Japan unless there is recognition of more complicated flows, including counterflows, of human populations, languages, and cultures during the Holocene in Southeast and East Asia than deemed hitherto.

A possibility that is suggested graphically in Figure 2 and may be reward further exploration is that as global warming occurred and sea levels rose, an initial migratory flow took place northward “Out of Sunda”—perhaps some 10,000 years ago or more. It is plausible that some of these people might already have been carrying the so-called Polynesian Motif in their genes. Then some time around the Holocene maximum from about 6,000 years ago, a prevailing counterflow of Austronesian language speakers steadily moved southward, as in the “Out of Taiwan” hypothesis, associated perhaps with the Holocene maximum of global warming. Thus the two theories are not necessarily entirely incompatible.

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Yoneda Minoru, Hirota Masashi, Uchida Masao, Tanaka Atsushi, Shibata Yasuyuki, Morita Masatoshi, and Akazawa Takeru. "Radiocarbon and Stable Isotope Analyses on the Earliest Jomon Skeletons from the Tochibara Rockshelter, Nagano, Japan." *Radiocarbon* 44:2 (2002), pp. 549–557.

## NOTES

1 The dating of the Jōmon period is in itself problematic, as is explained by Ono et al (2002) and Habu (2004, pp. 26–27 and 37–42). In brief, Japanese archaeologists have tended to rely on (uncalibrated) stratigraphic estimates of the age of artefacts (particularly pottery) in preference to dates calibrated by radiocarbon dating. Habu prefers calibrated dating, by which she equates 13,780 uncalibrated BP with 16,500 calibrated BP (Habu 2004, p. 3). Calibration shifts the whole periodization of prehistoric Japan back in chronological time.

2 The period under discussion predates "Japan" as a state or "the Japanese" as a nation. For purposes of brevity hereafter, "Japan" refers to the Japanese archipelago, and "Japanese" indicates contemporaneous inhabitants of the islands, unless otherwise specified.

3 Brace et al. 1990; Benedict 1990. Neatly summarized by Pietrusewsky 1994, pp. 408–409.

4 This opinion was found to be untenable by Pietrusewsky, for example, on the basis of his craniometric study (1994, pp. 421).

5 Habu puts the start of the Yayoi period, as defined by the appearance of rice cultivation, at ca. 900–1,000 cal. BCE (Habu 2004, p. 27).

6 Ōsaka Furitsu Yayoi Bunka Hakubutsukan 大阪府立弥生文化博物館, 1991, p. 219.

7 Population estimates for Jōmon Japan vary widely from 75,800 to 1.5 million. See, for example, Imamura 1996, pp. 155–158. Tsukada argues on the basis of availability of food resources that "the total population did not exceed several hundred at any one time in the full-glacial and the early late-glacial periods" (Tsukada 1986, p. 39), which we can perhaps take as the starting point for population growth in the Jōmon period. Kidder, citing Koyama Shuzo, estimates 21,900 in the Earliest Jōmon, rising to 106,000 in the Early Jōmon, and peaking at 262,500 in Middle Jōmon, followed by rapid population decline to about half its maximum by the end of the Jōmon period (Kidder 1993, pp. 61, 63, 68, 106). Hudson reckons 75,000 in the Final Jōmon (2002, p. 312). For a recent discussion, including regional variability, see Habu 2004, pp. 46–50, who relies on Koyama (1984).

8 Normile (1999) reports the findings of Michael Hammer, whose research into DNA suggests that migrations predominantly flowed in the opposite directions from those supposed hitherto: i.e., that Jōmon people originated in Central Asia while Yayoi came from Southeast Asia. For an example of the conflicting use of the evidence: whereas Christy Turner's well known studies of teeth from around the Asia–Pacific region are usually interpreted as indicating Jōmon Japanese to be genetically linked to Southeast Asians, and Yayoi Japanese to mainland north or central Asians, Kumar (1998) argues on the

basis of a reappraisal of Turner's evidence that the Yayoi were closer to Indonesians. However, it is generally accepted that the prevailing evidence points to a steady admixture of Yayoi as they intermarried with preexisting Jōmon communities. So if such genes were already present, the Yayoi population would inevitably have contained an element of "Sunda" genes that had been transmitted from the Jōmon period onwards. More compelling, perhaps—at least on the face of it—is the same conclusion based on evidence from rice cultivation and linguistics. Kumar (1998), and Kumar and Rose (2000) note that Japanese rice, *Oryza japonica*, has been found to be genetically derived from Indonesian rice, *Oryza javanica* (Kumar and Rose 2000, p. 221.) The received wisdom is that rice cultivation entered Japan during the Yayoi period (from around the fifth century BCE); *ipso facto*, they argue, Indonesian influence on Japan must date from no earlier than the Yayoi period. Kumar and Rose support this view with a comparison of Old Javanese and Old Japanese linguistic evidence related to rice culture. They deduce that the influence was unidirectional, from Indonesia to Japan. They make no reference to the work of Benedict (1990), who likewise notes an Austronesian linguistic base to the vocabulary of Japanese rice culture. "The evidence for an Austro-Tai origin of the early Japanese [rice-related] agricultural terminology is far more than substantial" (Benedict 1990, p. 155. See also pp. 233–234). Kumar and Rose's evidence and logic are sound, but their interpretation hinges on the timing of the introduction of rice into Japan, which they are basing on outdated assumptions. If they take "Yayoi" to refer to the time frame of around 500 BCE–300 CE, then I must disagree with their conclusion. Sasaki 佐々木 (1997) observes that rice in some form or another was already known to Jōmon Japanese (Sasaki 1997, pp. 42, 273–275). He also notes Southeast Asian elements in Japanese rice culture (Sasaki 1997, p. 270ff). Archaeologists are rapidly pushing back in time the supposed dates for the introduction of rice into Japan, though the issue is still under debate. Some now present evidence that rice may even have appeared as early as the Early Jōmon period, around 6,000 BP, based on the discovery of plant opal from *Oryza sativa* Linn. rice at the Asanebana Shellmound site in Okayama Prefecture, 1999. See "Possible Early Jomon Rice Cultivation" <http://www.t-net.ne.jp/~keally/News/Archives/jomon990422.html> Accessed 8 December 2004. This roughly coincides with the timing of the arrival of "Sunda" migrants in my discussion here. In other words, I agree that the first rice and the language associated with it might well have been taken to Japan from Southeast Asia (perhaps Indonesia), but I contend that it was during what we still regard as the Jōmon period, not as late as Yayoi. Thus, the lexical evidence actually supports my argument. It is not impossible (but may be impossible to prove) that rice was already being cultivated on the grassland plains of Sundaland before those regions were inundated; and outmigrants would likely have taken stocks of grain with them on voyage, along with taro and yams, eventually as far as Japan.

9 See also Matsumura and Hudson, 2004. This has also been dubbed the "Express train from Taiwan to Polynesia" (ETTP) by Oppenheimer (2004).

10 Bellwood 1997, pp. 69–95, 96–127, 219–236; Pawley 2002, pp. 257–259.

11 Paz 2002, pp. 276–277; Szabo and O'Connor 2004, pp. 623–624.

12 "The tradition of Jomon pottery production goes back . . . to approximately 16,500 years ago (13,780 uncalibrated bp)" (Habu 2004, p. 3).

13 Paz 2002; Denham 2004; Szabo and O'Connor 2004; Terrell 2004. The latter three papers, by contrast, suggest the possibility that agriculture and arboriculture commenced even earlier in Wallacea and/or New Guinea. Szabo and O'Connor rightly caution us against confusing people who speak Austronesian languages and the concept of "Austronesians"—an ill-defined concept (2004, p. 623).

14 Oppenheimer 1998; 2002; 2004.

15 Oppenheimer 2004, p. 598.

16 To convey a full understanding of this complicated debate would require a lengthy explanation, and here I will content myself with the foregoing brief summary, hoping that it is indicative of the main positions. No misrepresentation of any participants in the debate is intended.

- 17 By this I mean to explore whether there is evidence to support it, rather than that which suggests otherwise, since all theories in this field of prehistory are conjectural and putative to some extent. Even in cases where facts have been irrefutably established, the (mis)interpretation of those same facts may still be contested.
- 18 Thiel 1987.
- 19 Oppenheimer's theory on human origins, published in *Out of Eden* (Constable and Roberts, 2004), gave rise to a Channel 4 documentary of the same name and a Discovery Channel film "The Real Eve" (2002), and met with acclaim. He is also noted for his monographs *Out of Eden: The Peopling of the World* (London: Constable, 2003; Robinson, 2004) and *The Real Eve: Modern Man's Journey Out of Africa* (Carrol and Graf, 2004).
- 20 Ōsaka Furitsu Yayoi Bunka Hakubutsukan 1991, p. 218; Hanihara 1991; Pietrusewsky 1994; Hudson 1999, 59–81. Torii Ryūzō (1870–1953) noted cultural similarities between Indonesians and the Yao people of China, and the Hayato 隼人 of southern Kyūshū as described in early Japanese chronicles (cited in Sasaki 佐々木 1997, p. 19), but the extent to which Jōmon Japanese were related to Southeast Asians by developments in biological anthropology was nevertheless surprising when they were first revealed. The main consensus is that the Jōmon were more closely related to Ainu and Southeast Asians, and the Yayoi to continental East, Central, and North Asians.
- 21 Howells 1986, p. 97.
- 22 Pearson n.d., p. 2.
- 23 Even in Paleolithic times, groups of humans were able to move at least as much as 5,000 km per century (Hanihara 1986, p. 76). "The physical characteristics of the Japanese display a mixture of southern and northern Mongoloid elements, which strongly indicate that migrations took place over a long period of time and from more than one direction" (Hanihara 1986, p. 77).
- 24 Barnes 1993, p. 51; Imamura 1996, pp. 19ff. This date is unquestionable. Takamiya and Obata note radiocarbon dates at 33,720±430 BP for human occupation of Kyūshū (2002, p. 496). Hanihara (1991, p. 6) and Ono et al. (2002, p. 482) cite 50,000 BP for Nojiriko. However claims for much older evidence of human presence in Japan dating to 500,000 BP or earlier must be met with some caution since the discovery in late 2000 of Paleolithic period artefacts having been "planted" at several archaeological sites by archaeologist Fujimura Shin'ichi 藤村新一.
- 25 Hudson 1999, p. 60; Ōsaka Furitsu Yayoi Bunka Hakubutsukan 1991, p. 218. See also websites referenced.
- 26 Hanihara 1991, p. 7. See also Bellwood 1997, p. 83.
- 27 NHK, 2002b. See also *Nipponjin Haruka na Tabi Ten* 日本人はるかな旅展 <http://www.kahaku.go.jp/special/past/japanese/ipix/3/3-07/html>. Accessed 9 January 2007.
- 28 Takamiya and Obata 2002, p. 495.
- 29 NHK, 2002a.
- 30 Howells 1986, passim.
- 31 Pietrusewsky 1994, pp. 419–421.
- 32 Matsumura and Hudson 2004, pp. 203–204, Figs 5, 6 7. Their interpretation of their results as a whole supports the view that people moved from southern China to Southeast Asia. The focus of their paper being on Southeast Asia, they say nothing with regard to Jōmon by way of explaining its place in this clustering, which appears to me to go against their general interpretation.
- 33 Waterson 1990, 17.
- 34 Bellwood 1997, pp. 150–152; Oppenheimer 1998, pp. 73–75, citing Stephen C. Jett, "Further Information on the Geography of the Blowgun and its Implications for Early Transoceanic Contact," *Annals of the Association of American Geographers* 81:1 (1991), pp. 89–102. Blowpipes are thought to have originated in Borneo, and it is recorded that there was isolated use of blowpipes in Southern Kyūshū.
- 35 Benedict 1990, pp. 157–158; Kidder 1993, p. 74; Bellwood 1997, p. 150; Oppenheimer 1998,

p. 75; Kumar and Rose 2000, p. 230. Bark was one of several coarse fibres used in Japan for clothing until the introduction of cotton in the sixteenth century (Hanley 1997, p. 95). Mulberry bark is still the preferred fiber for the manufacture of Japanese *washi* paper.

36 Bellwood 1997, pp. 108, 135; Oppenheimer 1998, pp. 77, 455, 463. Sasaki 1991, pp. 26–27. See also Table 1.

37 McCullough 1967; Wakita 1984, pp. 78–87; Waterson 1990, p. 161. Benedict goes so far as to infer a common early Austronesian “proto-system of [matrilineal] descent groups with prescriptive cross-cousin marriage,” on the basis of linguistic reconstruction (1990, pp. 140–141).

38 E.g., Benedict 1990. Bellwood dismisses evidence that Japanese language has any Austronesian roots, a position which seems to me untenable (Bellwood 1997, p. 112). He bases his understanding on Vovin’s (1994) criticism of some aspects of Benedict’s work, but I think we should be careful not to throw out the baby with the bath water.

39 I treat this in an article to be published by Nichibunken in 2007, “Out of Sundaland: The Provenance of Selected Japanese Myths.” Other aspects of the “Austronesian” culture complex are discussed under “*laurilignosa*” culture below.

40 Ca. 11,000 cal BP (Habu 2004, p. 250).

41 Waterson 1990, Plate 13 and Figs 143–145; Bellwood 1997, Plate 16.

42 “Early Jōmon Hamlet Found,” *The Japan Times*, 27 May 1997; Habu 2004, p. 250.

43 “Uenohara Iseki” website cited. Shintō 新東 2006, 41–44; Uenohara Jōmon no Mori Site 上野原縄文の森遺跡 was visited by the present author Nov 23 2006.

44 NHK, 2002b.

45 Frenzel et al 1991, pp. 43, 49.

46 It is still unclear whether or not Japan was joined to the Korean peninsula. Minato (1977) claims that during the Würm maximum (ca. 20,000 BP) mean sea level was 130m lower than at present around Japan, and that the Tsugaru Straits (separating Honshū from Hokkaidō) and the Korean Straits formed soon afterwards, while the Soya Straits between Hokkaidō and Sakhalin did not form until around 13,000 years ago, and the Tatarskii Strait between Sakhalin and mainland Siberia not until later still (Minato 1977, pp. 150–153.) Minato’s Figure 7–10 indicates that land bridges joined Japan to the mainland at some point throughout the period from 70,000 to around 5,000 years ago. According to Tsukada (1986, 22), the four main islands were linked, Hokkaidō was also connected to Sakhalin in the north, and probably Kyūshū to the Korean Peninsula. Hanihara deduces that “most of the straits bottoms” were not under water (Hanihara 1986, p. 81). Collcutt et al suggest that there was dry land across the present-day Tsushima Straits, joining Japan to Korea (1988, 33, inset map). The maps in Frenzel et al (1991) pertaining to the period 20,000–18,000 BP indicate that the present archipelago was one land mass joined to Eurasia in the north only (pp. 39–59). The map in Barnes (1993, p. 56, Fig. 17) suggests that Japan was joined at neither end. “[I]t is difficult to judge whether or not the Tsugaru and Tsushima straits were replaced by a land bridge at the lowest ebb in the sea level” (Imamura 1996, 34.) However, Imamura concedes that even if they were not joined, they would have been very considerably narrowed and easily navigable.

47 Hanihara 1991, p. 7.

48 Bellwood 1997, pp. 7–9; Oppenheimer 1998, p. 82.

49 Bellwood 1997, p. 21; Oppenheimer 1998, p. 29. Hanihara’s estimate is based on mean s.l. at 140 m lower than at present (Hanihara 1986, p. 80).

50 Known as the Older and Younger Dryas events, respectively 15,000–14,000 BP and 13,000–11,500 BP.

51 For example, “[I]n less than 300 years, . . . the sea had risen some 13.5 metres to 80 metres below its present level. At the peak discharge of icebergs and meltwater, global sea levels were rising more than 7 centimetres a year.” Oppenheimer 1998, p. 31, citing Paul Blanchon and John Shaw, “Reef Drowning

- during the Last Deglaciation: Evidence for Catastrophic Sea-level Rise and Ice Sheet Collapse,” *Geology*, 23, 1 (1995), pp. 4–8.
- 52 “[P]ossibly the single largest flood of the [past two million years].” Oppenheimer 1998, p. 33, citing Charles H. Fletcher III and Clark E. Sherman, “Submerged Shorelines on O’ahu, Hawaii: Archive of Episodic Transgression During the Deglaciation?,” *Journal of Coastal Research*, Special issue 17 (1995), pp. 141–52.
- 53 Ryan and Pitman 1998, *passim*.
- 54 Ryan and Pitman 1998, p. 138.
- 55 Pitman 1998, cited in Robert Ballard, “Deep Black Sea,” *National Geographic* (May 2001), p. 61; Ryan and Pitman 1998, p. 234.
- 56 It has been estimated that around the Black Sea, for example, coastal inhabitants would have seen the water level rise by a quarter to half a mile a day (Ryan and Pitman 1998, p. 160). Less spectacularly, but nevertheless visibly, parts of the Sahul shelf may have been drowned at rates of 25 to 45 meters horizontal migration per year, with vertical sea level rise maximizing at 1.0–1.5 meters per year (Bellwood 1997, p. 33).
- 57 Oppenheimer 1998, p. 108.
- 58 Bellwood 1997, pp. 20–22.
- 59 Frenzel et al 1991, p. 55. Bellwood 1997, pp. 18–19, 34.
- 60 Oppenheimer 1998, pp. 62, 80.
- 61 Oppenheimer 1998, *passim*. Ryan and Pitman argue that the flooding of the Black Sea was a heartland of Neolithic migration into Europe, the Middle East and Central Asia (1998, pp. 188–225).
- 62 The Orang Laut. See Bellwood 1997, pp. 135–136: “perhaps this lifestyle contains a tantalizing record of more ancient Malayo-Polynesian adaptations long past.”
- 63 Oppenheimer 1998, p. 110.
- 64 Oppenheimer 1998, pp. 64–67. See also Turner 1995, pp. 229–230.
- 65 See also NHK, 2002b.
- 66 In “Out of Sundaland: the Provenance of Selected Japanese Myths” (see note 39, above), I am testing Oppenheimer’s views on Southeast Asian mythology against the Japanese mythic counterpart.
- 67 Irwin 1992, pp. 18–30. It has been estimated that even the greatest distance from Sundaland to Australia [i.e., Sahul], some 1,000 km, could have been travelled in around fourteen days (Thiel 1987, p. 239).
- 68 Irwin 1992, p. 23. Thorne maintains that with more than a thousand varieties of bamboo indigenous to Southeast Asia, it was relatively easy to construct virtually unsinkable rafts (1989, pp. 38–43, and interview in NHK, 2002b).
- 69 Thiel 1987, p. 238.
- 70 I doubt whether people who had the technology to travel to a visible island would have chosen never to do so.
- 71 Irwin 1992, p. 27; Turner 1995, pp. 227–228.
- 72 “It is by attributing directionality to all the heterogeneous inputs from the sun, stars, winds, waves, reefs, birds, weather, landmarks, seamarks and sealife, that the navigator is able to be constantly aware of his position and orientation” (Turnbull 2000, p. 136).
- 73 Oppenheimer 1998, p. 221.
- 74 The recent archaeological discoveries of plant opal in remains in southern Kyūshū have raised the distinct possibility that grains were being purposefully cultivated there as early as about 9,000 BP (uncalibrated) (NHK, 2002b). If Oppenheimer’s hypothesis is correct, this skill could have been taken to southern Japan originally from the drowned grassland plains of Sundaland.
- 75 Bellwood 1997, pp. 117–124.
- 76 Bellwood 1997, p. 110; Matsumura and Hudson, 2004, p. 183. Recently, Adele Whyte and Geoff

Chambers, through studying an alcohol gene marker, have established genetic links between the indigenous Austronesian-speaking Bunun, Amis and Yami of Taiwan and New Zealand Maori. It seems that the conclusion jumped to is that Maori originated in Taiwan (“Maori Ancestry Traced Back to Taiwan,” website cited). I would suggest, rather, that the possibility that *both* the indigenous Taiwanese *and* the Maori originated further south in some now-drowned locus in former Sunda–Sahul—as, of course, quite is possible with regard to the reconstruction of the Proto-Austronesian language.

77 Bellwood 1997, pp. 96ff. Bellwood states: “[T]he location of Proto-Austronesian is best placed in Taiwan . . . **between 4000 and 3000 BC** for Initial Austronesian settlement. My reasoning here is simply that pottery, a known cultural and linguistic marker of at least Proto-Malayo-Polynesian communities . . . first appears in Taiwan at about this time—perhaps 1,000 years before its appearance in any of the islands to the south” (1997, p. 117). This is a curious assumption, because (a) it appears to rest on the dating of pottery alone, which seems rash, and (b) he makes no mention of the fact that pottery finds are actually older in Japan and Eastern Siberia, i.e., to the *north*.

78 Bellwood 1997, p. 112.

79 Murayama, 1976; Benedict, 1990. To dismiss wholesale Benedict’s linguistic work on Austro-Tai-Japanese is in my view premature.

80 Bellwood 1997, p. 127.

81 Oppenheimer 2004, p. 597.

82 Oppenheimer 2002, pp. 292–293.

83 Oppenheimer 1998, pp. 129–131.

84 At maximum glaciation, even if Tibet were not the center of an ice sheet, as some argue, it was “probably barren ground carrying frost-shattered gravels and a steppe tundra vegetation composed, i. a., of *Artemisia* and dwarf bushes” (Nilsson 1983, p. 317).

85 Barnes 1993, pp. 66–67.

86 See, for example, Sasaki, 1971; 1991, pp. 28ff; 1997.

87 Frenzel et al 1991, p. 55; Barnes 1993, p. 56; Imamura 1996, p. 29, Fig. 3.10.

88 Tsukada 1986, p. 35.

89 Tsukada 1986, p. 39.

90 Pearson n.d., p. 3.

91 Slightly slower than that experienced in Europe (Tsukada 1986, pp. 27, 33).

92 Minato 1977, p. 131. The marine transgression reached its maximum during Early Jōmon period, i.e., 6,750–5,450 BP (Tsukada 1986, pp. 40–41).

93 “The major tree species of which these forests are composed are the evergreen oak (*Cyclobalanopsis*), trees of the genus *Castanopsis*, *tabu*, (*Machilus spp.*), camphor (*Cinnamomum spp.*), and camellia.” (Sasaki 1991, p. 29).

94 Tsukada 1986, pp. 17, 37.

95 Ibid., p. 39.

96 Ibid., p. 41.

97 In China cultivation of rice in the south and foxtail millet in the north appears to have started 7,000–8,000 BP (Imamura 1996, pp. 53ff). For discussion, see Sasaki 佐々木 1997, pp. 93–102; NHK 2002d.

98 Denham 2004, p. 614.

99 Taro cultivation and myths associated with it in Japan, such as the belief in *marebito* (“guest spirits”), have been linked to Okinawa, New Guinea, Melanesia, and elsewhere in the south Pacific (Matsumae 1993, p. 331).

100 Sasaki 2002, pp. 1–6.

101 Tsukada agrees that shifting cultivation took place in Japan from the Middle Jōmon period on-

wards (5,450–4,300 BP) (Tsukada 1986, p. 41). His earliest estimate for slash-and burn agriculture dates to ca. 7,700 BP) (Tsukada 1986, pp. 42, 45). Shifting cultivation began after the importation of cultigens that were not indigenous to Japan (Tsukada 1986, p. 46).

102 Tsukada discusses the beginnings of millet as a cultigen in Japan (1986, p. 42).

103 See also Imamura 1996, p. 57.

104 See also Pearson n.d., p. 8.

105 Sasaki 1991, p. 29.

106 *Ibid.*, p. 25. Oppenheimer observes that all these groups are Austro-Asiatic or Austronesian in origin—i.e., originating in Sundaland (1998, pp. 141ff.).

107 Sasaki 1997, p. 17.

108 Sasaki 1986.

109 Sasaki 1997, p. 42.

110 *Ibid.*, p. 107. As early as 1925, Nishimura argued that the raft was most likely the craft by which prehistoric people found their way to Japan (S. Nishimura, *Ancient Rafts in Japan*, Tokyo: 1925, p. 122, cited in Johnstone 1980, p. 195). Habu reports that to date about fifty dugout canoes have been found dating from Early to Final Jōmon, indicating “that the use of canoes was a critical component” in transportation (2004, p. 236).

111 The generally accepted theory is that rice was first grown near the Yangtze River in China perhaps as early as 8,500 BP, but Oppenheimer cites controversial evidence for the earliest rice-growing discovered to date, at the Sakai Cave site on the Malay peninsula in Thailand, dating from 9,260–7,620 BP. He notes that this requires confirmation (Oppenheimer, 1998, 68; undated website cited, p. 2).

112 Imamura 1996, p. 57.

113 *Ibid.*, p. 13.

114 Sasaki 1997, p. 49, Table 1–3; p. 125.

115 Imamura 1996, pp. 156–160.

116 They are inferred to have been Papuan-language speakers with Papuan physical characteristics.

117 I acknowledge that this may be what Turner calls a “null hypothesis”—that is to say, one that cannot be proven, only disproven (1995, p. 217). But that does not “nullify” its being considered.

118 Palmer, “Out of Sundaland: the Provenance of Selected Japanese Myths” (see note 39, above).

## 要旨

## 「スンダランド」よりの縄文人の起源論

エドウィーナ・パーマー

縄文時代の日本人の起源については諸説あるが、中には相反するように見えるものもある。この論文ではスチーベン・オッペンハイマー氏のいわゆる「スンダランド起源」論が縄文日本の状況にも当てはまるかどうかを考察される。氏の理論によると、氷河期後、現在の東南アジアにあった「スンダランド」という大陸が大部分水没したため、その大陸に居住していた人々は周囲の島や大陸等に移住しようとした。この論文では一部が今の日本列島に辿り着き、「縄文人」となったと仮定する。そういう人々は佐々木高明氏の論じる照葉樹林帯の拡大を追って北方へ移動し、照葉樹林文化帯を形成した。オーストロネシア言語（いわゆる南方語）を話した可能性もある。この説は、定説の「台湾起源論」がとるオーストロネシア文化起源論とは相容れないと思われるが、（北方移動説の）「スンダ起源論」と（逆の南方移動説の）「台湾起源説」では人口移動に関して時間のずれがあるため、両説は必ずしも相反するものではないと思われる。

