

AN APPROACH TO CENTRAL CAROLINIAN AESTHETICS

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ABSTRACT

The purpose of this study is to give formal attention to the fiber arts of the Central Caroline Islands; specifically the atolls of Ulithi, Fais, Ifalik, Eauripik, Sorol, Faraulep, Woleai, Lamotrek, Elato, Satawal, Pulawat, Pulusuk, and Namonuito. It will attempt to explore the structure of the artistic system which governs the development of the Carolinian aesthetic.

The paper is divided into three sections. The first section will provide geographical and cultural background for the material culture of the Central Carolines, as well as enumerate the basic elements comprising it.

The second section will relate a personal encounter with the forms and structure of the Carolinian fiber arts. The information for this section was obtained through an apprenticeship with Eulalia Harui-Walsh of Fassarai, Ulithi Atoll, Yap District, Federated States of Micronesia, during 1975-1976, while residing on Guam.

The third section will offer basic descriptions of the forms and order in which they were presented during the time of the apprenticeship. Including in this portion is a compilation of various natural Pacific fiber preparation methods.

The study will conclude with a discussion on the structures and order of Carolinian aesthetics as reflected in the fiber arts and my personal insights through an exposure to the same. Based on this I would then like to close with a brief statement on the present and potential state of the fiber arts of this area of the Pacific.

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SECTION I

Introduction

In the Western Pacific lies a chain of islands known as the Central Carolines. These islands are located between 10 degrees north of the equator and lie between 130 and 150 degrees longitude (Fig. 1). With the exception of the high islands of Yap and Truk, they are comprised of atolls, built by calcareous organisms upon subterranean volcano rims. It has been proposed that the Carolines were populated by neolithic peoples originating either in the Philippines or Indonesia. Certainly many parallels can be drawn from linguistic as well as material culture evidence. Archeological data suggests that people had come to rest on Carolinian shores as early as 1 A.D.¹

If in fact the inhabitants of Micronesia are of South East Asian origin, we can assume that they entered the Pacific with the following basic neolithic skills: primitive agriculture, the ability to shape wood and stone and a working knowledge of indigenous tropical fibers. The mere fact that they were able to traverse the ocean populating the far flung atolls of the Western Pacific presupposes a certain degree of seamanship and navigational abilities. Wherever the original source, the culture of the Central Carolines has developed its own unique qualities and characteristics.

Many factors have combined to give rise to this particular and distinctive development. The two largest contributing factors have been: the relative geographical isolation of each atoll within

the Pacific expanse and the resource limitations set by the geologic nature of atolls. Atolls are basically made up of calcareous reefs that set atop incompletely truncated volcanoes or clusters of volcanoes. Groups of islets, called motu, enclosing a central lagoon make up the land mass. Motu are, on the average, only eight to ten feet above sea level, and owing to their calcareous makeup, are quite porous. Thus, atolls are devoid of high island geographical phenomena such as rich volcanic soil, fresh water streams, and great biological diversity.

Vegetation on atolls is comprised of a few shrubs and grasses able to withstand the extreme salinity of the soil and atmosphere, namely coconut palms, pandanus, and wild hibiscus. The interior of the motu can usually support some taro, banana, possibly some breadfruit trees and a small range of tropical flowers. The climate of atolls varies only in the amount of rainfall they receive and their exposure to tropical typhoon paths. For those atolls that lie in typhoon belts, such as the Marshalls and the Central Carolines, a typhoon constitutes a major catastrophe for the island population. During a severe typhoon, the ocean can wash over the entire exposed surface of the motu, endangering human life and wreaking the added destruction of depositing a layer of salt over the soil, severely damaging what sparse food crops the inhabitants are able to cultivate.

The vulnerability of an atoll to drastic change in the environment (e.g. typhoons, drought) has led to the development of

various coping mechanisms. Atoll dwellers have had to nurture a profound sensitivity to their surroundings in order to insure their survival. The extreme remoteness of the habitat, coupled with the limited resources on a space whose definition from the sea is tenuous at best, has made for a people of great resourcefulness and courage.

Atolls that exist in close relationship geographically to other atolls or high islands can be considered part of an island complex. Island complexes tend to exhibit a variety of physical environments and the inhabitants generally elect for any one or more of a variety of approaches to redistributing the resources and coping with natural disaster. Traditionally, some island complexes have chosen to solve these problems with aggression and hostility, often manifesting in open warfare. Others have developed more cooperative stratagems, relying on exchanges of tribute and/or trade for balancing the distribution of resources and alleviating the environmental stress of disaster.

Within cooperative island complexes there is a tendency toward regional specialization in the production of food and various crafts. The nature of regional specialization is dependent on the cultural as well as resource base. This phenomenon of specialization gives rise to trading networks that evolve in an effort not only to redistribute goods but to stimulate social solidarity as well. Often art production is integrally involved in the system. There are several notable examples of this pattern in the Pacific,

particularly in the Central Caroline Islands.

Several of the smaller island clusters, such as the Lamotrek Elato, Satawal group participated in a highly ranked interisland and interatoll exchange system. The people of the Central Carolines divided the year up into two seasons and once each season the people of Satawal and Elato were obligated to send tribute to Lamotrek. In return for this tribute these two islands could freely exploit uninhabited resource areas claimed by Lamotrek. Most importantly the "hook" system, as it was called, obligated each of the three islands to support each other in times of resource shortages.

According to William Alkire,² "The widest exchange system and highest level of unity in the Caroline atoll complex was embodied in the sawei overseas exchange system." Sawei was a trade and tribute system which at its height linked all of the atolls from Namonuito to Ulithi, to the villages of Gatchepar and Wanyan in the Gagil district on the high island of Yap. The sawei system not only served to redistribute resources but also insured interisland solidarity by offering refuge and hospitality to members of the expedition during its annual excursions to Yap.

Even though the atolls of the Central Carolines are relatively poor in soil and susceptible to severe typhoon damage, their access to lush coral reefs and the sea enabled them to gather turtle, fish and shells of high quality. The craftsmen and women of these low islands became specialists in producing fine coconut rope, plaited pandanus mats and bags, and loom woven fabrics of banana and hibiscus

fiber, all of which are prized in Yap. The trading network involved the transport of these articles to Yap in exchange for food, tumeric, and timber to build their ocean sailing canoes, as well as guarantees of aid in times of disaster.

The trade expedition began with the island most distant from Yap. Initially, canoes carrying representatives from Namonuito, Pulap, and Pulusuk sailed to Pulawat. From Pulawat the group moved on to Satawal and then to Lamotrek. There, the representative from Lamotrek and Elato joined the fleet. After a rest and awaiting favorable winds, the fleet continued to Olimara district on Wottagai on Woleai atoll. On Woleai the highest ranking representatives from Ifaluk, Eurapik and Faraulep would be assembled along with the various district chiefs of Woleai. The entire group would then continue on to Fais to pick up that representative. The people of Fais were unusual in that they did not have sailing canoes of their own. Finally the fleet sailed to Ulithi, the last atoll in the group, and ended their journey at the Gagil district of Yap.

At each step along the way of the expedition the chief of the highest ranking island took charge of the fleet. As the rank of the outer islands increased with proximity to Yap, the order of the most important leaders of the expedition was: the paramount chief of Lamotrek, the chief of Olimara district of Wattagai, Woleai and finally the chief of Mogmog, Ulithi. The paramount chief of Ulithi was of sufficient rank to deal directly with the Yapese chiefs when the fleet arrived at the canoe house (Faliso)³ at Gatchepar village,

Yap.

According to Alkire the outer islanders regarded Yapese magic as being very superior and far reaching. There was a belief that the tribute voyages were necessary to keep good relations with Yap lest the Yapese magicians invoke their powers and control of the supernatural to destroy the outer islands with powerful storms and typhoons. The Yapese of Gagil district, on the other hand, referred to the outer islanders as their "children" who were allowed to live on and exploit land belonging to their Yapese "fathers."⁴ From their point of view, this idea of ownership was symbolically recognized through the annual tribute payments. The tribute itself was made up mainly of sennit twine, woven fiber skirts or loincloths, and shell valuables. These articles fell into the realm of artistic production though many ethnologists and anthropologists have tended to lump them together as elements of the material culture.

A Perspective on Art and Material Culture

For many years the study of the material culture of the Western Carolines, as well as that of all of Micronesia, has been relegated to the anthropologist. The anthropologist, who concerns himself with the study of man's origins, development and culture, naturally finds himself confronted with the actual material products of societies and their social significance. Anthropological investigation can provide us with adequate descriptions of the functional and technical aspects of articles and their creators. But, often objects serve as visual and spiritual communicators as

well. These qualities are not always discernible through defined surface observations. In order to fully appreciate and comprehend the dynamics of an object within its cultural context, a multi-faceted approach is required. Investigation from the perspective of Art History can help to identify the level of the visual communication and shed some light on the nature of the aesthetic concern of a culture. With the help of this additional discipline, it is perhaps possible to synthesize into a more comprehensive whole those observations made by the anthropologist, archeologist, historian, sociologist, and linguist.

As the art of the Central Carolines seems to manifest in forms of utility, the question might arise as to whether these products are in fact art. The problem that emerges is how to reconcile function and form, craft and art. A number of scholars have addressed this situation, among them Peter W. Steager. In his article, "Where Does Art Begin on Pulawat?",⁵ he makes reference to another article by Maquet. Maquet has developed a concept of an aesthetic locus, about which Steager states the following: "This notion rests on the assumption that no society maintains an equally intense aesthetic interest in all the things it makes. There are certain circumscribed fields where aesthetic awareness and performance are more highly developed, and the objects in these fields constitute an aesthetic locus of a culture."⁶ It is often difficult to determine the nature of the aesthetic locus within a society as it may be based on some fundamental concept that is unstated and unconscious within the mind

of the group. This is especially true in the Pacific, where verbalizing about art is not necessarily a facet of the enjoyment or production process. In such a case, we may speculate as to the spiritual nature of an object and try to comprehend intuitively a people's sense of beauty, but these are risky activities at best. Anthony Forge has said that, "art systems are systems in their own right and not just illustrations of something expressed in words, and that such systems have structure or a grammar which need not be conscious in the mind of the artist or the beholder."⁷ Steager feels that there is a certain kind of activity that invests an object with artistic importance. He states that, "The formal features of these objects result from supplementary efforts on the part of their creators that are not indispensable to the utility of the objects themselves. These supplementary efforts are molded by aesthetic perceptions, demand great skill, and provide for individual expression within a clearly delineated framework."⁸ Thus, in order to become sensitive to the visual communication operating within any such group, careful observation is required. The people and their origins, their environment and lifestyle, all contribute to shaping a concept of beauty. Beauty may be what is suitable, what is appropriate, what is expected and what is surprising--it may be what is unconscious or what is deliberate but it is always in the mind's eye.

Perhaps the basic utilitarian nature of the art of the Carolines has not lent itself to the criteria established by many Western art

historians. Both Polynesian and Melanesian peoples have created specific forms to express matters of rank, ceremony and religious beliefs. These dramatic and formalized expressions have been readily recognizable, through Western spectacles, as objects d'art. Though considerations of social and cosmic concerns existed in the Carolines, they did not evolve into the stratified and hierarchical structures that exist elsewhere throughout the Pacific.

In order to gain any meaningful insight into the nature of Western Carolinian art, we must establish a platform of observation and criteria for evaluation based on the particular and unique situation that exists there.

The Carolinian Perspective

Carolinian culture seems to possess a great sense of social order which is marked by restraint. Perhaps the extremely limited land area of atolls forces people to guard closely against social offense and serves as an impetus for a more egalitarian social structure. There is a certain restrained quality to the arts of these atolls as well. Forms are not elaborated far beyond their suitability for function; visual manifestations of spiritual and social distinction are not isolated, but rather integrated into forms insuring basic survival. The aesthetic appears to emphasize a matching of function with abstracted and streamlined form. The simplicity of the forms not only suits the function but instills the objects with an elegance and inherent grace. The contrast of smooth curves for form and stylized rhythmic geometrics for ornamentation appears throughout the

many articles produced by these people.

The geometric motifs are basically comprised of chevrons, diamonds, diagonals and variations of crosshatching. Speculation on the origin of the motifs is risky and certainly they can be found elsewhere in the Pacific. They are more than likely an inheritance from the original cultural stock somewhere in South East Asia or the Philippines. They may simply be the result of observing the regular growth and patterns in natural forms such as coconut trees or the interlocking patterns created by plaiting the leaves into baskets and mats.

Wherever the source, the geometric motifs display an interest in measured space and interlocking grids. The repetitions always occur at regular intervals, usually repeated in multiples of two or four. There is a tendency to break up design fields into equal portions and place a band of geometrics on the meridian of the division. This is apparent in the arrangement of tattoos, the painting of canoes and boathouse rafter beams and in the placement of ornamental borders on the loom woven garment strips. William Alkire, in his essay, "Systems of Measurement on Woleai Atoll," suggests that "halving" is a basic technique in the manipulation of length. He further states that, "Lineality and significant points seem to be of greater fundamental importance within Woleaian culture than merely mnemonic and measurement aids; they appear as a fundamental means of conceptualizing space and the relationships between objects. The evidence for this lies not only in the spheres of enumeration,

construction, navigation, divination, curative techniques, and astronomy, but also in the areas of social and political relationships."⁹

As most of the atolls possess a very limited range of available resources, wood, shells, coral, and fibers are the materials used in various forms and combinations to create their material culture. Each of the object classes has a fairly defined set of manifestations. Though it would appear that a limited range of possibilities would inhibit artistic freedom and impose a restriction on craftsmen, this is not necessarily the case. Each sanctioned form has evolved through centuries of direct and uninterrupted contact with the environment. Individual expression is not sublimated as such, but rather, is allocated a space to operate within. It is possible that a sense of beauty arises from a combination of streamlined form, directed by efficiency of design for a desired function, with the nuance of personal and human interpretation instilled by the creator.

Throughout much of the Pacific, craftsmen form a distinct class within the society. The name *tufunga* (an expert in any field) is generally applied to this group in Polynesia. As far as I have been able to ascertain, no such distinct group exists in the Central Caroline Islands. Men and women of particular skill are noted and appreciated as specialists, but do not fall into a separate social classification.

The art of the Central Carolines can be classified into three basic groups: carved wooden objects, body ornamentation and fiber

arts. There is a tremendous homogeneity of art styles and expressions throughout the Central Carolines. This is probably owing to the similarity of environment and resources as well as the regular communication between the atolls through the sawei trading/tribute system.

Expressions in Wood

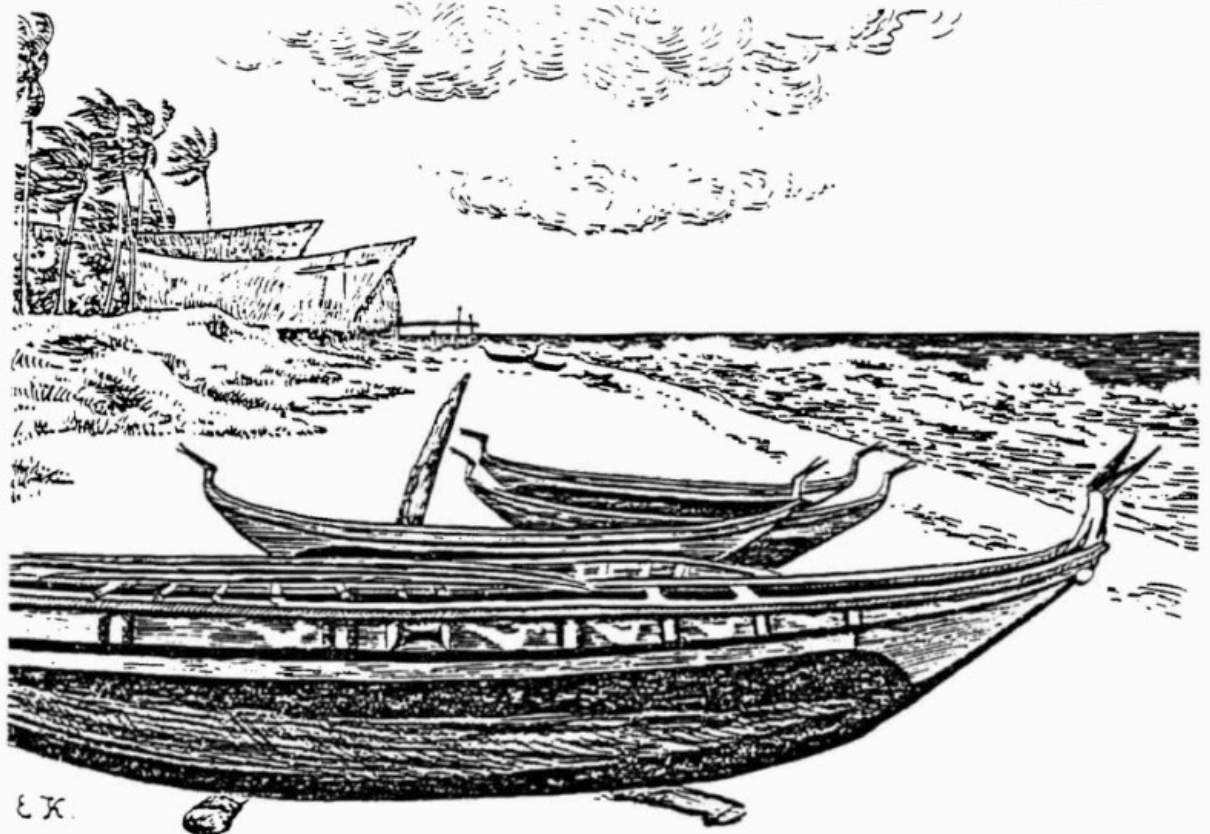
Carved wooden objects have reached their apex in the deep sailing canoes of the Carolines. The navigational and canoe building skills of these people are noted throughout the Pacific and are a great source of pride even today. (See the article "Wind, Wave, Star and Bird," by C. S. Lewis, National Geographic, December 1974.)

The canoes are of the outrigger type generally equipped with a lateen sail--that is to say, a sail with the "yard slung from the mast and the apex forward at the bow."¹⁰ Canoes are chiefly constructed from breadfruit wood and without the use of nails. Before the introduction of metal from the west, trees were felled and hollowed using rudimentary stone age tools. Shell-bladed adzes accomplished the cutting and planing of wood while wedge and fire techniques assisted in the felling and initial hollowing of the tree. After the main log has been roughcut to the form, the sides are built up by the addition of gunnels attached to the body of the canoe using breadfruit sap glue, slivered coconut husk as calking, and coconut sennit to cinch the planks down. Holes are made by a pump drill and the outrigger platform is bound to the canoe with various forms of lashing. The lashings are strong yet flexible enough to

allow for some critical give in heavy seas. They are made from rot-resistant coconut husk rope. Canoe construction is carried on by a group of men, each with skills developed from childhood, with a veteran canoe builder supervising. The canoe's use and status is indicated by the type of canoe prow. Today the prow usually consists of an upswung forked extension termed popow¹¹ which is likened to the tail of a frigate bird. The painted embellishment on the canoe is made up of rather severe ovoid and geometric forms, painted either in red and black or yellow and black (Fig. 2). Lighter smaller canoes are constructed for lagoon sailing, while larger heavier ones are made for open ocean fishing and trade excursions.

It is difficult to fully appreciate the beauty of one Carolinian object when taken out of its environmental context. This is especially true of the canoe. The people of the Central Carolines do not necessarily draw a distinction between construction technique, sailing performance and visual form. A canoe that has been formed properly is able to perform beautifully in the water and as such embodies the essence of that aesthetic. In reference to the canoe of the outer islands Marvin Montvel-Cohen of the University of Guam has said that, "There a canoe is seen and admired for its form and craftsmanship as well as its service to the community. The history of each craft can have an almost mystical significance depending on the adventures undergone by its crews."¹²

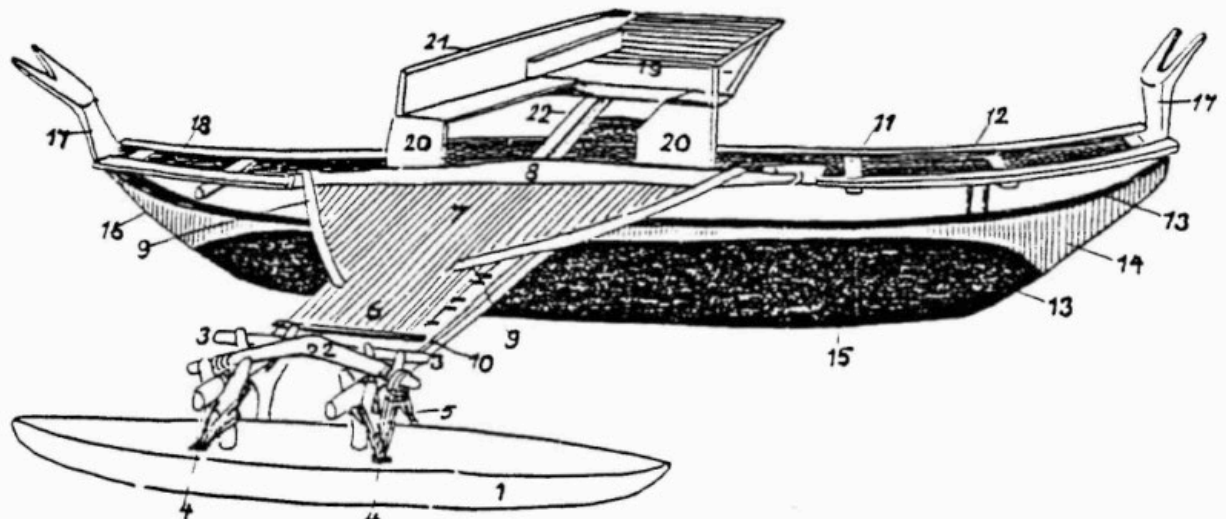
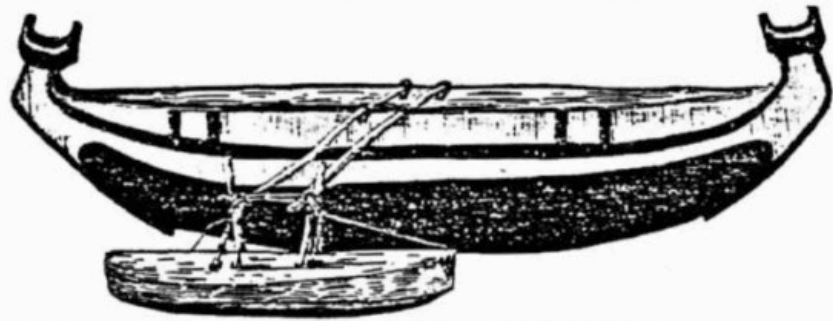
The canoes are stored and repaired in what may be called the canoe or men's house (Fig. 3). These houses are up to seventy feet



E.K.

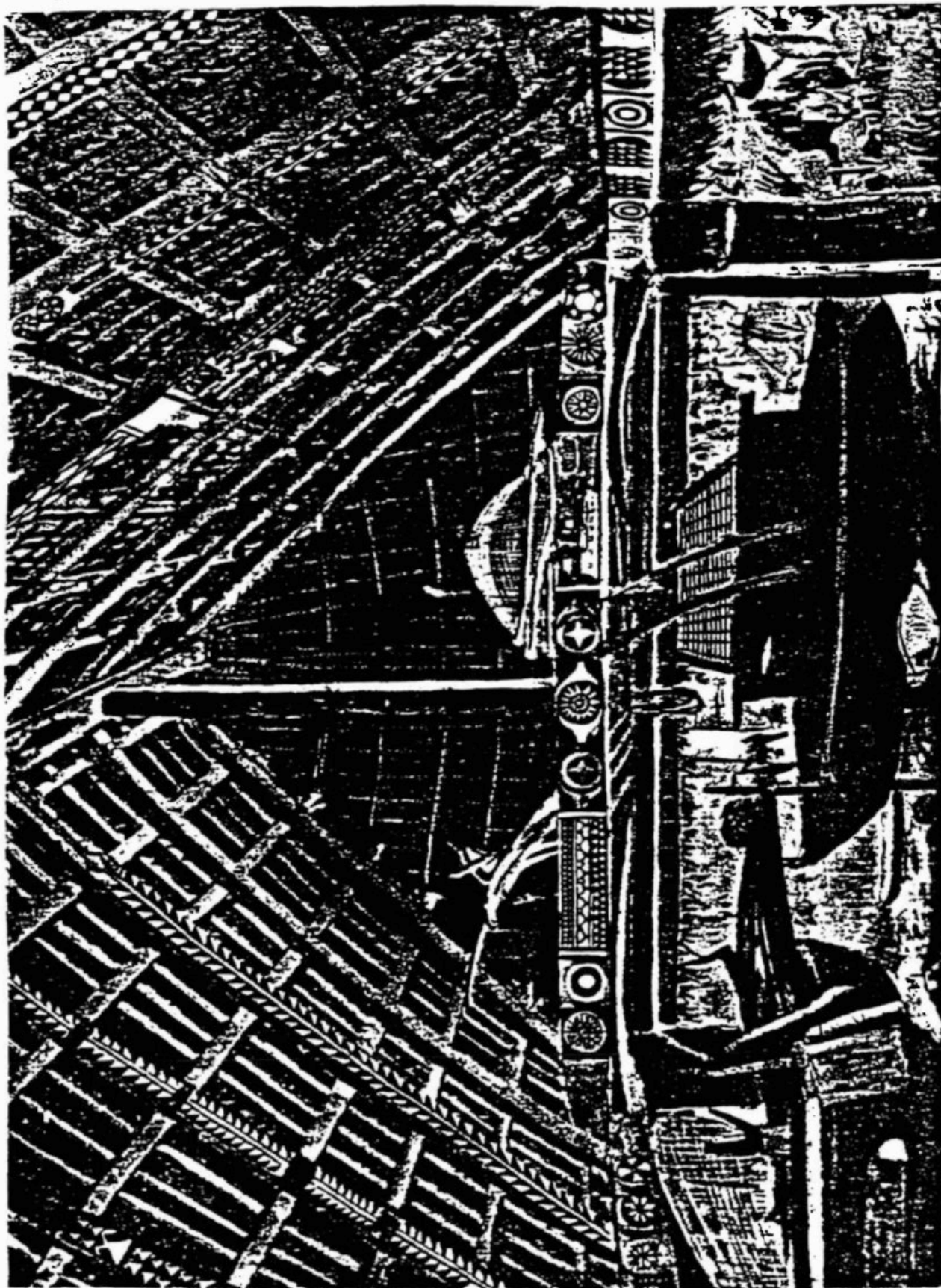
Canoe of Feis Atoll

Kramer, Dr. Augustin. E.S.E.: Zentralkarolinen, Hamburg: 19



Canoes of Ifaluk Atoll

Damm, Dr. Hans. E.S.E.: Zentralkarolinen, Hamburg: 1938



The interior of a canoe house of Lamotrek Atoll.
Kramer, D. Augustin.
E.S.E.: Zentralkarolinen, Hamburg: 1937.

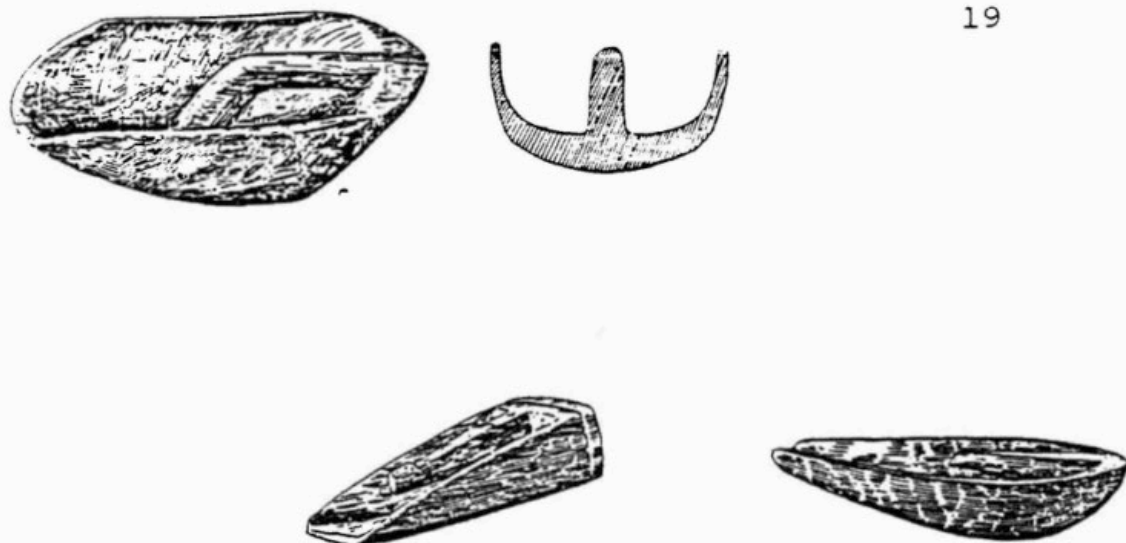
long and half as wide to accommodate the large ocean-going canoes. The canoe house is the center of male activity though women can bring food or attend community meetings there. It is a place where navigation is instructed, canoes and other wooden items made and important village matters discussed. Young men live in these structures from adolescence until marriage.¹³ As in canoe building, a group of non-specialized men participate in the construction with one man acting as a supervisor. The actual expertise of the enterprise is manifested in the ornamental lashings joining the interior beams. Many of these lashings are also used to hold the outrigger platform to the canoe and are associated with the rigging. The many patterns for various purposes are displayed in the men's house and it is probable that in this location they act as embodiments of Carolinian knowledge and serve as models and teaching aids for the younger men of the community. It is critical that the lashings be strong enough to trust one's life to, so they are made with rope plied from coconut husk fiber. This rope is referred to in English as coir sennit. The preparation of the husk fibers includes soaking them in sea water for two to three weeks. As a result the rope is cured against salt water rotting. On many atolls the wooden rafters and some of the interior beams of the canoe house are decorated with incised or relief geometric designs (Fig. 3). Often painted black and white, these bands and friezes echo the geometric patterns created by the intricate lashings used in the construction of the canoe house. These designs can be paralleled with

the decorative borders on woven garments and tattoo motifs.

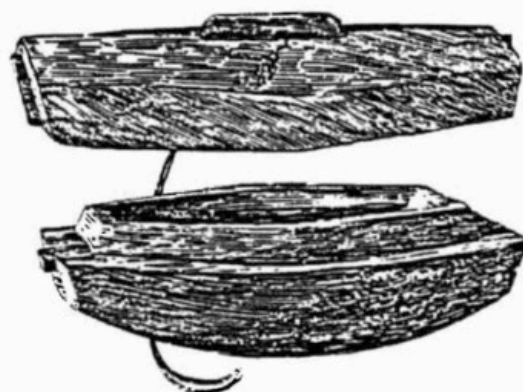
Other wooden articles are made for use with the canoe. Chief among these are fishing tackle boxes and canoe bailers (Fig. 4). Tackle boxes are basically ovoid or rectangular in form and are carved from a single piece of wood. They have a tight-fitting lid with knobs extending from the sides or the top. Sennit is anchored around these to hold the box closed and suspend it from a suitable place on the canoe. Bailers are generally square at the base end and oval at the scoop end. A handle emerges out of the base, and either forms a hemisphere and returns to the form toward the scoop end or remains unattached (Fig. 5). Both articles are absolutely functional but reflect an ultimate interest in the grace of efficient design.

There is very little in the way of anthropomorphic wooden imagery in the Western Carolines. The only object that approaches it is the weather effigy (Figs. 6 and 7). The effigies are made up of a simplified trunk and head portion of carved wood to which stingray spines are tied with sennit rope. Often various other fibers are tied on as well. These images are never taken into a dwelling, but are positioned outdoors or taken on canoe trips. Their purpose is to turn away storms from the island or to protect a canoe from bad weather on long voyages.¹⁴

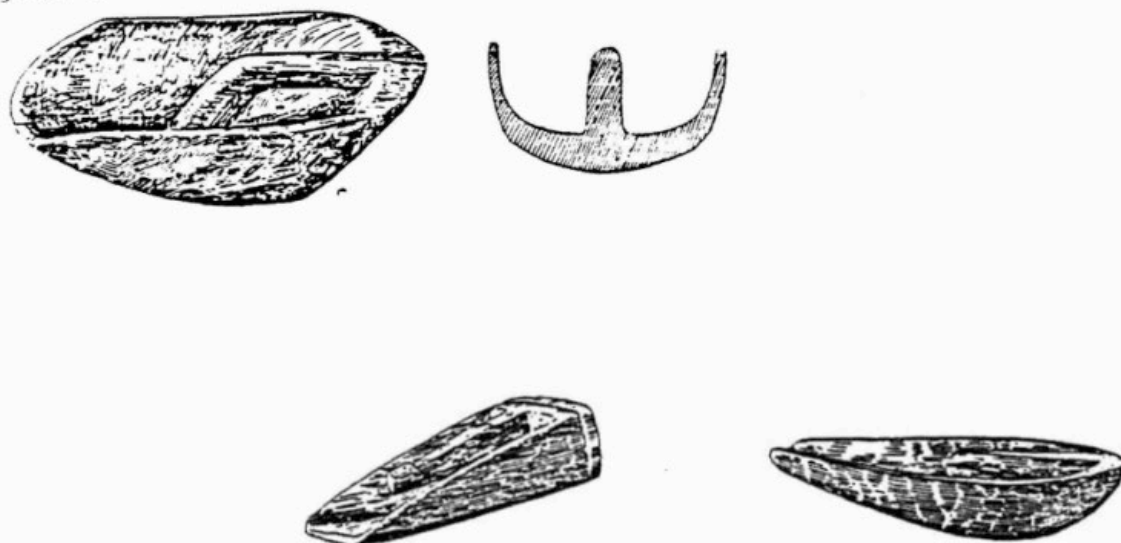
One of the more curious wooden forms occasionally seen coming from the Central Carolines is an anthropomorphic carving referred to today as a "monkey man" (Fig. 8). It is very difficult to obtain information concerning these mysterious figures as very little has



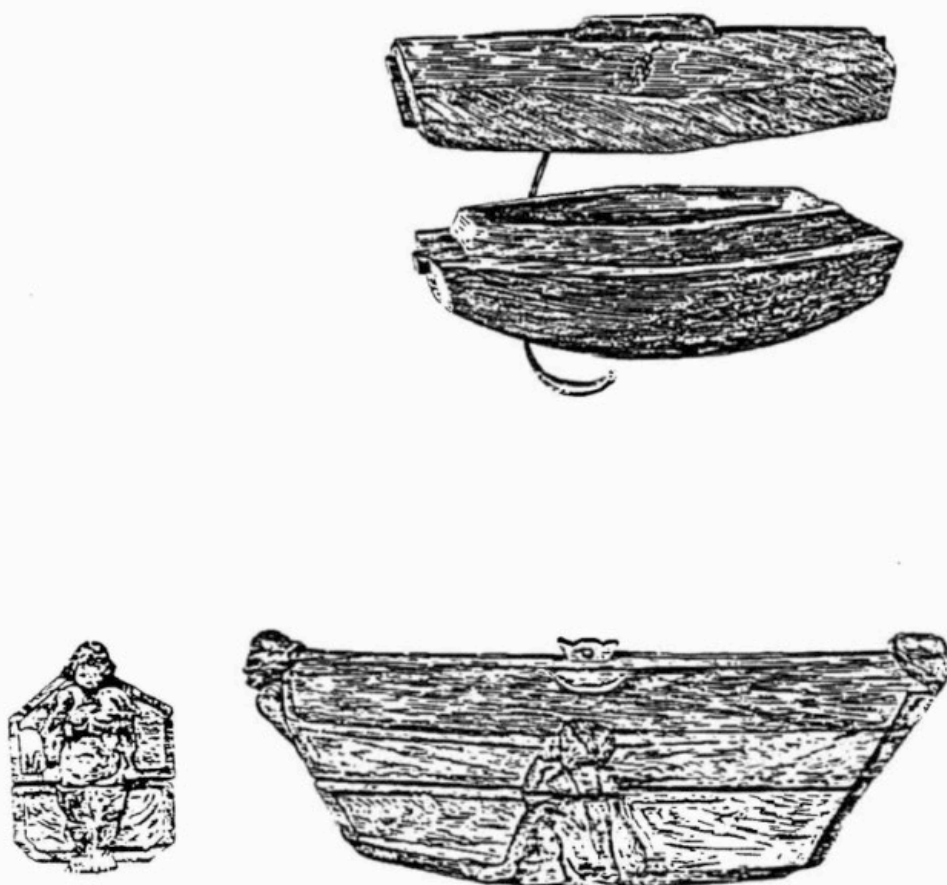
Above: Canoe bailers of Ifaluk Atoll
Damm, Dr. Hans. E.S.E.: Zentralkarolinen, Hamburg: 1938



Tackle boxes of Lamotrek Atoll
Kramer, Dr. Augustin. E.S.E.: Zentralkarolinen, Hamburg: 1937

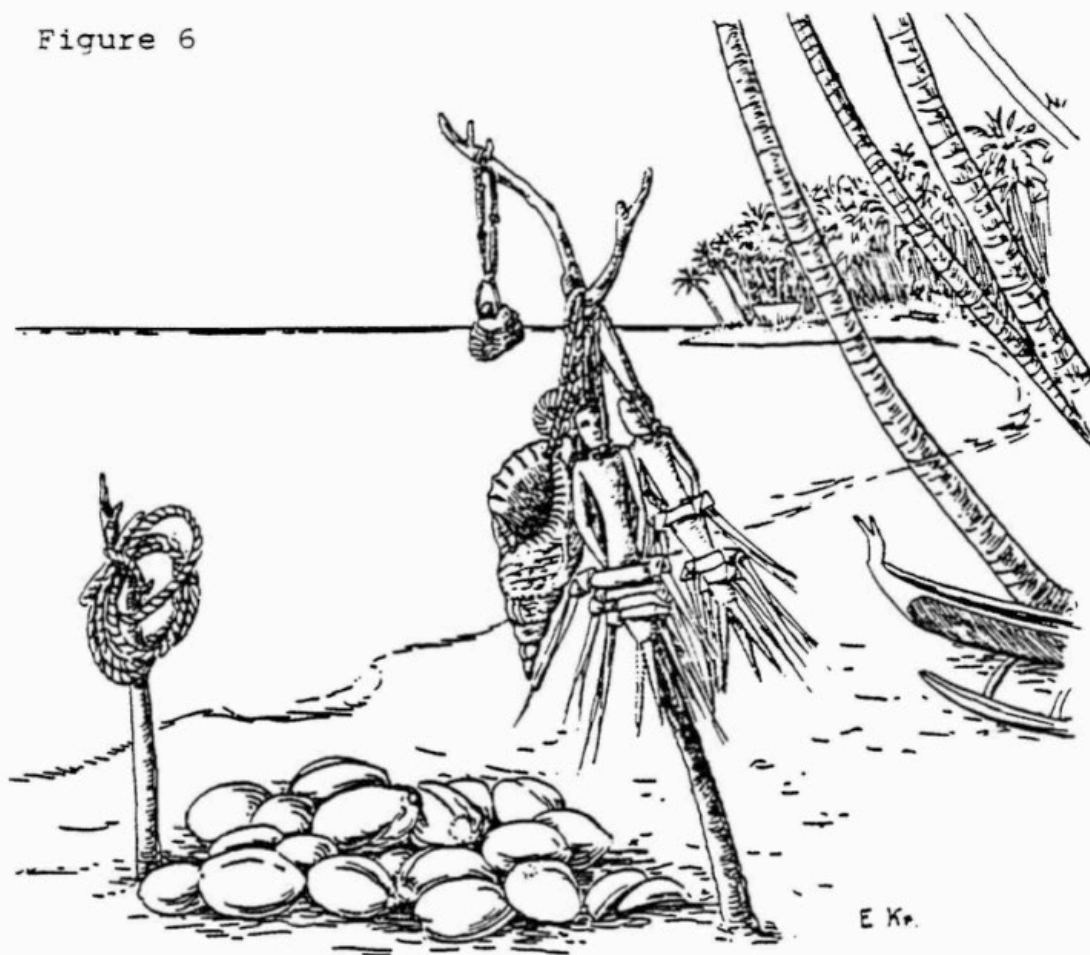


Above: Canoe bailers of Ifaluk Atoll
Damm, Dr. Hans. E.S.E.: Zentralkarolinen, Hamburg: 1938

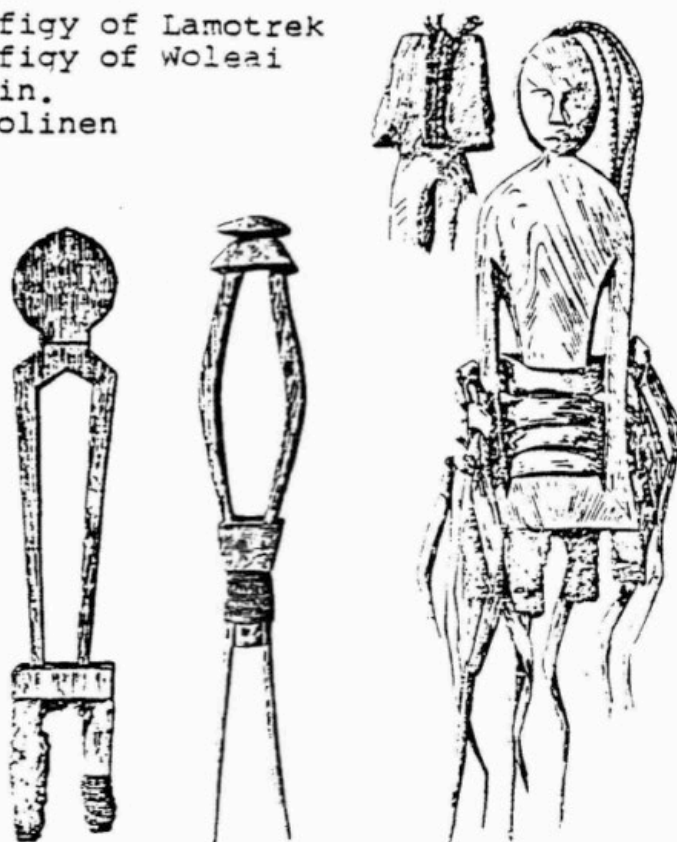


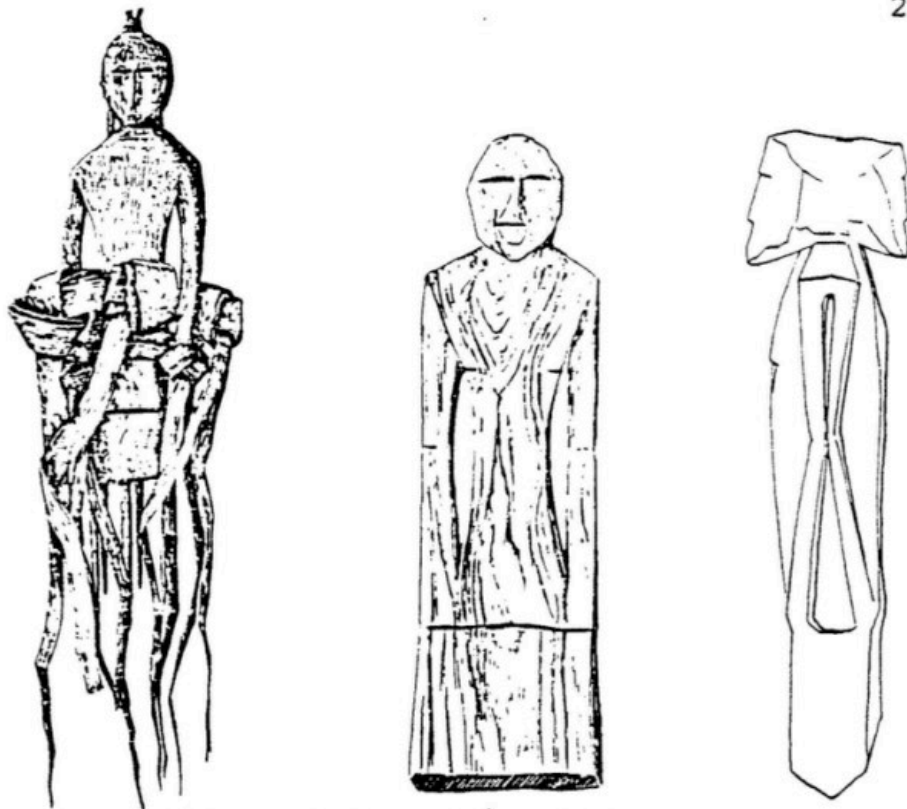
Tackle boxes of Lamotrek Atoll
Kramer, Dr. Augustin. E.S.E.: Zentralkarolinen, Hamburg: 1937

Figure 6

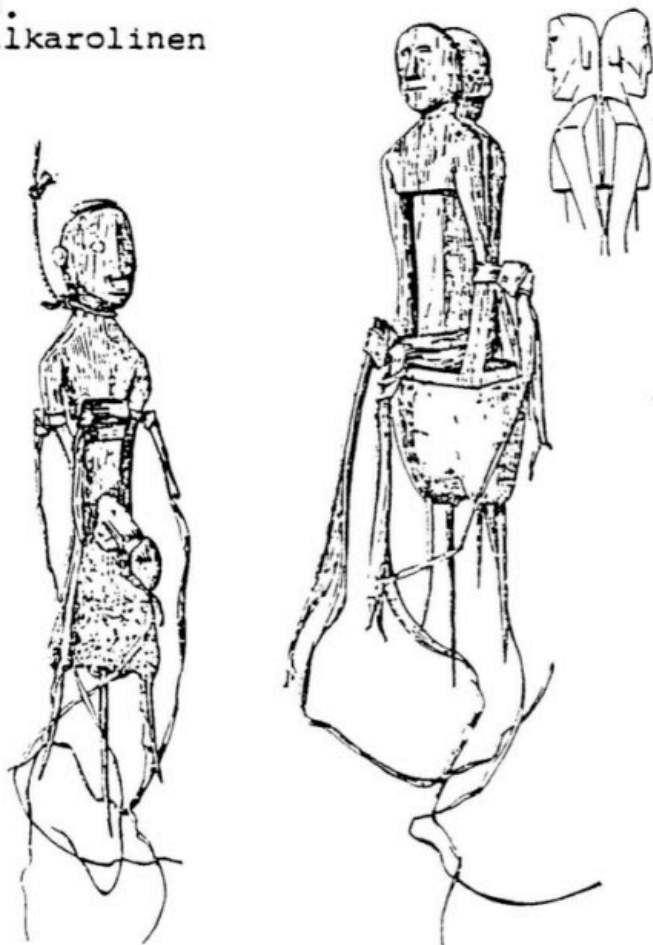


Above: Weather effigy of Lamotrek
 Below: Weather effigy of Woleai
 Kramer, Dr. Augustin.
 E.S.E.: Zentralkarolinen
 Hamburg: 1937

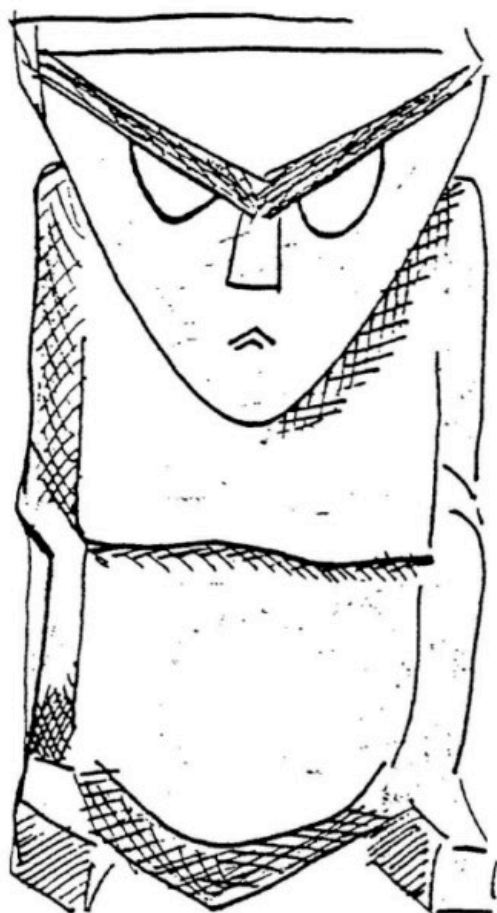




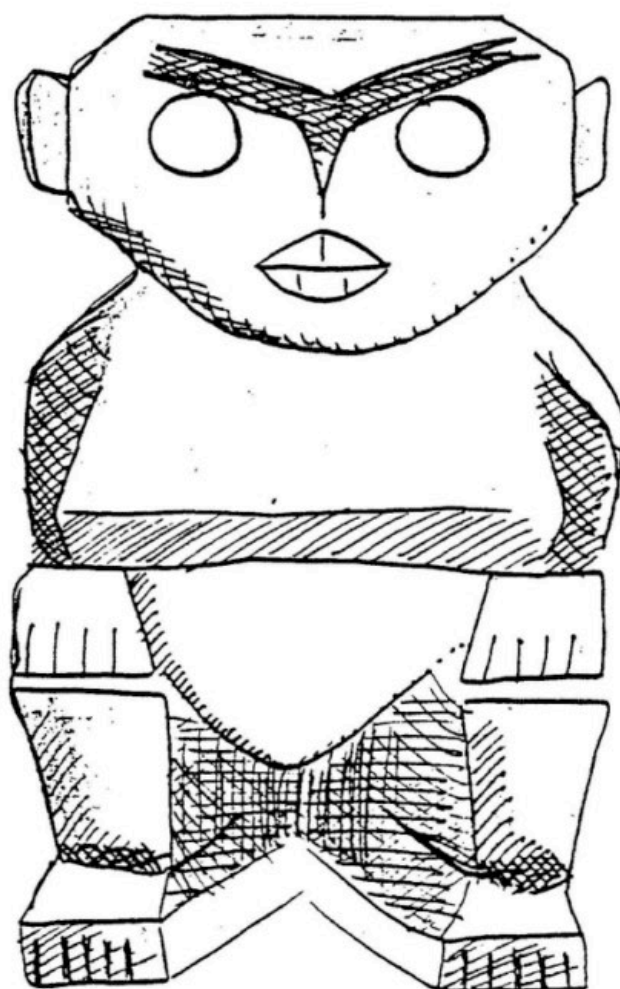
Weather effigy of Faraulip Atoll
 Damm, Dr. Hans.
 E.S.E.: Zentralkarolinen
 Hamburg: 1938



Weather effigy of Ifaluk Atoll
 Damm, Dr. Hans. E.S.E.: Zentralkarolinen, Hamburg: 1938



Western Carolinian
"Monkey Man"



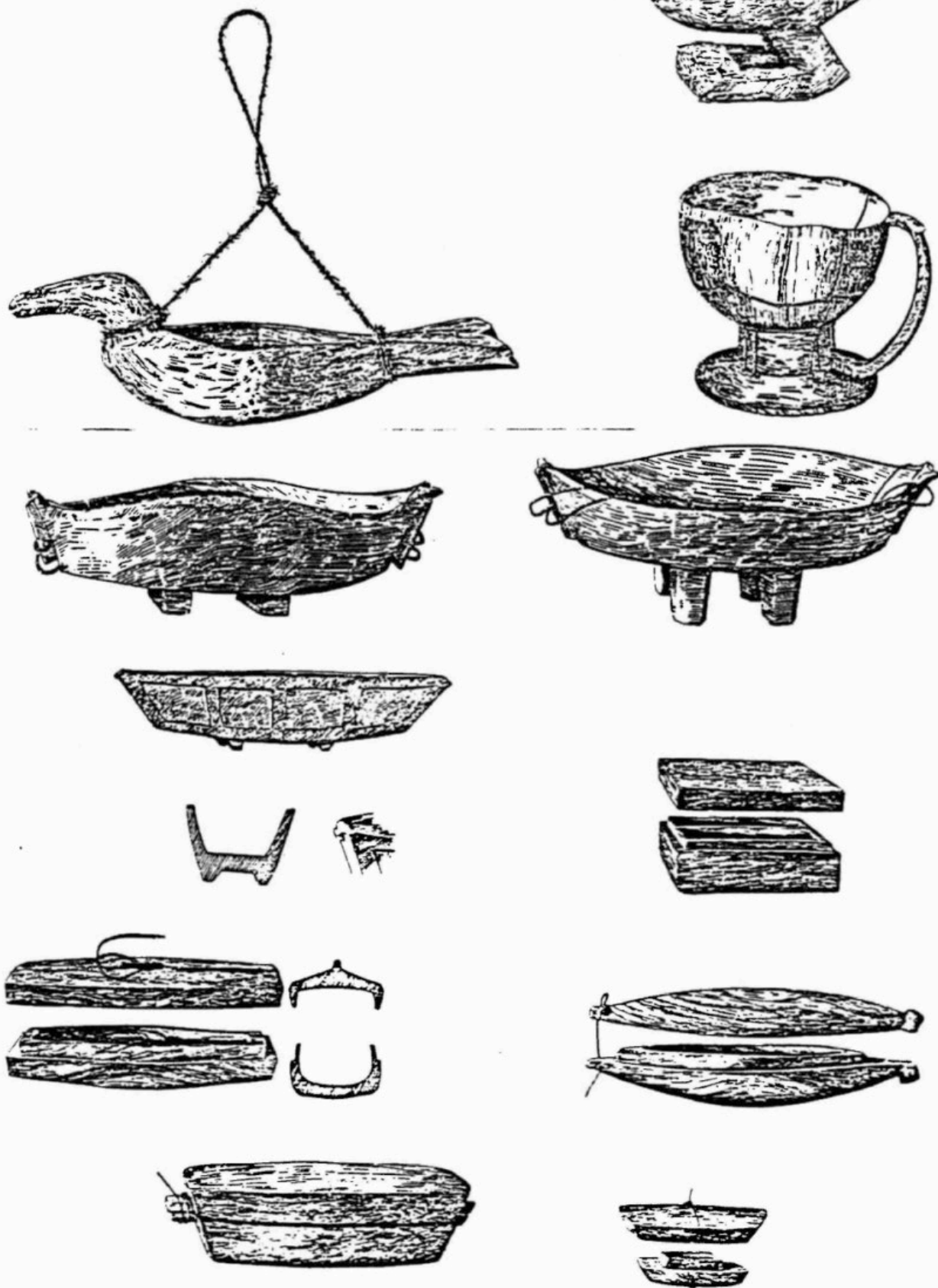
South West Island
"Monkey Man"

been recorded concerning their origin and function. Reports from two living sources have helped to shed some light on the subject. According to Joe Figirylong of Ulithi, the form of the "monkey man" is actually an ancestral or spirit sculpture originating in Tobi, the farthest of the Southwest Islands of the Palau group. Verna Curtis, manager of the Yap Co-op and resident of Micronesia since 1951, agreed that the figures are spirit images of the Southwest Islands. She reported that they were tied to the prow of canoes bearing the dead out to sea. The purpose was to protect and escort the soul of the deceased safely on his journey. The figure itself is a compact squatted one, with knees bent and arms close to the body. Inlaid mother of pearl shell is used for the eyes and against the dark wood of the figure it forms a striking contrast. According to Verna Curtis, the "monkey men" figures of the Southwest Islands can be distinguished from those of the Central Carolines by the shape of the pearl shell eyes. Round eyes seem to be characteristic of the Southwest Islands, while angular eyes are more characteristic of the Central Carolines.

Wooden bowls and tool handles make up the remaining articles of the class of carved wooden objects. The bowls are generally ovoid in shape, occasionally following the form of a stylized bird (Fig. 9). Bowls are usually made from the hardwood of the breadfruit tree while tool handles are more easily made from hibiscus wood, as it is plentiful and light weight.

Another item that could fall into the wood category is the

Figure 9



Assorted wooden bowls and tackle boxes from Woleai and
 Lamotrek Atolls
 Kramer, Dr. Augustin. E.S.E.: Zentralkarolinen, Hamburg: 1937

bamboo lime container (Fig. 10). Powdered lime is made by burning the Porites coral and is sprinkled over the betel nut and pepper leaf to add extra pungency while chewing. These containers are often incised with diamonds and chevron patterns, similar to the borders on woven garments. Bamboo lime containers do not appear to be manufactured today but are left recorded in the German Thelenius Südsee expedition files of the early 1900's.¹⁵

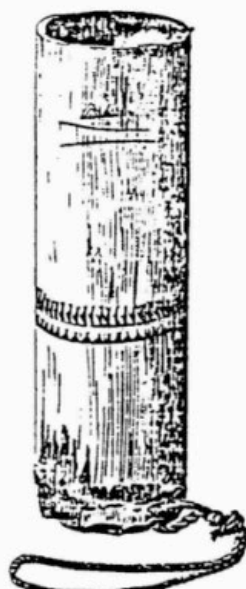
Body Ornamentation

Many primitive cultures have developed forms of body ornamentation. Often dramatic and colorful, body ornaments not only serve to delight the senses but also function as social identifiers. This social function can range from initiation into adulthood to clan or group insignia. Though form and materials vary with the particular cultural heritage and the locally available resources, body ornamentation appears to arise from a fundamental interest in embellishment. This aesthetic perception is perhaps so strong because it appeals directly to all the senses but taste. The visual contrasts of color and shape are often complemented by the texture and fragrance of the various woods, shells, bones, plants and flowers used. The sense spectrum is completed by the audible rustling and clacking sounds created by the interaction of body movement and ornament.

Carolinian body ornamentation is basically comprised of tattoos, shell and bone jewelry and flower garlands. Tattooing is probably the most elaborate of the ornaments. Leonard Mason of the

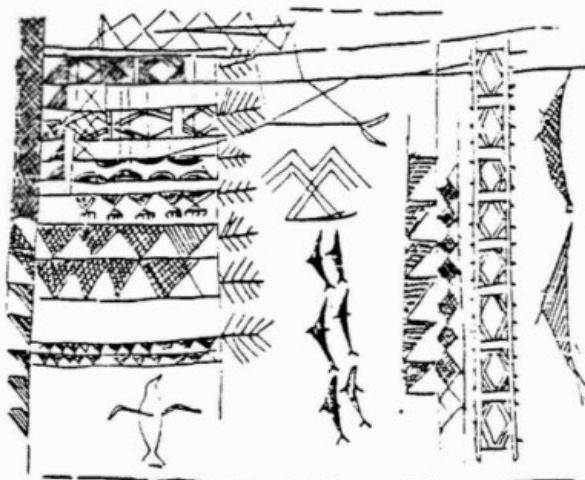
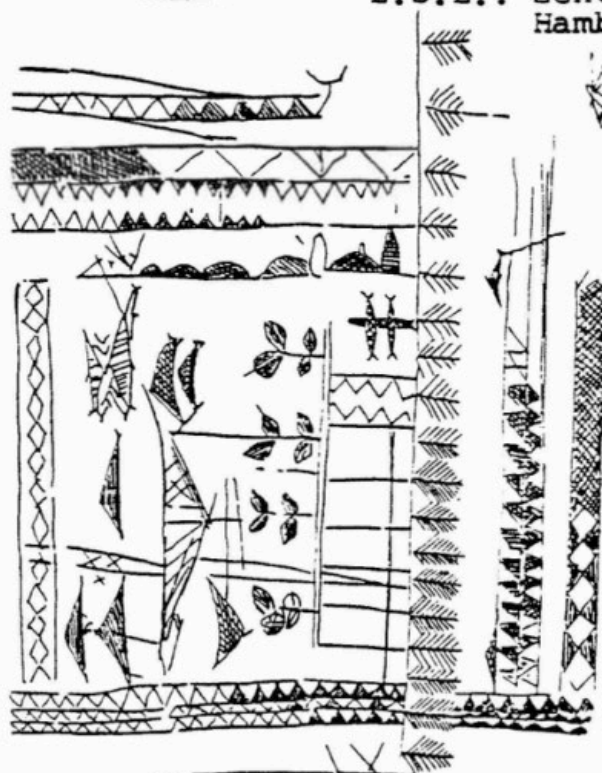


Above: Bamboo lime container for chewing betel nut, from Lamotrek Atoll



Below: Bamboo lime container for chewing betel nut, from Woleai Atoll

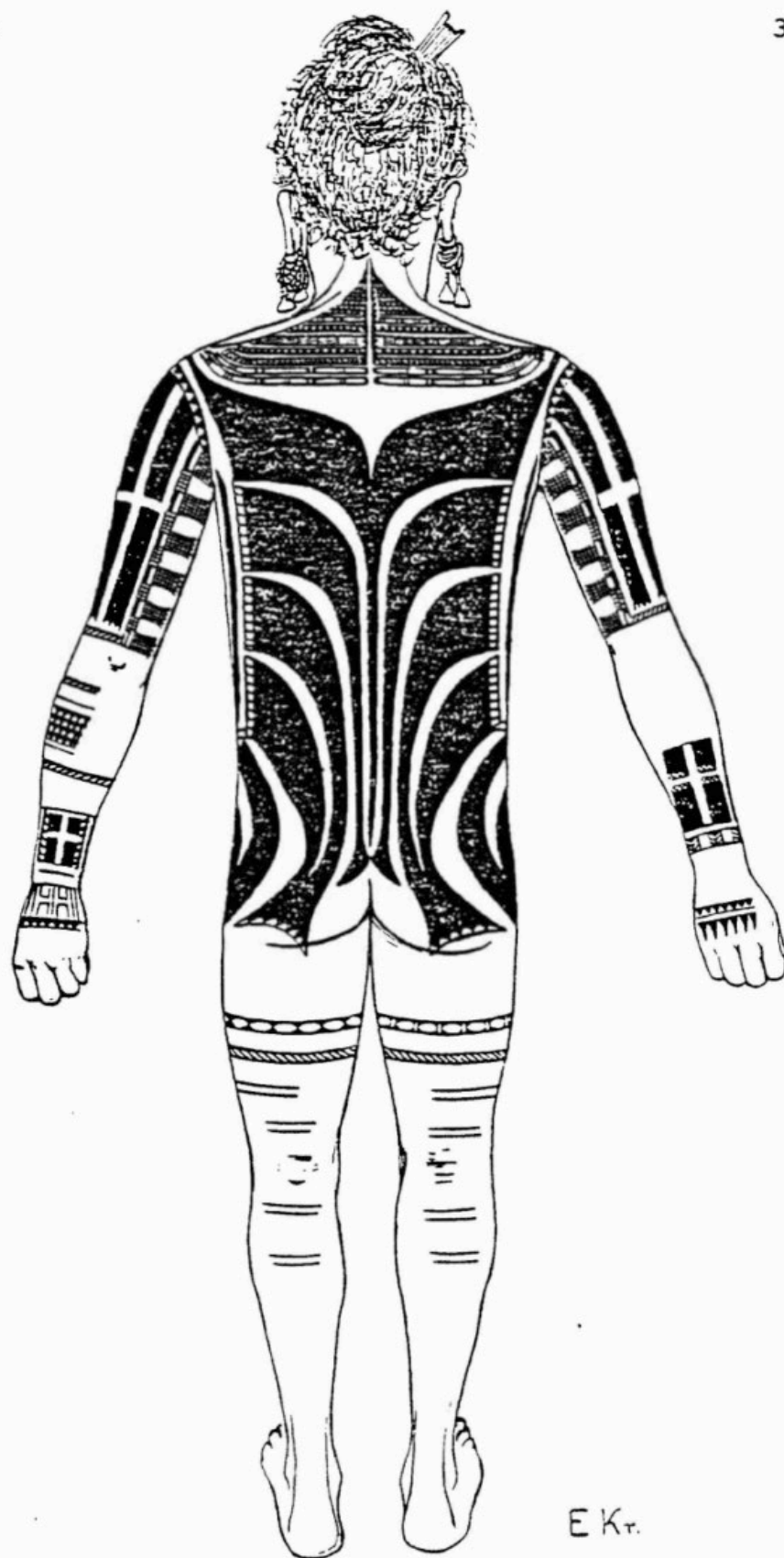
Kramer, Dr. Augustin.
E.S.E.: Zentralkarolinen,
Hamburg: 1937



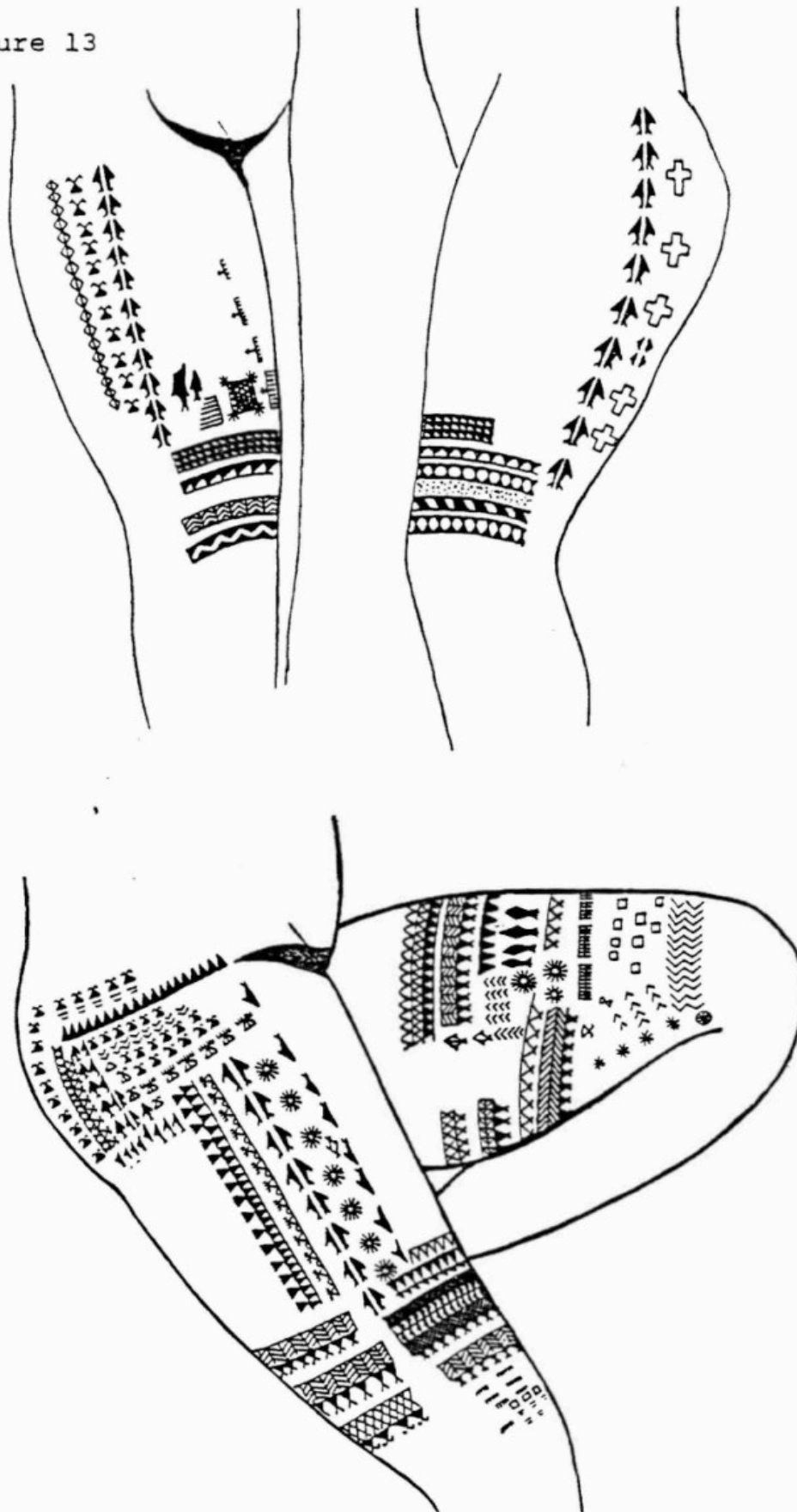
University of Hawaii states that, "The most complete body design, still extant among older adult males, originated in Ulithi and Yap and was common throughout the central Caroline atolls as far as Woleai and Tobi."¹⁶ According to Mason, "Two sets of rays rising above the nipples dominated a vertical composition of dark rectangles which extended to the groin (Fig. 11). The back was covered with a symmetrical pattern of curving dark fields which joined along the backbone and terminated on the buttocks (Fig. 12). Women in these islands, together with their sisters in the atolls eastward to Truk, displayed a quite different style of tattooing. This decoration was concentrated on the thighs, and consisted of an unframed arrangement of fishes, crosses, triangles, and chevrons, set off by bands of crosshatching of rows of parallel diagonals"¹⁷ (Fig. 13). According to the National Geographic article, "The Americanization of Eden,"¹⁸ the more complete of the men's body tattoo was restricted to high chiefs and navigators. Information on women's tattoo is more difficult to obtain as they are always concealed below the perennial lava-lava. Eulalia Harui-Walsh, of Fasarai, Ulithi Atoll, has informed me that women's tattoo is traditionally executed during puberty and extends to the most delicate parts of the groin. She also said that there is considered to be an erotic quality to a woman's tattoo, which only her husband is privy to. Though tattoo designs still exist on the elder males of the Central Carolines, the custom is fast declining. Christian influence has played a large part in this decline; though in the case of the women, Harui



Front and side view of a tattooed man from Woleai Atoll
 Kramer, Dr. Augustin.
 E.S.E.: Zentralkarolinen, Hamburg: 1937



Back view of a tattooed man from Woleai Atoll
 Kramer, Dr. Augustin
 E.S.E.: Zentralkarolinen, Hamburg: 1937



Above: Female tatoos of Lamotrek Atoll
Kramer, Dr. Augustin.
E.S.E.: Zentralkarolinen, Hamburg: 1937

Right: Female tatoos of Mogemog, Ulithi Atoll
Damm, Dr. Hans.
E.S.E.: Zentralkarolinen, Hamburg: 1938

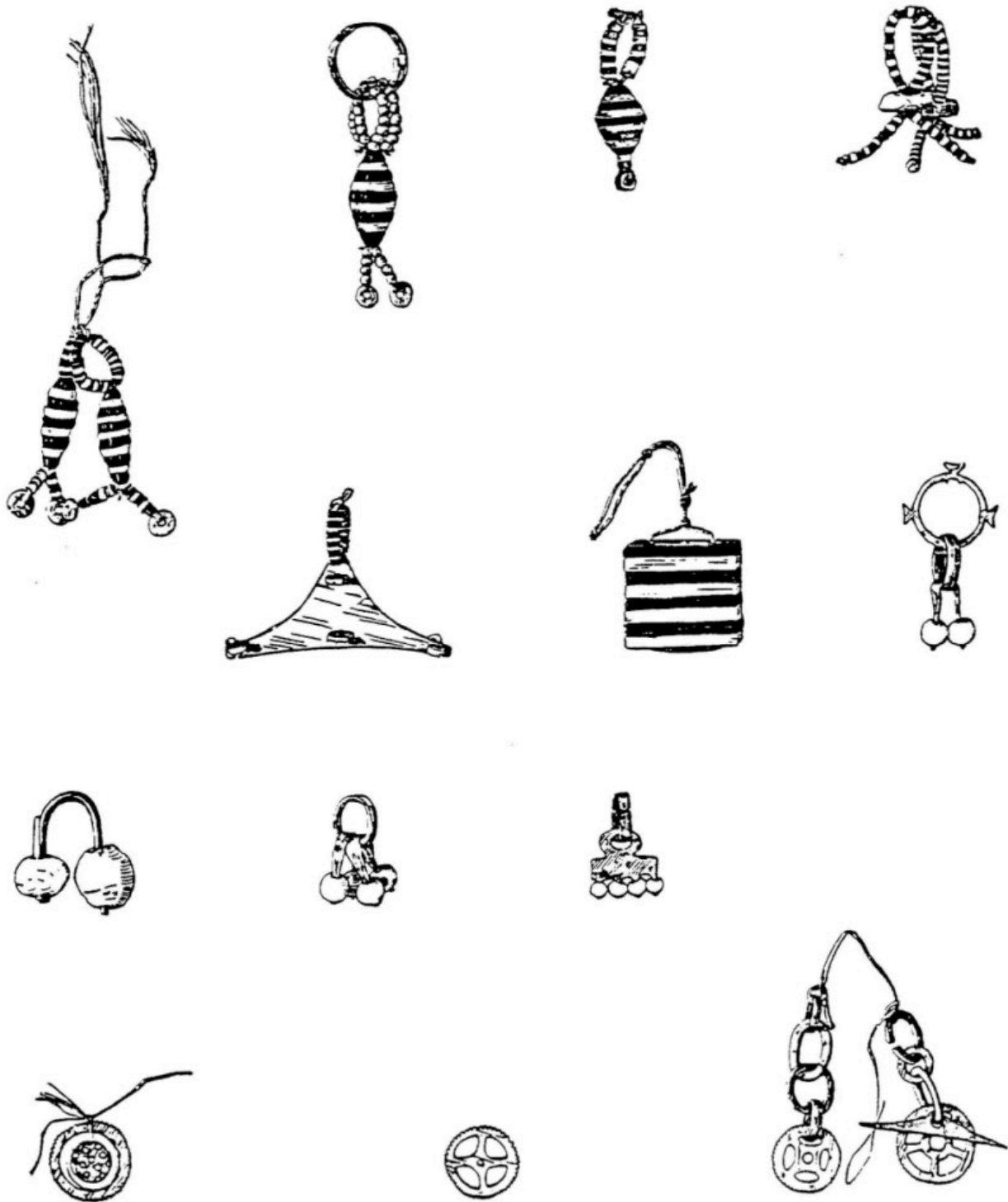


indicated that the abhorrence of the excruciating pain that must be endured during the process has heavily influenced the cessation of the practice.

Throughout the entire Carolines, necklaces, earplugs or ear pendants, belts or girdles, bracelets and finger rings adorned the bodies of islanders. The principal shells used for these items were the White Conus and Trochus, the orange red Spondylus,¹⁹ the white of the giant clam or tridacna and the richly patterned and brown shell of the hawksbill turtle. According to Mason, "Aesthetic effects were largely derived by skillfully combining numerous pieces of shell of contrasting color, size and shape into a total composition"²⁰ (Figs. 14 and 15).

Today on some of the Western atolls there can still be found the characteristic shell strand belts (Fig. 16). Composed from discs of white tridacna and the brown tortoise shell, they are strung on sennit cord. Some belts are made up of multiple strands held in a single plane by shell or wood connectors. These belts are worn by women to hold up their lava-lavas and form a lovely contrast with the fiber of the garment and the skin of the women. The belt actually catches only the front of the wrap around lava-lava, leaving the back side open and away from the skin. According to Eulalia Harui-Walsh, the belts are a mark of wealth and remain in the family under matrilineal lines.

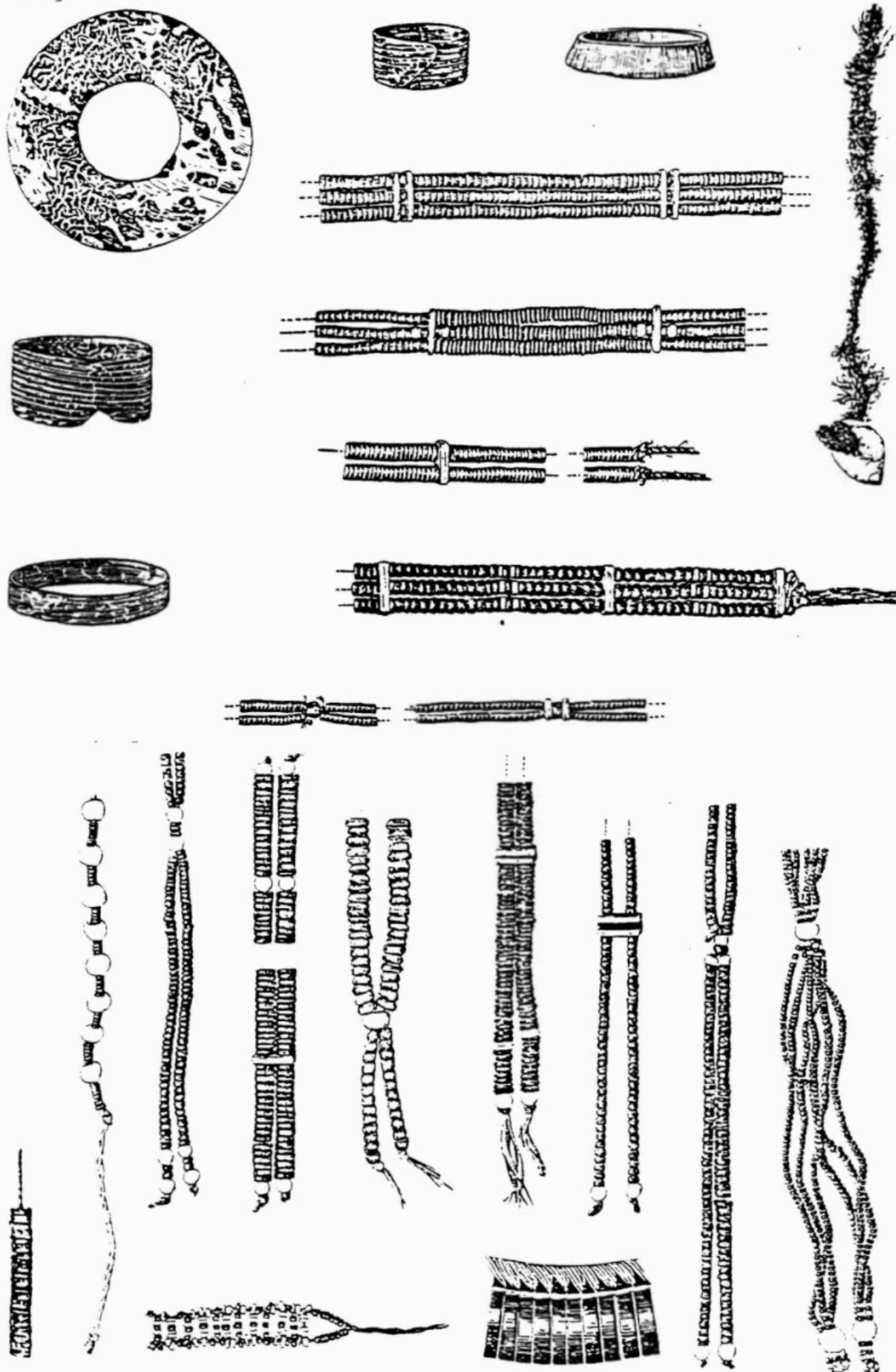
Perhaps the most delightful of the fiber body ornaments is the Carolinian flower garland, referred to as a mar-mar, mwaramwar or



Assorted earrings from Ifaluk Atoll
 Damm, Dr. Hans.
 E.S.E.: Zentralkarolinen, Hamburg: 1938



Assorted earrings from Ifaluk Atoll
Damm, Dr. Hans.
E.S.E.: Zentralkarolinen, Hamburg: 1938



Assorted shell belts from Ifaluk Atoll
 Damm, Dr. Hans.
 E.S.E.: Zentralkarolinen, Hamburg: 1938

nunu. They are worn by both men and women as a necklace or on the head (Fig. 17). The flowers are actually caught in a kind of finger braiding using strips of pandanus. The method is intricate and presents the flowers in a delicate yet tailored manner. Carolinian mar-mar appear to be unique in the Pacific as regards the technique used and arrangement of the flowers. According to Carolinian sources, mar-mar are made regularly by the women, with special care being lavished on those for dance or ceremonial occasions.

Fiber Arts

Central Carolinians have demonstrated singular ingenuity and resourcefulness in fashioning indigenous Pacific fibers into articles for every aspect of atoll life. Natural fibers are used for items ranging from ceremonial exchange lava-lavas (wrap-around garment) and canoe sails, to toys and amusements for children.

Basically Carolinian fiber techniques consist of variations and combinations of twining, plying, finger braiding, plaiting and weaving. It is important to distinguish between plaiting which is a non-loom method of interlacing fibers at oblique angles and weaving which is a loom technique of interlacing fibers at right angles.

Some fiber articles are made by both men and women and some skills are strictly the domain of one or the other. In general, men are concerned with the making of sennit rope and are acquainted with basic thatching and basketry techniques. Women perform all other fiber skills and are particularly masterful at plaiting and backstrap loom weaving.

Figure 17

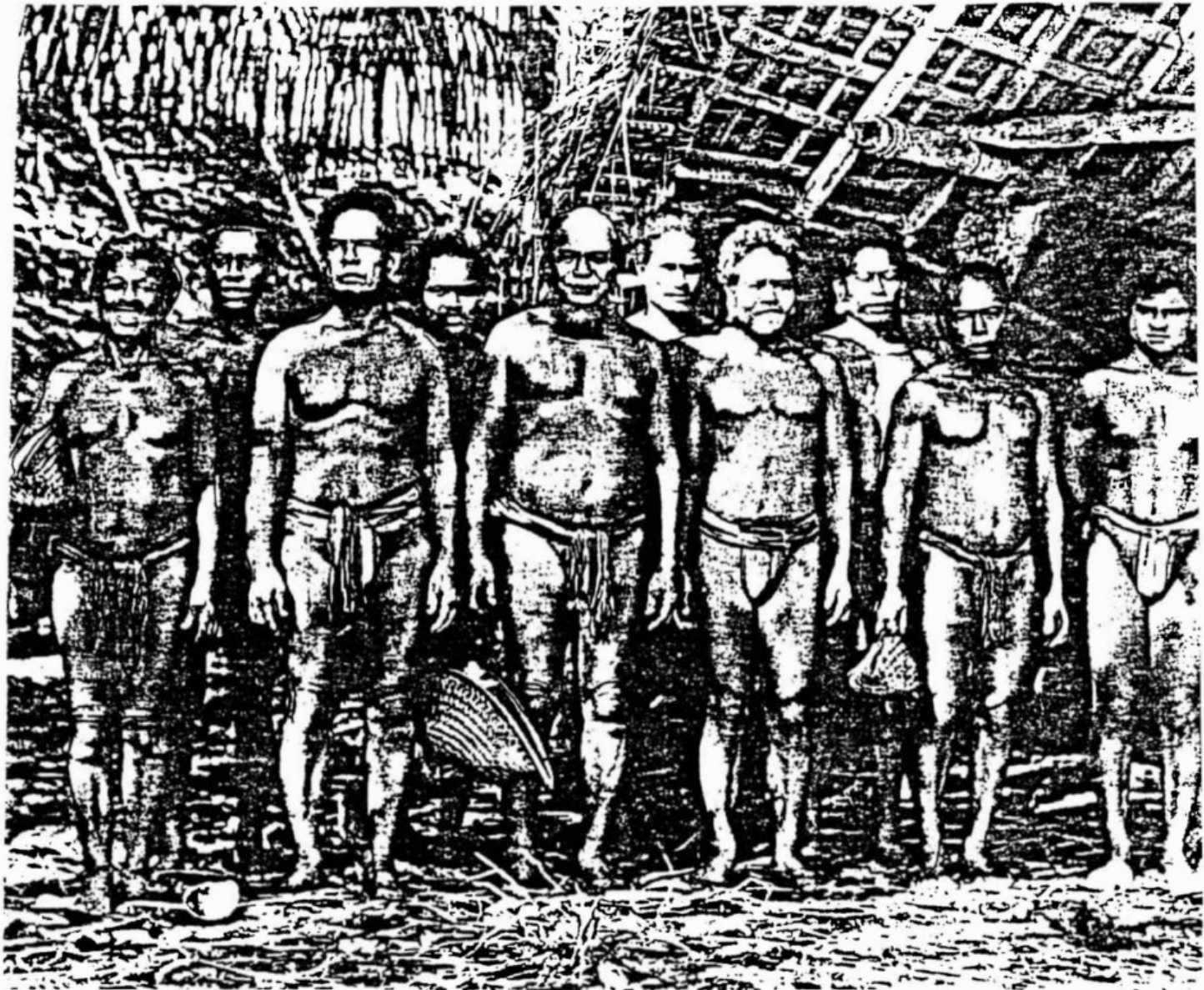


A culture's perception of color and the particular way of incorporating it into the aspects of their life is shaped largely by the local environment. The tropics are characterized by perennial warmth and vibrant color. For atoll dwellers, there is an absence of cyclic repetition of seasons and an omnipresence of ocean and sky. The varieties of blue are innumerable, contrasting with the white coral sand of the shoreline and the greens of vegetation. Flowers bloom throughout the year and provide the added brilliance of reds, oranges, yellows and pinks. The palette is completed by the natural tans, creamy whites and brown hues provided by wood, various shells and natural fibers.

Traditionally, Central Carolinians have tended to prefer the natural cream and tan colors of the dried fiber for their weaving and plaiting. Introduced color appears in the seven-striped variety lava-lava and in the geometric borders of the three-striped variety. In the past men wore monochromatic or striped natural fiber loin cloths, termed *thu* (Fig. 18). Today the men enjoy wearing *thu* of bright red, blue or white cotton cloth, all of which form a dramatic contrast with the golden bronze of their skin. A wonderful color accent is provided by the flower garlands worn by both sexes.

The Central Carolinian fiber arts can be grouped as follows: garments and body ornaments, baskets, housing elements and canoe-related items. Coconut leaves and husk fiber, pandanus leaves and banana and hibiscus bark fibers are the major fibers used for all of these items. Methods of preparation are noted in Appendix A.

Figure 18



A group of men from Sorol Atoll wearing loincloths woven from banana and hibiscus fiber on a backstrap loom.
Damm, Dr. Hans.
E.S.E.: Zentralkarolinen, Hamburg: 1938.

Garments. The most singular item in the garment category is the lava-lava which is a strip of cloth woven on a backstrap loom. The term lava-lava is actually a word of Polynesian origin meaning wrap around. According to William Lessa, a noted anthropologist who has done field work on Ulithi, "One does not speak directly of a loincloth, which may be either the garment of a man or of a woman; instead, one speaks of banana bark when referring to a man's breechcloth, and hibiscus when speaking of the female garment, these being the names of the materials utilized in their manufacture."²¹ Joe Figiriliyong, of Ulithi atoll, has told me that on Ulithi a lava-lava is called "hou" or "hotut,"²² a term which refers to anything put on the body.

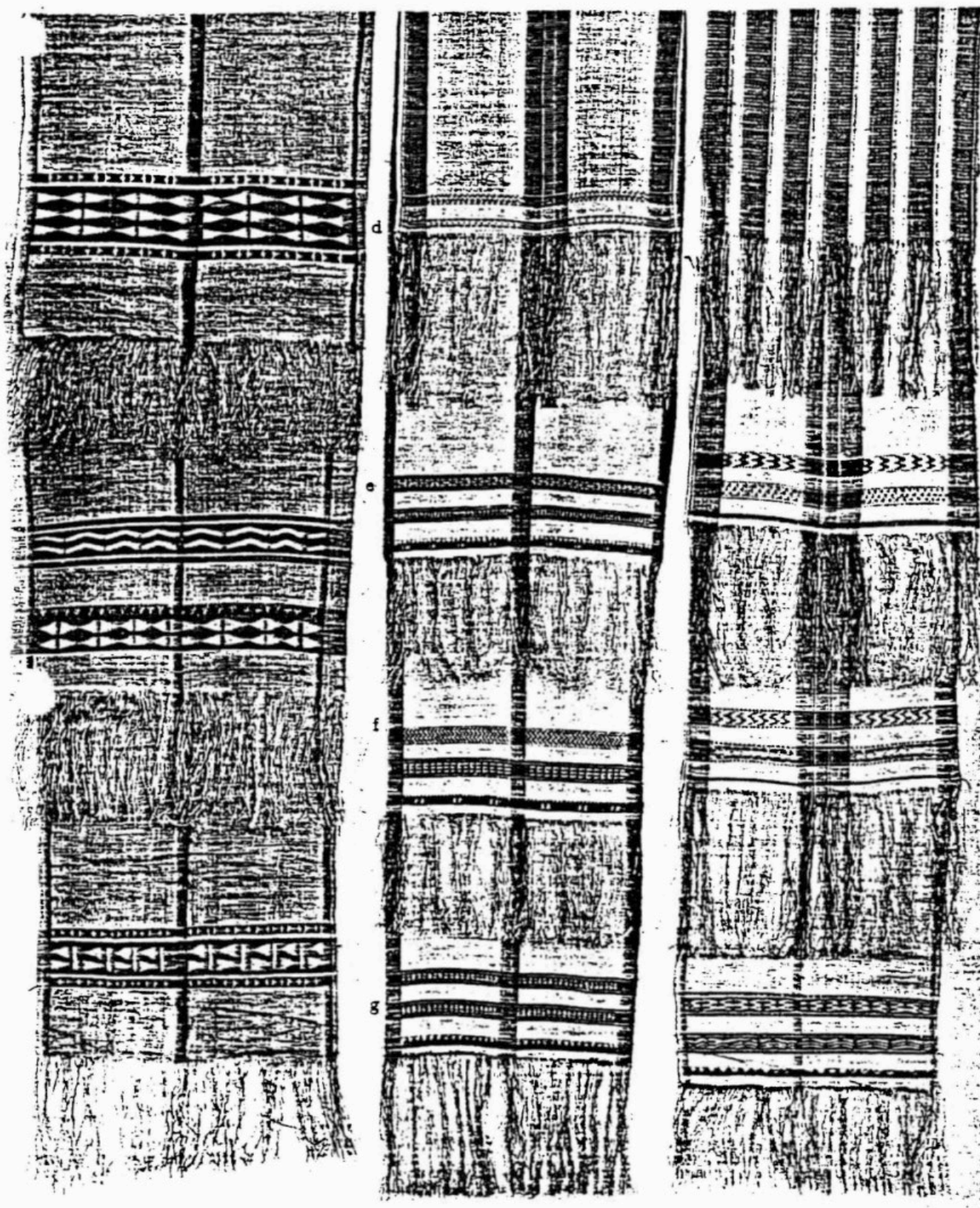
Basically the lava-lava is a strip of natural fiber cloth with a ratio of length to width of approximately three or four to one. It is worn by wrapping it around the hips with the two ends meeting in front. The ends are then folded over together to the side and secured with a belt. A dramatic line of texture is created by the double row of fringe which is formed by the unwoven warp ends meeting in the front. In the weaving setup the vertical warp threads are so numerous that when woven in a plain over one under one fashion, the horizontal weft threads will be obscured creating what is called a warp faced weave.²³ The major form of decoration is accomplished by choosing warp elements of different colors which produces vertical bands or stripes of color.

In 1952 Saul Riesenbergr conducted a study into Carolinian belt

weaving and classified them into three categories which are as follows: Class A being plain woven with vertical stripes, Class B being plain woven with supplementary weft borders and knotted in designs and Class C being the same as B with the addition of shell encrustation (Fig. 19). More recently Judy Mulford of the University of California, Northridge, has prepared a Master's Thesis concerning the actual processes and techniques involved in the weaving of lava-lavas. She spent three months on Ulithi Atoll researching and mastering this difficult and time-consuming art. Her thesis is a landmark in the documentation of the precious and endangered skill of backstrap loom weaving.

In the Pacific the technique of weaving plant fibers on a backstrap loom is localized to Micronesia. At one time the skill was practiced from Yap to Ponape. Examples of Kusaian and Ponapean weaving extant in museums attest to the intricacy and absolute mastery of their skill.²⁴ Today backstrap loom weaving occurs only in the Western Caroline Islands and is most prominent on Satawal, Woleai, Fais and Ulithi. Following Riesenberg's classification, Class A and B are characteristic of the outer islands of Yap and Truk while Class C is now extinct but in the past was limited to Kosrae and Ponape.

Among the different styles of lava-lava woven in the outer islands, the most common one is characterized by six stripes of natural fiber color and seven of a single or mixed contrasting color, usually blue or purple. As this is the style worn for everyday, each



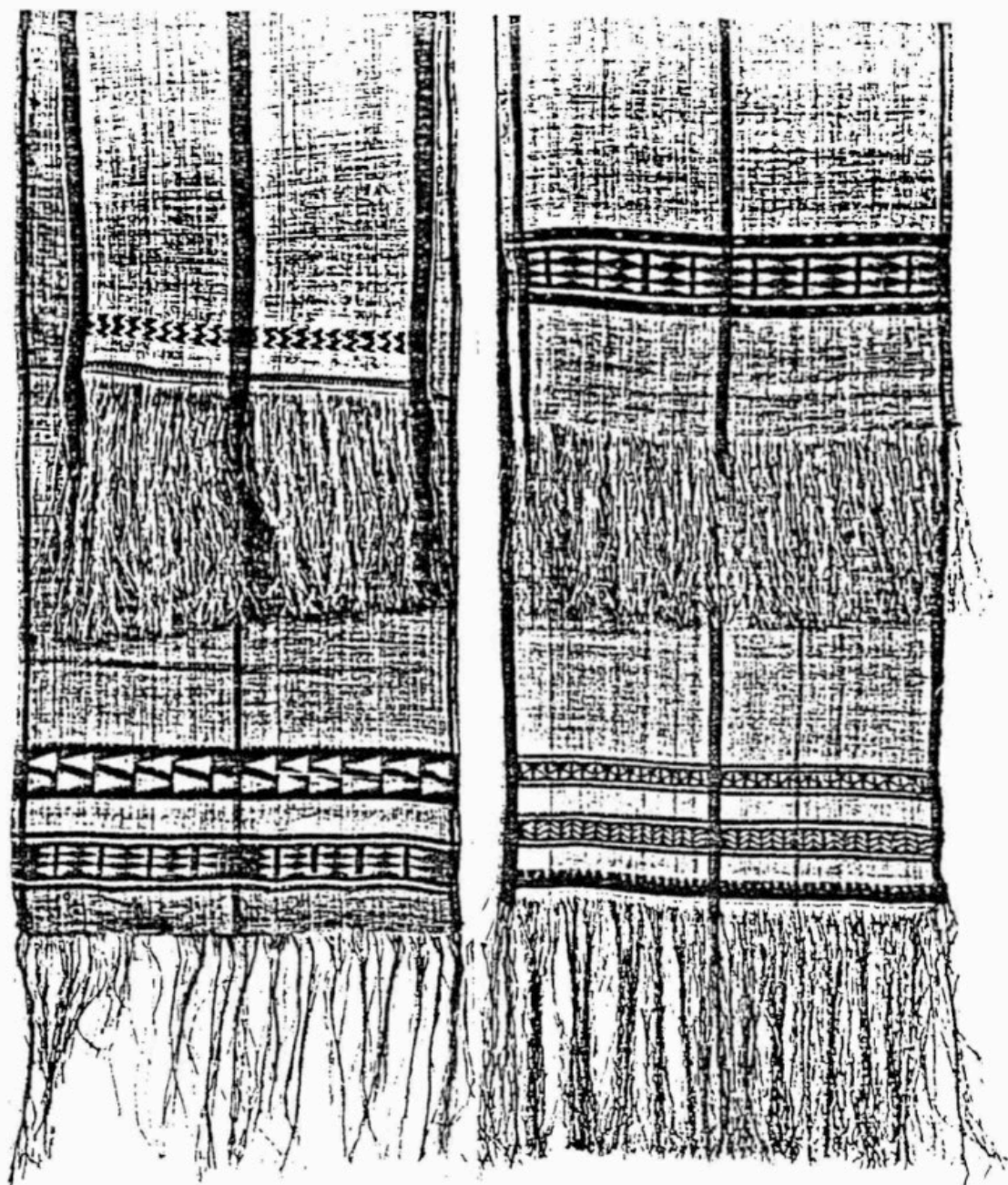
Assorted loom woven fiber garments -(lava-lava)- Central Carolines
Damm, H., ESE: Zentralkarolinen, Hamburg:1938

woman is expected to be able to weave her own. The other basic class of lava-lava is woven with three colored bands against a natural background. Another form of decoration is provided by inserting an additional weft thread (horizontal thread) of a contrasting color, which passes over or floats on top of, several warp ends at a time. This "discontinuous weft brocade"²⁵ is generally done at the ends of the piece as decorative borders. On ceremonial or funeral lava-lava the designs may appear along the entire length. The motifs consist of lozenges, chevrons, diagonal lines and crosses (Fig. 20). According to Mason, "Many of the design elements were similar to those employed in local tattooing and, in like manner, possessed names of features valued in the island environment."²⁶

The backstrap loom itself is a horizontal tension loom with the tension being provided by the body of the seated weaver (Fig. 21). The warp is measured out on a warping frame with the pegs corresponding to the loom parts which will take their places. The warp is continuous and set up as a ring held by a back beam board which is anchored to a sturdy wall or tree. The backstrap is a belt which hooks onto the front beam board and passes around the body of the weaver. In order to create the tautness required to weave, the weaver must lean back and relax at appropriate moments. It is a very arduous process prone to delivering backaches to its practitioners.

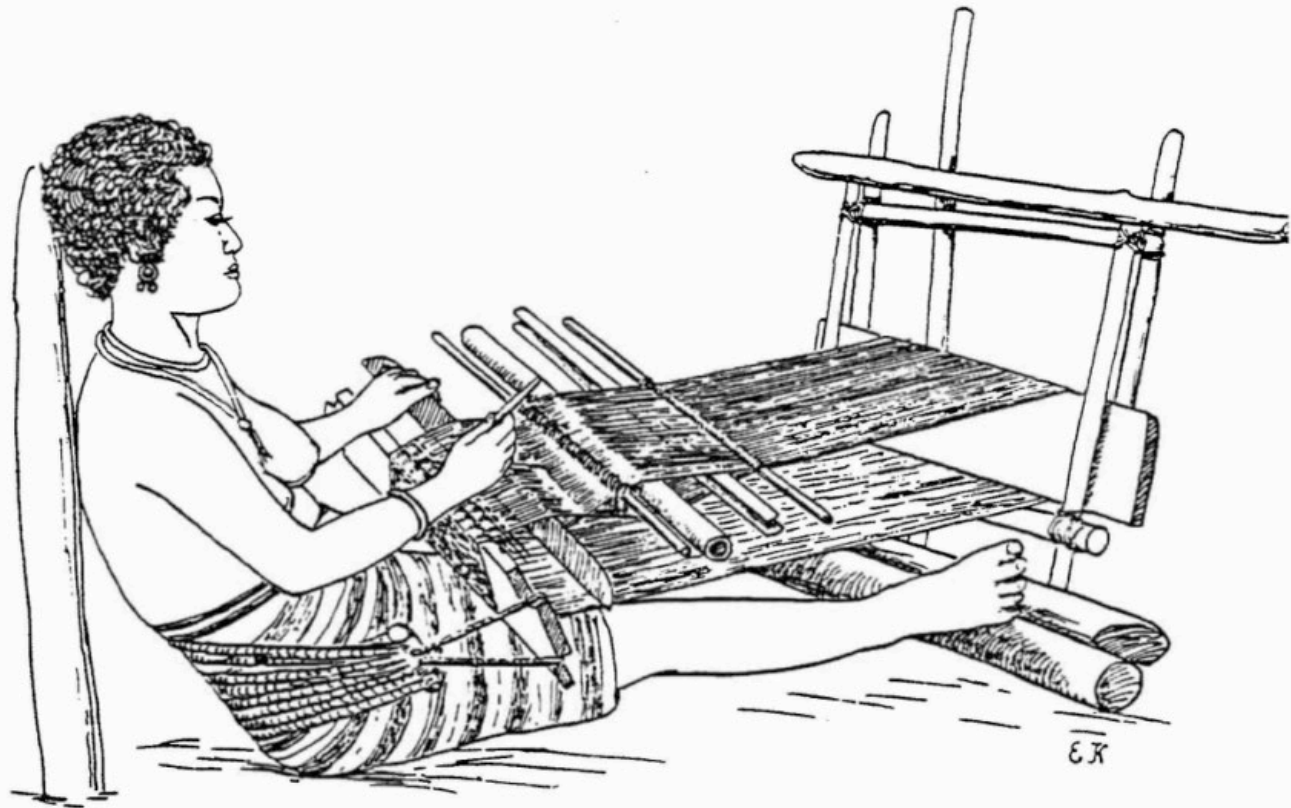
The materials used in Micronesian loom weaving are fairly limited and tend to be the same throughout the various islands where it is practiced. The two basic materials are banana and wild

Figure 20



Assorted loom woven fiber garments - (lava-lava) -
from Faraulip Atoll. Note the strong geometric
border designs.

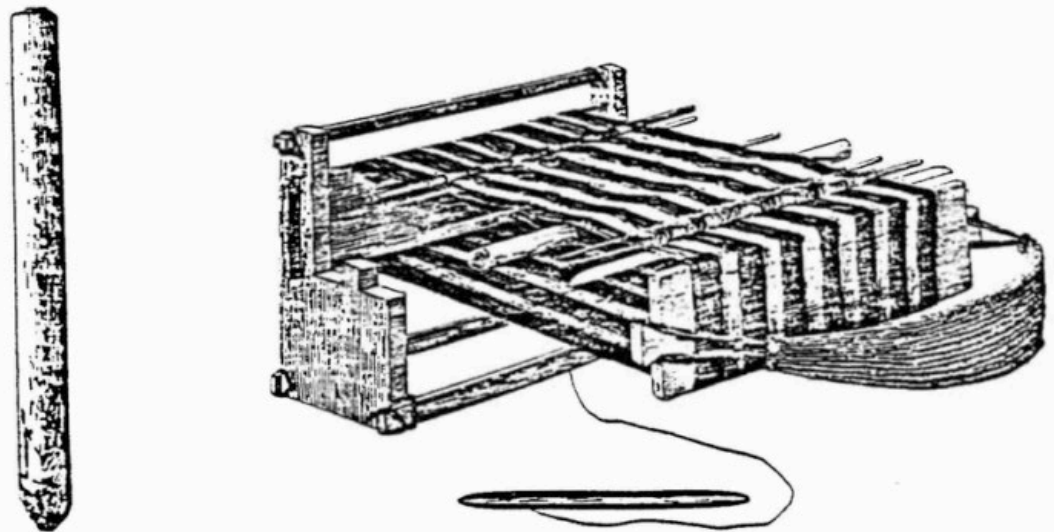
Damm, H., E.S.E.: Zentralkarolinen, Hamburg: 1938



Woman weaving on a backstrap loom typical of all Central Carolinian atolls.

Kramer, Dr. Augustin.

E.S.E.: Zentralkarolinen, Hamburg: 1937.



A backstrap loom set up for weaving a natural fiber skirt.

Kramer, Dr. Augustin.

E.S.E.: Zentralkarolinen, Hamburg: 1937.

hibiscus (hau) bast. The banana fiber is obtained from a particular species raised for this purpose alone, as the fruit is not preferred for consumption. Being softer and whiter the banana fiber is preferred over the stiffer hibiscus fibers. Leonard Mason suggests that, "Fabrics fashioned from the split fibers of banana stalks tended to be worn by men as loincloths."²⁷ This was probably true in the past (Fig. 18) though today men prefer to wear the (loincloth) made from store bought fabric, available at the district centers in Yap or Truk, or from the occasional field trip ship which brings passengers and supplies through the outer islands. Women seem to prefer to wear lava-lava made in the traditional manner though most often using commercial cotton thread. The cotton garment is more comfortable and easier to wash. On a few of the atolls such as Woleai, Satawal, and Ulithi, natural fiber lava-lava are still woven for use as well as for ceremonial exchange. Joe Figiriliyong of Ulithi has explained another reason why lava-lavas are still a very important part of the society is that they are used as shroud cloths for the body of a deceased relative. He referred to this custom as "hathugthug"²⁸--saying that it actually means all things that are put on a person to be buried. Friends and relatives provide the lava-lava for this purpose. The death of a high chief or ranking clan member necessitates the production of extremely fine woven lava-lava with intricate and elaborate borders. These special ceremonial lava-lava are not necessarily worn and are intended strictly for chiefly ownership.

In precontact times the body was wrapped in the lava-lava, put in a small canoe and pushed out to sea. Today the Catholic missionaries have succeeded in convincing the islanders that they should encumber their limited land area with Christian style burial plots. This new custom, however, has not altered the importance of lava-lava in funerary affairs. According to Mike McCoy, who has spent many years on Satawal, islanders who journey away from their home atoll always carry some fiber lava-lava, gifts from family and friends, with them. This is done as a precaution that in the event some calamity befall them in their travels they can be suitably attended to.

Though not much is known about the actual process, in the past natural dyes were grown, prepared and utilized for coloring fibers. Today commercially produced dyes from Japan and the United States are available and used. Often the deep blue that is preferred for the striped lava-lava is obtained by boiling mimeograph masters supplied to the local school by the United States government.

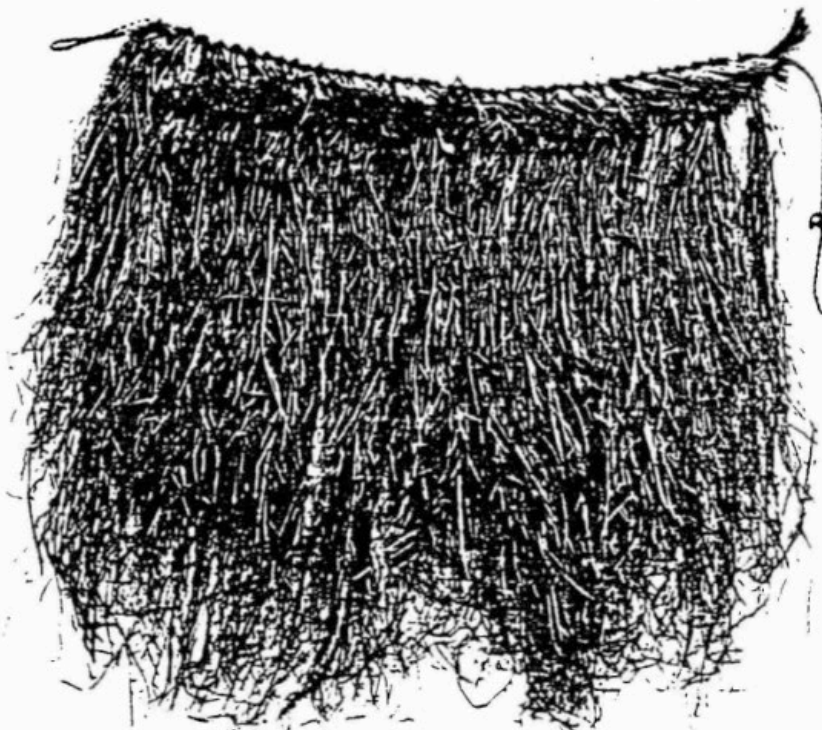
Coarser garments are fashioned out of fresh coconut pinnules or hibiscus bast. According to William Lessa, "Prior to puberty a girl wears a 'grass' skirt made of shredded coconut leaflets or pandanus."²⁹ The fibers are caught in a kind of braid or are knotted to a cord forming the "grass skirt" effect (Fig. 22).

The Carolinian mar-mar has already been mentioned as a component of body ornamentation but deserves extra mention here. Mar-mar not only ornament the body but also complement the color and design of



Young girls of Lamotrek Atoll wearing an unwoven fiber skirt.

Kramer, Dr. Augustin. E.S.E.: Zentralkarolinen, Hamburg: 1937



A young girls fiber skirt from Aurepik Atoll
Damm, Dr. Hans.

E.S.E: Zentralkarolinen, Hamburg: 1938

the simple but striking garments. The technique employed is a method of finger braiding. Two to six strands of pandanus or hibiscus fiber are used, depending on the effect and intricacy desired (Fig. 23). Individual petals of flowers are often used in combinations with green leaves of bougainvillea or hibiscus. The outcome presents the flowers in a linear orientation that is in character with the linear controlled elements of the garments.

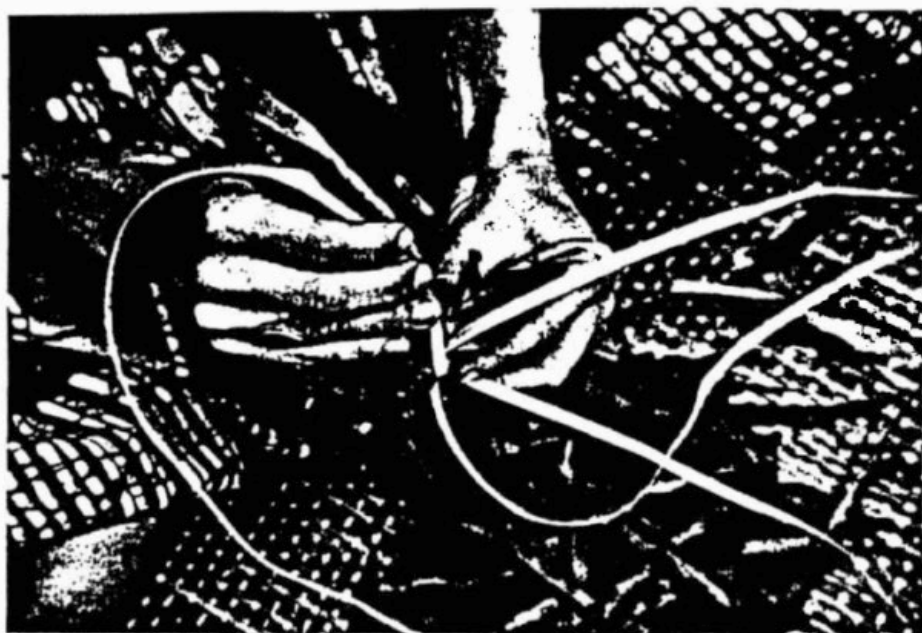
The making of mar-mar is a daily renewal of part of the Carolinian attire. That time must be invested in the picking and careful weaving of the flowers is part of the natural rhythm of the day. That the flowers wilt and die is of no consequence. Each day, each mar-mar is slightly different from those of other days. It is appreciated for itself and for the moments of delight and fancy it offers.

Baskets. The next group in the category of fiber arts is baskets. Traditionally baskets are an integral part of life. Made primarily by women, they are used for carrying food, personal belongings, betel nut, and babies. Baskets range widely in style and complexity but are basically made from only two materials, coconut and pandanus leaf. Coconut leaves are used for the majority of baskets as they are readily available and fairly strong. A coconut basket under constant usage can last from one to three months, depending on whether it is made with the pinnules open or closed. If left unused they can last one to three years easily.

Butou is the Ulithian word for any kind of carrying basket.



Figure 23



The simplest of the field baskets is fashioned using the standard over-one-under-one pattern with the pinnules open. A fresh leaf is cut from a tree and a section the desired length of the basket is cut. The plaiting actually occurs with the pinnules still on the central stalk. The ends of the basket are left open and unwoven for the fastest result. They are connected and plaited up to the level of the sides for a deeper effect. The closing is accomplished by employing a linear braid with a new pinnule being included in each fold, sometimes known as a french braid. This basket can be woven around food or some other articles, virtually encasing them, or opened immediately with the insertion of a knife along the stalk. The former method is very convenient for gift giving and appropriate for preparing supplies for canoe voyaging, as the food can be neatly stowed (Appendix A, Figs. 1 and 2).

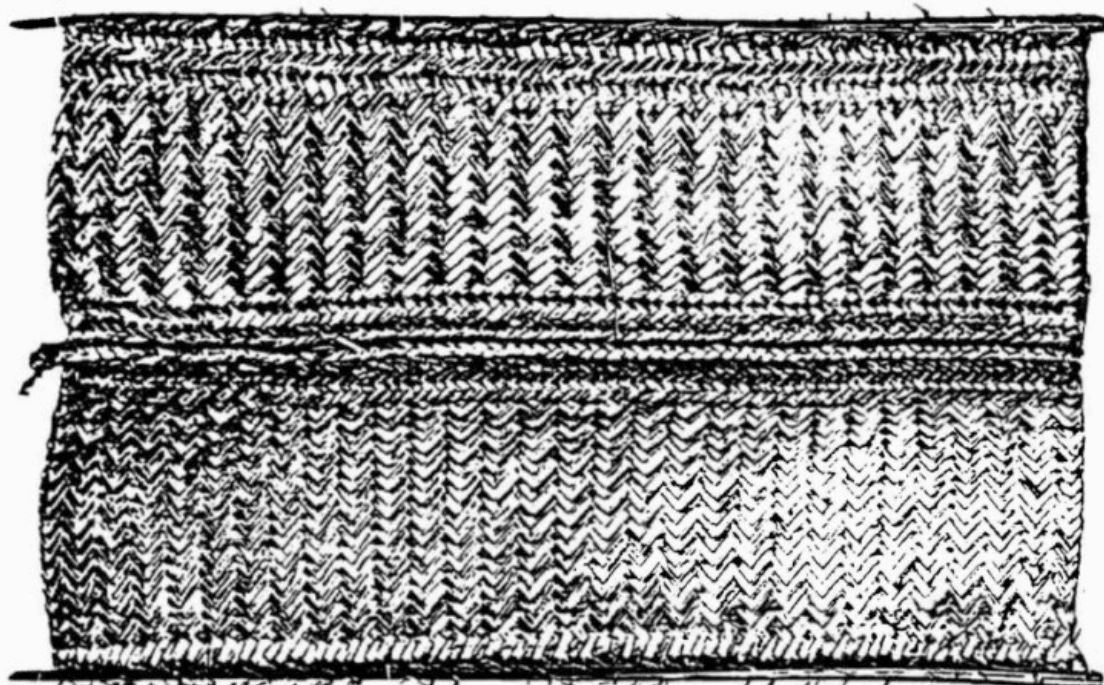
A stronger coconut leaf basket can be made by using two equal sections of frond and removing the pinnules in a continuous strip. Strips from opposing sides are then interlocked and plaited together. The same is done for the other side. These two pieces are then connected by plaiting up the ends producing a deeper and more durable basket than the simple open ended butou (Section III, Fig. 3). A braided handle of prepared hibiscus bast or pandanus leaf can be added for practicality and comfort in carrying. Often a more intricate "twill weave" is used, which is to say series of chevrons appear as the result of varying the standard over-one-under-one pattern. According to Eulalia Harui-Walsh of Ulithi, the horizontal

Kilielwa (Fig. 24) twill is reserved for articles made for the men's house, the canoes and for all other articles for men. The vertical Kili twill (Fig. 24) is used for mats and walling for women's and children's needs. The kili and kiliewa patterns can be executed on baskets as well as on mats.

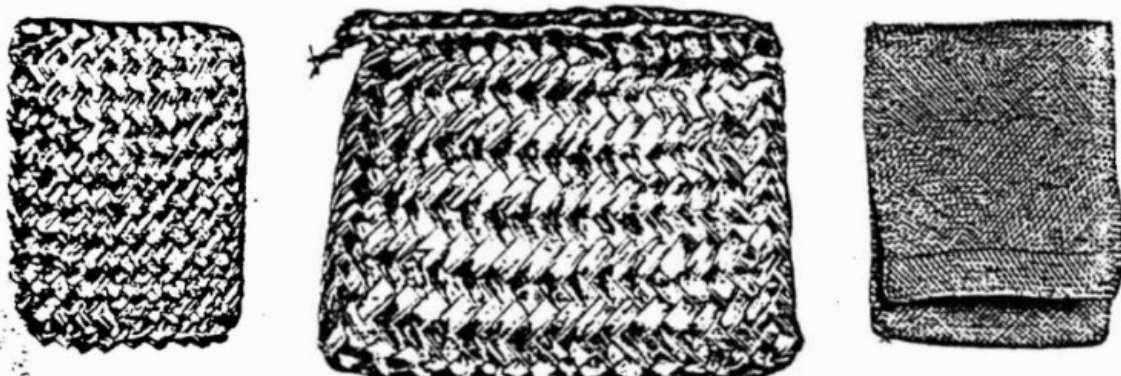
When a more durable basket is desired with a finer "weave," prepared pandanus leaf is used. There are many varieties of pandanus but apparently only one or two produce a fiber strong enough for long-lived mats and baskets. Western Carolinian pandanus plaiting is extremely fine with their pandanus being of an exceptionally beautiful creamy white color. The bags are generally rectangular with a long handle that is strung through the bag to also act as a closing device. The small versions are used to carry betel nut and pepper leaf, while the larger ones may serve to carry other essentials such as knives, matches, small weaving tools, etc.

The pattern work consists of chevrons and diagonals executed in the natural color of the pandanus. The more traditional bags bore a natural fiber trim wound around the top edges and flap of the bag. Made from pandanus tinted with natural dyes, this trim adds a lovely color accent to the piece. Today the outer islanders are fond of braiding handles and trimming their bags with brilliantly colored strips of plastic. The plastic was originally introduced by the Japanese but is now available for purchase at the Yap Co-Op.

The outer islanders as well as the Yapese appear to delight in the bright colors and slick quality of the plastic, while most

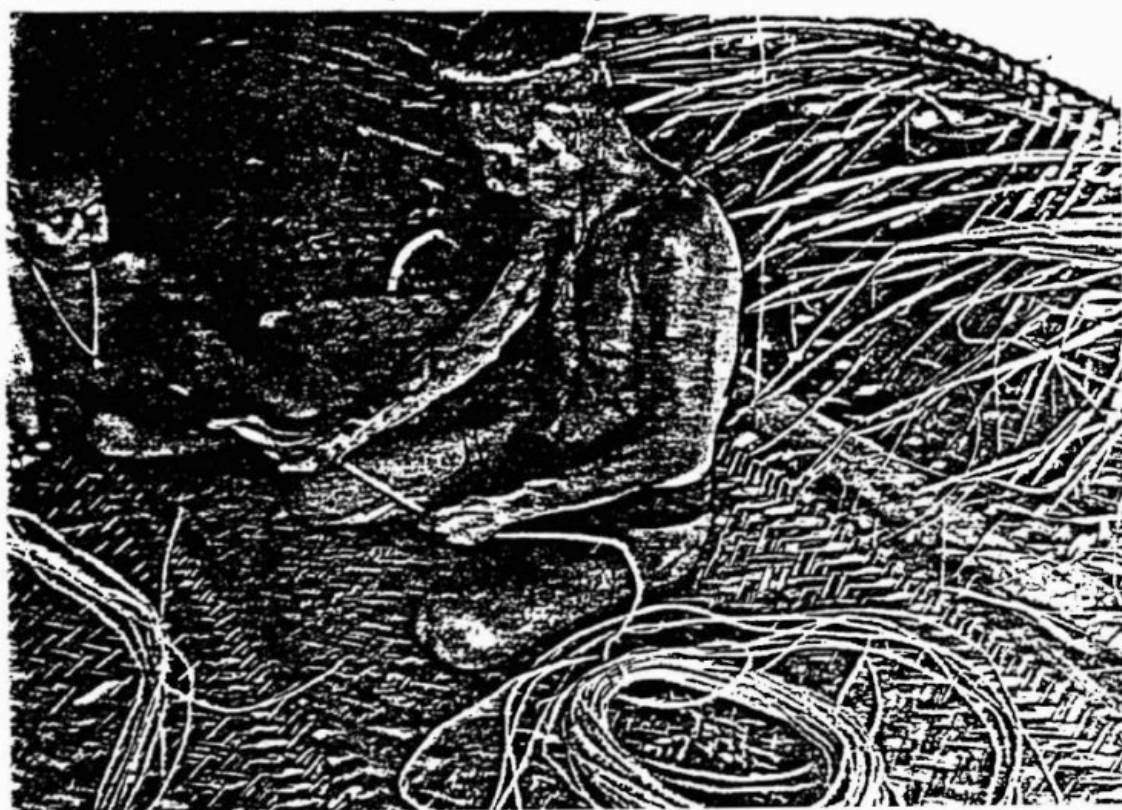


A- Above: Kili pattern (vertical twill)



B- Above: Kilielwa pattern (horizontal twill)
 Eilers, Dr. Anneliese.
 E.S.E.: Inseln um Ponape, Hamburg: 1934

The making of
 coconut fiber
 rope - sennit
 Satawal



foreigners find the whole business visually and philosophically disturbing. It is important to note that islanders are not necessarily in a position to realize the environmental conflict surrounding non-biodegradable, petrol based substances. Thus, they are not making the same set of negative associations with plastic that we might. As far as I can tell they are intrigued by the novelty and newness of the material, and fascinated with the color. I do not think that they perceive any contradiction in materials between the natural fiber and the synthetic.

Today it appears that the art of coconut and pandanus plaiting may be waning. The first problem is that most young people are now leaving their home island to attend school, going either to another island or to the largest of the motu within an atoll. As a result, no one remains in the village to learn from the elders in the traditional manner. The phenomenon is extending beyond plaiting and weaving and threatens to wipe out traditional canoe building and navigational skills as well. The other problem with the decline of basketry seems to be concerned with the importation of articles such as paper bags and Tupper Ware. Paper bags appear to be replacing the coarse baskets for shopping needs and Tupper Ware, along with various other imported containers, are replacing baskets for food storage.

Housing Elements. As with most Pacific islanders Central Carolinians utilize a simple construction and local materials for housing. The basic frame is made from wood, usually coconut or another available wood, while the walling, thatching, screening and

mats are made from either coconut or pandanus leaves.

On higher islands people prefer to use nipa palm for thatching. Nipa grows in estuary areas and its leaves are more water resistant. In the case of nipa, the individual pinnules are removed from the frond and folded around a bamboo or wood strip and sewn on to create a sheet or panel which can then be tied onto the roof. Atoll dwellers generally use coconut leaf for thatching. The coconut frond is split in half and then the pinnules from one side plaited together in a simple under-one-over-one manner folding back to lock the edges at both sides (Section III, Fig. 11). The sheets of thatch are then tied onto the roof. Thatching a house, particularly a canoe or men's house, is a large undertaking requiring the help of many hands. Thus the removal of the house's old roof, the making of new thatch and the installing of it is usually a community task. A suitable thatch for the top of the structure can be created by using one whole frond and one split one. One of the split pieces is woven into each side of the whole frond creating a three piece thatch that fits neatly over the top of the roof. Coconut thatching is surprisingly strong and can remain impermeable to water for a half a year or more, depending on the weather.

Traditionally walling is accomplished by plaiting coconut leaves into panels. The pinnules are left closed unlike in the making of thatch and this results in added strength and durability.

Floor and outdoor mats are also plaited from coconut leaves. Mats require additional strength as they receive a good deal of

abrasion. As a result, coconut mats are made leaving the pinnules closed and folding one side of the frond over to the other to form the weft. These narrow panels can then be connected as with the walling. Eulalia taught me another way to utilize two fronds for a wide "beach mat" that eliminates the stiff and uncomfortable mid-rib or stalk of the frond. For this mat the sides of the fronds are peeled off the stalk in a continuous strip. The two same sides of two fronds are laid on top of one another. The pinnules of the two fronds are then folded in to cross with the pinnules from the other side and then plaited in the kili or kilielwa patterns.

A more substantial and comfortable sleeping mat is plaited from pandanus leaves. Carolinians excel in their monochrome pandanus plaiting, creating intricate patterns of crosses, diamonds and chevrons that echo the border patterns of lava-lavas. For extra durability and comfort the pandanus strips are usually doubled.

Canoe-Related Fiber Arts. The long-range sailing feats of the Pacific islanders are made even more remarkable by the fact that they were accomplished using canoe sails of plaited pandanus matting. Certainly, pandanus plaiting has proved to be durable and strong but, once wet, it becomes rather heavy and subject to mold damage. I suspect that the making of sails required considerable marshalling of materials and much time to make. It is no wonder that, as soon as western cloths for sails became available, the traditional matting was abandoned.

The other fiber work executed for canoes is the making of

sennit rope for the lashings that hold the canoe together and the rigging. The making of sennit is a man's activity from start to finish. First the fibers of the coconut husk must be soaked in sea water for one to three weeks to separate the actual fiber from the other woody particles. These three to five inch fibers are then gathered in small clumps and spun by a twisting motion of an open palmed hand against the thigh (Fig. 24). These thin cords are then plied together to form rope of the desired gauge. Thicker rope requires three men to ply it. The rope is suspended from the ceiling of the canoe house and the men pass the plying strands around in a circle. According to Eulalia the men sing a chant as they do this to keep the work steady and delight themselves as well.

Summary

The accomplishments and aesthetics that govern the Carolinian peoples are quite remarkable. They are a people who have experienced isolation as a way of life. Existence and survival have hinged on resources available from a small and finite land mass, a sheltered lagoon, and the vastness of the open ocean. In spite of this Carolinians have developed a lifestyle and material culture that have not only afforded them their survival, but have also granted them a life of grace and beauty. Perhaps for many from the West, the thought of life on an atoll is fraught with fears of inconceivable monotony and struggle. Having never spent any time on an atoll, I am not sure if this is so or not. Certainly the drama of life and death is ever-present in the dangers and unpredictability of sea and wind.

But this sense of danger is probably coupled with a profound understanding of the forces of nature; thus alleviating some of the fear and opening a path for enjoying the miracle of life. The subtleties of day to day living seem to be provided by social interaction and the awareness of the nuances of nature's daily growth and change. Rhythms are established and in them resides the life of the people and their art. The process of living, working, building resources and utilizing them, are both conscious and unconscious activities. I have not met any outer islander who will proclaim a lava-lava as a fiber work masterpiece or a canoe as a cultural wonder. The beauty of those forms is inherent, accepted and treasured in a way that is perhaps beyond our abilities to perceive.

SECTION II

A Personal Encounter

My personal experience with the fiber arts of the Pacific began in 1975. During that time I was attending the University of Guam as a Fine Arts major in ceramics. Our Art Department was fortunate enough to employ Eulalia Harui of Ulithi Atoll as a work study student. At the beginning of her assignment one of our more sensitive and culturally attuned professors, David Robinson, discovered that Eulalia possessed the plaiting and weaving skills of her island heritage. She was then asked if she would share some of her skills with a few of the art students as her actual work study job. She agreed to this arrangement and thus in the Fall of 1975 I began to work with Eulalia along with two other Caucasian women. Our total contact at the Art Department amounted to approximately a year and a half with the class size whittling down to one other woman and myself. We generally met three times a week for two to three hours a session. During the week we pursued work in coconut and pandanus and on Fridays we devoted our energies to mastering mar-mar (flower garlands). Flowers are brilliant and abundant on Guam, and one of my fondest memories of that time is of the breeze sweeping down the hallway where we worked, carrying our stray blossoms and petals along with it.

I will be eternally grateful to Eulalia for sharing with me not only her technical knowledge regarding her craft, but also for the insights she gave me into the island outlook and way of life.

Eulalia warned us beforehand that she would be a strict teacher and that there would be a certain progression of forms--an order in which we would learn new information. As I came to know her better, I realized that she was passing her skills on to us in the manner they had been passed on to her by her mother. It appears that there is a good deal of similarity between the oriental approach to master-apprenticeship relationships and that of the Pacific. In both cases there is a definite hierarchy which acknowledges the respect due to the master. Trust forms a deep bond between teacher and student; discipline frames the stage of developing skills. The systematic progression of skills is built upon the repetition of form until it becomes an unconscious activity. The ultimate goal is the transmission and survival of a tradition and individual expression is routed through this, thus becoming empowered with greater depth and meaning.

Fiber arts are an integral element of a way of life in her culture and therefore technique is but one facet of the whole. Eulalia's teaching method developed in me a philosophy that there is a certain intuitive process involved that draws inspiration from the natural rhythms of nature, the environment and human activity. Thus only an approach which encompasses all facets of this lifestyle can lead to true mastery.

During the learning process, information is offered in increments, the timing of which is dependent upon the learner's progress and sensed by the teacher. Eulalia discouraged my "haole" tendency

to intellectualize my efforts and, rather, placed emphasis on developing rapport with the materials and forms. Often when I was stumped or unsure of the next step she would give me a gentle rap on my knee and say, "Don't think about it, just do it." If I asked a question prematurely or desired to learn a form out of sequence, she would simply say, "When you're ready, we'll do it."

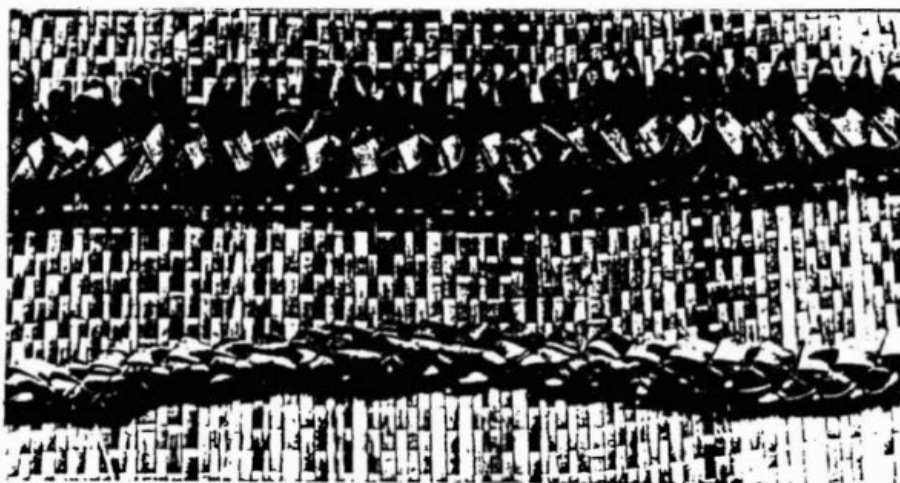
I have always regarded Eulalia's teaching methods with great respect and admiration. There is something in our Western background that glorifies the direct and analytical approach to all dimensions of life and demands immediacy for input as well as return. We have a tendency to limit our communication to linear symbols and doubt all that cannot be deduced from accepted axiom. I believe that there is a fundamental difference in the Pacific approach to life which allows for the development and nurturing of non-verbal communication and an affinity with nature. I find that when I desire to learn a new form from an islander, an immediate and direct approach is not received well. It is possible that it is perceived as presumptuous and contrary to the natural rhythms of life. There is a gentleness that is required--conversation, waiting, admiring and then a subtle request that is sure to lead to an acceptance and deeper understanding.

Another aspect of my instruction included the building of working stamina. After we had worked together for a year or so, there were occasions when Eulalia was asked to do quite a bit of weaving within a short period of time. Often I would help her and we

would work continually and intensely until the project was complete. Interruptions were discouraged. Occasionally someone happened by and would inquire about what we were doing and I would stop to answer or chat for a while. This was usually met with silence and a certain aloofness from Eulalia. Later we would discuss it and she would gently admonish me for needlessly interrupting my work. Sometimes she would make reference to the particular person whom I had talked to and explain that I should only give my time to those who are sincerely and seriously interested. This is not to say that our weaving activities were not accompanied by laughter and enjoyment. It has been my experience that weaving and plaiting projects often serve a social function and are a center for storytelling and gossip. But the work remains the important activity and progresses steadily with a mind toward completion. These later experiences helped put the whole phenomenon of Pacific Fiber Arts into a more realistic context. Within this context, weaving and plaiting are seen as serious endeavors and in a real situation must be executed speedily and completely.

A Progression of Natural Fiber Forms As Taught to Me by
Eulalia Harui-Walsh of Ulithi Atoll, Yap District, Federated
States of Micronesia

Head Ornaments



Coconut Leaf Mar-Mar

Coconut leaf mar-mar are made using strips of coconut pinnule blades. Four or five pinnules are needed to make one mar-mar. It is not necessary to cut the entire coconut leaf to obtain the pinnules. Rather, the desired number can be removed from the frond while it is still growing on the tree. This is easily done by

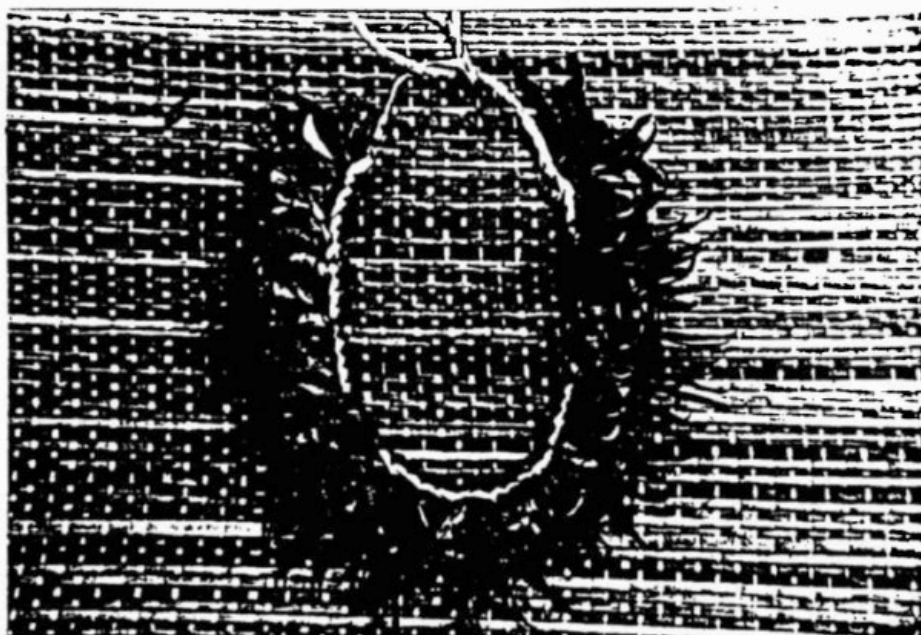
grabbing the pinnule and pulling straight back. The first step in the making of any coconut mar-mar is to remove the pinnule blades from the frond and then separate the blades from the stiff mid-rib. The individual blades are then stripped into uniform widths of approximately 1/2".

Two Strand Looped Coconut Mar-Mar

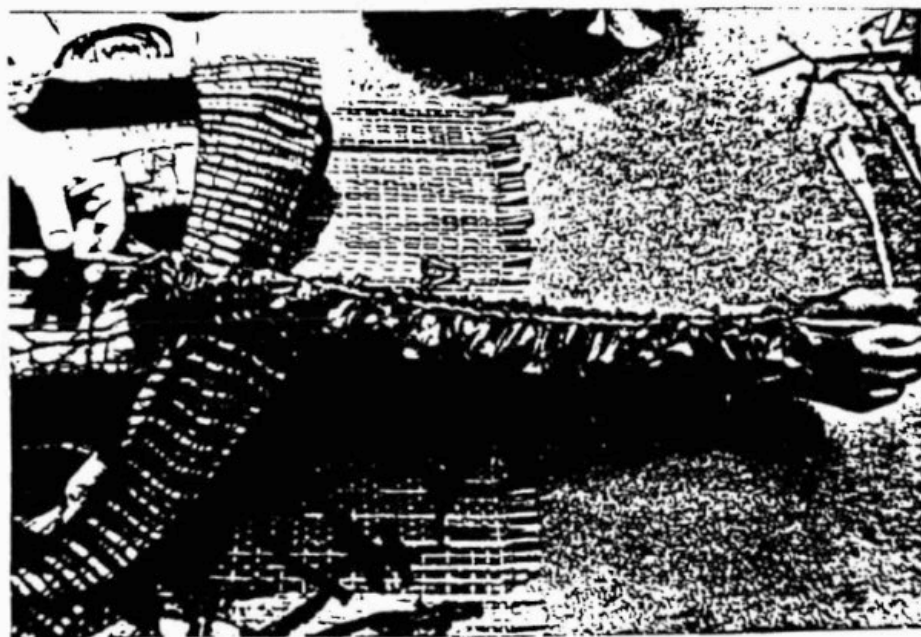
The two strand mar-mar is executed by forming a loop with one pinnule A and inserting it into a loop from the other pinnule B. Pinnule B is then pulled tight and forms another loop which is inserted into a loop from pinnule A. The loops are worked back and forth until a suitable length is achieved. This is an excellent mar-mar for children to learn as it consists of only two steps--insert and pull.

Four Strand Looped Coconut Mar-Mar

The four strand coconut mar-mar is more intricate and has quite a different appearance. It is more easily learned using long strips of pandanus or ribbon. This is owing to the fact that coconut pinnule blades are relatively short and run out. Thus, new ones must be constantly added in order to make a mar-mar long enough to put around the head. With the four strand mar-mar the loops are created by a twisting motion and held in place by a braid that folds over them. The end result is a double row of loops facing each other, with a central braid forming the band. According to Eulalia Harui, the people of Ulithi enjoy making this mar-mar for dance occasions out of red and white ribbon.



Four Strand Flower Mar-Mar



Four Strand Flower Mar-Mar

Flower Mar-Mar

Flower mar-mar are the result of incorporating whole flowers or petals, and occasionally leaves, into a linear finger braid. The strips of fiber which hold the flowers are generally of pandanus leaves or hibiscus fiber.

Two Strand Flower Mar-Mar

In this method flowers of most any sort or the separated petals can be held in a linear orientation by using two strands of fiber. The two strands are crossed after the insertion of each blossom or petal. The two strands are actually not very stable so that the mar-mar tends to twist.

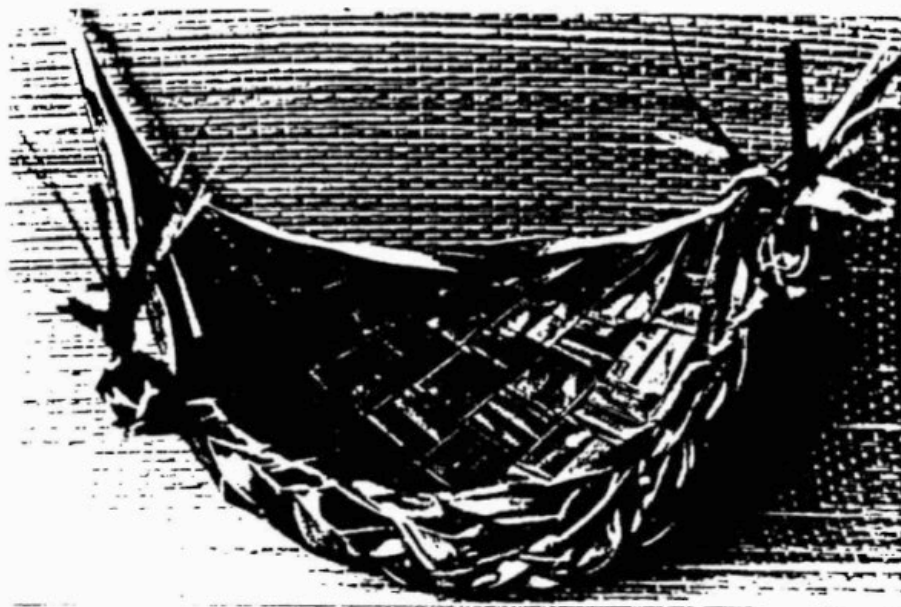
Four Strand Flower Mar-Mar

This style is actually a method of finger braiding, using four strands of fiber (see Fig. 23). The strips are worked in such a way that two strands are on one side of the flowers and two on the other side. The right hand strip from the uppermost pair and the left hand strip of the bottom pair cross over the flower or petals which have been placed in between the pairs of strips. After crossing to hold the flower, the top left hand strip is folded forward and the bottom right strip is folded to the left. Thus, these become the next ones to cross over the flower. The strips, then, are alternately crossing and folding with the flowers being held in a neat line between them. One is only limited by the available blossoms and imagination in creating lovely color and texture

combinations.

Five Strand Flower Mar-Mar

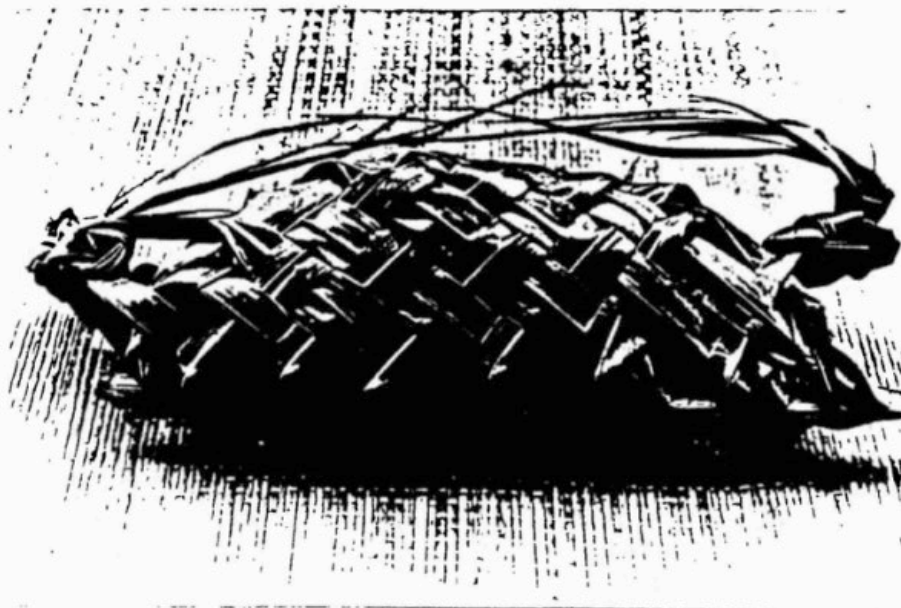
This mar-mar is done in the same way as the four strand but with the addition of another strip on the top surface. Thus, the top strands form a flat braid while at the same time interlocking with the bottom row to hold the flowers in place. Both the four and five strand methods hold the flowers in a stable linear orientation that is delicate yet tailored in appearance.



Crescent Food Platter

This basket is made from equal sections of continuous pinnules from either side of a coconut frond. The strips of continuous pinnules are removed from the frond by a firm motion of pulling out from the stalk and then down. The strips are held shiny side up with the pinnules pointing away. They are interlocked in a plain under-one-over-one pattern. The pinnules are incorporated first from one side then the other. When all the pinnules have been included, the basket is finished off by starting from the middle and working outward. A basic three braid is started with the first

available pinnules in the middle. Thereafter a new pinnule is included into the braid every fold, resembling a "french braid." The other side is closed in a like manner. The ends are simply tied off in an over-hand knot. This basket is very quickly made and wonderful for a serving platter as well as for individual food plates.

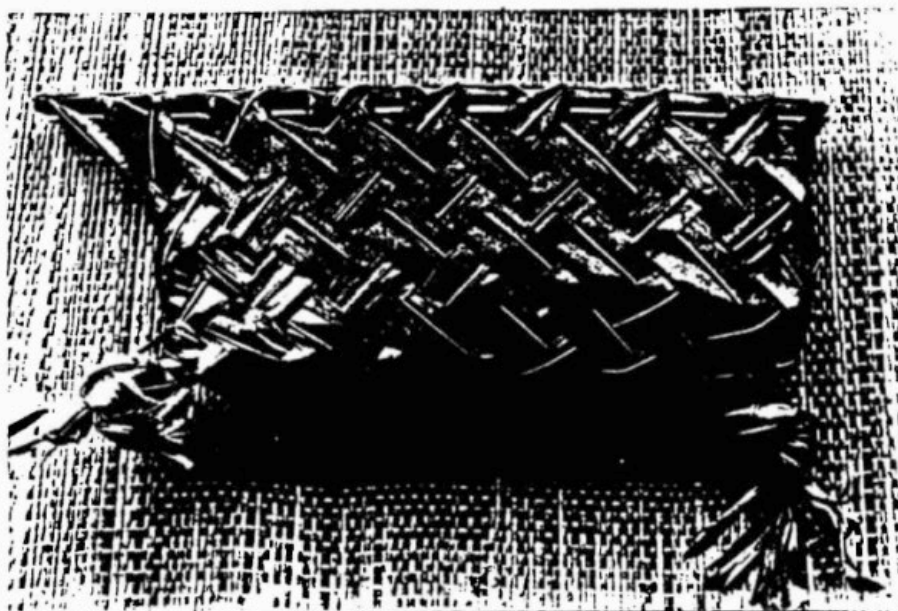


Single Open Boutou*

This basket is the simplest and quickest one fashioned for carrying taro or coconuts out of the jungle. It is woven using a single section of coconut frond, the desired length of the basket. The pinnules are interlocked while they are still connected to the stalk. The pinnules from one side are worked by folding one up and the next one down, one up and the next down, until they are all

*According to Eulalia Harui-Walsh, Boutou is the general term for all carrying baskets.

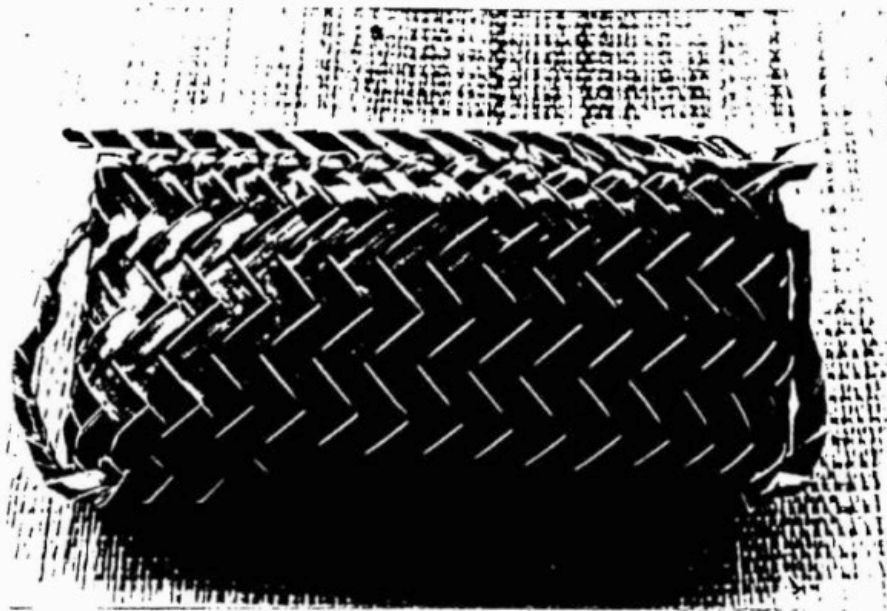
folded and can be interwoven in rows. The other side is plaited to the same depth and then connected along the bottom by a linear braid. The braid begins in the middle and works toward the ends, incorporating a new pinnule into the braid each fold. The ends of the braids are secured with an over-hand knot. As this basket is woven with the stalk still intact, it can be woven around food or other articles, virtually encasing them. It can also be opened immediately by inserting a knife into the stalk and splitting it down its length. The former method is very convenient for occasions of gift giving and appropriate for preparing supplies for canoe voyaging, as the food can be neatly stowed away.



Single Closed Boutou

This basket is also relatively quick to make but because of its closed ends, can hold more. It is woven using a single section of frond and in the same manner as the open ended boutou, with the pinnules still attached to the central stalk. In order to insure that the pinnules are in the proper orientation for continued weaving around the corners of the basket, the pinnules from the right side must be started in an opposite order from those on the left side of the frond section. In other words, if the right side is

begun by folding the first pinnule down and the second one up; the left side must be begun by folding the first pinnule up and the second one down. If this is done correctly the pinnules are then in a position to be connected without disturbing the under-one-over-one pattern. The plaiting is then brought up to the same level all the way around the basket. The bottom is closed off working from one end to the other using a basic three braid, incorporating a new pinnule each fold of the braid. The first closing braid is worked with all the pinnules that are running in the same direction out of the plaiting. The second closing braid is done right on top of the first and runs in the opposite direction using the remaining pinnules. The ends of the braids are secured with an over-hand knot and can be left on the outside of the basket or tucked in. As this basket is also woven with the stalk still intact, it can be woven around food or split immediately as with the open ended boutou.

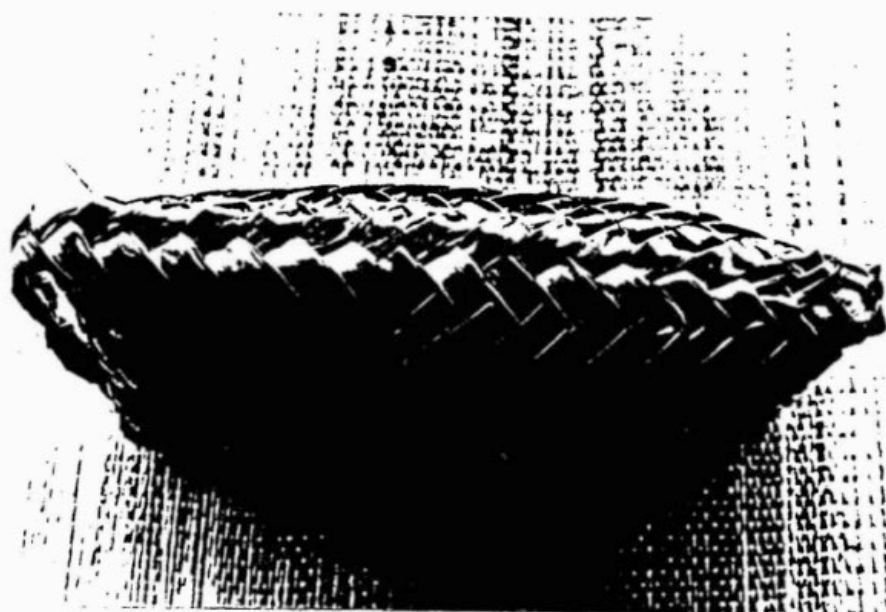


Double Closed Boutou

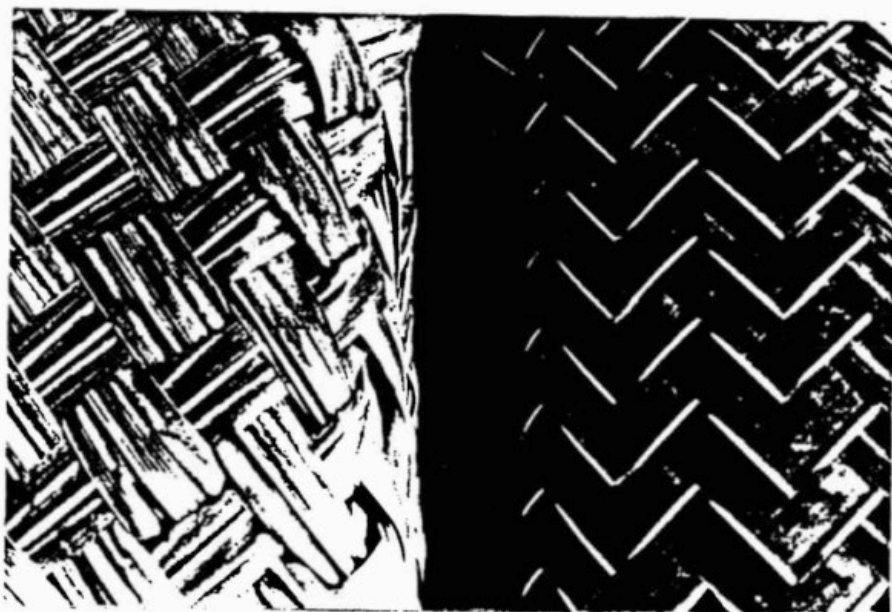
This basket is very similar to the single closed boutou but it is woven using two equal sections of a coconut frond. The frond must be split in half and the stalk trimmed down somewhat before weaving can begin. It is critical that the number of pinnules be equal on all sections so that the plaiting can proceed with a consistent pattern. The first step is to interlock the two opposing single sections of pinnules. The pinnules themselves are left folded closed rather than opening them as is done in the previously

described boutou. The pinnules are interlocked and then plaited up to a desired level using a standard over-one-under-one pattern or a modified "twill" pattern consisting of working the pinnules in an over-two-under-two manner, whereby as each new pinnule is incorporated into the pattern, a new pinnule is being eliminated. This "twill" pattern actually creates a series of chevrons which can be worked in either a horizontal or vertical direction.

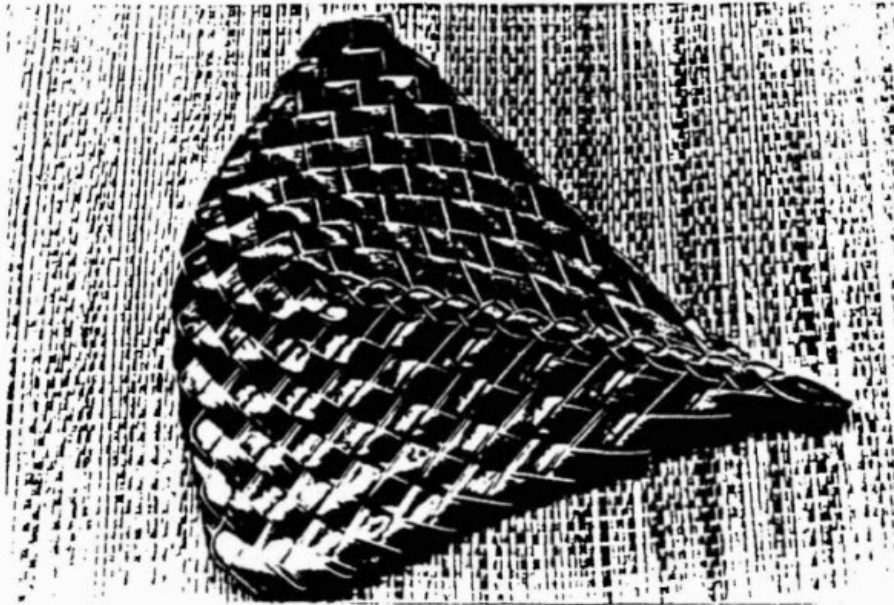
The second section is worked in exactly the same fashion as the first. It is not necessary to start the weaving in opposite order as with the single closed boutou. The two sections are connected by continuing the plaiting around the ends in whatever pattern was first established. The bottom is closed in the same linear moving braid as that used for the single closed boutou. The ends of the braid are secured with an over-hand knot and can be tucked in or left on the outside. For added embellishment, the pinnules of the frond sections can be hooked over one another in a chain-like motion before the weaving begins. This process produces a scalloped sort of upper edge to the form. The addition of a shoulder strap or straps makes for convenient carrying and completes the lovely and tailored appearance of this strong basket.



The closing braid of a double closed boutou



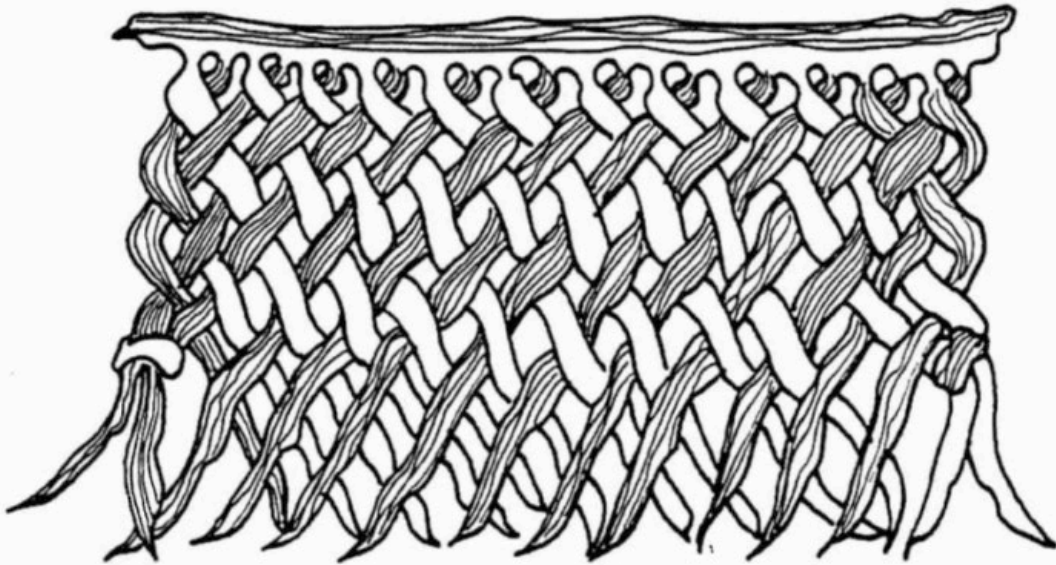
Plain over-one-under-one plaiting pattern and
Twill over-two-under-two plaiting pattern



Fans

Fans are made from the topmost section of a coconut leaf. The very uppermost of the frond is removed as the pinnules are usually much too skinny. The first step in construction of a fan is to work a moving three braid up the length of the stalk. The pinnules are then plaited by folding up the bottom most pinnule to become a vertical weft. The plaiting is worked in a simple over-one-under-one pattern. The folding up of the bottom pinnule is continued until all the pinnules have been included. The other side of the fan is

worked in exactly the same manner. The plaiting is brought up to the same row by reworking the middle portion. The ends are then locked by a hooking process that folds the pinnules on the right under the one on the immediate left and continuing in that direction. This hooked line is done on both sides in order to incorporate all pinnules. The very ends are then reinserted into the plaiting and trimmed off. Depending on the length of the frond section and the width of the pinnules, the fan will either be long and skinny or short and fat. Long fans are excellent for fanning fires while the more squat ones are better for circulating air on still, muggy days.



Simple Thatch

Simple thatch is made by splitting a coconut frond in two lengthwise sections. This is most easily accomplished by pulling the topmost pinnules in opposite directions, with a direct outward motion. This will result in splitting the frond rather evenly for its entire length. The plaiting is begun in exactly the same manner as the single open and closed boutou. That is by folding the first pinnule up and the second one down the third one up and so on. The pinnules are plaited to a depth of three or four pinnules and

interlocked in a plain under-one-over-one pattern. The ends are secured by folding the extending pinnules back into the weave. This makes a straight edge and when tied off with an over-hand knot, keeps the plaiting from coming undone. Sheets of thatch are generally tied onto a lattice-like framework of wood or bamboo for roofing.

CONCLUSION

In this study I have investigated the forms and structure of the Carolinian aesthetic system with a particular emphasis on the fiber arts. The Carolinian aesthetic appears to be concerned with streamlined abstracted forms. There is a reluctance toward embellishment and elaboration for its own sake with the emphasis rather on matching form with function. Thus the activities of the day are instilled with a subtle grace and beauty supplementary to basic needs. There is a tendency to utilize geometric motifs for ornamentation. The placement of decorative elements as well as the basic construction of articles such as canoes, seems to place emphasis on measured intervals based on units easily divisible into halves. This predilection toward measured intervals is evident in the other aspects of Carolinian culture as well. Enumeration, construction, navigation, divination, curative techniques and astronomy as well as social and political relationships, display this concern.³⁰

This analytical approach to a series of elements strung together also appears in the method of imparting information and skills. William Alkire suggests that often the structure of objects as well as the method of mastering their manufacture is organized in such a way as to fit into a perception of the world in general. He feels that the structure of a society is often best witnessed in the knowledge of specialists, "For it is in these spheres that concepts and techniques are most likely to be ordered--if for no other reason than to facilitate teaching--and there is no reason to believe that

the order chosen is a completely random one. On the contrary, there is a very good reason to believe that the order present here is one fundamental to the order of the total culture."³¹

Through my personal experience with an apprenticeship to the Ulithian weaver Eulalia Harui-Walsh, I was allowed to gain some insights into this process and the place of fiber arts in Carolinian society. Eulalia presented new forms to me in a definite order--from simple to complex. Her manner was always one of a loving but disciplinary parent. The systematic progression of skills was built upon the repetition of form until it became an unconscious activity. As I perceived it, the ultimate goal was the transmission and survival of a tradition and individual expression was routed through this, thus becoming empowered with greater depth and meaning.

As I see it, fiber arts are an integral element of a way of life in Eulalia's culture and therefore the techniques are but one facet of the whole. Her teaching method developed in me a philosophy that there is a certain intuitive process involved that draws inspiration from the natural rhythms of nature, the environment and human activity. Thus only an approach which encompasses all facets of this lifestyle can lead to true mastery.

At present fiber arts still comprise a vital element of Carolinian society. Perhaps this is owing in part to the remoteness of these atolls within the Western Pacific and their relatively minimal and infrequent contact with Western technology. According to Eulalia, even though steel tools, plastic containers and generators

for cold storage and lights have made their entrance into the Central Caroline Islands, much of traditional life has been retained. Thus, baskets are still a necessary article for carrying betel nut chewing ingredients, food and babies. Housing requires wall mats and roofing thatch. Mats are still woven from pandanus and coconut leaves for sitting and sleeping on the ground as well as to cover canoes while on shore to protect them from the heat of the sun.

Today many Pacific weavers prefer to work with commercially available cotton thread. The cotton produces a soft and comfortable fabric with its only disadvantage being the cost. There is a tendency for Westerners to view this incorporation of modern materials with disdain. We perhaps romanticize the primitive untainted nature of the society without acknowledging the tedious and time consuming aspects of some of these ancient crafts. It is unfair to deny the Pacific weaver the joy of discovering new materials while at the same time it seems unfair to set up a dependence on imported goods.

Unfortunately the influence of the West that is inextricable from its products tends to initiate a process which leads Islanders to not merely exchange their materials but in many cases to abandon the technique altogether. The line between beneficial transition and detrimental influence can be very fine and once the balance is upset the momentum seems irreversible.

Since Islanders have never viewed these cultural manifestations as purely aesthetic, thus valuable for their own sake, many skills

are being lost to imports of equal function. Calico prints, now available at the District Centers, have great appeal and their incorporation into everyday use tends to supersede the laborious task of weaving garments by hand. This influx of modern fabrics has in many cases left the loom abandoned by the wayside with but a few people left to transmit the skill.

The survival of these precious skills would seem to be assisted by both internal and external reinforcement of the validity and elegance of the traditional handwoven garments. The atolls of Western Micronesia still value their lava lavas as items of function and important exchange items at ceremonies. As long as cultural aspects of their society continue to provide a support structure for the production of these cloths, there is hope for their survival.

APPENDIX A

Common name: Coconut palm

Scientific name: Cocos nucifera

Origin: probably South East Asia

Distribution: common in all tropical zones of the Pacific

(Melanesia, Polynesia, and Micronesia), Asia and Australia

Habitat: The coconut tree is classified as a strand plant. It is propagated by the fully matured nuts that fall from the tree and sprout. It has been speculated that the ripe nut of the coconut palm is able to withstand months of immersion in salt water and still remain viable enough to sprout upon land fall. This theory, however, has been under debate. There are those who feel that it was man and his canoe that brought coconut to the various islands of the Pacific.

General description: The coconut tree has been referred to as "The Mother Tree" of the Pacific. With such a limited number of resources available on an island, it is significant that the coconut tree can offer food, materials for shelter and fiber for rope, baskets and mats.

Sprouted from a ripe fallen nut, the tree will begin to bear 6-10 years after planting. Trees may reach a height of 100 feet and produce coconuts for up to 100 years. It takes approximately 15 months from the bursting open of a group of flowers to maturity of the nuts and a single tree may bear up to 50 nuts a year. The coconut leaves or fronds grow in a circular orientation around the trunk. In the center of the leaves is a

central spear referred to as the heart of the tree. When cutting leaves for weaving, it is very important not to cut off or damage this heart spear as this will result in killing the tree. Fronds are produced at a rate of about one per month. They are 6-20 feet in length, depending on the size and age of the tree, with at least 100 or so individual leaflets termed pinnules. Each pinnule is a double strip of fibrous material joined lengthwise by a stiffer midrib, and generally 1-3 feet long.

Obtainable fibers: (1) short tan colored fibers from the dried husk of the ripe nut used for making rope called sennit; (2) freshly cut fronds used for plaiting baskets and mats; (3) creamy white leaf fiber made from the scraped individual pinnules of the fronds used for making small bags and mats; (4) fiber from the stalk of the frond used for stringing leis and for loops used to de-thorn pandanus leaves.

Preparation methods: (1) Coconut husk fibers are used to make coir sennit twines and ropes. On most Pacific islands this is a male activity. The husk fibers are prepared by soaking them in sea water for two weeks to a month. In this time the gritty wood particles will separate from the actual fibers, which are from three to five inches in length. These fibers are then gathered in small clumps and are spun together with an opened-palmed hand against the thigh. Larger ropes are made by combining these thinner cords or strands with braiding or plying

techniques. Sennit rope is extremely strong and appears to be fairly rot resistant, perhaps due to its having been "cured" in salt water.

(2) Coconut leaves are cut fresh from a tree for most basket making. Generally the middle ring of leaves is most suitable for plaiting mats or baskets because the pinnules are fairly well developed, they are on a perpendicular axis with the central stalk which makes for a more symmetrical basket, and they have not yet been overly exposed to the ravages of wind and bugs. When a frond is first cut the pinnules are rather brittle and thus suitable only for simple field baskets, requiring no tension in their construction. The brittleness can be eliminated by exposing the cut frond to direct sunlight for an hour or two or by waiting until the next day to use them.

When a tighter, finer "weave" is desired it is possible to dry the leaves before construction begins. Ana Giltinag of Rull Municipality, Yap (Federated States of Micronesia), described three different processes for drying leaves. According to her the newest frond outside the heart spear, yellow-green in color, is best for all methods. The youngest leaf is chosen as after drying it will retain strength and flexibility; whereas, when older fronds are prepared in the same manner they are likely to be brittle and more difficult to handle. For all processes the frond sections are first trimmed down to the desired widths. The first process is simply to expose the

trimmed sections to direct sunlight. The second process is to immerse the leaf sections in boiling water for a short time and then dry them in a well ventilated shady place. The last method is to insert the leaf sections into a piece of bamboo and put it into a fire, singeing the outside only. The leaves are then dried in a shady, breezy location. When prepared in the last two ways, the pinnules will turn a lovely creamy white and possess a soft and inviting texture. They are, however, from thence forward, subject to severe dark spotting from water.

Occasionally the newest leaf is used for headbands, dance armlets and anklets, or baskets. The new leaf is a lovely color and very supple making it desirable for these purposes. Coconut leaf in general is surprisingly strong, especially when woven with the pinnules closed. A coconut basket under constant use can last from one to four months, depending on the intensity of the usage. If unused, they can last anywhere from one to ten years.

(3) Coconut leaf fiber (sometimes referred to as kili which is actually a location in the Marshall Islands), is very difficult to prepare and takes a great deal of practice. You begin by selecting the young frond near the center of the tree that is still pale green in color. Taking care not to cut the heart spear of the tree, the entire frond is removed and then the pinnules separated from the stalk. The individual pinnule blades are separated from the midrib and then held on a flat

surface with the shiny side down. A properly dulled blade is held on top and the pinnule is pulled past the knife's edge at just the right speed and pressure to remove only the vegetable matter. This leaves a thin sheet of cellulose fiber behind, which is immediately immersed in fresh water. When all the pinnules have been scraped they are boiled for just a few minutes in fresh water. The fiber can then be stripped into desired widths and dried in the sun for a couple of days. Prepared properly the fiber will turn a luscious creamy white and makes for a strong and supple weaving material. Micalia Benjamin of Porakiet Village, Ponape (Federated States of Micronesia), gave me some helpful hints for this difficult process which are as follows:

- * If the angle of the knife is too high, as the pinnule is being pulled under it, the pinnule will snap.

- * If the motion of the pull is up instead of straight back, the pinnule will snap.

- * If the knife is not wiped clean in between each scrape, the vegetable matter won't come off evenly.

- * If the flat surface you are working on (an old magazine atop a wooden box or book works well), is not clean and free of debris, the cellulose sheet will shred.

- * If you do not immerse the fiber in water immediately after it is scraped, the fiber will not be very white.

(4) Coconut frond stalk fiber is obtained by stripping the

upper layer of the stalk of a coconut frond. This process can be accomplished while the frond is still on the leaf or after it has been removed. To get the fiber a knife is inserted into the upper surface of the frond's stalk. The incision should be about an eighth of an inch deep and half way up the frond. The edge of the strip is gently pried up until it can be grabbed with the fingers. This layer is then removed by pulling firmly straight back. Stalk fiber is impermanent but excellent for stringing leis, securing ends on baskets and making a finger loop to de-thorn pandanus leaves.

Common name: Pandanus

Scientific name: Pandanus fragrans, Pandanus dubius, Pandanus tectorius, or Pandanus odoratissimus

Origin: Probably South East Asia

Distribution: Common in all tropical zones of the Pacific, Asia, and Australia

Habitat: Prospers from sea level to elevations of over 2,000 feet.

Though it grows most frequently in coastal areas, it can also be found in groves along hillsides or in valleys.

General description: The pandanus tree has many varieties that manifest in differences of trunk structure and leaf size and texture. They grow from ten to twenty feet in height. The trunk is usually elongated in the middle section which sets atop a complex of "prop" roots. The roots emerge from the middle trunk and until they touch the ground are known as aerial roots. The trunk itself is covered with scars where the leaves have grown and dropped off. The leaves are long and narrow, 3-6 feet long and 2-6 inches wide, and arranged spirally at the ends of the branches. The leaves are lined on either side with very sharp forward pointing thorns. There is an additional row of thorns running down the keeled midrib of the leaf. Preparation of the leaves for plaiting purposes is made difficult and painful by these barbs resembling shark's teeth. Different varieties of pandanus have different textured leaves. Not all species of pandanus produce leaves suitable for weaving or

plaiting. Islanders tend to cultivate a variety that does not bear fruit, the *fragrans* or *odoratissimus*. Some species of *pandanus* bear a composite fruit suitable for eating. The fruit is made up of large kernel-like forms from which a semi-sweet starchy substance can be squeezed.

Obtainable fibers: Tan, brown to creamy white strips of fiber are obtainable from the dried leaves. These strips are used to plait baskets and mats and sometimes to make rough thatching.

Preparation methods: There are many species of *pandanus* with only a few of them producing leaves suitable for weaving. According to Mrs. Champacco of Merizo Village, Guam, the Chamorros use the dried leaves of a non-fertile variety. It is cultivated especially for weaving and is called *Agak*. The leaves are gathered as they naturally fall off the tree and are then scraped out flat using a smooth implement of wood, shell or metal. As mentioned earlier, the *pandanus* leaves are lined with menacing thorns which must be removed carefully. After the leaves have been de-thorned they can be smoothed out a bit more and then dried and bleached in the sun. Mrs. Miriam Reider of Kahalu'u, Oahu, Hawaii, related the Hawaiian method of preparing *pandanus* leaves (*lau hala*). The process is basically the same as the Chamorros', though Mrs. Reider said that occasionally the leaves were soaked in salt water to strengthen them. In Kenneth Emory's film entitled "*Kapingamarangi*," there is a sequence which shows the islanders preparing *pandanus* leaves by

first cutting them green from the tree and then passing them over a fire to "cure" them. After drying for a while in the sun they are then taken to the ocean to soak and finally rolled into small bundles and beaten with a wooden mallet. Apparently the soaking and pounding renders the leaves much stronger and durable.

My Ulithian friend, Eulalia Harui, showed me a way to prepare pandanus leaves that differs from these. For this process, medium aged leaves of a pandanus tree are selected and cut. The thorns are removed on the spot by making a notch along the sides and center of the leaf and then catching the notched edge in a finger loop of coconut stalk fiber or dental floss. With a downward motion the loop is pulled the length of the leaf, separating the leaf from a thin margin which contains all the thorns. This activity should be performed smoothly and carefully as rushing through it will only result in painfully lacerated hands. After the thorns have been neatly removed, the leaf sections can be loosely rolled and immersed in boiling salt water for a few minutes. When the color of the leaves has changed to a slightly darker green they are removed and individually rolled into spiral coils opposite their growing curve. Rolled in this manner, the leaves will not curl up unmanageably. The last step is to dry the leaves in the sun which can take from four days to a week. Prepared in this manner, pandanus leaves turn from their original green to a light tan or

whitish color. Though they do not appear to be as tough, the color is quite lovely.

Occasionally leaves are cut, soaked, and then dried in the shade in order to allow them to turn a darker brownish hue. The Kapingamarangi islanders living on Ponape do this and use the dark brown to accomplish a contrasting pattern work in the plaiting of mats and bags. According to Beatrice Kraus, in her book Ethnobotany of Hawaii, the Hawaiians used the dark brown skins of the midrib of the bird's nest fern or the fiber from the stalk of the Eleele variety of banana for a dark fiber contrast with pandanus.

Common name: Wild hibiscus

Scientific name: Hibiscus tiliaceus

Origin: Unknown, probably South East Asia

Distribution: Tropical and sub-tropical zones

Habitat: Hibiscus is a strand plant but can grow from sea level to an elevation of 2,000 feet.

General description: There are two varieties of wild hibiscus; one which grows rather upright in a recognizable tree form and the other which is more of a low creeping tree, which forms thickets. The leaves are broad and heart shaped and vary in size from 2-12 inches in diameter. The small short lived flowers resemble the texture of the ornamental hibiscus blossoms but are yellow with a deep maroon center. Wild hibiscus can be propagated by seed but grows best from cuttings. The fiber is obtained from the inner bark of the young straight branches.

Obtainable fibers: Tannish to creamy yellow strands of fiber are obtained from the bast (inner bark) of the young branches. It is used by most Pacific island cultures for making cordage and used by the inhabitants of the Western Carolinian atolls for weaving garments on a backstrap loom.

Preparation methods: Hibiscus fiber is prepared by first selecting a straight branch toward the inside of a wild hibiscus thicket. With a knife, the bark is stripped away from the wood. Most islanders process the bark by weighting it down in an ocean tide pool for one to three weeks. Soaking in constantly

agitating salt water cleans and bleaches the fibers. After this it is removed from the ocean and allowed to dry in the sun. The thin layers of bark will separate naturally into three layers, the finest quality being the innermost layer and the coarsest being the outermost layer. The middle layer is the strongest fiber for weaving with the most suitable texture. I have processed hibiscus fiber by soaking it in a fresh water stream with adequate results. The texture and strength of the fiber were good but the color was very much darker than when it is processed in salt water.

Hibiscus bark can be prepared manually by soaking it in a salt water solution for a week or two. The solution must be changed frequently and the strips of bark scraped with a wooden or shell tool to remove the unctuous sap that oozes from it. The sap causes the fiber to be stiffer and darker in color. After drying in the sun, the fiber is stripped to the desired width for whatever purpose it is needed. Hibiscus fiber is extremely strong and supple enough to fashion very suitable garments.

NOTES

¹William Alkire. An Introduction to the Peoples and Cultures of Micronesia. (California, 1977), p. 10.

²William Alkire. Coral Islanders (Illinois, 1978), p. 122.

³Ibid., p. 123.

⁴Ibid., p. 124.

⁵Sidney Meed, ed. Exploring the Visual Arts of Oceania. (Honolulu, 1979).

⁶Ibid., Peter Steager. "Where Does Art Begin on Pulawat?", p. 342.

⁷Ibid., Anthony Forge. "Form and Meaning in Art," p. 342.

⁸Ibid., Peter Steager. "Where Does Art Begin on Pulawat?", p. 343.

⁹William Alkire. "Systems of Measurement on Woleai Atoll, Caroline Islands." Anthropos 65, 1970, p. 69.

¹⁰Peter Buck. Vikings of the Pacific. (London, 1958), p. 35.

¹¹Micronesian Working Papers, David Robinson. "The Micronesian Canoe" (University of Guam, 1970), p. 3.

¹²Marvin Montvel Cohen. "Art and the Canoe House on Satawal." (University of Guam), p. 16.

¹³Ibid., p. 14.

¹⁴Ibid., p. 15.

¹⁵ESE: Kramer Zentralkarolinen. (Hamburg, 1937).

¹⁶Leonard Mason. Micronesian Culture. (University of Hawaii, 1960), p. 6.

¹⁷Ibid., p. 6.

¹⁸David Boyer. "The Americanization of Eden." National Geographic, May 1967.

¹⁹Mason, op. cit., p. 6.

²⁰Ibid., p. 7.

²¹William Lessa. Ulithi. (Holt, Rinehart & Winston, 1966), p. 80.

²²Josede Figiriliyong of Ulithi Atoll, Yap District, Federated States of Micronesia. Personal communication, October 1980.

²³Shirley Held. Weaving--A Handbook for the Fiber Craftsman. (New York, 1972), p. 381.

²⁴Mason, op. cit., p. 8.

²⁵Held, op. cit., p. 171.

²⁶Mason, op. cit., p. 8.

²⁷Ibid., p. 7.

²⁸Josede Figiriliyong, op. cit.

²⁹Lessa, op. cit., p. 78.

³⁰Alkire, op. cit., p. 69.

³¹Ibid., p. 68.

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