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MINISTRY OF INTERNAL AFFAIRS
HISTORIC PRESERVATION OFFICE

Archaeological Survey of Kili Island

Richard V. Williamson and Donna K. Stone

HPO Report 2001/03

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Majuro Atoll, 2001

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Forward

The following monograph is the result of research conducted between August 31 and September 4, 1998 at Kili Island, Republic of the Marshall Islands. The research consisted of non-intrusive, terrestrial archaeological reconnaissance survey. The project was sponsored by the Republic of the Marshall Islands Historic Preservation Office and funded by the Historic Preservation Fund, National Park Service, Department of the Interior.

Our thanks go to our colleagues at the National Park Service, Paula Falk Creech, Mark Rudo, and David Look for their assistance and guidance. We could not have performed the survey without the assistance of many individuals at the Historic Preservation Office and Alele Museum. Most especially, Andy Lydecker, who volunteered to assist the HPO in establishing the use of GPS equipment; Hemley Benjamin, Assistant Archaeologist who assisted the actual survey; and Ninbo Frank, Alele video technician who collected the traditional stories. We would also like to thank Clary Makroro, the Deputy HPO; Benice Joash, Executive Director at Alele; and Terry Mote, Alele's Historic Preservation Specialist. Our further thanks go to the Minister of Internal Affairs and Chairman of the RMI Advisory Council for Historic Preservation, the Hon. Nidel Loak, as well as the Secretary of Internal Affairs and Historic Preservation Officer, Mr. Frederick deBrum. Finally, our deepest thanks goes to the people of Kili Island and all those who helped make this research possible.

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Majuro Atoll, Marshall Islands
March 2001

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I. Introduction

This report represents the results of archaeological and anthropological research conducted between August 31 and September 4, 1998 at Kili Island by the Historic Preservation Office, Majuro, Marshall Islands. All field documents, including completed site survey forms, field notes, maps, photographs are housed at Historic Preservation Office, Majuro Atoll, Republic of the Marshall Islands. No artifacts or food remains were collected. The US National Park Service Historic Preservation Fund grant provided funding.

1.1 Project Objectives

The purpose of the survey was two-fold. The first was to identify, record, and evaluate the historic, prehistoric, and traditional sites located on the atoll in accordance with the survey and inventory program area of the Historic Preservation Office. The second was to educate the inhabitants of the atoll on the importance of protecting and preserving the sites that the team identified. As such, the Historic Preservation Office made every effort to include the local population, their elected officials, and traditional chiefs and landowners in every step of the research. Local informants and guides were used throughout the research and formal and informal lectures covering the activities of HPO staff were conducted at the schools, town halls, and churches.

1.2 Evaluation of Research Design and Methods Used

A) “Non-intrusive” reconnaissance survey

The research conducted was a “non-intrusive” reconnaissance survey. The team did not remove any artifacts and/or food remains. The sites were identified through either a walking survey or from knowledge of local guides. The sites were recorded using a Geographical Position System (GPS) unit and that data was entered into ArcView Geographical Information System (GIS) software to generate maps. Information for Site Survey Forms was entered into the GPS unit in the field and was transferred into the database software that is contained in the ArcView program. Slide photographs as well as digital photos of all sites were taken. All note, survey forms, GPS data, and photographs are housed at the Historic Preservation Office, Majuro Atoll, Republic of the Marshall Islands.

Evaluation was based upon the Republic of the Marshall Islands site significance levels established by the RMI Historic Preservation legislation of 1992. A site was considered very significant if it met at least one of the Marshall Islands’ formal criteria [RMI Historic Preservation Legislation, “Regulations Governing Land Modification Activities, Section 6(2)(a)]:

- (i) the resource is the only one of its kind known in the Republic; or
- (ii) the resource is part of an ensemble of sites, even if the individual sites as such would not be considered to be very significant; or

- (iii) the resource is considered to be a prime example of the workmanship of a particular architect, builder or craftsman; or
- (iv) the resource is rich in cultural artifacts and undisturbed by construction activities; or
- (v) the resource is particularly well preserved and shows little or no alterations to the original appearance of the structure; or
- (vi) the resource is connected with historic events or persons or oral traditions important beyond the limits of the individual atoll on which the resource is located.

As the survey was designed to be intensive and non-intrusive, no test excavations were conducted and no artifacts were collected. The purpose of the survey was purely to identify and record the sites in order to allow evaluation of each site's significance level, which will be used to establish eligibility for inclusion on the RMI National Register. Future researchers can use this information in assessing which sites are deemed significant enough to warrant further research, analysis, interpretation, and/or protection and restoration. The survey followed the standards and guidelines of the grantor, the United States Department of Interior National Park Service Historic Preservation Fund.

B) Nomenclature

In assigning sites, the system used in the Marshall Islands includes three two-letter abbreviations and then a site number. For example, the first abbreviation identifies the site as located in the Marshall Islands (MI), the second is the atoll, Kili (KI), and in this case as Kili is a single island, there is no third abbreviation for the islet. Therefore the site MI-KI-001 is the first site identified on the island of Kili.

C) Survey Equipment and Team Members

The following equipment was used in the survey:

- 1 Trimble GPS unit with Pathfinder Office 2.02 software
- ArcView 3.0a GIS software
- 1 Sony Mavica MVC-FD83 digital camera
- 1 Canon EOS Rebel 2000 SLR camera with slide film
- 2 5m metal tape measures
- 1 30m cloth tape measure
- 1 roll of flagging tape
- Notebooks, pens and pencils
- 1 compass

Field team members included Staff Archaeologist, Richard Williamson; GPS Specialist, Andy Lydecker; Assistant Archaeologist, Hemley Benjamin; and Alele Video Technician, Ninbo Frank. Donna K. Stone, Staff ethnographer, provided historical background.

D) Informants/Guides

Fieldwork relied heavily on informants and guides. The informants provided information on the location and history of sites, while the guides, if not the informants themselves, lead the

team to the sites. Key-informants¹ were the elders of the community, who as custom dictates were also the government leaders, and so were the most knowledgeable about atoll history. They provided a never exhausting pool of knowledge to be further investigated ethnographically. Since precisely locating sites on the various islets was problematic the use of guides was essential. Information was obtained in casual meetings throughout the duration of the fieldwork; no formal questionnaire was developed.

E) Survey Methods

The survey did not include the total landmass of each islet visited. When informants or guides could not lead the team to the potential sites on the islets the following method was applied. The crew was distributed at five to eight meter intervals and surveyed the islets from north to south or east to west. Areas of the extremely dense vegetation were left out due to the lack of appropriate clearing tool (machetes). When a site was noted, a site number was assigned, a GPS position was taken, the area was photographed, and site survey forms were filled out. In areas of dense vegetation, the GPS position was sometimes taken several meters away from the site itself.

1.3 Limitations of Research

Although the purpose of the survey was to identify potentially significant sites, it must be remembered that the survey was non-intrusive. Shovel test pits were not conducted and given time and money constraints, much of the survey relied heavily upon the local informants and their knowledge of historic sites. The survey attempted to be as extensive as possible, but included no follow-up intensive research. As such, this report should be considered preliminary and only includes those sites readily identified either visibly or with the aid of an informant. Given previous research in the Marshall Islands that has included either shovel test pits or more intensive excavations, it is apparent that prehistoric archaeological sites in this type of non-intrusive reconnaissance survey will be highly underrepresented. This is especially true in the Marshall Islands where the lack of durable artifacts such as ceramics is lacking.

A further limitation was encountered with the generation of maps using the GPS unit and ArcView GIS software. Problems encountered were two-fold. First, it was impossible to remove the selective availability that the US Department of Defense uses to “scramble” GPS coordinates, thus giving some error in the recording of exact locations of the sites. Second, the digitized map of the Marshall Islands used by the HPO is one that was originally made by the Japanese during their administration of the Republic. The map was updated by the U.S. during the Trust Territory of the Pacific Islands administration, but still prone to many errors. While most of these errors were external, there were instances of internal inaccuracies. Unfortunately, this was still the most up-to-date map available at the time of the research. However, in recording the GPS readings in the field, the GPS unit that was used did allow for the recording of a series of readings (120 points were recorded) that averaged out to one reading per site. This should remove some of the inaccuracy caused by the selective availability. Regarding the maps, as the data is stored electronically in ArcView GIS software, when an updated map of the Marshall Islands is available, the new digitized map can be replaced for the older version. For the purpose of this

¹ Ethnographically defined as individuals who have been interviewed intensively or over an extensive period of time for the purpose of providing a relatively complete ethnographic description of the social and cultural patterns of the group. In the present case “key-informant” refers to those individuals who provided general and specific information on almost every site investigated.

report, the maps cannot give much more than a “general” location of each site. However, in the section describing the sites, the GPS coordinates for each site are provided.

1.4 Previous Research

The lack of previous archaeological research conducted was one, if not the main, criteria for the selection of Kili Island. In accordance to the Historic Preservation Office’s survey and inventory program area, Kili Island was selected to be surveyed by the HPO staff. As Kili was prehistorically uninhabited, and the modern population consists of only displaced Bikinians, it was not expected to find many historic or traditional sites. However, in 1886 a German copra trading station, Deutsche Handels und Plantagensgesellschaft, was established (Anonymous 1886). Unfortunately, no evidence of that station was identified.

Although no previous archaeological research had been conducted on Kili Island, previous researchers have included overviews of the history and prehistory of the Marshall Islands. Some of the better overviews include Beardsley’s 1994 report (1994: 1-28) and the Historic Preservation Plan United States Army Kwajalein Atoll (1996: 3.3-3. 21). The comprehensive study carried out under the leadership of Paul H. Rosendahl (1979, 1987) during March-June 1977 did not include Kili. That expedition, which became known as the “Louis L. Kelton-Bishop Museum Expedition to Eastern Micronesia,” covered parts of Majuro, Mili, Arno, Aur, Maloelap, Wotje, Likiep, Wotho, Lae, Namu, Ailinglaplap, and Ebon Atoll, as well as, Lib Island in the Marshall Islands.

1.5 A Brief History of the Marshall Islands

The people of the Marshall Islands refer to their parallel-chained archipelago as *Aelon Kein*, "these atolls." According to folklore, the first discoverers and settlers of the Islands were a handful of wayfarers seeking an uninhabited autonomous area where they could live (Hart 1992). What little we know about early Marshallese comes from oral history and early accounts by explorers.

Marshallese autonomy was threatened as early as 1526 when the first of eight known Spanish ships passed through the area. The first recorded sighting, probably Bokak, was made by Alonso de Salazar, commanding the *Santa Maria de la Victoria*, but no contact was made (Levesque 1992a, Sharp 1960). In 1529 contact was made by Alvaro de Saavedra of the *Florida* which laid anchor to take on provisions at Enewetok or Bikini and stayed for eight days. He also discovered Utirik, Taka, Ujelang, and made landings at Rongelap and Ailinginae. The Spanish flagship *Santiago* and five other ships in the expedition under Ruy Lopez de Villalobos is credited for the western discovery of Wotje, Erikub, Maloelap, Likiep, Kwajalein, Lae, Ujae, and Wotho, landings were made on some of the islands. (Levesque 1992a, Sharp 1960).

In 1565 Alonso de Arellano of the Legaspi expedition sighted Likiep, Kwajalein, and an island thought to be Lib (Sharp 1960) while Legaspi is credited with sighting Mejit, Ailuk, and Jemo. Some trading was done at Mejit. The following year the mutineer Lope Martin commanding the *San Jeronimo* made several sightings and was eventually stranded in the

Marshalls, probably on Ujelang. Two years later the Spanish ships *Los Reyes* and *Todos Santos*, under Alvaro de Mendana went ashore at what is probably Ujelang. Namu was also thought to be sighted. (Levesque 1992b)

Fifty seven years passed before another vessel is reported to pass through the Marshalls. The Dutch ship *Eendracht* and ten other vessels of the Nassau Fleet, commanded by Admiral Gheen Schapenham sighted Bokak (Hezel 1979). In spite of Spain's annexation of the Marshall Islands in 1686, the Spanish established no trading posts, trade routes, or left any lasting influence.

In 1767 Captain Samuel Wallis of the British ship *Dolphin* sighted what is thought to be Rongerik and Rongelap (Sharp 1960, Hezel 1979). Even though the Spanish were the first known westerners to see the Marshall Islands credit is given to Captain William Marshall, commander of the *Scarborough*, who together with Thomas Gilbert of the *Charlotte* for the discovery or more appropriately, the rediscovery of the Marshall Islands in 1788. Marshall and Gilbert mapped these island groups and traded with the various atolls. They are the first westerners to sight Mili, Arno, Majuro, Aur, and Nadidik (Sharp 1960). They also sighted the previously discovered Wotje, Erikub, Maloelap, and Ailuk.

Captain Henry Bond aboard the British merchantman vessel *Royal Admiral* sighted Namorik and Namu in 1792. Two years later The British ship *Walpole*, under the command of Captain Thomas Butler sighted Eniwetok. Thomas Dennet was the first westerner to sight Kili as well as reporting on Ailinglapalap, Lib, and doing some trading on Namu in 1797. Other vessels sailed through the area, the British snow *Hunter*, the British brig *Nautilus*, the ship *Ann & Hope* of Providence, *Ocean*, *Herald*, and *HMS Cornwallis*, to name a few. These ships sighted atolls and islands that had been previously reported but did not stop and trade. Jaluit was sighted by the *Rolla* in 1803 and again in 1808 by Captain Patterson of the British merchant brig *Elizabeth* both of which landed and did some trading (Sharp 1960, Hezel 1979, 1983).

The first scientific exploration of the Marshalls was conducted by the Russian, Otto von Kotzebue in 1816-17 and 1824. It is during this time that first significant contact between Europeans and the Marshallese was made. Von Kotzebue and his crew spent several months in the Ratak islands in 1817 and 1824, specifically Wotje, Maloelap, and Aur Atolls (Kotzebue 1821, 1830; Chamisso 1986).

The account left by this expedition provides the first early ethnographic material, including an interesting description of how Kotzebue was urged to help defeat a powerful southern Ratak chief and thus, it was said, become chief of all Ratak. Kotzebue declined the offer. Kotzebue influence was noted. Traditional warfare practices began to change soon after Kotzebue's first visit. Metal hatchets given as gifts were attached to wooden poles. LeMari troops used these new weapons to defeat the powerful Majuro chiefs and establish control over the Ratak Chain (Erdland 1914, Kramer and Nevermann 1938).

Other ethnographic observations come from Lay and Hussey (1828) who survived the Globe mutiny at Mili Atoll and Paulding (1970) a U.S. Navy lieutenant who helped to retrieve Lay and Hussey. These early observers published accounts which give us an insight to traditional personal appearance, manners, food, and dwellings and in a lesser extent facets of political and social organization reflecting traditional practices.

The prospects of profitable trade lured the German entrepreneurs into the Marshalls in the latter part of the 19th century. Subsequent contact with outsiders gradually increased as whalers concentrated their activities. They were hunting to provide lamp oil to meet European and American demand. With the whalers, a disruptive and intolerant group as well as the English blackbirders in search of cheap labor to work the mines and plantations in the New World and Australia, encounters turned hostile. Numerous ships were cut off by the Marshallese and the crews killed, brutal retaliations followed, and the mood of contact in the first half of the 19th century was one of brutal confrontation (Hezel 1979, 1983; Dye 1987)

The treacherous reefs, small number of whales, and the new methods of distillation of kerosene from crude oil soon put the whalers out of business. The blackbirders continued their raids until the 1870's.

In 1857 two American missionaries from the American Board of Commissioners for Foreign Missions, Congregationalists from the New England area, succeeded in setting up operations on Ebon (where as recently as 1852 a ship from San Francisco had been cut off and the entire crew killed) (Hezel 1979). Marshallese *Irooj* opposed the missionaries and the establishment of new congregations throughout the 1860s because it eroded their power. This loss of power was somewhat alleviated by establishment of permanent trading stations as the demand for copra rapidly increased. The chiefly power base gradually shifted from control over the land to control over the trade between the Marshallese and foreigners (Dye 1987). Ebon remained the mission center, from which occasional trips were made through the southern atolls, until 1880, when the station was removed to Kusaie in the eastern Carolines.

Changes in the Marshallese way of life had been rapid and extensive. For half a century the dominant contact with the outside world had been through missionaries sent or trained by the American Board. Yet virtually no ethnographic description is to be found among the voluminous records kept by them. Instead the missionaries were "not only indifferent, but supremely scornful of the religious beliefs [of the Marshallese]. They try to extinguish them completely and destroy every trace of them" (Knappe 1888). The German ethnography summarized by Erdland (1914) and Kramer and Nevermann (1938) coincided with major structural changes in Marshallese way of life. These changes had been rapid and extensive. Writing in about 1905, the German ethnographer and Priest Erdland commented, "the present generation no longer has any exact knowledge of the inner coherence of the ancient traditions" (1914:307).

Other factors were of course also effective in these changes. The copra trade dates from about 1860 in the Marshalls and American, Australian, and German firms often had resident traders on the various atolls. Beachcombers added to the resident white population, often filling the role of trader as well.

European political empire reached into the Pacific in the 1880s and German traders were exercising increasing influence in the Marshalls. In 1885, the Marshall Islands became a protectorate of Germany, as 'the Marshall islands were not under the sovereignty of any civilized state' (Pauwels 1936). During the German era, which lasted until 1914, the atolls were visited regularly by traders, missionaries, and administrative officials. Administration of the area was carried out by the Jaluit Gesellschaft, a trading company, from 1887 on. This firm, which resulted from a merger of companies active in the area, Robertson and Hershheim, and Deutsches Handels-

und Plantagen-Gesellschaft (D.H.P.G.) (formerly Johann Godeffroy und Sohn), had exclusive trading rights in the Marshalls. Despite complaints about this monopoly by the Australian firm, Burns, Philip and Co., the New Zealand company, Henderson and MacFarlane, and others, the German government continued to act on the advice of the Jaluit Gesellschaft until 1902 when it assumed direct administration of Micronesia (Hezel 1983).

This form of administration, with primarily an economic focus, had little impact on the health and educational level of the Marshallese. In this regard, the missionaries were of greater importance. Select groups of Marshallese were educated in the German language to serve as interpreters and the services of a doctor were available on occasion. Copra was the main product of the Marshalls and production was stimulated by taxes assessed through the traditional leaders as well as through the availability of Western goods. This form of indirect rule strengthened the traditional political organization of the Marshallese, while the German administration dealt mostly with conflicts between foreigners and between the *Irooj* (Hiery 1995).

Warfare between island chiefs was eliminated, an act which froze the relative social positions of the chiefs and their clans and created a condition of inflexibility in the social system; in addition it allowed increased trading and missionary activity and thus contributed to more rapid cultural change (Spoehr 1949). German ethnographers were active in this period and it is largely through their efforts, especially in the many volumes published on Micronesia by the German South Sea Expedition of 1908-1910, that much is known of the traditional way of life (Kramer and Nevermann 1938 is a result of this expedition).

In 1914, Japan succeeded the Germans in control of the Marshall Islands. They shifted to a system of virtual direct rule through a set of community officials and greatly expanded the administrative staff. Traders of other nationalities were excluded and the Japanese attempted to expand copra production. Protestant and Catholic missionary activity was allowed to continue unhampered, and in general the Marshallese appear to have gotten on well with the Japanese (Spoehr 1949). The Japanese did ethnographic research however most of this material has yet to be translated.

The Japanese military, through the South Seas Defense Corps, governed the Marshalls until 1918. From 1918 until 1922, a combined civilian and military government was in charge. In 1922, Japan was awarded Micronesia as a Class 'C' mandate by the League of Nations. The terms of the mandate were upheld until 1933 when Japan withdrew from the League of Nations (although they continued to submit annual reports through 1937), and considered the Marshalls and the rest of their Micronesian mandate, an integral part of the Japanese Empire (Peattie 1988).

During the Japanese era, the administration had several goals; the economic development of Micronesia, the use of the islands as an immigrant settlement for Japan's rapidly increasing population, the Japanization of the islanders through education, language training, and enforced cultural change, and eventually, the use of the islands for military bases in anticipation of World War II (Peattie 1988).

For the Marshallese, improvements in health and sanitation were minimal. The "availability of adequate medical care was directly related to one's ability to pay" and despite a sliding fee scale, "the poorer and generally unhealthier native received less care" (Shuster 1978).

Education was also segregated and of differential quality. The Japanese were offered a school system identical to the one in Japan; the Marshallese received three years of primary education consisting mostly of Japanese language instruction and ethics classes, with an additional two years for the promising students (Hezel 1995).

The Japanese administration also attempted to make a number of changes in the Marshallese social and political organization. They appointed Marshallese leaders, contrary to the existing political structure, thus weakening the position of the traditional leader (Bryan 1972). The Japanese also attempted to change the Marshallese social organization of matrilineality to conform to patrilineality, more like their own system, with little success.

In early 1930s, Japan began to construct fortifications on Kwajalein, Jaluit, Wotje, Mili, and Maloelap. Marshallese were conscripted to labor on these buildings and were resettled on other atolls (Peattie 1988). World War II started in 1941. In 1944, U.S. forces concentrated on gaining supremacy in the Pacific. Kwajalein, Majuro, and Enewetak were captured within one month. All of the other atolls except Wotje, Maloelap, Mili, and Jaluit were checked for Japanese in the next two months. In those bypassed atolls, the Marshallese escaped or were removed under cover of night and resettled temporarily on Majuro, Arno, or Aur atolls (Smith 1955). The U.S. fortified Enewetak and Kwajalein atolls as military bases.

After World War II the United States took over trusteeship of the Marshall Islands. Beginning with Spoehr's work on village life in Majuro (1949), ethnographers have concentrated on community studies. The primary sources are Mason (1947, 1954) whose focus is economic organization; Kiste (1967, 1974) who deals with resettlement issues; and Davenport (1952, 1953) and Chambers (1969, 1972) concentrating on oral traditions.

1.6 Important Historical Events for Kili Island

- ~500 BC - 2000 BC The first Micronesian navigators arrive in the Marshalls, calling the atolls Aelon Kein Ad (our islands). Dates and origins of the settlers are still uncertain. Relatively little is known about the prehistory of the people. They are thought, like other Pacific Islanders, to have originated in Southeast Asia and to have established themselves on their scattered islands centuries before European voyagers reached this area. Early accounts depict Marshallese society as having much in common with other Micronesian Islands, such as the Carolines. Chieftainship was strong and material culture, given the paucity of natural resources, was relatively advanced. Early Marshallese were regarded as superb canoe builders.
- 1494 The Treaty of Tordesillas cedes ownership of all of Micronesia to Spain.
- 1527 Three ships under Alvaro de Saavedra, sent from Mexico to seek news in the Moluccas of the Magellan and Loaisa expeditions are among the Marshalls (Sharp 1960, Levesque 1992a).
- 1788 The *Scarborough* (Captain John Marshall) and *Charlotte* (Captain Thomas Gilbert) sight Mili, Arno, Majuro, Aur, Maloelap, Erikub and Wotje Atolls while proceeding to China from Botany Bay. The name Marshall Islands is later applied to the group as a whole by Russian hydrographer A. J. Krusenstern (Sharp 1960).

- 1797 19 September Thomas Dennet, of the British vessel *Britannia* encountered **Kili**, named by him Hunter. Eight canoes came off with natives who wanted to trade breadfruit (Hezel 1979, Sharp 1960).
- 1820s American whalers seeking food and water begin visiting the Marshall Islands. Some of these occasionally leave men ashore who become beachcombers and, later, traders (Hezel 1983).
- 1823 *Irooj* Lomade Juen, of the clan Rimwejoo, conquered all the islands of the Ratak and ultimately conquered Kwajalein, Lae, Ujae, Wotho, Rongelap, Bikini, Eniwetak, and Ujelang in the Ralik (Kramer and Neverman 1938, RMI Ministry of Education 1996).
- 1840 Kaibuke had become the second-highest chief after he married the daughter of the paramount chief. Kaibuke was feared on account of his attacks on foreign ships. He attacked **Kili** and Jaluit and brought them under his rule (Kramer and Nevermann 1938).
- 1841 18 December, the *USS Flying Fish* belonging to a US Exploring Expedition under Captain Wilkes sighted Kili (Kramer and Neverman 1938, Hezel 1979).
- 1842 Kaiboke Lobadeo of Ebon assumes power as the *Iroojlaplap* of the southern part of the Ralik chain (Kramer and Nevermann 1938, RMI Ministry of Education 1996).
- 1847 On 1 May 1847 whaleship *Golconda II* of NB stood off **Kili**. Captain Studley sent boats to shore the next day but “could get nothing but a little sand.” (Hezel 1979).
- 1851 70 people of Ebon (including Kaiboke's brother) are killed when an American whaleship fires at their canoes in revenge for a trader's murder. Kaiboke swears to kill all whites in revenge for his brother's murder by the whalers (Erdland 1914).
- 1857 Rev. Hiram Bingham, Jr. of the American Board of Commissioners for Foreign Missions (ABCFM) creates missionary outpost on Ebon. Kaiboke supports their work (Hezel 1983).
- 1859 The whaling bark *Superior* of NB, under the command of Capt Richard D. Wood, passed Kili on December 23 and saw the natives on the beach (Hezel 1979).
- 1860s American and Hawaiian Protestant missionaries arrive, sent by the Hawaiian Evangelical Association, an auxiliary of the American Board of Commissioners for Foreign Missions. About this time, J. C. Godeffroy und Sohn, of Samoa, establishes trading stations on Mili, Aur, Jaluit, Ebon and Namorik. A few years later, two other German companies, Hershheim & Co. and A. Capelle & Co., are also in business there. Copra is their principal interest (Hezel 1983).
- 1863 Kaiboke dies of typhoid fever (Kramer and Nevermann 1938).
- 1864 11 October, the British bark *Nightingale*, under the command of Andrew Brown, en route from Newcastle to Shanghai, sighted Kili (Hezel 1979).

- 1870 After Kaiboke death, Kabua (Lebon) a *leadakkad* of Rongelap, becomes *Irooj* when he marries Limokoa, the widow of the Kaiboke of Ebon (Kramer and Neverman 1938, Erdland 1914).
- 1870 Kaibuke was *Iroojlaplap* (Kramer and Nevermann 1938).
- 1870 14 February, E.A. Ptiman, captain of the trading schooner Malolo, sighted Kili on a trading voyage (Hezel 1979).
- 1874 A. Capelle & Co. purchased Kili for \$300 on 20 February. It was sold by *Irooj's* Kabua, Loeak, Lagaijimi, and Nelu. Capelle planted coconuts on the island which was soon abandoned due to poor anchorage (Hezel 1983).
- 1874 An autumn hurricane causes Kili to be abandoned by its few inhabitants (Finsch 1893).
- 1875 A severe typhoon hit Kili. A. Colcord, wife of the master of the missionary packet *Morning Star* reports that Kili looked 'shipwrecked'. She mentions that the trader's house was unroofed and trees had blown down (Colcord 1875).
- 1876 Loeak and Kabua fight about who should be *Iroojlaplap*. Loeak chases Kabua from Ebon (Kramer and Nevermann 1938).
- 1876 On 14 July 1876 the English brig *Vision* of Auckland, under the command of George Loverock, made a trading voyage to the Marshalls. They touched at **Kili** which was uninhabited since the typhoon the year before and lately purchased by Capelle for \$300. (Hezel 1979).
- 1878 Germany enters into a treaty with inhabitants of the Ralik chain, granting special trade privileges. Kabua (Lebon) presents himself to the German government as the *Iroojlaplap*. Kabua, Lagaijimi, Nelu, Loeak and Launa all sign the treaty (Kramer and Nevermann 1938)
- 1878 Zero population on **Kili** (Krämer & Nevermann 1938)
- 1880 Loeak goes to Jaluit from Ebon to challenge Kabua in battle. After a bloodless fight, Loeak returns to Ebon (Kramer and Nevermann 1938).
- 1880 Chief Leon from the Woleai Islands, Yap, with several canoes, was lost at sea and drifted to the Marshalls. He was driven to Kili, which was uninhabited, where Kabua and Loeak received them. In a naval battle, all the Yapese succumbed to the spears and gunfire of the subchief Kileek. All were killed except for two brothers who settled in Ebon and Lae (Erdland 1914).
- 1885 Under mediation of Pope Leo XIII, German government annexes the Marshalls.
- 1886 By agreement with Great Britain, the Marshall Islands became a German protectorate.

- 1886 The island of **Kili** is the possession of the Deutsche Handels und Plantagengesellschaft who have established settlements and trading stations for copra there (Anonymous 1886).
- 1887 Germans form the Jaluit Company (Jaluit *Gesellschaft*), an entity entrusted with governance of the Marshalls. It buys out two foreign competitors based in San Francisco and Auckland. However, Burns, Philp & Co. of Sydney, which has been trading in the group for some years, continues to do so and remains until World War I (Hezel 1995).
- 1893 The Jaluit Company operates trading stations on Namorik, Kili, Likiep, Ailuk, Mejit, and Rongelap. The island of Kili is now the property of the Jaluit Company, which has laid out coconut plantations (Langhans 1898).
- 1895 0 population on Kili (Krämer & Nevermann 1938)
- 1908 22 June, Kili is sold to Mr. Otto Bock of Bielefeld (Germany) for 20,000. Marks.
- 1910 0 population on Kili (Merz 1912a, Spennmenn 2000)
- 1914 The Marshalls are captured from Germany by Japan.
- 1920 Marshall Islands are mandated to Japan by the League of Nations, together with the other occupied islands. The group is administered as a separate district. The Marshallese are given little voice in their own government, but the copra industry is left in their hands. But copra has to be exported to Japan at a price fixed by the Japanese (Hezel 1995).
- 1921 The Japanese take over the copra industry from the Germans, replacing the Jaluit *Gesellschaft* with *Nanyo Boeki Kaisha* (Peattie 1988).
- 1930 Population of 32 on Kili (MISA 1988, Spennmenn 2000)
- 1934 Japan withdraws from the League, but retains possession of the Marshalls. Fortification of the Marshall Islands begins as Japan prepares for war. The Japanese military begins building airstrips, power plants, and bunkers on Wotje, Eniwetak, Jaluit, Milli, Maloelap, and Kwajalein (Peattie 1988).
- 1935 Population of 26 on Kili (MISA 1988, Spennmenn 2000).
- 1936 Population less than 500 on Kili (Spennmenn 2000)
- 1939 World War II begins in Europe.
- 1944 23 March, **Kili**, without any Japanese soldiers, was occupied peacefully (Smith 1955).
- 1945 End of World War II grants effective control of the Marshalls to the U.S.
- 1946 U.S. begins its nuclear testing program in the Marshalls. Bikini atoll is evacuated to Rongerik for first tests under Operation Crossroads.

- 1948 The Bikini community was moved by the US government to southern **Kili** so the island could be used for more nuclear testing.
- 1951 US Department of the Interior assumes responsibility within US Government for the TTPI from the Department of the Navy.
- 1952 The first hydrogen device (Operation Ivy) under the US testing program in the Marshalls is fired on Eniwetak on 1 March. The Eniwetak people who live on Ujelang temporarily stay on a U.S. Navy ship. The ship takes them to a point 100 miles farther away from Eniwetak (Deines et al. 1990).
- 1954 US nuclear testing program detonates Bravo, the most powerful hydrogen bomb ever tested by the U.S., on Bikini atoll. Radiation from the test forces evacuation of Marshallese and U.S. Military personnel on Rongelap, Rongerik, Utirik and Ailinginae (Deines et al. 1990).
- 1956 Bikinians agree to allow the U.S. government to continue to use Bikini. In return, they receive use of Kili and several islets in Jaluit, \$25,000 in cash, and interest payments of about \$15 per person per year. (RMI Ministry of Education 1996).
- 1957 Typhoon Lola stricks Kili causing extensive damage to crops and sinking the Bikinians' supply ship.
- 1958 Population of 267 on Kili (Spennmenn 2000)
- 1965 The Congress of Micronesia is formed, with representatives from all of the TTPI islands. It is created by the U.S. administration in preparation for greater self-governance by Micronesians.
- 1967 Population of 309 on Kili (Spennmenn 2000)
- 1970 Population of 354 on Kili (Spennmenn 2000)
- 1973 Population of 360 on Kili (JSpennmenn 2000)
- 1979 Amata Kabua is selected as the first president of the Marshall Islands.
- 1979 Government of the Marshall Islands officially established, and country becomes self-governing.
- 1980 Population of 489 on Kili (Spennmenn 2000)
- 1982 Official name changed to the Republic of the Marshall Islands (RMI).
- 1983 Amata Kabua selected second time as president.
- 1983 Voters in the RMI approve the Compact of Free Association with the United States.

- 1986 U.S. Congress approves the Compact, resulting in its entry into force. The Compact grants the RMI its sovereignty and provides for aid and US defense of the islands in exchange for continued US military use of the missile testing range at Kwajalein Atoll.
- 1987 In third election, Amata Kabua is selected as president.
- 1988 Population of 602 on Kili (Spennmenn 2000)
- 1990s Settlement of compensation claims as a result of the US nuclear testing in the Marshalls still proceeds, and is associated with various agreements being made as part of the Compact of Free Association package. There are also outstanding court cases. Almost 5000 Islanders had sought compensation from the Nuclear Claims Tribunal and, up to September 1993, some 380 had been granted compensation totaling about \$14 million, only a quarter of which had been paid (Deines et al. 1990).
- 1990 UN Security Council terminates the RMI's Trusteeship status.
- 1991 In fourth election, Amata Kabua is selected as president.
- 1991 RMI joins the United Nations.
- 1994 The U.S. Department of Energy begins releasing thousands of previously classified nuclear test era documents, many of which confirm the wider extent of the fallout contamination in the Marshall Islands.
- 1994 Iroojlaplap Kabua Kabua of the Ralik Chain passes away.
- 1996 Amata Kabua dies.
- 1996 In fifth election, Amata Kabua is selected as president.
- 1997 Imata Kabua selected to finish the late Amata Kabua's term.
- 2000 Kessai Hesa Note selected as president.
- 2001 Current Compact of Free Association expires.

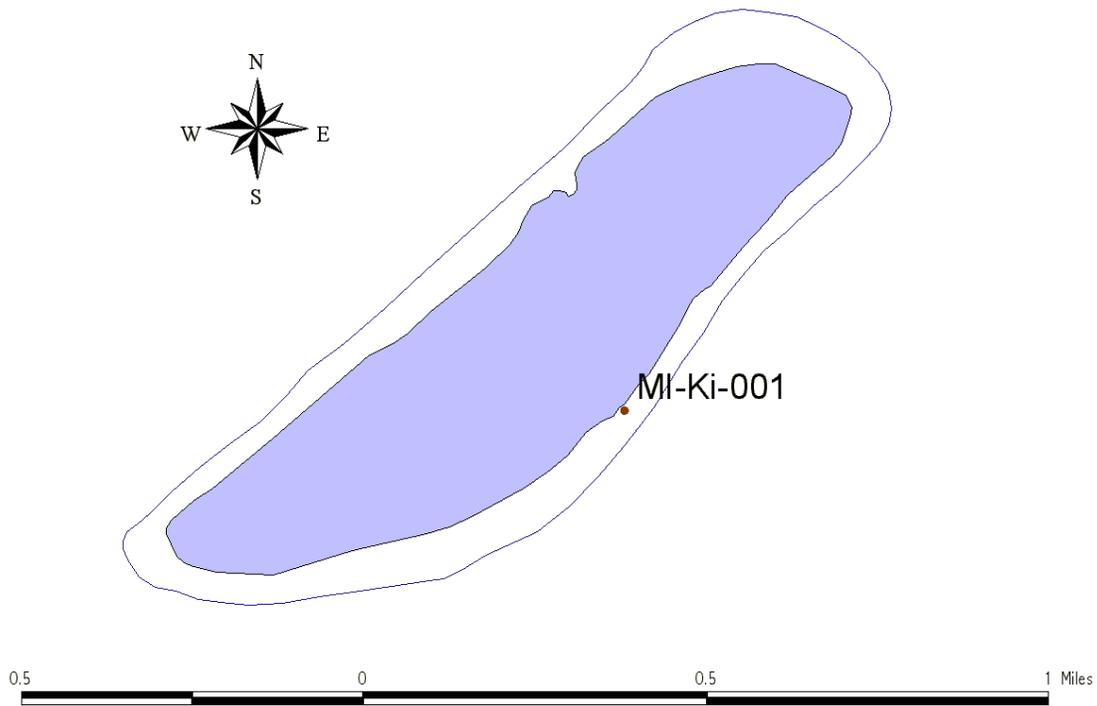
however. The combined lagoon area totals 4,037 square miles (6511 square km). Coral reefs fringe the atolls and serve as the only defense against the ocean surge. The clearance over the reef in the sections that are covered by water is usually no more than a couple of feet (Permanent Mission of the Republic of the Marshall Islands to the United Nations, 1992).

Generally speaking, an atoll consists of a series of low-lying islets and submerged reefs arranged about a central lagoon, which mixes with the open ocean via one or more channels and/or shallow passes. In the Marshall Islands, the islets composing an atoll usually form an oval shape around a central lagoon of 150 foot (45 m) average depth. The surrounding ocean depth plunges to over 5,000 feet (1525 m) within two miles (3 km), and to 10,000 feet (3050 m) within ten miles (16 km) of the typical atoll (Fosberg 1990; Wiens 1962).

Dye (1987) suggests a probable development history for the Marshall Islands. He states that approximately 70 million years ago the volcanic cores of the Marshall Island atolls erupted forming new volcanic islands. The islands, slowly subsiding but standing above sea level, were colonized by species of reef-building corals, and the process of reef flat construction began (approximately 40 million years ago).

Underwater maps show that there is also an abundance of underwater seamounts, some of which reach almost to the surface, such as Keats Bank east of Arno Atoll. Most of these guyots are aligned along the same axes as the Ralik and Ratak Chains, so that these underwater features as a whole have recently been termed Ralik and Ratak Ridge (Spennemann 1993).

Kili Island is part of the Ralik Group of the archipelago of the Marshall Islands (Map 2). It is a small island, located 5.67° north latitude and $169^{\circ} 05'$ east longitude, about 1 mile long, a third of a mile wide, land area about one-third square mile. It is lagoonless but has a brackish pond and a fresh water depression. It is surrounded by a reef of rather narrow dimensions especially restricted on the leeward side. It is backed on this side by a sand beach in the southwest sector where small boat landings can be made through a 20 ft wide channel at low tide. At high tides such landings are made with care directly on the shore. A high and rocky beach occupies most of the rest of the shoreline except for a stretch fronting the north end of the islet where sand resumes.



Map 2: Kili Island.

2.2 Climate

The climate of the Marshall Islands is predominately a trade-wind climate with the trade winds prevailing throughout the year. Minor storms of the easterly wave type are quite common from March to April and October to November. The islands are not generally considered to be in the typhoon belt, but because they are low with small land masses are easily subject to flooding during storms. Tropical storms are rare but do occur striking at Kili in 1875, 1911, 1953, 1957, 1981, 1991, and 1992. The devastation occurring in the typhoon of 1875 caused it's residence to leave the island. Typhoon Lola struck Kili in 1957 causing extensive damage to crops and sinking the Bikinians' supply ship.

The only atoll for which complete weather data exists is Majuro, where a U.S. National Oceanic and Atmospheric Administration Weather Station is located. Annual rainfall varies considerably from north to south; the southern atolls receiving 120-170 inches (300-430 cm), and the northern atolls receiving 40-70 inches (100-175 cm) (NOAA 1989) The highest rainfall generally occurs during the *Anon Rak* season, also known the breadfruit season (June to October). Precipitation is generally of the shower type; however, continuous rain is not uncommon. During

the *Anon Ean* season, also known as the pandanus season (January to March), the rainfall decreases with February noted to be the driest month of the year.

One of the outstanding features of the climate is the extremely consistent temperature regime. Daily temperatures recorded for both northern and southern atolls fluctuate between the high seventies and mid eighties with no seasonal variation. The range between the coolest and the warmest months averages less than 1 degree Fahrenheit. Nighttime temperatures are generally 2-4 degrees warmer than the average daily minimum because lowest temperatures usually occur during heavy showers in the daytime. In spite of this, the weather is always hot and humid with the average temperature of 81 degrees Fahrenheit all year around (Permanent Mission of the Republic of the Marshall Islands to the United Nations, 1992).

2.3 Vegetation

There is no written record of the original vegetation of the Marshall Islands. The precise date when plants first occur in the Marshall Island atolls is still debated (Dye 1987). It is possible that 44 species of plants, including various herbaceous species, shrubs, and trees, migrated to the southern Marshalls before the advent of man (Hatheway 1953). The early inhabitants probably altered the vegetation of the atolls by introducing new species. During the twentieth century, coconut plantations developed by the German, Japanese, and American administrations replaced most of the original vegetation of many atolls (Fosberg 1990). Today as much as 60 per cent of the nation's land area is covered with coconut (*Cocos nucifera*) (OPS 1991).

Many areas not dedicated to coconut plantations have been put to other uses such as cultivation of taro and other plants. Species which have been adopted are pioneer species reliant on the presence of humans for propagation (Fosberg 1990)

The vegetation that grows on the Marshall Islands include mixed broadleaf forest composed of a small number of tree species (*Tournefortia argentea*, *Guettarda speciosa*, *Pisonia grandis*, *Pandanus tectorius*, *Allophylus timoriensis*, *Cordia subcordata*, *Hernandia Sonora*); a few shrubs (*Scaevola sericea*, *Suriana maritima*, *Pemphis acidula*, *Tournefortia*); and a layer of ground cover consisting of several species (*Lepturus repens*, *Thuarea involuta*, *Fimbristylis cymosa*, *Polypodium scolopendria*). Several mono-specific forests occur in the Marshall Islands (*Neisosperma*, *Pisonia grandis*, *Tournefortia argentea*) (Fosberg 1990). Shrubs such as *Pemphis acidula*, *Suriana maritima*, and *Scaevola sericea* typically grow along shorelines while herbaceous plants occur mainly under forests. Limited strands of mangroves (*Bruguiera*) are found in swampy areas containing brackish water on several of the larger islands of the wet southern atolls (Stemmerman 1981). Cultivated plants (*Musa*, *Cocos nucifera*, *Artocarpus altilis*, *Cyrtosperma chamissonis*, *Pandanus tectoris*) are commonly found on the inhabited islets of the Marshalls. These various plants serve as wind breakers, salt spray repellents, food, and are used by locals for weaving and medicinal purposes.

Kili has a high vegetation (mostly coconuts and breadfruit). There is a small brackish pond on the leeward side surrounded by *Pemphis acidula*. A fresh water depression occupies the central part of the islet in back of the main village was once planted in taro. The taro swamp is

badly tended and overgrown with 2-3 feet tall grass and ferns. The swamp is unplanted and lying in weeds. On the sandy leeward beach grows several *Cordia subcordata* trees (Wein 1957).

There are numerous breadfruit trees and banana trees as well as coconut trees and some pandanus.

2.4 Sea Level Changes

Due to being so low in elevation, the recent sea level rise caused by global warming or “greenhouse effect” is a critical threat to the Marshall Islands. The rising of the sea during the last two decades has devastated the low-lying atolls economically and culturally. It is estimated that the normal trend for sea level rise has been an approximate 1.3 inch to 3 inch increase over the span of 100 years. However, it is figured that within the next 50 years, there will be a 1.7 inch increase alone. As predicted by scientists (global warming red alert), the islands of the Marshalls is among the Pacific nations that will be affected by the rising of the sea level within the next fifteen to twenty years. Under normal conditions, coral and the other components of the coral reef can maintain a healthy landmass. At present the littoral shrubland along the coastline is visibly eroded, and most of the vegetation growing in this area will soon be washed away by the incoming tide. Any archaeological sites that are located within this area will vanish and their significant historical value will be lost to the tides.

For many years, the Marshall Islands Government has been concerned with the issue of global climate change. As the Marshall Islands lie in open ocean, the islands are very close to sea level. The vulnerability to waves and storm surges is at the best of times precarious. Although the islands have by no means been completely free from weather extremes, they are more frequently referred to in folklore as "*jolet jen anij*" (gifts from god). The sense that Marshall Islands are a god-given sanctuary away from the harshness of other areas is therefore part of the sociocultural identity of the people. When any variation in the weather hits the Marshall Islands, the effects can be severe. When Typhoon Paka passed through Ailinglaplap in late 1997, food crops were severely hard hit and outside food had to be brought. The El Niño induced drought that followed caused the entire Marshall Islands to be declared disaster areas, and emergency water making equipment and food supplies were shipped in from the outsider.

Given the physics of wave formation and the increasing frequency and severity of storms, the Marshall Islands will likely be at even greater risk of total inundation. The relative safety that the islands have historically provided is now in jeopardy. The impacts are not limited to the Marshalls and its immediate neighbors. The Marshall Islands are often referred to as a "front line state" with regard to the climate change issue. It is important to realize that once the potentially catastrophic effects begin to appear, it is likely too late to prevent further warming that will threaten virtually all of the world's coastal regions (Permanent Mission of the Republic of the Marshall Islands to the United Nations, 1992).

III. Land Tenure

Land is the most highly prized possession in the Marshall Islands therefore control of land is the central most theme of Marshallese culture. With slightly less than 70 square miles of land in the entire archipelago and prime settlement areas being extremely limited, land has long been highly valued.

Marshallese society is composed of a number of matrilineal clans (*jowi*). The most important descent group is the lineage (*bwij*). The *Bwij* is the matrilineal system in which all land rights are passed down through the mother's side. Therefore, the whole group is descended, mother to daughter, from a common ancestor or a *jowi* (clan). The lineage head (*alab*) is steward of the lineage land holdings. The majority of land is matrilineally inherited, *bwij* members tracing descent from a common *Alap* ancestress (Tobin 1958).

The basic land division of the Marshall Islands is composed of sections of varying width which run from ocean to lagoon. These ownership parcels, called *wetos*, are usually two to five acres in area. The *wetos* are held communally and administered by matrilineal lineage (*bwij*) members who traditionally cleared and tended the land for subsistence agriculture. Social position is derived according to both present and future land ownership rights.

Title is divided and shared by several levels of the society. Typically, each member of the *bwij* holds one of four recognized social positions with respect to the *weto*, being either the *iroojlaplap* (paramount chief of certain lands), the *iroojedrik* (lesser chief of certain lands), the *alap* (person with immediate management responsibility for the land), or *drijerbal* (worker on land).

The *Irooj* (chiefs) hold title over an island or atoll. The *alab* organized and directed lineage activities and allotted lands for use to different descent lines within the lineage. The *alab* and the *drijerbal* (workers) make up the subjects or *kajur* (commoners) and render services to the *Irooj* in exchange for land use. The *Irooj* managed the land in a way that not only provided them food but also provided for the *kajur* (*alaps* and *drijerbals*). The *kajur* in return cultivated the land, harvested the waters surrounding the atoll, and performed *ekkan* (tributes) to the chiefs. The procedure is a cycle that has been repeating for hundreds of years. The common members of a lineage have land rights, although the *alab* and *drijerbal* change land ownership. The *Irooj* is the only individual with permanent land rights, unless defeated in war (Tobin 1952)

Historically an *Irooj* was able to extend his control over most of the Ralik (except Eniwetak and Ujelang). Periodically the *Irooj* visited these islands to collect tribute. The Ralik chain was subsequently divided into two districts, one including Namu and the north islands, the other Jabat, Ailinglaplap, and the islands south. Although all of these islands were owned by the *Iroojlaplap* (paramount chief) he rarely visited those further north than Kwajalein and Ujae because they were isolated and somewhat impoverished (Alikire 1977). Within the northern atolls stratification was less elaborate in comparison to those in the south.

Ratak was likewise structured but far less centralized. The whole chain was never integrated under a single *Iroojlaplap*, although the *Iroojlaplap* of Maloelap was able to put the

islands to the north (except for Mejit) under his rule. Majuro and Arno broke away from this union, however, and again became independent political entities. The Ralik and Maloelap alliances were unstable and varied in size as local *Irooj* tested the strength of their islands against that of the *Iroojlaplap*. This trend toward instability encouraged the *Iroojlaplap* to move his residence from island to island to make his control clearly evident to the local *Irooj*.

Kili was virtually uninhabited until the 1900s. In 1797 when Thomas Dennet, of the British vessel *Britannia* encountered **Kili**, eight canoes with natives wanted to trade breadfruit (Hezel 1979, Sharp 1960). Captain Richard D. Wood of the whaling bark *Superior* passed Kili on December 23 1859 reported seeing natives on the beach (Hezel 1979).

A. Capelle & Co. purchased Kili for \$300 on 20 February, 1874 from the *Irooj*'s Kabua, Loiak, Lagadjimi and Nelu. Capelle planted coconuts on the island which was soon abandoned because of the poor anchorage (Hezel 1983). A severe typhoon in 1875 caused Kili to be abandoned by its few inhabitants (Finsch 1893). On 14 July 1876 the English brig *Vision* of Auckland, under the command of George Loverock, made a trading voyage to the Marshalls. They touched at **Kili** and reported it was still uninhabited (Hezel 1979)

In 1886, the island became the possession of the Deutsche Handels und Plantagenesellschaft who established settlements and trading stations for copra there (Anonymous 1886). By 1893 the Jaluit Company owns Kili and operates the trading station. Coconut plantations are laid out for the copra trade (Langhans 1898). Kramer and Nevermann (1938) report that in 1895 Kili is once again uninhabited.

In 1908 Kili was sold to Mr. Otto Bock of Bielefeld of Germany for 20,000. marks and there remains 0 population on Kili in 1910 (Spennmenn 2000). Once the Japanese take control of the Marshalls people begin living on Kili again. In 1930 there was a population of 32 while on 26 persons were reported in 1935 (Spennmenn 2000).

In 1948 the Bikini community was moved by the US government to **Kili** so Bikini atoll could be used for nuclear testing. Some of the new Kili people complained about shortages of food. Taro plants were brought in for them to plant, but unused to agriculture the plants were used up and not replanted.

Traditional rights of land tenure are unequivocally preserved in the Constitution, and the traditional requirement of consensus decision making, in which all persons with land rights to a certain *weto* must agree on questions of land transfer is retained.

The traditional land tenure system confounds Western-style efforts of historic preservation. Landowners are accustomed to exercising ultimate control over land use and access, and are therefore generally unaccepting of regulations which might restrict the usage of their property.

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IV Field Investigation

Kili Island

Site MI-KI-001 (Marshall Islands - Kili Island - Site No.-001)

Site MI-KI-001 is a WWII site; wreckage from a plane. We were told that this plane was shot down near Jaluit and landed here (Map 2). All that remains is part of the engine, and one propeller partially buried in the sand. The engine is located just a meter out of the water at high tide and measures 1.7m x 90cm x 90cm. There is also another portion of the plane 2.2m to the south. The informant stated that the wings used to be nearby but only thin aluminum none describe fragments were found.

Two separate clamps of the exhaust or intake manifolds had identical part numbers (GB55 4092). Given that the writing is in English one can assume that it is a U.S. plane and not Japanese.



Photo No. 1 Plane's engine.



Photo No. 2 Plane's engine.



Photo No. 3 Propeller remains.

V. Summary and Conclusions

As mentioned in the introduction, the objectives of the present project were very clear and focused on site survey and inventory and education. The present work at the HPO is focusing on surveys of all the atolls within the Republic in order to produce a complete site inventory and National Register. Unfortunately, given the history of settlement on Kili Island it is not a surprise that only one historic site was identified. However, that site has a history behind it and it should still be preserved.

Cultural Resource Management (CRM) in the Republic of the Marshall Islands, while becoming an important part of archaeological work, is still in its infancy. CRM is based on the realization that cultural resources, are nonrenewable and that prudent care must be taken to utilize these resources efficiently. While the immediate goal of the HPO survey was to identify the historic sites of Rongelap Atoll, the long-term goal should be the education of the local and national population on the importance of preservation of these sites. While the Historic Preservation Legislation of 1992 has codified CRM into law, the cultural traditions of the Marshall Islands, namely the importance of land rights to individual landowners, makes the practice of CRM difficult to legislate. And while the Act has established that developers are responsible for the costs involved in conducting archaeological investigations prior to the commencement of construction, there is no precedent case for developers being prosecuted due to violations of that law. Therefore, education is still the most important tool that the HPO can use in site management and preservation.

Part I of this report acquainted the reader with the research design, scope of work, and methodology involved in solving the pre-stated problems. It gave information on previously conducted research, as well as, a critical evaluation of the sources and techniques used.

Part II described the environmental setting of Kili. Typhoons can drastically alter the landscape of low lying atolls in the Pacific. Sea level changes pose additional threats to atoll environments. It is predicted that the global warming trend will have a tremendous impact on atoll communities within the next century. Information provided on vegetation and soil types was not only used as necessary background information in order to complete RMI National Register Forms, but also provided clues to the likelihood of areas primarily used for agriculture.

Gaining knowledge on land tenure and subsistence strategies was important for evaluating the significance of sites concerning their standing in time and space. Part III also provided valuable information on the artifacts and archaeological data most likely to be uncovered in the field investigations. Although no subsurface testing was conducted, a predictive model could be derived on the basis of this information.

Part IV reported the results of the field investigations. Only one site was identified on Kili Island.

Traditional Cosmology and History

Prior to the introduction of a written language, Marshallese culture was largely an oral society where information was maintained through oral traditions. Elder generations passed down beliefs, values, and philosophies by telling stories and chants to the younger generations. Many places in the Marshall Islands which have special cultural significance offer a wealth of folklore associated with their pasts.

The themes of Marshallese stories are universal: good versus evil; heroism and success of the underdog; the repercussions for children of disobedience; family respect; and sibling and peer rivalry. They are flavored with demons, ghosts, giants, and personified fish and animals. Supportable historical fact is often combined with mythology in the same story.

In all of the stories, morality prevails, and acceptable behavior and traits of character are exemplified so that they may be passed on from old to young, past to present, and hopefully from generation to generation.

There are many variations in the creation accounts. Regardless, the different versions introduce key characters important to Marshallese cosmology. The following information is a compilation of previous researchers' works in oral histories.

According to Erdland's sources the Ralik version of creation begins with a being Lowa (or Loa) who lived on the sea, which was bounded by an extensive, low table reef in the south and a swamp in the north. Lowa spoke to the sea, 'See your island reef' and the reef formation appeared. Then he said, 'See your sand', and the earth appeared on the reef. Again he spoke: 'See your plants', and plants were growing. Again he spoke, 'See your birds', and they appeared. One of the birds, a white gull, flew up and, while circling, spread out the sky, like a spider weaving its web between two bushes. When Lowa finally said: 'See your human beings' four human beings appeared, one in each direction: Irojrilik, in the west; (LoKomraan) Lakameran (Daymaker) in the east; (Lorak) Rerek in the south, Lajiminanmen (Lajbuineamuen or Lalikian) in the north.

Then a boil grew on the leg of Lowa, from which, when it burst open, emerged Wulleb and Limdunaniij. Limdunaniij gave birth to two male beings; Lanej (Master of the Heights), and Lewoj (Master of the Middle of the Island).

Wulleb and his sister's children sat down one day on a stalk of an arrowroot. Which, growing up to the vault of the sky, enabled them to ascend. Their peaceful companionship, however, was of short duration. Soon the brothers plotted to kill their uncle, and Wulleb, Lanej, and Lewoj waged war in the dome of the sky. After they had observed each other mistrustfully for several nights, Wulleb's retina tore, and he fell down from the dome of the sky on Imroj. Thus, matrilinearity begins.

When he sighed aloud as the result of his fall, Irojrilik awoke, came to him and spoke: 'Well, this is Wulleb, and he has fallen from the sky!' Wulleb answered: 'My nephews and I

watched one another by night; then when my retina tore, I fell down.’ Iroijrilik then spoke, ‘Let us go into the hut’. They went into it and three months passed.

When Wulleb had spent some time with Iroijrilik, a large and extremely painful boil developed on the extensor side of his leg. After it became ripe it broke open, two little boys issued from it, the elder of whom was called Jemeliwut, and the younger Edao.

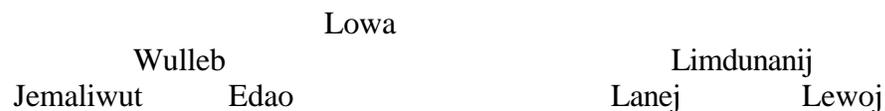
Wulleb sent them to Lijbage (Tortoise woman) on Bikar Island in order to get magical tortoise shell from her. Lijbage – who, with her granddaughter Lijwei, had come from the Gilbert Islands – gave Edao a magical potion which he drank despite all his disgust. By doing so, he became a crafty hero who not only conquered several atolls, but also embittered the life of his brother, Jemeliwut that the latter settled on Majuro Atoll, married there, and finally changed into a silver tree. Edao went everywhere seeking adventure and met sudden death in the Gilbert Islands.

According to Reymond (1899) in *Das Weltall*, the Ratak version of creation starts with two serpents (or worms), the male was called Wulleb and the female, Lejman (Woman Rock). They developed into human form in a shell. To make a larger world Wulleb lifted the arch of the shell, using a stick to expand it to the present height of the sky and width of the oceans.

From a boil on Wulleb’s forehead emerged Lewoj and Lanej, who were sent to the sky by Wulleb in order to put up the stars. Lejman also had two female offspring, Lino (tidalwave) and Ni (coconut).

Then Wullip collected in a coconut shell the blood from a cut on his leg, and from this blood came Etau (one with the white eyebrow, the powerful, the crafty, the favored one) and Jemelud (father of the rainbow). They went out to conquer. Prior to the conquest of the islands they had already ascended to the vault of heaven in order to defeat their older brothers. That their ascent in the north was successful is clearly shown by the fact that the Northern Hemisphere is less inhabited (studded with stars) by far than the Southern Hemisphere. A bird flew to tell one of the sky gods their plans to defeat their brothers. This god captured Edao’s small son, set him impossible tasks, which the son accomplished, then lowering himself to earth on a thread. Edao had settled on Mejit. Bikar was formed by a rock with Etau threw at the bird which had come to spy on him.

For clarification, from the Ralik chain the cosmological genealogy is as follows:



From the Ratak chain the cosmologica genealogy is as follows:



Other accounts add information, some contradictory. According to Knappe the first being was Wulleb who lived with his wife on the invisible island of Eb. One day a tree grew from Wulleb's head, split his skull, and out came Edao and Jemeliut. Edao quarreled with his father and went away, flying through the air with a basket of earth some of which spilled through a hole, so that the islands came into existence in the sea. Then Edao planted the land, created land and sea animals, and married his mother. Then the bird Babuk came with the female sexual organ in his beak. Etau hid it. Lejman found it and put it on. Neither wore clothes at this time but Lejman became ashamed and took two mats as covering (beginning of clothing). From there union came the first people. In this version it is Edao who is credited with creating the animals and plants. According to Knappe (1888) the woman wasn't ashamed at her nakedness but because she had an incestuous relationship with her son.

Davenport's version states that Lowa sent a man who put all the islands in a basket and arranged them, first the Carolines, then the two chains of the Marshalls, Namorik was dropped out of order. The basket was eventually thrown down and became Kili.

In several versions Lowa sent two men to tattoo (on Ailinglaplap) all the living creatures', thus giving them colors and markings (Davenport 1953, Chambers 1969, Buckingham 1949). Lowa sent two men down to Bikini with measurements for the first canoe (Buckingham 1949, Davenport 1953). A woman bore a son and a coconut. At his request she buried the coconut, which grew into the first coconut tree. Again at his request she husked a coconut and the husks floated to Irojirilik, who made sennit with them. The sennit was taken by a bird and flew into the air with the rope making a net and widening and raising the sky, holding it up. Rain is water separated into drops falling through the net (Kramer and Neverman 1938, Buckingham 1949, Chambers 1969) Everyone went to Namu to honor Liwatonmour, founder of the Irooj clan. From this gathering came all clans, with *Irooj* as the highest (Chambers 1969).

There are many other stories which explain the origin of the sailing canoe (Liktanur and her son's canoe race) (Kramer and Neverman 1938, Erdland 1914, Buckingham 1949, Davenport 1953), the origin of navigation (Buckingham 1949), origins of animals, breadfruit (Mackenzie 1960); taro (Bikajle 1960).

According to William H. Davenport (1953) Kili got its name from the type of basket, *kilok*, which was thrown away after the islands were placed in the ocean.

Formerly there was just a reef where Namorik is, and one day a woman and her son were swimming toward it, when a large man, Ladobu, taking pity, allowed sand to fall from a basket into the sea, forming an island. When the man then rested on the island the woman's son crawled into the basket and made a hole, so when the man went off again sand spilled, forming land between a part of Namorik and Kili. Seeing this the man stepped on the line of land, forming the atoll Namorik. When they arrived at Kili the boy crawled out and remained there (Kramer 1906)

Once was a man by the name of Jemediknene. He had a beautiful wife. Every day Jemediknene would go fishing and everyday he would warn his wife not to wash her hands in the pond that is in the middle of island. Instead she was to wash her hands in salt water only.

One day while her husband was gone the wife became curious about the pond. She washed her hands in the pond and then clapped them to dry. At that very moment a bush women sprang out from the pond and sat beside her. The spirit disguised herself to look like Jemediknene's wife. The two women went to the lagoon shore where the chief, Jemediknene, demanded to know which was his real wife. When the bush-woman answered "I am," he put his real wife on a log in the ocean to drift away. The log drifted to the then unknown island of Kili. The wife was already pregnant and she gave birth to a son. The son grew up on Kili with his mother. When he was old enough, he gathered some men to help him build a canoe. When the canoe on Kili was completed the boy and his men launched it and sailed to Jemediknene's fishing place. Later when Jemediknene and his crew came to the same they encountered the boy's unknown canoe, which when queried about its identity, answered vaguely that it was called "north-south," or in other words, the canoe that passes through the entire island chain. When the men tried to move closer to the boy's canoe it disappeared.

The next day the men launched their canoe and sailed to the same place where once again they encountered the boy. When they tried to come close to the canoe it disappeared. Jemediknene decided to stay home with his wife because he really wanted to find out if she was the real wife. While she was asleep, Jemediknene deloused down the back of her head. When he separated the hair, he saw a mouth with some sharp teeth sticking out. He gathered dry leaves and wood and covered the house. He then burned the house and the spirit died with the fire.

The following day he went fishing with his men. The saw the same canoe again and followed it all the way to Kili. When they arrived, Jemediknene went to talk to the boy. He asked him "Who is your mother?" and the boy told him. Then he asked "Who is your father?" "Jemediknene" the boy answered. The he put his arms around his son and cried. The wife came and found her husband. Then Jemediknene and his wife and their son lived on the island of Kili after that.

Erdland 1914: 286-88

There once lived a great lizard on Kili Island (now home of the people from Bikini). And not very far away, on Ebon Atoll in Moneak Island, a high chief lived with his people. There are very many coconuts on Moneak, but the high chief put a "jabwi"(taboo) on all the coconut trees. They were not to be touched by anybody but himself.

The big lizard on Kili Island wanted to get some nuts from Moneak Island to take back to Kili. But how could he get the coconuts? "Moneak has many coconuts, but the high chief has put a jabwi on those nuts," he said to himself. "The only thing I can do is steal the nuts from Moneak and bring them here."

So he left Kili and sailed to Moneak in the darkness. There are two places of land on Moneak Island on the northeastern part of the island on the ocean side. Those are called Monkilejeion and Monkilejirok. When the lizard got to Moneak, he sang:

*I come from the sea to the shore of
Kilejeion or Kilekejeirol
I thought in the dark that someone threw a stone,
but hit nothing*

*I took one hundred and two hundred large baskets
full of coconuts*

Then he went back to Kili. The next morning, the people saw that many coconuts were stolen. "Who did it? Look at the trees! Someone has stolen many nuts!"

Then the people began to watch the island at night. The chief and the people were very angry about the stolen nuts. They know the nuts had been taken, but they could not guess who had taken them. The chief made sure that a careful watch was set. Some people hid under the coconut leaves and some in the bushes. They had stones ready to hit the thief, even spears and other weapons.

The next night, the lizard came again, and so the people knew that it had been the lizard from Kili who had stolen their nuts. They leaped out and caught him, struck him with stones, spears, and cut him up in many pieces.

The lizard cut into very small pieces, and each of these pieces turned into a small lizard. That is why there are many small lizards on the coconut trees these days (*As told by James Milne*).

Three people lived on the eastern side of Kili island, a spirit on the western side. The people spied on the spirit as he was feeding his purse crab: "Crab of this hollw, crawl!" The crab appeared, and he fed it.

He went and dug a little waterhole to call his fish: "Roll on land, roll on land, all of you come to land!" Then he called his bird: "Thing at the end of the sandbank, dive and strike land!" The bird drifted down and ate fish. Then he spoke "*lele* [*Balistes carolinensis*], splash; loosened, loosen it!" The lele fish came to the surface.

He went away, and the men killed the school of fish, the bird, and the crab, which they placed in a basket and carried to their mother. The brothers were called Janinue and Jomakro. The two of them went and did some *bubu* in order to discover the place where they could do the roasting for they feared the spirit. When they were finished with the divination, they knew that the entire island was unfavorable for a roasting place, but it would be on a tree. So they took the crab and their mother and climbed on the tree. Then they let their mother do the roasting there, took their crab shell, and went fishing.

The spirit now began to look for his children (animals), but found that all had disappeared, and he became angry and sad on account of the animals because they had disappeared. After he had looked for them and had not found them, he went through all the places on the island, but he did not find them.

In the evening he sat down under the tree where the woman was. The spirit did not think that a person was there; because of his tiredness, however he sat down to rest.

He was sitting under the tree when a crab claw fell. He looked up, saw the woman, and spoke: "I shall eat you!" He climbed up but the woman bewitched him: "The old man on the *kanel* tree slides down to the bottom!" He slides down to the bottom!" He slides down to the root: "Now I shall gnaw down the tree!" The old woman screamed: "Janinue-ninue, Jamakro-makro!"

By your crab shell, here gnawing is done, here your mother is being eaten, he has appeared in the middle of the island!”

The two men made haste and came to land, and when they came, the spirit quickly went toward them and spoke: “I shall eat you!” Both said: “Don’t eat us, for we shall give you a porcupine fish to eat!”

“From which end shall I swallow it?”

“With the tail end first!” Both cast a spell over him: “The head quill of the fish is bent there, go there, the quill of that squarrose fish.” The spirit died. As told by Loien (Erdland 1914)

A chief (of Jaluit Atoll) heard that the chief in Kili had a marriageable daughter. He, his subjects, and a leper departed; he had made himself a necklace of shells. When the canoe arrived, it was night. They traveled and landed. The chief spoke: “Someone jump into the sea and tie the anchor rope!” The sick man said: “I will!” He jumped into the sea, dived, tied the rope to the front end of the outrigger raft, and called to the people in the canoe: “Draw on it!” They thought it was fast. “Why is it that the canoe was near land and now it is drifting seaward again?” When they looked: “Why is the outrigger raft tied on?”

They sailed again and tied the canoe. The leper, however, had swum to land, run to the maid’s hut, and entered. He had said: “Extinguish the fire so that Chief Kunkarik may enter!” He was obeyed and the fire was extinguished; he went in and lay down beside the maid.

The maid, however, sensed a bad odor and spoke: “Why do you smell so bad?” “My tattoo scars have just healed!” “But why do you rattle?” “Those are my and my father’s necklaces of whale teeth² from the northern reef!” “But why do you talk through you nose?” “My nose is clogged, yes, it will surely rain³!” The maid accordingly believed that he was the chief.

Now, however, the chief⁴ came and said: “Extinguish the fire so that Kunkarik may enter!” The people became angry and said: “Why, are there then two Kunkariks?” The chief was greatly ashamed and lay down beside the mistress of ceremonies. Then they slept. When the early hours of the chief came⁵, the chief awakened the woman with whom he had slept, and both went into the interior of the island to pick flowers.

The inhabitants of the island awoke and prepared food, but the leper had not yet awakened. The saw the maid. “Wake up the chief so that he may dispose of the food for his subjects!” When the maid raised the mat blanket, it was stuck to the body because of the secretion of pus; he awoke, stood up, ran into the sea, dived under, and disappeared because he was greatly ashamed.

² Only chiefs wore necklaces of carved whale teeth as a sign of their rank, and no ordinary man was allowed to wear them.

³ In reality the leper’s nose had been eaten away. The tellers reproduce the last words with a nasal twang.

⁴This narrative indicates the great influence of the chiefs. Even an innocently deceived girl does not regain grace.

⁵ *Jubbun ran kan an irooj* was the expression for the time between 3:30 and 4:30am, at which time the chief, with his wives, took care of natural needs on the outer shore. No native was allowed to walk around on the island during that time. The hour of the commoners was shortly before sunrise.

Now the people saw that it was the chief whom they had shamed. When it now became evident that it was the chief, the maid went to him and spoke with him, but he did not answer because they had shamed him. The chief said to the woman, whom he had loved: "Let us sail away!" And the maid spoke: "What about me?" The chief did not reply. The chief then spoke to the mistress of ceremonies once again and stood up, while the maid folded her blankets together so that she could come along.

They sailed off, leaving her behind; she wept and ran on land alongside the canoe: "Let go the sheet of the canoe, Likjur and Lanilenwor!" The people made fun of her and said: "Run, run, run, follow and climb into the canoe at the end of the reef!"

Then the leper appeared: "This is the arm, this is the arm, this is the arm on which you rested that night; when I braided my hair I took pandanus air roots!"⁶ As told to Erdland (1914) by Lijitnel

The man spoke: "Come, woman, let us carry the canoe into the water so that I can go fishing!" He caught *lele* (which in former times could not be eaten by ordinary subjects). He went on land: "Light the fire, fire for the chief's fish!" The woman baked the fish, and breadfruit as a side dish. When they were done, the man brought them to the chief. He said: "Woman, take our son!" The woman replied: "Just take him with you!" "But he may whine for the dishes of the chief while the chief is eating!" "Not at all, take him with you!"

Both went. The chief ate. The boy said: "Father, give me the head of the *lele* to eat." The chief said: "Give the head to the boy to eat and tell him he must fetch me a head from the horizon to eat!" The chief chewed pandanus. There upon the boy said: "Father, give me the sweetest part of the jallaue pandanus to chew!" And the chief said: "Give it to him and tell him he must bring me the sweetest part of a pandanus by canoe!"

Father and son departed as the chief had commanded. When they arrived in Kili, they killed the animal there, dug out taro, smashed a canoe, set fire to the chief's hut, took the Kili women to the canoe, and sailed off.

An old woman yelled: "Kajkaki, Kajkaki, hey!" "Hello!" "The two people are smashing the canoe, setting fire to the chief's hut, digging up the taro plants, taking the women with them, have battered the animal's head, and the animal is dead, oh, oh, oh!"

Kajkaki came. "What is the matter?" "The women have gone, they have dug up the taro plants, they have killed my animal!" "Where did the canoe disappear on the horizon?" "Across from the center of the island!" He took his paddle canoe in order to paddle: "Paddle canoe, I am paddling right and left, the water bailer falls away, the steering paddle sighs, come into view immediately!" He saw the canoe.

⁶ The leper was an *anij*. Since in former times the men wore their long hair tied up in a tuft, and a thick tuft was regarded as a first-rate ornament, the spirit had braided fibers from pandanus air roots into his hair.

He covered his hand with dirt and extended it to the east, north, west, and south saying: "Throw me the man at the mast base so that I can chew him to the bone!" The man replied: "The mast is firm, the paddle rolls, the oil vessel scoops water, the outrigger raft holds the surface I am gone." The canoe moved away from Kajkaki; he went on paddling and died (Kramer and Nevermann 1938)

A family once caught a fish, baked it with breadfruit, and took it to the chief. The man was wary of taking his son, but his wife insisted. The chief began to eat the fish and the son whined to his father, asking for the head of the *lele* (*Balistes carolinensis*) fish, which was reserved for chiefs. He also asked for the sweet *laue* pandanus. The chief sent them off on a quest for "a head from the horizon to eat" and the "sweetest part of a pandanus" brought by canoe. The father and the son departed and arrived at Kili. There they killed an animal, tore up taro pits, smashed a canoe, set fire to a chief's hut and abducted a woman. Kajkaki came and paddled after them, singing a paddling song. He covered his hand with dirt and extended it to the sky, east, north, west and south. This caused dark clouds to cover the sky so that he could reach his enemy who would have lowered and covered the sail at the threat of rain. Kajkaki sang his demand to eat the man, but the man replied in song and moved away from Kajkaki. Kajkaki paddled on and died Erdland 1914: 253-55

Lokkokelok and his wife Laneo lived on the main island of Ebon Atoll at a place called Eljor. Laneo became pregnant, and her husband started out in his canoe to collect mats from all of the islands in the Ralik chain, in order to have them when the baby was born.

Lokkokelok sailed first to Bikini, then to Rongelap, Rongerik, Wotho, Lae, Kwajalein, Ellip, Namo, Jabot Ailinglaplap, Namorik, Jaluit, then to Kili and back towards Ebon. Ujelang and Eniwetok were not considered part of the Ralik in olden times.

Before he returned from his long trip, the baby was born. His wife was very sad and began to pine for him, wishing constantly for his return. She became very ill with *lerro*, or lovesickness.

Laneo finally became so ill that she transformed into an evil *mejenkwaad* and ate the child. She waited for her husband's return so she could do the same to him.

When Lokkokelok arrived at Ebon he did not enter the lagoon, but landed at Rube on the ocean side and tied his canoe to the rock named Lapajoj. He left everything in his cane, swam ashore and hurried to Eljor to see Laneo and the baby. He ran all the way, for he was very eager to see them, and had no idea that Laneo had become a *mejenkwaad* and had eaten the child. When he came to his house he saw Laneo with her mouth and face all bloody. He thought that possible she had turned into a *mejenkwaad*, but Laneo said to him "Oh, we have just caught some tuna, and I have been eating it raw." Lokkokelok was convinced, however, that she was a *mejenkwaad*, and he guessed that she had eaten the baby. He began to plan how he could escape from here, so he said, "I must return to the canoe". She replied, "I will go with you". So they started out toward Rube, and when they got to Likot they cut across the island to the ocean side.

Lokkokelok knew he must escape or his wife would eat him. As they walked, they began to argue, "Laneo, you take the lead". "No, you go first," she would reply. Lokkokelok knew that if he turned his back on Laneo, she would seize and eat him. They continued to argue, but Laneo had the loudest voice, and she shouted so loud that Lokkokelok lost the argument. He went ahead but never ceased looking back.

About half way across the island, they came to a *kilkil* tree. This *kilkil* tree was a very large tree with many branches, each thick with small leaves. Lokkokelok had come this way purposely with the *kilkil* tree in mind. When they arrived at the tree, he said to Laneo, "You wait here for a little while, I want to relieve myself". Lokkokelok went out of sight while Laneo waited for him to return. Lokkokelok ran quickly to the beach and made a *bubu* so as to find out where to go to escape Laneo. The *bubu* indicated that he should go a long tack to the south, then make another take to Kili where he would be safe.

Meanwhile Laneo had gotten tired of waiting and looked around the *kilkil* tree, seeing that Lokkokelok was not there she hurries to the ocean beach but Lokkokelok was gone. Laneo stretches her neck way out over the northern horizon but could not see him. She then stretches her neck to the west horizon, then south horizon but could not find him, for after sailing southward he sailed eastward to Kili. The she stretched way out toward he east and discovered her husband already close to Kili. Lokkokelok looked back and saw the *mejenkwaad* with her open mouth and terrible teeth behind him.

Lokkokelok quickly took up his fishing pole and pearl shell fish hook and began trolling as he sang a song to call up the sharks.

Lokkokelok instructed the steersman to do just the opposite of whatever commands he gave. When the *mejenkwaad* attacked and tried to seize the steersman, Lokkokelok shouted a command and the canoe turned opposite to that which she expected, and so Laneo splashed into the water. The sharks, having already been called up by Lokkokelok, rushed in from all sides and ate about half of the *mejenkwaad*. She recovered as best she could and made another attack, but when Lokkokelok cried out a command, the canoe turned the opposite and she missed again and splashed into the water, whereupon the shards ate some more of her. This occurred several times more, until at last she was all eaten up. And this is how Lokkokelok and his crew were saved from the *mejnkwad* and came safely to Kili.

To this day it is a dangerous sail from Ebon to Kili because of the sharks. There are big schools of fish in the area between Ebon and Kili, a little close to Kili. . These schools are called Laneo because of the incident related here. And in these schools of fish one will almost always find a large shark. These shcools of fish are another *kokolol* (sign) which helps guide the Marshallese navigator. A navigator not sure of his position, who encountered this sign would immediately know he was near Kili. This story was recorded by USN Chaplain Buckingham, and James Milne, as told by Lokrap. This version is William Davenport's (1959) translation.

*Another version of this story states that when the wife stretches her neck out and comes after him he casts his toy missile of pandanus leaf across the water to distract her course. She misses him and plunges her head into the sea where she is immediately attacked by sharks.

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