

THE CYCLIC REALITIES OF MAN AND NATURE
IN A PALAUAN VILLAGE

by
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DEDICATION:

TO THOSE THAT LEAD



FIGURE 1.

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INTRODUCTION

There is a season for everything
And a time for every purpose under the heaven:
A time to be born, and a time to die;
A time to plant and a time to reap . . .
--Ecclesiastes

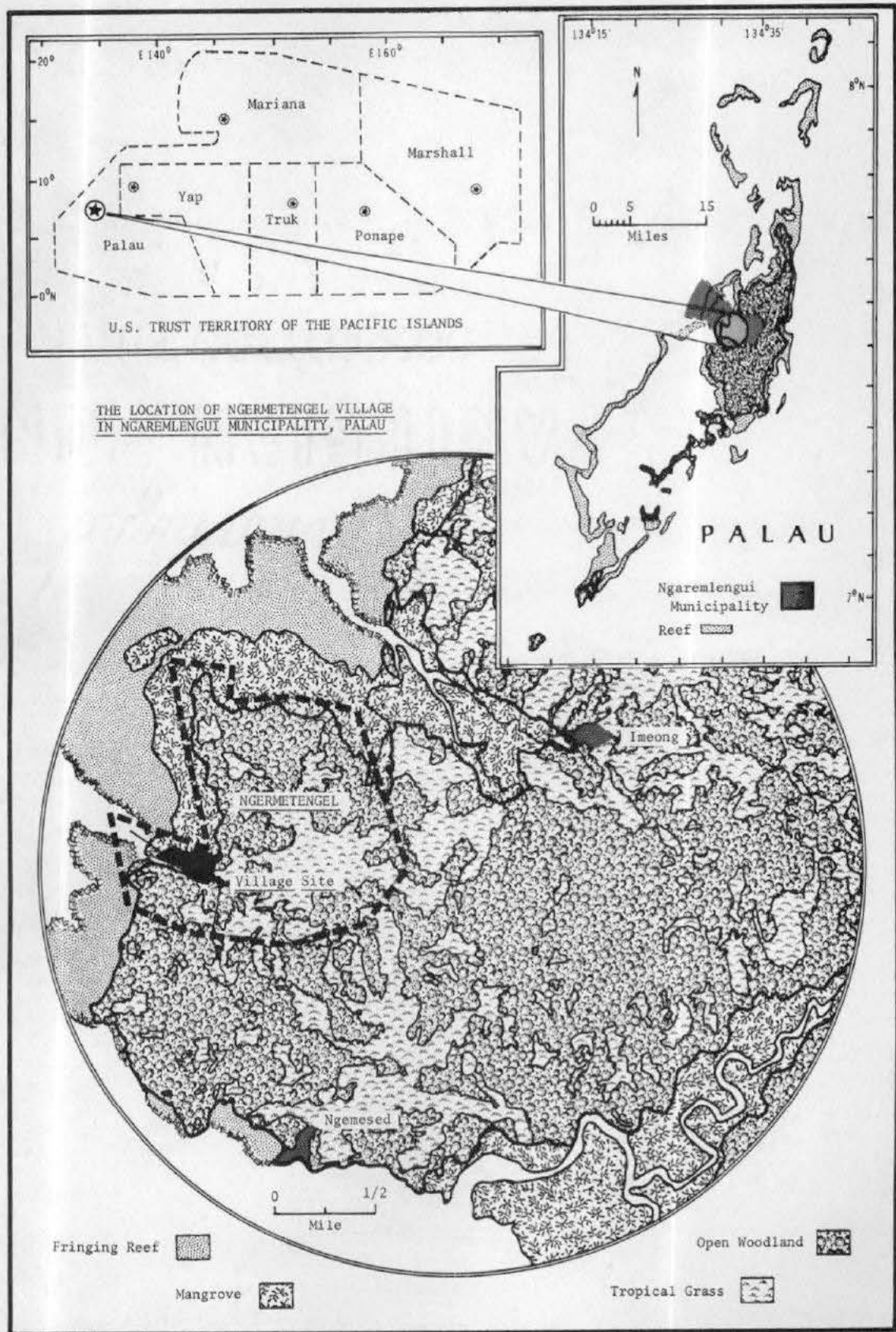
The geographer records interrelationships between man and environment as they affect place, but he often neglects the invisible forces of nature. Too often he has limited his scope to: (1) the elements or things that makeup the landscape; (2) the processes or ways in which the elements in the landscape originated and developed; and (3) the agents or individuals or groups that activate the processes. But these characterizations do not adequately describe an area that is very much alive. One means of capturing a landscape's dynamic quality is to include in the study a discussion of "cyclic time."¹

This dissertation is an attempt to describe a landscape through "cyclic time"--the diurnal, monthly, and seasonal cycles of man and nature in Ngermetengel, Palau, a small fishing village in Micronesia.² To explain Ngermetengel's seasonal landscapes, it is necessary to

¹Yi-Fu Tuan introduces this notion of "cyclic time" in his work, "An Eclectic Reading: Man and Nature," Landscape, (Spring, 1966), 31-36.

²See Figure 2.

FIGURE 2.



understand the community's unique interpretation of nature and the cosmos by means of a system of time reckoning. The heavens and the phases of nature serve as a clock and calendar to be read and sometimes acted upon. The position of the sun, the rising and setting of the stars, the waxing and waning of the moon, the ebb and flow of the tide, the changing of wind directions, the height of the breakers on the reef, the natural smells within the village, and the life cycles within the lagoon all serve as a system of time reckoning.

In portraying Ngermetengel's landscape, Chapter I carries the reader through a series of topics relating to the village's natural setting--location, physical characteristics, and climate. Chapter II discusses the origin, relocation, and development of Ngermetengel Village. The reader is thus provided with information regarding the elements, processes, and agents that transform the village scene. However, it is a static characterization: a detailed chronicle of changing scenes and events over a natural setting of hills, valleys, streams, and flatlands which still fails to record the essence of Ngermetengel's landscape because it ignores "cyclic time."

Chapter III explains Ngermetengel's system of time reckoning. It shows how the position of the sun divides the day, the phases of the moon, the month, as well as how the lunar months form the basis of Ngermetengel's traditional system of reckoning time. This chapter also shows how tide fluctuations, wind shifts, rainfall variations, star positions, village smells, breaker heights, fish cycles, and

numerous other natural and astronomical phenomena serve as a clock and calendar to the people of Ngermetengel.

Having this framework, it is possible to discuss human activities in Ngermetengel as they relate to aquatic and terrestrial cycles--the content of Chapter IV. It shows how the securing of fish is the most regular and predictable of subsistence activities in Ngermetengel. The village's fishing grounds are mapped and a description is included regarding the optimum times to use particular types of fishing devices and techniques. It also illustrates how the trees, plants, and shrubs on the land also have their particular cycles throughout the year, and how man rotates his existence and activities around the blooming of flowers and the harvesting of fruits.

By combining the data relating to time reckoning (Chapter III) with the information on human activities (Chapter IV), a model calendric system is presented (Chapter V). With such a model, it is possible for the reader to relive a representative year on Ngermetengel's landscape. Diurnally, daily, month by month, the reader can view a living landscape--a landscape that is a continuum of interlocking cyclic rhythms.

CHAPTER I

NGERMETENGEL: GENERAL DESCRIPTION

Location

The Pacific Ocean houses the greatest number of islands, islets, and atolls in the world. Approximately 2,200 of these insular land masses are located in the west-central section of the Pacific. Europeans have chosen to call this group of islands "Micronesia," the land of tiny islands. After World War II, a major part of Micronesia came under the auspices and care of the United States; the island realms of Ponape, Truk, Yap, the Marianas, the Marshalls, and Palau became known as the six districts of the United States Trust Territory of the Pacific.

The Palau Islands, the western most district within the Trust Territory, lie seven to eight degrees north of the equator. Having an East longitude of 133-134 degrees, the Palau archipelago is located 1990 miles south of Tokyo, Japan; 550 miles east of Mindanao, the Philippines; 410 miles north of the western tip of New Guinea; and 4600 miles southwest of Honolulu, Hawaii. There are 350 islets within the Palaus curving north to southwest for 100 miles. The total land area is approximately 160 square miles. Palau has a barrier reef, fringing reef, and lagoon which covers an area of 525 sq. miles. Most of the Palau's 14,000 inhabitants live either on Babelthuap, the

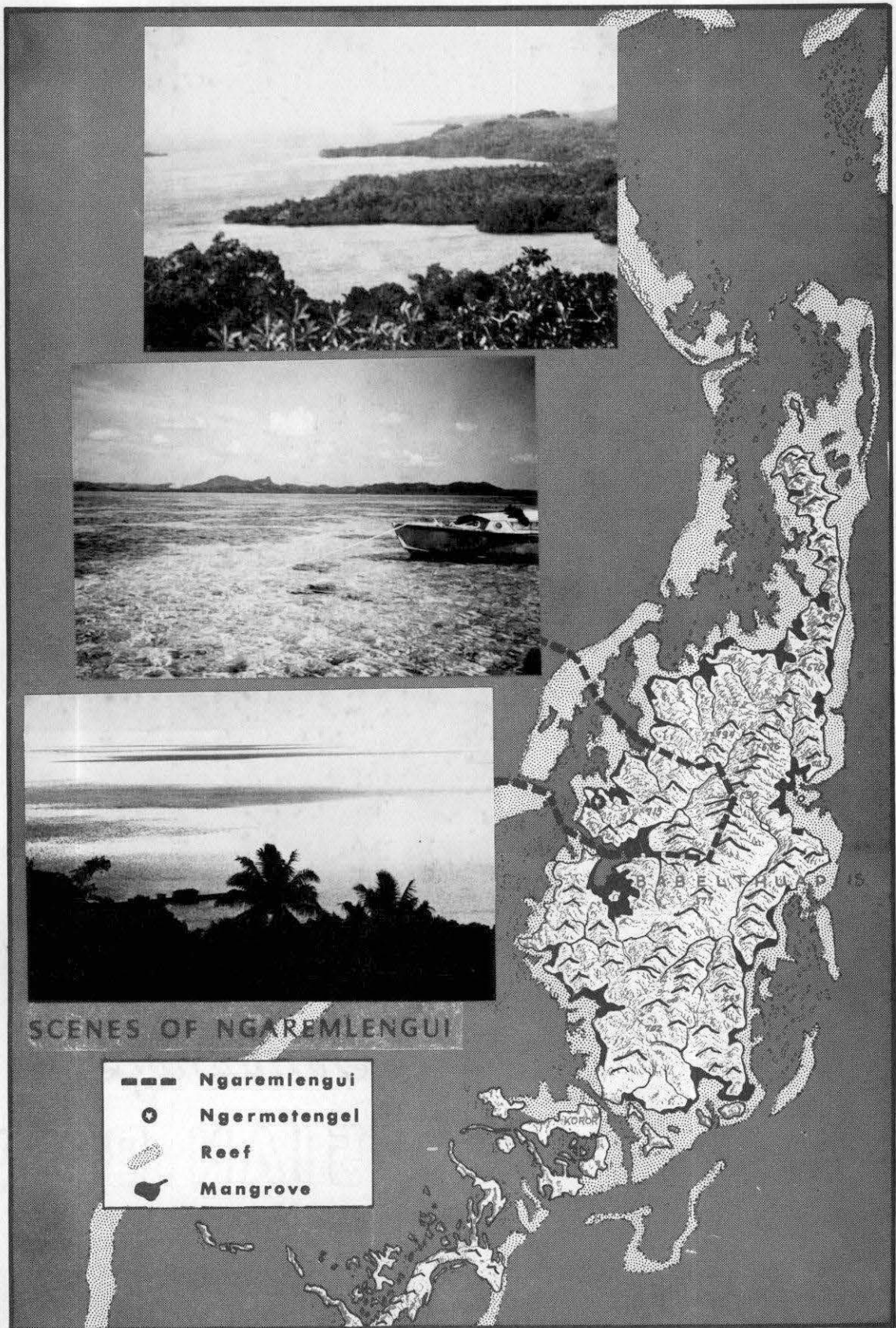
largest island, or in Koror, the district center and only city in Palau.

Ngermetengel village lies on the west-central coast of Babelthuap Island.¹ Babelthuap, approximately 25 miles in length and 10 miles at its widest point, is a typical volcanic island with a maximum elevation of 794 feet in the northwest section. Because of the mangrove swamp that surrounds much of it, the majority of villages on the island have a pier extending through the mangrove so that boats can land and discharge people and/or goods. These docking facilities are used mostly during low tidal phases. Since the majority of villages are also located along a river or stream that extends through the mangrove, high tides allow traffic to penetrate even closer to the actual settlement. This, of course, is the easiest and preferred means of entering or leaving a village settlement on Babelthuap. The interior of the island has a countryside of either grassy hills and flatlands (Ked) or hills and flatlands which are heavily wooded or jungled (Oreomel).

The Palau District is subdivided into sixteen chartered municipalities, ten of which are located on Babelthuap. Ngaremlengui, the municipality in which Ngermetengel is located, lies mid-way along the western coast of Babelthuap and covers the west-central section

¹See Figure 3.

FIGURE 3.



of the island.¹ There are presently three major settlements in Ngaremlengui, all of which are located on its western half.² Imeong is the northernmost village. It is a small, compact village, located on the tidal limit of Almongui River. After walking for a half hour in a southwestward direction, you come to Ngermetengel Village, the westernmost of the three villages of Ngaremlengui. It is located alongside Ometubet River that flows out through the mangrove. If you proceed from Ngermetengel for twenty-five minutes in a southeasterly direction, you will come to Ngermesed Village--the third and last major settlement of Ngaremlengui. Ngermesed is located on the hill that is the north border of the entrance to Karamado Bay.

Topography

General Physical Description. The Chad ra Ngaremlengui (people of Ngaremlengui Municipality) spend most of their lives within an area of eighteen square miles. Their activities are concentrated in the three compact villages identified above, but do extend beyond their home village by way of the sea and roads that vary from ten-twenty foot wide coral-laden paths to narrow dirt trails through the tall grass.

From the air, Ngaremlengui's two major hills are probably the

¹See Figures 2 and 3.

²See Figure 2.

outstanding features of the area.¹ In the east, Mt. Ketteluel reaches a height of 750 feet, thus making it the second highest point in Babelthuap. To the west of Mt. Ketteluel is Rois Mlungui which reaches an elevation of 500 feet. Both of these areas are referred to in Palauan as "rois," meaning high forested hills with rocky outcroppings. From these two high points, the height of the land decreases into a hill and valley terrain with an average elevation of 100-200 feet. Some of the higher ground is completely barren of vegetation, but the majority of the interior is wooded. Parts of the interior are grassy savannah-like country with scattered palms and pandanus (Ked) while some other parts, particularly the valleys, are covered with dense vegetation (Oreomel).

Three major rivers flow through this region: (1) Ngeremeskang; (2) Almongui (Ngaremlengui); and (3) Ometubet River. Ngeremeskang is the longest of the three rivers; it is 9.8 miles long and has a water shed of 9.87 square miles.² Almongui and Ometubet Rivers are considerably shorter. Almongui is in the northern section of Ngaremlengui, servicing the community of Imeong; Ometubet River is in the west, serving the Ngermetengel region. Unlike her two municipal sisters, the village of Ngermesed is not located alongside a river.

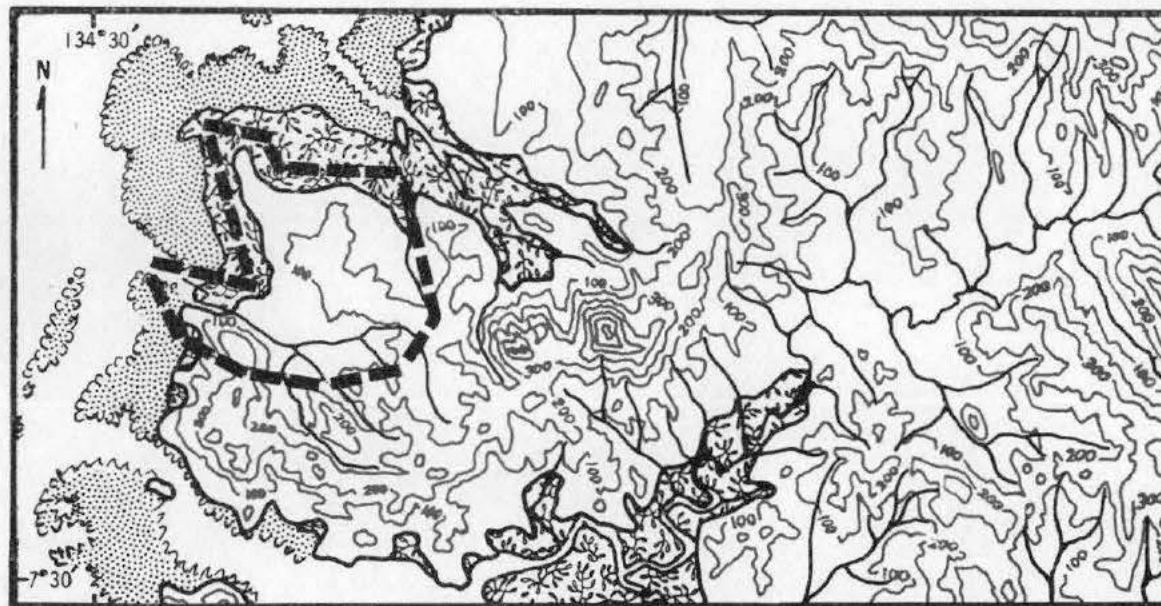
¹See Figure 4.

²General information regarding Palau's geographical setting was taken from U.S. Army, Chief of Engineers and U.S. Geological Survey, Military Geology of Palau Island (Washington, D.C.: Army Department, 1956).

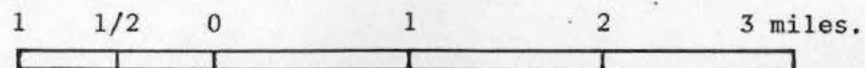
FIGURE 4.

RELIEF: NGAREMLENGUI

— — — Ngermetengel Village



SCALE



Contour Interval: 100 Feet

All three villages, however, are located on the coast; there are no major settlements in the interior of Ngaremlengui.

With the exception of the southeastern section, the entire coastal region of Ngaremlengui is surrounded by mangrove swamps (Keburs). This mangrove, in turn, is surrounded by a fringing reef (Kerker). Beyond this reef lies the lagoon (Dailehei), the barrier reef (Chelmol), and the Philippine Sea.

Geology. Reaching down like a giant fist fitting the northern bank of Almongui River is an area of weathered tuff that extends to a depth of ten feet or more.¹ This is an area of white to red, finely mottled, friable clay derived from the weathering of tuffs that are composed of finely grained, bedded volcanic rocks. This type of geologic condition occurs primarily in northern Ngaremlengui where there is an occurrence of hilly countryside with small, steep-sided valleys.

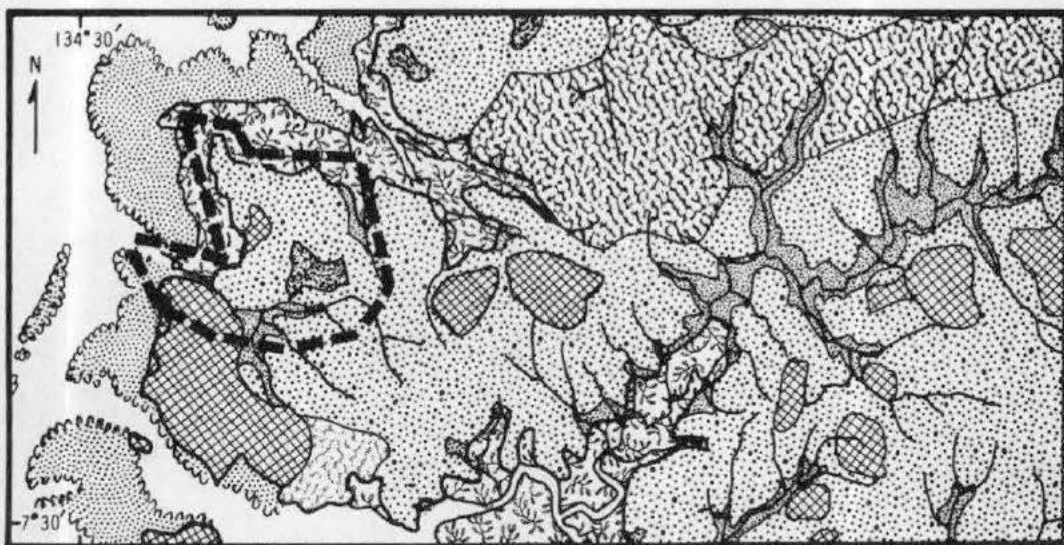
Weathered volcanic breccia underlies more of the area than any other form of geologic material. The breccia is composed of a mantle of reddish-brown laterite over a kaolinitic clay that is brown to red. This material is characteristic of the rounded crest and ridge topography in the hilly uplands of Ngaremlengui.

Surface bauxite deposits are located within the Ngermetengel region, just northeast of the village's major concentration of population. Of all the geologic materials that underlie Ngaremlengui, this

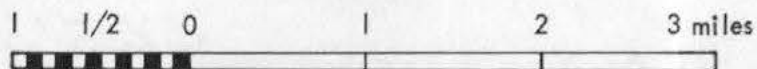
¹See Figure 5.

GEOLOGY: NGAREMLENGUI

■■■■ Ngermetengel Village



SCALE



Legend

REEF ROCK AND RUBBLE	WEATHERED TUFF
MANGROVE SWAMP DEPOSITS	LIGHT-COLORED MOTTLED CLAY
TRAP AND INDURATED VOLCANIC BRECCIA	SURFACE BAUXITE DEPOSITS
WEATHERED VOLCANIC BRECCIA	ALLUVIUM

material has the greatest historical significance. As will be shown later, Ngermetengel's landscape underwent a major transformation as a result of the foreign exploitation of this resource.

As can be seen on the geologic map, Ngermesed village is located on an area of light-colored mottled clay. This is the only area in Ngaremlengui in which this type of material is concentrated. The landforms in this area are principally a result of this underlying formation.

As would be expected, most of the alluvium is in the areas of narrow valley flood plains. Its largest concentration is along the Ngermeskang flood plain. Ometubet River also has beds of alluvium along its tributaries. Concentrations of alluvium in the Imeong area are minimal. The alluvium in Ngaremlengui consists of brown clay, partly silty, intermixed with some sand and weathered gravels. Since these deposits commonly occur in the upper courses of streams or rivers, they are often partially drained swamps which are used for agricultural purposes.

The reef that surrounds the coastal area of Ngaremlengui consists of living coral and coral fragments broken off by storms. The reef rock is used by the villagers as foundations for causeways, piers, docks, and for the surfacing of roads. When processed, it serves as lime to put with their betel chew.

Soils. Since swamp taro is the major staple and favored food of the Palauan, muck soils are probably the most important in

the area.¹ For example, the major location for the planting of *Colocasia esculenta* (True Taro) (Kukau) in Ngermetengel is in the muck soils that line the tributaries of Ometubet River. The muck consists of decomposed organic remains and mineral soils; it is shallow to moderately deep, sticky, and underlaid by silts and clays. The area is kept constantly flooded by the construction of dikes which distribute river water to the region's irrigation ditches. A fresh water swamp, such as this, that is planted with *Colocasia* is called a Mesei in the Palauan language.

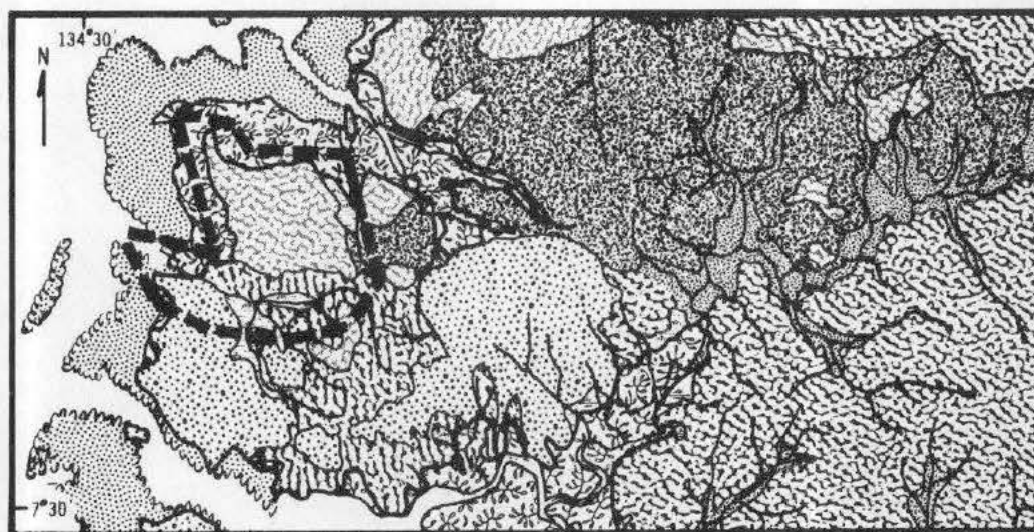
Manihot esculenta (Cassava) (Diokang), the second major agricultural staple, is grown on the well-drained upland soils or latosols. This soil group is subdivided into three associations: (1) the Ngardok association, (2) the Palau association, and (3) the Babelthuap association. The Ngardok association consists of deep, friable, silty clay loam that is located over soft volcanic rocks; the Palau association consists of a similar material over hard volcanic rocks; and the Babelthuap association consists of a deep, friable gravel loam containing bauxite over volcanic rocks. The major area of dry cultivated fields (Sers) in Ngermetengel is located on the latosols of the Palau association.

The only alluvial soils that have not been converted into muck are located in the northeast section of Ngaremlengui. They

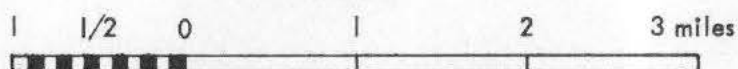
¹See Figure 6.

SOILS: NGAREMLENGUI

— — — Ngermetengel Village



SCALE



Legend

LATOSOLS: WELL DRAINED UPLAND SOILS

Deep, friable, silty clay loam over soft volcanic rocks. (Ngardok association)

Deep, friable, silty clay loam over hard volcanic rocks. (Palau association)

Deep, friable, gravelly loam containing bauxite over volcanic rocks. (Babelthuap association)

WET BOG AND HALF-BOG SOILS OF DEPRESSIONS

ALLUVIAL SOILS

LITHOSOLS ON VOLCANICS

MANGROVE SWAMP

REEF ROCK AND RUBBLE

are composed of deep, slightly plastic, silty clay loam. The villagers of Ngermetengel are not carrying out any major agricultural activities on these alluvial soils. This area, however, was intensively used by the Japanese when they occupied the islands.

In the south-central and southeastern sections of Ngaremlengui are two large areas of lithosols that are located over volcanic rocks. They are generally located on the steeper and more rugged parts of Babelthuap, and, consequently, are not intensively cultivated. There are, however, a few farmers from Ngermetengel who have made small clearings and planted the area to cassava, sweet potatoes, bananas, corn, papayas, limes, green onions, and some other food plants.

The soils of the mangrove swamp are a combination of saturated silt, clay, and much of various depths. This area is constantly exposed to periodic tidal fluctuations that bring in salt or brackish waters.

The Reef and Lagoon. There are two types of reefs outside of the Ngaremlengui area--(1) a barrier reef, and (2) a fringing reef. The barrier reef lies approximately $2\frac{1}{2}$ miles due west of Ngaremlengui. It is a coral structure which is the product of calcareous algae and lime-secreting corals. The barrier reef is a ridge which encloses the lagoon. To the people of Ngermetengel, as will be shown in later chapters, the reef has many functions.

Ngaremlengui's other reef is called a fringing reef, for it is a coral structure that is directly attached to the mainland. Both

reefs have portions that are exposed during the low tide cycle, thus acting as barriers to small boat transportation. Since coral does not thrive in fresh or brackish water, the fringing reef is interrupted at the mouth of the Ometubet River. This interruption in the reef acts as a narrow boat channel and usually contains enough water at low tide to be usable by small craft (12'-14' in length). Large craft, thirty feet or larger, are unable to go up the boat channel even during normal low tides.

Between these two reefs lies Palau's lagoon, a water body forty miles long and eight miles at its widest point. Outside Ngaremlengui the lagoon reaches westerly for approximately $2\frac{1}{2}$ miles. The floor of the lagoon is nearly level except for one deep channel running in a northsouth direction just outside the fringing reef. The maximum depth of the lagoon outside Ngaremlengui and throughout Palau is forty fathoms.

Climate

The climate of Ngermetengel is characterized by high temperatures with little diurnal and annual variation, abundant rainfall with a July maximum, consistently high humidity, a surface wind that has seasonal characteristics, and an occasional typhoon. Hence, the

climate is maritime and tropical.¹

Temperature. As can be seen in Table 1, the annual and diurnal ranges of temperature are hardly observable without sophisticated instruments.

TABLE 1

TEMPERATURE (F), KOROR

J	F	M	A	M	J	J	A	S	O	N	D	Annual
<u>Mean</u>												
80	80	81	82	81	81	80	81	81	81	81	81	81
<u>Mean Daily Maximum</u>												
84	85	86	87	86	86	85	86	86	86	85	85	86
<u>Mean Daily Minimum</u>												
75	75	76	76	76	76	76	76	76	76	76	76	76
<u>Mean Daily Range of Air Temperature</u>												
9.2	9.4	9.4	10.3	9.7	10.3	9.4	9.4	10.1	9.4	9.5	9.2	9.7

The mean temperature is 81 degrees F; the coolest months are January and February and the warmest month is April. Temperature differences within any 24-hour period are less than 10 degrees. Temperatures are most pleasant in Ngermetengel during the early morning and early

¹Information regarding the climate of Palau comes primarily from two sources: (a) United States Army, Chief of Engineers and U.S. Geological Survey, Military Geology of Palau Island (Washington, D.C.: Army Department, 1956) Caroline Islands (Table 2); (b) discussions with Mr. Crawford, national weather service officer, Koror, Western Caroline Islands.

evening. The early evening especially is a period of much social activity in Ngermetengel. The village is relatively cool, the harsh rays of the sun have diminished, the darkness of night is approaching. The early morning is also relatively cool, often necessitating the use of a thin blanket when sleeping.

Precipitation. Although most climatic data for Palau originates from the weather station in Koror, Ngermetengel was also the site for the recording of precipitation values for several years.¹

Ngermetengel receives an annual mean rainfall of 170 inches mostly occurring in short, intense showers in the early morning hours.² Ngermetengel experiences heavy rainfall from May to January, with July as the month of greatest precipitation. The remaining three months, February through April, are referred to as Ngermetengel's "dry season." Although droughts do not occur, rainfall is sometimes diminished enough to cause several of the smaller streams to dry up and consequently cut off the water supply to the reservoirs and plastic pipes that in turn service each house in Ngermetengel. Even within the dry season, the number of successive days of water shortage in Ngermetengel is minimal; it usually only takes three or four days

¹Officials of the Koror weather station maintain that the data they gather does not always represent what occurs on Babelthuap Island. Differences in island size, shape and location seem to play a part in climatic variances.

²See Table 2.

before the reservoirs are replenished and piped water is once again available.

TABLE 2

PRECIPITATION, NGERMETENGEL

J	F	M	A	M	J	J	A	S	O	N	D	Annual
<u>Mean Total Precipitation (In.)</u>												
14.1	8.9	7.6	7.4	15.3	14.9	20.6	14.9	17.5	17.4	13.5	15.6	167.7
<u>Greatest Precipitation (In.)</u>												
31.5	22.4	12.5	13.5	28.3	21.8	33.3	22.7	32.4	32.5	25.2	24.9	209.6
<u>Least Precipitation (In.)</u>												
4.5	2.4	2.4	1.1	9.4	10.4	12.8	5.2	10.8	5.7	4.7	7.4	145.6
<u>Mean Number of Periods of Successive Rainy Days</u>												
(1-2 days)												
1.2	3.6	3.2	3.5	2.4	1.0	1.5	2.8	2.5	1.8	2.0	0.7	26.2
(3-6 days)												
2.2	1.8	1.5	1.2	1.6	1.2	1.7	1.7	1.2	1.0	2.5	1.2	18.8
(7 or More Days)												
1.0	0.4	0.5	1.0	1.0	1.7	1.0	1.0	1.0	1.0	0.7	1.5	11.8
<u>Mean Number of Periods of Successive Rainless Days</u>												
(1-2 days)												
3.8	4.2	3.2	3.5	4.4	2.8	3.5	3.5	3.0	3.5	3.5	2.2	41.1
(3-6 days)												
0.4	1.9	1.9	1.2	0.8	0.8	0.7	1.5	1.3	0.7	1.5	0.8	13.3
(7 or More Days)												
0.2	0	0.2	0.8	0	0	0	0.2	0.3	0.2	0	0	1.9
<u>Mean Number of Days with Rain</u>												
24.5	18.0	17.0	13.7	21.4	23.8	24.5	20.7	23.3	20.7	19.7	25.2	252.2

To the average observer, it appears to rain every day in Ngermetengel. In reality, however, the average number of days per year with measurable rain is approximately 268, the mean being around 252 days. Ngermetengel experiences spells of rainy weather that last for days at a time; nine months out of each year will have at least one period of rain lasting seven or more days.

Humidity. The most uncomfortable aspect of Palau's climate is its relative humidity.¹ An annual mean of 82 per cent is reflective of this area. The humidity is slightly higher during November and December and definitely lower in the months of March and April.

TABLE 3

RELATIVE HUMIDITY (PER CENT), KOROR

Station	J	F	M	A	M	J	J	A	S	O	N	Annual
<u>Mean of 0200, 0600, 1000, 1800, & 2200 Observations</u>												
	81	81	79	80	83	82	83	81	82	82	83	82

The most humid part of the day is just prior to dawn and the lowest relative humidity occurs in the early afternoon around 1400 hours (2:00 P.M.).

Winds. To the Palauan, as will be shown later, the seasonal variation of the surface winds is the most distinctive and important

¹See Table 4.

characteristic of Palau's climate. When asked to describe the climate of the area, a Palauan will almost always begin by describing the annual pattern of the wind that sweeps over the islands.

TABLE 4

SURFACE WINDS, KOROR
(Mean Percentage Frequency by Months)

Month	N	NE	E	SE	S	SW	W	NW	CALM
January	11	44	28	8	2	*	1	2	4
February	9	45	31	7	2	1	1	1	3
March	5	39	40	8	1	*	1	1	5
April	7	32	31	11	4	2	2	2	9
May	6	16	20	16	11	5	5	5	16
June	5	10	15	16	11	6	8	6	23
July	5	6	5	6	15	21	19	8	15
August	3	3	4	8	17	24	20	7	14
September	5	3	3	6	14	22	22	8	17
October	7	6	6	8	13	17	18	9	16
November	9	14	14	12	8	7	10	10	16
December	9	32	23	11	6	3	3	5	8
YEAR	7	21	18	10	9	9	9	5	12

*Less than 1/2 of 1%.

For over six months, from the end of November through May, northeast to east trade winds blow over the islands of Palau. The trade winds bring a season of less rain and lower humidities. In June the wind begins to take on a southerly direction, and from this period to the end of November the islands experience a southwesterly wind that brings in the summer monsoon. This period, from June through three-quarters of November, is referred to as the "rainy season" in Palau.

Typhoons. The average annual wind speed is 7.1 miles per hour. However, when a typhoon such as Typhoon Sally of March 2, 1967 hits the island, the winds reach speeds of 86 mph (75 knots). The following quotation from the Micronesian Monthly is illustrative of what can happen when such a wind hits the islands:

Death and destruction followed the path of Typhoon Sally as she struck Koror on Thursday, March 2. Three were killed, homes were leveled by the 90 miles per hour winds, and all government facilities suffered some damage. Out of 935 homes, only 162 were livable after the typhoon had passed. There was almost total damage to crops, and the water supply was polluted.¹

Although approximately five typhoons per year pass near enough to Palau to affect the precipitation, they reach the islands and do damage only occasionally. Within the last 45 years of meteorological records, only seven or eight typhoons have hit the islands. There is no "typhoon season" as such; typhoons, however, are least common from February through April.

Livelihood

Despite the rapid westernization occurring throughout the villages of Palau, fishing and subsistence agriculture remain the primary means of livelihood. With the exception of extracting certain marine animals off the reefs during low tide, the lagoon area is the habitat of the

¹Sabian, Niki & Luke Tman, "Typhoon Hits Palau," Micronesian Monthly, Dec. 1967 to Feb. 1968, pp. 10-14.

men. Men do the fishing, whether from a bamboo raft, a speedboat, or a 35-foot commercial fishing vessel. It is the men who hunt the turtle, net the fish, or spear the crocodile. It is also the men who clean the fish, butcher the pig, and provide the protein (Odium) for the meal. Although fishing in Ngaremlengui is undertaken for the primary purpose of providing the protein portion of the meal, fishing for commercial purposes is on the increase. Ngermetengel seems to be a pace-setter for the outer islands; it was, for example, the first village on Babelthuap to have both electricity and piped running water to each house. Now, with this interest in commercial fishing, Ngermetengel once again seems to be leading the way. The following clipping from the Trust Territory's Highlights Magazine illustrates how Ngaremlengui (Ngeremlengui), through the efforts of its most progressive village (Ngermetengel), acts as a leader on Babelthuap Island.

The fishing is better these days for the villagers of Ngeremlengui, Palau District, thanks to a Hawaiian-style inshore fishing sampan provided by the Palau Community Action Agency and the Department of Resources and Development Marine Resources Division.

The fishing is so good, in fact, that the fishermen have made the first down payment, \$3,000, toward purchase of an identical sampan of their own. The boat costs \$15,000, and is being constructed at the Palau Shipyard. Thus the TT Government has assisted a group of fishermen to use their skills and know how by providing them with a vessel, and the

Ngaremelengui villagers are beginning to accumulate enough money as a result to pay for a vessel of their own.

Peter T. Wilson, Chief, Marine Resources Division, hopes to duplicate this type of program in other parts of Palau and the TT.¹

In 1972, this boat was paid for and the men were continuing with their commercial venture.

Women also have their place in traditional Palauan society, and that is the taro swamps. Propagation of taro and children are the primary roles of even modern Palauan women. With the exception of a few men who regularly work farms of cassava or an assortment of other food crops, field agriculture is and always has been the work of women. Just as the lagoon is considered the territory of the men, the swamp and the cultivation of taro is considered the women's territorial activity. When asked where they spend most of their time, most women reply, "Ngara Mesei" (In the taro patch). When asked where they spend most of their time in addition to the taro patch, they will more than likely answer, "Ngara Sers" (In the cassava patch). Simply stated, it may be said that the men provide the protein (usually fish), and the women provide the starch (usually taro and/or cassava).

Ngermetengel, as well as throughout Palau, has two forms of livelihood--one that is based on subsistence through traditional

¹"Successful Fish Story," Highlights, Office of the High Commissioner, Trust Territory of the Pacific Islands, January 15, 1971.

reciprocity and mutual aid and another system that is orientated toward the foreigner's method of livelihood. John Useem best sums it up as follows:

Since the onset of acculturation (contact with the west), Palau has developed a dual yet integrated economic order: One segment consists of a subsistence economy using a traditional-oriented, handicraft technology; and the other is a commercial economy with a foreign-oriented, machine made technology. The two sets of patterns are structurally interlinked and functionally interdependent.¹

Professor Useem wrote this in 1949, yet it is just as true today. A further quote from the same work illustrates this inter-connection between the traditional and the newer form of economic life.

A meal may be made up of a mixture of American-canned and South-East derived foods, prepared in Spanish iron pots, placed in Japanese dishes on a table made of Philippine driftwood, eaten with German silverware in a commercial restaurant housed in an American Quonset hut which has been financed by a Japanese credit pattern and is operated by a native clan as a family enterprise, while a Japanese version of an American phonograph plays African derived dance music.²

One can walk through Ngermetengel and see how the daily pattern of living exhibits this combination of the old with the new. Some of the men go fishing on a bamboo raft (prayer), others use their 14-foot

¹John Useem, "Report on Palau," CIMA Study No. 21, (typescript, Navy Department, 1949), p. 16.

²Ibid., p. 17.

fiberglass boat that has a 40 horsepower Johnson motor with an electric starter. The women return from the taro patch in the traditional way, with the basket of taro on their head. Yet, these same women may serve the taro to their husbands with a can of corned beef, tuna, or Spam, rather than with the fish caught from the lagoon. Some of the men commute to the city to work as teachers, contractors, etc., yet return to the village to sit, relax, talk, and chew betel nut. Some of the houses in Ngermetengel are traditionally built, with thatched roofing and split bamboos for flooring; others are copies of houses designed by Americans in the city. These latter houses have tiled floors, paneled walls, and glass-louvered windows with screening. Even some of the newly built outhouses are being decorated with American imported fabricated wood paneling.

It has been said by many who have been familiar with Palau, specifically with western Babelthuap, that Ngaremlengui and particularly the village of Ngermetengel hold two things within their grasp--the "traditional" way as well as the "progressive" way. Although Ngermetengel may be one of the most rapidly advancing outer island villages, it is simultaneously one of the most traditionally based village societies. Ngermetengel, therefore, emerges as a moderately progressive little fishing community, a community that holds dearly to its ancestral customs while at the same time looking for new ways of accomplishing old and familiar tasks. It is within this acculturated framework, along with the historical perspective that follows, that the natural rhythms of Ngermetengel must be viewed.

CHAPTER II

NGERMETENGEL: SEQUENT OCCUPANCE

Introductory Comments

Five district historical periods can be assigned to Micronesia-- (1) The Precontact Era; (2) The Spanish Period (1886-1899); (3) The German Period (1899-1914); (4) The Japanese Period (1914-1944); and (5) The American Period (1944-). Prior to the beginning of Micronesia's colonial history, Palau was a world unto itself. A few outsiders would occasionally drift in their canoes from the Philippines and Indonesia, but they were generally assimilated into the Palau culture--a culture that had had centuries to solidify.

Although Spain had long claimed the islands of Micronesia, actual administration did not begin until 1885. The colonial government set up headquarters in the district of Yap; its effect upon Micronesia was minimal. Aside from introducing Christianity, stopping intertribal warfare, and establishing the alphabet, the Spanish had little effect on villages such as Ngermetengel. When the Germans bought the islands from Spain in 1899, they began a program to increase the islands' economic potential. They, like the Spanish before them however, had little effect upon the small outer-island villages. It was not until the coming of two new colonial masters,

the Japanese and the Americans, that Ngermetengel and the other small villages of Micronesia were affected by foreign rule and exploitation.

World War I came to a close in 1914 and the League of Nations awarded Micronesia as a mandate to Japan. Soon afterward a large-scale program of colonization and exploitation was initiated.

Phosphate and Bauxite were mined; Skipjack tuna and various other forms of marine life were extracted from the sea; pineapple, pearl, perfume, and numerous other industries were established--all products being sent to the homeland. Although the Mandate Agreement specifically prohibited Japan from fortifying her colony in the Pacific, the Japanese secretly built bases from which they supported their attacks on Pearl Harbor, Wake, and Guam that launched the Pacific war.

It was also from an island in Micronesia, Tinian, that the American forces supported raids on Japan. Even while American forces were battling the Japanese to secure the islands, engineers were working to improve the runways so that the fateful atom-bomb raids on Hiroshima and Nagasaki could take place. In 1944, the islands were secure and Micronesia had yet another colonial master. Today, the colonial government is in Saipan under the title of the United States Trust Territory of the Pacific Islands.

Village Relocation and Transition

From its origin in Precontact times to its present-day state, what is referred to as "Ngermetengel Village" has been situated in

three different locations. The following is an account of the origin and relocation of this village as remembered by its present inhabitants.

Ngermetengel #1 (Precontact - 1907). The name of the "first Ngermetengel" is Beluu re Metengel.¹ Hidden under coconut trees and tropical jungle and high above the present village site lies the stone remains of what once was a thriving community.² This previously unrecorded ancient village was observed to have eighteen stone platforms where houses once stood, each platform area having a name that has been passed down from generation to generation.³ Three stone platforms were observed to be larger than the others--two were formerly community men's houses (Bai) and one was a canoe house. Whereas the average house platform was approximately 18 feet by 12 feet, the chief's house was 60 feet by 12 feet and the two meeting houses about 70 feet by 14 feet.

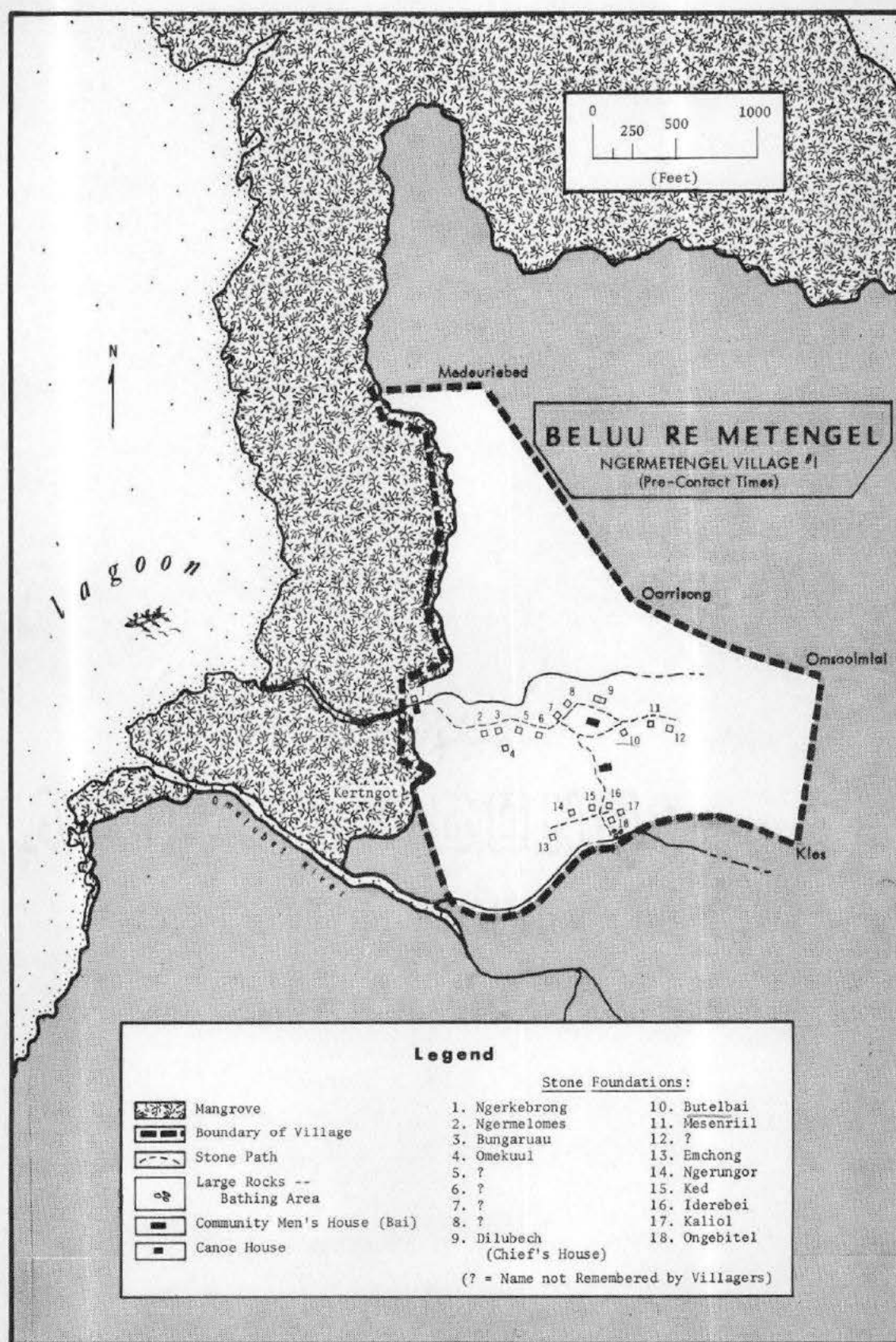
Two streams provide the area with fresh water. One stream flows in front of the canoe platform (41 ft. x 25 ft.) and through the mangrove, thus providing the ancient villagers with a passage

¹See Figure 7.

²When present day villagers in Ngermetengel think back upon their ancestral home, they refer to the area as Beluu re Metengel. Ancestral villagers, however, referred to their homesite as "Ngermetengel."

³See Figure 8.

FIGURE 7.



out to the lagoon.¹ The other stream runs in front of an area of large stones (3 ft. x 5 ft. and under). Informants explained that this was the bathing area. Paths made of stone taken out of the two stream beds connected the various establishments within the village. The original boundaries of the village were set by the chief of Ngaremlengui who resided in Imeong. Only two crops were grown at this time, both of them taro. *Colocasia esculenta* (True Taro) (Kukau) was grown in wet swamps outside the village boundary, as was *cryptosperma chamissonis* (Giant Taro) (Brak). Since the Germans had not yet come, cassava was not grown.

Although the exact population is not known, various informants insisted that approximately 30 persons lived within each house, thus giving the village an estimated population of 540 people.² Most of these people came from Ngercheu, one of the rock islands near Koror. Overpopulation and consequent food shortages resulted in the migration of these people to Babelthuap. The community was located on high ground for strategic purposes. This was a time when Palauans participated in wars between various municipalities; ancient Ngermetengel has a history of battles with Melekeok municipality.

¹See Figure 9.

²Although 30 persons per house seems a bit high considering the average size of the house, it must be remembered that in traditional Palauan culture, the men slept within the Bai at night. Rarely, if ever, would all thirty people be inside the house at the same time.



FIGURE 8. Stone remnants of a house foundation in Beluu re Metengel. [No. 4 (Ometuul) on Figure 7]



FIGURE 9. Northernmost stream that flows through Beluu re Metengel. Madelutk stands in the center of the stream adjacent to the canoe house. See Figure 7.

Battles were not fought for land or boundary disputes, but rather for "heads." Bringing back an enemy's head to one's own camp was a prestigious act.

Two of the original structures remained at the site in 1906, the house called Ngerkebrong and the canoe shed. Today the village site is abandoned; only the stone platforms and roads remain. Since the dead were buried under the house platforms, cemeteries are not present. There is one old house that stands on the remnants of one of the Bai, but this house was built during the early American Period and it too has been abandoned.

Ngermetengel #2 (1907-1944). By 1907 the ancient village of Beluu re Metengel had been completely abandoned for a more desirable spot closer to the taro patches. Spain had now ruled Micronesia for a short period (1886-1899), but Ngermetengel had not been affected by the activity of the Spanish as the Spanish did not interfere with local affairs. Palau was passed to the Germans as the result of a treaty. Ngermetengel again remained relatively unaffected by the Germans, despite their interest in the area's economic expansion. Only monthly meetings with German officials in the district center would distract the villagers from their daily activities. One or two days before every full moon, the Rubacs (village elders) would get in their canoes and paddle to the center of German administration, Koror.

During the years of 1908-1910, Dr. Augustin Kramer, the

German scientist, conducted an extensive study of the Palau Islands. One of the maps that he produced was of Ngermetengel which is reproduced on the following page with a few corrections and additions.¹ Since Kramer's map showed only the main road, houses, and Bai, it was necessary to fill in the remaining roads, rivers, the cultivated areas, and the boundaries of the village.

By 1910 the village boundaries had been extended south and southwest to include the areas that were previously under cultivation. These areas are generally located in the same place as they are today. At this time in Ngermetengel's history, there were nine houses, three Bai, and one canoe house.² There were three main entrances to the village: one through the mangrove and up the Ometubet River; a second on the path from Imeong; and a third via the path from Ngermesed village.

Whereas the present villagers of Ngermetengel could only remember the house names of Ngermetengel #1, the villagers were able to recall the family-names as well as the house-names for Ngermetengel #2. Only two crops were grown during this period--True Taro and Giant Taro. True Taro was planted along the tributaries of the

¹Augustin Kramer, Palau, Vol. III of Ergebnisse der Sudsee-expedition 1908-1910, ed. by G. Thilenius (Hamburg: L. Friederichson and Co., 1914-1938), p. 149.

²See Figures 11 and 12.

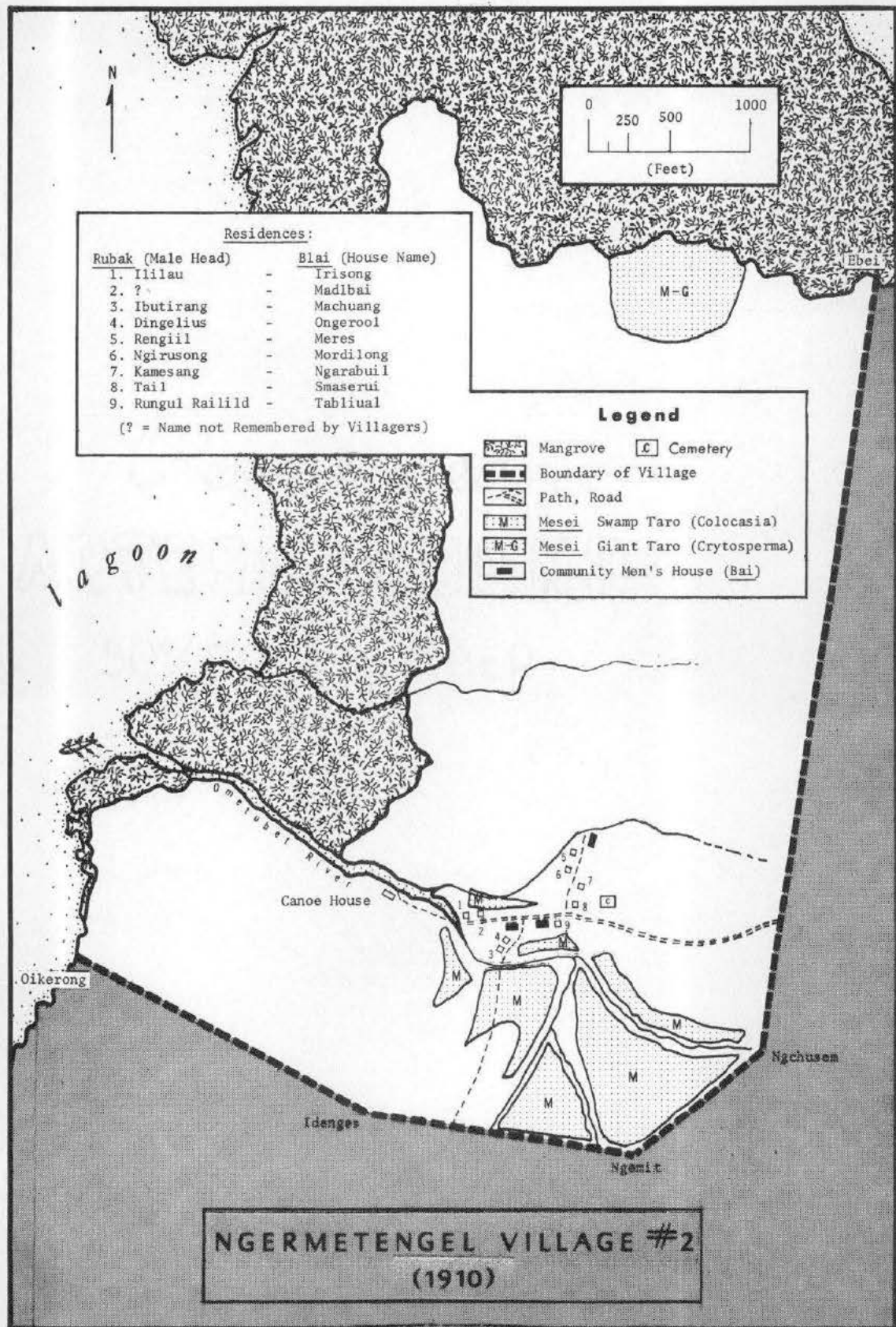




FIGURE 11. Stone remnants [No. 6 (Ngirusong) on Figure 10] of a house foundation built during the German period of administration.



FIGURE 12. Stone platform of a community men's house built during German times. Madelutk recently built his house and cooking shed on the above structure.

Ometubet River and a lone Giant Taro plantation existed in northern Ngermetengel.

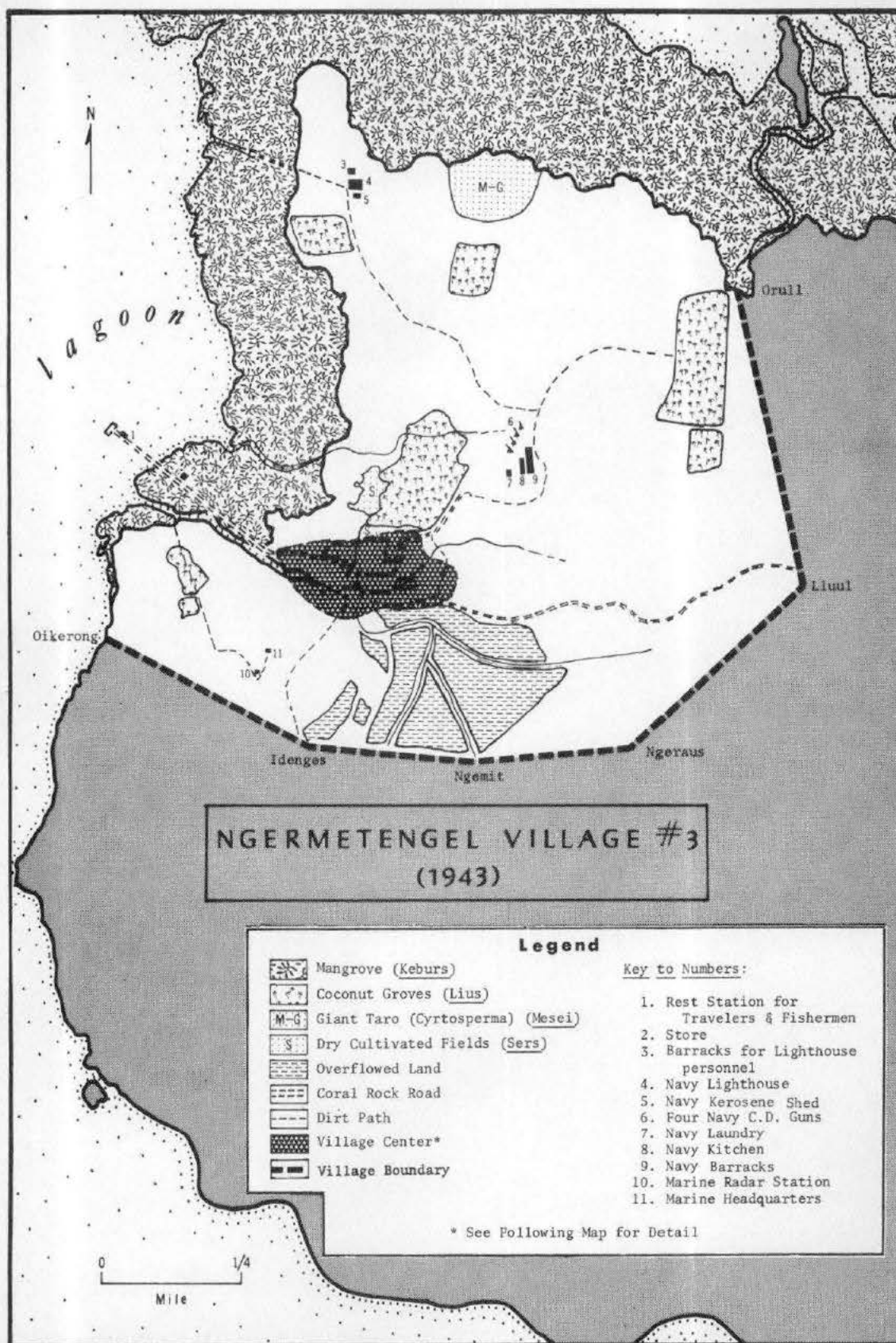
At the close of World War I the islands on Micronesia came into the hands of the Japanese. From this period on, Micronesian communities such as Ngermetengel took on a different appearance. The following two maps illustrate the changes that occurred in Ngermetengel during this span of time.

The Japanese began their administration of the islands with an emphasis on improving island conditions and facilities. To accomplish their task, new roads had to be built, docks constructed, houses and storage facilities erected, and agricultural production increased.¹ It was a Japanese civilian construction team that constructed the main road and dock of present-day Ngermetengel. In 1943 such items on the landscape as a drydock facility, recreational clubhouse, and police station were indications that the Japanese civilian government exerted direct, on-the-spot control within Ngermetengel.

The military fortification of Ngermetengel began in the mid-1930's. Cannons for coastal defense were mounted within concrete on the hillsides; housing for soldiers constructed; trenches, caves, and machine gun sites dug into the area; and a large concrete light-

¹The sudden appearance of a number of coconut groves in Ngermetengel's landscape can be ascribed to a Japanese bonus of approximately \$60.00 for each 100 coconut trees planted by Palauans.

FIGURE 13.



house was built in the northern section of Ngermetengel.¹ The northeast section of Ngermetengel was assigned to the Japanese Navy. Roads and grounds of the military were off-limits to Palauans. Approximately thirty Navy personnel manned this northeast fortification. The southeast section of Ngermetengel was the center of Japanese Marine operations. Ten Marines operated a radar station within the vicinity.

While the military prepared for the possibility of war, a civilian Japanese bauxite company came to Ngermetengel and employed approximately 250-300 Palauans, Yapese, Koreans, and Okinawans.² There were five trucks connected with the operation, a fact significant only because Ngermetengel now lacks trucks and automobiles. The net result of the bauxite operation was in land reclaimed by filling in the mangrove with bauxite waste. As will be shown later, this is the area which became the center of present-day Ngermetengel (Ngermetengel #3, 1972). A direct translation from an account by one of the villagers of present-day Ngermetengel interestingly sums up this period of Ngermetengel's history:³

¹See Figures 15 and 16.

²Four present-day Ngermetengel householders (Ngirchongor, Madelutk, Techechur, and Tachuo) worked for the bauxite company.

³The following quotation reads exactly as it was stated by the informant. The purpose is to give the reader the flavor of direct translation.

INDEX TO MAP
Ngermetengel Village No. 3 (1943)

Public Facilities

1. Rest station for boat travelers	9. Store	18. Canoe shed
2. Store	10. Barracks for employees	19. Explosive shed
3. Stacked Bauxite ready for shipment to Japan	11. Garage	20. Gate and watchtower
4. Police dry dock (Gov't)	12. Barracks for employees	21. Police station (Gov't)
5. Bauxite processing machines	13. Bauxite inspectors house	22. Community men's house (<i>Bai</i>)
6. Waste from Bauxite process – land refill	14. Metal shop	23. Marine Headquarters
7. Shower for Bauxite workers	15. Club house (Gov't)	24. Marine Radar Station
8. Supply house	16. Store	25. Private Road (Navy)
	17. Store	C Cemetery

Residences

<i>Rubak</i> (Male Head)	<i>Blai</i> (House Name)
A. Otuu	Tutkau
B. Fritz	Merur
C. Yamazaki	Ked
D. Ngchui	Irisong
E. Derbirt	Ongelwatl
F. Ngiraklang	Ngais
G. Ngirngkoi	Subed
H. Remasech	Maderas
I. Madelutk	Baibeluu
J. Olkeriil	Tabliual
K. Tachuo	Tabelblai
L. Ngirusong	Mordilong
M. Kamasang	Ngarabuil
N. Techechur	Smaserui
O. Fumio	Iechol

Figure 14 – Index

FIGURE 14.

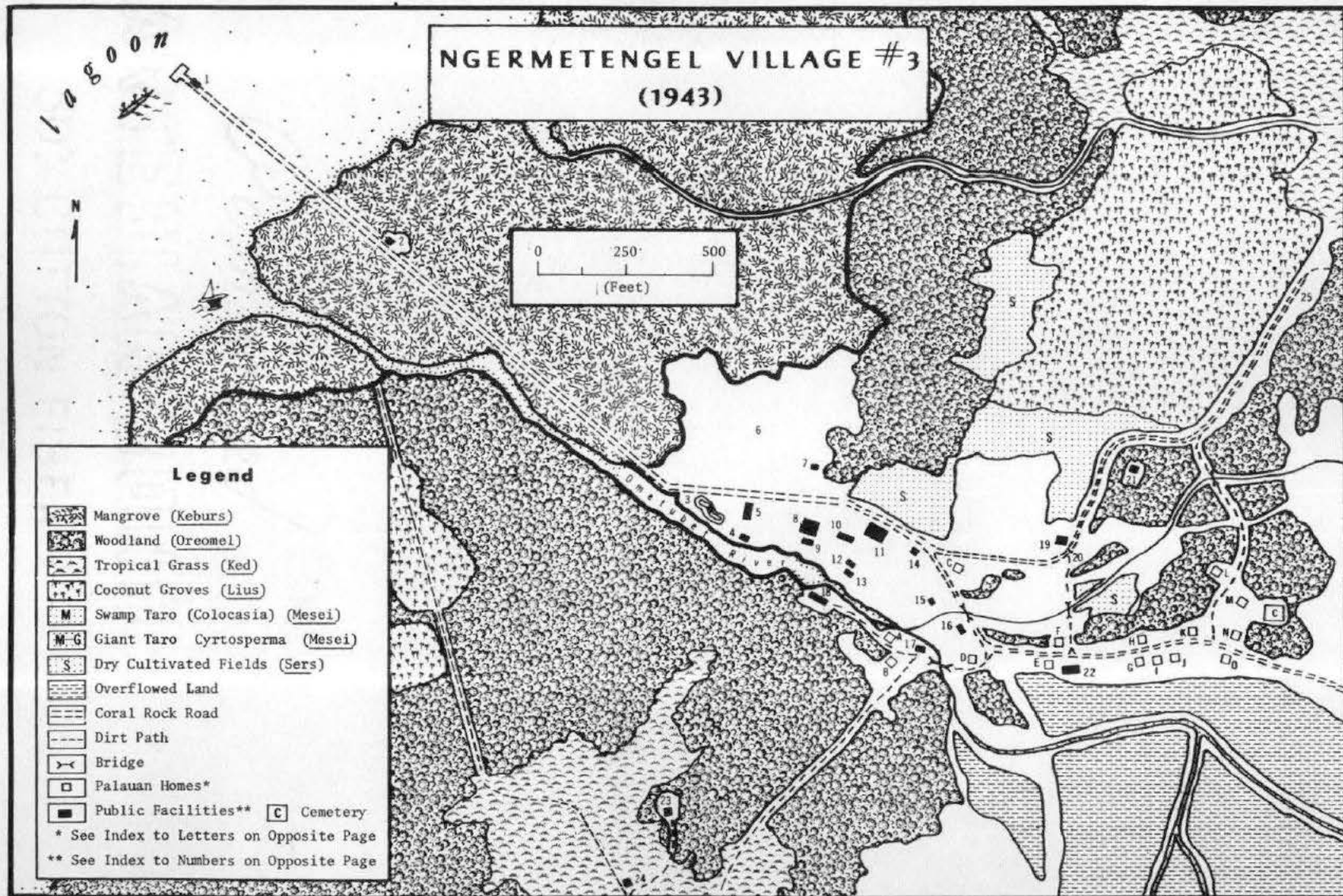




FIGURE 15.

Bullet-riddled Japanese
Lighthouse.

FIGURE 16.

One of several Japanese
cannons used to fortify
the island.



Before the mangrove swamps were filled in, we lived further inland. Some Japanese civilians came to Ngermetengel for the purpose of mining bauxite. The actual mining of bauxite was done by pick and shovel; there were no digging machines. Water hoses were used to wash the dirt from the bauxite. The bauxite was then taken down to the area by the present Bai, put on rails, and manpower provided the energy to drive the bauxite into sampans (open wooden boats). From there an engine boat would pull four or five of these wooden raft-like boats filled with bauxite to the area in front of the red buoy outside the dock. At this area, a big ship waited to pick up the bauxite and take it to Japan.

The bauxite miners would wash the bauxite with water, and the muddy water would pass out through the mangrove swamps to the reef, thus making the water muddy at the reef entrance and making it difficult for Japanese warships to enter through the channel. The Navy scolded the civilian bauxite workers and ordered them to leave Ngermetengel. In late 1943, the bauxite operation was shifted to Ngardmau.

We used to farm for the Japanese soldiers. At first we were proud to work for the soldiers because they fed us with ideas of how great Japan was and how they were going to win the war. The Japanese told us lies about the Americans, about how cruel they were. One such story was that if you were ever confronted by an American, he would string your legs between two wild stallions and let the animal rip your legs out of their sockets. In the beginning, therefore, we were not forced to work; we were tricked into believing the glory of Japan and the evil of America.

When the war began, most of the civilians went back to Japan. The soldiers stayed. In the beginning, the Japanese Government in Koror paid a small salary to the working Palauans, but after the war began, the army took control and forced the Palauans to work without pay. Whenever the Japanese needed manpower, they just issued the order. We obeyed.

Palauans were also trained as soldiers. In Imeong, there was a camp set up for the purpose of training Palauans to fight the Americans. They were trained in shooting rifles, using bayonets, and using bombs. "Tokitie" was the name for the Palauan infantryman. The same camp also trained Palauans to be kamikazes--soldiers that floated

on a bamboo raft with a bomb in their arms up to American ships, thus making the ultimate sacrifice for the glory of Japan. Although this camp was established and Palauans were trained as soldiers, the war was over before these men were ever used.

There was a Japanese-American spy that saved the lives of the Palauans. Near the end of the war, Morikawa discovered that the Japanese Generals were planning to kill all the Palauans to save the food supply. Morikawa landed one night at Malakal Harbor in Koror wearing a Japanese loin cloth and headband. He reported to the Generals in Koror that his ship had been attacked by Americans and that he was a sole survivor. He heard the Generals plan about killing all the Palauans for the sake of saving the food supply. At that point, Morikawa told the Generals of a plan he had to raise more food by insisting that every able-bodied man, woman, and child work on a farm to provide food for the soldiers. After six months when there was enough food, then they could kill all the Palauans.

Meanwhile, Morikawa got word back to the Americans and told them to attack Palau within 3 months in order to save the lives of the Palauans. In 3 months, American warships could be sighted within the reef.¹

Ngermetengel #3 (1944-). On September 15, 1944, Admiral Nimitz' marines landed on Peleliu Island. Three days later, the other islands of Palau were invaded by American combat forces. On October 2, 1944, Americans across the country were opening their Life Magazines to see full-page news-release photographs of the invasion procedures, some for the first time seeing the islands of Palau. Shortly after the invasion, the Pacific War came to a close and Palau entered a new era in its history.

¹The story of 'Morikawa' may or may not be true. It is, however, a story that is told over and over again throughout the entire Palau area--a story that reflects the Palauan's remembrances of year's past.

It has now been almost three decades since the establishment of the American administration. Memories of past administrations are beginning to dim, although the Japanese period, naturally, remains clearest in the minds of Palauan. Some Palauans fared well by this period; others did not. When Ngermetengel villagers were asked to express their views about the two administrations, a common reply was that "The Japanese were often harsh and cruel, but they got things accomplished--they constructed docks, roads, buildings and plantations; Americans, on the other hand, are nice and friendly, but they accomplish little."

The Population. In 1946 the U.S. Commercial Company made an economic survey of Micronesia, and Dr. John Useem was assigned to study and report upon Palau, Yap, and some other islands of the Western Carolines. Professor Useem conducted a census of the District of Ngaremlengui in July of 1946. At that time, Ngaremlengui contained 4 villages with a combined population of 266 persons in 62 households.

According to a census that was taken in 1967, Ngaremlengui contained 3 villages having a total population of 425 people; the number of households had decreased to 55.¹ The total population

¹The old boundary of Ngaremlengui used to include a village within Ngatpang Municipality. Hence, when Ngatpang and Ngaremlengui became two separate municipalities, Ngaremlengui lost a village as well as a number of households.

of Palau at that time was 11,574. Of that total, 218 persons called themselves "Chad ra Ngermetengel" (people of Ngermetengel).¹

Ngermetengel village at the present has an average total year-round population of 210 persons--a figure slightly lower than the one arrived at for 1967. During the summer vacation months of June through September, Ngermetengel's children who live away from the village while attending high school or college return to their homesite and consequently increase the population to a high of 228 persons.

There are 39 privately owned houses within the village, 5 of which were vacant at the time of the census-taking.² There are 42 nuclear families within the village, thus giving each occupied house an average of 1.23 families. During those months when school is in session, the average number of persons per occupied household is 5.64. During the summer vacation months when the village is more populated, there is an average of 6.70 persons per occupied household.

The Form of the Community. The actual population of Ngermetengel is clustered in the vicinity of Ometubet River.³ Although the total

¹See Table 5.

²Vacant houses are a result of some Palauans having two houses --one in which they no longer reside. In other cases, the owner is living in the city or in another village and only periodically returns to check his land and property.

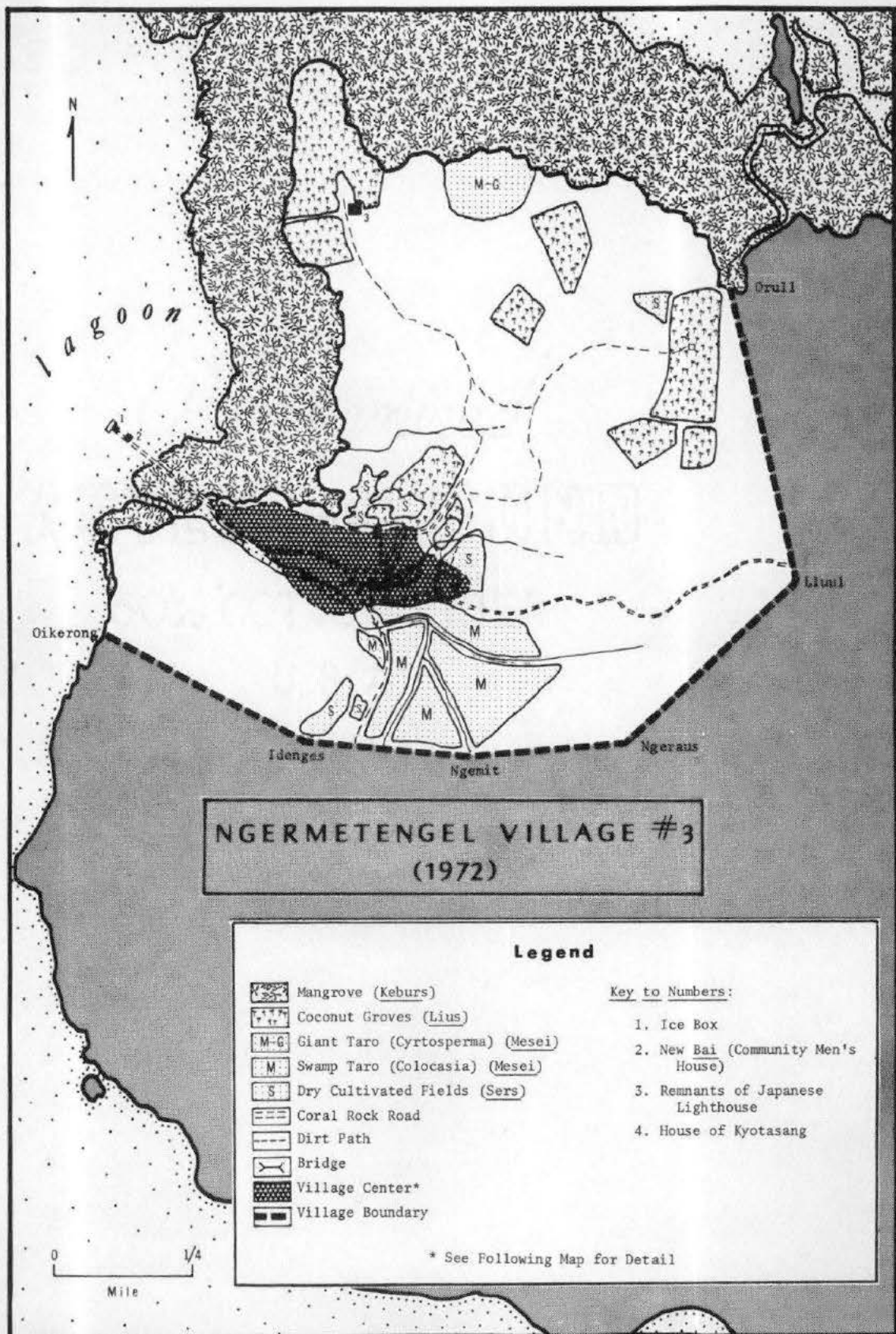
³See Figure 17.

TABLE 5

STATISTICS - NGERMETENGEL VILLAGE
1967-1972

	1967	1969	1972
Total number of houses	34	34	39
Total number of occupied houses	31	31	34
Total number of vacant houses	3	3	5
Total number of nuclear families	37	41	42
Ave. number of children/family	1.19	1.30	1.23
Total children	178	180	191
Ave. number of children/family	4.81	4.39	4.54
Ave. number of children/occupied house	5.74	5.80	5.62
Total number of relatives living with the householder	6	10	16
No. of houses having relatives	5	7	9
Total number of residential children (children living within the house year-round)	143	148	120
Ave. no. of residential children/family	3.86	3.60	2.85
Ave. no. of residential children/occupied house	4.61	4.77	3.53
Occupied house having NO children	1	1	1
Total no. of summer children (children returning from school to live back home for vacation)	20	19	35
No. of occupied houses having summer children	15	13	23
Of these houses, Ave. no. of children/house	1.40	1.46	1.52
*Total family residential (those living in house-year round)	208	218	192
Ave. family residential/occupied house	6.70	7.03	5.64
Ave. family residential/family	5.62	5.31	4.57
*Total family summer (Total no. living within the house June-Sept.)	288	237	228
Ave. family summer/occupied house	7.29	7.64	6.70
*Ave. year round population of Ngermetengel Village	218	228	210

FIGURE 17.



area of Ngermetengel village takes up a third of Ngaremlengui Municipality, in 1967 there was only one old villager who lived on his plantation away from the rest of the group.¹ Today, however, he has built a house in the village center. Plantations, however, still exist in the outer portions of the area. One villager occasionally goes to his coconut plantation that is located around the historic bullet riddled Japanese lighthouse. While away from his house in the village cluster, this villager lives within the remains of the lighthouse structure. Another villager has a field of Giant Taro which he occasionally visits. Some of the villagers have plantations that demand more attention, and consequently they must visit and/or remain in these areas for longer periods of time. Such is the case with Kyotosang's plantation which is located in the northeast section of Ngermetengel. Kyotosang's Sers includes such crops as pineapple, sugar cane, cassava, green onions, and papaya.

Whereas during the Japanese period the major concentration of Palauan homes was further inland along the road to Imeong, the village center is now in the area that once was the site for bauxite operations.² Only four Palauans (Remasech, Techechur, Olkeriil,

¹Not all land is privately owned; some belong in the category of "Clan" and "Public Domain." For an excellent review of the Palauan land tenure system see: Kaneshiro, Shigeru, "Land Tenure in the Palau Islands," Land Tenure Patterns, TTPI, edited by deYoung, Saipan: Trust Territory of the Pacific Islands, 1958.

²See Figure 18.

INDEX TO MAP
Ngermetengel Village No. 3 (1972)

Public Facilities

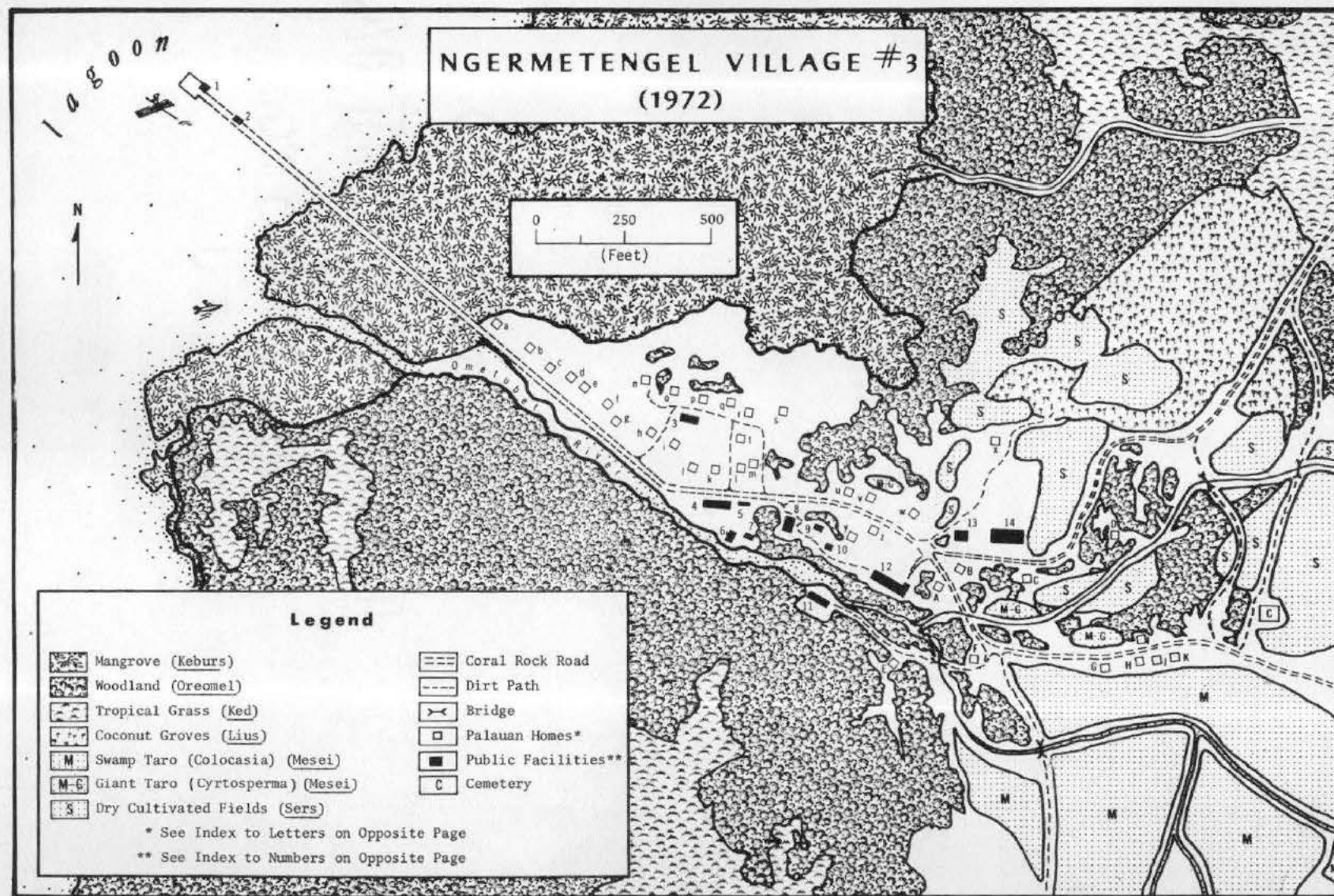
- | | | |
|---|-----------------------------|-------------------------|
| 1. Ice Box | 5. Dispensary | 10. Water tank |
| 2. New <i>Bai</i> (Men's Community House) | 6. Workshop | 11. Sawmill |
| 3. Protestant church | 7. Generator shed | 12. Old school building |
| 4. Men's community house (<i>bai</i>) | 8. Contract teacher's house | 13. School kitchen |
| | 9. Head start classroom | 14. New school building |

Residences

(Capital Letters)		(Lower Case Letters)	
<i>Rubak</i> (Male Head)	<i>Blai</i> (House Name)	<i>Rubak</i> (Male Head)	<i>Blai</i> (House Name)
A. Rebelkuul	Demei	a. Idesmang	Rekaol
B. Yamazaki	Ked	b. Moded	Kuabang
C. Imaderang	Kamerir	c. Ngirchongor	Omis
D. Mellemat	Irriu	d. Ngirngotel	---
E. Fritz	Merur	e. Markub	---
F. Ngchui	Irisong	f. Iramek	---
G. Techechur	Subed	g. Louch	---
H. Madelutk	Dilubech	h. Ongidobel	---
I. Remasech	Madras	i. Lorence	---
J. Olkeriil	Tabliual	j. Renguul	---
K. Fumio	Iechol	k. Maidesil	---
		l. Malsol (new house). . .	Ngais
		m. Malsol (old house) . .	Ngais
		n. Kingya	---
		o. Tadaos	---
		p. Ngiltii	---
		q. Ongos	---
		r. Dudiu	---
		s. Recheked	---
		t. Sekang	---
		u. Imengel	Kertngot
		v. Smaserui	---
		w. Diradilubech	---
		x. Ngiraikelau	---
		y. Emio	---
		z. Tashiro	---

Figure 18 – Index

FIGURE 18.



and Fumio) still maintain their original homesites. The Bai (men's community house) has also shifted to a position closer to the lagoon.

After the Japanese had moved the bauxite operations to a site further north on Babelthuap, land was available for the taking. Not only was the land available where the major processing took place but also in the area where the bauxite wastes were discarded. In other words, the net result of the bauxite waste was land-refill. The reclaimed area created flat land that was void of clan-title, was close to a still usable dock and coral-laden road, and was close to a river that allowed access to the lagoon through the mangroves. It was these amenities that primarily attracted a number of Palauans from Imeong and Ngermesed to take up residence in Ngermetengel.

A further obvious change between the 1943 and 1972 map of Ngermetengel is the number and distribution of dry cultivated areas (Sers) and the appearance of fresh water swamps planted with either True Taro or Giant Taro. With the increase of Palauans in this area also came an increase in the number of agricultural sites. With the exception of three small areas devoted to the propagation of Giant Taro, all major agricultural sites north of the road to Imeong are dry-cultivated areas, the major crop being cassava. Since the tributaries of the Ometubet River came together south of the road to Imeong, it can be expected that the major areas of True Taro

cultivation would be located in this vicinity, an area easily kept swampy through the creation of irrigation ditches leading from the river's tributaries.¹

The Houseyard. The houseyard in Ngermetengel consists of outhouses, pig pens, shower stalls, clothes-line areas, multi-purpose tables, cooking sheds and additional areas and facilities for food preparation.² All these items are arranged in a small, compact unit approximately 50 feet on a side. If the house is located on the main road directly across from the river, the houseyard will often extend across the road to the outhouse which is located on stilts over the river. In front of the main house will be a small grassy area, shaded with stunted coconut palms intermixed with red and yellow Hibiscus flowers and an assortment of other types of plants, shrubs, and trees. To the side of the main house is a cooking shed known in Palauan as the "*Um.*" This is a major area of daytime activity within the houseyard. The cooking shed is usually built of corrugated iron sheets over a mangrove frame. The structure is always built 1½ to 2½ feet off the ground.

The pig pen and refuse heap are found behind the main house. Most houses have at least one pig housed in a wooden pen; some

¹The cultivation of True Taro was not permitted during the Japanese period; hence, the reason for the absence of taro swamps on the 1942 map of Ngermetengel.

²See Figures 19, 20, 21, and 22.



FIGURE 19.

The Cooking Shed.

FIGURE 20.

An Outhouse over Ometubet River.



houses have two and all make a snorting rumble which fills the houseyard. The other animals run loose. No houseyard would be complete without the continual calling of the rooster, the hen that walks her young chicks, and the half-hungry dog that waits outside the cooking shed for a scrap of discarded food.

With the increase dependence on imported canned foods also came an increased in size and nature of the refuse heap. In traditional times, there was little waste in the relationship between man, plants, and animals. The man went fishing and brought back the protein that was necessary for his family's existence. The woman went to the taro patch and brought back the starchy portion of the meal. Any waste was consumed by one of the various animals within the houseyard. Today, however, the half-opened rusted tin can is the number one item found in the refuse area, a symbol that progress has reached these islands within the Pacific. In some cases, the refuse heap is a shallow pit a short distance away from the house. In other cases, the refuse heap is merely the tossing distance from the door of the cooking shed. On occasion, small open pits can even be found underneath the main house.

Besides the pig pen and refuse heap, the backyard also contains the shower area and outhouse.¹ The shower area is simply

¹Outhouses located on stilts over the river seem to be going out of fashion; many are deteriorated to the point where they are no longer usable. When new outhouses are constructed, they are usually built behind the house.



FIGURE 21. Multi-purpose outdoor tables.



FIGURE 22. Cooking areas and facilities in addition to the cooking shed.

a three-sided structure, made of corrugated iron sheets over mangrove poles. The structure sometimes, but not always, has a couple of sheets of corrugated iron nailed on top to act as a roof. Inside, the shower area is merely a plastic pipe that brings stream water to the area and a floor that is either made of plywood or corrugated iron sheets. The shower area has two purposes, bathing and washing clothes. The outhouse is a four-sided structure built over a deep open pit. Although there has been an attempt for several years to introduce the water-seal toilet into the area, few Palauans appreciate or construct this simple device for sanitizing a standard outhouse. A few of the new outhouses being built, however, have water-seal toilets as well as concrete flooring.

The vegetation that lies within and encloses the houseyard is of a variety of types. Although each houseyard seems to have some type of separation from its neighbor, the use of fences, hedges, etc., is not apparent; most divisions are a combination of wild and planted vegetation. These divisions are not complete in any sense of the word. Vegetation within the houseyard can range from coconut, betel-nut, or nipa palms to various types of flowering shrubs and bushes, to small green patches of unirrigated taro and sugar cane.

The House. The Ngermetengel dwelling ranges thirteen by sixteen feet to twenty-eight by thirty-three feet. All are one story

and built off the ground.¹

The smaller houses are representative of older Palauan structures. They are built of mangrove wood, bamboo, coconut leaves, corrugated iron, and nails. The mangrove wood is used for the pilings and the frame of the structure, the bamboo for the flooring, the corrugated iron for the walls and sometimes the roof, and the coconut leaves for the roof thatching. Although some twine is used to hold the frame together, iron nails are more common. Material possessions are indiscriminately laid around the interior wall; the center of the single room is bare. The favorite sitting places are against the interior walls, beside either an open door or window, thus allowing the spitting outside of betel-nut juice. Bedding of pandanus mats, and imported pillows and blankets are brought down from the rafters and unrolled in the center of the room. During typhoons the smaller, less sturdy houses are vulnerable to high winds.

Most larger houses have been built within the last 5-10 years. The foundation pillars are built of concrete or cemented concrete blocks. The exterior walls of the house are made of new pieces of corrugated iron and are painted in strips of yellow and blue. Whereas the older and smaller houses usually have windows covered by wooden sheets that rise and fall, the larger homes have sliding windows with panelled glass. The most recently built homes, moreover, have glass-louvered windows.

¹See Figures 23, 24, 25 and 26.

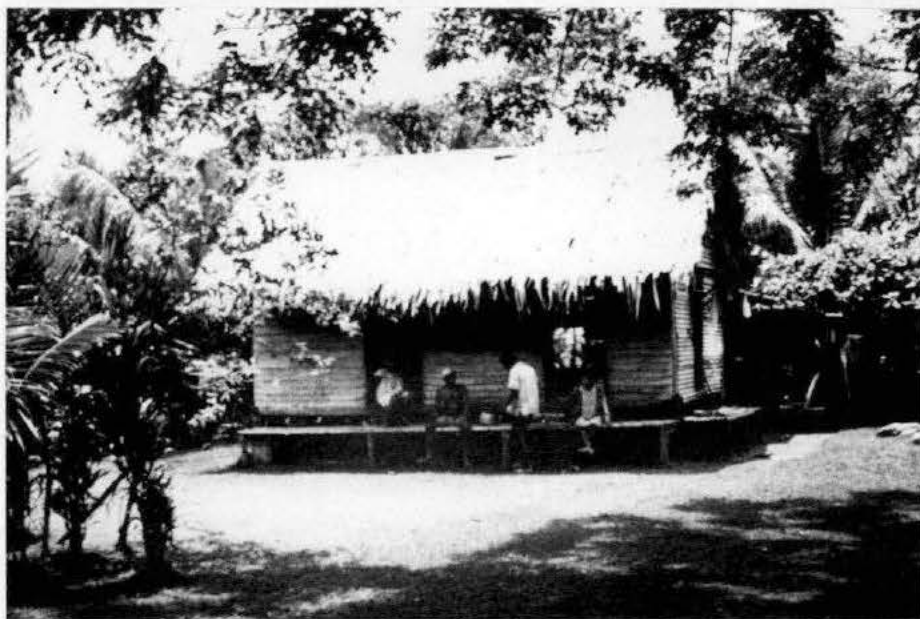


FIGURE 23. Markub's house (Letter 'e' on Figure 18) illustrates the smaller house built of mangrove wood, bamboo, milled lumber, and thatch.



FIGURE 24. Renguul's house (Letter 'j' on Figure 18) illustrates the smaller house built on milled lumber, bamboo, and corrugated iron.



FIGURE 25. Maidesil's house (Letter 'k' on Figure 18) illustrates the larger house built of milled lumber, brick pilings, corrugated iron, and embellished with sliding glass windows.



FIGURE 26. Mellemat's house (Letter 'D' on Figure 18) illustrates the larger house built of concrete pilings, milled lumber, and corrugated iron. This house has such luxuries as louvered windows, linoleum floors and fabricated wood panel interior walls.

The frame of the larger houses is constructed of cut lumber, either milled in the district center and brought up to the village by boat or milled in Ngermetengel's sawmill. Mangrove wood is not used for any part of the larger and newer variety of Palauan houses. The roof of the newer house is constructed solely of corrugated iron and remains unpainted. Only two Palauan homes within Ngermetengel have concrete walls.

The newer homes are partitioned and contain an occasional chair or table. The second high chief of Ngermetengel probably lives in the most western-style house in the village. He drinks his Maxwell House coffee and smokes his Winston cigarette while sitting at a formica-topped kitchenette table which itself sits on the shiny red linoleum floor of his concrete house. A small refrigerator keeps his Coca-Cola cold and an electric fan keeps his face cool. Screened glass-louvered windows keep the insects away.

Public Facilities & Related Activities. Ngermetengel has a number of buildings and facilities which might be classified as being public or community property. The small three-sided corrugated iron and mangrove wood structure at the end of the dock houses an old ice box that the village fishermen use to keep their fish in before transporting them to market in Koror. Since this storage container requires large blocks of ice, ice must be acquired from the city by another party prior to the return of the fishermen.

Approximately 100 feet inland from this icebox is a larger

community structure (twenty-five by sixteen feet) which is also constructed of mangrove wood and corrugated iron. This building sits partially on the coral dock and partially over the lagoon, braced by long mangrove pilings. Although the building is referred to as the "Bai ra Ptululang" (the community men's house on the dock), it has a number of functions. Primarily, the building acts as a resting area for men during the day, usually men that have gone fishing during the night and wish to recuperate at the dock. The Bai at the dock also acts as a depot for villagers to get out of the tropical sun while waiting for a boat to take them to the city or to another village or municipality. A further use of this Bai is as a recreation center at night for the youth of Ngermetengel. With a record player, a pile of old Elvis Presley and country-and-western records, a few guitars or ukuleles, and a basket of food, Ngermetengel's teenagers will talk, eat, chew betel-nut, sing, dance, and generally roughhouse until dawn.

On walking inland from the dock, the road continues southeasterly until it bends in a more easterly direction. Shortly after this bend in the road, one arrives at the major community center (Bai) for the village. Aside from the two school classroom buildings, this Bai is the largest structure within the village. It is constructed of a variety of milled lumber including the beautiful iron wood (Intsia bijuga). There is only one partition at the far end of the building which houses the municipal office. The remaining

and larger portion of the Bai is used for various social, economic, political, and recreational activities.¹

Next to the Bai is the village dispensary. Although no doctor ever resides here, a Palauan nurse from Koror will periodically come and live within the structure. One nurse will stay for approximately 2-3 months and then will be replaced by another nurse in residence for a similar period of time. The dispensary is a concrete structure. Numerous partitions separate the nurse's living quarters from the receiving area, the out-patient clinic, and the in-patient clinic.

Ngermetengel has a Protestant Church which is located in the midst of a number of private houses on the other side of the road from the Bai. The church is actually a large house that has been converted into a church. The minister and his family live in the back-room; Sunday service is conducted in the front-room. During Sunday service, the minister stands behind a large flat table, which is modestly adorned with a few flowers, while his audience sits cross-legged on the floor listening to him read the Scriptures. Modekne, Palau's indigenous religion, is the most followed of the types of religion that can be found in Ngermetengel. Modekne services are held within one of the private houses of the village.

¹For a comprehensive look at Palauan social interaction, see H.G. Barnett's Palauan Society, (Eugene, Oregon: University of Oregon Press, 1964).

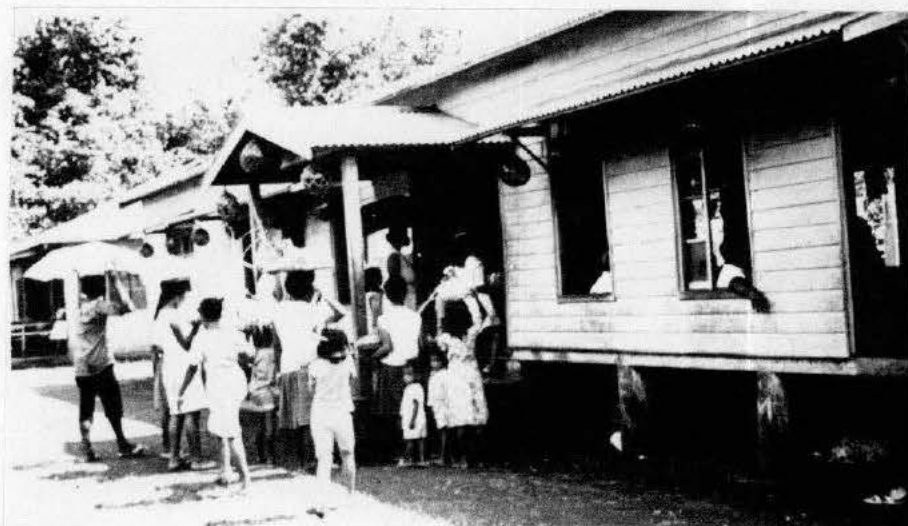


FIGURE 27. The major community center (Bai) for the village.



FIGURE 28. Ngaremlengui Elementary School facilities and grounds.

Those members of the community who claim to be either Catholic or Seventh Day Adventists will usually hold their services and/or meetings in the Bai.

Behind the Bai is a shed that houses the village generator. Every night between 6:00 and 6:30 one of the villagers turns on the generator that illuminates the hanging bare bulb within each house in Ngermetengel. At 12:00 Midnight, the same villager returns to the shed and shuts down the generator for the night.

Ngaremlengui Elementary School has two major classroom buildings. Both structures are larger than any other public building in Ngermetengel. In the 1967-68 school year, Ngaremlengui Elementary School had a total of 148 students. Of this total, 61 per cent came from Ngermetengel village, 21 per cent came from Ngermesed, and 18 per cent came from the village of Imeong. Grades run from one through eight. A Head-Start Program for pre-school children functions in a small hut that is part of the school complex. What once was a contract teacher's house for visiting American teachers has now been turned into a classroom. One other structure, the school kitchen, is located next to the concrete school. The kitchen has one or two cooks who dish up a meal of fish and rice or fish soup for the students of Ngaremlengui. Much of the cost of the meals is carried by the Trust Territory Government; the remainder is provided by the PTA (Parent-Teachers Association). There are presently eight teachers running the school, all with high school

diplomas. Despite the fact that the school is supposed to run on a regular schedule (8:00 A.M. to 11:30 A.M. and 12:30 P.M. to 2:30 P.M.), a general rule of thumb is that the heavier the rains, the fewer hours of school.

Another public facility is the sawmill which is located on the other side of Ometubet river. Under the leadership of one particular individual, eight or nine regular villagers operate the sawmill when there is a need or desire for lumber. Sometimes the sawmill is operated commercially, the lumber produced being sold to the boat yard in the city. Other times the sawmill is operated for a villager who wishes to have some lumber to build a house or boat. Since it is more expensive to have the sawmill workers provide the trees to be cut, the villager who wishes lumber will usually cut the trees off his own land and bring them up the river to the sawmill. The blade of the saw is powered by a large diesel engine; the lifting and maneuvering of the trees is done by hand.

The last major public facility is the cemetery, which is located on the rim of the village cluster. Like most cemeteries, it is rarely visited except on the death of a friend or relative.

CHAPTER III

NGERMETENGEL: SYSEM OF TIME-RECKONING

Among a people who once practiced synchronized village raids, who arranged love trysts, and who wished to keep track of animal and meteorological events, there was a ready use for recording the passage of time. The position of the sun in the sky, the locations of rising and setting of moon and stars, tidal or wind variations, and a host of other cyclic events provide many time-markers equivalent in function to the clock and calendar.

--Robert K. McKnight - 1961

In order to explain Ngermetengel's seasonal landscape, it is necessary to record the community's unique interpretation of terrestrial nature and the cosmos by means of a system of time reckoning. This chapter records and explains Ngermetengel's traditional clock and calendar. Accepting Nilsson's units of classification, time phenomena have been divided into two main groups: (1) the phenomena of the heavens--the sun, moon, stars, and (2) the phases of nature--variations in climate, plant and animal life.¹

I. The Phenomena of the Heavens

¹M.P. Nilsson, Primitive Time Reckoning, (Oxford: Oxford University Press, 1920), p.2. Owing to its close association with the moon, I have included my discussion of tide cycles under the classification: the phenomena of the heavens.

A. The Sun

The traditional Palauan day begins when the first rays of sunlight break over the eastern horizon.¹ From this point to the time when the ball of the sun can be clearly seen is referred to as Ngoscha Sils (sunrise). The second period of the Palauan day begins when the sun is roughly at a 45 degree angle in the sky, thus splitting the span of time between sunrise and noon.² This short period is referred to as Osbedelar Ngos. The third period of the day is when the "sun rests on one's head" (Ungiia Techelel a Sils). A general term for the entire period from the end of sunrise to the beginning of the noon hour is referred to as Odechosing.

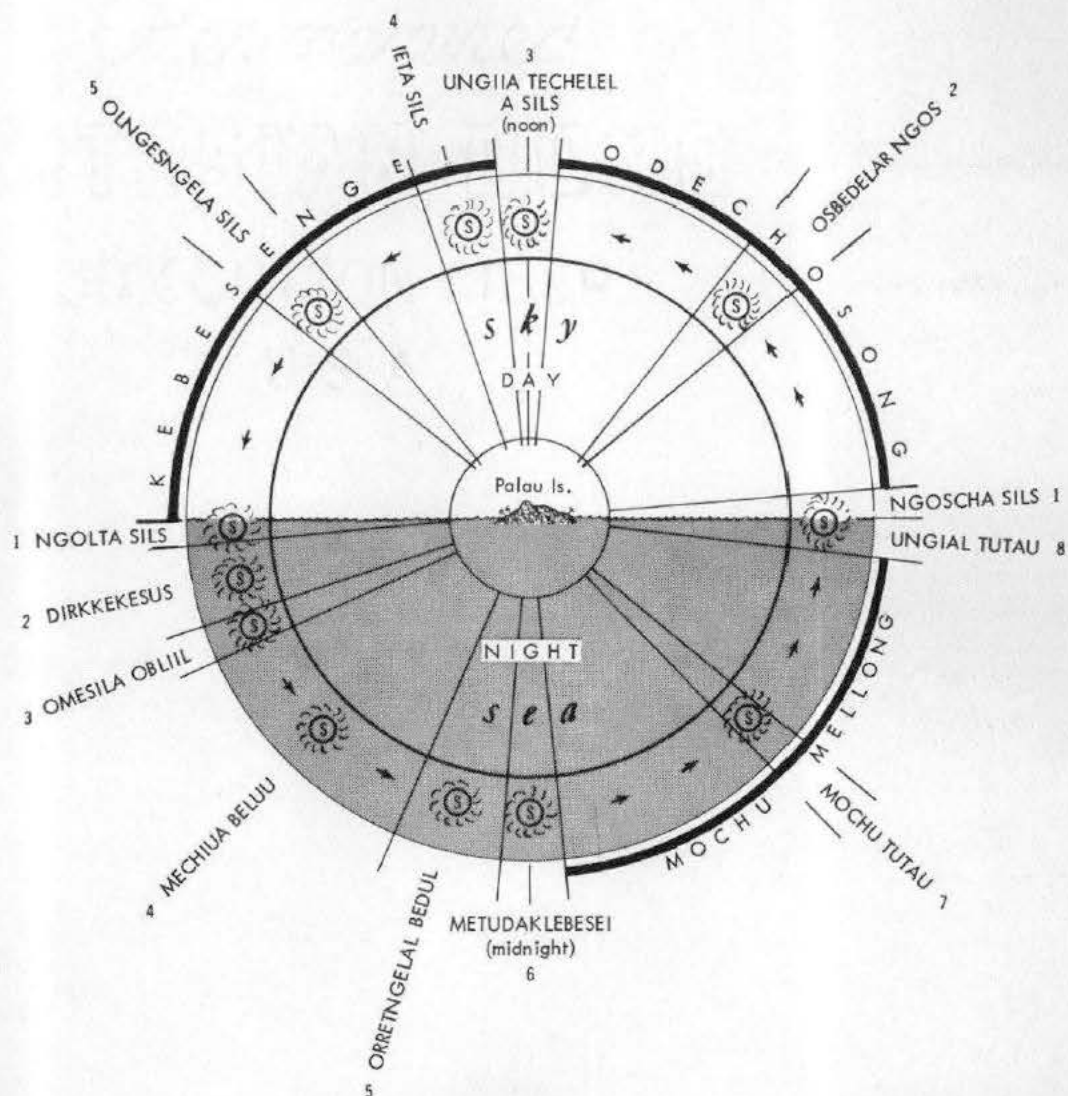
About an hour after the noon hour, there is a short period which is referred to as Leta Sils, the fourth period of the day. After the sun reaches approximately forty-five degrees from its highest point in the sky, you are in the fifth and final period of the day, called Olngesngela Sils. A general term for the entire time span from the end of the noon hour to the time when the sun begins to set is referred to as Kebesengei.

As with many non-western societies, the night is considered as a separate entity from the day. Tal Sils (one day) does not

¹See Figure 29.

²Since the Palauans had no instruments to measure the height of the sun, these heights were mere approximations.

THE TRADITIONAL PALAUAN DAY



TAL SILS (one day) -- From the Beginning of the First Light to the Time when the Sun has gone below the Horizon

encompass both the period of sunlight and darkness (24 hours), but merely the period from the beginning of the first light to the time when the sun has gone below the western horizon.

In precontact times, it was believed that Palau was the only land mass in the world. Hence, when the sun went below the horizon, it was believed that it had sunk beneath the sea, would travel underwater to the other side of the island, and would then emerge from the sea at sunrise. The period from the sun's first sinking into the sea to its emergence on the other side of Babelthuap is the traditional Palauan night.

This phase of the cycle, the Palauan night, is divided up into eight periods. Ngolta Sils refers to the beginning of sunset to when it is completely dark. The second phase is referred to as Dirkkekesus, that part of the night from the end of sunset to when the villagers begin to eat their evening meal. Omesila Obiliil is the period when most people within the village are eating their evening meal. The next and fourth period is called Mechiua Belluu, when most people within the village are asleep. Orretngeal Bedul, the fifth period, roughly translates into "the period of the night when everybody could be hit on the head and they still wouldn't wake up." Medtudaklebesei, the sixth period, translates nicely into "the middle of the night."

Mochu Tutau, the seventh period of the night, is the middle hour between midnight and sunrise. When the sky is beginning to

lighten but the ball of the sun still cannot be seen, this is the period known in olden days as Ungial Tutau, the eighth and final division of the night. A general term for the entire time span from the midnight hour to the beginning of Ungial Tutau is referred to as Mochu Mellong. As Ungial Tutau ends with the onset of sunrise (Ngoscha Sils), the night has ended, and the cycle is complete.

B. The Moon

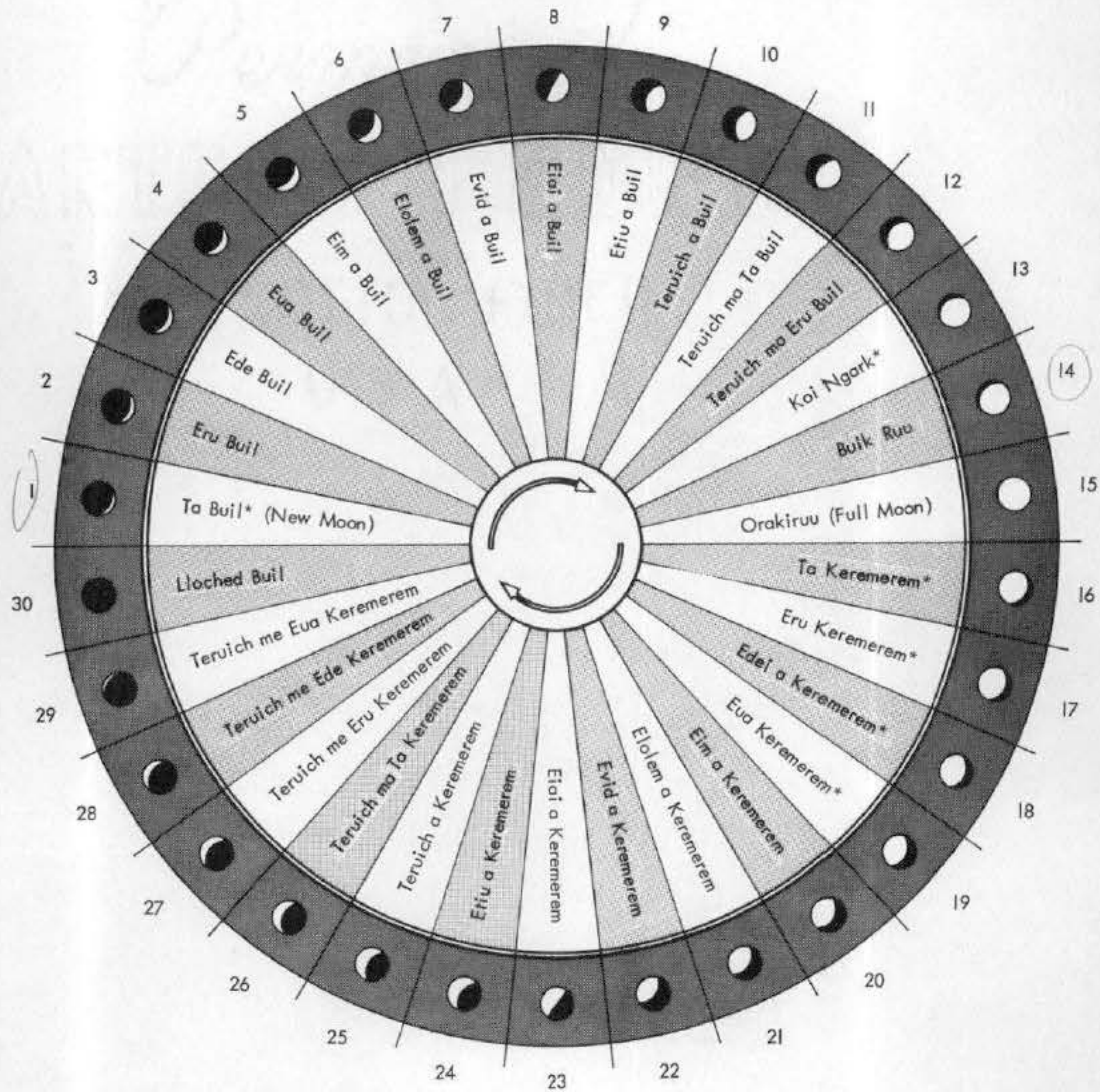
The Month (Tal Buil). Whereas the traditional Palauan day is considered in suns (Sils), months or their equivalent are considered in darknesses (Klebesei), fifteen evenings from new moon to full moon, fifteen evenings from full moon back to new moon.¹ The total number of darknesses necessary for a month is called Okedei el Klebesei (thirty darknesses).²

The Palauan month begins when the rim or crescent of the new moon first appears in the west. This darkness is known to the Palauan as Ta Buil or Tara Rengikel. Both names represent the first phase or first moon of the new month. Fifteen darknesses after the appearance of the new moon, the Palauan islands experience the phase of the moon called Orakiruu (full moon). Beginning with the

¹See Figure 30.

²There is little concern in traditional Palauan society that the "Synodic Month," the period from one new moon to another, is only 29½ days, not thirty. Nor are they concerned that the "Sidereal Month," the moon's revolutions in relation to a fixed star, is only 27-1/3 days.

THE PHASES OF THE PALAUAN MOON



*Other Names for Particular Phases of the Moon

- # 1 - Tara Rengikel
- # 13 - Teruch ma Eua Buil
- # 16 - Uam a Daob (or) Tlukal
- # 17 - Erul Domekal
- # 18 - Omekiil el Klengoes
- # 19 - Ongebitel Lulengall

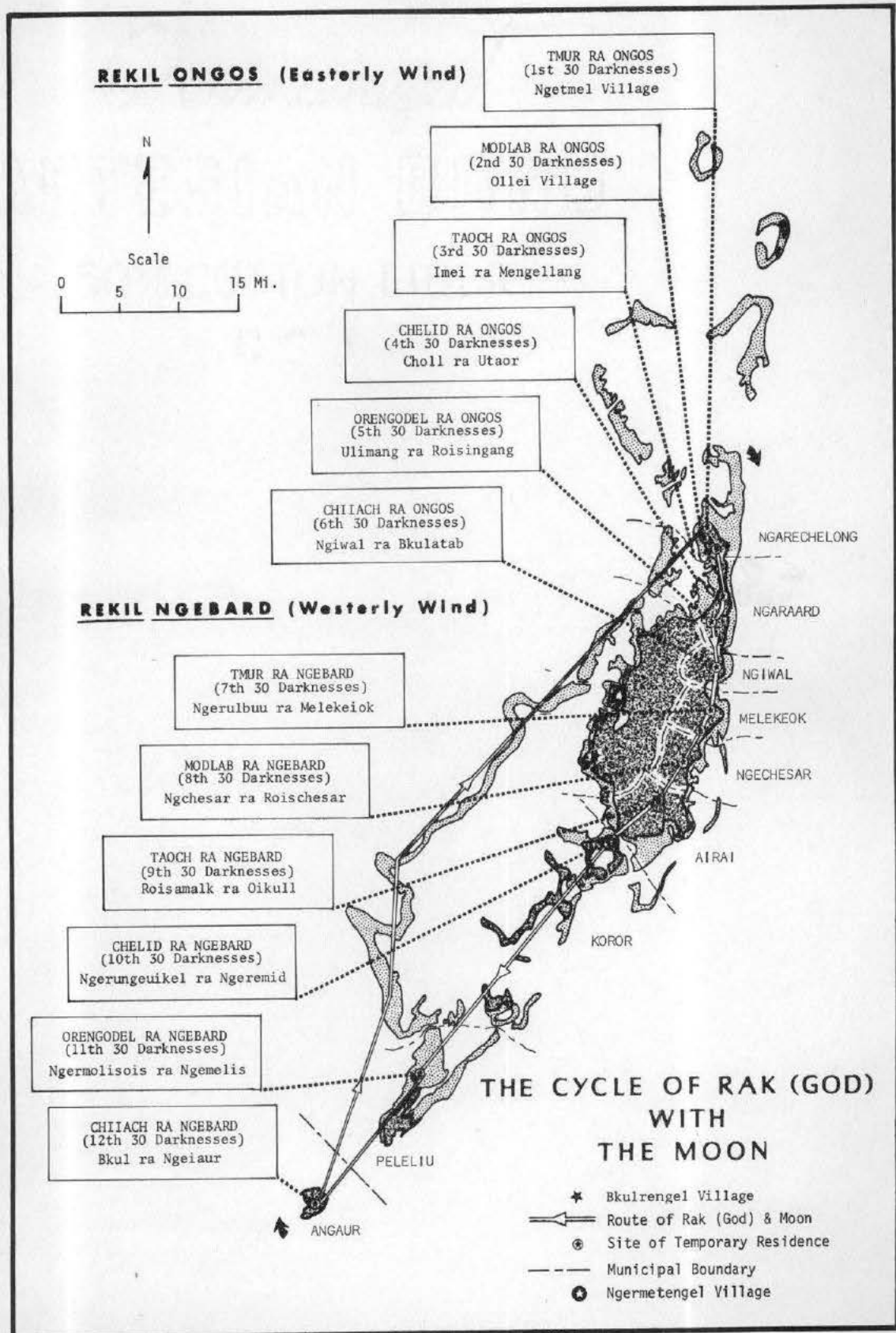
sixteenth (16th) darkness, the moon begins to become smaller. Since the Palauan word that expresses this shrinking of the moon is Keremerem, Ta Keremerem refers to the first phase in which the moon appears to become smaller, this period, of course, being the sixteenth (16th) darkness of the Palauan month. Lloched Buil is the Palauan term for the 30th and final phase of the moon as it orbits planet earth, that phase in which the moon appears to be totally dark. With the new moon (Ta Buil) appearing in the next darkness, the Palauans are launched into a new cycle.

The Year (Tal Rak). The traditional Palauan year is made up of twelve (12) lunar months, each month consisting of thirty darknesses.¹ These twelve months are divided in half: half belonging to Rekil Ongos (the period of easterly winds) and the other half belonging to Rekil Ngebard (the period of westerly winds).

In traditional Palauan thinking, the moon was made by Chief Iechadrenge who lived in Bkulrenge, a village on the western coast of Babelthuap Island.² Rak, one of many legendary Palauan gods, then took the moon from Chief Iechadrenge and went to Ngetmel village in Ngarechelong Municipality. With the exception of two rest stops, Rak carries the moon to twelve different villages in Palau; Rak will

¹It would seem, then, that there were 360 darknesses in the Palauan year. This is not necessarily so because the early Palauans never counted darknesses beyond the thirty that made up the month.

²See Figure 31.



live with the moon in each village for a period of thirty darknesses-- twelve periods of thirty darknesses equaling one year (Tal Rak) in the Palauan calendar. The route of Rak with the moon is the essence and foundation of the Palauan Calendar.

The Palauan year begins when Rak carries the moon to Ngetmel village in Ngerechelong Municipality, the northernmost municipality on Babelthuap. Rak will remain with the moon in Ngetmel for thirty darknesses after placing the moon in the house called Iromel. These first thirty evenings are referred to as TMUR RA ONGOS.¹ Then Rak carries the moon to Ollei village and proceeds to place the moon on the hill called Ngerulek. This second phase of the Palauan calendar is called MODLAB RA ONGOS. With the exception of a rest stop in Ulimang village in Ngaraard Municipality, Rak and the moon will slowly move down the eastern coast of Babelthuap until they complete the sixth (6th) phase of the year, CHIIACH RA ONGOS.²

Once the wind shifts direction, from an easterly (Rekil Ongos) to a westerly direction (Rekil Ngebard), Rak and the moon begin their second phase of the lunar cycle. Rak first stops at a village in Melekeok Municipality known as Ngerulbuu ra Melekeok. Rak places the moon on a hill called Ngerulbuu. This period of the year is referred to as the TMUR RA NGEbard--the first thirty darknesses of

¹See Table 6.

²It is not known how long Rak stayed in each resting place; it is suspected that he remained in these locations for only a few hours at the most.

TABLE 7

TRADITIONAL LUNAR CALENDAR

Wind Direction	Period of Year	Name of Period of Year	Location of the <u>Rak</u> (God)	Location of the Moon
REKIL ONGOS (Easterly Wind)	1st - 30 days	Tmur ra Ongos	Rak a Ngara Ngetmel (God is in Ngetmel Village)	Tmur a Ngara Blai ra Iromel (The Moon is in the House called Iromel)
"	2nd - 30 days	Modlab ra Ongos	Rak a Ngara Ollei (God is in Ollei Village)	Modlab a Ngara Ked ra Ngerulekelakel (The Moon is on the Hill called Ngerulek)
"	3rd - 30 days	Taoch ra Ongos	Rak a Ngara Mengellong (God is in Mengellang Village)	Taoch a Ngara Blai ra Imei (The Moon is in the House called Imei)
"	4th - 30 days	Chelid ra Ongos	Rak a Ngara Choll (God is in Choll Village)	Elid a Ngara Utaor (The Moon is on the Hill called Utaor)
		E Mera Ngerulemuong ra Elab. E Solae (He came to Ngerulemuong ra Elab and now) Rak mo Cholengull ra Techikebai e Mekiiis (God is resting in the house called Techikebai in Ulimong Village)		
"	5th - 30 days	Orengodel ra Ongos	Rak a Ngara Ulimong ra Roisingang. (God is on the mountain called Roisingang in Ulimang Village)	Orengodel a Ngara Ked ra Roisingang (The Moon is also on the same hill.)
"	6th - 30 days	Chiiach ra Ongos	Rak a Ngara Ngiwal (God is in Ngiwal)	Chiiach a Ngara Bkulatab (The Moon is at the place called Bkulatab)
REKIL NGEbard (Westerly Wind)	7th - 30 days	Tmur ra Ngebard	Rak a Ngara Melekeiok (God is in Melekeiok)	Tmur a Ngara Ngerulbuu (The Moon is on the hill called Ngerulbuu)
"	8th - 30 days	Modlab ra Ngebard	Rak a Ngara Ngchesar (God is in Ngchesar)	Modlab a Ngara Roischesar (The Moon is on the Hill called Roischesar)
"	9th - 30 days	Taoch ra Ngebard	Rak a Ngara Ngeduais (God is in Ngeduais)	Taoch a Ngara Ielech ra Airai (The Moon is on the Hill called Ielech in Airai)

TABLE 7--Continued

Wind Direction	Period of Year	Name of Period of Year	Location of the <u>Rak</u> (God)	Location of the Moon
REKIL NGEWARD (Westerly Wind)	10th - 30 days	Chelid ra Ngebard	<u>Rak</u> a Ngara Ngermid (God is in Ngermid)	<u>Elid</u> a Ngara Ngerungewikel (The Moon is on the Hill called Ngerungewikel)
"	11th - 30 days	Orengodel ra Ngebard	<u>Rak</u> a Ngara Ngermelis (God is on the part of Peleliu called Ngermelis)	<u>Orengodel</u> a Ngara Ngermolisois (The Moon is on the Mountain called Ngermolisois)
		<u>Rak</u> a mlora Peliliu me Ngolengull ra Debed a mor Ngeiaur. (God went to Debed Village in Peliliu then moved on to Ngeiaur Village in Angaur)		
"	12th - 30 days	Chiiach ra Ngebard	<u>Rak</u> a Ngara Ngeinur (God is in Ngeiaur Village)	<u>Chiiach</u> a Ngara Bkulngeluul (The Moon is on a High Place called Bkulngeluul)

the westerly wind. In like manner, Rak will continue to travel down Babelthuap with the moon until he reaches the island of Peleliu, where he will stay for a temporary rest in Debed village. Once Rak has completed the twelfth set of thirty darknesses in Bkul ra Ngeiaur village on Angaur, the wind becomes easterly (Rekil Ongos) and Rak returns with the moon to Ngetmel village in Ngerechelong. The legendary cycle is then complete.

In traditional society, if a villager wanted to know what month the year was in, he would merely ask a village elder, "A rak, Ngar ker re chechang?" (The God, where is he now?). The village elder would then respond according to the time of the year. For example, he might answer, "Ngara beluu ra Ollei" (He's in Ollei village). From this answer, the villager knows that the moon is in its 2nd thirty darknesses of the easterly wind (Rekil Ongos). In other words, the year is only two months old. Likewise, if a villager wanted to know what day of the month it was, he would ask his neighbor, "Ngtela buil er chechang?" (How many moons is it now?). His neighbor might answer, "Ngeru buil" (The moon is two). i.e., the month is in its second darkness.

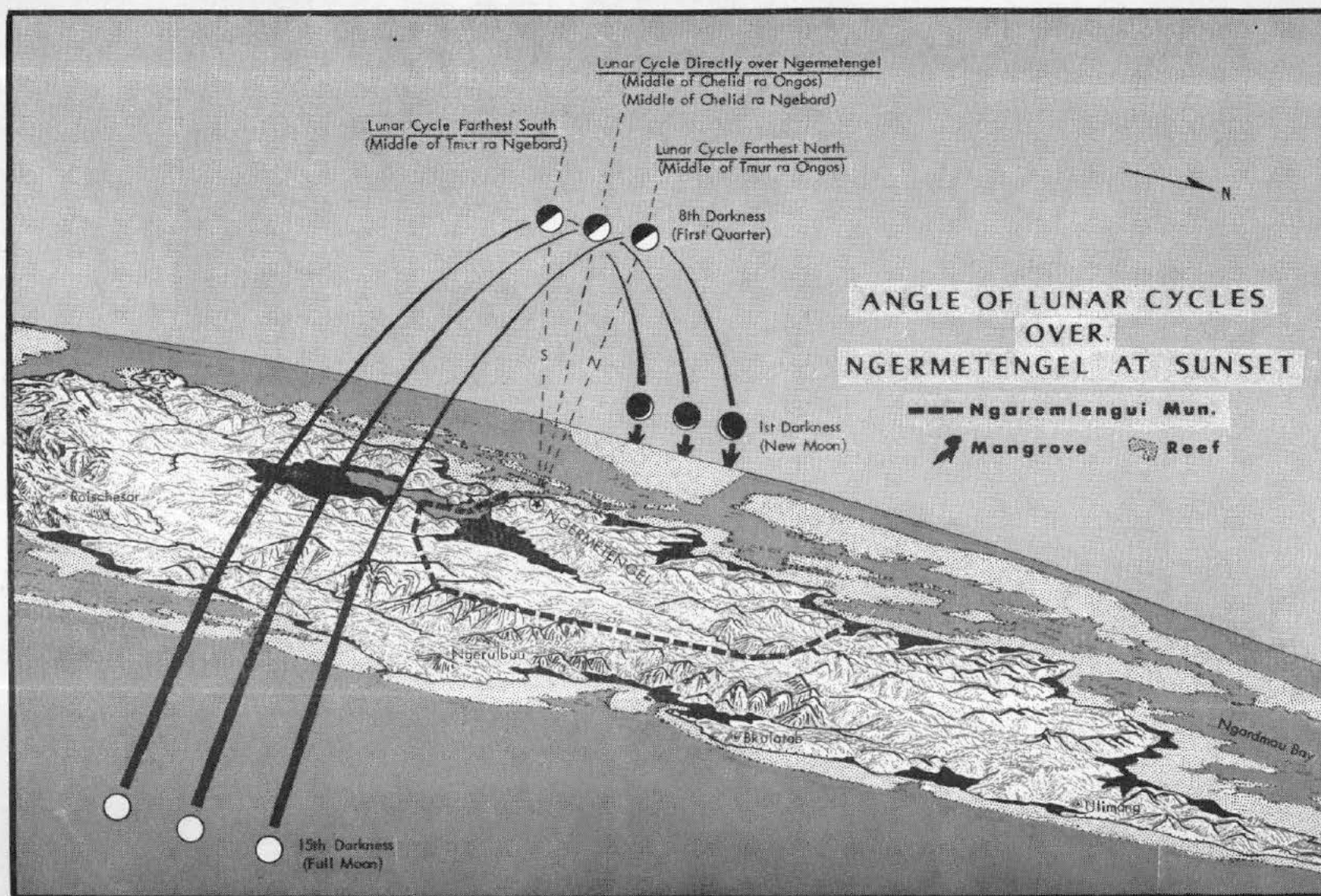
On the other hand, if the villager knew his legends and was a keen observer of the moon, he himself could tell the month and day of the year. Let's see if we can construct this early form of time reckoning. First of all, the villager knew from his legends the story of Rak and how he carried the moon up and down the islands of

Palau. He knew that Rak carried the moon to twelve different villages where he stayed for a period of 30 darknesses. These periods of darknesses had names. He also knew that at the end of a particular set of darknesses, the wind shifted and Rak carried the moon back to its original location in Ngetmel village. This, then, was the explanation for the apparent cyclical characteristic of the Palauan environment.

By observing the moon on different evenings, the villager could also see that the lunar cycle changed its angle in the sky over the year.¹ During those periods of darkness called Chelid ra Ongos and Chelid ra Ngebard, the full moon appeared in the eastern sky and passed directly overhead on its way to the barrier reef that lay in the west. The villager also observed that during the middle of Tmur ra Ongos, the lunar cycle was at an angle farthest to the north. During that particular period of darknesses, he could face towards the east and the full moon would pass over his left shoulder. During the middle of Tmur ra Ngebard, just the opposite was true; the moon would pass over his right shoulder. Hence, the lunar cycle travelled in its southernmost path during this time of the year. Thus, by knowing the angle of the orbit of the moon around Palau, the villager was able to determine the month of the year. With the further knowledge of the phases of the lunar month, the villager was able to

¹See Figure 32. Oddly enough there is no correlation between the location of "Rak and the Moon" with the "Angle of the lunar cycle." Be careful not to confuse these two systems.

FIGURE 32.



predict the day of the month.

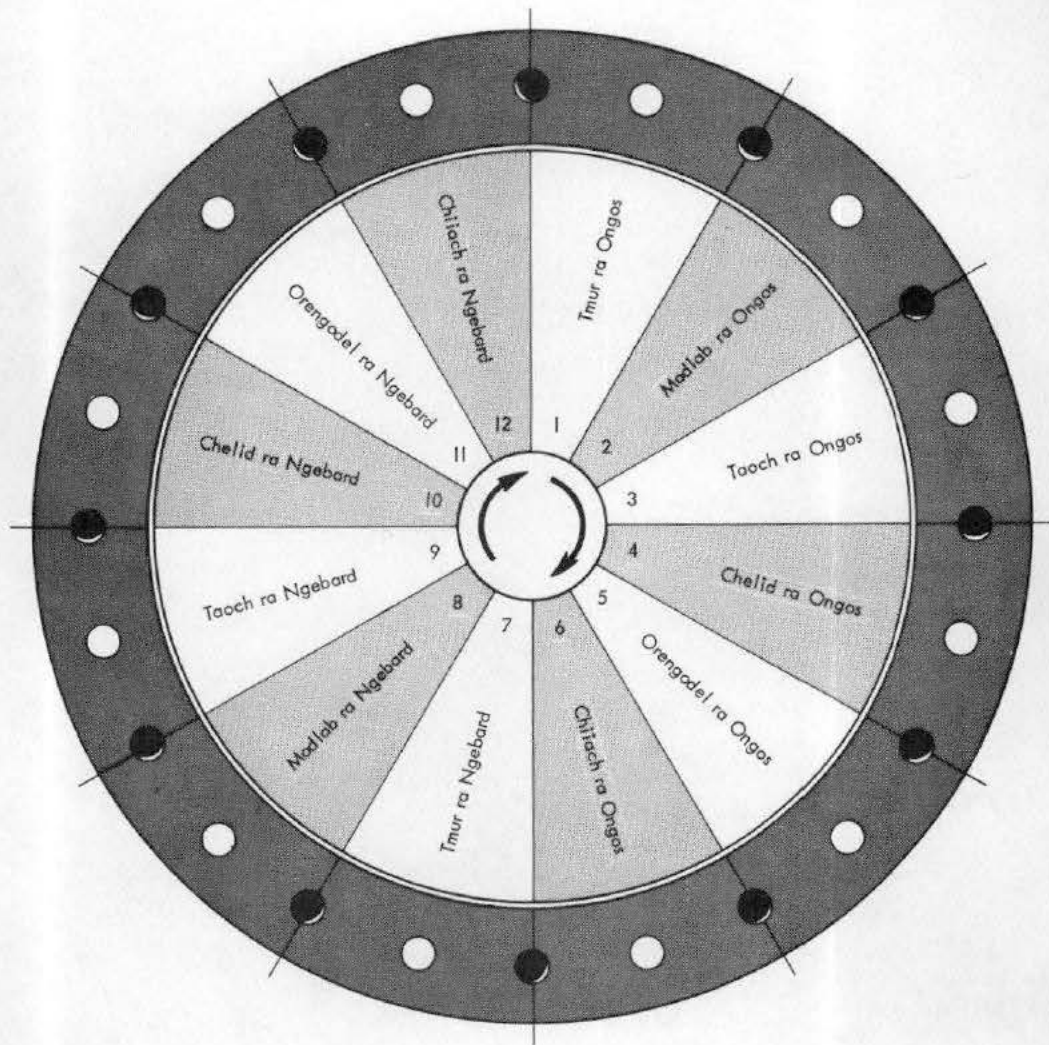
A further means of telling the beginning of particular lunar months was to observe the angle of the crescent during first darkness.¹ During the lunar month of Tmur ra Ongos, the tips of the crescent during first darkness are pointing up and towards the north. During Tmur ra Ngebard, just the opposite is true--the tips of the crescent during first darkness are pointing up and towards the south. During Chelid ra Ongos and Chelid ra Ngebard, the tips of the crescent point up to the heavens. Since the angle of the first crescent of Tmur ra Ongos and Tmur ra Ngebard do not repeat themselves during the year, a keen observer of the moon can determine the beginning of the year(Tmur ra Ongos) and the beginning of the second six lunar months (Tmur ra Ngebard).

C. The Tides

The most obvious natural cycle is the ebb and flow of the tides. By observing this phenomenon of nature, the traditional Palauan can tell the phase of the moon and the day and approximate hour of the month. He cannot, however, tell the month of the year by the mere observation of tides. To do this, he must consult some other phase of nature or the heavens. There are, however, tidal

¹See Figure 33.

THE CRESCENT ANGLE OF THE NEW MOON
(Per Palauan Lunar Month)



NEW MOON -- First Darkness

FULL MOON -- Fifteenth Darkness

* This diagram should be read as if Babelthaup Is. is at the bottom of the page.

extremes that do allow some prediction of the months.¹

TABLE 7

		YEARLY TIDAL EXTREMES											
		ONGOS						NGEBARD					
		Tmur	Modlab	Taoch	Chelid	Orengodel	Chiiach	Tmur	Modlab	Taoch	Chelid	Orengodel	Chiiach
DAYTIME													
								Lowest Tide					
		Low Tide is not so Low						Low Tide is very Low					
NIGHTTIME													
		High Tide is not so High						High Tide is very High					
		Low Tide is Very Low						Low Tide is not so Low					
		High Tide is Very High						High Tide is not so High					
		Lowest Tide											

For example, when the tidal cycle is at its lowest during the nighttime, the traditionally-schooled Palauan knows that it is the months of Tmur ra Ongos and Modlab ra Ongos. On the other hand, when the lowest tide of the year occurs during the daytime, the Palauan villager knows that he is in the months of Tmur ra Ngebard and Modlab ra Ngebard. But besides these tidal extremes, most time reckoning according to the tides is reserved for the prediction of the hour of the day, and the day of the month, not the month itself.

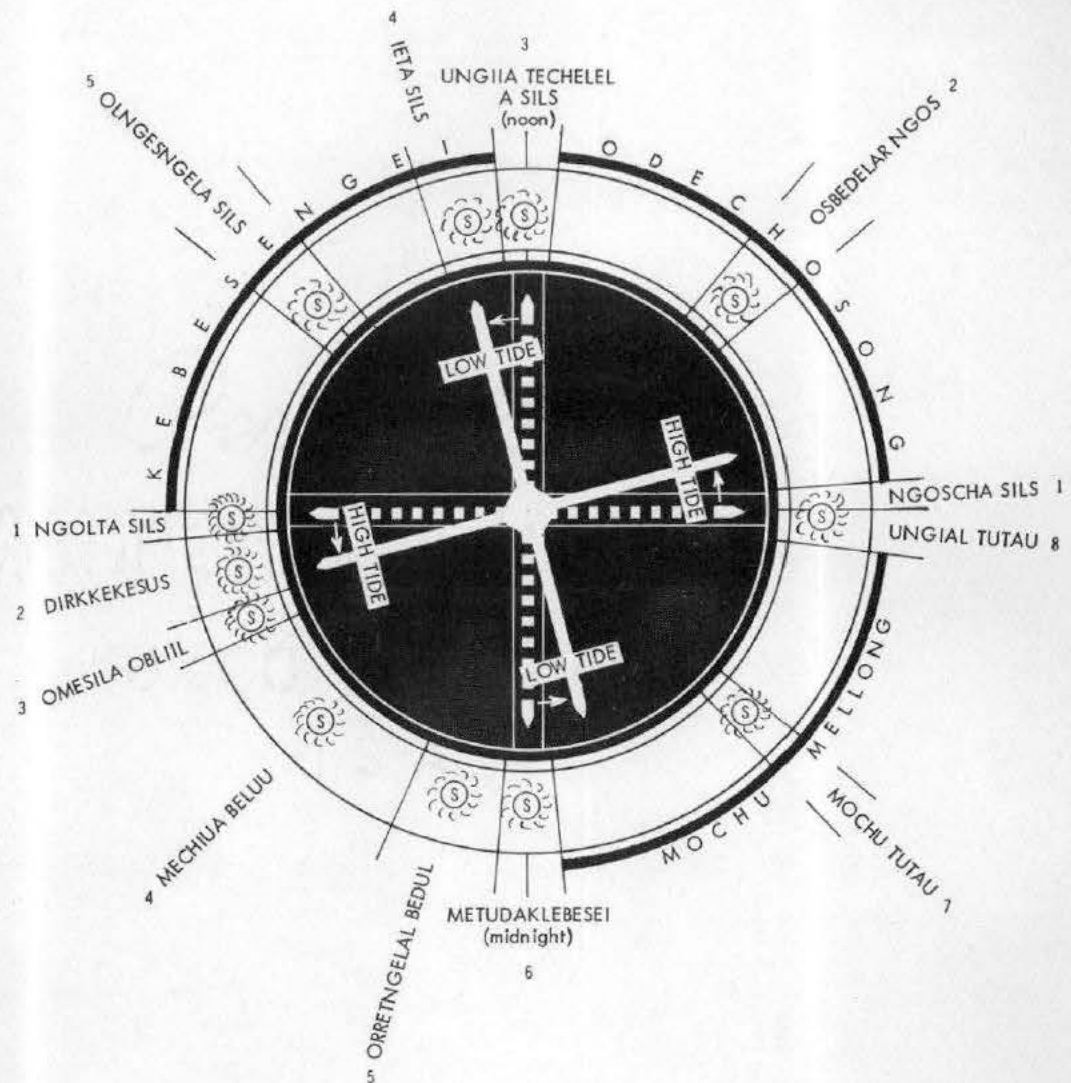
¹See Table 7.

While governmental agencies publish a print-out each month of tidal heights for various areas, the villagers of Ngermetengel have a system that does not change each month.¹ On the first crescent (new moon) of each month of the year, the first lowtide occurs at Ungiia Techelel a Sils (noon). The second low tide falls at Metudaklebesei (midnight). The high tides come approximately halfway between these two extremes, the first high tide occurring at Ngolta Sils (sunset), and the second high tide occurring during Ngoscha Sils (sunrise). With the four-pointed-perpendicular-dial one can see how the Palauan arrives at his tide table. Rotating the dial approximately an hour to the left (counter-clockwise), the times for low and high tides can be seen for the second phase of the moon-- the low tide occurring at Ieta Sils, high tide in Dirkkekesus, the second low tide in Mochu Mellong, and the final high tide occurring in Odechosing. Consecutive rotations of equal amounts will give the tidal times for the remaining phases of the moon.

Although the traditional Palauan may have constructed a similar diagram with sticks and earth-drawings to illustrate the various phases of the tides, the "tide dial" was never permanently constructed nor recorded in traditional Palauan Society. Tidal phases were studied and committed to memory as illustrated in Figure 35. For each phase of the moon, the traditional Palauan knew the time

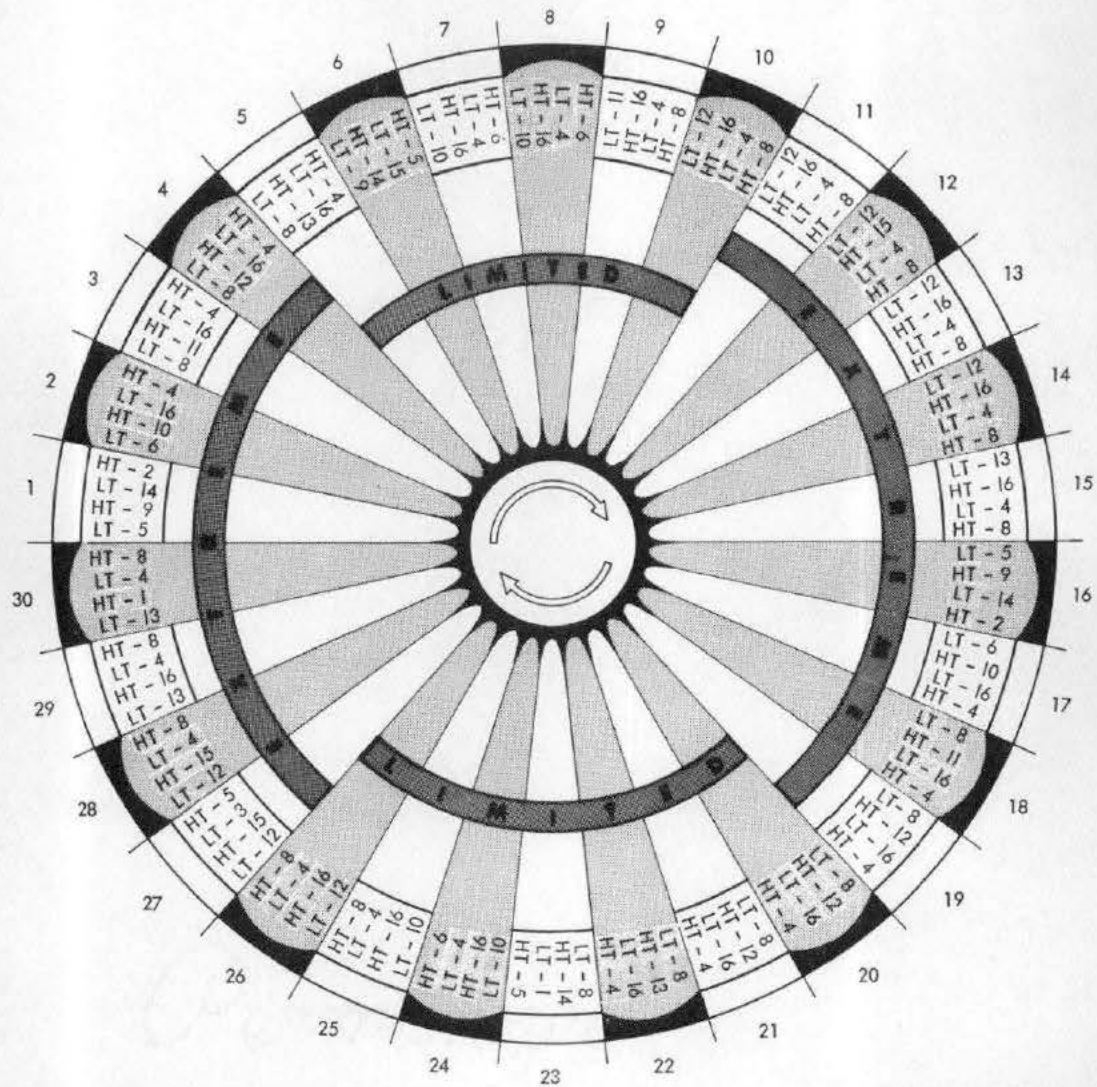
¹See Figure 34.

THE TIDE DIAL



 68 Minutes

TRADITIONAL NGERMETENGEL TIDE TABLE



LT = Low Tide
HT = High Tide

LEGEND

Degree of Tidal Fluctuation



Key to Palauan Time

1 - UNGIAL TUTAU	5 - UNGIA TEHELEL A SILS	9 - NGOLTA SILS	13 - ORRETNAGEL BEDUL
2 - NGOSCHA SILS	6 - IETA SILS	10 - DIRKKEKESUS	14 - METUDAKLEBESEI
3 - OSBEDLAR NGOS	7 - OLINGESNGELA SILS	11 - OMESILA OBLIIL	15 - MOCHU TUTAU
4 - ODECHOSONG	8 - KEBESENGEI	12 - MECHIU BELUU	16 - MOCHU MELLONG

at which the low and high tides would occur. If it was the 15th moon (full moon), the villager knew that the first low tide occurred at Orretngealal Bedul, the first high tide at Mochu Mellong, the second low tide at Odechosing, and the final high tide at Kebesengei. On the other hand, if the villager couldn't see the moon because of bad weather but wanted to know its phase, he would merely go to the river and check the level of the tide. The level of the river plus the time of the day told him the phase of the moon, thus the day of the month.

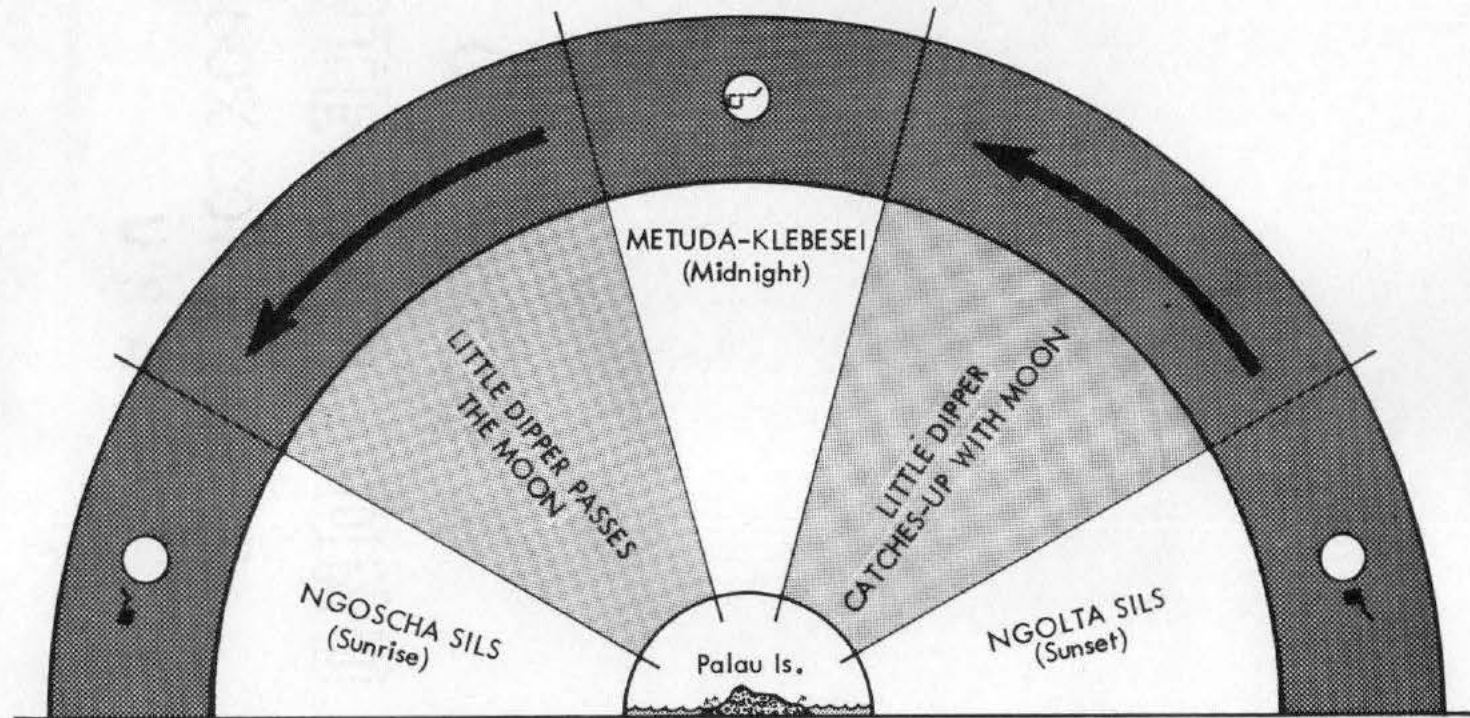
D. The Stars

The early Palauans' use of the stars was not extensive because they were not navigating people, as were the Yapese and other islanders in the Pacific. There was a common belief during earlier times that if you sailed beyond the site of land you would fall off the end of the world. With this belief in mind, it is no wonder that early Palauans did not venture from one island realm to another. Nevertheless, stars were used to reckon time in traditional Palauan society. Stars were also used to tell direction, but only to a limited extent.

By observing the moon and its relationship to the little Dipper, traditional Palauans could tell the beginning of the Palauan year as well as the first six months of the same annual system.¹ The method of this prediction is as follows. Only during the lunar

¹See Figure 36.

FIGURE 36.



THE MOON, THE STARS, & THE NEW YEAR

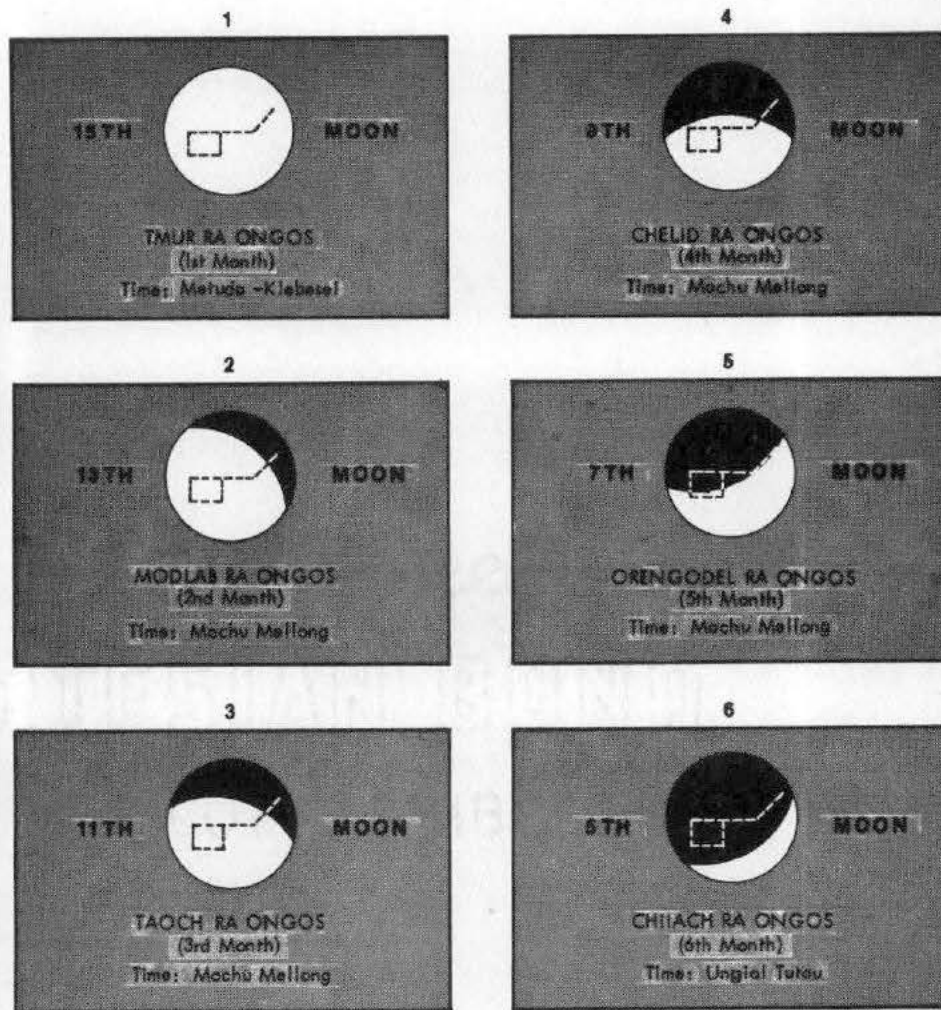
- THE FULL MOON
- THE LITTLE DIPPER

month of Tmur ra Ongos does the Little Dipper rise in the eastern sky trailing the full moon at Ngolta Sils (sunset), lie behind the moon at Metuda-Klebesei, and lead the moon into the western sea at Ngoscha Sils (sunrise). When this sequence of events occurs, the traditional Palauan knows that fifteen days ago was the beginning of his new year. Ochit ra Orakiruu is the Palauan term for the period when the Little Dipper "passes" the full moon; Ochit is the general Palauan term for the period when the Little Dipper passes behind the other phases of the moon.¹

The traditional Palauan can also determine the other months of Ongos (the first six months of the Palauan year) by the observation of the Ochit.² As was just illustrated, the Little Dipper passes behind the 15th moon (full moon) during the Palauan month of Tmur ra Ongos--the first month of the year. During Modlab ra Ongos, the 2nd month of the year, the Little Dipper passes behind the moon during the 13th moon or darkness of the month. The Little Dipper is behind the moon during the Palauan time of Mochu Mellong. The third month of the Palauan year is Taoch ra Ongos. During this month, the Little Dipper passes behind the moon at Mochu Mellong on the 11th moon of the month. This same system of observation of the Ochit

¹Although the Little Dipper doesn't actually move and consequently couldn't "pass" anything, the traditionally schooled Palauan does describe the stars as objects that do move on their own accord.

²See Figure 37.

THE SIX LUNAR PHASES OF OCHIT

-  THE PHASE OF THE MOON
-  THE LITTLE DIPPER (MESIKD)
-  THE LITTLE DIPPER BEHIND THE MOON

occurs for the first 6 months of the Palauan year. During the remaining six months of the Palauan year (Ngebard), the observation of the Ochit is impossible--Ochit occurs during the day when it cannot be seen.

The Palauan named only one star in the Little Dipper. The name of the Little Dipper is Mesikd; the name of the star at the end of the handle is called Terenguul el Lau. In Palauan legend, Terenguul el Lau is a man who pilots the rest of the stars in their path around the islands of Palau. As in steering a canoe, the pilot sits in the back and his actions direct the movement of the vehicle. According to this legend, Terenguul el Lau has the responsibility of guiding the rest of the stars that make up the Little Dipper so that they don't "crash into the moon."

Only one other star is used to reckon time in traditional Palauan society. During the first six months of Ongos, there is a very bright star that appears in the western sky.¹ When this star is observed in the western sky during the first six months of the year, it is referred to as Bduch ra Ngebard (Star of the West). When this same star is observed in the eastern sky during the remaining six months of the Palauan year, this star is called Emeraech (morning star). It gets its name from the fact that it rises in the eastern sky around 4:30 in the morning then passes overhead. Whereas the observation of the Ochit could tell the traditional Palauan the

¹Although the villagers are not positive, they believe this star to be the planet Venus. It is not known whether the villagers are correct in their assumption.

month, day, and approximate time of day for the months of Ongos, the observation of this other star can only tell him that Palau was either in the months of Ongos or in the months of Ngebard.

Only two other stars have names, and these are used for telling direction, not time-recognition. Bduch ra Dimes refers to a southern star; Bduch ra Diluches refers to a northern star.

II. The Phases of Nature

A. The Climate

Of such divisions of climate as temperature, precipitation, humidity, and wind, the latter plays the most important role in time-recognition in traditional Palauan society.¹ The names of the months of the Palauan calendar, in fact, are derived from the shifts in wind direction that occur during the year. During the first six months of the year Palau has a predominately easterly wind (Ongos); hence, the derivation of such names as Tmur ra Ongos, Modlab ra Ongos, Taoch ra Ongos, Chelid ra Ongos, Orengodel ra Ongos, Chiiach ra Ongos. When the wind shifts to a westerly direction (Ngebard), the six months that follow have names tagged with this peculiar characteristic--Tmur ra Ngebard, Modlab ra Ngebard, etc. In like manner, if a person is from the west, he is referred to as Chad ra Ngebard (Westerner).

The beginning of the Palauan year, Tmur ra Ongos, is named

¹See Table 8,

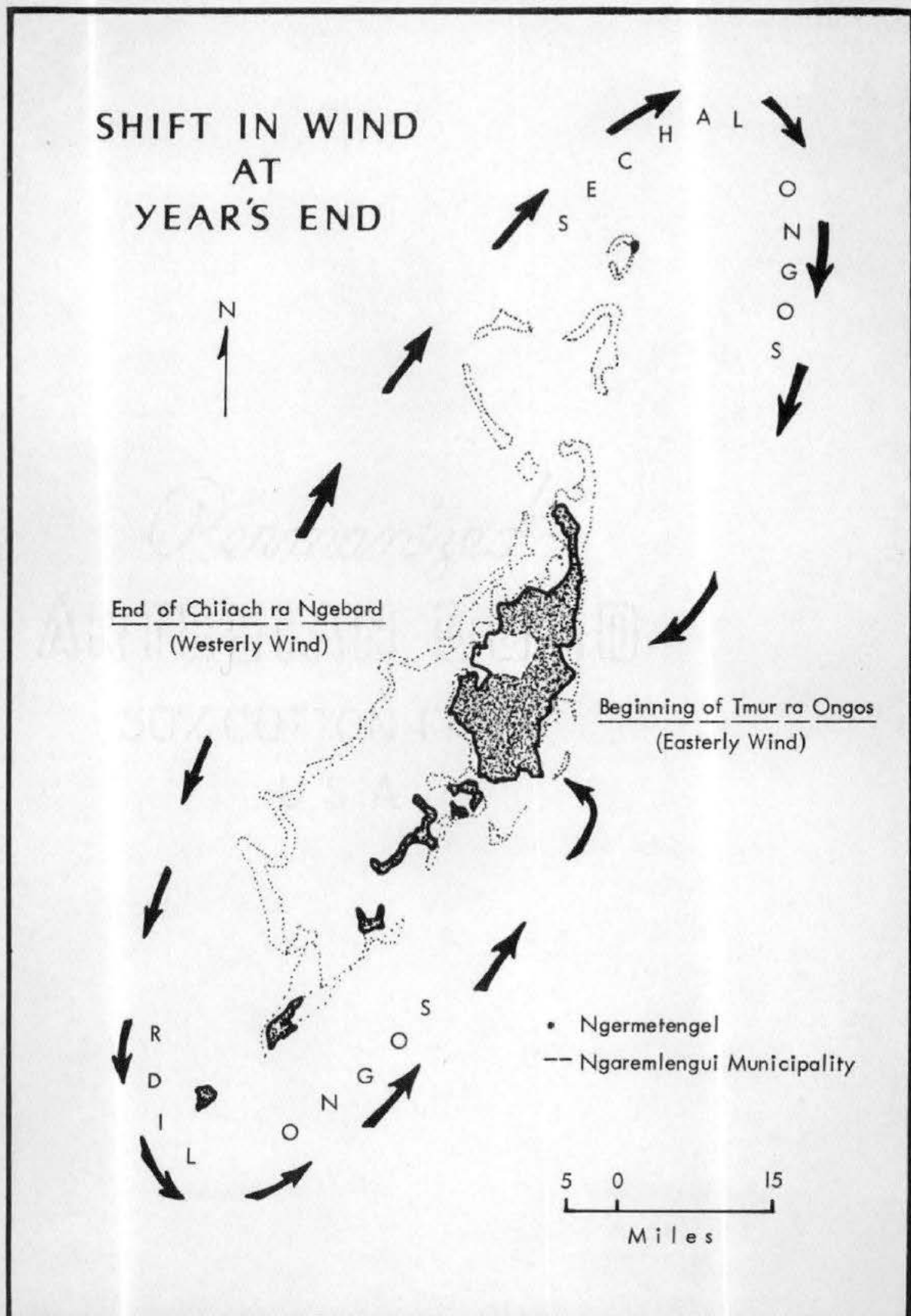
TABLE 8
Climatic Variation and Time-Reckoning

	ONGOS						NGEBARD					
	Tmur	Modlab	Taoch	Chelid	Orengodel	Chiiach	Tmur	Modlab	Taoch	Chelid	Orengodel	Chiiach
Temperature			Hottest						Coolest			
Precipitation		Dry	Driest				Rainiest	Rainy				
		Dry Season					Rainy Season					
Wind			Calmer					Windiest				
	Easterly						Westerly					
Sky Cover			Sunniest						Cloudiest			
Humidity:												
Daytime	Low Humidity						High Humidity					
Nighttime	High Humidity						Low Humidity					

after the period when the winds become easterly. After continuing to be easterly for five months, the wind begins to fluctuate during Chiiach ra Ongos; the wind, however, still remains predominately easterly. In the month of Tmur ra Ngebard, the wind becomes westerly and will continue in this direction until the month of Chiiach ra Ngebard. If at the end of this time the wind changes direction by shifting to the north, it is claimed that the month of Chelid ra Ongos of the following year will be extremely windy--a time that is normally one of the calmest periods of the year. When the wind changes from a westerly wind to a easterly wind by passing over northern Babelthuap, the name of the shifting wind is referred to as Sechal Ongos (Male or strong Easterly Wind).¹ On the other hand, if the wind of Chiiach ra Ngebard shifts to the south on its way to becoming easterly, the name of this wind is Rdil Ongos (Female or Weak Easterly Wind). If the shifting wind is Rdil Ongos, then Ngermetengel can expect to have a weak wind during the month of Chelid ra Ongos of the following year.

Second to wind direction, changes in the occurrence and amount of rainfall is a key to early time recognition in Palauan society. However, as is true with other climatic phenomena, the changes in the amounts of precipitation can only be observed and discussed in broad generalizations. The traditional Palauan sees

¹See Figure 38.



the months of Modlab ra Ongos, Taoch ra Ongos, and Chelid ra Ongos as being dry in comparison with the months that follow. During the six months of Ngebard, Ngermetengel receives heavy rains with the first three months as the rainiest.

More interesting, however, is the naming of rains and sometimes the correlation between precipitation, the phase of the moon, and the laying of eggs by fish. During Tmur ra Ongos, there is a little rain at dawn called Olngbedel Orrakel. Only after the occurrence of this rain would the traditional Palauan go outside the reef to catch sharks. On the day after the full moon (the 16th darkness), a rain comes which lasts for 24-36 hours. This rain is called Dedengel a Kotikou; it derives its name from the observation that the Kotikou fish begins to lay its eggs at this time.

During the second month of the Palauan year, Modlab ra Ongos, there is a rain shortly after dawn, Tubkii ra Ngeuoi. On the 16th moon of the month, the same phenomena occurs that took place during Tmur ra Ongos; there is a short rain called Dedengel a Kotikou during which the Kotikou fish lays its eggs. By observing that the Kotikou fish is laying its eggs, the traditional Palauan can therefore predict that the month of the year is either Tmur ra Ongos or Modlab ra Ongos. Although the observation of this occurrence would not tell him which of the two months it was, it would tell him the day of the month--the 16th.

On the 8th-9th darkness of Tmur ra Ongos and Modlab ra Ongos,

there is a rain called Bedengel a Kelat that lasts for two days. It is claimed that on the 10th darkness or moon the Kelat fish lays its eggs. This, again, is a form of seasonality and consequent means of time recognition within the Palau Islands.

A different phenomena occurs during the months of Taoch ra Ongos, Chelid ra Ongos, and Orengodel ra Ongos--a phenomena associated with precipitation. Only on the 4th-6th moon or darkness of these months does a rain come that lasts for 2-3 days. The name of this rain is Tebedel a Meyas. It is during this time that the fish leaves the mangrove swamps during the low tide to lay its eggs. During Taoch ra Ongos, the Meyas fish lay their eggs on the 5th moon of the month; during the remaining two months, it is claimed that the Meyas fish lay their eggs on the 6th moon.¹

Although there is climatic variation in temperature, cloudiness, and humidity, these phenomena are poor indicators of time and seasonal variation. The hottest months of the year correspond with the driest months--Taoch ra Ongos and Chelid ra Ongos. The coolest months of the year are in Taoch ra Ngebard and Chelid ra Ngebard. Within the same months can be found the cloudiest season; the sunniest season, however, corresponds with the driest months of the year. Humidity within the area corresponds with the shift in wind directions.

¹Although not associated with the precipitation phenomena, the Meyas fish also lays its eggs on the sixth moon of Chiiach ra Ongos.

During the months of easterly wind (Ongos), daytime humidity is low and nighttime humidity is high. The reverse is true during the months of westerly wind (Ngebard).

B. The Lagoon & Reef

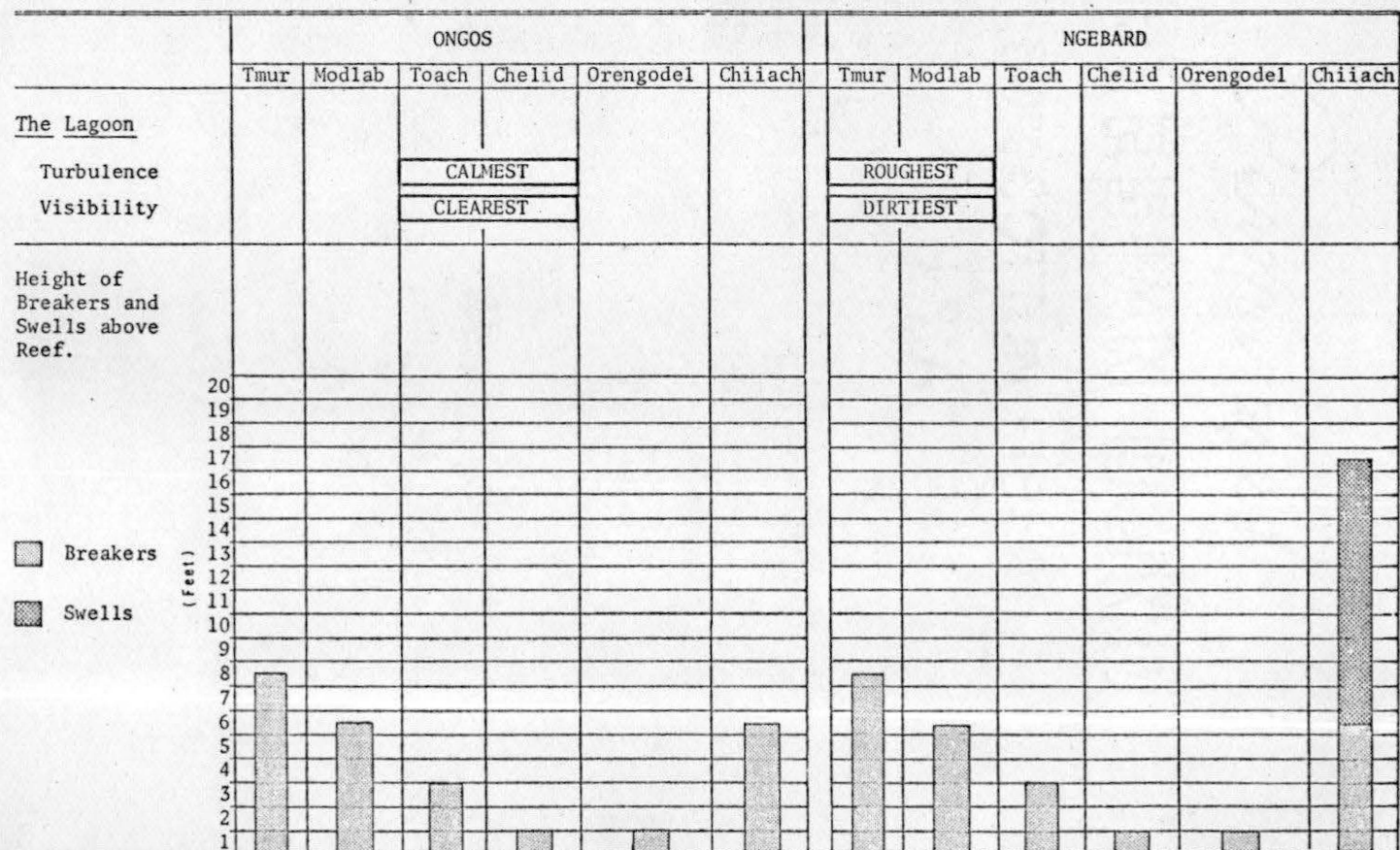
Seasonal variations also exist within the lagoon which the traditional Palauan uses to base his calendar. Although it is sometimes difficult to distinguish when the lagoon is the calmest and clearest, Taoch ra Ongos and Chelid ra Ongos are held to be those months that are most representative of this characteristic.¹ There is no difficulty, however, in determining when the lagoon is at its roughest and dirtiest condition. In fact, water visibility decreases so much that traditional Palauans can determine the approximate beginning of the month of Tmur ra Ngebard by the observation of the lagoon alone. The increase in "roughness" and "dirtiness" during the month of Tmur ra Ngebard is a natural result of the wind becoming westerly and the onslaught of the rainy season.

The breakers on the barrier reef outside Ngermetengel have also been observed to have monthly variations. It is known that during the months of Tmur ra Ongos and Tmur ra Ngebard the breakers reach an average height of seven to eight feet. During the months of Chelid ra Ongos, Orengodel ra Ongos, Chelid ra Ngebard, and Orengodel ra Ngebard, the breakers are very hard to distinguish

¹See Table 10.

TABLE 9

THE LAGOON, REEF, AND BREAKERS



because they are so low. This is a dangerous time for fishermen that go beyond the reef, for when they return in the darkness of the evening the reefs are often hidden from sight. When this occurs, it is naturally easy to ground a boat. Even at the time of this writing, an Okinawan ship lies grounded on the reef that the villagers of Ngermetengel use as their fishing grounds. The first Englishman, Captain Henry Wilson, to have any real contact with Palauans was introduced to the Palauan Islands by being grounded on its reef. No doubt he landed in one of these four months of the Palauan year when the reef is most submerged.

A most interesting phenomena occurs during the month of Chiiach ra Ngebard, a phenomena that clearly indicates to the traditionally-schooled Palauan that one year is ending and another one is beginning. During Chiiach ra Ngebard, three distinct giant swells come up from southern Babelthuap, break over the reefs, pass over the tip of northern Babelthuap, and return to their origin near Angaur by way of the eastern coast, thus making a complete cycle around Babelthuap. These swells create breakers on the reef reaching 15-18 feet in height above the reef. Palauans of traditional society counted the passage of these three swells. Since each swell lasted for approximately ten days, they knew that at the end of the third swell the wind shifted, Rak (god) moved north once again to Ngetmel village, and thus the new year had begun.

Boid or Labk, the name of the first swell, is the strongest

of the set of swells. According to Palauan belief, Boid or Labk clears the path for the legendary god Rak by breaking up the old, dead coral. Having done so, Boid or Labk informs the younger stronger coral that Rak will be coming soon. Omeka Dnger, the second breaker, rolls over the reef pushing crushed coral under the younger corals so that they don't break when Rak moves north. Mengelechel a Uchach, the third and final swell, breaks over the reefs of western Palau. His responsibility is to act as a messenger, warning the remaining corals that Rak is now on his way to Ngetmel village in northern Babelthuap. He warns the corals not to break under the heavy foot of Rak.

In addition to telling the beginning of the year by counting the three swells as they broke over the reef outside their village, the traditional Ngermetengel villager could also tell the beginning of the Palauan calendar by a peculiar smell within the village: a smell associated with the movement of Rak from southern Babelthuap to northern Babelthuap. The smell was that of the sea coral that broke under the foot of Rak. Since Rak moved to his position in the north only once a year, it was a natural deduction that the smell of sea coral within the village was an indication that the new year had begun.

C. The Flora

The trees, plants, shrubs, and grasses of Ngermetengel also

have cycles that indicate to the keen observer the passage of time, some flora being particularly useful to the villagers as a form of time-reckoning.

The flora of Ngermetengel can be divided into three types:

(1) those trees and plants that bear fruit year-round, thus having no seasonality; (2) those trees and plants that have one fruiting season; and (3) those trees and plants that have two fruiting seasons.

Of these three groupings, the majority of species lie in the latter category; one hundred and thirty-nine known species of this category exist today in Ngermetengel. There are ninety-three species that fall into the first category and only eleven species fall into the second category. Since trees and plants that bear fruit yearround are poor indicators of the passage of time, this discussion will be centered only on those types of flora that show some sign of seasonality.¹

Of those types of pre-contact flora having one season, Iul (Freycinetia) is reported to be the most dependable as an indicator of time. When this tree first bears its flowers, the fragrance informs the traditional Palauan that the month of Modlab or Ongos has arrived. Pineapple, Mahoney, Rambutan, and Kapok are foreign introductions, and therefore are not formally used to reckon time.

¹See Appendix.

Since most of the trees and plants in Ngermetengel blossom or bear fruit during the same months twice a year, it is not surprising to find that there is a Palauan name for each one of these two growing seasons. The first growing season begins during Modlab ra Ongos and continues through Chiiach ra Ongos; The Palauan name for this season is Remus. Since this season produces the least fruit of the two seasons, this period is also known as the time of Kesai a Kall (little food). Sim is the name of the second growing season; this period of growth begins in Modlab ra Ngebard and continues through Chiiach ra Ngebard. Sim is the of Betok a Kall (much food).

Of all the types of flora that blossom or bear fruit twice a year, only two do not fall into the above two growing seasons. The Cocoa tree (Theobroma cacao L.) was introduced by the Spanish and consequently did not play a part in Ngermetengel's early system of time-reckoning. The Indian Coral Tree (Erythrina Variegata L.), however, did play such a role. In fact, the second chief of Ngermetengel transplanted an Indian Coral Tree that was growing in the mangrove to an area on his property. He did this for two reasons. One reason was to bring luck to his house and to the village, a belief handed down through Palauan legend. Secondly, the chief transplanted the tree to an area close by so that he could observe the pattern of flowering, a means for telling the month of the year. When the flowers first bloom at the base of the tree, the chief knows that the month is Taoch ra Ongos or Taoch ra Ngebard.

The chief further knows that when the flowers have bloomed at the top of the trees and the leaves begin to fall, the month is either Chelid ra Ongos or Chelid ra Ngebard. Since this pattern of flowering happens twice a year, a villager would have to observe some other phenomena of nature or the heavens to distinguish exactly which Taoch or Chelid Palau was experiencing.

D. The Fauna

Palauans are excellent fishermen. One of the reasons for their repeated success is their knowledge of the cycles of marine life. Although the marine fauna within the lagoon and outside the reef is numerous and the species can be listed by the hundreds, only the cycles of those fish most sought after are known. It is the cycles of these forms of marine life that serve as a calendar for the traditionally-schooled Palauan.

If while diving for fish the villager sees a school of either Meyai, Kelat, or Kotikou fish laying their eggs, this tells him that Palau is in the month of either Tmur ra Ongos or Modlab ra Ongos. Since he also knows the phase of the moon in which each of these fish lay their eggs, the observation of the act tells him the day of the month. For example, if he sees a school of Kotikou fish laying eggs, he knows it is the 16th moon of the month of either Tmur ra Ongos or Modlab ra Ongos. One of the most popular fish within Ngermetengel is Meyas. If a traditional villager sees the Meyas

laying its eggs on the 5th moon or darkness, he knows that the month is Taoch ra Ongos. Yet, if he sees the same type of fish laying its eggs on the 6th phase of the moon, this tells him that the month is either Chelid, Orengodel, or Chiiach ra Ongos. Or, if it is the mangrove snake (Kemairs) that he observes laying its eggs, the traditional villager knows that it is the full moon (15th darkness) of Taoch ra Ongos. He knows this because the snake only lays its eggs on this one day of the year.

An interesting sidelight is related to the crocodile and its pattern of laying eggs. The crocodile lays its eggs in layers on the swampy land. Since the traditional Palauan knows that the crocodile lays its eggs every 15 days for seven times anywhere during the first six months of the year, he knows that he only has to check the freshness of the last eggs laid to determine the time he must return to catch the crocodile. Although the turtle doesn't lay its eggs in layers, it does have the same cycle of laying eggs, every 15 days for 7 times somewhere within the months of Ongos. The turtle, however, lays its eggs on sandy beaches, not on swampy land.

E. Avifauna

The traditional villagers of Ngermetengel only use a few of the thirty-eight known types of migrating birds to reckon the time of

the year.¹ The beginning of the Palauan calendar can be told by the appearance of the Longtailed New Zealand Cuckoo (Eudynamis taitensis), a migrating bird by the Palauan name of Charmongos. Only during the month of Tmur ra Ongos does this bird make its appearance in the village of Ngermetengel. Another bird that makes its presence in the village only during a certain period of the year is the Derariik (Pacific Golden Plover, Pluvialis dominica). While the Derariik normally lives and lays its eggs in Ngerechur and Kayangel in northern Palau, it does fly down to the Ngermetengel area during the months of Orengodel ra Ongos through Modlab ra Ngebard. The presence of this bird within the village during these four months is a further indicator of the time of year that Palau is experiencing.

A few non-migrating birds have also been noticed within Ngermetengel as time-indicators. During the months of Tmur ra Ongos and Modlab ra Ongos, the Omekrenguker (Chinese Least Bittern: Ixobrychus sinensis) can be seen laying its eggs in the grassy hills and flatlands (Ked) of Ngermetengel's interior.

A most interesting time indicator is the Tutau (Palau Morning Bird, Colluricincla temebrosa). If this bird can be heard in the early morning hours, then the traditional Palauan knows that

¹Robert Owen, "The Birds of the Palau Islands Including Helen Reef," (Mimeographed, Koror, 1971).

Palau is in the first six months of Ongos. If, however, the bird does not call out in the morning, the villager knows that Palau is in the remaining six months of the year--Ngebard. Since the Tutau calls out in the early morning hours, it is not surprising that the Palauan term for the early morning hours just prior to sunrise is called Ungial Tutau.

F. Insectum

Insects also have a role, albeit small, in the traditional system of time-reckoning in Ngermetengel. Only two insects can be designated as indicators, both of them a form of moth. When either the Esuch-rubuokel or Eberdord fly into the house during the evening, it is indicative that the month is Chelid. Since their eggs hatch in both Chelid ra Ongos and Chelid ra Ngebard, one must observe another phenomena of the heavens or nature before being able to predict the actual lunar month.

CHAPTER IV

NGERMETENGEL: CYCLIC ACTIVITIES

Aquatic Cycles and Related Human Activity

Fishing is the most cyclical of activities in Ngermetengel. It is carried out according to the reading of the heavens as well as the phases of nature. The moon, tides, and even the stars have a bearing on the movement of Ngermetengel's fishermen. Since the reef and lagoon are primarily the domain and habitat of the men, it is natural that the men lead a life that is closest to the cycles of nature. Although the women will occasionally comb the tidal flats for shellfish, sea urchins, sea cucumbers, and some varieties of small fish, their activities are primarily concentrated on the land in the cultivation of taro and cassava, an activity that varies little with the seasons.

Although every man in Ngermetengel will occasionally go out to the reef or lagoon to get fish for his family or relatives, there are presently only eleven men within Ngermetengel who consider themselves full-time fishermen. The other male members of the community are involved in such enterprises as administering the village's local government, running the village sawmill to produce

lumber for a new house or new boat, or cooking the noon meals for the school children. Other male members of the community are ministers, teachers, or farmers. All of the latter categories, however, are not directly geared to the natural cycles of nature and consequently are not discussed in this paper.

Ngermetengel's full-time fishermen can be classified according to the fishing device or devices that they use most proficiently when fishing.¹ Despite the fact that all of the men are able to use the various fishing devices, few are considered extremely skilled in all of the means of securing fish. Of all the fishermen in Ngermetengel, Malsol, Fumio, and Techechur are looked upon as Ngermetengel's best all-round fishermen.²

To be considered a knowledgeable fisherman, one must not only be able to use fishing devices proficiently, but must also know where various fish are within the lagoon at various times of the year. This knowledge is also linked, however, with the fishing device that one uses. For example, a villager who is proficient at using the line will know the egg-laying cycles of those fish that he can catch with a line. A net fisherman, on the other hand, can

¹See Table 10.

²Malsol is now 72 and no longer fishes with the Bidkill, Klibiskang, or biskang; thus the reason why these fishing devices are not checked along side his name.

TABLE 10

CLASSIFICATION OF NGERMETENGEL'S FISHERMEN

Name	Method of Fishing					
	Line (Kereal)	Net (Kesokes)	(Bidkill)	Spear (Klibiskang)	Speargun (Biskang)	Spear & Lamp (Taod)
1. Malsol	X	X				X
2. Fumio	X		X	X	X	X
3. Techechur	X	X	X		X	
4. Tamtremg	X					
5. Yamazaki	X				X	
6. Moded	X	X				
7. Madelutk		X	X		X	
8. Markub	X	X				
9. Recheked	X				X	
10. Olkeriil	X					
11. Koro	X					X



FIGURE 39. Moded repairing a Bidkill fishing net within the Bai (Men's community center).



FIGURE 40. Fishermen returning home from a strenuous day out on the lagoon.

list the egg laying cycles of those fish that he can catch with his net. No one fisherman within Ngermetengel seems to be able to list the cycles for all the various preferred fish within the lagoon. He can usually only list those associated with his fishing technique.

It is easier to catch fish just prior to and after they lay their eggs, although most of the preferred fish within the lagoon can be caught at any time of the year. This is a time when the traditional-schooled Palauan fisherman knows the location of his desired fish, and it is also a time when the fish are a "little crazy and weak" and are thus easier to catch. As will be shown later, most of the fish lay their eggs during the months of Ongos--the major period of activity for Ngermetengel's fishermen.

Ngermetengel's fishing devices seem to have a "seasonality" of their own in accordance with the phase of the moon, the condition of the tide, as well as the cycles of the fish.¹ Each instrument that is used for fishing has an optimum time for its use; in other words, certain days of the month are better for using the net than the line, and vice versa. Furthermore, each preferred fish to be hunted has one or more fishing devices that can be labelled as "the best device" in order to catch the fish desired. By combining these two types of information one can predict the likely location and

¹See Table 11.

TABLE 11

OPTIMUM DAYS FOR PARTICULAR
FISHING TECHNIQUES

		Days of the Palauan Month																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
<u>LINE</u>																															
Kereal - Day																															
Kereal - Night																															
<u>NET</u>																															
Kesokes - Day																															
Kesokes - Night																															
Bidkill - Day Only																															
Kual*																															
<u>SPEAR</u>																															
Taod ma Lambe - Night Only	...																														
Klibiskang*																															
<u>SPEARGUN</u>																															
Biskang - Night																															
Biskang - Day*																															

* The Kual, Klibiskang, and Biskang (Day) do not have optimum times for their use.

activity of Ngermetengel's fishermen during different months of the year. Thus, a calendar of activity illustrating the work cycle of Ngermetengel's fishermen can be made.

There are four major types of fishing devices presently used in Ngermetengel: (1) Line, (2) Net, (3) Spear, and (4) Fishing Gun. The most preferred time to use line during the day is on the 8th moon of every month of the year, for it is during this time that the current is weak and it is easy for the line to go straight down to the desired position in the lagoon. The opposite is true during the 16th through 19th moon when the tidal currents are at their strongest. This is a time when line fishing is usually discontinued both day and night. Line fishing may be resumed on the 20th moon during the latter six months (Ngebard), while tidal conditions prevent optimum use of line during the daylight hours for the first six months of Ongos. During the night hours of Ongos, line fishing can be done on the 1st through 15th and the 20th through 30th moon. During the night hours of Ngebard, fishing of any kind is severely restricted. Ngebard is the season of strong winds, heavy rains, rough seas, turbulent water, and, consequently little fishing, especially during the night.

Three types of nets are used in Ngermetengel: (1) Kesokes (underwater reef net), (2) Bidkill (throwing net), and (3) Kual (circular crab net). The Kesokes is a large heavy net that requires

a team of men to place correctly on the reef floor.¹ The day use of the Kesokes can be continued throughout the entire year, despite the fact that bad weather makes it more difficult during the months of Ngebard. Optimum days of the month of the Kesokes net are those from the first moon through the 16th moon. Tidal conditions are not quite as good for the remaining days. Nighttime use of the Kesokes is restricted to the months of Ongos; preferred nights are when the tides have their maximum fluctuation between high and low tide--1 through 4, 11 through 19, and 27 through 30.

The Bidkill is a throwing net that is used in the shallows at low tide. Since one must be able to see the schools of fish swim in the three or four foot shallows, it is understandable that the Bidkill can only be used during the daylight hours. Optimum time for the use of the Bidkill is on the days of maximum tidal fluctuation during both Ongos and Ngebard. The Kual, a small round net used solely for the capturing of crab can be used at any time, and, therefore, is not a seasonal tool.

¹The majority of activities, whether it be seeking fish, clearing land, cleaning trails, cutting lumber, building houses, planting taro, or preparing food is by group participation. Although it is slowly changing, activities remain a team effort. For further information regarding group ownership and utilization of resources see, H. G. Barnett, Being a Palauan, (New York: Holt, Rinehart and Winston, 1960); Robert K. McKnight, "The Oyabun-Kobun in Palau (A Master-Apprentice System," Anthropological Working Papers No. 5, Issued from the Office of the Staff Anthropologist, Guam, Trust Territory of the Pacific Islands. July 1959, or John Useem, "Report on Palau," CIMA Study No. 21, (typescript, Navy Department, 1949).



FIGURE 41. Poling up the river through the mangrove during low tide.



FIGURE 42. Butchering a crocodile that was speared in Ngermetengel's mangrove.

There are two major types of spears presently used in Ngermetengel --(1) Taod, and (2) Klibiskang. The Taod is a long thin bamboo pole with three thin metal barbs attached to one end. There is no optimum time for its use during the day. One of the most popular times to use this fishing device, however, is when the Meyas fish are laying their eggs on the fringing reef. Once a year during Orengodel ra Ongos all of the Meyas fish will migrate to a location on the fringing reef outside of Airai Municipality. Although present-day people of Ngermetengel do not participate in this event, villagers from other municipalities and even public officials from the city will travel on the 5th moon to Airai to wield the Taod or throw the Bidkill at this most favored fish of Palau.¹ One must use the Taod at night in conjunction with a kerosene air lamp. The lamp is placed on a bamboo raft to illuminate the fishing area. The 29th, 30th, 1st, and 2nd moons have optimum tidal conditions for the use of Taod and air lamp.

The second type of spear, the Klibiskang, is a long thin bamboo pole with a large single metal spear at one end. The Klibiskang is used for the larger forms of marine life, such as the Kamadukl fish and the turtle. There are no optimum or preferred days of the month for the use of this fishing device.

¹ During the old days, the 5th moon of Orengodel ra Ongos was a time of feasting and celebration at Airai.



FIGURE 43. The Oleyau--Ngermetengel's communally owned 35' commercial fishing vessel.



FIGURE 44. One of many outboards privately owned by Ngermetengel citizens. The 14' outboard serves as a "commuter" boat for those villagers who work in the city as well as a form of transportation to different parts of the lagoon for fishing.

The last major type of fishing device is the Biskang (fishing gun). Fishing guns may be as short as four feet or as long as nine or ten feet. An assortment of products go into the making of a gun. The shaft is made of native wood, but the remaining pieces (the metal spear, hollow metal tube, trigger device, and surgical tubing) are usually imported from Japan or the United States. Although this spear-gun may be used at any time during the daylight hours, it does have a preferred time of use for the night hours. The best time to fish at night with a spear gun is during the months of Ongos, preferably on the 1st through 10th moon, or on the 29th and 30th moon; these are times of optimum tidal conditions. Nighttime diving is not conducted during the months of Ngebard because of the rough seas and poor tidal conditions.

The Ruul and the Semael are seasonal fishing devices that are used in connection with the Kesokes net. The Ruul is a device made of coconut or betel nut fronds that are tied and twisted along a long nylon cord. Two long lines of connected leaves are made. When attached and stretched out in front of the Kesokes net, the lines act as a curtain to enclose the fishing area. By gathering in the two ends of the Ruul, the fish are frightened into the Kesokes net, which is located at the other end of the two Ruul. The fish are then speared with a Klibiskang and tossed onto a bamboo raft to be pulled by boat back to the docking area. The Ruul is made in the month of Chelid ra Ongos, and fishing can begin immediately after its

fabrication. Fishing with the Ruul can continue until it must be replaced with a new one. Tmur ra Ngebard is usually the month in which fishermen weave another Ruul. Fishing may resume with the Ruul until the end of Orengodel ra Ngebard. The Semael, a box-like device constructed of mangrove wood and chicken wire, is used as a back-up-system in case the Kesokes net breaks. Since it is used in conjunction with the Kesokes net and Ruul, it is natural that its period of seasonality would be quite similar to that of the other two devices.^{1,2}

There are two fishing devices used on an irregular cyclical basis. The Bub and the Ebingel are two fish traps that fall into this category. The Bub is a lattice-worked cage constructed of the roots of the Iul plant. This 3 x 3 x 12' rectangular fish trap is used primarily to catch such fish as the Besechamel, Bang, Esengel, Keremlal, Temekai, and Mesekuiik. The Bub is constructed during Chiiach ra Ngebard and can be used any time during the months of Ongos. The Bub, however, has not been used for several years by the people of Ngermetengel.

Another seasonal fishing device that has not been used for several years is the Ebingel--a 50' long, 20' wide multi-chambered

¹See Table 12.

²Although the Semael may be used at anytime during the months of Orengodel ra Ongos through Orengodel ra Ngebard, it must be remembered that the Semael is used only when the Kesokes net is so weak that it may not hold the accumulated fish.

Table 12

OPTIMUM SEASONS FOR PARTICULAR
FISHING TECHNIQUES

	ONGOS						NGEBARD					
	Tmur	Modlab	Taoch	Chelid	Orengodel	Chiiach	Tmur	Modlab	Taoch	Chelid	Orengodel	Chiiach
Ruul												
Bub												
Semael												
Ebingel												

bamboo and mangrove wood structure that challenges the most skillful fish to escape its trap.

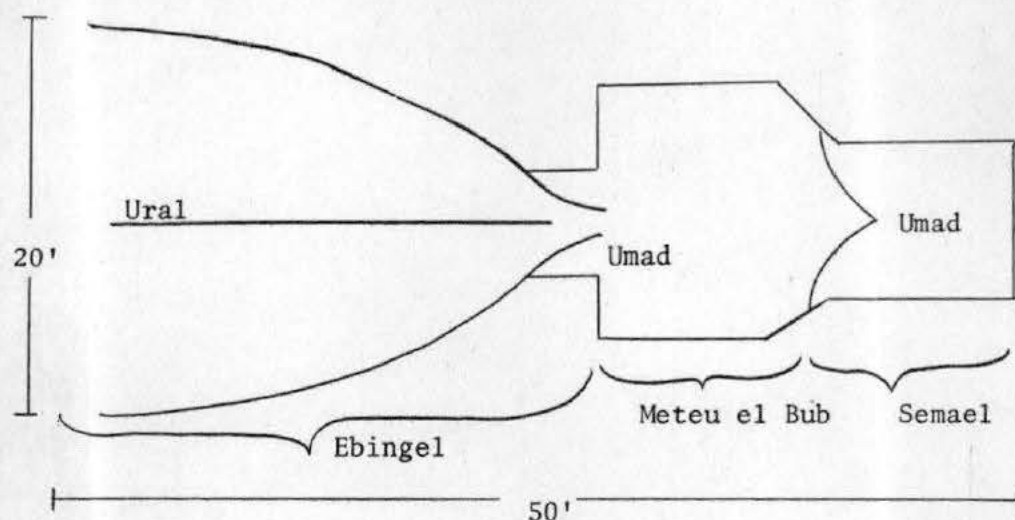


FIGURE 45. The Ebingel (Top view).

It takes about a week for one individual to erect this trap on the reef platform during its low tide cycle. Having been erected in the beginning of Tmur ra Ongos, the trap will remain on the reef until the end of Chiiach ra Ongos. At that time, the trap will be disassembled and moved to another location where it will remain for the duration of the year. If a villager constructs such a trap, he will usually visit the area once a day to check to see whether or not the trap was successful. Palau's sea-going crocodiles are often a victim of such a device.

Ngermetengel's fishing grounds are limited to the area seaward

of Ngaremlengui Municipality.¹ Despite the fact that fishermen could travel further north or south, they respect an unwritten law that each municipality should fish within its own territory. A further reason for not expanding their fishing grounds is the fact that they have no desire to travel any further to fish than they have to; all the fish they need or desire are available within their own territory. Why waste more time and energy in seeking the same fish elsewhere!

Whether its on the barrier reef, outside the reef, within the lagoon, on the fringing reef, or in the mangrove, each major fishing area has a number of choice locations that are named. Each location, inturn, is ideal for the catching of one or more particular types of fish. To hunt Meyas, for example, one would go to one of the many choice locations on the fringing reef. To catch several Kotikou fish, one would have to go on a certain month and day to Usas.

In 1968 the United States Navy surveyed the western channel, a major section of Ngaremlengui's fishing grounds. The people of Ngaremlengui feared that this section of their fishing grounds would be destroyed, for the Navy had at one time discussed the possibility of deepening the channel with explosives. This action, of course, would eliminate the coral feeding grounds for the thousands of fish in the area. It would further completely change the cycles at which

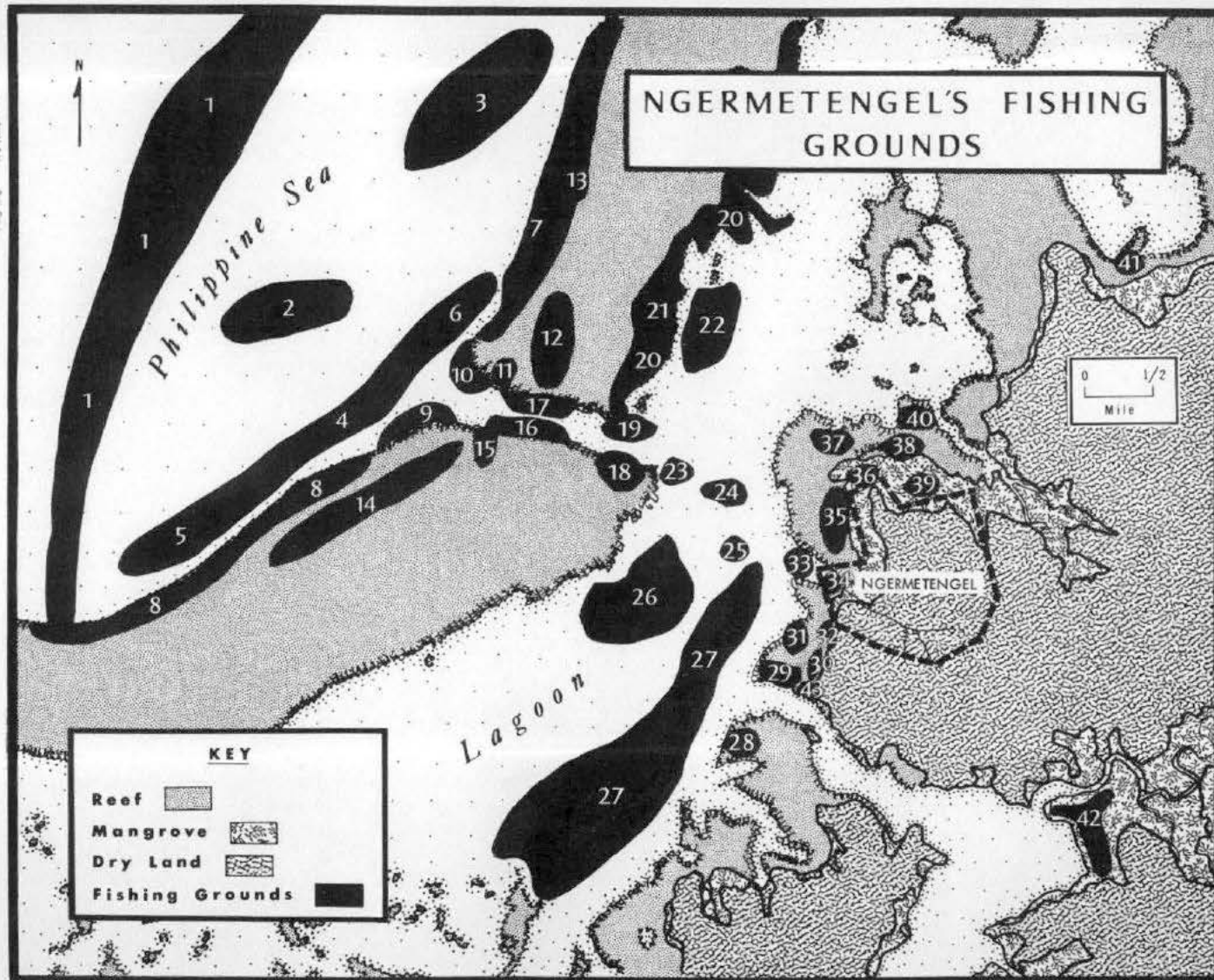
¹See Figure 46.

INDEX TO MAP
Ngermetengel's Fishing Grounds

Number	Name of Fishing Grounds	Names of Fish to be Caught There
1	Ngeuaol	Yellow Fin, Tuna, Keskas, Ngelngal, Meyai
2	Medal a Touachel	Keremlal, Tiau, Mokas, Kedesau, Baungor, Temekai
3	Ikrel a Mecherong	Keremlal, Kedesau
4	Oikeiam	Temekai, Tiau, Mokas, Baungor
5	Ikrel a Songd	Keremlal, Mokas, Kedesau, Baungor, Tiau, Temekai
6	Bkul a Beluu	Temekai, Baungor
7	Ikrel a Chelmol	Mayai, Terekrik, Erabrukel
8	Chelmol	Well
9	Medal a Touachel	Keremlal, Tiau, Mokas, Kedesau, Baungor, Temekai
10	Medal a Touachel	Keremlal, Tiau, Mokas, Kedesau, Baungor, Temekai
11	Mecherong	--
12	Chiis ra Mecherong	--
13	Chelmol	Well
14	Songd	Bebael, Beduut, Reked
15	Tmolch Rams	--
16	Chelsel a Touachel	Manges
17	Chelsel a Touachel	Manges
18	Chiisb	Keremlal, Kedesau, Besechamel
19	Isacheius	Keremlal, Kedesau
20	Ngaraol	Mesekuuk
21	Ngerbuu	Dukel
22	Osmochel Bull	Melangmud, Mechur, Udech, Besechamel, Metengui
23	Dngerulachang	Malangmud, Mechur, Udech, Metengui, Besechamel
24	Uchidalch	Metangui
25	Mokad	--
26	Ikrel Ngesengao	--
27	Melkesokel	--
28	Lkes ra Ngesbokel	Kelat
29	Omeklusech	Meyas, Dech, Itotech, Edoched, Uii
30	Uet ra Oiaol	--
31	Omoachel	Uii, Kalat
32	Uet ra Sengees	--
33	Kliis	--
34	Iungs	Kotikou
35	Uet ra Sechelas	--
36	Lkes ra Bkulengril	Kelat
37	Omdiiil Meyas	Meyas, Dech, Itotech, Edoched, Uii
38	Uet ra Sebungel	Meyas, Dech, Itotech, Edoched, Uii
39	Sebungel	Kelsebuul
40	Ngetbengul	Meyas, Dech, Itotech, Edoched, Uii
41	Lkes ra Kesebelau	Kelat
42	Ngardebechel	Emang
43	Usas	Kotikou

Figure 46 – Index

FIGURE 46.



the fish migrate through the waters, thus destroying the cyclical pattern that Ngermetengel's fishermen use to determine the location of fish at various times throughout the year. Such an action by the Navy would completely destroy the present pattern of livelihood within Ngermetengel. The people of Ngaremlengui would then have to expand their fishing grounds further north and south, thus encroaching upon the territory of other municipalities. Fishing would naturally be more difficult as well as limited. Consequently, when the Navy said that they were undertaking the survey for the "betterment of the Palauan Fisherman," the villagers of Ngermetengel were naturally a bit dubious.

Terrestrial Cycles and Related Human Activity

As the fish live their natural cycles on the shallows of the reef and within the depths of the lagoon, the trees, plants, and shrubs on the land also live their various cycles throughout the year. And as they do, man will once again rotate his existence and activity around the blooming of flowers and the harvesting of fruits.

Non-Cultivated Plants. There are a total of 272 known types of flora within the village of Ngermetengel. Of this total, 31 can be classified as "cultivated plants" and will be hence discussed at a later time. This leaves a total of 241 non-cultivated plants that do not need the constant attention of man for their existence.

Of this total non-cultivated variety, only 148 have seasonal characteristics. If we consider the "usefulness factor" of these plants, only 94 varieties will remain on our list. In other words, only 94 of the original 241 non-cultivated plants are used by the villagers of Ngermetengel. Of these 94 varieties, 80 are used for either lumber (17 varieties) firewood (16 varieties), fertilizer (14 varieties), medicine (13 varieties), string (6 varieties), or other (11 varieties) purposes. These 80 varieties, however, are not indicative of man's cyclic activities within the area for these varieties can respectively provide lumber, firewood, fertilizer, medicine, or string at almost any stage in their growth once they have reached maturity.

This leaves us then with only 14 of the original 272 total known types of flora in Ngermetengel.¹ These 14 varieties, however, have a bearing, if though small, on the movement and activity of the people of Ngermetengel. Since all but one plant (Kalngebard), has two seasons, the major periods of harvest and consequent activity are in the months of Orengodel and Chiiach of both Ongos and Ngebard. Furthermore, since the biggest growing season and harvest are in the months of Ngebard, it can be expected that the major period of activity of these two harvest periods is in Ngebard.

Cultivated Plants. There are 31 types of flora within Ngermetengel that can be classified as "cultivated plants"--plants

¹See Table 13.



FIGURE 47.

Typical scene
during harvest
season.



FIGURE 48. Miich nuts and baskets spread to dry on the front
yard of Mellemat's house.

Table 13

USEFUL NON-CULTIVATED PLANTS HAVING
SEASONAL CHARACTERISTICS

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME	Historical Period	ONGOS				NGEBARD				EDIBLE				
				Tmur	Mediab	Taach	Chelid	Orengodel	Chilach	Tmur	Mediab	Taach	Chelid	Orengodel	Chilach	People
LEGUMINOSAE (Legume Family)																
<i>Inocarpus edulis</i> Forst.	Tahitian Chestnut	Keam	P.C.					X					X	X		
OXALIDACEAE (Wood-Sorrel Family)																
<i>A. bilimbi</i> L.	Bilimbi	Imekurs	P.C.					X					X	X		
ANACARDIACEAE (Mango Family)																
<i>Spondias Lutea</i> L.	Hog Plum	Meseiedal	P.C.					X X					X X	X		
<i>S. pinnata</i> (L.F.) Kunz.	Amra	Titimel	P.C.					X X					X X	X		
HIPPOCRATEACEAE (Hippocratea Family)																
<i>Salacia naumannii</i> Engl.		Detimel	P.C.					X X					X X	X		
BOMBACACEAE (Bombax Family)																
<i>Ceiba pentandra</i> (L.) Gaertn	Kapok	Kalngebard												X		
FLACOURTIACEAE (Flacourtia Family)																
<i>Pangium edule</i> Reinw.	Pangi; Payan	Riamel	P.C.					X					X	X		
COMBRETACEAE (Terminalia Family)																
<i>T. catappa</i> L.	Tropical Almond	Miich	P.C.					X X					X X	X		
MYRTACEAE (Myrtle Family)																
<i>Eugenia cumini</i> (L.) Bruce	Java Plum	Mesekerrak	P.C.					X X					X X	X		
<i>Eugenia</i> (Syzygium) Sp.		Edebsachel	P.C.					X					X	X		
<i>E. reinward tiana</i> DC		Kesiil	P.C.					X					X	X		
SAPOTACEAE (Sapodilla Family)																
<i>Chrysophyllum cainito</i> L.	Star Apple	Xemim	Sp.					X X					X X	X		
MORACEAE (Fig Family)																
<i>A. communis</i> Forst.	Breadfruit	Meduu	P.C.					X X					X X	X		
<i>A. nobilis</i>	Seeded Breadfruit	Ebiel	P.C.					X X					X X	X		

Key to Historical Period	
P.C.	= Pre-Contact
Sp.	= Spanish Introduction
C.	= Chinese Introduction

that require some care by man for their existence.¹ Although men may now clear fields, sometimes work cassava and Giant Taro, gather the breadfruit harvest, and care for and harvest coconut groves, the women of Ngermetengel are primarily in charge of field agriculture. In the olden days, it was strictly the women who took care of the tasks related to agriculture. And, since the types of crops grown prior to the coming of the European were limited, field agriculture was primarily devoted to the propagation of taro. Now, however, such foreign crops as corn, onions, cabbage, radishes, calamondin, cassava, mango, and rambutan are found within a few of the Sers (dry cultivated fields) in Ngermetengel. With the exception of a few, most of these 31 crops can be grown year round and have no seasonal characteristics. There are, however, "preferred seasons" when planting should be emphasized and "slack days or seasons" when planting should be limited or avoided.

Since taro is the oldest and most favored crop in Ngermetengel, it is natural that conditions relevant to its planting are most critical, especially in regard to ancestral patterns of planting according to the phases of nature and the heavens. There are two preferred seasons to plant *Colocasia* in Ngermetengel. Both seasons are connected with the position of the Little Dipper at sunset. If the Little Dipper is approximately 45 degrees in the western sky

¹See Table 14.

Table 14

CROPS IN NGERMETENGEL

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME
<u>GRAMINEAE</u> (Grass Family)		
<i>S. officinarum</i> L.	Sugar Cane	Deb
<i>Zea mays</i> L.	Corn	Mais
<u>ARACEAE</u> (Arum Family)		
<i>Colocasia esculenta</i> (L.) Schott.	True Taro	Dait; Kukau
<i>Cyrtosperma chamissonis</i> (Schott.) Merr.	Giant Taro	Brak
<i>Zanthosoma sagittifolium</i> (L.) (Schott.)	Yautia	Eball; Bisech ra Ruk
<u>BROMELIACEAE</u> (Pineapple Family)		
<i>Ananas comosus</i> (L.) Merr.	Pineapple	Ongor ra Ngebard
<u>LILIACEAE</u> (Lily Family)		
<i>Allium cepa</i> L.	Onion	Sebulias
<u>DIOSCOREACEAE</u> (Yam Family)		
<i>Dioscorea alata</i> L.	True Yam	Telngot
<u>MUSACEAE</u> (Banana Family)		
<i>Musa</i> spp.	Banana	Tuu
<u>ZINGIBACEAE</u> (Zinger Family)		
<i>Z. officinale</i> Roscoe	Ginger	Sionga; kesel ra Ngebard
<u>PIPERACEAE</u> (Pepper Family)		
<i>Piper betle</i> L.	Betel Pepper	Kebui
<u>ANNONACEAE</u> (Custard-Apple Family)		
<i>Annona muricata</i> L.	Soursop	Sausab
<u>CRUCIFERAE</u> (Mustard Family)		
<i>Brassica</i> spp.	Cabbages	Nappa
<i>Raphanus sativus</i>	Radish	Daikong
<u>RUTACEAE</u> (Rue Family)		
<i>C. mitis</i> Blco.	Calamondin	Kingkang
<i>C. aurantifolia</i> (Christmann) Swingle	Lime	Malchianged
<i>C. Limon</i> (L.) Burm. f.	Wort Lime; Lemon	Debechel
<u>EUPHERBIACEAE</u> (Spurge Family)		
<i>Manihot esculenta</i> Crantz.	Cassava	Diokang
<u>ANACARDIACEAE</u> (Mango Family)		
<i>Mangifera indica</i> L.	Mango	Iedel
<u>SAPINDACEAE</u> (Soapberry Family)		
<i>Nephelium lappaceum</i> L.	Rambutan	Rambotang
<u>CARICACEAE</u> (Papaya Family)		
<i>Carica papaya</i> L.	Papaya	Bobei
<u>ERENACEAE</u> (Ebony Family)		
<i>Diospyros discolor</i> Willd.	Velvet Apple	Matib
<u>CONVOLVULACEAE</u> (Morning-glory Family)		
<i>I. batatas</i> (L.) Lam.	Sweet Potato	Emutii
<i>I. aquatica</i> Forsk.	Swamp Cabbage	Kangkum (leaves)
<i>I. gracilis</i> R. Br.		Torch (leaves)
<u>SOLANACEAE</u> (Tomato Family)		
<i>Solanum lycopersicum</i> L.	Tomato	Tomato
<i>Solanum melongena</i> L.	Eggplant	Nas
<u>CUCURBITACEAE</u> (Gourd Family)		
<i>Cucumis sativus</i> L.	Cucumber	Kiuri
<i>C. melo</i> L.	Muskmelon	Uri
<i>Cucurbita maxima</i> Duch.	Squash	Tongang
<i>C. pepo</i> L.	Pumpkin	Kalbasang

at sunset, then the season is Ngarmechaol, the last half of Chelid ra Ongos and the first half of Orengodel ra Ongos. This is the first preferred season of the year to plant Colocasia. On the other hand, when the Little Dipper rises in the eastern sky at sunset, this is the season of Ngaschekesus, a period which lasts approximately from the last ten days of Taoch ra Ngebard to the end of the 20th moon of Chelid ra Ngebard. These are both seasons of the year when one can find more activity within the Mesai (taro swamps) than on an average month or day of the year.

Of these two seasons "to rush to plant in the Mesai," the one occurring during the months of Ongos is the most preferred. In fact, the entire six months of Ongos are looked upon more highly than the months of Ngebard for the planting of Colocasia.

There are preferred days as well as seasons to rush to the taro patch. Both the 1st and the 15th moon of each Palauan month are considered the "best days" to plant Colocasia. Of these two days, the 15th moon or full moon is considered to be the superior day. It is believed by many of the older women in Ngermetengel that to plant on the full moon is to propagate a corm that will be large and round as is the full moon. There is no similar explanation for the fact that certain older women in Ngermetengel like to plant on the day of the new moon or first crescent.

There are also villagers within Ngermetengel who refrain from work on certain days because of a phase of nature or the heavens.



FIGURE 49.

Young Palauan girl
chewing sugar cane
as she waits for her
mother to return
from the Mesei
(wet swamps).



FIGURE 50. Pregnant mother searching for the proper taro corm to harvest.

The days of the Ochit, the time when the Little Dipper passes behind the moon, are considered by some to be "a bad time" to undertake any type of activity, whether it is working in the Mesai, fishing in the lagoon, or building someone's house. In relation to specifically the planting of Colocasia, some older women regard the 30th moon as a poor time to work in the Mesai. Others claim that the day after the Meyas fish lays its eggs is a poor time to plant Colocasia, this being the 6th moon of Taoch ra Ongos and the 7th moon of Chelid, Orengodel, and Chiiach ra Ongos.

As European crops were introduced into the system of agriculture, Ngermetengel's method of emphasizing planting during its "preferred days and seasons" was carried over to these new elements in the Palauan landscape. For example, some villagers of Ngermetengel believe that the full moon is not only the "best time" for planting Colocasia, but also a good time to plant cassava, a crop introduced by the Germans to supplement a temporary loss in taro production. Cassava is now the second most preferred type of starchy food to taro. A few elderly women within Ngermetengel now believe that all cultivated crops should be undertaken during the full moon in the belief that harvests will be increased. Likewise, others maintain that the periods of Ngarmechaol and Ngaschekesus are good seasons to plant any cultivated crop within the village. Thus, whether they be in the Mesai (wet swamps) or in the Sers (dry cultivated fields), the major period of agricultural activity within Ngermetengel is



FIGURE 51.

Teenage girls
collectively
preparing the
cassava fields
(Sers).



FIGURE 52. Terraced fields of cassava (Sers).

during these two seasons when the Little Dipper can be observed in either the eastern or western sky at sunset.

More typically, however, activity within the Mesai and Sers is according to convenience and need. Since both agricultural areas are worked on a rotational basis, planting and harvesting can be done at will when there is a demand from the household or community--approximately three times a week. The best time to plant or harvest is in the cool morning or evening hours when the sun is less intense. The following example may prove helpful in understanding the typical women's work cycle within Ngermetengel.

Ngais Yamazaki

Age: 40

Across the road from the old school building lies the house of a forty-eight year old rubac named Yamazaki. Yamazaki built his house about eighteen years ago with financial assistance from his relatives and friends. There are now seven people living in his house, his wife, Ngais, and his five children, Tobed, Iterir, Ngirchomlei, Oingerang, and Dirrakedil.

During the weekdays when school is in session, Ngais rises before the others, about the time the sun is just breaking through the trees.¹ After placing an empty homemade basket on her head, she

¹School runs very much as it does in the United States--September to June, Monday through Friday.

slips into her shoes and walks up a narrow footpath that runs from her house to the family cassava plot that is located just north of one of the village's water tanks. She spends about 30 to 45 minutes gathering cassava before returning home with just enough cassava to provide food for the afternoon and evening meal. After starting a wooden fire under a large kettle in the cooking sheds, she peels the roots, then slips the pared pieces into the boiling pot.¹

One might expect that this particular kettle of cassava would be used for the morning meal, but it is not. Ngais, as most of the other women in the village, prepares food hours or days ahead of the actual time that it is to be eaten. This cassava with which she has just returned is being cooked for the afternoon and evening meal. If there is leftover cassava from the evening meal, it will be served with the morning meal the following day, or distributed to friends whom she is indebted to.

While the pot of roots are boiling, Ngais serves breakfast to the children. Since the breakfast meal of fish and taro had already been prepared the day before, the serving of this meal was an easy task.² After the children finish eating and picking up after themselves, the adults move into the eating room. Ngais then

¹This section was first written in 1967. In 1972, Ngais had two kerosene stoves to cook on.

²Palauans prefer to eat their meals unheated or "warm like the waters of the lagoon." They will hardly ever eat a meal that is hot.

serves Yamazaki and then joins him in eating. After the morning meal is finished, the children rush to school so that they have time to play with their friends before the eight o'clock bell rings. Ngais may now do one of the following things. She may decide to wash the dishes or clothes; however, this is usually the responsibility of the children. If need be, she may remain at home to weave new baskets or mend old clothes. If she wishes to do some gossiping, she may walk down the road to a relative's house. Or if she is tired, she just might remain home and take a morning nap.

Besides being a housewife, Ngais also has the added responsibility of watching over the store that her husband had created from an extra room in their house. Despite the fact that Yamazaki handles all the heavy activities related to the operation of their store, activities such as driving a boat to the District Center to pick up the supplies for the store and helping his children cart the supplies from the dock to their house, Ngais handles most of the daily operation. Since her husband is usually busy working at the sawmill or working on community related projects and her children are in school most of the day, Ngais must spend most of her day around the house in chores or merely resting or sleeping, for if she leaves for any length of time, she is likely to miss a potential customer. As a result, whatever Ngais does after returning from her morning visit to the Sers will most likely, by necessity, be located in close proximity to her house, unless she is called upon by the

local women's association to participate in community work.

If there is community women's work to be done in the village, one of the merredel (bosses) of the Ngarakaeb Association (Ngermetengel's Women's Association) will contact Ngais and inform her that there is a meeting in the Bai (community building) to discuss the situation and distribute the labor force. If the task at hand is to provide food for visiting guests, Ngais will be sent to her garden to produce her share. If the task involves cleaning up a public area, she will be sent with the other women to perform the job.

At about three or four o'clock in the afternoon, Ngais will stop what she is doing and head for the taro patch. She generally returns about 5:30-6:00 P.M. and begins cooking the taro for the next day's breakfast, lunch, and dinner. While the taro is boiling, Ngais will serve the taro that was cooked the night before and the fish that the children just reheated.¹

To briefly summarize Ngais' Monday through Friday movements, her mornings are spent in the cassava patch (Sers), her afternoons are spent watching over the store, and her evening movements are to the taro patch (Mesei) and back. In other words, her life pattern exists between three establishments--her house, her cassava patch, and her

¹When the fish is first brought to the house, Ngais will cook the entire amount so that it will not spoil in the days to come. It is the responsibility of the female children in the family to reheat the remaining fish as long as it lasts.

section within the taro patch. And only on the call of community work would she vary from this pattern.

On the weekend, the children have no school, and, consequently, are home to relieve Ngais from some of the daily chores. Tobed is now home to watch over the store and wait on customers. Ngais is now free to stroll down the path to one of her friend's houses and take up what she most thoroughly enjoys--sitting, chatting, and gossiping.

CHAPTER V

NGERMETENGEL: CLOCK AND CALENDAR

They had no method, that was observed, of measuring time but by the height of the sun. --Their seasons were divided into wet and dry, as in other tropical countries. They had some knowledge of the stars, having names for several of them, which they pointed out to our people.

--Keate - 1788

Introductory Comments

Day after day, month after month, the piercing sun races across the Palauan sky, only to be followed by the coolness of the moon and its glimmering stars. The tides ebb and flow, the flowers bloom, the heavy breadfruit falls. In the village of Ngermetengel, man lives closely tied to these cyclical patterns of nature.

Since the diurnal and seasonal landscape is a continuum of interlocking cyclic rhythms, we can devise a clock and calendar for Ngermetengel that can be used to describe the landscape as well as to predict the probable whereabouts and activities of its people for a given period of time.¹ The following calendar does not propose to say that on such and such a day, the men of the community will be at this particular location doing this particular activity. The calendar

¹See Figure 53.

[illegible] Extreme Limited

is merely one means of illustrating the cyclical character of this village landscape, as well as indicating the "best" times" for certain activities. Since most people will undertake an activity during an optimum time, the likelihood that a people will be carrying out an activity at this time is greater than at a time that is not considered optimum. Only in this sense can we predict the whereabouts and activities of the people of Ngermetengel. With this forewarning, we can now look at a representative year for the villager of Ngermetengel.

The Cyclic Landscape

Tmur ra Ongos

As the sun sets, the new moon can be seen low in the western sky. The tips of the crescent during this first darkness point in the direction of northern Palau. The winds have shifted to an easterly direction, bringing a continuum of warm, dry air. The three giant swells from the south have swept over the barrier reef leaving a smell of crushed coral within the village, an indicator that the God Rak has passed with the moon in hand to the village of Ngetmel in Ngarechelong Municipality. The new year has thus begun.

During the daylight hours following the first darkness, the Besechamel, Melangmud, Mechur, Udech, Yellow Fin, Tuna, Ngelngal, and Keskas are laying their eggs at their respective locations outside

Ngermetengel.¹ Since the Besechamel fish lays its eggs only on this one day of the month, there is a good likelihood that some of the men of Ngermetengel will be at either Osmochel Bull, Chiisb, or Dngerulachang--the areas in which this fish lays its eggs.² The Kereal (line) would be the most favored method of catching this fish during the day. The Melangmud, Mechur, and Udech fish lay their eggs on the first through fifth moon at Dngerulachang and Osmochel Bull. This would be a likely time to find some of Ngermetengel's men using line or Kesokes net in pursuit of these fish. The Yellow Fin, Tuna, Keskas, and Ngelngal, can now be found laying their eggs in Ngeuaol--Ngermetengel's furthest fishing grounds which are located outside the reef. Because of the danger and great distance one must travel, fishermen would least likely be found in this area.³

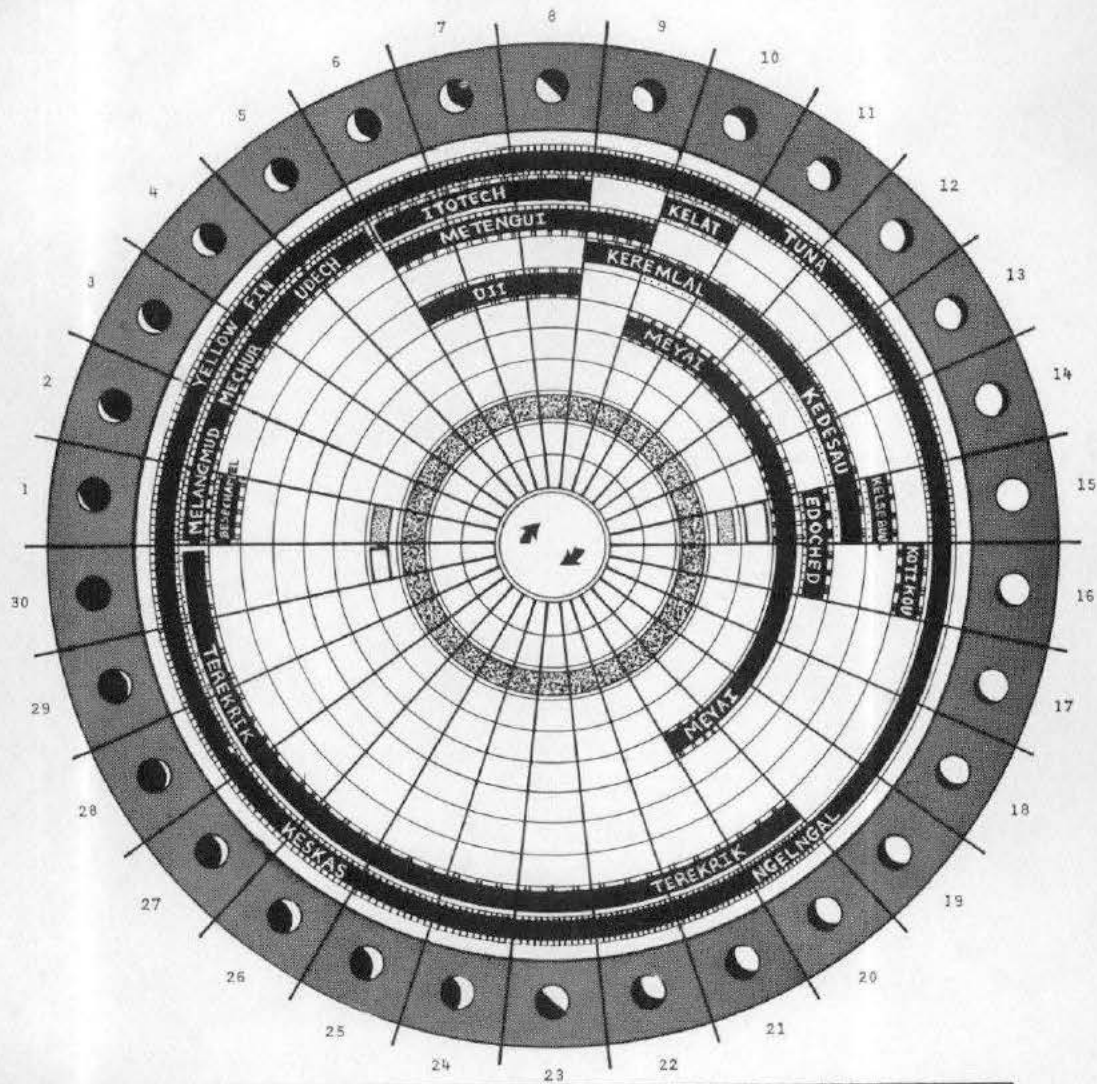
As moons pass and the evenings become brighter, other fish begin to lay their eggs within the lagoon. On the 8th moon, a rain comes that lasts for two days. At the completion of this rain on the 10th moon, the Kelat fish lay their eggs during the daylight hours. This is the time when men can be found using the Bidkill net

¹See Figure 54.

²Refer back to Figure 46 for place identification.

³In similar fashion, one can follow the remaining fish cycles as noted on the calendar and have a pretty good notion of what the men might be doing on a particular day of the year. Since these fish cycles are indicated in their entirety on the following monthly calendars, the text will only be used to highlight some of the more important points.

TMUR RA ONGOS (1st Month)



Key

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES

LINE: NET: (Continued)

Day [|||||]

Night [|||||]

NET:

Kesokes

Day [|||||]

Night [|||||]

Bidkill [---]

Kual *

SPEAR:

Taod & Lampe [---]

Klibiskang *

FISHING GUN: [---]

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [---]

Preferred Day to Plant Taro [---]

Possible Rest Day []

at various locations on the fringing reef; the specific locations are Lkes ra Bkulengril, Lkes ra Kesebelau, Ikes ra Ngesbokel, and Omoachel.

At the time of the full moon, the 15th darkness, the angle of the lunar cycle passes overhead in its northernmost extent, thus passing over the villager's left shoulder as he faces east. It is the day of the Ochit, the time that the Little Dipper passes behind the moon at midnight. Some of the men will refrain from fishing on this night because it is an unlucky time to undertake any activity. On the following day, the 16th moon, the islands undergo a rain called Dedengel a Kotikou. At this time when the Kotikou fish is laying its eggs, men will rush out with their Kesokes net to capture this popular fish of Ngermetengel. The place is Usas, a small area on the fringing reef south of Ngermetengel.

The nights of Tmur ra Ongos are warm and humid. The level of the river along the main road rises and falls as the tide fluctuates to its maximum. At times the river will flow a foot beneath the road; at other times a mere trickle can be seen flowing through the black and mucky river bed, a bed riddled with broken twigs and discarded tin cans. The night is a highly desirable time to fish during the months of Ongos; it is the time that the fish are sleeping and can easily be caught. Rather than fishing during the daylight hours, some men may prefer to seek the Besechamel on the first darkness with a fishing gun. Melangmud, Mechur, and Udech

may also be sought after on this same evening, but with line, not the gun. It is very unlikely that any fisherman would go outside the reef at night to catch Yellow Fin, Tuna, Keskas, or Ngelngal. They might, however, go outside the reef on the 29th and 30th moon to catch the popular Terekrik fish laying its eggs at Ikrel a Chelmol.

The Charmongos (Long Tailed New Zealand Cuckoo) has now taken up temporary residence in the village area and the Umekrenguker (Chinese Least Bittern) is actively laying its eggs in the grassy hills and flatlands (Ked) of Ngermetengel's interior. The women of the village are also active in their endeavors to plant Colocasia in the taro patch (Mesai). Generally speaking the entire month of Tmur ra Ongos is a good time to plant Colocasia, since it is one of the six months of Ongos, the preferred season to plant Colocasia. However, there are a few specifics worth mentioning. Some of the older women of Ngermetengel will prefer to plant even more on the 1st and 15th moon. In the month of Tmur ra Ongos, however, the 15th is the day of the Ochit, believed by some to be an unlucky day for any activity. Therefore, little planting on the 15th moon of this month can be expected. Another possible rest day would be the 30th moon, an unlucky day for planting Colocasia.

Modlab ra Ongos

At sunset, the new moon now first appears slightly higher in the western sky; the points of the crescent no longer point in their northernmost position, but more towards the heavens. The God Rak

has carried the moon to Ollei village where it sits on the hill called Ngerulek. The tidal cycle still continues to fluctuate at its maximum during the evening hours, but the breakers on the barrier reef are not quite as high as they were during Tmur ra Ongos. They now averaging 5-6 feet high.

The cycles of marine life within the lagoon remain quite similar to the past month, that is the same fish are laying their eggs on the same days of the month.¹ Once again the rain called Bedengel a Kelat comes on the 8th and 9th moon and once again the Kelat fish lays its eggs on the 10th moon. Similarly, the same phenomena that took place on the 16th moon with the Kotikou fish during Tmur ra Ongos takes place during this month. There is a short rain called Dedengel a Kotikou during which the Kotikou fish lays its eggs.

Although small rains occur as they did during the first month of the year, the over-all general amount of precipitation in the area has now declined to a point where the villagers see the period as the beginning of a dry season for their area. Despite the fact that rains do occur during this period, the rains are not as heavy nor do they last as long as they would in the latter months of the year. With the beginning of the dry season comes the beginning of Ngermetengel's first growing season, Remus. The month of Modlab ra Ongos is the period in time when all the trees and plants that bear fruit twice a year blossom and fill the village with their fragrance.

¹See Figure 55.

[illegible]

Key		
Optimum Days: Read Symbols		
<u>MARINE ORIENTATED ACTIVITIES</u>		
LINE:	NET: (Continued)	<u>LAND ORIENTATED ACTIVITIES</u>
Day	Bidkill	Preferred Season to Plant Taro
Night	Kual *	Preferred Day to Plant Taro
NET:	SPEAR:	Possible Rest Day
Kesokes	Taod & Lampe	
Day	Klibiskang *	
Night	FISHING GUN:	
	*No Optimum Days	

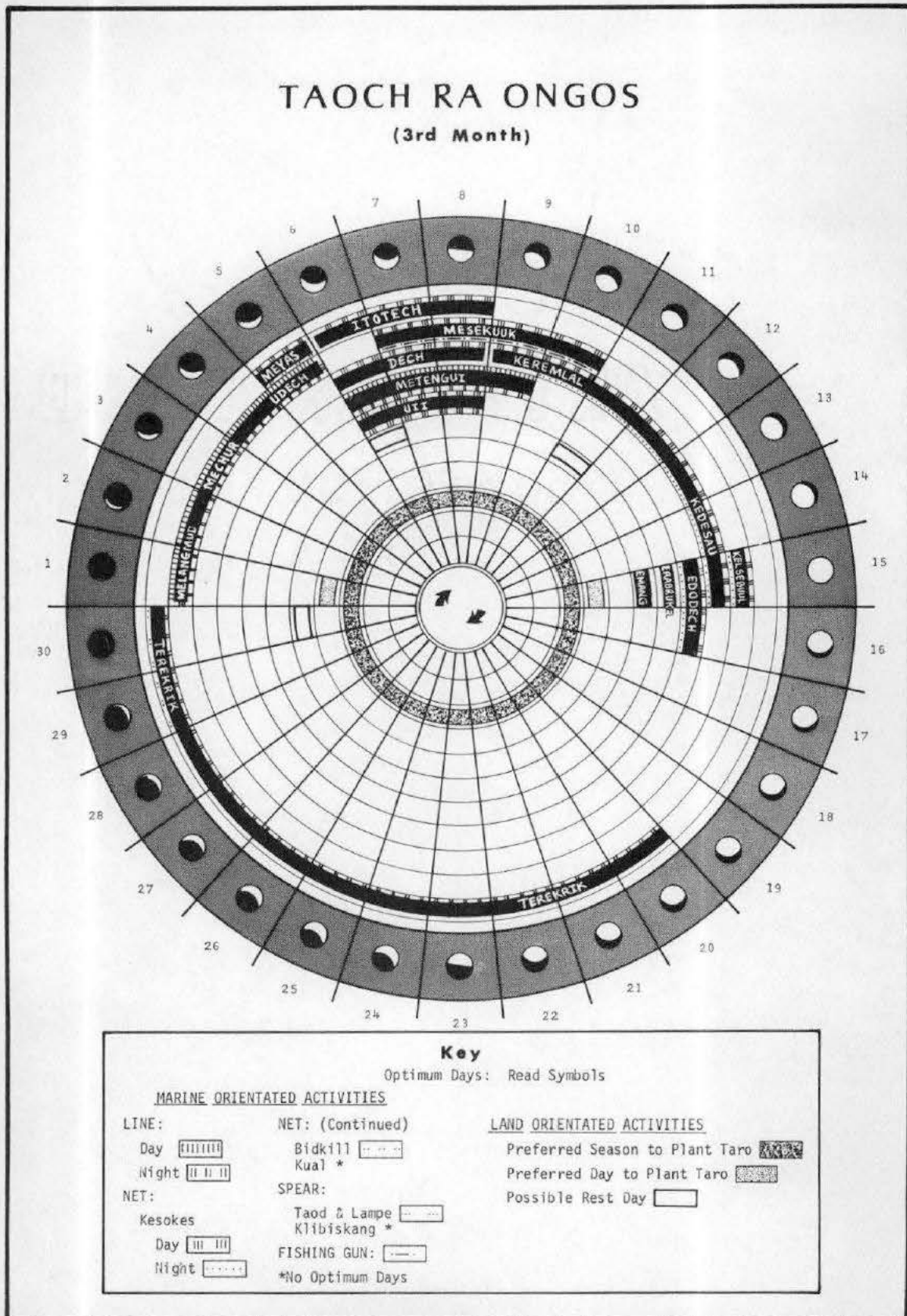
Human activities related to these cycles of nature remain quite similar to that of the past month. The day on which the Ochit falls, however, has some bearing for the more traditional members of the community. The Ochit now falls on the 13th moon, not on the 15th as it did during the last month. As a result, the 13th becomes the rest day, leaving the 15th darkness, the full moon, free for planting Colocasia, a normally preferred day for planting. Since the fish cycles within the lagoon are similar to that of the past month, the men may use these same optimum days for their various types of fishing activities.

Taoch ra Ongos

As the first moon of the new month appears higher in the western sky, the tips of the crescent seem almost to point directly towards the heavens.¹ The days pass and the angle of the lunar cycle is almost, but not quite, overhead. Brilliant red flowers can be seen blooming on the crown-base of the Indian Coral tree (Roro). The tides no longer have the great fluctuation as they did during the first two months of the year. Rak has carried the moon further south to Mengellang Village; Palau is thus experiencing its 3rd set of 30 darknesses.

The village is hot and dry, the sky is clear and brilliant with sunshine, and the rains are light and less frequent. The winds

¹See Figure 56.



remain easterly, but there is a stillness in the air. The breakers on the reef have now receded to an average of three feet in height. The surface of the lagoon is extremely calm and the underwater visibility is at a maximum.

On the 4th moon a light rain comes that lasts for two to three days; this particular rain is called Tebedel a Meyas. On the 5th moon of this month the popular Meyas fish leaves the mangrove swamps during the low tide cycle to lay its eggs at Ngetbengul, Omdiiil Meyas, and Omeklusech--all three are areas on the fringing reef surrounding Ngaremlengui. Although a Kesokes net and Bidkill may be used during the daylight hours to catch this fish, the Taod and air lamp method is a favorite means for pursuing this fish during the night. One can always expect some form of activity, night or day, in these areas on the day that the Meyas fish lays its eggs.

Interestingly enough, the following day is considered by some of the older women to be a poor time to plant Colocasia. As a result, this may be a rest day for some of the very old women in Ngermetengel. Another possible rest day would be the 11th moon, the time at which the Ochit occurs during this month.

Chelid ra Ongos

Rak has now carried the moon to a location further south on Babelthuap, to a village called Choll in Ngaraard Municipality. As a result, the Palau Islands are in the 4th set of 30 darknesses that

characterize the Palauan calendar.¹ The crescent tips of the first moon point directly towards the heavens as if the moon was resting on its backside. As the full moon appears in the eastern sky and travels en route toward the reef, it will pass directly overhead, not to one side as it did during the first three months of the year.

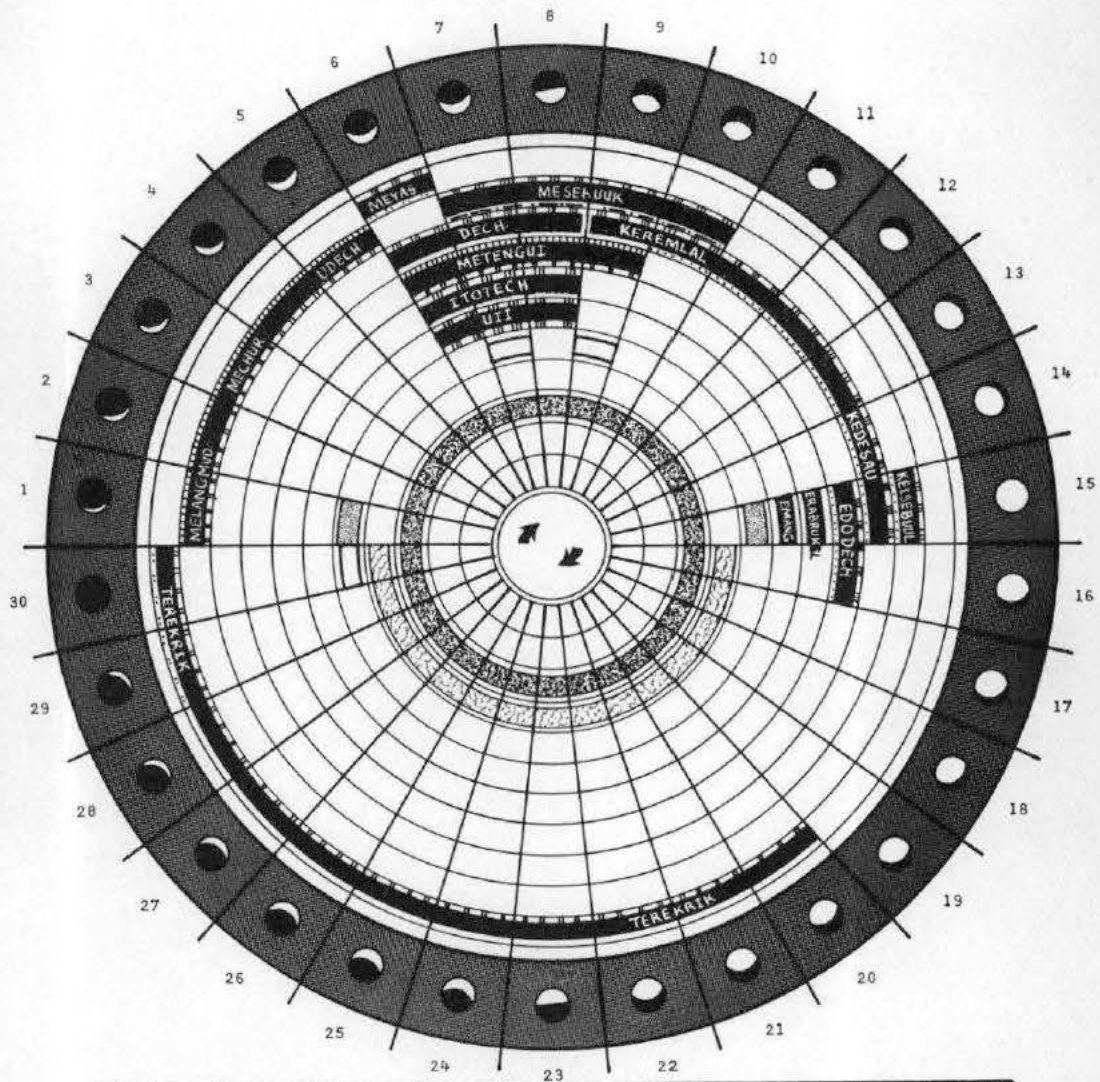
The climate continues to be extremely hot and dry, with winds easterly but gentle. Breakers on the reef are down to 1 foot high; in some places the reef is completely submerged. The lagoon is calm and crystal clear, its mirror-like surface reflecting the giant white cumulus clouds and the green profile of Babelthuap. Small fruits can now be seen where flowers once stood. The brilliant red flowers of the Indian Coral Tree (Roro) burst at the top of the crown, leaving the base of the crown with only the leaves. The Esuch-rubuokel and Eberdord insects are hatching their eggs, thus releasing a more than usual number of insects seeking the light of the house during the evening.

It is during Chelid ra Ongos that teams of men can be seen in preparation for fishing with the Ruul, the long coconut-frond fishing device that is used in conjunction with the Kesokes net. Particular members of the team will seek out bamboo trees in order that they can make a large raft in which to carry the Kesokes net and Ruul. Others may be seen preparing the individual coconut fronds

¹See Figure 57.

CHELID RA ONGOS

(4th Month)

**Key**

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIESLINE:

Day [|||||]

Night [|||]

NET:

Kesokes

Day [|||||]

Night [.....]

NET: (Continued)

Bidkill [.....]

Kual *

SPEAR:

Taod & Lampe [.....]

Klibiskang *

FISHING GUN:

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [.....]

Preferred Day to Plant Taro [.....]

Possible Rest Day []

Ngarmechaol [.....]

to be attached to the long nylon cord that is used to hold the coconut leaves together. The final activity, however, will be the twisting of the coconut fronds around the nylon cord. After three or four days' preparation of the Ruul, the men will disembark for the barrier reef, the time and exact place primarily dependent upon the condition of the tides.

As the sun sets on the 15th moon, the Little Dipper can be seen approximately 45 degrees high in the western sky. It is the beginning of Ngarmechaol, a preferred season to plant Colocasia. As a result, the women of Ngermetengel are likely to be actively planting in the taro patch.

Orengodel ra Ongos

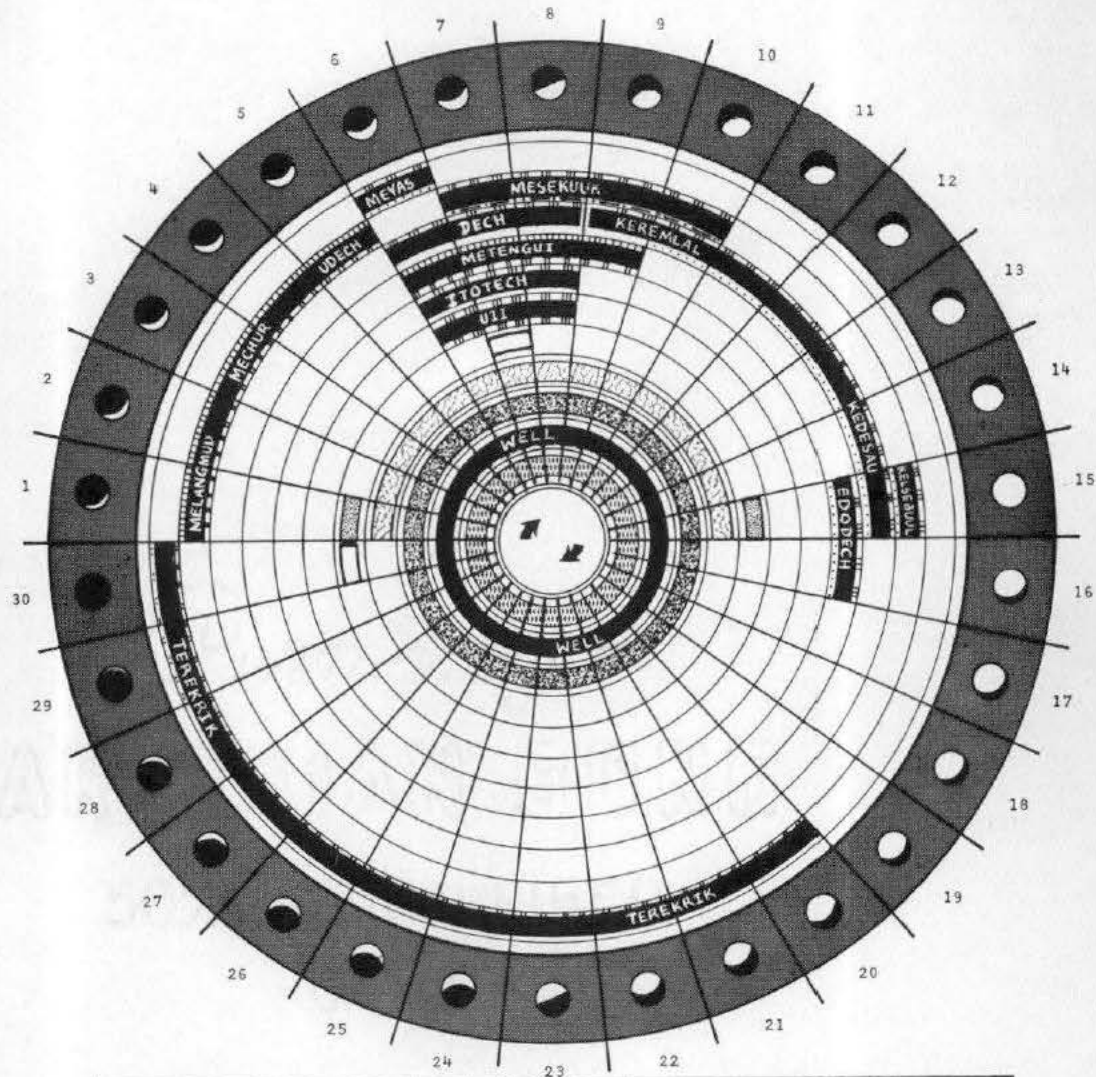
The planet earth once again completes her rotation around the sun and brings the tiny islands of Palau into her 5th set of 30 darknesses.¹ The angle of the lunar cycle as well as the crescent tips of the first moon are now beginning to shift towards the south. The God Rak and the moon are sitting on Mt. Rosingang in Ulimang Village, Ngaraard.

The village of Ngermetengel begins to cool in relationship to the last two months of hot and dry weather. The winds are still calm and easterly, but the rains have become slightly heavier and more frequent. The sea is not quite as calm and clear as the last two

¹See Figure 58.

ORENGODEL RA ONGOS

(5th Month)



Key

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES

LINE:

Day [|||||]

Night [|||]

NET:

Kesokes

Day [|||||]

Night [-----]

NET: (Continued)

Bidkill [-----]

Kual *

SPEAR:

Taod & Lampe [-----]

Klibiskang *

FISHING GUN: [-----]

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [Pattern]

Preferred Day to Plant Taro [Pattern]

Possible Rest Day [Pattern]

Ngarmechaol [Pattern]

Harvesting of Noncultivated Seasonal Fruits [Pattern]

months, but the breakers on the reef still remain at a height of about 1 foot. The Derariik bird has now migrated from the north and can be seen flying about within the village area. Other birds can be seen pecking at the ripened fruits of Ngermetengel's many seasonal trees, plants, and bushes. Children can be seen gathering the first harvests of Meseidal, Titimel, Detimel, Miich, Mesekerrak, and Kemim. Men hit the breadfruit trees with long poles to harvest the one or two fruits that are ripe. In the taro patch, the women actively plant young shoots of Colocasia in the sticky mud swamps, the first half of this month still being the preferred season for planting called Ngarmechaol.

The Meyas fish are now leaving the mangroves on the 6th moon to lay their eggs on the fringing reef, the men of Ngermetengel often in hot pursuit. On the night of the 7th moon, the Little Dipper passes behind the moon around 4:30 A.M., the time of the Ochit. Two factors cause the day of the 7th moon to be an unlikely day for much activity in Ngermetengel. One reason, of course, is that it is the day of the Ochit; the other reason is that it is the day after the Meyas fish lay their eggs.

Orengodel ra Ongos is the beginning of turtle (Well) season. Men can be seen standing on the bow of their diesel powered boats poised to fling the mighty Klibiskang (spear) at a turtle that has surfaced for air. The best place to catch the turtle, on the outer edge of the barrier reef, is called Chelmol.

Chiiach ra Ongos

The end of the first half of the year approaches with the onset of the 6th set of 30 darknesses.¹ The God Rak has now carried the moon to a place called Bkulatab in Ngiwal municipality. The crescent tips of the new moon are even further pointed toward the south, as is the lunar cycle as the moon passes around Palau. Several things will come to a close at the completion of this month. The Ochit which now falls on the 5th moon at approximately 5:00 A.M. cannot be seen during the next six months of Ngebard. This is also the last month when the tidal cycle will have its greatest fluctuation during the evening hours. During the six months of Ngebard, the largest low and high tides will occur during the daylight hours. This will also be the last month for fishing during the night, partially because of the change in tidal cycles, but more because of the poor weather that occurs in the months of Ngebard.

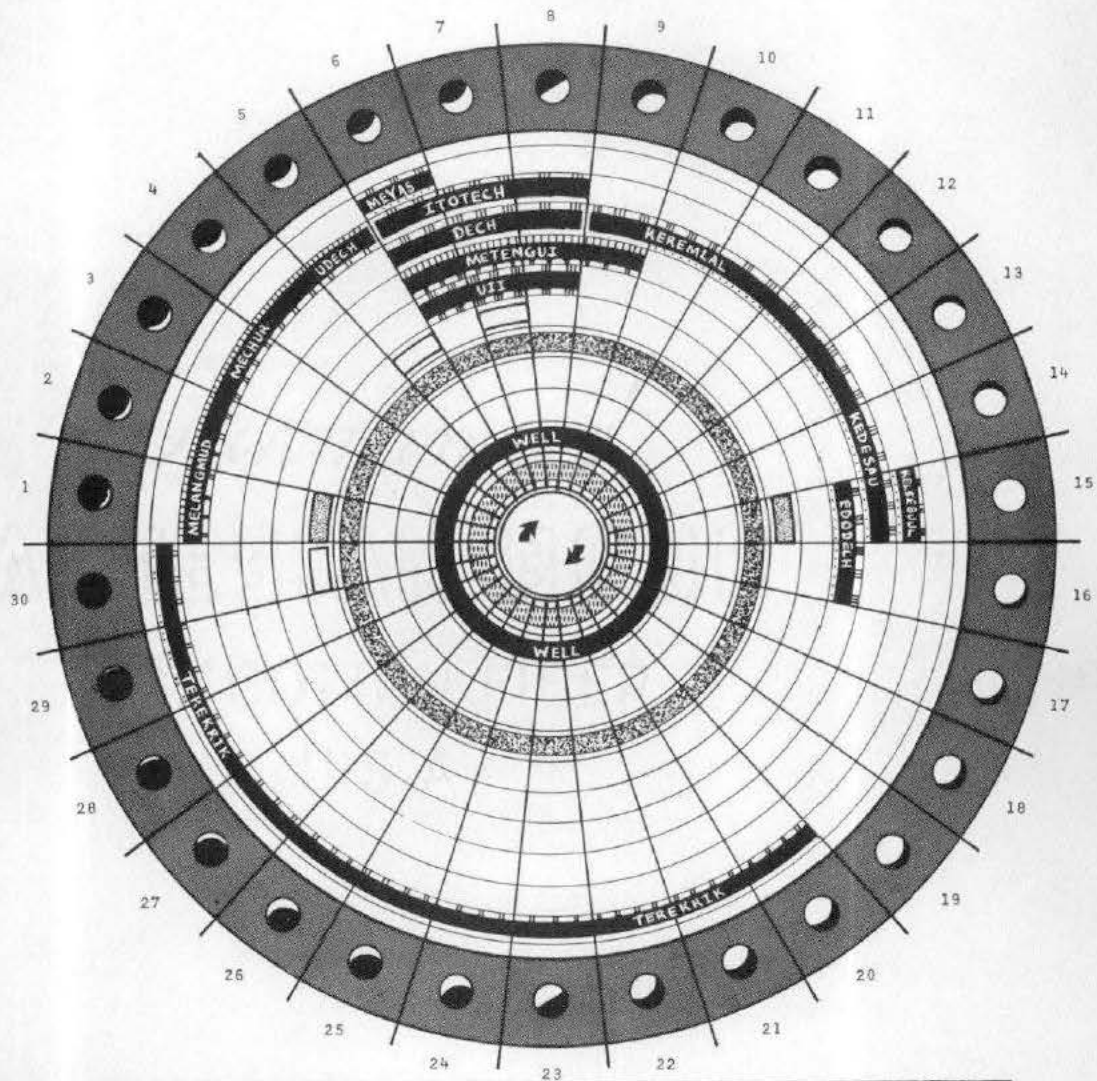
The winds are now beginning to fluctuate, no longer the steady easterly wind of the first five months of the year. Rains come more frequently, often heavier and cooler. The breakers on the barrier reef now reach to heights of 5-6 feet when the winds pick up. The mirror image of the lagoon has now been shattered by the change in climatic conditions. The lagoon floor is beginning to be stirred and the visibility of the water decreases as the days approach the

¹See Figure 59.

FIGURE 59.

CHIIACH RA ONGOS

(6th Month)



Key

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES

LINE:

Day [|||||]

Night [|||||]

NET:

Kesokes

Day [|||||]

Night [|||||]

NET: (Continued)

Bidkill [|||||]

Kual *

SPEAR:

Taod & Lampe [|||||]

Klibiskang *

FISHING GUN:

[|||||]

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [|||||]

Preferred Day to Plant Taro [|||||]

Possible Rest Day [|||||]

Harvesting of Noncultivated Seasonal Fruits [|||||]

beginning of Ngebard.

Children continue to harvest the fruit that began to ripen last month as well as the new ripe fruits of Keam, Imekurs, Riamel, Edebsachel, and Kesiil. The fruit of the breadfruit tree falls without the aid of human hand, the smashed fruit attracting hordes of flies to the ground beneath the huge green tree. The falling of the fruit marks the end of Remus, the first growing season for Ngermetengel's fruit bearing trees.

With the end of Chiiach ra Ongos also comes the end of Ongos, the overall preferred season to plant Colocasia. Activity within the Mesai (taro patch) will now be limited to times of absolute necessity.

Tmur ra Ngebard

The God Rak has now carried the moon to the hill called Ngerulbuu in Mekekeiok Municipality. Palau is in its 7th set of 30 darknesses.¹

As the first moon appears above the reef, the crescent tips can be seen to be pointing in their southernmost direction, an indication that the month is Tmur ra Ngebard. On the night that the full moon appears in the eastern sky and races towards the sea, it can also be observed that the angle of the lunar cycle is in its southernmost direction. The moon thus passes over the villager's

¹See Figure 60.

TMUR RA NGEBARD

(7th Month)

Key

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES		LAND ORIENTATED ACTIVITIES
LINE:	NET: (Continued)	Preferred Season to Plant Taro
Day []	Bidkill [---]	Preferred Day to Plant Taro
Night []	Kual *	Possible Rest Day []
NET:	SPEAR:	
Kesokes	Taod & Lampe [---]	
Day []	Klibiskang *	
Night [-----]	FISHING GUN: [---]	
	*No Optimun Days	**also Bebael and Beduut

right shoulder as he faces east. The tides fluctuate little during the evening, the major extremes between ebb and flow occurring during the daylight hours. In fact, it is during this and the next month that Ngermetengel experiences its lowest and highest tides during the daytime.

The winds are now coming from the west and will remain so until the end of the six months of Ngebard. The summer monsoon is in full swing, bringing in strong winds, heavy downpours, and high humidities during the daytime. The lagoon is extremely rough and dirty, making it almost impossible for fishing with mask and speargun. Waves are breaking against the reef at heights of 7-8 feet.

On the 1st and 15th of the month, the Bebael, Beduut, and Reked are laying their eggs at Songd, a time at which this section of the barrier reef is submerged. It is also the most optimum time for the fishermen of Ngermetengel to use their Kesokes net in pursuit of these fish. The Temekai, Baungor, Tiau, and Mokas fish lay their eggs every day of the month in their respective locations. Men from Ngermetengel may be found in these areas using the line during the daylight hours.

Although the months of Ngebard are not as ideal for planting Colocasia as are the months of Ongos, planting must go on if taro is to remain part of the daily diet. Optimum days for planting taro are on the 1st and the 15th of this month. The only possible rest day in relation to natural cycles is on the 30th moon, the time when

the moon is invisible to the observer.

Modlab ra Ngebard

Moving once again down Babelthuap, the God Rak places the moon on a hill called Roischesar in Ngechesar Municipality. There the moon will stay for the 8th set of 30 darknesses. The crescent tips of the first moon are no longer pointing in their southernmost direction, nor is the moon circling Palau in its southernmost position in the sky.¹

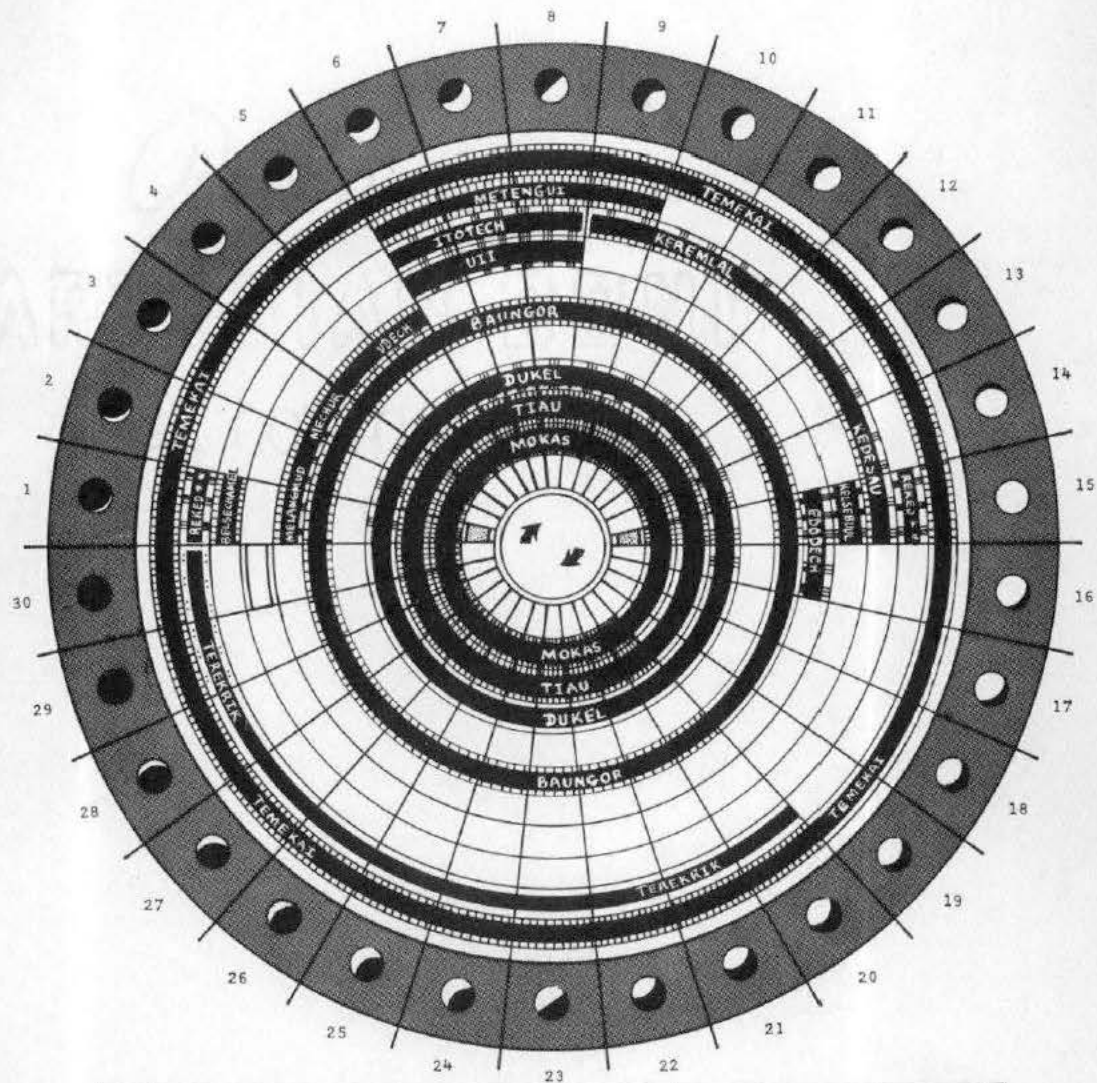
Heavy rains plus strong winds continue to lash at the lagoon rippling its surface and churning its crushed coral floor. The Philippine Sea now meets the coral reef, causing breakers approximately 5-6 feet high, slightly lower than the past month. With the exception of the Dukel fish, egg laying cycles within Ngaremlengui's fishing grounds are similar to the last month. The Dukel lays its eggs at Ngerbuu, an area on the reef quite some distance from the village. It is unlikely that many fishermen would travel this distance to seek merely this one fish.

The village once again bursts with the fragrance of flowers. It is the beginning of Sim, Ngermetengel's biggest season for all her fruit bearing trees. As the flowers turn into small green fruits, the children anxiously await the day that they can harvest the sweet flavors of nature. Activity within the taro patch is limited to

¹See Figure 61.

MODLAB RA NGE BARD

(8th Month)

**Key**

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES

LINE:

Day [|||||]

Night [|||||]

NET:

Kesokes

Day [|||||]

Night [|||||]

NET: (Continued)

Bidkill [|||||]

Kual *

SPEAR:

Taod & Lampe [|||||]

Klibiskang *

FISHING GUN: [|||||]

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [|||||]

Preferred Day to Plant Taro [|||||]

Possible Rest Day [|||||]

**also Bebael and Beduut

those days when the rains are not pouring from the sky.

Bad weather, in fact, limits most activities. In most western societies, appointments and schedules are kept regardless of the condition of the weather. In Ngermetengel, however, schedules run according to nature and convenience. Rarely, if ever, would one see any activity out in the open taking place during a heavy downpour. Even when dealing with western time schedules such as that which exist in Ngermetengel's elementary school, nature interjects her hand into the picture. For example, Ngaremlengui Elementary School is supposed to begin at 8:00 A.M. in the morning, as do most schools in the United States. However, if there is a rain prior to the scheduled opening of school, classes will not begin until 30-60 minutes after the rains have stopped. Furthermore, if the day remains dark, windy, and relatively cool, school will be cancelled. This is logical since the school lacks windows to keep out the elements of nature. The rainy season, then, extremely limits activity, whether it be in the realm of fishing, agriculture, education, or recreation.

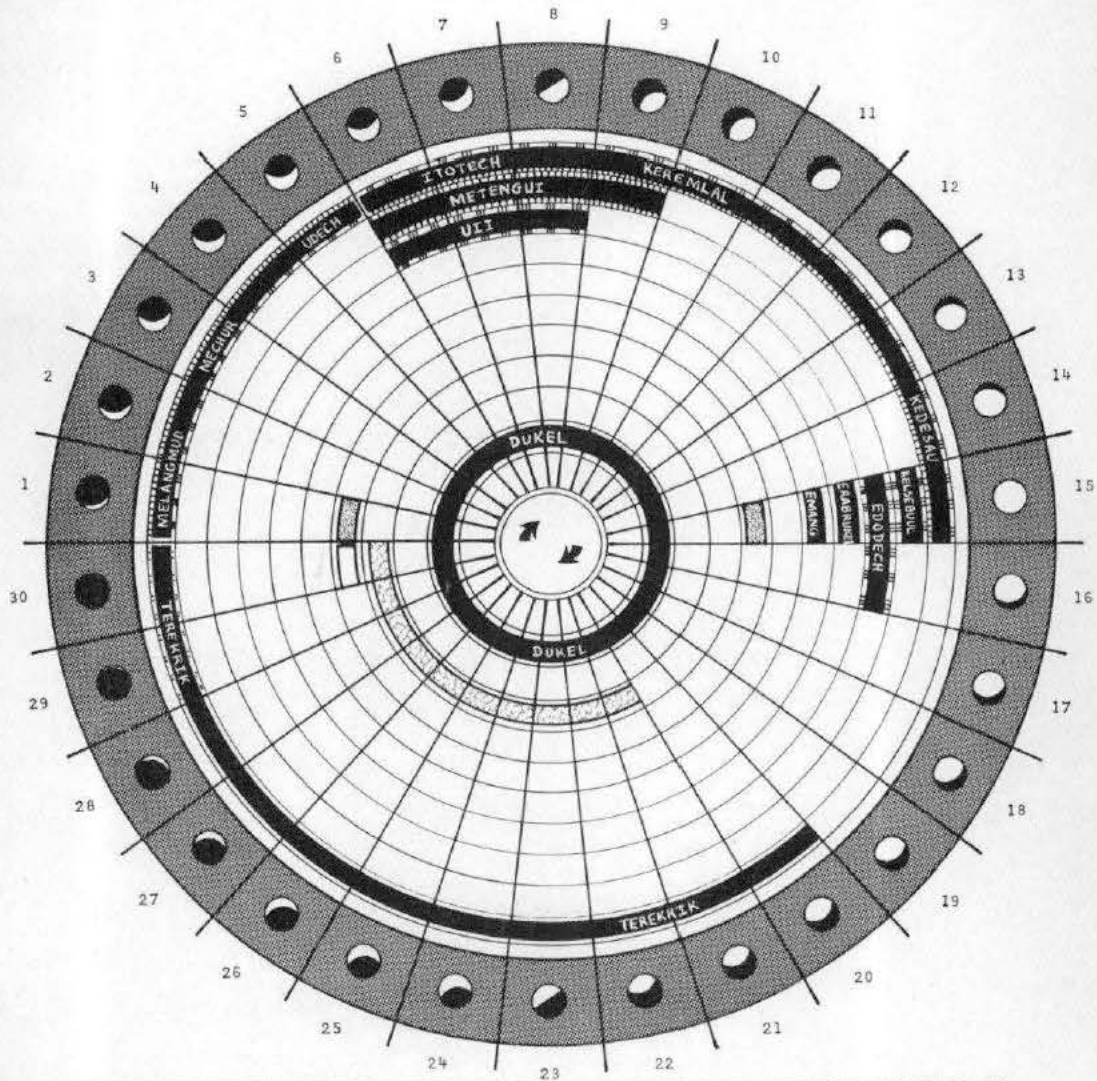
Taoch ra Ngebard

The flaming red flowers of the Roro tree once again bloom at the base of its crown, informing the villager that the month is Taoch.¹ He knows that Rak (God) is in Ngeduais, an island outside of Airai

¹See Figure 62.

TAOCH RA NGE BARD

(9th Month)



Key

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES

LINE:

Day Night

NET:

Kesokes

Day Night

NET: (Continued)

Bidkill

Kua1 *

SPEAR:

Taod & Lampe ...
Klibickang *

FISHING GUN: [

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro

Preferred Day to Plant Taro

Possible Rest Day

Ngas chekesus 

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Municipality. The villager then must know that the moon is residing on the hill called Ielech in the same municipality. The crescent tips of the first moon are almost, but not quite, pointing towards the heavens. As the moon passes over the island, the angle of the lunar cycle is almost overhead.

The tides ebb and flow, continuing to fluctuate greater during the daytime than during the evening hours. However, the large fluctuations that occurred during Tmur and Modlab ra Ngebard no longer take place. Temperatures seem cooler now, and the winds appear to be calming down. As the winds become more gentle, so does the lagoon; the surface is no longer as rough nor are the depths of the lagoon as turbulent and dirty. The sea waves now break against the reef causing bursts of white reaching heights of only three feet.

Very few of Ngermetengel's most sought after fish are laying their eggs during this month. Those fish that are laying their eggs have been doing so for the past eight months and will continue to do so during every month of the year, with the exception of the Dukel fish. The Emang (Crab) continues to lay its eggs at Ngerdebechel and Omchedcharaol Mesang. The Erabrukel (Lobster) also continues to lay its eggs at Ikrel a Chelmol. Since the crab and lobster can be found in their respective locations at any time during the year, the fishermen will not seek out these two marine resources on the 15th moon anymore than they would on any other day

of the month. The most popular fish on the list is the Terekrik fish. Ideal conditions for using the Bidkill net, however, only exist on the 29th and 30th of the month. If the weather is decent on these two days, there is a good chance that a few men may be spotted at Ikrel a Chelmol, the area in which the Terekrik fish lays its eggs.

During the latter half of the month, the Little Dipper rises in the eastern sky at sunset, marking the season of Ngaschekesus, the preferred season to plant Colocasia during the months of Ngebard. Consequently, the women can be expected to be more active in the taro patch during this period.

Chelid ra Ngebard

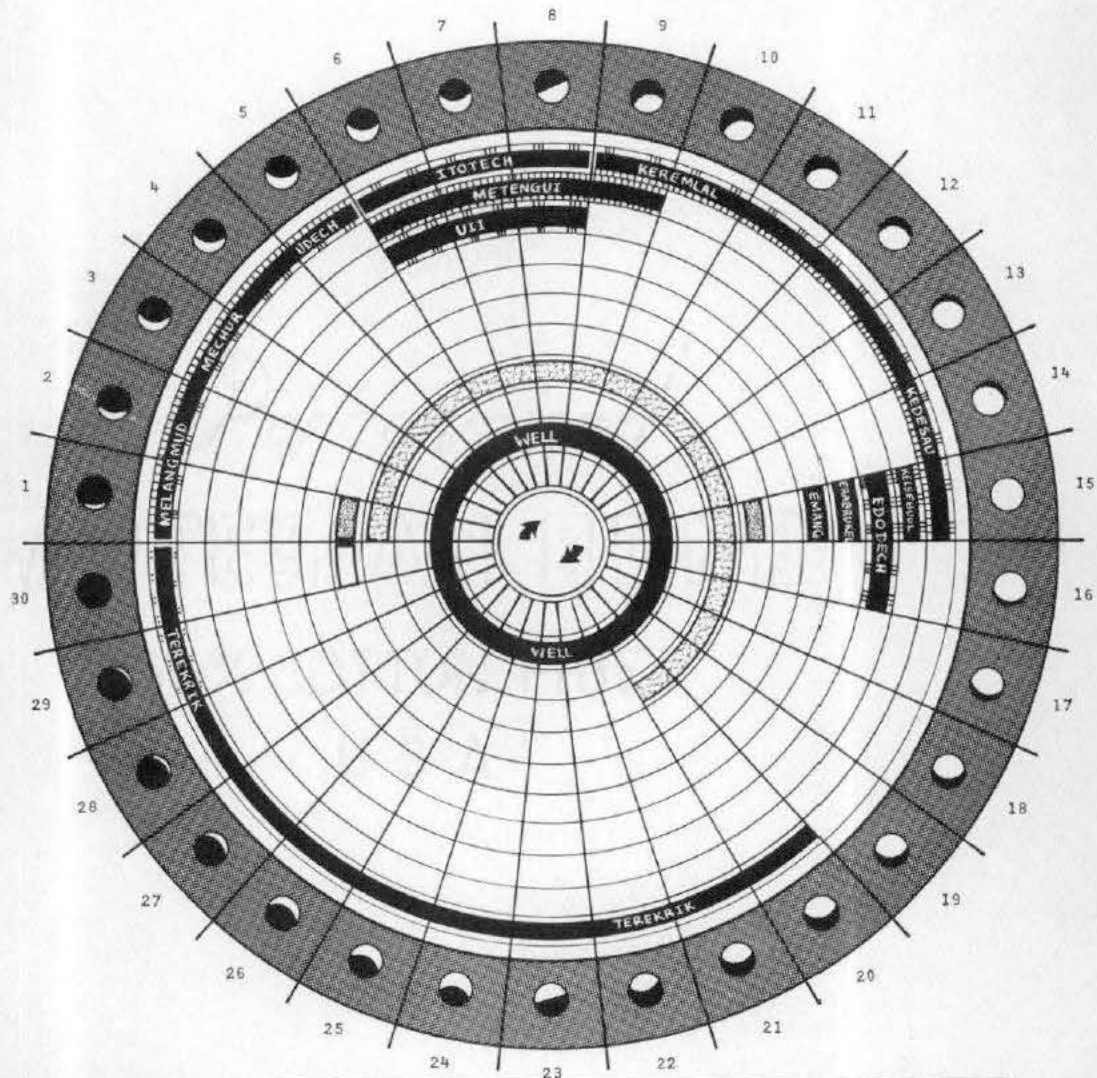
The God Rak has now left the island of Babelthuap for the first time in the lunar year. He has carried the moon to Ngermid, a section of Koror Island which lies south of Babelthuap. As the moon sits on the hill called Ngerungewikel, flowers burst on the top of the Roro tree ushering in Palau's 10th set of 30 darknesses.¹

As the first moon appears beyond the reef, the tips of the slender crescent point skyward, not having done so since Chelid ra Ongos. On the day of the 15th, the full moon rises in the eastern sky and passes directly over the observer's head, also not having

¹See Figure 63.

CHELID RA NGEbard

(10th Month)



Key

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIES

LINE:

Day [|||||]

Night [|||]

NET:

Kesokes

Day [|||]

Night [.....]

NET: (Continued)

Bidkill [.. ..]

Kual *

SPEAR:

Taod & Lampe [.. ..]

Klibiskang *

FISHING GUN: [.. ..]

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [.....]

Preferred Day to Plant Taro [.....]

Possible Rest Day []

Ngaschekesus [.....]

done so since the month of Chelid ra Ongos. The tides continue to fluctuate heavily during the daytime, regulating traffic on Ometubet River.

Despite the fact that what is called Palau's "Rainy season" has now ended, the rains continue to pour, often restricting activities that occur in the open. The breakers on the reef are now down to a maximum of 1 foot high, thus causing danger to fishermen that return from the otherside of the reef. The seasonal fruit trees of Ngermetengel continue to change character as the thousands of young fruits become larger and heavier. Ngermetengel is now in the middle of Sim, the village's largest season for non-cultivated fruits. Once again the Esuch-rubuokel and Eberdord insects can be found in greater numbers swarming around the open lightbulb in the house during the evening, the insects having just hatched their eggs in the earth.

Few changes in fish cycles exist from the last month; the number of fish laying their eggs is once again small. Similarly, man's activities within the lagoon are most likely limited. The turtle (Well) is once again in season, thus allowing Ngermetengel's men the freedom to fling their spears (Klibiskang) at this most graceful creature of the sea.

On the land, the season continues to be good for the planting of Colocasia as it is a continuation of Ngaschekesus. The women of the community will plant more young shoots during this period

when the Little Dipper can be seen in the eastern sky at sunset than at any other time during Ngebard.

Orengodel ra Ngebard

The 11th set of 30 darknesses begins when the legendary God Rak carries the moon to Ngemelis, an area on the southern island of Peleliu.¹ Rak places the moon on the mountain called Ngermolisois, where it will reside for the duration of this period. The crescent tips of the first moon no longer point skyward as they did during the last month, but rather slightly north. As the moons pass over the island, the villager sees that the angle of the lunar cycle is also back towards the north, thus beginning to pass over his left shoulder as he faces east.

Climatic conditions remain much the same as during the past month, making it difficult for Ngermetengel's fishermen to provide ample protein for their dinner plate. Turtle meat, often a substitute when fish cannot be obtained from the sea, is no longer in season and therefore cannot be hunted. Conditions for fishing with the Ruul device are no longer optimum, thus eliminating this form of fishing until the next season. Ngermetengel's commercial fishing vessel may continue to go to its favorite spots within the central lagoon (Uchidalch, Dngerulachang, and Ikrel Ngesengaol),

¹See Figure 64.

but harvests will be minimum.¹ During those days when the elements of nature make it difficult to subsist on the natural products of the sea, the women will patronize the village store to purchase either canned Mackerel, Tuna, Spam, or corned beef to augment the taro, cassava, or rice that goes with the meal.

Ngermetengel's uncultivated seasonal fruits are now beginning to be harvested, but these are merely "treats" to the children. Orengodel and Chiiach are the months to see the children of Ngermetengel hanging from the various trees, rapidly tossing its small fruits into their mouths. The fruit trees of Ngermetengel do not play a major part in the diet of the adult male or female Palauan. Ngaschekesus has ended, thus activity within the taro patch will be minimal.

Chiiach ra Ngebard

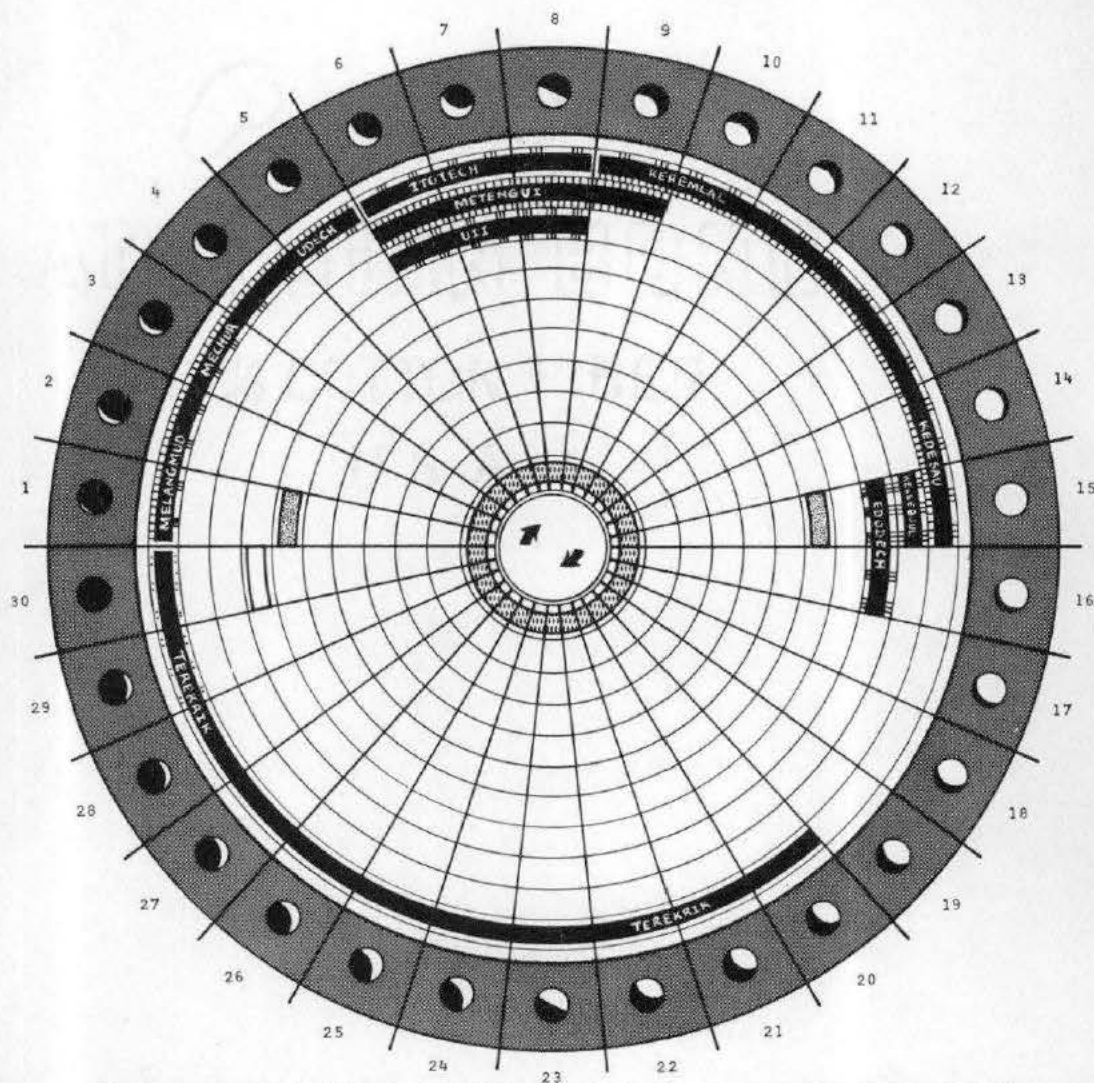
The God Rak has now carried the moon further south to the island of Anguar. Rak and the moon will reside for the 12th and final set of 30 darknesses on this historic World War II battleground.² As the moon appears during the 1st darkness, the crescent tips seem to

¹Ngermetengel's commercial fishing vessel is presently run by members who are best suited at using the line. As a result, the members will fish on the optimum days of Mengeiai--the days of the month when the tide fluctuates the least (5th-10th moon; 20-26th moon).

²See Figure 65.

CHIIACH RA NGEbard

(12th Month)

**Key**

Optimum Days: Read Symbols

MARINE ORIENTATED ACTIVITIESLINE:

Day [|||||]

Night [|||]

NET:

Kesokes

Day [|||||]

Night [|||||]

NET: (Continued)

Bidkill [|||||]

Kual *

SPEAR:

Taod & Lampe [|||||]

Klibiskang *

FISHING GUN: [|||||]

*No Optimum Days

LAND ORIENTATED ACTIVITIES

Preferred Season to Plant Taro [|||||]

Preferred Day to Plant Taro [|||||]

Possible Rest Day [|||||]

Harvesting of Noncultivated Seasonal Fruits [|||||]

be pointing even more towards northern Palau. The days pass and even the lunar cycle seems to be at an angle further towards the north. Actually, it won't be until the new year that they reach their extreme positions, thus completing the annual cycle.

The winds are now fluctuating; the trees no longer bend in one primary direction, nor do the clouds glide over the islands as they did in the early months of Ngebard. The winds change direction by either passing around Babelthuap to the north (Sechal Ongos) or to the south (Rdil Ongos). Regardless of the route taken, the winds will become easterly and sweep the islands into their new year.

Ngermetengel's second and largest growing season, Sim, is in its final climax; children rush to beat the birds to the harvest. Baskets of Miich nuts can be seen in the front yards of those houses that have such trees on their property; the shell remains can be spotted at the location of an over anxious child or parent. The limbs of the breadfruit tree are heavy with fruit, their burden soon to be lifted by men with long bamboo poles.

On the lagoon, the men now count the giant swells that come up from Angaur and beat against the reef. First comes Boid or Labk crushing the old and weak coral that lies in its path. Then comes Omeka Dnger, the second swell that braces the existing coral structures with crushed debris. And finally comes Mengelechel a Uchaoch, informing all that Rak is now on his way to Ngetmel Village

in northern Bablethuap.

With the passage of Rak and the shifting of the winds, the old year fades into the new, thus completing the annual cycle that augments the elements, processes, and agents that characterize this remote island landscape.

APPENDIX

FLORA: ONE SEASON

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME	Historical Period	ONGOS				NGEBARD				EDIBLE				
				Tmur	Modlab	Taoch	Chelid	Ongodel	Chiaach	Tmur	Modlab		Taoch	Chelid	Ongodel	Chiaach
<u>PANDANACEAE</u> (Screw Pine Family) <i>Freycinetia villalobosii</i> Mart.	Freycinetia	Chiul (Iul)	P.C.	X	X	X										
<u>BROMELIACEAE</u> (Pineapple Family) <i>Ananas comosus</i> (L.) Merr.	Pineapple	Ongor re Ngebard	Jap.	X	X	X	X	X	X	X	X				X	
<u>TACCACEAE</u> (Tacca Family) <i>Tacca leontopetaloides</i> (L.) O. Ktze.	Polynesian Arrowroot	Seboseb	P.C.	X	X	X	X	X							X	
<u>ZINGIBACEAE</u> (Zinger Family) <i>Curcuma domestica</i> Volet.	Tumeric	Kesol	P.C.	X	X	X	X	X								
<u>MARANTACEAE</u> (Arrowroot Family) <i>Donax canniformis</i> (Forst. f.) K. Schum	Conax	Temring	P.C.	X	X	X	X	X							X	
<u>MELIACEAE</u> (Mahogany Family) <i>Swietenia mahagoni</i> (L.) Jacq.	Mahogany	Mahongani	Jap.	X	X	X										
<u>ANACARDIACEAE</u> (Mango Family) <i>Rhus taitensis</i> Guillemain <i>Nephelium lappaceum</i> L.	Rambutan	Eues Rambotang	P.C. Jap.		X	X	X	X	X	X	X	X	X	X		
<u>VITACEAE</u> (Grape Family) <i>Leea brunoniana</i> C.B. Clark		Sengall	P.C.		X	X	X	X	X	X	X	X	X		X	
<u>BOMBACACEAE</u> (Bombax Family) <i>Ceiba pentandra</i> (L.) Gaertn.)	Kapok	Kalngebard	C.	X	X	X	X	X	X	X	X	X	X		X	
<u>ARALIACEAE</u> (Panax Family) <i>Boerlagiodendron pulcherrimum</i> (Vid.) Harms.		Kesiamel	P.C.		X	X	X	X	X	X	X	X	X	X	X	

Key to Historical Period

P.C. = Pre-Contact
Jap. = Japanese Introduction
C. = Chinese

FLORA: TWO SEASONS

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME	Historical Period	ONGOS				NGEBARD				EDIBLE		
				Tmur	Modlab	Taach	Chelid	Ongodel	Chiliach	Tmur	Modlab		Taach	Chelid
<u>PARKERIACEAE</u> (Parkeria Family)														
<i>Ceratopteris saliquosa</i> (L.) Copel.	Swamp Fern	Tiela Uek	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>POLYPODIACEAE</u> (Common Fern Family)														
<i>Acrostichum speciosum</i> Willd.	Marsh Fern	Okkuam	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>GRAMINEAE</u> (Grass Family)														
<i>Cymbopogon citratus</i> (DC) Stapf.	Lemon Grass	Keskus	Sp.	X	X	X	X	X	X	X	X	X	X	
<i>Digitaria Violascens</i> Link.	Digitaria	Sau	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>CYPERACEAE</u> (Sedge Family)														
<i>Cyperus brevifolius</i> (Rottb.) Hassk.	Kyllinga	Esechesiding	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>ARECEAE</u> (Arum Family)														
<i>Epipremnum carolinensis</i> Volk.	Epipremnum; Taro vine	Toilalech	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>FLAGELIARIACEAE</u> (Joinvillea Family)														
<i>Flagellaria indica</i> Linn.	Flagellaria	Banger Nguis	P.C.	X	X	X	X	X	X	X	X	X	X	
<i>Hanguana malayana</i> (Jack) Merr.	-	Euais	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>LILIACEAE</u> (Lily Family)														
<i>Cordyline fruticosa</i> (L.) Chev.	Ti Plant	Sis	P.C.	X	X	X	X	X	X	X	X	X	X	
<i>Dracaena multiflora</i> Roxb.	-	Orredak'l	P.C.	X	X	X	X	X	X	X	X	X	X	X
<u>AMARYLLIDACEAE</u> (Amaryllis Family)														
<i>Hymenocallis littoralis</i> (Jacq.) Salisb.	Spider Lily	Bisechrad	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>PIPERACEAE</u> (Pepper Family)														
<i>Peperomia palauensis</i> C. DC.	Peperomia	Rtertiil	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>CAPPARIDACEAE</u> (Caper Family)														
<i>Crataeva speciosa</i> Volkens	-	Edebsungel (Kall)	P.C.	X	X	X	X	X	X	X	X	X	X	X
<u>ULMACEAE</u> (Elm Family)														
<i>Trema cannabina</i> var. <i>scabra</i> (Bl.) de Wit.	-	Elodechoel	P.C.	X	X	X	X	X	X	X	X	X	X	X
<u>MORACEAE</u> (Fig Family)														
<i>A. altilis</i> (Park.) Fosb.	Breadfruit	Meduu	P.C.	X	X	X	X	X	X	X	X	X	X	X
<i>A. mariannensis</i> Trec.	Seeded Breadfruit	Ebiei	P.C.	X	X	X	X	X	X	X	X	X	X	X
<i>F. microcarpa</i> var. <i>latifolia</i>	Banyan	Lulk	P.C.	X	X	X	X	X	X	X	X	X	X	X
<i>F. tinctoria</i> Forst. f.	-	Oseked	P.C.	X	X	X	X	X	X	X	X	X	X	X
<u>URTICACEAE</u> (Nettle Family)														
<i>Elatostemma stoloniformis</i> Kouc.	-	Dechus	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>OLACACEAE</u> (Tallowood Family)														
<i>Ximenia americana</i> L.	Tallow Nut	Kerekullechol	P.C.	X	X	X	X	X	X	X	X	X	X	X
<u>AMARANTHACEAE</u> (Amaranth Family)														
<i>Alternanthera sessilis</i> (L.) R.Br.	Sessile Joyweed	Okula Beluu-lechad (or) Ongaitong	P.C.	X	X	X	X	X	X	X	X	X	X	
<u>PORTULACACEAE</u> (Purslane Family)														
<i>Portulaca oleraceae</i> L.	Purslane	Bungarusuu	P.C.	X	X	X	X	X	X	X	X	X	X	X

Key to Historical Period

P.C.	= Pre-Contact
Sp.	= Spanish Introduction
P.	= Ponapean Introduction
Jap.	= Japanese Introduction

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME	Historical Period	ONGOS				NGEBARD				People	Bird	
				Tmur	Modlab	Taoch	Chelid	Orengodel	Chilach	Tmur	Modlab			Taoch
MYRISTICACEAE (Nutmeg Family)														
Horsfieldia anklaal Kanehira	-	Emeklachei	P.C.	X	X	X	X	X	X	X	X	X	X	X
H. palauensis Kanehira	-	Ersachel	P.C.	X	X	X	X	X	X	X	X	X	X	X
ROSACEAE (Rose Family)														
Parinari glaberrimum Hassk.	-	Tritem	P.C.	X	X	X	X	X	X	X	X	X	X	X
P. palauensis Kanehira	-	Bkau	P.C.	X	X	X	X	X	X	X	X	X	X	X
LEGUMINOSAE (Legume Family)														
Caesalpinia sp.	Cat's Claw	Tochedulik	P.C.	X	X	X	X	X	X	X	X	X	X	X
Cassia alata L.	Candle-bush	Kerula Besokel	P.	X	X	X	X	X	X	X	X	X	X	X
D. trifoliata Lour.	-	Kemokem	P.C.	X	X	X	X	X	X	X	X	X	X	X
Desmodium triflorum (L.) DC	Desmodium	Olumud	P.C.	X	X	X	X	X	X	X	X	X	X	X
D. umbellatum (L.) DC	-	Albeluu	P.C.	X	X	X	X	X	X	X	X	X	X	X
Erythrina variegata L.	Indian Coral Tree	Roro	P.C.	X	X	X	X	X	X	X	X	X	X	X
Inocarpus fagiferus (Park.) Fosb.	Tahitian Chestnut	Keam	P.C.	X	X	X	X	X	X	X	X	X	X	X
Intsia bijuga (Colebr.) O. Ktze.	Ipil	Dort	P.C.	X	X	X	X	X	X	X	X	X	X	X
Mimosa pudica L.	Sensitive Plant	Mechiuaiu	P.C.	X	X	X	X	X	X	X	X	X	X	X
Ormosia calavensis Azaola	Necklace; Bead Tree	Edebsungelked	P.C.	X	X	X	X	X	X	X	X	X	X	X
Pongamia pinnata (L.) Pierre.	Pongamia	Kisaks	P.C.	X	X	X	X	X	X	X	X	X	X	X
Pterocarpus indicus (L.) Willd.	Nara	Las		X	X	X	X	X	X	X	X	X	X	X
Serianthes Kanehirae Fosb.	-	Ukall	P.C.	X	X	X	X	X	X	X	X	X	X	X
Sophora tomentosa L.	Silver Bush	Dudurs	P.C.	X	X	X	X	X	X	X	X	X	X	X
A. bilimbi L.	Bilimbi	Imekurs	P.C.	X	X	X	X	X	X	X	X	X	X	X
RUTACEAE (Rue Family)														
C. mitis Bico.	Calamondin	Kingkang	Jap.	X	X	X	X	X	X	X	X	X	X	X
SIMAROUACEAE (Ailanthus Family)														
Samadera indica Graetn.	Samadera	Eskeam	P.C.	X	X	X	X	X	X	X	X	X	X	X
EUPHORBIACEAE (Spurge Family)														
Codiaeum variegatum *L.) Bl.	Croton	Kesuk	P.C.	X	X	X	X	X	X	X	X	X	X	X
Codiaeum sp.	Croton	Ketnguit	P.C.	X	X	X	X	X	X	X	X	X	X	X
Excoecaria agallocha L.	Milky Mangrove; River Poison tree; Blind Your Eyes	Ias	P.C.	X	X	X	X	X	X	X	X	X	X	X
Glochidion sp.	Glochidion	Ngolm	P.C.	X	X	X	X	X	X	X	X	X	X	X
Macaranga carolinensis Volk.	Macaranga	Bdel	P.C.	X	X	X	X	X	X	X	X	X	X	X
Phyllanthus amarus Schum. & Thonn.	Niruri	Ukella Ruchel	P.C.	X	X	X	X	X	X	X	X	X	X	X
P. palauensis Hos.	-	Ukellela Chedib	P.C.	X	X	X	X	X	X	X	X	X	X	X
ANACARDIACEAE (Mango Family)														
Buchananian palauensis Lauterb.	-	Omail	P.C.	X	X	X	X	X	X	X	X	X	X	X
Camposperma brevipetiolata Volk.	-	Kelela Charm	P.C.	X	X	X	X	X	X	X	X	X	X	X
Mangifera indica L.	Mango	Iedel	Sp.	X	X	X	X	X	X	X	X	X	X	X
Spondias lutea L.	Hog Plum	Meseiedel	P.C.	X	X	X	X	X	X	X	X	X	X	X
S. pinnata (L.F.) Kunz.	Amra	Titimel	P.C.	X	X	X	X	X	X	X	X	X	X	X
Semacarpus venenosa Volk.	-	Tonget	P.C.	X	X	X	X	X	X	X	X	X	X	X
HIPPOCRATEACEAE (Hippocratea Family)														
Hippocratea macrantha var. palauica Loes.	-	Elangel	Sp.	X	X	X	X	X	X	X	X	X	X	X
Salacia naumannii Engl.	-	Detimel		X	X	X	X	X	X	X	X	X	X	X
ICACINACEAE (Icacina Family)														
Lophopyxis pentaptera (K. Schum.) Engl.	-	Koteb	P.C.	X	X	X	X	X	X	X	X	X	X	X
Urandra amuii (Schellenb.) Kanehira	-	Ngmul	P.C.	X	X	X	X	X	X	X	X	X	X	X

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME	Historical Period	ONGOS				NGEBARD				EDIBLE			
				Tmur	Modiab	Taoch	Chelid	Ongodel	Chilach	Tmur	Modiab	Taoch	Chelid	Ongodel	Chilach
SAPINDACEAE (Soapberry Family)															
<i>Allophylus timorensis</i> Bl.	-	Ebeludes	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
RHAMNACEAE (Buckthorn Family)															
<i>Alphitonia carolinensis</i> Hos.	-	Elebiob	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
VITACEAE (Grape Family)															
<i>Cayratia trifolia</i> (L.) Quiz.	-	Berdak'l	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
ELAEOCARPACEAE (Elaeocarpus Family)															
<i>Elaeocarpus carolinensis</i> Koidz.	Blue Marble Tree; Blue Fig	Dekemerir	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
TILIACEAE (Linden Family)															
<i>Columbia burretii</i> Kanchira	-	Uab	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Trichospermum ledermannii</i> Burret	-	Elsau	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
MALVACEAE (Hibiscus Family)															
<i>H. tiliaceus</i> L.	Hau	Ermall	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Urena lobata</i> L.	Aramina	Osuched ra Chui	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
STERCULIACEAE (Cocoa Family)															
<i>Ambroma Augusta</i> (L.) L.	-	Lab	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Commersonia bartramia</i> (L.) Merr.	-	Eremallueang	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Heritiera littoralis</i> Dryand	Looking-glass Tree	Ebidech	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Theobroma cacao</i> L.	Cocoa Tree	Suklatei	Sp.	X	X			X		X		X	X		X
GUTTIFERAE (Mangosteen Family)															
<i>C. wakamatsui</i> Kan.	-	Esemolech	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>G. rumiyo</i> Kan.	Wild Garcinia	Tilol	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
FLACOURTIACEAE (Flacourtia Family)															
<i>Pangium edule</i> Reinw.	Pangi; Payan	Riamel	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
THYMELAEACEAE (Akia Family)															
<i>Phaleria nisidai</i> Kan.	-	Ongael; delalakar	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
BARRINGTONIACEAE (Barringtonia Family)															
<i>Barringtonia racemosa</i> (L.)	-	Koranges	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>B. asiatica</i> (L.) Burs.	Barringtonia	Bduul	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
SONNERATIACEAE (Sonneratia Family)															
<i>Sonneratia alba</i> J. Smith	-	Urur	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
COMBRETACEAE (Terminalia Family)															
<i>Lumnitzera littorea</i> (Jack) Voigt.	-	Meekad	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>T. catappa</i> L.	Tropical Almond	Milch	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
MYRTACEAE (Myrtle Family)															
<i>Decaspermum fruticosum</i> Forst.	-	Kertaku	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>D. raymundi</i> Diels.	-	Esikiik	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Eugenia cumini</i> (L.) Bruce	Java Plum	Mesekerrak	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>E. javanica</i> Lam.	Wax Apple	Robotel	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Eugenia</i> (Syzygium) sp.	-	Edebsachel	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>E. reinwardtiana</i> DC	-	Kesili	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
MELASTOMATACEAE (Melastoma Family)															
<i>Astronidium palauense</i> (Kan.) Mkgt.	-	Meskui	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Melastoma malabathricum</i> L. (s.l)	Melastoma; Indian Rhododendron	Malakui	P.C.	X	X	X	X	X	X	X	X	X	X	X	X

SCIENTIFIC NAME	ENGLISH COMMON NAME	PALAUAN NAME	Historical Period	ONGOS				NGEBARD				People Bird			
				Tmur	Modlab	Taoach	Chelid	Orengodel	Chiach	Tmur	Modlab		Taoach	Chelid	Orengodel
ONAGRACEAE (Evening Primrose Family)															
<i>Ludwigia hyssopifolia</i> (g.Don.) Exell.	-	Erur	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>L. octovalvis</i> (Jacq.) Raven	-	Erur	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
ARALIACEAE (Panax Family)															
<i>P. grandifolia</i> Volk.	-	Bungaruau	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>P. nodosa</i> (Bl.) Seem	-	Bngei	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Schefflera odorata</i> (Blanco) Merr. & Rolfe.	-	Bungaruau	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
UMBELLIFERAE (Parsley Family)															
<i>Centella asiatica</i> (L.) Urban	Asiatic Penny Wort	Elsichur	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
SAPOTACEAE (Spodilla Family)															
<i>Chrysophyllum cainito</i> L.	Star Apple	Kemin	Sp.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Manilkara udiodo</i> Kan.	-	Uduid	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Pouteria obovata</i> (R.Br.) Bachni.	-	Elangel	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
LOGANIACEAE (Strychine Family)															
<i>Pagraea galilae</i> G. et B.	-	Elilai	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>P. ksid</i> G. et B.	-	Ksid	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
SYMPLOCACEAE (Symplocos Family)															
<i>Symplocos palauensis</i> Koidz.	-	Ebtui	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
APOCYNACEAE (Periwinkle Family)															
<i>Cerbera manghas</i> L.	Cerbera; Reva	Emeridech	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Plumeria</i> spp.	Plumeria	Elilai ra Ngebard	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
ASCLEPIACEAE (Milkweed Family)															
<i>Sarcolobus palauensis</i> Hatus	-	Urala Nguis	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
CONVOLVULACEAE (Morning-Glory Family)															
<i>Ipomoea pes-caprae</i> (L.) Roth.	Reach Morning Glory	Kebeaschol	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Merremia umbellata</i> (L.) Hall. f.	Yellow flower Merremia	Kebeas	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
VERBENACEAE (Verbena Family)															
<i>Clerodendrum paniculatum</i> L.	Pagoda Plant	Butecherechar	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>C. inerme</i> (L.) Gaertn.	-	Butecherechar	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>C. speciosissimum</i> Van Gaert.	-	Butecherechar	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Callicarpa erioclona</i> Shaw	-	Dub (Rtachel)	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>G. palauensis</i> H. J. Lam.	-	Blacheos	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Premna obtusifolia</i> R. Br.	-	Osm	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Vitex coffassus</i> Reinw.	-	Bars; Beokel	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
LABIATAE (Mint Family)															
<i>Ocimum sanctum</i> L.	Basil	Emadechar Bud	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
SOLANACEAE (Tomato Family)															
<i>Physalis angulata</i> L.	Ground Cherry	Bubeubedul	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
SCROPHULARIACEAE (Snapdragon Family)															
<i>Adenosma javanica</i> (Bl.) Koord.	-	Etermall	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>Limnophila fragrans</i> (Forst.) Seem.	-	Ukelakel; Ulak-lakel	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
<i>L. aromatica</i> (Lam.) Merr.	-	Yaml	P.C.	X	X	X	X	X	X	X	X	X	X	X	X
BIGNONIACEAE (Bignonia Family)															
<i>Dolichandrone spathacea</i> (L.f) K. Schum.	Mangrove Trumpet Tree	Rriu	P.C.	X	X	X	X	X	X	X	X	X	X	X	X

[illegible]

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