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DESIGNER'S NOTES

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Conquest of Paradise is a grand strategic game; not exactly an historic simulation game, but perhaps an archeological simulation game! Each turn of the game represents about five years of real time. Each hexagon on the game map spans about 600 nautical miles of the Pacific Ocean.

Inside this booklet you will find the historic and archeological backgrounds – and their impact on the game – for the named Explorers, the Arts & Culture cards, and the Island Group tiles. *There is nothing in this booklet that is required for game play.* To make it easy to find the descriptions of your discoveries, each of the three sections is arranged in alphabetical order.

Explorers

Hawai'i Loa

Hawai'i Loa was a distinguished man. He was noted throughout the islands for his fishing excursions, which would occupy many months – sometimes the whole year! He would roam about the ocean in his big double-hulled canoe with his crew, his officers, his navigators, and always with his principal navigator, Makali'i.

One day, when they had been at sea for a long time, Makali'i said to Hawai'i Loa, "Let's steer the canoe in the direction of the Eastern Star, the discoverer of land". So they steered straight onward and arrived at the easternmost island of the Hawaiian chain.

They went ashore and found the land fertile and pleasant, filled with birds and coconut trees. Hawai'i Loa gave the land his name. They had left their wives and children at home, so they returned to get them.



Hawai'i Loa sailed again, accompanied by his wife and children, and also by a great crowd – steersmen, navigators, shipbuilders, and others. Hawai'i Loa was chief of all these men. He called the islands after the names of his children: the island of Maui after his first born son; the island of O'ahu after his daughter; Kaua'i was called after his younger son.

After Hawai'i Loa had been some time in Hawaii, he made another voyage to find his brothers, to see if they had any children who might become husbands or wives for his children. He found his brother Ki on Tahiti, where he had settled. When they had finished their business there, they returned to Hawaii; they brought Tunuiaiate Atua, the first-born son of Hawai'i Loa's brother, who became the husband of his favorite daughter O'ahu. From them sprang the race of chiefs in Hawaii (welo ali'i) and from Makali'i sprang the race of common people (welo kanaka).

Hotu Matua

In Hiva (the Marquesas Islands), Hau Maka had a dream in which his spirit traveled to a far country, looking for a new home for his King. The spirit traveled a long way before finding a new island. The spirit circled the island, naming twenty-eight places around the island, which the spirit called Rapa Nui.

After hearing about the dream, King Hotu Matua ordered some young men to find the island. They began to build a canoe to search for the island of Hau Maka's dream. So the men left in their canoe stocked with food, and arrived at the island after a voyage of five weeks, just as predicted in the dream.

The explorers began to go around the island. They followed the footsteps of Hau Maka's dream soul, and named the places as he had named them.

After they returned, Hotu Matua decided to launch a canoe and immigrate to Rapa Nui. He ordered that plants and animals be taken with them on their voyage. They gathered banana shoots, taro seedlings, sugar cane, sweet potatoes, paper mulberry trees, sandalwood trees, ferns, rushes, yellow roots, and moss, along with pigs and chickens.

After a voyage of six weeks, the colonists reached the island. Hotu went directly to the north side of the island, where the royal residence would be established. Among those who came in the canoes was Tuu Ko Ihu, the maker of wooden images, and Hineriru (a man of intelligence) who wrote rongo-rongo on paper he brought with him.

The canoes were then brought ashore and taken apart, so the wood could be used to make houses; then seedlings were distributed to the settlers. Hotu Matua took the settlers to a suitable place to farm the land, and told them "Settle here, work, and keep peace among yourselves!"

Kupe

Kupe was enraged. His ship-mates knew to keep well out of his way when Kupe was *this* angry! But now his anger was not directed at them, for imprecise sail handling, or some other infraction. Kupe pointed at the octopus scurrying away from their boat. "He stole my best lure!"

Kupe was a great chief of Hawaiki, accustomed to having his own way. He and his well-trained crew had been out fishing for octopus in his canoe, employing an elaborate lure that the Polynesians used for this purpose. One monster of an octopus ripped the lure off its line, and departed at great speed.

This, obviously, was no ordinary fishing lure. Kupe immediately ordered his men to hoist sail and chase after the octopus thief. But then, this was apparently no ordinary octopus. The chase went on for miles; then hundreds of miles; and on for over two thousand miles! They were well into waters that no man had been to before. Then, over the horizon, there appeared something that distracted Kupe from even this obsessed chase. It was the type of cloud that will form only over land, not open ocean; and it was big. Kupe had discovered Aotearoa – the land of the long cloud. Another explorer, almost a thousand years later, would call it something different – New Zealand.

Kupe returned to his home on Raiatea (with his best lure) and reported to everyone the amazing island he had discovered. Not long after, an expedition of ten great transport canoes set out for the new land: "to the left of the setting sun in November." To this day, the Maori (the native Polynesians in New Zealand) trace their lineage to these colonists, and specifically, to one of these great voyaging canoes.

Ru

A powerful young man named Ru once lived on Tubuai. The island was fertile and fishing was good, but during dry seasons food was scarce, and long peace resulted in the island becoming overcrowded. Although not of royal blood, Ru was a man of good standing. He was a peace-loving man, but ambitious of becoming a leader.

Ru decided to build a large seaworthy canoe, and called together his friends and relations, to try to persuade enough of them to join him in searching for an uninhabited island. He felt certain that he would find a new land, and become a great chief.

When the winds were favorable, Ru and his crew set sail. The whole island came to say farewell to the voyagers. The reef was cleared, the sails were hoisted, and the canoe headed out, Ru taking the steering oar, and one of his brothers standing at the bow.

During the journey a great storm blew up. Through all the noise and wailing of the wind, Ru could be heard laughing and encouraging his crew. On the third day after the storm, Ru's brother cried out that land was ahead – soon the voyagers could see breakers on a reef. All gazed eagerly at the new land! A reef passage was found, and the crew paddled the canoe to shore.

Ru marked off a marae, and near the marae they built their first houses. He divided the island among his crew: from them this new land would be populated.

The island Ru discovered – Aitutaki – is near Rarotonga. Ru's marae can still be seen, and the island's features are exactly as described in the story. All the mataipo (district chiefs) today can trace their descent back to the twenty crew who came with Ru.

Arts & Culture Cards

Aquaculture

The Polynesian people did much to alter their landscape. They terraced hillsides for their taro fields, and dug extensive irrigation systems, to bring water from the wet windward side of islands to the dry leeward side. They also practiced aquaculture in many ways. They controlled natural pools, ponds, and lakes, and created man-made ponds, enclosures, traps, and dams, for the culture and harvest of various marine resources. This ensured year-round food availability and maximized yields. Fishponds held and fattened fish captured in the sea, and served as a source of fish when they could not be caught.

Ancient Hawaii's aquatic food production system included structures built to catch mature fish as well as structures and practices related to true aquaculture: man-made and natural enclosures of water in which fish and other products were raised. At least 400 ponds were constructed in Hawaii; tradition associates many of the ponds with particular chiefs who directed their construction. Ownership of one or more fishponds was a symbol of chiefly status and power. Accessibility to some prehistoric fishponds and their products was limited to the elite minority – the chiefs and priests. These ponds were kapu to the commoners.

In areas where broad, shallow fringe reefs existed close to shore, ponds could be formed by constructing semicircular stone walls arcing from the shoreline. Where natural ponds occurred in lava basins along the shore, the addition of walls and gates made these operational as fishponds.

Although many different kinds of fish filled these ponds, the main inhabitants were mullet ('ama'ama) and milkfish (awa). The algae they fed on grew best when sunlight, salt, and fresh water combined in just the right proportions. Therefore, these walled fishponds needed to be shallow so that sunlight could penetrate. Ponds would be located near the mouths of streams, so that fresh water could combine with ocean water within its walls. Balancing the salinity, the food supply for the fish, the temperature, and other environmental needs was vital to the success of the fishpond.

Because neither of these fish reproduced in ponds, fingerlings captured in the ocean were deposited in the pond. Predators such as barracudas and eels had to be eliminated. In addition, excess ocean catches were allowed to grow in the ponds and then recaptured for consumption.

In game terms, the Aquaculture card provides its owner one Victory Point. It also gives the player one free Improved Agriculture Marker, for use on any island group that requires such a marker to fully utilize its Village potential.

Arioi

The Arioi cult of Tahiti was dedicated to the worship of the Polynesian god of war, 'Oro. Every high god had different personalities, and the aspect specifically worshipped by the Arioi was 'Oro-of-the-laid-down-spear. That is, the war ending, peace making aspect of 'Oro was celebrated by the Arioi.

Membership in the cult was divided into local chapters distributed throughout Tahiti. Members were chosen from the best looking men and women. Physical perfection was a hallmark of Arioi-hood, along with other aspects of youthfulness, such as skill and ardor in dancing, singing, and sex, and freedom from the burdens of parenthood.

Membership in this society gave talented men and women the opportunity to sidestep the rigid social divisions of Tahiti's society. There were eight grades of Arioi, each with a distinctive dress and tattoo pattern, and members could advance through successive grades, regardless of their social origin.

Full participation in the cult's activities was dependent upon a person's having no living offspring. Constraints were not, as mentioned, placed on copulation; in fact, active Arioi were notoriously avid and promiscuous. The rule was against allowing a member's progeny to survive, which was achieved by means of primitive abortion attempts and infanticide.

A troop of Arioi would travel from place to place, performing ceremonies and entertainment in exchange for lavish hospitality. Very little is known about their performances; the first European witnesses were so shocked by what they saw, that they recorded no details. Dressed in distinctive costumes, the Arioi would approach their destination in canoes with great commotion, proceed to the temple dedicated to 'Oro, pay their respects, and then settle down to a week of dancing, theater performing, and feasting.

All fighting would cease at any place where Arioi performances were taking place; the members themselves were immune to attack. A week long visit by a crowd of Arioi drained the host community's food supplies and, undoubtedly, was a strain on many marital relationships. The visits were, however, regarded by most as a pleasurable break in the ordinary day-to-day routine.

In game terms, the Arioi card provides its owner with one Victory Point. It also provides a one-time bonus. When the card is revealed, its owner may stop any one attack in its tracks. Although it's only used once in a game, it can often have a powerful impact.

Cannibalism

Many anthropologists claim that cannibalism never took place in Polynesia – or at least, almost never. Some take offense at any hint of cannibalism. But James Belich, an historian from New Zealand, thinks otherwise:

Evidence suggesting that cannibalism did exist in Maori society is almost overwhelming. But people need to understand that its role was as an exceptional humiliation of dreaded enemies beyond the grave. It wasn't an item of diet. It was a terrible thing that you did only to your worst enemies. You reduced them to food. And you carried your vengeance against them beyond the grave.

On the other hand, in his book titled *Cannibal Talk*, Gananath Obeyesekere argues that cannibalism is mostly just talk, a discourse on the “other”, engaged in by both natives and colonial intruders. He deconstructs Western eyewitness accounts, carefully examining their origins, and treating them as a kind of seamen's yarns. He claims that cannibalism is less a social or cultural fact than a myth, reflecting European societies and their fascination with the practice of cannibalism. He concludes that colonialism produced a complex self-fulfilling prophecy, where the fantasy of cannibalism became a reality.

If cannibalism was a myth, it was spread by the best writers of the time. Robert Louis Stevenson declared: “Cannibalism is traced from end to end of the Pacific, from the Marquesas to New Guinea, from New Zealand to Hawaii... all appears tainted.” Herman Melville claimed that his book *Typee* represented the “unvarnished truth,” although some things he “witnessed” were actually borrowed from the accounts of earlier travelers. The book's narrator never actually sees any cannibalism, but claims to have seen “disordered members of a human skeleton, the bones still fresh with moisture, and with particles of flesh clinging to them here and there!” He concludes that the natives had eaten three recently slain enemy warriors.

Melville also reports the curious case of an old chief that claimed to have eaten a part of Captain Cook. “The old fellow persisting in his assertion, and no invalidating proof being adduced, his cannibal reputation was fully established. This made his fortune; ever afterwards he was in the habit of giving very profitable audiences to all curious travelers who were desirous of beholding the man who had eaten the great navigator's big toe.” Melville used a similar trick, profiting greatly from the sales of *Typee*, which became a best seller – partly because it contained stories of cannibalism. Melville became known as “the man who lived among cannibals.”

In game terms, the Cannibalism card gains no Victory Points for its owner (your people are not happier, nor has your culture added any luster because of this “advance”). But I'm siding with Belich here! It does give an advantage in combat: once each Battle, you can Remove one enemy unit that would otherwise just Panic.

Commerce

From their cultural cradle in the region of Samoa and Tonga, Polynesians explored and successfully settled a larger area of the earth's surface than anyone before them. Thousands of years before the Europeans would, Polynesians mastered the technical and material challenges of extended seafaring, by combining the lateen sail, the double-hulled canoe and a subtle art of celestial navigation. They became experts at managing their “transported landscape.” Polynesian settlers of new island groups brought with them plants for food and fiber, including bananas, coconuts, sweet potatoes, taro, paper mulberry, breadfruit, and kava, as well as dogs, pigs, chickens and rats, all helping to project and sustain a common language, culture and livelihood to a vast, interlinked realm of island groups.

How well connected by commerce were the Polynesian islands? Archeologists can't be certain, but linguistics provides a clue. The remarkable homogeneity of the Polynesian languages is probably the result of continuous active trading between most island groups until only a few hundred years ago. But archaeological evidence suggests a fall-off through time in the frequency of open sea voyaging. There is evidence of marked declines in interaction after about 1450 A.D. – less than one hundred years before their first contact with Europeans. A range of social and environmental factors may have contributed to these declines.

The illustration on the Commerce card shows a Vaka, the trading vessel of Pukapuka (one of the Tuamotu islands); they could carry several tons of trade goods. The Pukapukans are famous sailors and navigators. The island is extremely important in Pacific cultural history, both because of its geographical location near the center of Polynesia, and because its culture has close affiliations with both Eastern and Western Polynesia. They became the natural middlemen of Polynesian commerce.

In game terms, the Commerce card's owner gains one Victory Point because of his people's increased focus on commerce, and the prosperity that would bring. Also, the owner gains one free Transport Canoe to help facilitate this commerce. And if the card's owner also controls Tuamotu, then he receives two free Transport Canoes – fully recouping the original cost of the Arts & Culture card!

Double Hulled Canoes

Polynesia began with the double-hulled canoe. Thousands of years ago, a people moved from Southeast Asia, across Indonesia, the Solomons and Fiji, to Samoa and Tonga. Along the way they became a seafaring people. The earliest sea crossings from Asia were probably made on rafts and dugout canoes. Rafts could carry heavy loads, but were slow. Dugout canoes were faster, but smaller. Both would have

been unsafe for longer crossings; high seas easily washed people off rafts, and dugouts would capsize.

Their first seafaring improvement was the outrigger canoe. A float or secondary hull, fixed parallel to the canoe, was added to increase stability. Sails were also added for greater speed, and steering paddles controlled direction. The Micronesians built the most sophisticated of outrigger canoes; the stability and speed of these canoes allowed navigators to sail across long stretches of open sea.

The Polynesian's invention of the double-hulled canoe made their remarkable voyages possible. The two hulls gave this craft stability and the capacity to carry heavy loads of migrating families and all their supplies and equipment, while a central platform laid over the cross beams, often with a shelter built on deck, provided the needed working, living, and storage space.

Hulls were carved from logs wherever timber of sufficient size was available. The depth of a hull could be increased, by adding one or two courses of boards fitted and lashed above the hull's upper edges. On atolls where large timber was not available for dugout hulls, this idea was expanded into a method of building entire hulls "plank-built" over a keel piece, with ribs and thwarts inserted to strengthen the planking. Round-bottomed hulls were favored for their maneuverability when paddling was the primary power mode (such as War Canoes). But where sailing was the primary purpose, hulls had a greater amount of "V" shape along the keel for better tracking through the water. Such hulls are less maneuverable, but offer lateral resistance to the water, reducing leeway (the sideways skidding of a boat when sailing across the wind).

Rope was made of braided coconut fiber. Sails were made of woven pandanus-leaf matting. They were cut from long rolls, seldom more than 18" wide, double plaited of thin strips in a twill pattern, changing to a check pattern along the edges for strength. The sail was built up by overlapping the edges of these strips and sewing them with a running stitch. The outer edges of the sail were hemmed over a rope; this was used to fasten the sail to the spars and mast.

In game terms, ownership of the Double-Hulled Canoes card does not indicate that your people have invented them. No, all of the players must be using double-hulled canoes to build their empires. The card shows that you have made some small improvement in the canoes: enough to improve their speed and durability, but not enough to claim a Victory Point for inventing this remarkable vessel.

Haka

Haka is often described as a "War Dance", but it's more a chant with hand gestures and foot stamping. Performed by warriors before a battle, it proclaims their strength and prowess, and generally verbally abuses the opposition.

There were two types of war haka – one performed without weapons, known as the *haka taparahi*, and the war haka with weapons, the *peruperu*. The *peruperu* was traditionally performed before going into battle, to invoke Tumatauenga, the Maori god of war, and warned the enemy of the fate awaiting him. It involved fierce facial expressions and grimaces, poking out of the tongue, eye bulging, grunts and cries, and the waving of war weapons.

Before actually going into battle, the warriors would assemble together. The warrior leading the *taua*, or war band, would move into the centre of the men to lead the haka. At his call, the warriors would prepare for the *peruperu*, during which the tribal elders would make a careful inspection. If the haka was not performed in total unity, this could be taken as an omen of disaster for the battle to come. During the actual haka before battle, the warriors would eyeball the enemy. Sometimes they would stress a particular action, like a slicing movement with the arm to indicate the fate awaiting the enemy.

Haka may also be used to tell of great feats, or danced as a special welcome before a high-ranking guest. They can also express a grievance, or could address a prayer to one of the ancient gods.

The core components of the haka are reflected in many Polynesian cultures. Most island's traditions say that the haka was brought from Hawaiki, their mythical ancestral homeland. New Zealand is home of the most famous haka: the *All Blacks*, New Zealand's national rugby team, performs a Maori haka before their matches. Other Pacific cultures have evolved their own form of haka– the Samoans emphasize their weapons, Tahitians are more gentle, and the Rarotongans have vigorous forms of dance chant similar to the Maori.

In game terms, the Haka card provides one victory point for its owner (because it's such a cool thing!) and also a bonus in combat. A successful haka will cause extra enemy warriors to flee in panic!

Hui

Hui is a word that is common to many Polynesian languages; it simply means "gathering". It can refer to any gathering, even a gathering of waves when surfing! Today in New Zealand, the word is increasingly being used to describe a business meeting. For example, the Anglican Church in Aotearoa, New Zealand and Polynesia calls its annual convocation a "Theological Hui".

But for this Arts & Culture card, the word refers to a certain type of celebration. A Hui was a special gathering of people on a marae (a temple platform) with very defined behavior codes and rituals.

In game terms, the card provides one victory point for the player that owns it; the player gets two victory points if he controls a mythical island.

Hula Dancing

Hula is a way of taking what is thought and what is seen into a movement; a way of keeping a history, and of retelling stories. It is remembering kings and accomplishments, births and deaths, the famous and the infamous. Each island group has its own version of the dance.

Hula has always been a focal point of Hawaiian culture. The hula reflects many of the central ideas and events of Hawaiian history. Before European contact, men and women were members of separate schools that taught young dancers and performed for special occasions. Under the strict guidance of *kumu* (teachers), students learned to perform dances depicting the legends of Hawaii, the exploits of past kings and the beauty of the islands. It is performed to chants accompanied by percussion instruments.

When missionaries arrived in Hawaii, they disapproved of what they considered the "licentious" nature of hula and its ties to ancient gods. They virtually banned it from public performance for fifty years. Fortunately, Hawaii's monarchs later saw that hula was integral to a Hawaiian sense of pride and identity. As a public declaration, King Kalakaua invited dancers to perform at his coronation in 1883.

The dance is called hura in Rarotonga (the Cook Islands). They are famous throughout the Pacific for their "sensual and fierce" style. To this day, they come away with the most trophies at international hula competitions. Thus, the player with Rarotonga gets a bonus victory point if he also has the Hula Dancing card.

Jade Carving

Jade (or nephrite) can be found at several places on the South Island of New Zealand. Its color varies from white to black, and all shades of green in between. It is a very hard stone, and is difficult to work, especially with the primitive grinding tools available to the Maori people of New Zealand. It was called pounamu in Maori, and now often called greenstone in New Zealand.

The stone is both hard and tough and made excellent edge tools. Adzes and chisels made from the material were so useful, they were prestige items. Only the paramount chiefs and great warriors would command the *mana* necessary to wield a *mere* (a short war club) made of pounamu.

It is also a beautiful, translucent stone, classed as a semi-precious gem. The stone's character varies within and between sources. The varieties – with differences in quality and color – all have Maori names. The luster of pendants made with pounamu improves with age, reputedly as a result of being worn next to the skin.

The pendant pictured on the card is a *heitiki*, the most common pattern for Maori ornaments. It is the name of a male demigod, which appears often in Polynesian mythology. The symbolism of Maori *heitiki* has been much debated; they are thought to be fertility symbols.

In game terms, the Jade Carving card provides the player one victory point. Your people have made objects of lasting beauty and usefulness that will be admired far into the future.

Kahuna Healing

Huna is an ancient Polynesian system of knowledge, healing, and power. The core of this teaching has been carried on from generation to generation in Polynesia by shamans known as kahuna, or "keepers of the secret." *Kahu* = keeper, *Huna* = the secret. Not secret in the sense that there is an intent to keep the knowledge from others, but secret in the sense that the knowledge has been overlooked or hidden from view.

Kahuna healing is a holistic approach to medicine; it includes many techniques for healing. There is herbal medicine, massage, prayer, forgiveness of others and self and living one's life in balance and alignment.

Perhaps the best known ingredient of the herbal component of kahuna healing is *kavakava*, or simply kava. Its scientific name is *piper methysticum*, and it is related to the black pepper plant. It is a cultivated shrub, a hardy perennial which often grows eight feet tall. It produces a brew that is slightly bitter, slightly soapy, aromatic and resinous; it's capable of inducing tranquility and somnolence.

The traditional way of preparing kava was to gnaw away a mouthful of the root, then spit into a large wooden bowl. The chewing of the kava should be performed by children or by a young woman (preferably a virgin). The ceremony, as conducted in Samoa, "required the girl who chewed and infused the kava to sit cross-legged and bare-breasted on a mat behind the kava bowl, with flowers carefully arranged in her hair and her hips swathed in a grass skirt". The alkaline saliva of the mouth, with its enzymes, promotes the extraction of the active ingredients in the root.

In game terms, the player who holds the Kahuna Healing card gains one Victory Point for the advanced healing techniques that his people enjoy. In addition, once during the game, the player may reveal this card to "save" one of his Warriors that has suffered a Removed result in Battle. It doesn't help you win, but it saves your Warriors to fight another day.

Lapita Pottery

The subject of this card is a bit different from all of the other cards. It does not represent a new development of the Polynesians. Rather, it represents a cultural standard that the Polynesians abandoned in their cultural development. If you draw this card, your people have chosen to continue the Lapita pottery tradition.

The term Lapita refers to an ancient Pacific culture that archaeologists believe is common ancestor of the contemporary cultures of Polynesia, Micronesia, and some coastal parts of Melanesia. The culture takes its name from the site of Lapita on New Caledonia (in the Vanuatu hex on the game map), one of the first places where its distinctive pottery was discovered by archaeologists. The Lapita people came originally from Southeast Asia, spreading through the islands of Melanesia to Fiji, and finally reaching Tonga and Samoa.

Lapita ceramics feature intricate repeating geometric patterns, and sometimes, anthropomorphic faces and figures. The patterns were incised into the pots (before firing) with a comb-like tool used to stamp designs into the

wet clay. Each stamp consisted of a single design element that was combined with others to form elaborate patterns. Many Lapita designs are related to patterns seen in modern Polynesian tattoos and tapa cloth.

The making of ceramic pots was abandoned in Polynesia in favor of carved wooden vessels and gourds. It seems that breakable pots are not the best containers to take on ocean-going journeys of exploration and settlement. However, by drawing this card, your people maintain the tradition of making Lapita pottery. Your people can gain even more prestige if they conquer the nearest island group where this tradition continues, in Fiji.

Luau

Luau are traditional Hawaiian celebrations that are used to mark significant events. Originally, these feasts were called *'aha'aina*, and were celebrated during such events as the birth of a child, a victorious war, or the return of warriors or adventurers after long journeys. This card should more properly be called the *'aha'aina* card, but I chose a more familiar word. The term luau came into favor much later, and refers to the edible taro leaves that traditionally were used to wrap the food prior to being placed in an underground oven.

The feast would begin when this underground oven, or *imu*, would be uncovered: a large pig has been cooking throughout the afternoon. An *imu* is essentially a steam oven. First, river rocks are heated over firewood. When they are sufficiently hot, any remaining firewood is removed and crushed banana stumps (containing a lot of water) are placed on top of the hot rocks – creating the steam – then the food is added, and everything is covered to seal in the steam. Depending on the amount of food, it may take hours for the feast to cook.

The rituals and foods of the luau are extremely symbolic. The event is meant as a way to unite those who participated in it. Each food eaten at the celebration has a meaning: some foods represent strength or courage, while others indicate other goals, virtues, or aspirations that participants are seeking to obtain.

The luau would feature many entertainers, including storytellers, singers, and of course, hula dancing. If the event being celebrated was important enough, an entirely new hula would be composed and preformed to commemorate the event.

In game terms, the Luau card provides its owner with one Victory Point. The people are happy, the produce of the land is re-distributed to all (including the lowest classes), and a fine tradition is passed on to following generations.

Marae

Marae are Polynesian sacred buildings. They are typically rectangular in shape, built away from busy places, on which religious and social ceremonies would be performed. Because of the cultural disconnect created by the missionaries, it is difficult to know with accuracy about the course of the ceremonies and rites that occurred at a marae. But they certainly included the worshipping of gods, the enthronement of kings, preparations for warfare, and any

other major national or royal events. We can catch only a glimpse of some of the ceremonies through the reports of explorers such as Cook, Wallis or Bougainville.

The structure of the marae varies depending on the island group where they were built. But two elements are always present: a rectangular area, up to 150 feet long, 60 feet across, generally paved with lava or coral stones, surrounded by a wall. An altar (or *ahu*), the most sacred part reserved to the gods and ancestors, is located at one end. The *ahu* could be built over several levels like a pyramid (as shown in the illustration on the card) or in the shape of a low and single level square monument.

Flat stone slabs were erected in front of the *ahu* as back rests for the gods. In the middle of the platform there were tables on which the offerings to them were displayed. Wood totems carved with animal figures featured the genealogies affiliated to the gods of the marae. On Easter Island, these totems evolved into the giant stone moai. Various objects, religious symbols, or human bones were placed in little niches built into the stone of the marae.

Marae are called *maea* in the Marquesas Islands, and *heiau* in Hawaii, while the term *ahu* was used for the entire marae on Easter Island. Some were royal marae, some were associated with chieftainships, while others might belong to one family. The biggest marae in Polynesia is the Taputa-puatea marae on the island of Raiatea, which is regarded as the religious and cultural heart of the Society Islands.

In game terms, the Marae card provides the owner with one (or perhaps two) Victory points, and a special ability, which can only be used once in the game. He may declare that the gods are on his side, and have any die roll re-rolled.

Moai

The stone statues – called moai – of Easter Island are neither mysterious nor unexpected. There is a long history of carving stone statues in Polynesia: they are found in Hiva, Tubuai, and Tahiti. Although each island group displays some variation in form and style, they are clearly related, and spring from shared religious practices. But on Rapa Nui, they took it to an extreme.

The average moai stands 15 feet high, but they range anywhere from 8 feet to an unfinished example over 70 feet high. Most were carved from soft volcanic tuff at Rano Raraku, an extinct volcanic crater that was the statue quarry. Despite the use of this relatively light stone, the average moai weighs 18 tons; some of them have been estimated to weigh as much as 90 tons. Moai are characterized by long sloping noses, strong brows, deeply inset eyes, and prominent chins. Some also wear a hat-like cylinder made of red stone on their heads, which may represent a headdress or elaborate hairstyle. Some appear to have only heads, but they are really full figures that have been nearly buried. The exact number of moai on Rapa Nui is not known: many lie buried in piles of rubble or beneath the soil. The estimates vary up to one thousand.

All of the completed statues stood on an ahu, a stone platform. Ahu are an outgrowth of the marae found elsewhere in Polynesia. These shrines followed a similar pattern: in Tahiti, upright stone slabs stood for chiefs. It is a short step from this concept to the use of a statue to represent a sacred chief. The stone figures were generally erected along the coast, where they faced inland, to keep watch over the local community.

Each moai began by quarrying a large block using basalt picks on the volcanic tuff rock. Once the figure was roughed out, the master carver and his assistants added the fine details, beginning with the head and face. Afterwards, a team of workers used ropes and levers to move the sculpture down the quarry slope. It was then set upright and the remainder of the carving completed. The finished sculpture was then moved to its final destination.

But how were they moved? The generally accepted belief is that they were transported on sledges or log rollers, greased with crushed sweet potatoes, and then levered erect into place using piles of stones and long logs. It required about 40 people to move an average-sized moai, and roughly 300 to 400 people to produce the rope and food required.

The people of Rapa Nui believed that the moai possessed *mana*, which was instilled at the time their white coral eyes were put in place. The moai used their *mana* to protect the people of the island. Today none of the moai have genuine coral eyes – and thus the *mana* is no more.

In game terms, the Moai card provides its owner two Victory Points. If the player also has Rapa Nui, he gains a third Victory Point. It is the only card that can be worth three VP, because moai are certainly the most remarkable achievement of Polynesian culture! But that extra point comes at a cost: the player must remove one village on Rapa Nui when the card is revealed, to represent the economic strain of producing moai at such a grand scale.

Navigation

When Europeans first encountered the huge expanse of ocean that had been populated by the Polynesians, most assumed that the islands had been discovered by random, storm blown voyages and luck. Thor Heyerdahl even launched his *Kon-Tiki* to show that random, drift-with-the-wind voyaging was possible. This assumption betrays a breathtaking lack of respect for the abilities of Polynesian seafarers.

At the heart of this game is the assumption that Polynesia was explored by deliberate expeditions led by talented navigators who minimized the risks they were willing to take. With the steady trade wind blowing across the Pacific, the safest way to explore is to wait for contrary winds, and then head into the unknown against the prevailing winds. That way, when the winds inevitably change back, one simply hoists sail, and runs with the wind home. This nearly guarantees a safe return for an experienced seafarer.

The Polynesians were intimately familiar with the stars, and would note the rising and setting points of various major stars and constellations. They used this knowledge to maintain a steady course at night. In daylight, they could set their course by the sun. They could even sense the patterns of the ocean swells as their boat sailed the waves, and use this knowledge to set a course, as well.

But how would they find a tiny speck of land in the vast Pacific Ocean? To a Polynesian navigator, an island was not a speck. Depending on the highest point on the island, it might be seen only a few miles out to sea. But the navigators could recognize certain cloud formations that can only exist above land – this extends an island's visibility out to sea. They would also recognize sea birds that they knew always nested on land at night; these birds would go fishing far out into the ocean.

Signs of unseen land expand a small speck to a great radius. In most chains of islands, the circles overlap, forming a screen hundreds of miles wide. Even if he sailed between two unseen islands, a navigator would know that he was within an island group.

If a navigator spotted the right bird in the open ocean, he'd wait until the bird flew home at the end of the day –and follow him to an island. That island might be a lucrative paradise, occupied by nothing but sea birds –until now!

The illustration on the Navigation card shows a Wa'a Kaulua, sleek Hawaiian canoes "well calculated for speed." In game terms, the owner of the Navigation card is assumed to have been the first to develop one aspect of Polynesian navigation, and have an advantage over his opponents. This gives the player one Victory Point, and an advantage in the Exploration Step of the game.

Ocean Chart

Much of the navigator's art among the Polynesians was based on oral tradition. But they also used simple devices as memory aids and teaching tools. A simple lattice of split bamboo, with white shells attached to represent islands, was one such navigational aid. Ocean charts depict the principles of swell refraction; sticks curved around a cowrie shell show how swells from opposite directions refract around an island and intersect in nodes – an area of confused sea, which is a valuable indicator of position.

While appearing simple, these stick charts are actually rather sophisticated. The charts were not maps in a western sense: they do not depict the islands in their fixed geographic relationship to one another; instead, they show the islands in relation to the prevailing winds and ocean currents that would carry a canoe between them. The stick-charts are used to teach and record the swells of the sea. They were not taken to sea, all being set in the memory.

Mau Piailug, a master navigator, explained his art:

Sunrise is the most important part of the day. You start to look at the shape of the ocean – the character of the sea. You memorize where the wind is coming from. You determine the direction of the swells, and when the sun gets too high, you steer by them. At sunset we repeat the observations. The sun goes down-you look at the shape of the waves. Did the wind change? Did the swell pattern change? At night we use the stars. We use about 220 stars by name – having memorized where they come up, where they go down.

When it gets cloudy and you can't use the sun or the stars, you can rely on the ocean swells. If you can read the ocean, you will never be lost. A skilled navigator can be inside the hull of the canoe and just feel the different swell patterns moving under the canoe and he can tell the canoe's direction lying down inside the hull of the canoe.

Swells are waves that have traveled beyond the wind systems or storms that have generated them. They are more regular and stable in their direction than waves, which are generated by local winds. Sometimes swells can be felt better than they can be seen, having flattened out after traveling long distances. The navigator can orient the canoe to these swells, and accurately guide his canoe to his intended destination.

In game terms, the Ocean Chart card provides its owner with a Victory Point, for inventing a valuable tool to aid in your people's ability to travel the open ocean. It also provides an advantage while exploring: its owner's Explorer will never again be Lost at sea.

Pa

A pa is a fortified place, built by the Maori people of New Zealand. Pa vary in size from those built for a *whanau* (a large family) to an *iwi* (tribe) of several hundred people. They were built as refuge from attack during times of war, but also had many other uses. They were secure places to live and store food; they were residences for important people, and centers for learning, crafts and horticulture. Pa were not lived in all the time: people lived in settlements most of the time, going to the pa in times of trouble.

The archaeological remains of pa are usually obvious in the landscape. They tend to be located on naturally defensible high points, such as the end of a steep-sided ridge, a coastal headland or an isolated hill. Pa can be recognized by their profile on the skyline: a flat platform, the 'v' shaped notch of a defensive ditch, or a series of terraces cut into a hillside.

Maori fortified their pa in three ways. They would steepen natural slopes around the pa by scarping (removing earth).

They would dig earthworks, usually a deep ditch, using the excavated earth to make an internal bank. Timber palisades were then built on the earthworks.

Fortifications were built to suit the needs of the defenders. If there was an easy approach along a ridge line, the way could be blocked with earthworks. The entrance to a pa can be difficult to find. It's usually an easily defended narrow gap in the earthworks, sometimes between the end of defenses and the edge of a steep escarpment.

Pa built after the *pakeha* had introduced muskets to the Maori had loop holes in the base of palisades to enable gun fire, and angled earthworks for flanking fire. When the Maori encountered the British army, they developed the pa into a very effective defensive system of trenches, rifle pits and dugouts. In the Maori Wars, these modern pa often neutralized the overwhelming disparity in numbers and armaments that the Maori faced.

At Gate Pa in 1864, the Maori withstood a day-long bombardment in their bomb shelters. Having destroyed the wood palisade, the British troops assaulted. The storming party was allowed to occupy the pa for a few minutes before the warriors opened fire. From their concealed positions, the Maori decimated the confused assaulting party. The soldiers broke ranks and ran from their invisible enemy. It was the most costly battle for the *pakeha* of the Maori Wars. The Maori then abandoned Gate Pa; its only purpose was to lure the British into a costly battle.

In game terms, the Pa card does not provide its owner with a Victory Point; pa do not improve the quality of life of your people, nor are they works of art that will resonate through the ages. But they do give your people a substantial advantage in combat, if others are foolish enough to attack you on your home ground.

Poi

Poi is made from the taro plant (*Colocasia esculenta*), the 14th most cultivated crop on earth. Taro is cultivated both in the dry uplands and in marshy lowlands, irrigated by streams. The Polynesians often built walls of earth reinforced with stone to enclose their taro fields.

Although taro is eaten around the world, only Polynesians make poi. They cooked the starchy, potato-like taro root, or corm, for hours in an underground oven called an *imu*. Then they pounded the corms on large flat boards, using heavy stone poi pounders. It was pounded into a smooth, sticky paste, then stored in *ti* leaf bundles and banana sheaths for future use, trading, or long expeditions. By slowly mixing water to the paste, the perfect poi consistency can be created.

Someone once described poi as "a gray, nebulous blob of nothingness." When Captain Cook tasted poi for the first time, he commented, "...we met with a taro pudding, which, though a disagreeable mess from its sourness, was greedily devoured by the natives." Poi is undoubtedly an acquired taste.

In game terms, the Poi card does not provide any Victory Points to its owner – it would have to taste much better to do that! But it was perfect for taking on long voyages – a filling staple food that could keep for long periods of time, even in a tropical climate. So the Poi card provides a movement bonus. This can be quite a shock to an opponent when the card is revealed, and War Canoes move to islands thought to be safe! More peaceful owners of the Poi card will use it to quickly reach the far-flung island groups of their empires.

Powhiri

Powhiri is a ritual ceremony of welcome extended to visitors by the Maori of New Zealand. Traditionally, the process served to discover whether the visiting party was friend or foe. As the ceremony progressed, and after friendly intent was established, it became a formal welcoming of guests by the hosts.

The ceremony begins with the *karanga*, the voices of women from both sides calling to each other. It is said that the callers weave a mat laid upon the earth between them, binding the two sides together, and protecting them from the men who will compete with each other.

A warrior then advances on the visitors to look them over: the *wero*, or challenge. The hosts will perform a haka, during which the visitors are symbolically drawn forward. The chants often use the symbolism of hauling a canoe onto the shore.

Next is the *mihi*, or exchange of greetings by the orators from both sides. An expert will display his knowledge of *whakapapa* – a tribe's genealogy, mythology, and history. The Maori word for this genealogy includes *whaka* – canoe. The story of a tribe always traces back to the name of the canoe that brought the tribe's ancestors to New Zealand. During this oration, the genealogical links between visitors and hosts are emphasized.

Each speech is followed by the performance of a *waiata* (song), or sometimes a haka, by the orator's group. The quality of the performance is a matter of critical concern, and reflects on the orator and his tribe.

At the completion of their speeches, the visitors will present a gift; the visitors and hosts then greet each other with the *hongi*, a gentle pressing of noses. This signifies the mingling together of the sacred breath of life, and the two sides become one.

The powhiri concludes with the *hakari*, the sharing of food. The food removes the *tapu* (taboo) from the visitors, so that the two sides may complete the coming together. As in all cultures, the sharing of food signifies a binding together.

In game terms, the Powhiri card provides one Victory Point to the player who owns the card. When the card is revealed, a player may examine any stack of enemy units. This can be quite useful for determining your opponent's intentions!

Rongo-Rongo

Rongo-rongo is a type of pictograph writing that was developed on Rapa Nui (Easter Island). It is one of only a handful of ways of writing that was invented anywhere in the world. It has never been successfully translated, and probably never will be, since so few examples remain. One small section of one tablet has been translated, however: it is clearly a lunar calendar!

In 1864, missionary Eugene Eyraud – the first known non-Polynesian to live on Easter Island – said in a letter that he had seen “in all the houses” hundreds of tablets and staffs incised with hieroglyphic figures. Two years later, only a handful of these artifacts were left. Some say that they were burned to please the missionaries, who saw in them evil relics of pagan times. Today, only 21 examples remain.

The writing on them is extraordinary. Tiny, remarkably regular glyphs, less than half an inch tall, highly stylized and formalized, are carved in shallow grooves running the length of wood tablets. I have seen the two examples in the Smithsonian Museum of Natural History, and they are mesmerizing.

Some say that the Rapa Nuians came up with their writing after a visit in 1770 by a Spanish ship. Perhaps the locals sensed the foreign *mana*, the spiritual power, that resides in the wonder of writing, the coupling of human speech to graphic art. Perhaps they employed various motifs for their glyphs from the rich inventory of Easter Island's rock art. In any case, no other Oceanic people possessed a writing system, so the Rapa Nuians certainly came up with their writing after their island had become isolated from the rest of Polynesian culture. Whether it was influenced by European contact or not, we might never know.

In game terms, the Rongo-rongo card provides the player with one Victory Point. If the player also controls Rapa Nui, the historic home of the writing, the player gets a bonus Victory Point. So, if a player draws this card in the game, then clearly the Polynesians came up with this writing on their own. If the card remains in the deck, then their writing developed after the scope of the game – maybe with the help of Europeans!

Severe Deforestation

Polynesians, like people everywhere, “prospered by disturbing the natural order”, as Carl Sauer said. The explorers of Polynesia discovered islands almost entirely covered by forests. As the islands were occupied, the colonists cleared land for gardens, or for stands of useful trees that provided food and materials. People also cleared forests to provide a place – and the wood – for houses. They used fire to clear agricultural land and for hunting; it was a major tool in the change from forest to more open landscapes.

These activities created a human habitat that was much more productive than the thick native forests. But as Sauer went on to say, human beings often overreach themselves, and the new order they introduce may contain the seeds of disaster.

Deforestation has led to severe erosion in the Cook Islands, the Society Islands, and Hawaii, where most of the indigenous forest has been removed, leaving degraded scrub land no longer suitable for agriculture. Deforestation was responsible for the collapse of the Polynesian culture on Easter Island, where there was a radical reduction of forests. Similarly, drastic deforestation on the Hawaiian island of Kahoolawe led to a dramatic population crash and the total abandonment of the interior of the island.

It is clear that the Pacific islands' early inhabitants caused many extinctions (notably of birds), reduced forest cover, initiated massive soil erosion, and created degraded scrub lands and silted-over coral reefs. In short, they did what all peoples, especially pioneers, do in their efforts to make a living: they actively manipulated, modified, and at times degraded the ecosystems in which they lived.

In game terms, the Severe Deforestation card doesn't provide a victory point for its owner. However, it does allow the owner to remove one Village (worth one Victory Point) from each of his opponents. The worst effects of deforestation occurred after the time frame simulated in the game, so the damage is limited to the longest-occupied islands: the players' home islands. The player with this card may even choose to hold his card face-down until the last moment: when someone else has declared victory. This card might actually negate the other player's victory, and force the game to continue!

Surfing

Lieutenant James King completed the narrative portion of Captain James Cook's journals after his death in Hawaii. Lt. King devoted two full pages to a description of surfboard riding, as practiced by the locals at Kealakekua Bay on the Big Island. His entry is the earliest written account of surfing.

But a diversion the most common is upon the Water, where there is a very great Sea, and surf breaking on the Shore. The Men go without the Swell of the Surf, & lay themselves flat upon an oval piece of plan about their Size and breadth, they keep their legs close on top of it, & their Arms are us'd to guide the plank, they wait the time of the greatest Swell, & altogether push forward with their Arms to keep on its top, it sends them in with a most astonishing Velocity...

Called *he'enalu*, or wave sliding, riding waves lying down or standing on long, hardwood surfboards was an integral part of Hawaiian culture. Surfboard riding was layered into the society, religion and myth of the islands. Chiefs demonstrated their mastery by their skill in the surf, and commoners made themselves famous by the way they handled themselves on the waves.

Playing in the surf on *paipo* (belly) boards is found elsewhere in Polynesia. Although Tahitians are said to have occasionally stood on their boards, the art of surfing upright on long boards was certainly perfected in Hawaii. The beaches where the *ali'i* surfed were separate from where the commoners surfed. Commoners generally rode waves on *paipo* (prone) and *alaia* (stand up) boards as long as 12 feet, while the *ali'i* rode waves on *olo* boards that were as long as 24 feet!

In the wake of Captain Cook's *Discovery*, surfing fell into decline. The haole brought missionaries with new ideas. For surfing, the abolition of the traditional religion signaled the end of surfing's sacred aspects. With surf chants, board construction rites, sports gods and other sacred elements removed, the once ornate sport of surfing was stripped of much of its cultural significance.

Hawaii's own Duke Kahanamoku helped make surfing a modern phenomenon. In 1912, Duke passed through southern California on his way to the summer Olympics in Stockholm, Sweden. His surfing demonstrations there caused a sensation. Duke became world famous by winning an Olympic gold medal in Stockholm (and again in Antwerp in 1916); he was constantly giving swimming exhibitions around the world. He even became a favorite of Hollywood casting directors, playing exotic roles in movies. On weekends he would take his Hollywood friends surfing. Everywhere he could, Duke used his fame to introduce the world to the sport of surfing.

In game terms, the Surfing card provides the player with two Victory Points. Your people have made a celebrated contribution to world culture – and they're having fun doing it!

Tapa

Tapa cloth is made from the inner bark of the Paper Mulberry tree (*broussonetia papyrifera*). Native to eastern Asia, it was brought to the Pacific during the Polynesian voyages of migration. The word *tapa* is derived from the two words *ta* and *pa*, meaning "the beaten object". It is used for both functional and ceremonial purposes. The decoration features stylized depictions of plants and fish, but also may include coats of arms. Special designs are sometimes made to commemorate important events.

To make *tapa*, the bark is stripped from young mulberry saplings, and the white inner layers are peeled off. These narrow strips are soaked in water until softened; then they are pounded with grooved mallets, which spread the bark into increasingly wider strips. The edges are then overlapped and glued to make wide sheets.

Printing plates for each design are typically made of hibiscus bark and coconut fiber. Then the *tapa* is stretched over a series of these plates, and the *tapa* is rubbed with dye to stain the surface in areas where the design is raised. Finally, after the *tapa* has dried, dark outlines and details are hand painted.

A variety of natural plant dyes are used. Natural brown dyes, for example, are made from clay and tree sap, while mangrove root yields a deep red color.

Large, traditional tapa cloths are usually divided into rectangular sections, then subdivided with geometric patterns. Motifs are repeated in series (for example, four stylized leaves forming a diagonal cross). Because Polynesian history was not a written history, tapa cloth was a way in which important traditional symbols could put down for posterity.

In game terms, the Tapa card provides its owner with one Victory Point. The artistic and technical advances required to produce the cloth provide your people with a practical material and an expression of their culture.

Tattoo

Tattooing was used in ancient Polynesian society to express one's identity and personality. Tattoos would indicate status in a hierarchy society: sexual maturity, genealogy and one's rank within society. Nearly everyone in ancient Polynesian society was tattooed.

The traditional tattooing tool was a comb with needles carved from bone or tortoise shell, fixed to a wooden handle. The needles are dipped into a pigment made from the soot of burnt candlenut, mixed with water or oil. The needles are then placed on the skin and the handle is tapped with a second wooden stick, causing the comb to pierce the skin and insert the pigment. The name tattoo comes from the sound of this tapping.

Tattoo was a *tapu* (taboo) or sacred art form. It was performed by *tahua* (shamans) who were highly trained in the religious ritual, the meaning of the designs and technical aspects of the art. The designs and their location on the body were determined by one's genealogy, position within the society and personal achievements. In preparation for the tattooing, one would have to undergo a period of cleansing: fasting and abstaining from any contact with the opposite sex. The patient was held tight in a sort of vise composed of two trunks of banana trees. The tattooer, accompanied by his assistants, sang a chant of the occasion, syncopated to the rhythm of the tapping of his little mallet. Each drop of blood was rapidly wiped up with a scrap of tapa cloth: none was allowed to fall to the ground.

Traditional tattoo designs can be divided into two groups. *Enata* are natural symbols representing one's life history, island of origin, social level, work and activities. Some provided magical protections: a fisherman could have symbols protecting him from sharks, or a warrior against his enemies. *Etua* are mystic symbols representing past ancestors and the gods. These symbols would confer honor amongst the tribe and protection from gods (against natural dangers and evil spirits). *Etua* symbols are closely related to

mana – the spiritual force. The *mana* was inherited from ancestors, but people were supposed to develop and master this power.

In game terms, the Tattoo card provides the player with one Victory Point, because of its cultural importance. But it also provides a bonus in combat. This can make a desperate defense suddenly quite viable, or make a good attack a sure thing.

Wood Carving

From the exuberantly carved wood structure of Maori meeting houses, to the small *tiki* carvings now made for tourists on Easter Island, intricate wood designs are hallmarks of Polynesian culture.

Ornamental wood carving was used on domestic objects as well as in temples and religious statues. Polynesian carvings are incredibly complex, and not just decorative in nature. They record important events and serve as genealogical reminders. Carvings generally indicated stories of religious or social importance, and contained abstract or stylized human figures. Sculptures often had oversized heads in proportion to the body, with angular facial features.

Classic woodcarving is characterized by boldly rendered forms whose surfaces are engraved with intricate designs. A masterful carving is said to “speak” to the viewer, while a lesser example remains silent. To read a carving requires a thorough knowledge of island culture and symbols.

What makes many of the design types so compelling is the way in which forms are combined: a lizard figure may have human and bird attributes, making composite figure. Some human figures have a bird head and wings. Playfulness of form and “visual punning” are characteristics of the art.

Works were created by specialist carvers, known as *taura rakau* on Mangareva. When their services were needed, carvers underwent a ritual initiation, which brought them under the influence of their patron gods. The initiation of the carving process was often the direct result of divine inspiration: an image would be carved after a god had spoken through the mouth of a priest.

Wooden images on Mangareva were originally fairly abundant, representing a variety of gods and deified ancestors. However, following the adoption of Christianity, virtually all of these figures were burned at the behest of the missionaries. Today, only a dozen examples survive. These examples, ironically, were saved by the missionaries and sent back to Europe as evidence of their success in bringing Christianity to Mangareva.

In game terms, ownership of the Wood Carving card gains the owner a Victory Point. His people have brought beauty and meaning to their world, and have established an art that will endure through the ages.

Island Group Tiles

Aotearoa

Aotearoa means “the land of the long white cloud”. When the great navigator Kupe discovered the island, the first thing that he saw over the horizon was a cloud that would only form over land – and it was a big one. Unlike every other island group in Polynesia, New Zealand is actually a chunk of continental landmass that has been fractured off on its own. The highest mountain is Aoraki (Mount Cook); at 12,316 feet high, it is by far the tallest mountain in all of Oceania, and even taller than anyplace in Australia.

What the Polynesians found when they got there was unlike anything else in their experience. The land was full of unique plants and animals, including forests of giant kauri trees filled with huge flightless birds that they called moa. Hunting them through the forests was Haast's eagle, which was the world's largest bird of prey.

But the Polynesians that came to Aotearoa (known as the Maori) could not take full advantage of this land. Their agriculture system was based on tropical crops, while New Zealand has a temperate climate. They adapted kumara (sweet potatoes), cultivated as a virtual perennial in the tropics, to the temperate New Zealand climate. But as the Maori settled further south (and the climate got colder), more of their tropical crops, like coconuts and taro, failed.

Nearly all of the Maori settled on the North Island, or the northern end of the South Island. To this day, most Maori live in this part of New Zealand. That is why the island tile for Aotearoa only shows this part of the islands. When placed in its geographically correct space on the game map, the bottom edge of the tile is at the southern edge of the map.

Flint Is.

The Flint Island tile represents the southern Line Islands. The tile also includes Vostok Island and Caroline Atoll. There's not much to these islands; they are isolated low atolls. They have well-stocked lagoons, and huge flocks of birds, but very little dry land. The Polynesians did not permanently occupy these islands.

Hawaii

The Hawaiian islands formed as the Pacific plate moves slowly northwestward over the hot spot in the earth's crust, at about 32 miles per million years. Thus, the islands in the northwest of the island group are older and typically smaller – they have been eroding far longer.

Because of the composition of the magma in the hot spot is rather fluid, the eruptions on Hawaii are nearly constant, and seldom violent. The Big Island is the largest and youngest island in the chain. Mauna Loa, comprising over half of the Big Island, is the largest shield volcano in the world.

The islands receive most rainfall from the trade winds on their north and east flanks, called the windward side. The south and west flanks of the islands – the leeward side – are drier. The temperature rarely rises above 90°F or drops below 60°F, except at higher altitudes. The three highest mountains of Mauna Kea, Mauna Loa, and Haleakala sometimes receive snowfall in the winter.

The Hawaii island group tile represents the eight main islands of the Hawaiian chain. Niihau is a small semi-arid island. Kauai includes Mount Waialeale, the wettest spot on earth, averaging 460 inches of rain a year! Many streams flow from the mountains to the sea, cutting canyons in the volcanic rock. Waimea canyon has colorful rock walls that are 2,857 feet high.

Oahu consists of two mountain ranges: the Koolau Range in the east and the Waianae Range in the west. The valley between these two mountain ranges consists of a fertile, rolling plain, with Pearl Harbor at its south end. Waikiki Beach is where the Polynesian kings of Hawaii kept their court.

Lanai and Kahoolawe are low, arid islands, always sparsely inhabited. Molokai is covered with rugged mountains and canyons on the east; the west is a dry plateau. But the central area is a fertile plain, and has always been heavily populated. Maui was formed by two volcanoes; a low isthmus between them creates a fertile area for crops. Haleakala, the highest point on Maui, is the world's largest volcanic crater.

Hawaii, often called The Big Island, was formed by five volcanoes. Mauna Loa and Kilauea are both very active, erupting almost constantly. They sometimes spew fiery lava streams down the mountains to the sea, making Hawaii a little bit larger.

Hawaiki

Hawaiki is the mythical homeland of the Polynesian people; it is known as Awaiki, Hawaiiki, Hawaiti, or even Savai'i on some islands. Many myths assume that it lies somewhere in the Pacific, somewhere in Polynesia. But historically speaking, this tile never came out of the box.

Modern scholarship can now trace the trail of the Polynesian people. More than 15,000 years ago they lived in southeast Asia, and that from there they traveled (by way of Taiwan and the Philippines) to Indonesia. About 6,000 to 9,000 years ago they moved on through

Melanesia, and reached Fiji about 3,500 years ago. The trip from there to Samoa and Tonga occurred about 2,500 years ago; then about 500 ad, they began their final push into the rest of Polynesia. So where is the legendary homeland of Hawaiki?

Polynesian tribal stories tell us that at the death of their bodies, Polynesian's spirits journey back to Hawaiki; to the meeting place of the spirits. And Hawaiki is with them always, carried in their hearts through thousands of generations of migration; carried also through the lifetime of a single heart wherever it may journey.

In some traditions Hawaiki is perceived to be a physical place from which the people first emerged, an actual island located somewhere in Polynesia. But it's not; so why is it in this game?

Early versions of this game had exactly the same number of island tiles and open ocean chits as the geographically correct map. When all of the hexes on the map were explored, there were no chits left. It was suggested that there should be some places left out of the game when exploring was complete, so players could never be certain about which islands were in play. But how could more islands be added to the mix – they couldn't just be made up, could they? Well, in a way, yes: and Hawaiki is one of the two Mythical Islands in the game.

Hiva

See the Hiva Player Aid card for a description of this island group tile.

Johnston Is.

Johnston Island is a low sand and coral island; its greatest height reaches 44 feet above sea level. A mile and a half to the northeast of the main island is little Sand Island. Both are surrounded by a lagoon and enclosed by a reef. The vegetation consists of only three species of grass and low herbs.

The American brig *Sally* grounded on a shoal at Johnston Island, but gave no name to the land. The H.M.S. *Cornwallis* gave the name of her commanding officer, Captain Charles J. Johnston, to the island.

During the 1950s and 60s, the United States Air Force conducted a dozen nuclear missile test launches. Two of these missiles exploded directly over Johnston Island. The United States Government spent four decades gathering the 60,000 cubic yards of radioactive contaminants that the aborted tests sprayed over the island.

The destruction of chemical agents and munitions on the island began in 1990; a decade later, more than 400,000 projectiles had been destroyed, and the clean up began.

The islands now bear little resemblance to the description above; they have been dredged and filled, and two small artificial islands were created. In 2003 the U.S. government transferred jurisdiction of Johnston Island to the United States Fish and Wildlife Service.

Kermadec Is.

The Kermadec Islands are an island arc of four main islands, associated islets, and some isolated rocks. The island arc is formed where the Pacific Plate is pushed down under the Indo-Australian Plate. The subducting Pacific Plate created the deep Kermadec Trench to the east of the islands. The islands lie along the undersea Kermadec Ridge, which runs from the North Island of New Zealand to Tonga.

There are two active volcanoes among the islands, and two more that are currently inactive. The island group is constantly wracked by earthquakes, often very strong ones. On May 16, 2006, an earthquake measuring 7.6 on the Richter scale hit the island group; it was felt as far away as Christchurch, in the South Island of New Zealand.

Archeological evidence shows that Polynesian people settled the Kermadec Islands, but when Europeans reached the islands in 1788, the place was uninhabited. There are legends among the Maori of New Zealand that the people living in the Kermadecs couldn't stand it anymore. They had obviously greatly angered Ruamoko (the volcano god) and could find no way to appease his anger. So they all left, leaving Ruamoko to rumble and spout without them.

Kiritimati

The Kiritimati tile represents the northern end of the Line Islands, and it includes Fanning Island (now known as Tabuaeran Island) and Washington Island (Teraina Island). Like the rest of the Line Islands, these are low coral atolls. Kiritimati, however, is unique. It is the largest coral atoll in the world, with an area of 248 square miles, of which 125 square miles is land (and the remainder lagoon).

Kiritimati was "discovered" by Captain James Cook on Christmas Day, 1777. He didn't see much promise for the island because of its dry climate: Kiritimati is subject to periodic droughts (depending on the El Nino weather cycle) and Cook must have arrived during one of these. The droughts might also account for the abandonment of the Polynesian settlement of the island: archaeological remains indicate many generations of occupation.

These islands are now a part of the nation of Kiribati. They are being settled from Tarawa (the nation's capital) as part of a population pressure relief program.

Kuporu

According to some Polynesian traditions (OK, one that I could find...) the ancestral home island of Hawaiki had a smaller sister island, called Kuporu. According to legend, some of the expeditions that populated the islands of Polynesia originated in Kuporu.

Note that neither of the two Mythical Islands have any brown Village boxes on them. In the Polynesian's "memory" of these islands, everything was perfect and wonderful; there was no need for irrigation systems, slope terracing, nor aquaculture: no need for any agricultural improvements at all. Thus, all of the Village boxes on Hawaiki and Kuporu are green.

Lord Howe Island

Lord Howe Island is located in the middle of the Tasman Sea, between Australia and New Zealand. It is what's left of a shield volcano after 6.9 million years of erosion. Mounts Gower and Lidgbird dominate the south end of the island; the former is over 2,800 feet high. The Lord Howe seamount chain continues to the north for 600 miles, the result of the Australia plate moving northward over a geologic hot spot.

The waters surrounding Lord Howe Island provide an unusual mixture of temperate and tropical habitats. The coral reef that is tucked into the sheltered waters of the crescent-shaped island is the southern-most coral reef in the world.

Lord Howe Island was named after Richard Howe, who was Britain's First Lord of the Admiralty. It was discovered in 1788 by HMS *Supply*, on its way from Botany Bay to Norfolk Island with convicts for the penal settlement there. They found the island completely uninhabited, and there is no evidence that it was ever occupied by the Polynesians.

Some anthropologists believe that Lord Howe Island was occupied by Polynesians, and later abandoned. But all evidence of their occupation was later washed away by a massive tsunami. In any case, Lord Howe Island is the only island group tile in the game that is outside of the Polynesian Triangle.

Mangareva

Mangareva consists of a large lagoon 15 miles in diameter, sheltered by an outer reef that encloses two dozen volcanic islands (which are themselves surrounded by coral reefs) and a few coral atolls. The high volcanic islands receive enough rain that the islands were originally completely forested. The Polynesians built their settlements in the narrow band of flat land around the coasts. On the slopes behind the villages they grew sweet

potatoes; on terraced slopes and flats below they planted taro, where it could be easily irrigated by springs. On higher elevations they grew tree crops, such as breadfruit and bananas.

Mangareva's biggest drawback was its lack of high-quality stone for making adzes and other tools. The coral atolls in the lagoon has no good stone at all, and even the volcanic islands have only coarse-grained basalt, which could only be fashioned into crude tools.

Pitcairn Island, 250 miles southeast of Mangareva, has some of the best fine-grained basalt in Polynesia. It's also an excellent source of obsidian, whose flakes could serve as sharp tools for fine cutting tasks. Archeological studies have now documented a brisk trade between the islands: Mangarevian food exchanged for the superior stone of Pitcairn. But about 500 years after it began, the trading stopped; the communications were broken.

When people settled on islands that had developed for millions of years in the absence of humans, habitat damage and mass extinctions inevitably followed. Mangareva was no different; in fact, it was nearly as fragile as Easter Island, and for many of the same reasons. After most of the island's hilly interior was deforested, rain carried topsoil down the steep slopes. Eventually, little land was left for gardening and tree crops. Deforestation affected fishing as well, because parts of the lagoon were silted over, and no trees large enough to build fishing canoes remained; only rafts could be built.

With too many people and too little food, warfare broke out over the precious remaining cultivable land. All that political chaos alone would have made it difficult to muster the manpower and supplies necessary to cross the ocean for trading, even if there had been trees left for canoes, or surplus food to trade. All journeys to Pitcairn and the southeast stopped, and those islands were left to their own fates.

Maria Theresa Reef

Maria Theresa Reef was reported in 1843 by a Captain Taber of the *Maria-Theresa*, one of the many whalers in the South Pacific at that time. In 1983, the longitude position of the reef was recalculated and searched for, but not found. Even though the reef is shown on many maps of the Pacific (including the *National Geographic* map that was used to create this game's playtest map), its existence is doubtful.

It is called Tabor Reef on French maps; under this name, it appears in Jules Verne's novel *The Mysterious Island*. The main action of the novel takes place on Lincoln Island (as Jules Verne's characters call it) supposedly about 100 miles from Tabor Reef.

In 1966 Don Miller broadcast with portable "ham" radio equipment from what he claimed was Maria Teresa Reef. He had a picture of himself setting up to operate on Maria Theresa, standing on a coral reef, gear under his arms and with the surf up to his knees.

There is a site on the internet (portmaria.orcon.net.nz) that claims that the Republic of Port Maria declared its independence on 1st October 1980. They say that platforms have been built on the reef, and a permanent population of 287 is now supported there. Apparently, the country benefits from sales of offshore banking licenses, stamps and souvenirs.

So, does Maria Theresa Reef exist, or not? Play the game to see if the place exists in your world!

Midway Is.

The Midway Islands tile is the western end of the Hawaiian Island chain, and includes Kure Island to the west of Midway. Also known as Midway Atoll, it is located less than 150 miles east of the International Date Line: about 2,800 miles west of California and 2,200 miles east of Japan.

Midway is part of a chain of volcanic islands, atolls, and seamounts extending from Hawaii up to the tip of the Aleutian Islands. Midway was formed when the seabed underneath it was over the same hot spot from which Hawaii is now being formed. In fact, Midway was once a large volcanic island. As the hot spot moved away, the island slowly subsided. As the island subsided, the coral reef around the island was able to maintain itself near sea level by growing upwards. That reef is now over 500 feet thick! What remains of the volcanic island today is a shallow water atoll about 6 miles across.

Nearly two million birds call Midway home for much of each year, including the world's largest population of Laysan Albatrosses, or "gooney birds". Hawaiian monk seals, green sea turtles and spinner dolphins frequent Midway's crystal blue lagoon. Close to the southern rim of the atoll lie two low islands. Sand Island is a mile and a half long, composed of nearly bare sand. Eastern Island is triangular in shape, about a mile and a quarter long. Composed of more compact soil, it supports a growth of low shrubs.

Although only 400 miles further north than Honolulu, Midway is no longer in the tropics, and has a much more temperate climate; in winter it becomes quite cold. The geographically correct location of Midway is at the northern edge of the game map.

Nihoa

The Nihoa island group tile also includes Necker Island, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, and Lisianski Island. They are a line of atolls and small islands between the main Hawaiian Islands and Midway Island.

Nihoa is the summit of a huge volcanic peak, only about 900 feet of which remains exposed above the sea. The northern side of the island drops off sheer, in a nearly perpendicular cliff. The southern side of the island slopes upward in a series of six shallow valleys.

Although difficult to imagine today, this isolated island of rugged cliffs and steep valleys provided a home for Hawaiians. More than 80 cultural sites are known, including habitation terraces and bluff shelters, religious places, agricultural terraces, and burial caves. Although the air and sea around Nihoa held an abundance of natural resources, fresh water must have been a major problem; the island has only three freshwater seeps. Still, archeologists estimate that at one time, Nihoa supported as many as 175 people.

This fact sheds a light on a design dilemma. Although Nihoa did support a population of Polynesians, it was quite small; in game terms, not enough to count as a full Village. So the population of Nihoa gets "rounded down" and the tile for the island is an uninhabitable atoll.

Niue

Niue is sometimes called the Rock of Polynesia. It is reputedly the largest upraised coral atoll in the world. This means that the island developed in the usual way – a fringing coral reef continued to build up, while the island it surrounded slowly sank, and then disappeared. But then geological forces conspired to thrust the island up again, creating a high island of solid limestone rock.

The island has an extremely rugged coastline, with steep cliffs punctuated by many caves that have eroded into soft spots in the limestone. Today, villages are dotted around the saucer-shaped island, most on the western edge. There are also three coral atolls not far away.

Norfolk Is.

When Captain James Cook "discovered" Norfolk island in 1774, it was uninhabited. The Polynesian occupants of the island had left many years before. Cook was most impressed by the Norfolk Island pine tree (*Araucaria heterophylla*). Often a potted plant here, they grow exceptionally tall on their only native land.

In 1788, the British government decided to turn the island into a penal colony. By 1856, they had abandoned this endeavor. But that same year, they found another use for Norfolk Island. The population of Pitcairn Island, all descendants of the *Bounty* mutineers, had outgrown that small island. The British government moved them all to Norfolk Island! To this day, the inhabitants of Norfolk Island are the descendants of the mutineers. A few people chose to go back to Pitcairn, so that island is also populated by them.

Palmyra Atoll

The Palmyra Atoll island tile also includes Kingman Reef; they are north of the Line Islands (although some geographies include them as part of the Line Islands). Palmyra Atoll consists of about 50 little islets, all barely above sea level, that are within one coral reef. Palmyra was claimed by the Kingdom of Hawaii by Kamehameha IV; it was therefore part of the annexation of Hawaii by the United States.

But when Hawaii became a state, Palmyra was specifically not included, and became an Incorporated Territory of the United States—the only one in the nation. The family that owned Palmyra Atoll had to go all the way to the Supreme Court to re-claim their ownership from the Department of Defense after WWII. It is now privately owned by the Nature Conservancy.

Pitcairn Is.

Pitcairn Island is best known as the place where Fletcher Christian and the *Bounty* mutineers settled with their Tahitian companions, an event retold in numerous books and films. The place was completely unoccupied when the *Bounty* crew found it. But why was Pitcairn available to be settled in 1790?

The Pitcairn island group is at the southeastern edge of the archipelago that is the heart of Polynesia. The island group includes four islands: Pitcairn, Oeno, Henderson and Ducie. Pitcairn is a small volcanic island with fertile soil in its valleys. Henderson is an uplifted coral island: its outer shores are steep limestone cliffs with a nearly inaccessible interior of tangled vegetation over treacherous coral limestone. Ducie and Oeno are coral atolls.

Pitcairn and Henderson Islands have both been populated by Polynesians; they lived there for several centuries and then vanished. They left behind temple platforms, stone and shell tools and huge garbage piles of fish, bird and turtle bones as evidence of their existence. Pitcairn is home to an excellent quarry of stone for making adzes, while Henderson has a large breeding seabird colony and

a nesting beach for sea turtles. But the islanders depended on imports from neighbors, hundreds of miles away, for many necessities, including canoes, crops and livestock.

Unfortunately for the inhabitants of Pitcairn and Henderson, Mangareva and Easter Island were the nearest trading partners. Easter Island collapsed famously, but Mangareva also declined for similar reasons: deforestation, erosion and warfare. Deprived of essential imports, the Pitcairn and Henderson societies declined until everybody had fled or died.

Archaeologists believe that people were living on Pitcairn and Henderson as recently as the 15th century. But the islands were uninhabited when Pitcairn was discovered by Pedro Fernandes de Queirós in 1606. It was rediscovered by the British in 1767. Today, only Pitcairn is occupied, by descendants of the *Bounty* mutineers; it is one of the last remaining British Colonies.

Raiatea

See the Raiatea Player Aid card for a description of this island group tile.

Rakahanga

Rakahanga represents the northern group of the Cook Islands. The North Cook Islands are six low-lying, sparsely populated, coral atolls: Rakahanga, Manihiki, Pukapuka, Penrhyn, Nassau and Suvarrow. Pedro Fernandez de Queirós arrived at Rakahanga in 1606; his voyage was the last of the great Spanish voyages of exploration. He called Rakahanga the “Island of Beautiful People”.

Much later, the entire chain of islands was named after Captain James Cook, who explored them in 1773. Today, the island chain is a free association territory of New Zealand.

Rapa Nui

Rapa Nui is the most isolated place in the world. When Dutch captain Jacob Roggeveen “discovered” the island on Easter Sunday of 1722, he found two or three thousand people on the island. Only a century or two earlier, the population may have been fifteen thousand or more. Rapa Nui’s thriving, forested ecosystem was completely exterminated, leading to catastrophic depopulation. The agricultural system could no longer support the existing population, and the inhabitants soon turned to warfare and cannibalism. Europeans completed the tragedy: after their diseases and the last of their slave raids, only about two hundred Rapa Nui natives survived.

When the first Polynesians arrived at Rapa Nui, large palms dominated the forest that covered the island, and there was an extensive understory of smaller trees. They began to clear the forest for the usual reasons: for gardens because they were farmers, for firewood, and for big logs out of which to make their canoes. The palm trees were also used to transport their giant moai statues.

By about 1500, the extensive subtropical forest was gone. They had driven the native fauna to extinction, and a massive colony of nesting seabirds, originally comprising 26 species, had been reduced to a single colony of Sooty Terns. The island's six native land birds were also extinct. Why was Rapa Nui the worst example of deforestation in the Pacific? Were the people there particularly foolish or stupid? Is it because of the moai?

Jared Diamond and Barry Rolett completed a statistical analysis of all of the inhabited Polynesian islands, to determine what geographic variables influenced island deforestation. They found nine variables that are critical. Easter Island is fragile on all nine counts.

Six of the variables that predict deforestation are environmental. First is rainfall: you can expect that on a wet island when you cut down trees, new trees will grow up quickly. Easter Island is very dry. Second is latitude: trees grow faster on a warm island near the equator; Easter Island is at the third highest latitude of all Polynesian island groups.

There are four less obvious environmental effects. High islands would be less deforested than low islands; Easter Island is rather low. Remote islands would be more deforested than islands with neighboring islands; Easter Island is the poster child for remoteness. Big islands would end up less deforested than little islands, and again, Easter Island is somewhat small. The presence of a razor sharp coral terrain called makatea would protect stands of trees; Easter Island has none of this terrain.

The last three variables predictive of deforestation are surprising. One is island age. Older islands ended up more deforested than young islands: the older the island and the longer the time since the last volcanic activity, the more time there's been for nutrients to leach out of the soil. Easter Island is a combination of an old volcano with a very old volcano.

Pacific island soils also benefit from the volcanic activity of the many explosive volcanoes of the western Pacific, including Krakatoa. Easter Island is the furthest Polynesian island from this airborne source of soil enhancement.

The ninth predictor is the final surprise: dust fallout from Central Asia. From the Gobi Desert and the dry steppes, dust is carried up into the atmosphere and is blown east across the Pacific, later settling on the islands below. Again, Easter Island gets the least benefit of any of the Polynesian island groups.

The natives of Rapa Nui had the misfortune of living in the most fragile environment in the Pacific. They had the deck stacked against them. When Diamond and Rolett put their nine factors back into their equations, they predict that the worst deforestation in the Pacific should be on Easter Island. And so it was!

Rarotonga

Rarotonga is the youngest island (geologically) of the South Cook Islands, and it therefore stands higher and craggier than its neighbors. Around the central mountains of the island, which are covered in jungle, is a band of agricultural terraces and flats. This band is ringed by swamps used for growing taro. Finally, a ring of coral reefs surrounds the island.

The Rarotonga island tile includes all of the southern Cook Islands, also including Aitutaki, Manuae, Takutea, Atiu, Mitiaro, Mauke and Mangaia. The Polynesians seldom gave a discrete name for a chain of islands, so I have used the convenience of referring to the entire chain by using the name of the largest island in that chain. We all do the same thing with Hawaii; I have used this standard throughout the game.

Rawaki

The Rawaki Islands are a group of eight islands lying across the equator. There are three atolls and five low coral islands (plus two submerged reefs) with a total land area of only 11 square miles. Known for a time as the Phoenix Islands, only one island, Abariringa, is currently inhabited.

The islands of the Rawaki group are classic examples of remote islands and atolls characteristic of the central Pacific. They feature steep reef drop-offs, relatively low species diversity but high fish abundance, harsh island habitats and vegetation, and large seabird nesting colonies. Today, many of the reefs to be found in the Rawaki Islands are in nearly pristine condition; they have been submitted for World Heritage listing.

The Rawaki Islands are home to large numbers of seabirds. McKean Island has the world's largest nesting population of Lesser Frigatebird (*Fregata ariel*) with up to 85,000 birds. There are at least 16 other species of seabirds that inhabit the islands, with a total population estimated to be over one million birds.

Rekohu

These islands were probably the last to be found by the Polynesians, so they are among the last specks of land in the entire world inhabited by humans. The Chatham Islands is the current name for the group of 10 islands, named after the European ship that "discovered" them. It is difficult to find a Polynesian name for this island chain. Both Rekohu and Wharekauri have been used for the main island; for the game, the first name has been applied to the whole group of islands.

The Maori (the native Chatham Islanders) suffered greatly from introduced diseases when European and American whalers used their islands as a base. Meanwhile, the Maori on New Zealand were using firearms acquired from the *pakeha* to fight a far more deadly form of tribal warfare. One day, they mounted an expedition to conquer the Chatham Islands, which was quite easy (and bloody) with their guns.

The Maori were all killed or enslaved by the Maori. After European diseases, musket-armed invaders, and intermarriage with their conquerors, a population of roughly 20,000 Maori were reduced to ten "pure blooded" natives by the beginning of the 1900's. Now it's hard to know if there are any left at all.

Starbuck Is.

Starbuck Island has a tenuous relation to Starbucks Coffee. The coffee is named after a character in Herman Melville's *Moby Dick*: Captain Ahab's first mate. Starbuck (the island) is named after captain Valentine Starbuck, who discovered it in 1823 while on a whaling expedition. Both the fictional first mate and the real captain came from Nantucket, where Starbuck was a relatively common family name in the 19th century.

There's not much to Starbuck Island. It is a low, flat coral island, with a greatest height of about 15 feet. Within a beach crest around the perimeter, the island's center is depressed, with small salt lagoons near the eastern end.

Nearby Malden Island is a larger island. Polynesians lived there before its discovery by white men: the earliest explorers reported stone-faced platforms, house sites, and graves. They indicate that Polynesians were there for several generations, and that this was not many centuries ago. Archeologists estimate that 100 to 200 people lived on the island.

This island group tile represents the central group of the Line Islands. Also included with Starbuck and Malden is the seamount of Filippo Reef, located 280 miles east of Starbuck Island. Despite Malden Island's temporary occupation by Polynesians, it's rather obvious why Starbuck was picked to represent these islands!

Tahiti

Tahiti is the largest Island in all of central Polynesia. But the Tahiti island group tile also includes Mo'orea, as well as Mehetia, Tetiaroa and Maiao.

Mehetia is a young and active volcanic island, rising quickly from the sea to a height of 1400 feet. Tetiaroa is a classic atoll; *Mutiny on the Bounty* (the one with Marlon Brando in it) was filmed there. Maiao is an unusual island: it's a small high island with a low-lying *motu* wrapped around it. (A *motu* is a low island typically found at coral atolls.) The *motu* encloses two hypersaline lagoons with bright turquoise colors.

Mo'orea is a large high island just northwest of Tahiti. The island is mountainous, with peaks rising to nearly 4,000 feet. On the northern coast are two bays that cut deeply into the island. One of them was considered the religious center of the entire Tahitian island group: the shaman of the Papetooa clan in the valley was considered the head shaman for all of the islands.

Tahiti consists of two roughly round sections, each centered on volcanic mountains, connected by a short isthmus. The northwestern part is known as Tahiti Nui (big Tahiti), and the southeastern part, much smaller, is known as Tahiti Iti (small Tahiti). The climate, soil and terrain are perfectly suited to the Polynesian tropical agricultural system. The people and their culture thrived in this exquisitely hospitable environment. In 1774 Captain James Cook visited the island, and estimated the population to be some 200,000 people. Europeans arrived, and their influence caused significant disruption to the traditional society, while introduced diseases decimated the population. The French ultimately gained control of the islands.

Today, Tahiti is the capital of French Polynesia, considered an integral part of France. It has been an inspiration to artists and designers for generations.

Te Waka Maui

New Zealand lies at the southern extreme of the climate that could support the Polynesian agriculture system. Their crops could not endure any cold weather at all. So the Maori settled only the North Island and the northern end of the South Island. The graphic on the Aotearoa (New Zealand) island group tile only shows these areas. To this day, this is where nearly all of the Maori live.

The few Maori who ventured south to Te Waka Maui did find the giant moa to hunt! The best moa for hunting were several mid-sized species of the flightless birds (including *Pachyornis septentrionalis* and *Emeus huttoni*). But there was also *Dinornis maximus*, which could grow thirteen feet tall (!), while *Megalapteryx didinus* was the size of a

chicken. The Maori of the South Island are the only people in the world that abandoned agriculture, and reverted to a hunter-gatherer society.

They followed their prey ever further south, into the coldest and most remote spots of the island. An *iwi* of Maori ended up on the south end of the South Island. But the moa they hunted are now extinct.

Tuamotu

The Tuamotu Islands are a truly stunning group of islands. Spanning nearly a thousand miles of ocean, there are a total of 78 atolls, making them the world's largest chain of atolls. Only 41 are currently occupied.

Rangiroa has the second largest lagoon in the world, after Kwajalein. It is 42 miles long and 16 miles wide; so big that you can't see across the lagoon. Manihi's beautiful lagoon is now home to many black pearl farms. Fangataufa and Moruroa were the sites of 193 French nuclear bomb tests, conducted between 1966 and 1996.

Makatea is no longer an atoll; it is a geologically raised coral island. Spectacular cliffs rise vertically from the sea, up to 250 ft. in height. The interior of the island was nearly all guano, before it was mined out in 1966.

The first European to find the Tuamotus was Ferdinand Magellan, during his voyage around the world. In the following centuries, his visit was followed by Portuguese, Dutch, British, French and Russian explorers. None of these visits were of political consequence, since the islands were controlled by the Polynesian rulers of Tahiti. But the islands' pearls hit the European market in the late 1800s, suddenly making the group of atolls a coveted possession. Following the annexation of Tahiti by France, Tuamotu was also annexed; they are now a part of French Polynesia.

Tubuai

The Tubuai Islands (previously known as the Austral Islands) are a chain of islands stretched across 800 miles of the far South Pacific. In all there are seven main islands; five of the islands are inhabited: Rimatara, Rurutu, Tubuai, Raivavae, and Rapa. The group also includes the uninhabited atoll of Maria and the rocky peaks of Marotiri.

The islands are the remains of former volcanic peaks, formed over a hot spot in much the same way as the Hawaiian Islands (they even have the same northwest to southeast orientation). The islands at the southeast end of the chain are geologically the youngest: Marotiri's steep slopes support scant vegetation. In the northwest, Maria Atoll is the oldest of the Tubuai Islands. The islands in the middle of the chain have a more complex geological

history; uplift processes and changing sea levels have exposed once submerged fringing reefs, creating low limestone ridges around some islands.

Captain James Cook was the first European to discover Tubuai, and received a hostile reception by the people there. The island was the first stop of the *Bounty* mutineers after they left Tahiti. The diary of James Morrison, second mate aboard the *Bounty*, offers an interesting description of daily life on the island. He noted the importance of irrigation work and terrace cultivation for taro plantations there.

The highest peaks in the Tubuai Islands can reach considerable elevations – 2100 ft. on Rapa. There are remarkable ancient stone platforms and walls, massively built, on the summits of some of the peaks in Rapa. They bear a close resemblance to the *ahu* (stone platforms) on Easter Island. In fact, some believe that the Polynesian settlers of Easter Island came from Rapa.

Tuvalu

Tuvalu is a group of nine low coral atolls. Some of the atolls are quite large, but none reach an elevation higher than 16 feet above sea level.

The formation of coral islands was a topic of considerable scientific argument in the 19th century. Since corals grow only at shallow depths in the sea, how is it that coral rock, formed from their remains, often extends for hundreds of feet beneath the sea? Charles Darwin put forward the theory that coral islands had been built on slowly subsiding volcanic rocks; the upward growth of the coral kept pace with the subsidence. Later, another volcanic movement pushed some of the coral up to form islands. Thus, a solid mass of coral rock could be found above the surface of the sea, and extend to depths at which the coral had never lived.

The Royal Society of London decided to bore down into a coral atoll and obtain a sample of it, from far beneath the surface, to see if these samples would contain traces of shallow water organisms. Expeditions were sent to Tuvalu, which eventually managed to obtain a sample from a depth of 340 meters. All the samples obtained were found to contain traces of shallow water organisms, thus showing Darwin's theory to be correct.

The Tuvalu island tile includes an entire modern nation. As might be expected, they are very active in international efforts to restrict the causes of global warming. The Tuvalu government has made contingency plans to evacuate their entire population if sea levels continue to rise.

Kua oti iaiane.