

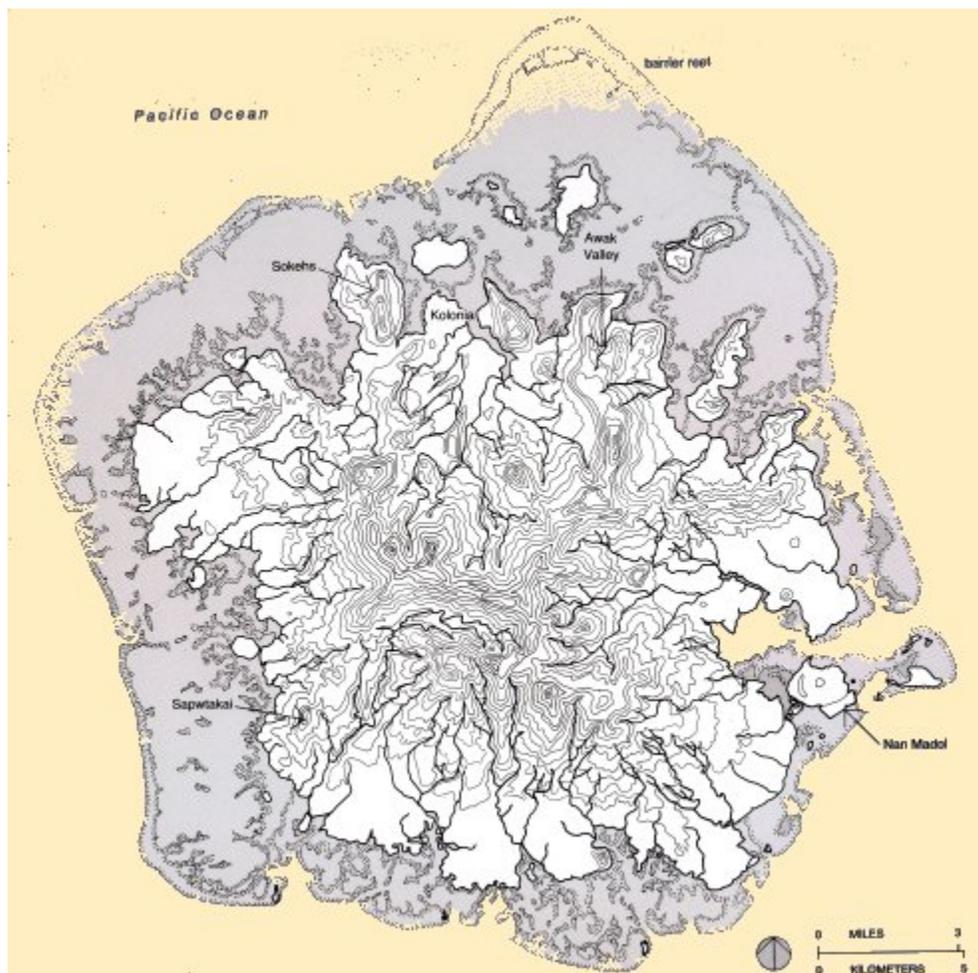
**Indigenous Mathematics of the
Nahsen Pohnpei (Pohnpeian Feast House)**

**A
Term Paper
submitted to:
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and
Project: MACIMISE
by
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“Indigenous Mathematics of the
Nahsen Pohnpei (Pohnpeian Feasthouse)”

“The traditional name of the island is Pohnpei, meaning "upon a stone altar." Its people are referred to as Pohnpeians. Until the recent re-adoption of the traditional name, the island was known as Ponape; its inhabitants, Ponapeans.

Pohnpei is a mountainous high island, one of the most beautiful in Micronesia. Dense forests grow down to the edge of the surrounding lagoons in most places. Numerous smaller islands lie within the barrier reef. Seemingly endless coves, fringing reefs, inlets, and outcroppings, such as the spectacular Sokehs Rock, lend variety to the coastline. Of comparatively recent geological age, Pohnpei's mountainous interior is dominated by numerous peaks. The highest rises 2,595 feet above sea level.” (Morgan 1989, p.58)



Pohnpei

<http://www.micsem.org/pubs/counselor/frames/cngpnifr.htm>

Introduction

Pacific Island communities with their rich and complex cultural ways of living are on the verge of losing their traditional ways of living because of the impacts of modern life on our developing island countries. Among these changing island communities Pohnpei has played a determined role to stand alongside the developing island communities all around the Pacific, ensuring the prosperity of the island nations and the preservation of their traditional ways of living. We constantly live and struggle with the ongoing demands of our stagnant economy which has unfortunately frustrated our ambitions to succeed socially and traditionally. Nevertheless, our cultures are the main attributes of our own identity and they show how we Pacific Islanders are different in some ways and relatively similar to each other in so many ways. Modern civilization has continuously intimidated our traditional ways of living. Many *Pohnpeian* traditions have evolved with modern influences and they continue to change as the dollar remains the sought-after solution to every people's dilemma.

Now a day, many *pohnpeians* have abandoned the beauty and availability of the local lumber and prepared thatched roofs, which is available all around the island. The new modern materials are now the more preferred materials to use because of its durability. The beauty of the local nahs has changed. Most of the nahses all around Pohnpei are modern nahs, which are made up of imported materials. Many people prefer to buy the imported materials because it lessen the hardship of going out and actually cutting and delivering the local product that are always available in Pohnpei.

Methodology

This paper provides my personal point of view with additional information provided from local experts and other sources on the “*Pohnpeian Feasthouse*” or *Nahsen Pohnpei*.” During my exploration of the “*Nahsen Pohnpei* or *Pohnpeian Feasthouse*” I ran into many difficulties because first of all I am a “*Pwilidak*”, not a pure breed *pohnpeian*. Secondly, many people still have hard time passing on knowledge to other people who are not part of the lineage. Last but not the least this is a topic that is very rich and complex to even many *pohnpeians*. To point out the mathematical aspect of the *nahs*, one has to really expose to the readers about the history of *nahsen pohnpei* up to this date. Today, in Pohnpei

I started my interview with many of my colleagues at the public high school, PICS high, and I found out that many of the old teachers who are active in the traditional setting have the knowledge of the *nahs* yet they keep on pointing me to the local experts from their area or their municipalities because they are afraid to mislead me. Not only because this knowledge is sacred but if a *pohnpeian* man does not know about the cultures and traditions it points out that man and it would not be good for his reputation.

I did not have the privilege to meet with the local experts from each of the municipals in *pohnpei*. I was fortunate to meet with the only FSM anthropologist, Dr. Rufino Mauricio, whom I met at the Pohnpei Historic and Preservation office as I was collecting sources for this paper. Pohnpei Historic and Preservation office was not much help because they were relocated and many of the documents that they had were either lost or misplaced. On the other hand I was fortunate because the Director of FSM PIRC (Parents Intruction and Resource Center) is a gentleman who is also an has great knowledge on *pohnpeian* cultures, traditions and history etc... So, I spend most of my

interviews with Mr. Rodrigo Mauricio who among all the local experts was most helpful because the pohnpeian terms that I had difficulties translating was translated. Mr. Mauricio was most helpful on the most of my assignments in this course. The additional sources were found on the World Wide Web which is the only source of information that is easily accessed with the proper and necessary tools.

The Questions that I focused my interviews on were:

- What is English term for *Nahsen Pohnpei*?
- What are the phases of building a *nahs*?
- Is there a preferred position of building a *nahs* and what is the importance?
- The rituals for building the *nahs* necessary?
- What are the mathematical aspects of building a *nahs*?
- What units of measurements are used in the old days?
- What are the kinds of *nahs* that we have in *Pohnpei*?
- How is our *nahs* unique from the other traditional houses in the pacific?
- What instruments did they use to build the houses in the past, if any, how did they come up with the formation or the shapes that form the *nahs*?

Description

There are three main types of houses in Pohnpei, *wen uhm* (cook houses), *imelap* (main houses) and the *nahs* (feast houses). The *nahs* serves as the motherhouse of all the other houses within a family.

According to Dr. Rufino Mauricio, “The *nahs* is the place where the Pohnpeian in the past go to offer their offerings to the god. It is a religious place.” (Dr. Rufino Mauricio, Interview, April 3, 2010)

“*Nahs* is the formal heart of life in casual *Pohnpei*. A *nahs* is a traditional Pohnpeian feast house. Most families have a *nahs*. In my *nahs* we stay there during the day ... but if there’s a feast, we offer the *nahs* to the chief” (Largo Edwin, 2010). Even though, you are the only person who spend a lot of money to build the *nahs*, during a feast you have no control of the *nahs* anymore. Everything that are done or even brought to the feast is all under the control of the Chief which is, the *Nahnmarki*. The *nahs* or Feast house plays an important role in the traditions and culture of Pohnpei. This is the place where people gather, feast and celebrate.

“Unique to Pohnpei, a *nahs* is a simple structure with a complex set of meanings. Little more than a U-shaped platform with a rear wall and pitched roof, this carport-sized construction constantly reminds those who use it of their status in the village. In fact, in some ways the family *nahs* is the property of the village chief, or **Nahnmwarki**, with some parts remaining off-limits even to its owners. The *nahs* is a casual, breezy place that’s generally detached from the walled-in main house. The dirt or stone floor is where families and friends sit, talk, work, eat and play. The raised platforms at either side are used for the preparation of food. The entire front section, raised or ground-level is open to everyone. But that’s not true of the raised rear section. While the back platform is usually untouched, during feasts its cultural importance is revealed. The stage is reserved for the highest titled person present – which is often not the owners. Even during regular, non-feasting days, when there are no titled people present, the owners of a *nahs* are not

permitted to enter it from the two rear doorways. Those entrances are for the exclusive use of the *Nahnmwarki* and the *Nahnken*, whether or not they are present.” (Largo Edwin, 2010). There other people who can also enter these entrances and they are the son’s and daughter of the *Nahnmarki*. They are called “*Ihpihpin Pon Warawar*”, born during the *nahnmarki*’s reign.

“In Pohnpei, feasts are held to celebrate the arrival of the yam and breadfruit seasons, and to commemorate major life events, such as weddings and funerals. Each section of the kingdom must offer a feast to the *Nahnmwarki* at least once a year. If it’s your turn to host a feast, you must invite the *Nahnmwarki* and turn your *nahs* over to him. Although Pohnpeian feasts may look casual, they are extremely formal events. Guests sitting immediately beneath the rear stage have the job of receiving gifts on behalf of the chief. Offerings must never be handed directly to the chief. They must be passed on via the people sitting in front of him. There are hundreds, maybe thousands of *nahs*’ in Pohnpei, but only one that has been built entirely from traditional materials. The others have been constructed using imported products, such as tin. Despite changing materials, the powerful meanings of the *nahs* remain strong. For its owners, it continues to remind them of their place in society and their obligations to the kingdom.” (Largo Edwin, 2010)

I hope the government funds another project to rebuild the only *nahs* that is made up of entirely traditional material. Today only the remnant of the *nahs* is visible.



Figure 1 Whats left of the only *nahs* made up of local materials.

By T.Liwy

When building a *nahs*, there are some factors to consider. The position of the *nahs* also plays an important role in the prosperity or the livelihood of the *nahs* and its owners. “When the *nahs* is open to the ocean it is called *sarasehd*. This position is believed to bring in fish and food to the people of that place. If the *nahs* is facing the mountains, *sarapsapw*, it brings tragedy and burden to the family who owns the *nahs*. It also takes away the unlimited supply of food that is available in the lands. When asked of how to determine the position, if you live far away from the sea, he answered that the closest position to the sea is the point where the *nahs* should be facing.” (Rodrigo Mauricio, Interview April 13, 2010).

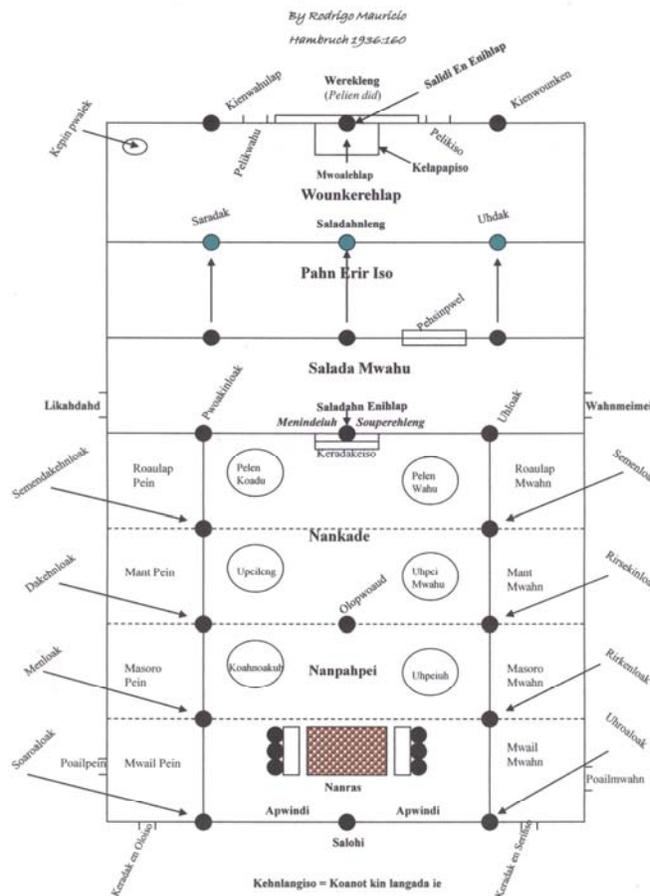
There are three kinds of *nahs* in Pohnpei, *wen uhm*, *koupapwel* and *koupaleng*. Among these, *koupaleng* is the standard *nahs* for the *nahnmarki* and has certain characteristics that are built only for the *nahnmarki*. This type of *nahs* is built with five sections inside. The other type, *koupapwel*, is similar to the *koupaleng* yet it is incomplete because it has only four sections. It lacks one more section to be a *koupaleng*. The last type of *nahs* is called “*wen uhm*” and this type has no wings or the sides, only the stage at the back and an open area in the front area. Most pohnpeians use it as another cook house or place for them to get together and reminisce.

According to Rodrigo Mauricio, “there are at least 333 lumbers that make up a standard *nahs*, the *koupaleng*. The number 333 is from the number of soldiers that accompanied Isokelekel, the man that raid the Saudeluer, the Chief ruler pohnpei of that era and became the first *Nahnmarki* of Pohnpei. The warriors all brought the lumber to build the *koupaleng* for the *nahnmarki* all came and brought their contributions. There

was a *pingelapese* amongst the group and he came late with is timber and the placed his timber on, at the front the only area available. So at the front area of the *nahs* where you enter there is a timber there and during feast when you past that area with anything you bring you cannot take it back.” (Rodrigo Mauricio, Interview, April 2010)

Figure 2 by Rodrigo Mauricio

Hambruch 1936:160



People in the old days used special tools and instrument to build their houses. The unit of measurement they used is *ngahp*, the measure by two outstretched arms. The other unit is *tipw*, the measure from the elbow to the tip of the longest finger. When building a big house a rope is used to measure long distances and the rope is already marked with knots indicating each *ngahp*. From my own understanding, an average size

man is usually the person whose *ngahp* they use. There is another that is usually used introduced by the Japanese is *suh* the hand span. When constructing the roof the use *keimw*, the angle. So the shape of the roof is determined by the high or low the *keimw* of the roof is preferred.

According to Rodrigo Mauricio, “There are stages when building a *Nahs*. First is *Isihmw*, when they burn the footing of the post it allows it to be in the ground for a long time without the wood rotting. The literal meaning of *isihmw* is burn the worms or bacteria. A feast is held for this special occasion. Second, *Editoahl* when the roof is complete, another feast is held for this occasion. The *uhmw* or local oven is prepared at the front, inside the unfinished *nahs*. This method is applied so that the smokes from the *uhmw* eradicate any unwanted insects that are in the thatch leaves. Lastly, is the *Kapidelohng*, after everything is complete, then everybody comes together to celebrate the completion of the *Nahs*” (Mauricio, April 2010). Sometimes, if asked how big the *nahs* is, people will not give the dimension of the *nahs* but rather the number of *Dinak*. *Dinak* is “One section of a thatched roof, from the eave to the peak one armspan in with.” (K. Reig, 1979: p109)



Figure 3 *This house is made up of two tinaks.* By T. Liwy

“The sizes of the *koupalehng* can be from ten *dinaks* up to fifty *dinaks*” (Rodrigo Mauricio, April 2010).

Many *nahs* today are being built just to serve the purpose of representing a *nahs*. The attributes and cultural representation of a standard *nahs* are not being exposed anymore. Compared to other traditional houses in the Pacific, the purpose seemed to be of the same traditional value but I for one hand see culture in the local materials that we use for cultural representation of ones own culture.

Figure 3



This is a picture of a *nahs* that was built with imported materials. All the sections of the *koupalehng* are visible. People seem to like to build this kind of *nahs* because of its durability. The old and beautiful *nahs* built from local materials is beautiful and can attract many tourists. However, to maintain that specific type of *nahs* is hard work and time consuming. People prefer the concrete *nahs* because it will be last for a long time and it can also withstand typhoons and other natural disasters that may happen.

The Pohnpeian feast house is very important to a family because it serves a very important function during family gatherings or other gatherings that require a big open space. Today, many social activities are held in a *nahs*. To own a *nahs* shows a family's identity among the others in a community. "The unity of the patrilineal group was represented by the *uhmw*, or earth oven, and the *nahs*, or feast house. These structures were the symbolic core of the extended family, the place where the lineage group would gather to drink *sakau* and discuss the day's events, welcome guests and entertain visitors, and prepare chiefly tribute and obligatory food gifts to others in the community. The *nahs* was not only a gathering place, but the lineage's face on the outside world. Whereas in the past a man and his married sons would have often lived under the same roof, there is a strong tendency today to set up a separate residence for each nuclear family."

(<http://www.micsem.org/pubs/counselor/frames/cngpnifr.htm>)

The mathematical aspect of this short research of mine deals a lot with Geometry, Measurement, and Calculation etc.... The mathematical thinking the *pohnpeians* used in the past is very unique and interesting. The children can learn the many shapes that are in the pohnpeian feasthouse. They can begin to wonder who invented the special tools or instrument that was used to build the houses. The shape of the Pohnpeian feast house is different compared to other traditional houses in the Pacific. It is rectangular in shape and in each section of the *nahs* are all rectangles. I often wonder how the engineers of that time could possibly construct the *nahs* without training and schooling in which a number of people have completed to be able to build a house. The children can also measure the house using their own *ngahp* and compare it with others and find conclusions to their findings. Upper grade level student can make estimates on how long

will it take to complete a *nahs* and/or how much the cost would be, including labor or without labor. There are abundants of mathematical learning that can be experience through the study of the *Pohnpeian Nahs*.

Study of the nahs can be implemented both in social studies and mathematics.

CITATIONS

Rodrigo Mauricio, Interview April 13, 2010

Dr. Rufino Mauricio, Interview March 21, 2010

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