FEDERATED STATES OF MICRONESIA
KOSRAE HISTORIC PRESERVATION OFFICE

Translation of

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Results of the South Seas - Expedition, 1908-1910

Sarfert: Kusae, 1 Half-Volume.

by
Carmen C.H. Petrosian-Husa

Anthropological Report 2008/1a
Kosrae Historic Preservation Office

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RESULTS
OF THE
SOUTH SEAS- EXPEDITION
1908-1910

PUBLISHED BY
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VOLUME 4

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1. HALF-VOLUME

HAMBURG
L. FRIEDRICHSEN & CO.
1919
KUSAE

BY
DR. E. SARFERT
CHIEF OF THE OCEANIC DEPARTMENT ON THE MUSEUM OF ETHNOGRAPHY IN LEIPZIG

1. HALF VOLUME

GENERAL PART AND MATERIAL CULTURE

WITH 159 ILLUSTRATIONS IN THE TEXT,
1 COLOR PLATE AND 44 BLACK PLATES
AND 3 MAPS

HAMBURG
L. FRIEDRICHSEN & CO.
1919
Preface

Apart from some third party’s contributions, this work was already finished at the end of 1913 although the printing was put on hold during World War I and due to my participation in it. It was only possible to continue in the year 1919.¹ The lonesome island, which is the subject of this work, is the smallest and most economically insignificant among the high islands of the Carolines. But, its wild natural beauty competes with the smoother charm of the Palau Islands. It obviously belongs among the most beautiful islands of the great ocean, as honoring its name »Gem of the Pacific« indicates, which it received at the time of its highest popularity with the white people. After Germany lost its hegemonic status in the world war and was entirely robbed of its important colonial possessions, the question remains if it is still justified from the German side to dedicate a detailed treatment to such a small and economically unimportant area. Unfortunately Germany no longer has a directly related interest in such an effort thus, the general scientific interest has to justify the size of this monograph. This treatment may at least testify, together with our other vast colonial literature, how unselfishly Germany worked on the scientific exploration of its colonies.

After the »Peiho«, the steamship of the »Hamburg South Seas-Expedition«, had criss crossed through the Carolines, it anchored in the beautiful landscape of Lölö-Harbor with all members aboard on February 5th, 1910. It was anticipated the expedition would stay 14 days, at the most. Nothing of interest to the ethnographers was expected of Kusae in 1890 after 30 years had elapsed since after FINSCH’s stay. This was not unwelcome as the second expedition year was nearing its end. Time and the steamship were to be used according to schedule for eastern Micronesia and to allow at least one long sojourn in the Marshall Islands, even thought the region with the most original culture, the central Caroline islands was long behind the exhibition. Thus, a limited result was expected

¹ Compare remark p. 257.
on Kusae. It could only be a poor harvest, with the most important part being a closer examination of the often mentioned but badly known »Ruins of Lölö«. Therefore, the projected sojourn was considered sufficient because, quite fortunately, all expedition members were present and a division of labor was possible. Professor KRÄMER divided the general survey of the culture between himself and me, and all other members had special assignments; Professor [Elisabeth] KRÄMER was supposed to deal with all questions related to women and especially with the old loom weaving technique, while Dr. HAMBRUCH, supported by Mr. HELFWIG, the tireless manager and collector of the expedition, was supposed to carefully survey and measure the ruins. But it turned out differently. The poorer the initial survey of the traditional culture seemed, the more exciting were the small success stories, which were soon noticed. They gave hope that a longer stay might be rewarding. The decision for my longer stay on Kusae resulted from this impression, and after the survey of the ruins was finished by Dr. HAMBRUCH and his assistants Mr. HELFWIG and finally also Mr. LORENZEN, the first officer of the »Peiho«, it was decided I should stay on Kusae, waiting for the return of the »Peiho« from its trip through the Marshall Islands (from February 22, to March 15, 1910). During this time the sources of local tradition were further discovered and when the ship finally returned, the decision was made that the »Peiho« continued its trip home to Hong Kong without me. I stayed on Kusae until May 9, 1910, when the »Germania« offered me a chance to leave this much treasured island going to the Bismarck Archipelago. Thus, my entire stay was 3 months and 3 days, while the rest of the expedition remained 16 days on the island. These circumstances explain why, there is a contribution of each of E. KRÄMER and A. KRÄMER and P. HAMBRUCH, and some small appendixes by E. KRÄMER in this work, and especially in the presentation of the material culture. This is, without any doubt, not an advantage, also variations concerning the language can thus be explained, but this disadvantage is surpassed by the benefit of thorough treatment of the researched material by each participant. Whenever material of the different members of the expedition was used, besides of their special contributions—these are mostly notes of A. KRÄMER—this is indicated every time by his name.

The culture we found on Kusae made extending the stay, beyond the initial schedule, a kind of a risk, carried more by hope than by sure success. Work was in no way the heart warming and successful
enterprise as it would have been in an untouched, or more or less untouched, culture. There was not even a culture, which had been dissolved by European influence and was about to decay, which doubtless offers the best working conditions for any ethnographer, as the natives no longer care about their innermost possession in a secretive way. At its best, work was mostly of a folkloristic kind especially considering the fact that it was completed in the last minutes before 12 o’clock, when little if anything at all, could be done for the scientific survey. Because only a part of the material culture, most of all objects of daily life, was still part of present day life. The youngest generation did not know at all their own past and their own culture and also had no understanding for it. For the before last generation, the fully mature generation, the same was true, except that they may have heard many things and in their youth may have learned some special skills, such as knot weaving, without ever practicing it. Under these circumstances the few oldest members of the population were the only main sources possible. They alone still had experience with their own culture, from their youth.

Flawless and diligent interpreters were needed to counter these circumstances. After searching the half-blood-negro Kefas (plate II,1) and the real Kusaean Kelafa-Kön (plate II,3) were hired, both highly intellectual men in honorable age, the first of them already with a graying beard. Of the two, the Negro half-blood, who actually was a complete Kusaean, could be considered the quintessential representative of Kusaean intelligence. Mature and financially secure, without any snobbishness or churchly ambition, he was the only Kusaean with complete command of the English language. Because of his special skills he was the indispensable support of the mission in their effort to translate the bible. Kelafa-Kön, according to his origin a full Kusaean, was quiet and modest, without any position in church. He had a good knowledge of Pidgin English and was faithful and reflectively satisfied by his task. Both interpreters soon acquired a full understanding for the reason of their work and, without becoming overzealous, they, as well-known and respected natives, took it upon themselves to wrench from the past a culture that had disappeared and was forgotten, for the benefit of their own people, too. Without their reliable support this task could not have been accomplished. By their work they placed the best monument for their people, which they hopefully will still hold in their hands! With their support, and especially with that of the old king, all the elder and the eldest people of both genders on the island were recorded, most of them repeatedly visited in their area, and interviewed in an informal way and coaxed to talk. In most of the cases, the information gathered was cross checked to correct any contradictions.
The old king, too, earned it to be fondly remembered. He was an old man, between 60 and 70 years old. Though physically no longer at his peak, he was still very active mentally, although his memory was initially not always reliable. An aristocrat in the second highest position in government had adopted him as a child. The time from 1863—1890 he spent far from home. Thus, he had grown up in the old culture, which he no longer found after his return. He was not pleased by the new times and by his own shadow kingdom. He was excluded by the church community because he had not renounced tobacco and alcohol, when the occasion arose. Therefore, he lived by himself more and more back into the old times. He came to life through the memories of the past, just as the memory lived in him and thus, he followed the past with constant interest and heartfelt joy. Quite a few evenings I spent talking with this man who had traveled far in the South Seas. When he told me from the past time on Kusae and life then, he mentally introduced me to an understanding of the former culture. As soon as he had fulfilled this task of serving as a source and critique at the same time, he fell ill and could no longer leave his bed. Soon after my departure from Kusae he passed away. Together with his, traditionally faithful cook, who was about the same age, but mentally unimportant, he belonged completely to the good old times, of which he could be considered to be the last representative. With him the good old time finally sank definitely into the grave. He must be especially considered when it continues to live on!

The tasks of the expedition, together with the special participation of the late king and the growing effectiveness of both interpreters, stirred a general interest in the past in the people. Especially those knowledgeable in old stories (mostly women) and chants were made known or came forward themselves. In this way the considerable amount of material concerning the spiritual culture was collected.¹ This happened to such an extent that the ample prolonged stay was hardly enough and there was no time for other tasks, such as traveling into the rarely visited interior of the main island and under taking geographic surveys.

Under these circumstances it would have been easy to approach the material with preconceived doubts concerning its originality. It hardly has to be mentioned that, under the realization of all these difficulties, the survey of the disappearing cultural circumstances was conducted with critical attention. The outside circumstances were fortunate, linguistic communication, the translators and people who were sources for the ethnographic-research-traveler could hardly be better. An objection would be, that due to the circumstances on Kusae from 1860-1880, a strong and little controllable

¹ Compare also p. 392.
influence by foreign natives has to be considered, as also can be suspected by the mixture of blood. In addition it may be that the sprouting of island-foreign elements in the populace of Kusae was not as important as one could have suspected initially. The relationship between the Kusaeans and the hordes of foreign natives was merely cohabitation and often accompanied by strong tension.1 Further important and interesting observations at other places show that generally the natives know well accepted foreign goods and keep the introduction and the origin of the cultural hero over several generations in their memory. They also mark the foreign cultural goods as such by name. As a matter of fact, natives foreign to the island and their descendents were not considered as sources.2 Further, on my part, but also due to the care of the interpreters, no foreign information was included as Kusaean, just as songs developed in the European time were not accepted. In any case the material speaks for itself. Finally the following fact is remarkable.

From the time when Kusae was discovered the local culture has, since FINSCH, never been carefully surveyed or been described. Therefore, it was about time to make a critical comparison with the detailed reports of the members of the first two discovery expeditions, DUPERREY and LÜTKE, while working with and making use of the data. In this way the aspired thoroughness could be achieved, so that everything known about Kusae would be included. The pleasant fact of correlation of the modern survey and the old description was to a large extent established. Despite its strong use, such background research remains necessary. Unfortunately the charm of the direct experience of a travel report is not in the nature of a functionally structured monograph. In order to enjoy them we have to return to those reports again and again.

The presentation of the culture is not sufficient. There are big gaps especially concerning religion. Here, as well as in other places, a cultural-historical comparison will be necessary to be complete and correct, and will put some in a better light. Such a comparing work of the culture of Kusae has been considered too early and over hasty and thus has been postponed. When the manuscript was finished ERDLAND’s Marshall Islands had not yet been published. In the series of fundamental monographs from the results of the Hamburger South-Seas-Expedition some more material can and could be expected for the next years. This

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1 Compare p. 7 and 59.
2 In the course of a census, conducted by the German government in 1905, the descent of each grown up Kusaean was established back to his grand parents. Further, the recorded family trees also gave a definite hint.
would allow an extensive comparison of Micronesia in an entirely different fashion than the current data, which is widely distributed and incomplete, would have made possible.

This offers a chance to reinforce the importance of monographs as one of the most important forms of ethnographic source collections. The development of the very principle of source collections is the scientific reason behind ethnology, next to the perfection of its methods, which is a much more pressing daily question, although not much noticed. The struggle for worldwide results as soon as possible, as directive as they might be, will make a critical assessment more difficult, because in many cases they are based on incomplete material collected under difficult circumstances. Therefore, the development of a user-friendly, scientific tool will only be a question of time.

Whatever faults this work here may contain, I present it in the full awareness, to have been called by chance to preserve in the last possible moment the ethnography of a South Sea island before it lapsed irrevocably into the nothingness of the past.

I still have to thank especially my collaborators for their contributions, Dr. HAMBRUCH most of all for providing and directing me to hidden literary sources, further on I have to thank the ethnographic museums of Berlin, Leipzig and Freiburg i. B. for supplying material and especially I have to thank the publisher for his assistance and understanding, which he proved while printing this work.

Leipzig, August 1919

ERNST SARFERT
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Remarks concerning the pronunciation.

Concerning the pronunciation of the mentioned local names, words, and included texts, attention must be drawn to the following:

Short and not emphasized vocals are not specially indicated, for instance ko = the stick for husking coconuts.

Short and emphasized vocals with an accent ´ to indicate shortness, as for instance the island Lölö.

Long, not emphasized vocals are indicated by an upper dash as an accent to indicate to stress the vocal, as for instance Limes = name of a landscape.

N indicates a nasal n, as for instance men = pandanus. Dealing with important geographical names ng has been kept, as for instance Ualang = name of the main island of Kusae.

s stands for a similar sound like the German sch (engl. sh), though this one is spoken without pursing the lips, just slightly in-between the teeth, as for instance in Tokosa = title of each living king.

m can stand for a slightly nasal m, with the after sound of an u. This sound is rather rare and commonly written as mu, as for instance in muänin = none. It is also in the name of the place Mot, where the mission station is situated.

w sounds similar to the English w, and commonly is written as u, as for instance in Ualang = name of the main island.

b and p, d and t, g and k, are, to my knowledge, not differentiated.¹ This has to be considered when the same word is written once lenis and the other time tenuis.

ä, o and ö are pronounced as a very open ä, o and ö.

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* These special signs are only indicated here, while in the main text they have been omitted, due to print-technical reasons. [CCHPH]

¹ The Boston Mission always writes tenuis, even though, in my opinion, the opposite would be more appropriate.
General Part.

I. External History.

The time of the discovery and the first contact with Europeans. The history of Kusae’s discovery reaches back into the earliest time of our acquaintance with the islands of the South Pacific—the heroic time of Spanish sea journeys in the 16 Century. The Spaniard ALVARO DE SAAVEDRA, the third person who courageously traversed the grand ocean and the second navigator who came to the islands of the Caroline archipelago,¹ he seems to have been the first discoverer. Assigned to look for the ship »Trinidad« from the expedition of HERNANDO DE MAGELHÃES and FREY GARCIA JOFRE DE LOYOSA’s fleet of the second crossing of the Pacific Ocean, he discovered the Mokemoke-Group and Yap (?), on his journey from New-Spain to the Moluccas, in 1528. During his first try to reach New-Spain from the Muluccas, he discovered Truk. When he tried to repeat this, sailing from the Admiralty Islands to ENE, he sighted an island on September 14, 1529. From the travel account of FRANCISCO GRANADO:

»Martes 14 de septembre anduvimos treinta leguas la vuelta del Nordeste.«
»Este día fuimos sobre una isla que está en seis grados de la banda del Norte de la línea: pareció que el navío había hurtado en longitud cien leguas al Este, porque esta isla está de Maluco setecientaxs leguas al Este tocando al Nordeste.«²

The distance to the Moluccas is more than 100 leagues too far and the latitude about 1/2° too high. The island, too, was not clearly indicated as a high island, but the latter point can be deduced from the remark that on September 27 said island was 12 leagues in the west and discovered islands of the Marshall Group (Uyaë, Taka, and Utrik) were especially indicated as »iselos bajos«.³ Due to this and other presumptions we can rightfully assume that the island sighted was Kusae.³ SAAVEDRA, without delaying his trip, passed by the island. None of the sources about

¹ The first was DIEGO DA ROCHA (1526).
² NAVARRETE V, p. 474. [Translation: “Tuesday, September 14 we sailed 30 leagues to the east in a roundtrip. That day we came to an island six degrees to the north line, it looked like the ship sailed 100 leagues to the east, because this island is 700 leagues east north east from the Moluccas.”]
³ [Low islands, comment CCHPH.]
³ Compare with more detailed accounts at Coello de Portugal y QUESADA, pp. 365.
his expedition, including the old Spanish writers, mentioned if and how he named the newly discovered island. This was amply compensated in later times.

After this discovery, Kusae immediately disappeared into the night of no history. No European re-sighted the island in the course of the 16th, 17th, and 18th Century. During this long spell of time there is also no other mention of it. Both the maps of CHARLES LE GOBIEN\(^1\) and of P. JUAN ANTONIO CANTOVA\(^2\), recorded on Samar and in 1722 and on Guam, based on statements made by stranded Carolinians, did not extend to the chain of islands east of Truk. However they brought back from the public non acquaintance other islands of the Carolines, that had been forgotten. The existence of the entire archipelago south of the Marianas was shown, however it did not extend to the chain of islands east of Truk\(^3\). Just as in the case with the western Caroline Islands we learned the name of Kusae for the first time from a native’s mouth. It is mentioned as »Carao« in a list of 26 island names, by the native navigator LUYTO, who in 1787, together with 12 country men in two canoes stranded on Guam, told them to Governor DON JOSEF AZLEGU\(^4\).

In 1804, the American captain CROZER\(^5\) of the Bostonian whaler »Nancy« became the second discoverer. In former times he had been considered the actual discoverer and in some German work of recent time he still is mentioned as such.\(^6\) CROZER called the island Strong Island after the Governor of Massachusetts. But it seems he did not land and did not get in contact with the natives. In any case his discovery remained unimportant for lack of more detailed knowledge of the island, just as the coming discoverers, mostly of them whalers, only increased the amount of names for the island. Thus, in 1807 it was named after a ship Hope. On ARROWSMITH’s chart of the great ocean from 1817 we find the name Teyoa. Other names from this time are Experiment, Armstrong, and Quollen\(^7\).

This only changed in the twenties of the 19th century because of two large scientific expeditions under Captain DUPERREY and Captain LUTKE. From June 5. to 15, 1824 the »Coquille«, of DUPERREY’s French expedition anchored in the harbor, which was named after it, on the western side

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1 Lettres édifiantes VI, p. III—XXXII; compare also the letter of P. CLAIN in I, p. 112—136.
2 Lettres édifiantes XVIII, p. 188—247.
3 Also the map, recorded on Oleai by LOUIS DE TORRES (KOTZEBUE III, pp. 48) and the ones recorded by KOTZEBUE on Aur (Marshall Islands), drawn after EDOCK (KOTZEBUE III, pp. 48) do not contain information about this eastern part,
4 KRUSENSTERN 1819, p. 93; LUTKE 1835/36, II, p. 322.
7 MEINICKE II, p. 348; Nouvelles Annales des Voyages II, 1844, p. 249; on English maps from 1822 there were even two islands indicated, Teyoa and Hope (LESSON 1839, II, p. 460).
of the island before continuing their discovery journey from here through the eastern Carolines.¹ Due to the behavior of the natives, LESSON and DUPERREY thought that they were seeing Europeans for the first time,² and LESSON is quite proud that they came to know the white race first in form of the French. But this seems to be reaching too far. In those years, European ships were a rarity in these waters, in fact English and American whalers reached these latitudes more by chance than purposefully, but they refrained from visits of the island because of fear of clashes with the natives and to avoid desertion of their crew.³ Also, considering the different names Kusae already had and considering the very similar survey of LÜTKE’s expedition, one cannot fully consent to LESSON’s point of view.

The »Senjäwin«, the corvette of the Russian expedition, anchored more than 3 weeks, from December 8, 1827 to January 1, 1828 in the same harbor, and LÜTKE erected his observatory on the same small island, Matanial, as DUPERREY had done before. Both expeditions made trips not only to the main island, but also to Lölö, where they, as the only Europeans, had a chance to admire these exceptional ruins in their old usage. Just as both these expeditions gave us the first exact basic knowledge about the Carolines, this is true for Kusae. Until to this day, a few more meaningful additions aside, their reports are the main source of knowledge. While honoring the deeds of both expeditions, this fact is lamentable, especially from an ethnographical point of view. Unfortunately their members were the only explorers who still saw the old Kuasaean culture in their unchanged freshness of life. At the same time it is quite obvious that their success was dampened by the difficulty of communication and limited by the unsolved ethnological problems in those days. It also is regrettable that neither of the expeditions built their main camp on Lölö, due to social relationships, a most important secondary island. The lucky circumstances are that both stayed rather long, and based on good observation abilities of their members, their surveys can be counted among the best of all the ones conducted in those days of heroic exploration in the South Pacific. This is also true from an ethnographical point of view.⁴ We also have to highlight the fact that both left the island without any serious incident and without the natives coming to know the deadly power of firearms.

¹ DUPERREY learned about CROZER’s discovery only during his journey through the geographer BUACHE, who had made him search for the islands in the first place. (KRUSENSTERN 1827, p. 349)
³ KITTLITZ 1858, I, pp. 353; LÜTKE 1835/36, II, pp. 84.
⁴ Compare MEINIKE II, p. 344.
This, was thanks to the peaceful character of the natives, but mostly thanks to the insight and far sightedness of the leaders of the expeditions.

This was a time of frequent contact with the whites and of the decay of culture. After DUPERREY’s and LÜTKE’s visit, the news about Kusae became scarcer until it nearly stopped completely around 1850. And still this is the time when a second epoch of external history starts for the island; the time of constant contact with Europeans and the dilapidation of the local culture. At first there is another kind of white person who the natives come to know, whalers. Mostly Americans from New Bedford and New England, they chose the island as a work base and station to replenish their need for water, wood, food, and also—girls. How far this relationship continued peacefully cannot be judged. From the peaceful mind of the natives comes the statement that supposedly in 1836, because of unfavorable winds, the whaler »Falcon« stayed 120 days in the Lölö-Harbor without any difficulties.\(^1\) The other news from this quarter of a century deal mostly with 3 attacks of natives on ships, which initially caused a bad reputation\(^3\) and which the old people still talk about. This shows that the inhabitants initially started the new acquaintance with a serious aversion. The first case involved the American whaler »Waverley« and its Captain CASTHCART. It was attacked in the winter of 1835 in the harbor of Lölö.\(^2\) In 1910 the reigning King still remembered when diving as a youth that he still could see the ship at the bottom. According to him, the crew members that jumped over board were killed and the ship was destroyed by fire when the captain locked himself and the others in his cabin. By his account the reason for the attack was the captain had brought the daughter of the chief on board of his ship by force. When she fought back she was thrown over board and drowned. In the same year the schooner »Hondura« and its Captain STOCK met a similar fate. According to the same source, the captain, his companions, and the crew of the boat were accosted by the natives and killed when they were returning from a visit with the King. Only two men of the crew managed to escape with the schooner to Ponape. It seems that no special trouble preceded this dispute. Thus, the attack seems to have been an expression of hostility and revenge on Europeans in general.\(^4\) In 1824, the last schooner, the American or London whaler »Henrietta« and its Captain BANKER, was taken over and burnt, and the crew was killed in Wukat-Harbor.\(^5\) According to an 1844 report in the »Nouvelles Annales des Voyages«,

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\(^1\) BOLDREWOOD, p. 133. MORELL actually passed the island on Feb. 1930 without landing or having contact with the natives (p. 375; compare also with KRUSENSTERN 1837, p.6).

\(^2\) CHEYNE 1852, p. 91.

\(^3\) N. M. 1862, p. 240; 1854, p. 64.

\(^4\) Compare N. M. 1862, p. 240.

\(^5\) N. M. 1862, p. 240; 1854, p. 64.
20—25 men from the crew were attacked on land while 5 men fled with the schooner. According to the statement of natives, the attack happened without the knowledge of the King, again after the kidnapping and holding of girls. The then reigning King, according to his own assurance allegedly used capital punishment on the culpable natives, the 14 men and 4 girls.

It seems that under this King, called among Europeans and remembered by Kusaeans as »KING GEORGE« a change happened in the way the whalers were treated by the natives. Without any resistance they now opened their island and resigned themselves to the European culture. This change obviously started with the inauguration of that King in the year 1837 or 1838. All later sources mention him as extremely European-friendly, as in the tradition of the natives itself. Under his reign the constant contact with the whites started. Therefore, he is also the first King with a European name next to his native one. At the time of his reign, even before 1850, Kusae became a real station for whalers. Already in April 1843, the North American whaler »Sussex« met 3 North American and 1 Canadian colleagues in Wukat-Harbor. In 1845 DELESSERT met 2 English runaways among the natives, who came out to the »Minerva«, and who, by the way, made the false statement that only 2 ships had reached the island since the »Coquille«.

Since mid-century knowledge of this time of constant contact is a bit better because of the publications of the »American Board of Commissioners For Foreign Missions«, generally called Boston-Mission, and their daughter society, the »Hawaiian Evangelical Mission« (»Hawaiian Missionary Society«). On August 22, 1852, coming from Hawaii, the first station of the Boston Mission in Micronesia was founded by the missionary Mr. Snow and his wife on Kusae. Thus, the interrupted Catholic mission work in the Carolines, by the murder of P. CANTOVA in 1732 on Mokemok, was restarted by the evangelical side. Since then this mission has remained in close contact with the natives, even when they left their work on Kusae from 1862—1879 to the native forces. It has influenced native lives and culture to considerable extent, of which will be talked at other places. Concerning the scientific discovery of the island, the entire time until 1880 remained rather unproductive. Unfortunately this also has to be said about the mission. In that time they could have easily increased our knowledge about the culture of the natives,
which would have benefited their profession, too. Nevertheless, looking through their publications, one cannot shake off the impression that they focused their point of view only marginally beyond their assignments. Only the name of Dr. GULICK, a missionary and medical doctor at the same time who did not even stay on Kusae, has to be honorably mentioned. Still we probably have to modify this judgment as it might just be possible that the archives of the Boston Mission still harbors in the detailed accounts of its missionaries some knowledgeable facts about Kusae and other areas.

At the time when the mission was founded Kusae had given up being cut off from the world for several years and the »European culture« was taking root. The King and the Queen met the visitor in a ripped flannel shirt and a reform dress respectively; the first one talked already with amazing familiarity about American harbors, big cities and other places,\(^1\) and the biggest part of the population talked much better pidjin English than the Hawaiian islanders in year 1862, so that Mr. Snow was able to teach the natives in the English language without any problems.\(^2\) Three traders lived already permanently on the island to provide provisions to the whalers and before them a captain had lived on the island for two years.\(^3\) On average within one year about 12 ships called on the island.\(^4\) This estimate may be too low. The traffic must have increased quite a lot in the beginning of the fifties, because already in 1853 on one day there were 5 ships,\(^5\) and in 1854, 14 ships were anchored in Lölö-Habor,\(^6\) so that SNOW started a Sunday mass for sailors.\(^7\) However such intensive traffic was only at certain times of the year, because during summer time the whalers left for the northern latitudes.

In addition to such intensive visits of whites, the island was occasionally also overrun by an invasion of foreign natives. At the end of the fifties a group of natives came from Rothuma.\(^8\) In 1873, app. 100 natives from Banaba together with 12 Whites, who had to leave because of some turmoil with Nauru and because of a famine on Banaba, respectively were dropped here by two whalers.\(^9\) In 1874 Mr. SNOW counted 8 Americans and 8 Europeans, and not less than 106 other Micronesians and Polynesians, in addition to the 397 natives.\(^10\) In 1880 FIN SCH still found 40 people from Banaba.\(^11\)

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\(^1\) R.B.M. 1853, p. 134.
\(^2\) DAMON, p. 50.
\(^3\) M.H. 1854, p. 52.
\(^4\) M.H. 1853, p. 86.; 1857, p. 42.
\(^5\) M.H. 1854, p. 51.
\(^6\) M.H. 1857, p. 252.
\(^7\) M.H. 1858, p. 254.
\(^8\) M.H. 1858, p. 186.
\(^9\) M.H. 1874, p. 251; WOOD, p. 189; BOULDREWOOD, p. 121.
\(^10\) M.H. 1875, p. 136; R.B.M. 1875, p. 65; WOOD, loc. cit.
\(^11\) FIN SCH 1893, p. [452]. The further mentioned 30 Marshall islanders seem to have been mission pupils.
BOLDREWOOD, in his book «A Modern Buccaneer», gives us a detailed insight into the mad circumstances especially in the beginning of the seventies, when BULLEY HAYES, the infamous pirate of the South Seas, choose Kusae as his place of business\(^1\) to which we point here only fleetingly.\(^2\)

Most of the foreign native population left Kusae at their convenience, even though a small amount became absorbed into the population. People from Rothuma had to leave in 1857 because of their participation in a revolution, initiated by some Europeans.\(^3\) What had happened to the other ones cannot be stated. The few and widely dispersed sources do not allow following the entire epoch until 1880. The above-described circumstances obviously reached a peak from the fifties until the seventies and ended when the whalers withdrew into more northern latitudes. When OTTO FINSCHE visited the island in 1880 these tumultuous times were a thing of the past. Once again Kusae had become a small, isolated, and seldom visited island, where one single copra station was hardly making ends meet, and where only rarely a small ship came to trade for copra.\(^4\)

If, on the surface the situation of long past times had returned, its inner dealings were not the same. The past decades had not brought a healthy development for the population; on the contrary it had been a disastrous stroke of fate. Already past their own peak, the small population succumbed to the sudden onslaught of the unclean Europeans and their wave of culture. Not only had the life nerve of the local culture been severed and culture itself as good as washed away, the health of the people was broken to its innermost core. Proof of this is the incredible decline of the population from about 1500 souls in the year 1850 to less than 200 in 1880\(^5\).

Also the mission in its unselfish efforts for the wellbeing of the inhabitants could not stop the physical decline. The terrible sight of the decline of the people was to a considerable extend the reason that Mr. SNOW left the island in 1862.

**The new time.** The last period of the external history starts about 1879 with the return of the mission under Dr. PEASE.\(^6\) This time is characterized by the fact that the population was left to a high degree to themselves. The little contact they had with the external world was conducted in regulated ways.

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\(^1\) M. H. 1875, p.114, 136; 1876 p. 216.
\(^2\) Even though the book has a novel like character, but it distinguishes itself by an excellent knowledge of the local circumstances, so that the informant of the author could only have gotten them by having been there. Due to the shortage of sources about Kusae for this period of time, we legitimately used BOLDREWOOD as such on several occasions.
\(^3\) M.H. 1858, p. 186; R.H.M.S. 1858, pp. 7.
\(^4\) FINSCHE, loc. cit.
\(^5\) Compare with the population statistic on pp. 48.
\(^6\) FENSHAM and TUTHILL, p. 49.
The mission work could now be conducted undisturbed, even though the external Christianization of the natives was already finished by the beginning of this time. It no longer was limited to the local mission work. Kusae became the mission center for the Marshall and Gilbert Islands when the school for education of teachers of the Marshall Islands was moved here in 1879 and the same school for the Gilbert Islands was moved here in 1882. In 1886 a third school joined them for educating Kusaean girls. These three schools are still today situated in Mot, the mission station on the west coast. Currently all three of them are girls' schools for the respective island groups and they are under the leadership of some female missionaries.

During this time the economically working European forces are reduced to one trading station, which initially belonged to CAPELLE & CO. In 1890 an experienced South Sea captain, an Americanized Swede called MELANDER settled as a trader, and soon planted two big coconut plantations of his own. This is the only economic enterprise, run by the owner, his two nephews, and some local helpers.

When European colonial powers took possession of the Carolines this brought a new connection with the outside world. On October 18, 1885, S.M.S »Albatross« raised the German flag on Kusae, where KUBARY also came to know it fleetingly. The island did not see much of the subsequent Spanish government. In 1893, the governor came for the first time. It seems that only once, or at most twice, a Spanish canon boat came to the island. Even before 1899 on several occasions Kusae had already made the acquaintance with German warships. After taking over the Caroline Islands the German government wanted a regular, but not frequent, link with the island. The population had not given any cause for forceful intervention, something that also seems unlikely in the future, due to their peaceful character. This fact, as well as the small amount of people, and the insignificant economic importance of the island, are the reasons that Kusae currently is the only island of the Carolines that does not have a government station.

The more or less only link with the outside world is the steamship of the Jaluit-Gesellschaft. It takes care of the Hong Kong Sydney connection as the imperial postal steam ship and since 1900, with government funding, comes regularly every 3 months. Other ships only arrive here by chance. The Boston Mission gives up its irregular travel between their stations and the mother country, which they had kept up since the beginning with their own ship, after the regular steamship came. Thus, the last decades,
after an adventurous and tumultuous time, brought Kusae, just like many other South Pacific islands, a quiet and steady condition, which actually in this case seems to be rather simple and modest. Therefore, LÜTKE’s judgment that Kusae would make an excellent basis for the whalers has been proven right by the course of history,¹ while his and DUPERREY’s expectations, that in the future it would become an important station for the shipping traffic from Australia to South East Asia, only came true in a rather meager way, and will probably never be fulfilled.²

The recession of their home island in its current isolation proved to be a rather fortunate circumstance for the natives. They regained a quiet life, which offered them the chance to recover from the previous period. It also offered them the chance to heal what had seemed to be their fatally struck power. What the first missionary expected after just a short period of time and what seemed inevitable for FINSCH that the people of Kusae were doomed, surprisingly did not happen. On the contrary, over the last two decades the number of people and the health of the population have constantly and reliably grown.

The last epoch also brought a new movement for the scientific exploration of the island. It was mostly dedicated to ethnology, even though the expectation for successful research must have seemed rather small, when considering the accomplished destruction of the local culture. In February 1880, FINSCH, together with FRANZ HERNSHEIM, stayed 9 days on Kusae; the result is the only modern survey of the island culture since its first discovery by DUPERREY and LÜTKE. In May 1896, F. W. CHRISTIAN visited it for a short while.

¹ LÜTKE 1835/36, I, p. 398.
² DUPERREY 1828, II, 1, 5 p. (639).
II. Geography.

**Name:** Kusae shares its fate with most islands of the South Pacific to have been showered again and again with new names. As has been already mentioned, it is not known if and how SAAVEDRA called the island. Of all the names like Strong Island, Hope, Teoya, Armstrong, Experiment, Quollen, and Ualan most of them have fortunately disappeared from the maps and from literature; only Strong Island and Ualan are still used today. The first name comes from the second discoverer of the island, Captain CROZER, and it honors Governor CALEB STRONG from Massachusetts. The name Ualan (Oualan, Walan) has been introduced by the expeditions of DUPERREY and LÜTKE, which also is the only local name, which has been used for this group. But this was unjust, even though in good faith. Ualan is the name of the main island, as has already been established by the Boston-Mission during their first visit,¹ and does not only indicate the western part around Wukat Harbor (La Coquille-Harbor), as FINSCH had concluded.² Both expeditions anchored during the time of their stay in this harbor, and due to the minimal ability to communicate it is only too understandable that when being asked the name of the big island in front of which they stayed was given as the common name, because from here the other big island Lölö is not visible. Nevertheless even KITTLITZ already remarked the fact that the natives carefully distinguish between the names Lölö and Ualan, and he also understood the reason for this, when he suddenly saw the smaller island Lölö, after having crossed the main island.³ Obviously he had only been using the name of the main island for the entire group, because this one remained unknown to him. The German writing Ualan also has to be contested. KITTLITZ followed the French one of LÜTKE. Though the correct French writing, despite LÜTKE’S opposition,⁴ is the old one of DUPERREY and LESSON:⁵ Oualan, thus, in the German transcription Ualang.

The local name for the entire group has only been established and introduced by the Boston-Mission. In their first report it can be found as Kusaia, later on in the currently usual form of Kusae, as it is also used by GULICK and DAMON, who uses him as a source. However, this way of writing

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¹ M.H. 1853, p. 49; DAMON, p. 353.  
² FINSCH 1893, p. [450].  
³ KITTLITZ 1858, II, p. 44.  
⁵ DUPERREY 1828, II, 1, p. (629); LESSON 1839, II p. 459.  
⁶ M.H. 1853, p. 49.
does not give justice to the way the natives pronounce it. Already FINSCH pointed this out and used the form Kuschai, though not in the correct opinion, that this only meant the eastern part of the island and the surrounding area of Lölö-Harbor.¹ This mistake aside, FINSCH’s writing also is not quite correct. As expected »Kusaie« was supposed to do justice to the to the English pronunciation. Here we have to criticize that the s-sound has been insufficiently represented. It is a sh-sound, but spoken without rounding and curving of the lips and in German it is represented after the model of FINSCH by sch. The English u in Kusaie supposedly represents the o of the natives, the ending is aie just like in the German aë (e like in [German] See), therefore, the correct writing would actually be Koschaë.² Unfortunately this transcription destroys the old word Kusaie to such an extent, that is actually seems to be a new name. In order to evade this Prof KRÄMER and the author have decided to at least change the in German unreasonable and ugly ending aie to ae and to recommend and use the writing of Kusae.

The meaning and the etymology of the word Kusae could not be learned from the natives. Probably it is related to the word kosao = sky, maybe because the fertile and high island must have seemed to coming inhabitants, partly from the poor coral islands, like a celestial paradise. But we do not want to put any emphasis on this deduction. Maybe we will find a better one in a later language comparison.

The names, under which Kusae is known in the other Carolines strongly deviate from the local one. The following list may also refute FINSCH’s opinion that the island is not known in the other Carolines. On the contrary it proves that in former times it was well known in the group.

Pelau-Islands: Matange rengos: matang = forked, matange = double mountain; rengos = ? According to KRÄMER.

Yap: Gatsau. According to MÜLLER.

Kuthiu, Kuziu. According to CHRISTIAN.

Central Carolines: Carao. According to DON JOSEF AZLEGUI, Governor of Guam, 1787.³

Adjau. Meaning = rock. According to KRÄMER.

Oleai: Toroa. According to the native KADU. FINSCH does not agree with this identification. KADU mentions Toroa as a low island, but he also does that concerning Ponape (»Fanopē«). We also have to admit that probably there might be mistake with another island (Tarawa from in Gilbert Islands), because LÜTKE, too, heard on Lukunor and on other places about a low lying island Toroa in the south of Kusae.⁴

¹ FINSCH, 1893, p. [450].
² In old songs and word connections the island is actually only called Kosa.
³ KRUSENSTERN 1819, p. 95.
Jaurupek: Chatau, Ch pronounced like in the German »ach«. According to SARFERT.
Satowal: Ąąau. ą = like a pronounced English th. According to SARFERT.
Polowat: Ąąau. According to SARFERT.
Mortlok and Ruk: Kosiu, Kotiu. According to CHRISTIAN.
Murilo: Arao. According to LÜTKE. FINSCH also denies this equation, but he is not right here. KITTLITZ, too, had the same wrong opinion like FINSCH.1
Mortlock Islands: Aarau. According to LÜTKE.2
Azau. According to KUBARY.3
Mortlock Islands and Namoluk: Ąąau. According to GIRSCHNER.4
Ponape: Katau, Katjau. According to HAMBRUCH.
Koto. According to CHRISTIAN.5

Cartography: Within the high Carolines islands Kusae is in its cartography the most backward.6 The reason for this is once the irrelevant role it held for the Spanish and also the German colonial government and also because already the first expedition under DUPERREY delivered for its time an excellent and extensive survey of the island and its harbors. (Plate 1,1). It is relevant to this very day, even for the last German admiralty chart (or map) dating from April 11, 1908 Nr. 179 (Tit. XI. Nr. 406) with the exception of the Lölö-Harbor, which was again surveyed in 1890 by the American warship Alliance. Therefore, since 1890 nothing concerning the cartography has been done. Considering these facts it is quite evident that LÜTKE’s survey was not consulted for further information, because his »Hydrographic Atlas« seems to be very rare in Germany, if it even seems to exist there (Plate 1, 2). A more detailed survey can probably be expected not too far in the future from the Office of Survey in Ponape.

The Hamburger Expedition made a map of the »Ruins of Lölö« and also considering the first one a survey of the coastal area of entire Lölö. Further on the geographic nomenclature was changed to the native names.

Location and size: Just like by the Pelau Islands in the west the Carolines are also bordered in the east by a high island. Even though it is the smallest among the five high islands of the archipelago, Kusae, concerning its outer appearance is definitely a more striking corner stone than the Pelau islands.

Its location is 5° 15’ 40” to 15° 23’ 15” northern latitude and 162° 57’ 30” to 163° 5’ 50 “ eastern longitude. The biggest extent from north to south is not more than 13,7 km (not counting the reef approximately 13 km.), from East to west 15,5 km (not counting the reef 14,6 km), its size is about 110 qkm.

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2 LÜTKE 1835/36, II, p. 47.
3 KUBARY, p. 297.
4 GIRSCHNER in Baessler-Archive II, p. 183.
5 CHRISTIAN, p. 156.
6 Compare SEDEL in Globus, vol. 85 (1904), pp. 11.
1. Map of Kusae according to Duperrey.

2. Map of Kusae according to Lütke.

Publishing house: Friederichsen & Co., Hamburg

Printing by Knackstedt & Co. Hamburg
The horizontal structure of Kusae sticks out just like Pohnpei due to its compact mass with only a minimal coastal development. The entire existing landmass is closely hugged by a common reef, which looks like an irregular hexagon. The mass of the main island Ualang powers over everything so that the other existing islands recede in comparison.

Islands: The individual islands are the following:
1. Ualang, the main island.
2. Lölö, the most important secondary island.

Next to both these high islands there are some coral islands on the reef:
1. Jenuen (Yenei-Island) close to the north of Lölö; owned by the mission.
2. Jenas (Yenei-Island) also close to the north of Lölö.
3. Pisin, an islet immediately next to western end of Lölö, it is connected with it by a path which had been built by the mission, which also owns it.
4. A small island before the eastern end of Lölö.
5. Matanial (observation island). It is close to Wukat Harbor. Once DUPERREY and LÜTKE had their observatory here.
7. Sikämäs (Hesi-Island) in front of the western coast, a bit south of the Mission.
8. Jikomä approximately in the middle of the southern coast.

To these eight coral islands some land formation of the same source should be added that is situated on the very edge of the reef, of which we are going to talk now.

The reef of Kusae has its special characteristics. To a much higher degree than at the other high Carolines and in nearly its entire extent, it is a shore reef. The width varies though. Nevertheless, it is strikingly small. During low tide, it lies nearly dry, with the exception of the stretch in front of the southern coast from the Utua-Harbor westward to Cape Nefalil and in front of the southwestern coast. Only in the just mentioned parts and if the reef does have a special width there is also a deeper channel (plate 2,1). It receives a special characteristic by the formation of a small strip of land, which quite contrary to the before mentioned coral islands are located next to the edge of the reef and also accompany it for quite some distance (plate 2,2). Only along the western and northern coast they are strikingly absent. In the rest they are so tightly closed that here the reef seems to be more or less surrounded by a belt of land, which is only interrupted at the harbors. Already its pushed forward location characterizes it as a young formation. Around the southern half of Ualang it is overgrown by dense and high vegetation, as already during DUPERREY’s and LÜTKE’S time. From the Lejeune point on the east coast of Ualang to the north it only consists of sand banks. This entire stretch is also quite young and does not yet exist on those maps, which go back to DUPERREY.
According to the testimony of Captain MELANDER and the natives, it has only and mostly been built by the typhoons of 1891 and 1905. Even though LÜTKE also indicated quite a stretch on his chart. But also in its older part the ring has been growing in the last 90 years since DUPRÉRY and LÜTKE. At least it now is much more closed as has been indicated in DUPRÉRY’s map, on the other hand there is a wide island in-between the Garnot point and the Utua-Harbor, which is only separated by a small mangrove channel from the mainland. In contracts to the old maps there is also today only a channel as small as a canoe in the mangrove woods in-between Cape Nefalil and Cape Pä (compare plate 1 with the map of Kusae at the end of this volume).

This ring of land is noticeable in many aspects. At first it sheds a clear light in the development of the flat promontory of Ualang, which we will discuss later on. Further on, considering the smallness of the reef it causes a striking change of the normal picture of the lagoon of a high island. The reef becomes in the extension of the ring of land a natural channel that makes you completely forget that you are standing on a reef, at least there where its shores are covered with vegetation. Thus, this adds to a great degree to the beauty of the landscape of Kusae. Already KITTLITZ was impressed by the natural beauty of this channel and gave us knowledge of it in writing and by pictures. FINSCH also enjoyed it with FRANZ HERNHEIM during a circumnavigation of Ualang. Cool shadows and a wonderful peace lingers in the trees and bushes of its shores as well as on the water, the mirror like surface of which is only interrupted by the paddle or pole of the native. Now and then the pictures of different tropical vegetation are broken up by small settlements under tall coconut palms or by a sheer face of mountain rock at a bend of the channel that looks down upon him like a majesty. In this way the circumnavigation, about 10—12 hours, depending on the tides, of the main island becomes a wonderful excursion due this channel. Its practical importance is that it is the main means of traffic on Kusae, as we will see (plate 2, 2, 3).

The surf is quite strong on the reef, especially on the east and the southern coast, therefore it can be seen well from a ship. Not only the ring of land on the edge of the reef is proof of its force but also the sea of many big coral blocks that have been tumbled around by the sea, like the one that juts out like a tongue from Utua-Harbor and divides it unfortunately into two basins, and the other one which is located on the eastern shore. (plate 3).

Harbors: The reef and the land ring respectively are interrupted at several places by entrances to harbors. They are the following:

1. Lölö-Harbor (Chabrol-Harbor), between the main island and Lölö, it is the best due to its width, depth, its spaciousness and good anchorage. In 1890
1. The reef on the western coast of Ualang at low tide, seen from the Mission Station (Mot) to the north.

2. The reef on the eastern coast of Ualang (Jesing), protected from the surf by sand banks.

3. In the channel of the lagoon of Tāf (Ualang)
1. The surf on the coast of Täf (Ualang)

2. Rocky coast of Täf (Ualang)
It had been newly surveyed by the American warship Aliance, as has been mentioned before. It offers conveniently space for »Herumschwojen« for smaller ships and also medium ones. For such ships it can also be considered, but the modern big ships come to the limit of its usefulness. Unfortunately, it is cut off by a reef in its interior, on the southern side in front of Ualang. The chart of the admiralty calls it a middle reef. As has been established by S. M. S. »Falke« in 1898, this reef is located further south than indicated by the map, which makes the entrance into the harbor much easier. Further, this reef is not as independent it seems according to the map. It is a more or less continuing branch of the general reef and continues all along the southern side of the harbor. When the winds are not favorable this can be especially dangerous for sailing ships and has been so in the past. In 1883 the Boston Mission lost their »Morning Star Nr. III« in Lölö-Harbor, just as its predecessor had failed on the reef of Kusae in 1869. Another evil for sailing ships is the north eastern trade wind that blows against the entrance of the harbor over the year. This allows a comfortable arrival but makes leaving a dangerous adventure. DUPERREY and LÜTKE had already realized this disadvantage and they moved to Wukat-Harbor, which is protected from the eastern wind, to avoid. According to BOLDREWGOOD, in 1836 a whaler was stuck in Lölö-Harbor for 120 days, just like in a mousetrap, and on its 5th try to leave, it run on the reef. Afterwards the whalers, too, avoided it if possible and preferred Wukat-Harbor, but most of all the one at Utua.

2. Wukat-Harbor (La Coquille-Harbor) on the west coast. It is not really feasible for the modern ship industry, even though its anchorage with a mixture of black silt and small pieces of coral is very good, because of the different coral boulders, which divide the not too small, actual harbor in different sections.

In the south of Wukat harbor, on the western coast there are two more small insignificant basins (plate 2, 1):

3. The harbor of Jöla (Bérard-Harbor),

4. The harbor of Mot, this one only has one wide passage for boats.

In DUPERREY’s chart there is also one more in-between these two harbors, but this is not correct. This is a depth in the reef that the natives call the depth of Jap.

5. In former times the whalers met in the Utua-Harbor (Lottin-Harbor) on the southern coast, because of its protection against the NO trade winds. It is rather restricted, because of the rock sea, which juts out from the innermost corner and also dangerous because of the sudden southern winds. Unfortunately, a coral bank separates it from the deep and wide reef channel in the west of it (plate 4,2).

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* [No translation was found for this word; comment CCHPH.]
1 A. H. 1899, p. 148.
2 DUPERREY 1828, II, 1, p. (633).
3 BOLDREWGOOD, p. 133.
6. The natives also distinguish a 6. small harbor from Jötam, right next to Utua-Harbor.

1. Ualang.

Despite the mountainous nature of the island the coast of Ualang is a flatland coast. The mountains reach all the way to the beach with their foothills in only five places: in Matannenea, in the north east of Lölö (Mountain Schowoanöta), at Cape Feneota (northern coast), at the channel of Pöetak (north west coast), in Mot (west coast), and on the channel Koplö-Utua (south east coast). The flatland coast consists either of Mangrove woods or sandy beaches. Regarding the distribution of both these kind of shores the contrast between the east and north coast on one hand and the west and south coast on the other is quite apparent. The first ones have only sandy beaches. At the western side of Lölö-Harbor, because of the mouth of the Innem-River, it becomes a mangrove shore, while the south side of the harbor consists of sandy beaches. On the southern coast, all the way from Uatua-Harbor, there are mangrove shores. They also dominate the western coast, with few exceptions. The land ring of the reef has a natural sandy beach on the outer side, although there are often mangrove shores on the lagoon side.

Especially during low tide, with the shallowness of the reef, the last ones often hinder a canoe and more so a European boat from safely reaching dry land on Ualang without wet feet. The laments about this by the first two great expeditions are not surprising, as they were anchored in front of the mangrove rich western coast.

Vertical structure. Of both mountainous islands, the main island Ualang, which forms the basis of Kusae, completely dominates the outer picture. This is based on its size and its expressive mountain nature. Quite suddenly it rises out of the sea and, despite all its compactness in close quarters, it has a rich vertical structuring. One west- eastern valley cuts in deeply; the ends of which are Lölö and Wukat. The Lölö-Wukat hollow separates the island into two externally independent massifs, the smaller massif of Matante (Buache-Mountains) in the north and the bigger southern massif. Thus, from a great distance Ualang looks like two independent islands (plate 4,1). Both massifs are quite high and their mountain slopes are steep, too, though, there is quite a difference in their structure. The Matante massif (582 m) is more of a unified steep mountain block, with a horizontal ridge-like back and a few low and short foothills. Especially when shadows are on its slopes it looks threateningly and darkly down on Lölö-Harbor (illustr.1). On the other hand, the southern massif has a very much jagged skyline. It is more dissolved in a chain of mountaintops that rise steeply in the form of sheer ridges, cones and needles. It looks the most beautiful from Lölö-Harbor, where you have nearly all the high mountains in front of you. In the middle there is the
1. Kusae, seen from the east.

2. Fenkol, seen from Utua-Harbor (Melak).
Illust. 1. Panorama of Ualang - seen from Löl-Harbor.
block of the Fenkol (Crozer Mountain) with a straight horizontal ridge, the highest mountain of Kusae (625 m). On the left hand side is the Tafojat and on the right hand side the Tofol, Innem. On Wukat-Harbor is the double mountaintop of Sono (illustr. 1). Despite the ruggedness of the massif, this mountain chain is not such a loose one, as the total view of KITTLITZ and the chart and profile of DUPERREY seem to indicate. Only the above-mentioned mountains to the east of Fenkol present themselves in distinct isolation. But, in this case, too, the character of the mountain chain is unmistakable. The Fenkol, which can bee seen in its splendid isolation from Utua-Harbor, is the crucial point of the small mountain system (plate 4,2). From here this mountain chain stretches to west and the east. It also accompanies the west coast while it seems that, in the east, a second chain branches off to SE with the Tafonkol Mountain, and finally, the ground wave of the Lölö-Wukat hollow constitutes an invisible third connection with the northern massif.¹

These high and short chains give Ualong an unapproachable character, which is still emphasized by the thick and all encompassing vegetation and by the lack of a rather comfortable formation of valleys. The only one is the hollow from Lölö to Wukat, which seems to be more of a low lying area, according to its creation. Nevertheless, there are many rivers and brooks. Most of them run rather straight down or have cut deep ravines. Therefore, it is not at all surprising that the interior of the islands is rather impassable and that very few of the natives ever went to the top of the mountains of their home island. Only the beds of the mountainous brooks offer a walkable path, and sometimes you have to wade through water breast high.

The shoreland. Among other things it was the charming character of Ualong’s landscape that gave Kusae the proud name of honor »Gem of the Pacific«. If nature had not created a low lying shoreland it would not be an inviting place for settlements. Even though the mountains reach down to the coast at only a few places, the percentage of flat fore shore and mountains remains rather unfavorable. Just like a thin hem it hugs the foot of the main island, its width measures about 1 km at only a few places, mostly it is just a few hundred meters. The difference between the north and the east coast and the west coast and the south coast is this setting of a shoreland. In the deep bays, of the latter part, the vegetation pretends to be dry land, while in reality it consists mostly of mangrove swamps where the sea water level raises and falls according to high and low tide. The land ring on the outer reef of the south coast is only a poor substitute, while the east coast enjoys both advantage of the flat land.

¹ KITTLITZ 1858, II, p. 40; LESSON 1839, II, pp. 462, 479; DUPERREY 1828, II, 1 p. (634).
The shoreland seems to be especially extensive at the ends of the Lölö-Wukat hollow. But the Wukat-Harbor mangrove woods reduce it. It is also quite swampy in the background of Lölö-Harbor due to the far reaching influence of the tides and the many waters of the Innem.

**Geology:** As can be deducted from the jagged skyline of Ualang from afar, its block of mountains consists entirely of basalt, as has been proven by POSTELS, the geologist of the LÜTKE expedition.\(^1\) LESSON was of the opinion that trachyte was also part of the composition.\(^2\) Basalt cannot be easily seen in Ualang, only on some protruding noses and in the deeply cut ravines of the rivers, where its column like structure can be seen, as well. In most places the red colored clay earth, mixed with humus, as a product of weathering lies on top of the porous rock. The color of the rock is black and grey; it is very grainy and contains glistening crystals of pyroxin, olivine and magnetic oxidized iron.\(^*\) The riverbeds and ravines are filled with many small pieces of detritus and also with big, blown out, blocks of rock, which can also be found on the slopes all the way down to the foothills. Such fields of boulders can be found in Koplö, further on in the bed and on the shores of the Fenkol River, east of Utua-Harbor.

Mentioned as a sideline, the entire harbor basin of Lölö, with its ring of the Ualang mountain chain and the small Lölö-Mountain, looks like a big crater.

The location of different small coral islands on the shallow reef could cause the idea of a later lifting of the island. But these are added sand banks. An exception is obviously the island Sükämäs, which consists of compact coral rock. This circumstance, further with the shallowness of the reef, indicate a lifting, although considering the depth of the channel through the lagoon on the south coast, it seems to have been a one sided lifting. More detailed information about the geological structure of the island we want to leave for our future experts.

As can be seen, the atmospheric powers found a good target in Ualang. The weather with its high rainfall allowed a deep going weathering, erosion, and denudation on the easily destructable basalt with its natural columns. The erosion caused ravines and caves. The most beautiful and deepest is the one of the Matante-River, which comes down the northern slope of the Matante and which flows in the region with the same name into the sea. In the last part of the mountain it dug an approximately 30 m deep gorge, with steeply raising walls only 3 m apart in places Here you have to wade uphill, up to the breast in water. At the end of the gorge the brook falls in three cascades vertically down from

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\(^1\) LÜTKE 1835/1836, III, pp. 94—102.  
\(^2\) LESSON 1839, II, p. 464.  
\(*\) [Safert writes, ‘oxiduliertes Eisen’. This seems to be a misprint, as the term oxiduliert does not exit in German; comment CCHPH]
the height. A second waterfall called Jekelä is located in the same landscape Uiä on the north eastern coast. There are several caves. Their ground usually consists of good layers of fine, soft, brown guano, which derives from a small kind of swallow, many of them nesting on the ceiling and walls of the caves. Its harvest could only be beneficial for the agriculture on Kusae. The following are the caves, which are visited most often:

1. Cave of Pötat in the landscape of Uiä, also called lof in kalkäf = »cave of the swallow«. In former times it supposedly reached all the way to Matante where it had an exit, which has now been buried by a collapse. If this is correct then the guano storage must be very extensive, as it can no longer be seen from the collapsed cave entrance.

2. Cave of Matante (lof in M.) It supposedly is the old exit of the former one.

3. Cave of Pötak, region Töpat, called lof in sokosok, after a fairytale like giant lizard, which supposedly had lived here. Its entrance is now also buried.

4. Cave of Läl, called lof in balal = »cave of thunder« as, according to the lore, it was supposedly created by thunder.

5. Cave of jöla (lof in J.)

6. Cave of Likinlöläm (lof in L.), supposedly with a vertical entrance. In former times it was the source of red earth color for the Kusaeans.

7. Cave of Sömöa (lof in S.) supposedly also has red earth color.

The creation of the shoreland. The denudation is even more eye catching than the erosion. It created the jagged form, the sharp ridges, and the steep slopes of the mountains. At least partially thanks to it, Kusae has a small, important, alluvial shoreland, strongly supported by the sea. The percentage of each force is clearly represented by the difference between mangrove and the sandy shore, the different width of the shoreland, and the unequal distribution of the land ring on the reef.

It is interesting to remain a bit with the history of the creation of the shoreland. Because on one side it still takes place, noticeable with our own eyes, and on the other it happens in a relative generous manner. It happens like this: The base for the shoreland is laid by the sea, which easily can create long stretches of sand banks on the shallow reef (plate 2,2). At present it circumvents half of Kusae. Now starts the denudation. It finds the best opportunities possible for this creative event. The reef has been changed into a peaceful channel with these many brooks and is the ideal home for mangroves, which take over from both sides. The many river courses bring down detritus and mud from the steep mountain slopes, which clings nearly visible to the roots of the mangroves in the peace of the lagoon, and which is well distributed due to the tides. Thus, the channel becomes more and more
a mud filled mangrove wood and because of dead plant material and occasional activity of the sea it also becomes firm land. According to the depth and the width of the reef, the strength of the tides and other circumstances this happens faster here and slower there, just as shown by the varying width of the current lagoon channel. Though, in general it happens on a great scale and with a relative important velocity. This suggests itself by the strong filling of the wide waterways on DUPERREY’s and LÜTKE’s charts all the way to the small channels of the present. Until a few generations ago, the natives too had seen these parts much wider while now they have to artificially keep the small channel clear of fallen trees.

There also is other testimony as well. Besides the current lagoon channel there are two side branches, which branch off deep into the foreshore and end there blindly. One ends next to the Garnot fore shore into the lagoon channel of Koplö-Utua and leads northwards, parallel to the coast into the region Jesing. The second is the channel of Likisik, north of Lölö, which branches off as a massive river and blindly ends in the region Finauenpis. It was shown in the old chart of LÜTKE but is missing on all other ones. As is proven by the ground of the cut off fore shore, both channels represent not yet disappeared remains of the old lagoon channel, thus the old borders of dry land. At the time of LÜTKE, the channel of Pikisik was used in order to go from Lölö to the north and further on to the west coast by canoe. Already in those days it ended blindly and canoes had to be towed over an isthmus of about 100 toises width (about 200 m) to the coast.¹ Even today it is used for this at low tide. At high tide though the 1891 and 1905 newly developed lagoon channel is used as a road. That isthmus supposedly became wider in 1891. Next to the evidence of these two blind channels, we also must mention a local tradition. According to it, the blind branch of Koplö-Jesing is the last remains of a channel, which in the old days crossed the shoreland of the long stretch of coast from Koplö to Tenuak, on Lölö-Harbor. People still prefer to make their fields in the old bed of it. Further on accordingly the shoreland on the south western coast, from Likinlölam to Mot was cut through by a channel, which has disappeared.

As has been mentioned above, the sea initiates the growth of land. We nevertheless, have to remark that it also can be active in the further course and can accelerate it. The sand bank at the end of the channel of Pikisik proves this. Another example is the big reef island outside of the channel from Koplö to Utua. Several, and actually up to three sand banks are located here one after another, without ever a channel in-between them.

¹ LÜTKE 1835/36. I, pp. 332.
In general we have to acknowledge that the role of the sea in building the shoreland is influential. In a negative and obvious way the observer can see this where sand banks are missing as on the west coast of Ualang. The consequence is that the shoreland is more or less missing here, and it is only imitated by the mangrove woods in the bays.

Thus, the growth of the shoreland is mostly restricted to the north-, east- and south coast of Ualang. These are the sides, which are mainly exposed to the hits of the waves and are in the general directions of typhoons. On this side Ualang gets secular* land-rings, just like a tree adds its yearly rings. This happens, as we have seen, so fast that even now there are still residues of old lagoon channels, while further outside new water ways have already formed. The shoreland was not only widened after the settlement of the island, but the natives themselves still remember the former stages. As the growth is continuing, it can be expected that the secondary island, Lölö, will become part of the main island, Ualang, so that the current group will be one single island, just like both massifs of Ualang in this way have become more closely connected.

Considering the rapidity of this occurrence, we can ask ourselves why the shoreland is not already much wider. Maybe this is due to the youth of the lifting, which brought the northern semicircle of the reef to its current shallowness and successfully initiated growth of shoreland.

Thus, the much feared occurrence of hurricanes and typhoons proved to be a, in one way, a beneficial power for Kusae. That they on occasion betray their creative power is also proven by the local tradition. The Island Kiol on the west coast was once made smaller by a typhoon. In the same fashion a plot of land, called Jelpong and situated on the southern coast of Lölö-Harbor supposedly disappeared. This is now the name of a reef in this section of the harbor. The plot of land that had disappeared was not an island but a wide piece of shoreland about as wide as the current reef.

**Irrigation:** nearly each of the numerous regions of Ualang has its own brook, which has the same name. Due to their quiet water at the mouth and the presence of mangrove woods there, the courses of the river are often difficult to see, sometimes pretending to be side arms of the lagoon channel. Because of this, Ualang’s charming system of channels seems to be even more of a maze and richer than it actually is. The biggest rivers are the Innem and the Wukat, which both irrigate the Innem-Wukat hollow in different directions, the Utua, the

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* [Secular might be a misspelling for secondary; comment CCHPH.]
Fenkol and the Matante. The first three are also the most important because the three most important harbors of Kusae are in their mouths. The lower parts of the rivers contain brackish water because high tide can easily enter the shoreland. Therefore, it is necessary for the ships to go far upriver in order to fetch water.

2. Lölö.

Of all the secondary islands, Lölö is the only bigger and higher island, and deserves a short and special description. In literature it is often mentioned as Lélé (DUPPEREY and LESSON), Leilei (DUMONT d’URVILLE), Lella (LÜTKE), Lälä (KITTILTZ), Lela (Mission), Lälla (FIN SCH), Löllö (chart of the Admiralty), and Lölö, the writing, which we prefer.

Due to its elongated shape, Lölö closes the harbor with the same name in the direction ESE to WNW against the NE trade winds, though not against the eastern winds. Its reef is one with that of Ualang. The western side of the harbor does not have a reef, and here the deep water of the harbor comes directly to the coast, which is part of its usability. The eastern half of Lölö is taken entirely by the Lölö Mountain of about 60—70 m height (plate 5). In the north and in the south it comes right next to the sea; in other places it only leaves a small hem of coralline origin a few meters wide. On the other side, the entire western part of the island is a flat land bordered in the north by a sandy beach while nearly everywhere else the coast is bordered by artificial beach walls. There is no mangrove beach on this island. The difference in height between the east and the west gives it the appearance of a whale from afar. The native legend accordingly says it developed from such a sea mammal, which once had been bound to a stone on the reef by a woman. Because of its origin the flat western part is of special interest. The possibility to see only alluvial land here prevents the lack of long river courses; thus, it could only be explained as a marine formation. But this also contradicts the facts. On the contrary, everything points to the fact that it is mostly of artificial origin and that it consists of coral gravel deposited by human power on a sand bank hugging the Lölö-Mountain and which was partly under water during floods. All the details about this can be read in the following chapter. The small island Pisin (Dove Island) on the western end of Lölö is also man made. It connects to Lölö with an artificial path built by the mission. A second rather insignificant, vegetated sand island is in front of the eastern end of Lölö.

Lölö is too small for the development of a something like a brook. Anyhow thanks to its mountain it has its own fresh water in several
rivulets, though none of which are in the west, and none sufficient for collecting water for ships. For the people the most important one is a small water course on the northern coast, where the western promontory meets the Lölö-Mountain.

Climate. We have insufficient observations or a series of observations for a more detailed description of the weather of Kusae.

Due to the location and small size, the island has a marked tropical sea climate with an average yearly temperature of about 30ºC, which hardly ever sinks below 25ºC, with minor fluctuations. Therefore, the daily temperature is hardly subject to any change. The difference between midday and midnight will probably not be more than 3ºC.1 At any rate this daily fluctuation only becomes physically noticeable around 4 o’clock in the morning so that one usually grabs a blanket.2 The heat during the day is noticeably unpleasant when there is no wind and especially in the closed off basin shaped harbors.3 According to LESSON, the temperature of the seawater is only about one degree lower than the air, and according to LÜTKE, it never went below 25ºC during the time of his stay.4

All through the year Kusae has the benefit of a calm sea breeze. It nearly always has an easterly wind; during our half year of winter, for seven months, the NE trade winds, and during our half year of summer the monsoon winds from E and ESE. At night winds sweep down from the mountains, sometimes quite suddenly, just like the gust of wind which proved to be quite dangerous for the »Senjäwin« on its first day in Wukat-Harbor.5

Most of the climatic observations deal with rain, because since 1903 there is an observation station, manned by Captain MELANDER on Lölö. Also, the mission in Mot, on the western side of Ualang, recorded observations series from 1895 to 1904. The data revealed that Kusae is the island with the highest amount of rain in the entire chain of Caroline Islands. It has the maximum of the amount of rain, as the amount of rain grows in the chain from west to east. Thus, at the same time it also belongs among the most rainy places in the world. Both of the first expeditions noticed the unusual humidity and the daily, and sometimes all day long, rains.6 From 1906 to 1909 on Lölö, the absolute yearly maximum was not less than 4806.9 mm in 1909.

1 Compare LÜTKE 1835/36, I p. 342; LESSON 1839, II, p. 462.
2 Compare also LESSON loc.cit.
3 Compare also LESSON 1839, II, p. 461.
6 LESSON 1839, II, pp. 461; LÜTKE 1835/36, I, p. 342, 1836, pp. 147; KITTLITZ 1858, II, pp. 16, 17, 27, 54.
1. Lölo, seen from Pisin.

2. The Lölo Mountain with the settlement on its base, seen from Lölo-Harbor.
In Mot from 1895 to 1904 it was 7403 mm in the year 1902. The four year average (1906—1909) for Lölö is 4670 mm and the five year average for Mot is 6472 mm. The average amount of rainy days per year for the five year average in Mot is 279,6 and Lölö will not be far behind. The observation series teaches us that the difference in rain over the year is not very distinct. For Mot it shows that the period from February to October was relatively the driest one, with an average of 66% of the yearly fall. But the individual months fluctuate, so that relative dry months can also be rather rainy and that the climate has to be called wet throughout the year. The most obvious difference between the raininess of Mot and Lölö lies less in the fact that both places are situated in the opposite directions, in the east and the west of the main island, but more based on the location of Lölö, far from the rainy mountain masses of Ualang.¹

LESSON describes the climate of Kusae as unhealthy.² This was already refuted by LÜTKE.³ Wading through the mangrove swamps, which the members of both expeditions were forced to do, certainly cannot be considered as an amenity and might cause some harm,—LESSON caught some rheumatism that plagued him over 10 years—but this probably is just an exception. The water and the air are always warm⁴; KITTLITZ even considered the mud in the mangrove swamp hot⁵ and for LÜTKE’s people the watery life was without any consequences. The health of the currently residing white people and the natives obviously does not suffer from the humidity. The climatic advantages had been one of the reasons why the Mission concentrated their activities from the Marshall and Gilbert Islands to here.

Tides. The appearance of high and low tide does not show anything unusual. In the summertime the night tide and in winter time the day tide are the highest. According to Captain MELANDER, the highest tides occur in March. The highest measured tide was 6 feet 4 inches engl. on September 1909.

Sea Currents. Over the year Kusae is predominantly in the equatorial counter current, but the western current is also not missing, as proven by the failing of the »Morning Star II« of the Boston-Mission in the year 1869, when it drifted back onto the reef after it had left Lölö-Harbor. It is also remarkable that the »Senjäwin« could not anchor from December 4,—8, 1827, due to changing currents and no wind.

⁴ Compare LÜTKE 1836/36, I, pp. 318.
⁵ KITTLITZ 1858, I, p. 366.
It rather soon came near to the desired land, but then again was distanced from it for up to 12 sea miles.¹

Typhoons have hit Kusae several times. In recent times there were two; in addition the tradition of the natives accounts for others. In a chronological order they are the following:

1. From the oldest times the natives recall only one very severe typhoon remembered under the name of the then reigning King »man sisik«. Traditions tells about it: It partly destroyed the island Kiol, further the western end of Lölö and carried away Jelpong, presumably a piece of the shoreland on the southern coast of Lölö-Harbor. Many people died and a severe famine broke out because the cultural plants had been completely destroyed, so that people started fighting over bush food. When this typhoon hit, cannot be said. It was in prehistoric time and must have been before 1800.

2. The next typhoon supposedly happened during the reign of »KING GEORGE«. As the Boston-Mission, which had settled in the last years of his reign, did not report anything about it, it must have been in the time between 1837/38 and 1852. The local tradition calls it »paka los« = »dark typhoon«, as it supposedly was accompanied by complete night. There was only one single flood wave, which according to the source destroyed »everything«.² According to a statement by the old King, who supposedly experienced it when he was a young boy, this is not correct. According to him, it was not a typhoon, but more a natural phenomenon of another kind. He accounts, »Three days long there was heavy fog and for two days it was so dark, that you could hardly see the men next to you. During the day there seemed to be smoke swirls moving in the air from NE to SW, which seemed to emanate from a big star. At night this star even seemed much bigger.«

3. A new typhoon happened on March 3, and 4, 1891.³ Barley half a dozen houses remained standing. The breadfruits and coconut palms were heavily decimated, though no loss of human life was to be lamented. It also did not cause any famine, because the surviving breadfruit trees did well. The creation of sand banks due to this typhoon was already mentioned.

4. On April 1905 in the morning another typhoon, the last one, followed. Its devastating force could be followed all the way to the Philippines. The date of April 20 in the official Marine report is not correct, according to statements by the Mission and Captain MELANDER.⁴ The typhoon supposedly was stronger than the one from 1893 and also correlated with an earthquake. According to the Mission report only one house was left standing, 5 natives found their death, and many were injured.

¹ KITTLITZ 1858, I, p. 352, 356.
² This information is according to a written statement of a dead native.
³ M.H. 1891, p. 371.
Fruit bearing trees and fields were severely damaged and three quarters of the coconut palms alone were destroyed. The breadfruit trees did not bear during the next time of ripeness, and the natives had to take refuge with a variety of wild growing taro. Even at the time of our expedition, there were traces of this typhoon visible.1

**Flora.** Considering the richness of rain it cannot come as a surprise that Kusae is covered all over with a lush dress of plants and probably is the most wooded island of all the Carolines. Lacking any individual knowledge of natural sciences, we fall back on KITTLITZ’ excellent and not yet outdated description, which he left us in his travel oeuvre, especially in his four plates of characteristics in his vegetation atlas.

Despite its wealth of vegetation, just like the rest of the South Seas, Kusae is relatively poor in varieties. LESSON estimates the amount at 100.2 At the same time, in its floristic setting, it takes a midway position in-between Polynesia and Indonesia.

The beach flora is dominated by mangrove varieties, which find excellent living conditions due to numerous mouths of river courses, the shallowness of the reef, and, therefore, the protection of the surf, which cannot be better achieved than by the system of lagoon channels. Rhizophora, Bruigiera and Sonneratia form the grounds of the mangroves, where the individual varieties partly exist in small clusters, and which do not become an impenetrable dense undergrowth because of vines. Most eye catching are the bright stands of Sonnenratia. In comparison to the other two kinds, they do not grow bushy but as tall trees and are surrounded by the like. Under their protection the low and stemless Nipa palm* spreads out. These woods of Sonnenratia also offer the strange peculiarity that the ground around them is covered by countless root-needles, which stick out of the swamp like nails out of a board. As KITTLITZ already suspected they probably stay in connection with the deeper lying main roots of the Sonnenratia.3 Quite another picture is offered by the densely growing Rhizophora, with their scaffolding of stilt roots and their aerial roots hanging down. The Bruigiera appear less linked. Concerning their leaves and the stilt roots they are quite similar to the Rhizophora, but they also distinguish themselves from them by a greater height and other traits. In addition to the mangroves we also want to mention one variety of Heritiera*, nipa palms, and ferns from the swampy beach vegetation.

A few coastal stretches offer a different picture of vegetation where the

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1 D. K. 1905, p. 645. A protocol of the K. Berzirksamt of Ponape concerning this typhoon comes to the conclusion that the island definitely has not been hit by a typhoon for more than half a thousand years, because of the condition of the tree growth.
2 LESSON 1839, II, p. 465.
* [Nypa fruticans; comment CCHPH]
3 KITTLITZ 1858, I, pp. 365.
* [Sarfert writes Balanopteris, which is an old name for Heritiera. In Kosrae this would be Heritiera littoralis; comment CCHPH].
tide pushes the fresh water of the rivers back and creates a swap in the surrounding area. We find thick forest here due to Hibiscus populneus as undergrowth. Wherever it is lacking they are less dense, because numerous small trees then form the undergrowth, especially Barringtonia acutangula* and the taller neighbors rob them of the light. A great amount of ferns live here, especially Asplenium Nidus, further on Freycinetias*. Under the tall trees of these forests the rare, but impressive, many stems banyan trees catch the eye with their aerial roots.

With the dry shoreland, which can no longer be inundated, and with the sandy beach, one enters the mixed forest and the cultural region of the plant world. The individual varieties will be discussed later on. This region is mainly characterized by the coconut palm, the breadfruit tree, and the pandanus. Since KITTLITZ, the floristic picture of big parts of the fore shore have undergone a drastic change. While at that time coconut palms were a conspicuously rare tree they now form big groves everywhere where there is a sandy beach on the coast. Therefore the island no longer appears to be covered with a monotonous green. With the lighter shade of the palm fronds, the coconut woods strongly differ from the deep green of the broad leaved trees, even from afar. In this way there is a contrast, between the coastal areas with the sandy beach and the mangroves, just as between the shoreland and the mountainous interior. I still want to mention the ferns, further on hibiscus with its striking flowers and Dracaena (Dracaena terminalis) with the changing richness of the colors of their hand like leaves among the plants of the shoreland.

The mountain wood is not very much different from the vegetation of the shoreland, the lack of cultural plants aside. The undergrowth (Hibiscus populneus*) strongly increases. The pandanus (P. odoratissimus*) sometimes even forms thickets of a special height, Piper metysticum is common, vines and lianas over weave the trees in a fantastic fashion, ferns take on a character like trees, under the tall trees a Myristica* is taking over space, and on the highest places as a special appearance, a slender mountain palm is growing, the fronds greeting down to the low-lying area. It obviously is identical with the newly discovered Sycophantia Kraemerii palm by KRÄMER in Truk.¹ The highest mountain ridge of the island, the Fenkol, is bare of any vegetation, only a tall grass covers it.

The fauna and its individual species are a bit better known than the flora, because FINSCH expanded the results of the DUPERREY and LÜTKE expeditions.²

The island’s poverty of mammals surprises,

¹ [Barringtonia acutangula is now called Barringtonia racemosa; comment CCHPH].
² [Freycinetias seems to be an old generalized name for pandanus; comment CCHPH].
³ [Hibiscus populneus is now called Hibiscus tileaceus; comment CCHPH].
⁴ [The species for pandanus for this region is no longer considered to be P. odoratissimus but tectorius; comment CCHPH].
⁵ [Myristica is the generic name for mace or nutmeg; comment CCHPH].
¹ Compare KITTLITZ 1858, I, p. 361.
even the dog and the pig are conspicuously absent.\footnote{LESSON, 1839, II, p. 470; KITTLITZ 1858, II, pp. 24.} Because of its only two representatives, the rat and the flying fox, this big species is quite remarkable. Both appear in masses and are a dangerous nuisance for fruit bearing trees and fruits of the fields. With the introduction of European dogs, pigs, and cows the mammal world was made richer in varieties. Pigs and cows do well on the island, the first ones also having gone wild.

FINSCH increased KITTLITZ’ 15 kinds of birds to 22, of which 4 are endemic. The local swallow, which this scientist never saw nesting\footnote{FINSCH, 1880, p. 298.}, does not have its nest in the trees, as we would think, but mostly in caves where they create the guano soil. We also have to mention the many chickens that have gone wild, and that already were on the island at the time of DUPERREY and LÜTKE. They are nothing else than a domesticated chicken gone wild, because nobody thought to domesticate it.\footnote{KITTLITZ, 1858, II, p. 8, 62; LESSON, 1839, II, p. 470.} There are also two kinds of doves. In former times they existed in huge numbers\footnote{KITTLITZ, 1858, II, p. 62; LESSON, 1839, II, p. 472.}, but now, have been very much decimated because of incessant hunting by the Europeans and the natives, once they came into the possession of bird-guns.

Concerning reptiles, FINSCH only found four kinds of lizards. The poverty of insects and butterflies is also remarkable.\footnote{KITTLITZ, 1858, I, p. 378.} Despite the rich flora the last ones are even more common on coral islands. Nowhere are mosquitoes found in a higher frequency. Lölö and the islands of the outer reef have the advantage to be as good as free of these pests. The masses of land crabs also deserve to be mentioned. They uncomfortably undermine the sandy ground and the paths.

Quite contrary to the poverty of the terrestrial animals, there is an abundance of animals of the sea. They evoke the interest of the lay person by their richness and lushness in the colors of many fishes, the great varieties, and the gastronomical consumption of certain fishes, which only find their way on the »table« of the Europeans via the good friendship with the natives.
III.

1. The Settlements of Ualang.

The cultural ground and the situation of settlement. Kusae’s small size is counterproductive to extensive use of its soil. In addition, the special mountainous character reduces the amount of useful ground to a mere fraction.

In this respect, the interior mountainous part of the main island is useless. Only the soft external sides sloping to the ocean can be considered for agriculture. Because of the distance to the sea they do not hold any attraction for settlements. According to statements of the natives, there have never been settlements in the interior of the island.

According to LESSON and DUPERREY, formerly, there were settlements in the economically advantageous Lõlõ-Wukat hollow. In former times, it was in general densely settled.¹

Another zone of relatively useless soil are the coral islets and the land ring on the outer edge of the reef. The sandy soil does not support cultural plants, except for the coconut palm. These areas were not considered because this plant was not held in a high esteem in the old Kusae. With the modern significance of this fruit bearing tree they gained economic importance. But, they did not become any more enticing for settlement, due to their lack of fresh water, as well. Only on the older land ring in front of the Southern coast of Ualang can some occasional settlement be found. Among these, Melak, on the eastern shore of Utua-Harbor, is the most important. Its existence dates back only recently. It started after the main settlement of Utua perished behind the mangrove coast, opposite. The reason for the change of settlement was that Melak was free of mosquitoes. Probably, the same is partly true for the beginning of the occasional reef settlements on this coast in the old times.

Ualang’s main focus for its economy and geography of settlement is naturally in the low lying shoreland. Because of its layer of humus, found in great quantity in areas with sandy beaches, and because of its abundance of

¹ LESSON 1839, II, p. 479; DUPERREY 1828, II, 1, p. (634). KITTLITZ does not mention any settlement in the interior of the hollow: 1858, II, pp. 34.
fresh water, it is the cultural region of the island. The fields are along the beach and in the shadow of the trees on one side. The settlement of the natives is close to the sea and the mouth of the many rivers on the other side.¹

**Artificial beach fortifications.** Those areas with a mangrove coast are quite disadvantaged in some respects. On one hand, they are lacking flat shoreland and on the other hand, the settlements have to be established behind the mangroves, so that they forfeit a location on the open reef. Therefore, it is not surprising that KITTLITZ did not notice any trace of human settlement in Wukat-Harbor, because of the height of the Sonneratia.² The relatively difficult access from the sea is an especial hindrance in this location. You have to wade long distances through the mangrove mud at low tide, and the shores get swampy, so that even at high tide you cannot land comfortably in a canoe. In the old days, the natives must have felt this as oppressive, because they took some action to improve the situation by building beach walls from big blocks of basalt and by erecting special landing places. KITTLITZ is obviously already describing such a beach wall in the village Läl, close to Wukat-Harbor. A picture of it is also in LÜTKE’s historical atlas (plate 6,1). KITTLITZ says: »The foot of the hill was close to the sea, bordered by relatively strong garden walls, made of rough basalt blocks, the top wildly overgrown by lush growing ferns in many gracious and different forms. In the middle of the prospect, an entrance was visible in-between these walls, a landing place at high tide.«³ The remains of the wall can still be seen today. I recorded shore walls made of basalt on several occasions on Ualang. For instance, they are on the side of the mainland for quite a long distance on the channel from Koplō to Utua and in the riverbed of the Fenkol. DUMONT d’URVILLE observed similar walls in the Innem-River. He reports about them: »…… nous nous trouvâmes sur les bords d’un ruisseau, don’t le lit était contenu sur les deux bords par deux muraill es en pierres sèches assez bien établies.«⁴ Against the same evil, I observed old dilapidated landing places in form of rectangles, made of basalt, in front of the settlement Motonsak in Fenkol, and quite close to the today’s settlement of Täf. At the first location, half the basalt blocks are submerged in the mud (plate 7, 1,3). If one would systematically search the mangroves areas, one would find more of such structures. They are especially interesting because we see here for the first time, the art of stone construction of the old Kusae people. The modern natives know nothing about the time of their construction and the old builders. Further on, the mangrove areas are devoid of any settlement today.

¹ Compare KITTLITZ 1858, II, p.9.
² KITTLITZ 1858, I, p. 362. [Sonneratia alba, a mangrove kind; comment CCHPH].
³ KITTLITZ 1858, I, pp. 368
⁴ DUMONT d’URVILLE 1835, p. 458; (RIENZI II, 141). [….we found ourselves on the shores of a stream of considerable size , contained on each side by two walls made of well established mortarless rock. R. + R. 1982, p. 28.]
Traffic. Besides the economic life, the location of the settlements of Ualang also reflects next to also the close dependency of the natural paths of traffic. Even in the old days Kusae had next to no artificial overland paths. Its distinctive mountainous nature points towards the coastal area for the traffic of the natives. There had only been one detectable overland path. In about 2½ hours, it leads from Wukat-Harbor first through the swampy flatland of the Wukat-River, onto a small, visibly well trodden hollow in the basalt, crossing a sudden low but steep mountain ridge «through rocky lanes and the beds of rivulets,» then in the bed and valley of the Innem-River down to Lölö-Harbor. It was hard walking for Europeans. The following circumstances prove that it was a much trodden connection between the west coast of Ualang and the east coast and Lölö. DUPERREY, DUMONT d’URVILLE, LESSON and KITTLITZ have all walked on it and, therefore, it has been inscribed into the maps. It was still in use at the time when the Mission settled.¹ But, already in 1881, just as in present times, it was no longer used.² The swampland at the lower river course of the Innem- and Wukat-River and the many vegetation obstacles on it made its use more difficult. One other overland path, from Utua-Harbor via Mount Fenkol to the inner Lölö-Harbor, had no importance for traffic, because it was only used for ceremonial purposes. And, for each occasion, had to be cut anew. Due to the deterioration of the old culture, the decline of the population, and the denudation of the mangrove rich western coast of its settlements, both these land connections have fallen in disuse. Thus, currently the river courses are more or less the only paths into the mountainous interior. This also explains the curious fact that, despite the smallness of Ualang, the mountainous inland is, in general, even unknown to the natives. Only the hunters following the tracks of wild pigs come to know it more closely. Others are forced further into the interior only when fruit bearing plants have been destroyed by typhoons and they have to look for wild growing fruits. In the old time, it was not much different. The rivers were the only access into the mountains and the interior of the island was unvisited wood even then.³

Today, the entire traffic concentrates along the coast, just like the main traffic in former times. As people no longer venture onto the open ocean, there are only two possibilities. First, there is the way overland through the extremely difficult beach vegetation. An artificial footpath through the external beach vegetation exists today because, following the order of the German government, the natives created it. This modern path has the disadvantage that it has been strongly undermined and destroyed by the masses of crabs. It is extremely uncomfortable at night and the sandy beach is a much better choice. The mangrove coasts

¹ GULICK in N. M. 1862, p. 244.
² A. H. 1882, p. 156.
³ LESSON 1839, II, p. 474; KITTLITZ 1858, II, p. 9.
1. Entrance to the village Läl (Ualang) 1827/28  According to Lütke

2. Modern path on Lölö and bordering walls of the royal compound.

1. Remains of an old landing place made of basalt blocks in Fenkol (Ualang).

2. Landing place of the royal compound in Lolo 1896.

According to Christian.

3. Remains of an old landing place made of basalt blocks in Täf (Ualang).
have been robbed of such a traffic opportunity. Although they were less been a hindrance for traffic than today. If you could not follow the edge of firm ground, you simply waded at low tide through the swamp of the mangroves. In this way, regular paths over the reef were fashioned which were well known to the natives, but difficult for the Europeans to find because of little visibility in the water.\(^1\) Now that people are fully dressed, they longer cherish such paths. If the mangrove area does not hold any present attraction for settlement, then this and the other disadvantages of the mangrove areas have to be considered. None of the natives would even think to circumnavigate Ualang on foot because, wherever the sandy beach ended, the second means of transport, the lagoon channel, was much more comfortable. This road has always been the main traffic artery of the entire island. Unfortunately, its usability is rather restricted, because many parts lay dry at low tide. Thus, it stands in an interrelationship to the beach path. Whenever permissible, the land path is used at low tide, but, for transporting cargo, there is only the water way.

Thus, the traffic circumstances of the islands are not the best. The north and the east coast of Ualang have sandy beaches, but no waterway during low tide. The south coast has the disadvantage of the mangrove shores, but, here, the waterway can always be used. The west coast has the worst situation with too many mangroves along the shore and a dry reef during low tide. This is the reason the overland connection in the Innem-Wukat hollow was developed and used so much in old times.

The special meaning of the waterway for Ualang means that the natives work against its constrictions by nature. Such a regulation of the channel was attempted after the typhoons of 1891 and 1905 at two spots of the nearly completely buried reef by removing the gravel over a distance of more than 100 m and by securing the channel with vertical coral plates placed at its edge against the sand. In a similar fashion they took care of the narrow sections of the waterway, some as small as a canoe, when they were blocked by fallen trees. The already mentioned shore walls on the mangrove coasts, in the lagoon channels, and the rivers served the same purpose in the old days.

There are three reasons for choosing the shore as the present location for settlements: Closeness to the sea and the cultural ground, which are the main sources of food and its meaning as a double traffic artery. Of course, the lagoon side of the land ring and the shores of the side arms of the lagoon channel have a very similar significance.

\(^1\) KITTLITZ 1858, I, p. 360, 365; LÜTKE 1835/36, I, p. 318.
**Regions and villages of Ualang.** Further on, the shoreland and the coastal area find their expression in the economic-political division of Ualang in individual landscapes as the main factors of settlement. The islands falls into a series of landscapes or fäl, extending schematically speaking, radially from the coast to the interior. Thus, all fäl have a share of the coast, of the shoreland and of the mountains of the interior. Not a single one is restricted only to the interior. The existing land creations of the reef are also part of the respective landscapes. During the repeated circumnavigations of Ualang, 57 of such fäl were counted. Usually, their borders are natural landmarks, especially rivers and ledges. We did not notice any artificial border markings. The size of the fäl can differ quite a lot, some comprise entire mountains of the interior, like Fenkol and Matante, the biggest part of the mountains with the same name. The economic value of the fäl depends, of course, on the size the respective shoreland. In this respect, the landscapes on the longer rivers, such as along the Wukat and Innem and along the Utua and the Matante, have an advantage. This also explains why the fäl Utua, Wukat, and Matante supposedly played an important political role in old Kusae.

Formerly, there were just as many villages as there were fäl.\(^1\) In present times, though, many fäl no longer have their own settlement. On the other hand, others have several settlements, which might have also been the case in former times.\(^2\) Therefore, it is not surprising when the number of settlements on Ualang is excessively large in comparison to the population. Currently, there are about 44. As a result of this, an average settlement is quite small and often consists of only a living house and some secondary houses. One reason for this disseminated settlement pattern is the strong emphasis of agriculture in the economic life. Another reason is also the strange ring-like structure of the cultural land. Nevertheless, in ancient times, settlements with a village-like character were not foreign to Ualang. According to the statements of the natives, they supposedly were quite numerous in Utua, Wukat, and Matante, among others, just like the density of the population must have been higher in former times due to the formerly higher population. In general, the old settlement practice was not much different from the modern. LÜTKE left us a list of villages with the number of adults from his time. Accordingly, the maximum amount of adults of a village at the time was not more than 35 and many did not even have 10.\(^3\) According to LESSON, Ualang had villages consisting of only 3—4 huts or some separately standing abodes.\(^4\)

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1. According to CHRISTIAN, remark p. 160 village = tili; strangely enough KRÅMER as well as me only noted the word fäl for landscape as well as for village.
2. LÜTKE 1835/36, I, pp. 344.
Thus, this is the image that has prevailed until today. Nevertheless, currently there are some settlements, which can be called by the presumptuous name, village. These are the villages, Mäläm, Melak, Tafonsak, and Matante. Of all of these, Mäläm is the biggest one. When such villages could be formed despite the reduced amount of population in the modern times, this is an indication of some concentration of power, formerly absent. Changed social circumstances caused this especially, brought about by the Christian religion in the above-mentioned villages, all having their own church and schooling for the children in the native schools. These tasks seem to be important enough for the natives to give up their preference for decentralization. This is also the main reason that many fäl no longer have any settlements today. The respective inhabitants settled in the nearest church or school village. As a result, the old people one finds in some of these settlements have a different opinions than the younger generation. Therefore, some of the still existing 44 settlements cannot be considered permanent settlements but have to be regarded as ephemeral ones.

The following list of regions and their settlements is based on my own knowledge and on the statements of the natives. For comparison, the villages according to LÜTKE, with the amount of adults at his time, as well as the few names from LESSON and KITTLITZ, have been added. Unfortunately, I did not conduct a census in the villages, because the German government just recently had conducted a general counting in 1905. Only the amount of houses was registered. The overview starts on the eastern end of Lölö-Harbor and travels from here around Ualang towards the south. By the way, LÜTKE noted also the name of landscapes on his map, though in many cases rather incorrectly (plate 1).

<table>
<thead>
<tr>
<th>Landscape</th>
<th>Settlement</th>
<th>Amount of houses</th>
<th>Name and amount of people, according to LÜTKE</th>
<th>Name according to LESSON</th>
<th>Name according to KITTLITZ</th>
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<tbody>
<tr>
<td><strong>East Coast:</strong></td>
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<tr>
<td>1. Pok</td>
<td>Pok</td>
<td>7W+3Ko</td>
<td>Peuk</td>
<td>——</td>
<td>——</td>
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<tr>
<td>2. Tenuak</td>
<td>Tenuak</td>
<td>3W+1Ko</td>
<td>Tenoag</td>
<td>8♀+5♂</td>
<td>——</td>
</tr>
<tr>
<td></td>
<td>a) Piljoil</td>
<td>1W+1Ko</td>
<td>Piliul</td>
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<tr>
<td></td>
<td>b) Kitafu</td>
<td>1W+1Ko</td>
<td>Méalem</td>
<td>——</td>
<td>——</td>
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<tr>
<td>3. Mäläm</td>
<td>ca. 25 W+Ko+3 Ka</td>
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</table>

1 LÜTKE 1835.36, I, pp. 343; LESSON 1839, II, pp. 493; KITTLITZ 1858, I, p.359, 367; II pp. 8, 9, 44, 48, 56, 61.
2 W = Dwelling house, Ko = cooking house, Ka = canoe house
3 LÜTKE does not mention any amount of people for Peuk.
* [W = dwelling house, Ko = cooking house, Ka = canoe house; comment CCHPH.]
<table>
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<tr>
<th></th>
<th>Landscape</th>
<th>Settlement</th>
<th>Amount of houses</th>
<th>Name and amount of people, according to LÜTKE</th>
<th>Name according to LESSON</th>
<th>Name according to KITTLITZ</th>
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<tr>
<td>5.</td>
<td>Jesing</td>
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<td>1 W + 1 Ko</td>
<td>Yeseng 6 ᵃ + 4 ᵃ</td>
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<tr>
<td></td>
<td></td>
<td>c) Fenfuko</td>
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<td></td>
<td></td>
<td>b) Senfoil</td>
<td>2 W + 2 Ko</td>
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<td>c) Lāla</td>
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<td>South Coast:</td>
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<td>7.</td>
<td>Fenkol</td>
<td></td>
<td>1 W</td>
<td>Keplé 8 ᵃ + 6 ᵃ</td>
<td>——</td>
<td>Kepple</td>
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<td></td>
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<td>c) Matanfanæng</td>
<td>1 W + 1 Ko</td>
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<td></td>
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<td>b) Fimputa</td>
<td>2 W + 2 Ko</td>
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<td></td>
<td></td>
<td>c) Fintekaia</td>
<td>1 W + 1 Ko</td>
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<td></td>
<td></td>
<td>Motonsak</td>
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<tr>
<td>8.</td>
<td>Tāf</td>
<td></td>
<td>3 W + 1 Ko + 1 Ka</td>
<td>13 ᵃ + 7 ᵃ</td>
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<td></td>
<td></td>
<td>Tāf</td>
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<td>9.</td>
<td>Jämual</td>
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<td>——</td>
<td>Yeoungal 5 ᵃ + 4 ᵃ</td>
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<td>10.</td>
<td>Menkä</td>
<td></td>
<td>——</td>
<td>Meenké 7 ᵃ + 5 ᵃ</td>
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<td>11.</td>
<td>Juson</td>
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<td>12.</td>
<td>Tafout</td>
<td></td>
<td>——</td>
<td>Tamout 5 ᵃ + 4 ᵃ</td>
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<tr>
<td>13.</td>
<td>Utua</td>
<td></td>
<td>5 W + 4 Ko + 1 Church</td>
<td>Outouai 10 ᵃ + 7 ᵃ</td>
<td>Outi (?)</td>
<td>——</td>
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<td></td>
<td></td>
<td>Melak</td>
<td>(on the land ring)</td>
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<td>14.</td>
<td>Sipien</td>
<td></td>
<td>——</td>
<td>Sulmoyen (?) 6 ᵃ + 5 ᵃ</td>
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<td>15.</td>
<td>Senkosa</td>
<td>a) Jikomä (island)</td>
<td>1 W + 1 Ko + 1 Ka</td>
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<td></td>
<td></td>
<td>b) Inkosa (land ring)</td>
<td>1 Copra house</td>
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<td>16.</td>
<td>Nefalil</td>
<td>a) Jütlap (land ring)</td>
<td>1 W + 1 Ko</td>
<td>Nevosalil 7 ᵃ + 6 ᵃ</td>
<td>Nessali</td>
<td>——</td>
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<td></td>
<td></td>
<td>b) Nefalil</td>
<td>1 W + 1 Ko + 1 Ka</td>
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<tr>
<td>17.</td>
<td>Sölmöö</td>
<td>Sölmöö</td>
<td>1 W</td>
<td>——</td>
<td>Selmoa</td>
<td>——</td>
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<td>18.</td>
<td>Isā</td>
<td>a) Finepa (land ring)</td>
<td>1 W</td>
<td>Icha</td>
<td>Issa</td>
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<td></td>
<td></td>
<td>b) Isā</td>
<td>1 W + 1 Ko</td>
<td>Tahoëne 5 ᵃ + 3 ᵃ</td>
<td>Tatoua?</td>
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<tr>
<td>19.</td>
<td>Tafowuon</td>
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### III. Settlements and Statistics of Population

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<th>Landscape</th>
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<th>Amount of houses</th>
<th>Name and amount of people, according to LÜTKE</th>
<th>Name according to LESSON</th>
<th>Name according to KITTLITZ</th>
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<td>20.</td>
<td>Uä</td>
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<td>21.</td>
<td>Jemelil</td>
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<tr>
<td>(on the land ring)</td>
<td>Inmeläl</td>
<td>7 W</td>
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<td>Likinlöläm</td>
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<td>(on the land ring)</td>
<td>Sak</td>
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<td>23.</td>
<td>Koas</td>
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<tr>
<td>(on the land ring)</td>
<td>Sauksa</td>
<td>1 W + 1 Ko</td>
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<td><strong>West Coast</strong></td>
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<td>24.</td>
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<tr>
<td>a) Safonfok</td>
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<td>b) Insiaf</td>
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<td>+ 1 Copra H</td>
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<td>5 W + 2 Ko</td>
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<td>Mot</td>
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<td>33.</td>
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<td>35.</td>
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<tr>
<td>+1 Church</td>
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1 According to LÜTKE 1835/36, I, pp. 344, it belongs to Wukat.
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<th>Name according to LESSON</th>
<th>Name according to KITTLITZ</th>
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<tr>
<td>39. Matante</td>
<td>Matante</td>
<td>5 W+ 4 Ko</td>
<td>Matanté 18 ♂ + 9 ♀</td>
<td>——</td>
<td>——</td>
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<td>40. Mälsö</td>
<td>Mälsö</td>
<td>1 W+ 1 Ko + 1 Ka</td>
<td>——</td>
<td>Mehvale</td>
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<tr>
<td>41. Uïä</td>
<td>a) Pötat</td>
<td>1 W+ 1 Ko</td>
<td>Ouiä 9 ♂ + 6 ♀</td>
<td>Ouyac</td>
<td>——</td>
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<tr>
<td>41. Uïä</td>
<td>b) Uïä</td>
<td>1 W+ 1 Ko</td>
<td>——</td>
<td>——</td>
<td>——</td>
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<tr>
<td>42. Sialat</td>
<td>Sialat</td>
<td>1 W+ 3 Ko</td>
<td>Siélat 10 ♂ + 7 ♀</td>
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<td>43. Finauenpis</td>
<td>Fenfuko</td>
<td>1 Ko</td>
<td>——</td>
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<td>44. Pikisik</td>
<td>Pikisik</td>
<td>1 W+ 3 Ko</td>
<td>Pghijik 8 ♂ + 7 ♀</td>
<td>Pièsike</td>
<td>——</td>
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<td>45. Pötak</td>
<td>Pötak</td>
<td>1 W+ 1 Ko</td>
<td>Pétak 6 ♂ + 4 ♀</td>
<td>Peter (?)</td>
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<td>46. Löla</td>
<td>Funpukal</td>
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<td>——</td>
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<td>47. Limes</td>
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<td>——</td>
<td>Limaisse 2 ♂ + 3 ♀</td>
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<td>48. Lukaf</td>
<td>——</td>
<td>——</td>
<td>Lougaf 4 ♂ + 3 ♀</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>49. Fomsäng</td>
<td>——</td>
<td>——</td>
<td>Fouornceng 6 ♂ + 3 ♀</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>50. Innem</td>
<td>——</td>
<td>——</td>
<td>Ninnem 9 ♂ + 7 ♀</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>51. Tofol</td>
<td>——</td>
<td>——</td>
<td>Toouol 9 ♂ + 6 ♀</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>52. Sä</td>
<td>——</td>
<td>——</td>
<td>——</td>
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<tr>
<td>53. Suos</td>
<td>——</td>
<td>——</td>
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<td>——</td>
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<tr>
<td>54. Kä</td>
<td>——</td>
<td>——</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>55. Tafojat</td>
<td>——</td>
<td>——</td>
<td>Taoeyat 6 ♂ + 8 ♀</td>
<td>Tauuat</td>
<td>——</td>
</tr>
<tr>
<td>56. Sänsik</td>
<td>a) Sänsik</td>
<td>2 W+ 1 Ko</td>
<td>——</td>
<td>——</td>
<td>Senshik</td>
</tr>
<tr>
<td>56. Sänsik</td>
<td>b) Fenef</td>
<td>1 W+ 1 Ko</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>57. Matanlük</td>
<td>a) Lejut</td>
<td>1 W+ 1 Ko</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
<tr>
<td>57. Matanlük</td>
<td>b) Matanlük</td>
<td>1 W+ 1 Ko</td>
<td>——</td>
<td>——</td>
<td>——</td>
</tr>
</tbody>
</table>

As a result of a comparison there are 15 landscapes missing at LÜTKE. This is no surprise because his list is based on the oral statements of only one native, his friend KAKI. Using this method, our expedition initially also received an incomplete...
III. SETTLEMENTS AND STATISTICS OF POPULATION.

list even though the natives of course know all the landscapes, but, because of the great number of landscapes. Incidentally, LÜTKE already learned about the incompleteness of his list by his own observation. 1 Apart from this fact, his 44 settlements still correlate with 44, including ephemeral settlements. Since that time, the amount of villages has declined. This is even more evident when we look at the amount of settled landscapes. LÜTKE’s 44 places are, at the same time, 44 regions. On the contrary, the current 44 settlements are in only 33 regions. Thus, we might not err assuming a settlement of all 57 regions for that time. 2 Thus, the amount of settlements has shrunk in half since then, as can be expected because of the strong decline of the population. The decline reached its lowest point around 1880, when FINSCH did not see more than 7 settlements in the distance from Lölö via Utua to Wukat-Harbor, with Mäläm the biggest at 15 inhabitants. 3

The regions are also divided in sub-districts or hän with special names. Sometimes an entire landscape is attached to another one. for unknown reasons. 4 The natives call several regions under one name, as well, such as:

Uan for the stretch of coast from Ualang to Lölö-Harbor, from the landscape Suansik to Lukaf.
Jötanlölafor for the same stretch of coast from Sänsik to Matannenea.
Nämonkosa (from nem in kosa = depth of Kusae) for the landscapes on the Lölö-Harbor.
Jenmena (from än muän = a male place) for the western and northern coast from Pikisik to Koas.
Änjen (from än ian = a female place) for the southern and eastern coast from Utua to Matanlük. 5
Köpinorä (from kappa = more behind and öra = ?) for the southern coast from Isä to Likinlöläm.
Infuta for the south eastern coast from Täf to Juson.

2. The Settlements of Lölö.

We have to give Lölö, of all the secondary islands, a special treatment in the geography of settlement. Among all of them there is the only one that does not belong to any of the landscapes of Ualang. It is more or less independent. According to the native perception, it is not a small island (taka = coral island), and

1 LÜTKE 1835/36, I, p. 344.
2 LÜTKE ibid.
3 FINSCH, 1893, pp. [451].
4 LÜTKE 1835/36, I, pp. 344.
5 Both last names shall depict the contrast between the sandy beach and the mangrove shore.
it also is not a fäl like a region. But, it represents a fäl in the sense of a big island, such as Ualang, Pohnpei, etc. are a fäl. Considering its size in comparison with all the other secondary islands, its mountainous character, and its distance being the width of the deep Lölö-Harbor from the main island, this exceptional position is also justified.

**Disadvantages and advantages of Lölö.** Lölö as land for settlements is really in a disadvantage in comparison with the main island especially in one respect: it has only very limited cultural ground. The small mountain range only has suitable land on its smooth slope on the western side. On all other sides it is too steep. You cannot really talk of a shoreland except on the western side. The north and the south coast do not even offer space for a compound and the small strip in front of the eastern slope is mostly of maritime origin and rather limited. The only bigger piece of shoreland is in the west. However, it has the disadvantage of a very thin layer of humus soil, not really suitable for intensive agriculture. Considering this information, Lölö should have repelled the natives from settling instead of attracting them. But this was not the case. Already, in the old days, the small island was the most densely inhabited part of the entire island group. The only big settlement was here, the residence of Kusae. It more or less impressed KITTLITZ as a city.¹ According to LÜTKE, 117 adults lived there, besides the many chiefs and their wives. According to our estimation, this would make a population of at least 250—300 souls.² According to LESSON, the biggest part of the entire population lived here. He estimated it at 500—600 people.³ In 1858/59, Lölö housed 225 of 748 people;⁴ in 1880 it had half the population,⁵ It still is the main settlement of Kusae.

This seems to be surprising from the settlement geography, but not entirely incomprehensible. The small island makes up for the lack of land for settlement and cultural ground. It has its own fresh water. It is more or less free of mosquitoes, which, according to information by the natives, are only occasionally blown over from the main island. Its location is right next to a passage to the open sea with deep water on its southern shore. This does not prevent canoe traffic at low tide, but offers quick access at any time to the sea and to the main island. It has a reef at all sides offering a connection with Ualang at high tide by canoe and at low tide by foot, and also offering economic use for fishing. None of the other areas of Ualang offers such a location and such possibilities of communication, also none of the harbors, not even the landscapes on the Lölö-Harbor.

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¹ KITTLITZ 1858, II p. 45.  
² LÜTKE 1835/36, I. p. 343, 345.  
³ LESSON 1839, II. p. 461, 480, 493.  
⁴ DAMON, p. 42.  
⁵ FINSch 1893, p. [456].
southern side does have a sandy beach but is handicapped by the reef in front of it, its western side has a mangrove shore and its disadvantages. The advantages were used at its fullest at a time when the inhabitants did not stick to land, as they do today. When all these advantages were luring them, they still went to the open sea for fishing and for trips to other islands and they still welcomed other native navigators, just like Lölö and Lölö-Harbor are the communication center of the island for Europeans today.

**Western Lölö’s cultural ground.** As soon as the value of the settlement geography attracted more population, its only real disadvantage must have been felt. Despite all its other advantages, it must have become a constant and dubious crisis, raising the ghost of famine in front of peoples eyes. After a typhoon, the exposed small island could never continue out of its own strength. Supporting this scenario, the local tradition tells us that, in the old days after a big typhoon, the inhabitants were only kept alive from starvation with the support of the of the people from Ualang on the other side of the harbor. This crisis required a solution, if the islands and all its advantages were not to be given up. Obviously, this was achieved twofold. Once, by the artificial expansion of the old island ground, and, on the other hand, by achieving supremacy over the main island. Here, we are only concerned about the first.

Already in the preceding chapter, it was mentioned that west Lölö is mostly artificial ground. Quite a few observations lead to this conclusion:

1. A short walk on land makes it obvious that the ground of this shoreland consists mainly of coral gravel and basalt pieces. Thus, it sometimes even looks like a road surface (plate 8). This is the case especially in the vicinity of the harbor. Further inland, we find humus soil that is substituted by coral and sandy ground towards the north. A part of the stony ground has definitely been formed by the use of Lölö’s collapsed old walls of the ruins and recent demolition. Because of this, we cannot perfectly answer this question.

2. Immediately behind the modern beach path (plate 8,1) along the harbor side, a number of parallel lying rectangular areas in the ground are apparent. Their ground consists of humus soil and stones and they are situated 1—2 m deep under the other island soil. These are the taboo places of the old Lölö settlement. There was no reason to understand or to learn why the level of these places is much lower than the rest of the island. It actually is so deep that it floods during high tide. We can, therefore, assume that we have the level of an older island ground in front of us. Recently, some of these taboo places have been transformed into compounds. In order to do so, these had to be filled with coral pieces and basalt plates up to 2 m high.
I myself had living quarters on one of these taboo places, it had been converted into a
compound by King Aoä Nesu IV.

3. Along the beach of the shoreland artificial walls and walls made of coral pieces
and basalt blocks attract the eye of the visitor. The remains of such a wall, consisting of
big basalt blocks, is especially remarkable close to the western end of the harbor side.
Once upon a time, it was destroyed by the first typhoon, still remembered by the natives.
Its foundation can only partly be seen at low tide, and behind it, there is ground which is
also inundated at high tide, thus, obviously original island ground (plate 9,1).

4. The artificial character of the island becomes more obvious on the western coast,
where actual shore walls made of stacked coral plates border the shoreland.

5. Finally, on the northern coast of the shoreland the fact cannot be denied. It is also
bordered by beach walls, mostly of coral (plate 9,2—4). In front of the walls there is a
sandy beach. The ground level of the island behind the wall is about 1m higher than the
beach strand in front of it. This difference becomes more obvious where the walls
collapsed or where old paths lead to the beach. Seen from the beach, they are actual
cuttings, which only gradually gain the level of the island ground (plate 9, 3,4).

6. I also want to mention here, as a testimony, the extension of the shoreland of
Lölö just recently undertaken by White people. When Captain MELANDER settled on
Lölö in April 1890, he quite naturally chose the harbor side. But, in those days, there had
only been a very flat gravel coast, at the chosen place. Its ground slowly rose to the level
of the taboo places and was regularly flooded at high tide. Therefore, he was forced to
reclaim this plot of land from the sea. With the blocks of a huge basalt wall and the old
beach wall, behind his plot of land, he filled his possession for about 6 English feet and
built a stone beach wall in front of the current landing place of Lölö. Now, a few coconut
palms put shade on a grassy area, which gives the impression of old, grown ground. But,
despite of the massive filling it is half way covered with seawater during rip tide even
today. In a similar fashion, Captain MELANDER won another stretch of the shoreland’s
coast further east from the sea, just as he had changed a big taboo place (pot) by filling it
into cultural land, where now a small coconut plantation is situated.

Like in the case of Captain MELANDER, the mission also had to raise the plot of
land called Langosak on the western end of the shoreland, where the simple and beautiful
church of Lölö is standing.
1. Modern beach path on Lölö.

2. Modern path on Lölö, bordered on both sides by compound walls.
1. Old beach walls made of basalt blocks, with the channel mouth.

2. High beach walls on the northern coast of Lölö.

3. Collapsed beach wall on the north coast of Lölö.

4. Old mouth of a path on the North coast of Lölö.
These last testimonies prove how rather recently big stretches of land existed on the harbor side. Along the shoreland, despite the inundation at high tide, the ground was situated much lower than today. At the same time, it is remarkable how the white people were busy developing and enlarging the island, in much the same fashion as some other human hands before them.

7. The interior of the shoreland is cut from east to west by a channel (mouth plate 9.1). In the course of the artificial framing by the shore walls, made from stacked coral plates, as can be seen in many places, we are reminded that the land behind these beach walls has been filled artificially.

8. Excavations of the expedition, conducted for another reason, also proved the artificial nature of the interior of the island. (More about this, see section: The ruins of Lölö.)

According to these manifold testimonies there is no doubt that the shoreland of western Lölö owns its existence to human enterprise, not only in its shore sections, but also in the interior. The facts are so obvious, that they could not be denied. However, you still could wonder why they have not received great attention. This can be explained by the fact that the visitor of Lölö primarily puts his attention on the »ruins«. Nevertheless, there are several hints in the early literature. It is the irony of fate that, among all the early visitors, the first expedition under DUPERREY recognized this, without any doubt, and also voiced it. After DUPERREY mentioned the Lölö-Mountain, he continues: »……. il reste est très bas, is serait probablement envahi par la mer, si les naturel, qui ont choisis cet localité pour y établir leur principale residence, n’avait pas eu la precotion d’en éléver a quinze ou vingt pieds au-dessus du niveau des eaux, et d’envelop l’île entière d’une ceinture de murailles capable d’offrir une digue insurmountable aux phénomènes periodiques des marées.»¹ LÜTKE considered the channel of Lölö an artificial structure because of its shore walls.² Later, GULICK had the same opinion and added: »The islets themselves are evidently in a considerable degree artificial, composed principally of coral stone, the rubbles perhaps, of the channels themselves!»³ Finally, FINSCHE too, remarks: »According to Captain Wreight, who lived a long time on Lölö, this part of the islands had been filled in artificially, because in only a depth of 7—8 feet, he found the actual ground of coral reef, which goes around Lälla and all of Kuschai.«⁴

The detailed history of the development of the shoreland in its individual stages can easily be reconstructed, because an obvious process, which we can observe in Ualang, played a great part in it. In the course of a typhoon there, just like in the west of

¹ DUPERREY, 1828, II, 1, p. (635). [»……. the rest is very flat, and probably would be invaded by the sea if the natives, who had chosen this locality as their principal residence had not taken the precaution to raise the level of the soil to fifteen to twenty feet [ca five to seven meters] above sea level and to envelop the entire island with a belt of walls, capable of offering an insurmountable dike against the periodic phenomena of the tides. R. + R. 1982, p. 14.]
² LÜTKE 1835/36, I, p. 326. ³ GULICK in N. M. 1862, pp. 242. ⁴ FINSCHE 1893, p. [467].
the mountain, a sandbank was formed on the adjoining reef. For the settlers on Lölö who desperately needed space for settling, it must have seemed a welcome enlargement of their island. However, it cannot have been wide and high enough to offer safe ground for settling on a large scale. High tide covered it entirely or to big parts. Therefore, people started to take the bank into their possession as a welcome plot of new land. By helping mother nature with coral plates and sand, they raised it and slowly enlarged it to all sides, especially towards the west and the south.

When this feat was accomplished remains a mystery. But, it must have happened a log time ago, because the local tradition does not report anything about it. The humus soil and the high vegetation of the shoreland, already in existence already at the time of DUPERREY and of LÜTKE, indicate this.

Now we have to ask, to which people do we attribute this cultural feat. The memory of the natives remains silent about this, too, just as they are unaware of the artificial character of the ground on which they live. But, it seems this has not always been the case. If the remark of the old King, to whom I had indicated this fact, is true then he still could remember conversations of old people. They talked about the artificial creation of west Lölö as starting from his house’s plot of land. But, he had never heard of its creators. Nevertheless, there is this indirect testimony pointing to the artificial character of the ground:

1. According to an account of the King, the small island Pisin was a sand bank in former times. A met-suksuk of Tofol, once a very wealthy and prominent fäl on Lölö-Harbor on Ualang, had extended it. In order to do so, the population of Tofol formed a long human chain and transported coral pieces from hand to hand to the small sand bank. The artificial character of Pisin is still expressed by its polygonal form and by its shore walls. In the same way, as on Pisin, one can see that the other small coral islands had been enlarged by human hands on their beach front.¹

2. In this context, it is not unimportant to point out the channel regulations of the modern Kusaeans (p. 32.)

3. Concerning other stone structures, I want to mention here the artificial landing places on Lölö. These are docks made of coral stones, protruding as rectangles into the sea (plate 18,1). Currently, there are still two of them. At the time of CHRISTIAN (1896), there seem to have been more of them (plate 7,2). But, these piers originally were not a peculiarity of Lölö. They are no longer used on Ualang, but, we already mentioned remains of them, made of big basalt blocks (plate 7,1,3).

We also have to think here of the stone walls of Ualang (p. 30).

Further on, the current inhabitants testify about their art of building with stones, with a few high platforms made of well-stacked basalt blocks as house foundations.

Even today, the compounds on Lölö are generally surrounded by a wall of stacked coral plates (plate 6,2). Parallel to this, we have the giant ruins in the interior of Lölö. They are the most massive testimony of the art of building with stones of the Kusae population. The ancestors have to be regarded as the constructors, as will be discussed later on.

If the people of Kusae and their ancestors, respectively, had enough energy to accomplish these achievements, there is no need for an explanation of the creation of west Lölö by hypothetical people.

4. Finally, I want to point out that, even today, there is an old compound with the name Lukonlölö in the middle of Lölö. Luk (lük, lik) means as much as the outside (likin = outside), thus, the name of the compound »outside of Lölö« can only come from a time when the firm ground of Lölö reached only to here.

The beach walls. With the peaceful conquest of new land, the inhabitants of Lölö had chosen a path leading them to new accomplishments. Even though they had luckily wrenched land for settling from the sea, now, it also had to be protected from the same enemy. We already mentioned that the harbor side of the shoreland had been widely flooded when Captain MELANDER settled, and that this still happens today in the time of a rip tide. The same observation had been made by LESSON, who said: »Le village de Lélé, bâti sur un îlot don’t la mer doit parfois recouvrir toute la partie déclive, est dans une position défavorable ...«* This passing difficulty did not inconvene the Kusaeans, as they wore very little cloth. And in addition they had protected houses from the danger of the sea by building them on raised dry ground.1 However, they were also in danger during storms and typhoons, because people live right in front of the deep water of a big harbor without the protection of a mangrove coast and of a wide reef. In addition, the artificial ground did not have the resistance of a naturally grown one. Obviously, such experiences made the inhabitants build the already mentioned shore walls and beach fortifications. In former times, the beach fortifications circled the entire low-lying shoreland. Currently, they have been demolished or have collapsed on the entire harbor side. The reason is so evident that even the first visitors of Lölö understood it. We already cited DUPERREY. LESSON writes: »Toute la partie declive de Lélé paraît être par les eaux de la mer, et ce pour cela sans

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* [Lölö village, built on a small island, of which the sea sometimes covers a portion, is in an unfavorable position .... Translation by CCHPH]
1 LESSON 1839, II, p. 494; compare with KITLLITZ II, p. 49.
doute, qu’elle est enveloppe entièrement d’une ceinture de murailles.«  
LÜTKE said about it: »Tout le rivage, à l’exception de quelques endroits où les arbres et les rochers touchent à la mer, est entouré d’un mur en Pierre, de cinq pieds de hauteur, pour mettre à l’abri des vagues les maison et les plantations.«  
Typically, especially on the harbor side, these walls were stacked from big basalt blocks. They more or less fulfilled their duty or can be seen in the survival of Lölö through the different typhoons. In the oldest remembered typhoon the place where the church now stands and the harbor walls in the front were the only victims of the flood wave. Also, the typhoons of 1891 and 1905 did not do much harm to the island. At the same time, people took shelter from the clashing waves behind the walls. The free lying plot of MELANDER’s land, on the contrary, was badly devastated, so that he had to construct better shore walls afterwards. I also have to point out that stone structures are not restricted to Lölö. Some of the other small coral islands not only have artificial extensions, but are also surrounded by low beach walls, as was the case 980 years ago.  
A picture, for which we have to be thankful to DUPERREY and D’URVILLE, depicting a village of Ualang, probably Läl, also shows the same protective construction of walls (plate 38,2).

Thus, the soil of Lölö, and its artificial protection, are testimony of a victorious battle, fought by a small industrious indigenous population against the power of the sea, because of settlement geographic deficiencies. It is a Faustian work on a small scale which gains importance because of the stone walls in the interior of the island. To what extent the same reason might have played a part here, will be discussed, together with the questions of their reason and their constructors.

The channel of Lölö. We still have to recall one more artificial construction, the small channel system of Lölö. Traffic circumstances on Lölö are unfavorable in a similar fashion to Ualang. There is no path over the steep slopes of the small mountain. Its eastern and northern foot can only be reached on foot over the beach at low tide. However, the mentioned shoreland offered opportunities for comfortable path connections. In the old Lölö settlement, they were mainly side paths, crossing from south to north. The main road in the east-west direction had been a water path, reaching all the way to the foot of the mountain and having two mouths, one on the reef in the west and the other in Lölö-Harbor, easily navigable at high tide  
(LÜTKE and GULICK already concluded the artificial origin of this channel from the artificial shore walls. The existence of the waterway, only usable at high tide, considerably surprised them,

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1 LESSON 1839, II, p. 481 ["... for the sloping part of Lélé seemed to be covered by sea water and it is for this reason, so doubt, that is entirely surrounded by a belt of walls."]
2 LÜTKE 1835/36, I, p. 325 [The entire shore, with the exception of a few places where trees and rock touch the sea, is surrounded by a stone wall five feet [ca 150 centimeters] high, to shelter the houses and the plantations from the waves, R. + R. 1982, p. 102.]
3 LESSON 1839, 11, p. 494; LÜTKE 1835/36, I, p. 326.
4 DUPERREY 1828, II, p. (635).  
5 LÜTKE 1835/36, I, p. 326.  
6 GULICK in N.M. 1862, p. 242.
as its necessity was not clear from the small shoreland. In order to explain it, we cannot praise the old Lölö inhabitants as ingenious channel constructors. Its creation probably was closely connected with that of the foreshore, When this did not yet exist, the reef lying below obviously reached the foot of the Lölö-mountain coming from the west at high tide. The later, heaped up, sand bank seems to have mainly covered the area in the north of the channel, as can be seen in the sandy soil. During its extension, the options for a waterway all the way to the foot of the mountain seemed to have been kept open by extending the reef on both sides of the shores of the channel to the island. Initially, this also seemed to have been the extension of a small rivulet, coming down on the western flank of the Lölö-Mountain. Keeping this waterway free, does not seem to have been a very creative idea, as there were enough examples in the channel system around Ualang. I also want to mention that LÜTKE already remarked that the construction of the channel followed an old natural hollow.¹

**Districts of Lölö**: Just like on Ualang, there also is a division in geographical districts on Lölö. It is divided into 6 fäl:

1. Jat, the southern part of the western foreshore,
2. Te, its western part,
3. Mitais, its northern coastal area,
4. Infäl, its central area, which has no part of the coast,
5. Safairä, the southern coast of the Lölö-Mountain,
6. Lük, the eastern coast of the Lölö-Mountain.

Of these districts Jat, Lük and Safoirä contain the oldest parts of Lölö, while Te, Mitais, and Infäl claim mostly the western shoreland. The natives only consider Lük and Safoirä a fäl, for the others no general term could be found. This seems to be related to a development of the term »fäl« due to the political circumstances on Kusae, where it received a secondary meaning of a landscape with »small people« as inhabitants. While Jat, Te and Mitais were mostly the residential area of the old Kusae aristocracy, Lük and Safoirä were mostly inhabited by met-sisik = »small people«. The other parts are also fäl in the old sense of the word, as is proven by the name Infäl. The fäl of Lölö also fall into subdivisions or hän.

The settlement of Lölö’s districts at the time of LÜTKE², compared with modern times: Once again using only the number of adults, except the chiefs and their wives, compared with the amount of houses, gives us the following picture:

<table>
<thead>
<tr>
<th></th>
<th>LÜTKE</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>Jat:</td>
<td>11 W + 6 Ko</td>
<td>Yat</td>
</tr>
<tr>
<td>Te:</td>
<td>14 W + 7 Ko</td>
<td>Tai</td>
</tr>
</tbody>
</table>

¹ LÜTKE 1835/36, I, p. 326. ² LÜTKE 1835/36, I, p. 343.
The table also shows the strong change in the settlement that happened on Lölö. The poor eastern coast, accessible only on foot at high tide, has been completely abandoned. The western shoreland, the center, and the north are all now uninhabited. Thus, the settlement of Lölö is now restricted to the coastal area of the harbor. This is the result of abandoning the old ruin town, discussed at another point.


We have quite a lot of data for statistics on the entire population over the course of the years. We mainly owe this to the first missionary, SNOW, who closely watched the number of people during its rapid decline. The data now available on the population at the different times have been put together in this table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of people:</th>
<th>Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1824 (S)</td>
<td>2000</td>
<td>DUPERREY 1828, II, 1, p. (637)</td>
</tr>
<tr>
<td>1824 (S)</td>
<td>1200</td>
<td>LESSON 1839, II, p. 493.</td>
</tr>
<tr>
<td>1824 (S)</td>
<td>2—3000 maximum</td>
<td>DUMONT d’URVILLE 1835, II, p. 461.</td>
</tr>
<tr>
<td>1827/28 (S)</td>
<td>800 adults</td>
<td>LÜTKE 1835/36, I, S 344; KITTLITZ 1859, II, p. 9.</td>
</tr>
<tr>
<td>before 1850 (S)</td>
<td>5000</td>
<td>Mission: M. H. 1897, p. 305; 1899 p. 9.</td>
</tr>
<tr>
<td>1852 (S)</td>
<td>1400—1700</td>
<td>Mission: M. H. 1853, p. 86; 1897 p. 105.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R. H. M. S. 1853, p. 10.</td>
</tr>
<tr>
<td>beginning 1853 (S)</td>
<td>1200</td>
<td>S. M. S. Serpent , N.M. 1854, p. 65.</td>
</tr>
<tr>
<td>June 1855 (C)</td>
<td>1106</td>
<td>Mission: R. B. M. 1856, pp. 190; M. H. 1859, p. 98.</td>
</tr>
<tr>
<td>1856 (C)</td>
<td>975</td>
<td>Mission: M. H. 1857, p. 253.</td>
</tr>
<tr>
<td>1857 (C)</td>
<td>830</td>
<td>Mission: M. H. 1859, p. 98; 1860 p. 37.</td>
</tr>
<tr>
<td>1858/59 (C)</td>
<td>748</td>
<td>Mission: M. H. 1860, p. 37; R. B. M. 1860 p. 135; DAMON, p. 138.</td>
</tr>
<tr>
<td>1868 (S)</td>
<td>500</td>
<td>Mission: M. H. 1868, p. 319.</td>
</tr>
<tr>
<td>1870 (S)</td>
<td>600</td>
<td>Mission: M. H. 1870, p. 199.</td>
</tr>
<tr>
<td>1873 (S)</td>
<td>300</td>
<td>Mission: M. H. 1857, p. 93.</td>
</tr>
</tbody>
</table>

1 (S) = estimation; (C) = census.
### III. SETTLEMENTS AND STATISTICS OF POPULATION.

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount of people:</th>
<th>Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1873 (S)</td>
<td>200</td>
<td>WOOD, p.188.</td>
</tr>
<tr>
<td>1874 (C)</td>
<td>397</td>
<td>Mission: M. H. 1875, p. 136; R. B. M. 1874, p. 65.</td>
</tr>
<tr>
<td>1880 (S)</td>
<td>200</td>
<td>FINSCH 1893, p. [452].</td>
</tr>
<tr>
<td>1880 (S)</td>
<td>400</td>
<td>HERNSHEIM, p. 55.</td>
</tr>
<tr>
<td>1881 (S)</td>
<td>300—400</td>
<td>S. M. Habicht: A. d. H. 1882, p. 156.</td>
</tr>
<tr>
<td>1888 (S)</td>
<td>350</td>
<td>Mission ac. to FINSCH 1893, p. [659].</td>
</tr>
<tr>
<td>1889 (S)</td>
<td>350</td>
<td>“ “ “ “ “</td>
</tr>
<tr>
<td>1890 (S)</td>
<td>80</td>
<td>“ “ “ “ “</td>
</tr>
<tr>
<td>1891 (S)</td>
<td>125</td>
<td>“ “ “ “ “</td>
</tr>
<tr>
<td>1895 (S)</td>
<td>400</td>
<td>CHRISTIAN, p. 168.</td>
</tr>
<tr>
<td>1897 (S)</td>
<td>400</td>
<td>M. H. 1897, p. 305.</td>
</tr>
<tr>
<td>7. 10. 1905 (C)</td>
<td>516</td>
<td>German Government.</td>
</tr>
</tbody>
</table>

First, some remarks concerning the numbers. LESSON’s estimation of 1200 is too low without any doubt. LÜTKE counted all together 710 adults, without chiefs and their wives, according to the statements by his friend KAKI. Considering his method of counting he estimated 800 adults all together. In doing so, LÜTKE’S consideration his is far too small, because he had been given names for only 15 regions, this means 1/4 of the entire amount. Considering the method of counting, the distribution of the population on Ualang in a myriad of regions and villages, and the amount of children, only mentioned in general and mostly as proportionally high, then the estimation of 1500 souls is far too small rather than too high. Maybe DUPERREY’S estimate of 2000 is closer to the truth. The mission’s estimation of 5000 before 1850 is definitely much too high. Further on, the numbers of the Mission from 1880—90 are rather doubtful, showing extraordinary fluctuations, without a reason for it. We content ourselves for the future to estimate the minimal amount of people for the year 1880 at 200, even though it was mentioned that it was sinking further in 1879 the amount of 150 was stated later on.\(^1\)

I also want to mention that SNOW’S counting, the foreign population was not taken into account, as far as this was possible. This also seems the case in 1880. By the way, the actual counting has been emphasized in the list by bold print.

Two things catch the eye in this statistics list. The first is the small amount of Kusae’s population already in the 1820s.

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\(^1\) R. B. M. 1879, p. 85; M. H. 1897, p. 305; 1899 p. 9.

3 Sarfert : Kusae
As small as the group is and as little cultural ground there is, still the amount of 1500—2000 people must be considered small. This fact was also remarked by the first visitors and caused their surprise, so that LESSON made comments about the reason for such a small population.\footnote{LESSON 1839, II, p. 493; KITTLITZ II, p. 9; M. H. 1853, p. 85.} The second is the tremendous decline of the population which hit Kusae from 1850—1880. In 30 years, in about one generation, it is about 1000 souls. The maximum population is in the fifties, as we have safe clues in the counting from 1855 till 1858. In these years, the average yearly decline is not less than 12.3 \% of the entire population. It ebbs down considerably at the next census in 1874, with an average of 3.9\% for the years 1858—74. This still is unproportionally high. For the years 1858—1880 it is even 5.5\%. Since then, instead of the decline, the population is growing again. The average yearly increase is not less than 3.8 \% until 1905. Thus, the movement of the population swings from one extreme into the next in recent time.

**Reasons for the decline.** We want to occupy ourselves with the changes in population in a little more detail, as they strike as rather strange on first sight. If we consider the written sources as an explanation for the decline then we have to state, that no dangerous diseases were reported at the time of the first two expeditions. Even after 1850, the island supposedly was spared from epidemics. Chickenpox\footnote{[Varicella, comment CCHPH.]} which devastated Pohnpei in 1854, was not brought here.\footnote{R. B. M. 1855, p. 119.} Only once, in 1855, we hear about an influenza epidemic, which strikes one village on Ualang.\footnote{M. H. 1855, p. 361.} But, still it always has a high mortality rate, which is cited as the cause for the decline of the population. How did this happen? The Boston Mission concluded the physical break down of the people was caused by the disastrous influence of the white people, most of all by the whalers. They brought »terrible sicknesses, licentiousness, and immoderation.«\footnote{M. H. 1855, p. 360.} Once they talk about »terrible scenes of vice« caused by American ships.\footnote{M. H. 1855, p. 58.} Most of all it was »Americans who polluted the island.«\footnote{R. B. M. 1855, p. 122.} In 1974, WOOD talks in a similar fashion about the white traders, which settled on Kusae with a horde of 20 half casts and about 100 natives from Banaba and Nauru: »They had lightened the place like a pestilence.«\footnote{WOOD, p. 189; compare M. H. 1855, p. 251.}

Of the maladies, meant with these general terms, syphilis is the first one, which confronts us as unmistakable. The Captain of the English ship »Serpent«, which came to Kusea in the beginning of 1853 reports: » .... A great many have died from a virulent kind of syphilis said to have been introduced
by the whalers and which they have no means of curing. At present, hardly a native is free of it, and we saw some disgusting objects.«¹ The missionaries confirm this in a dressed-up fashion. On the occasion of an circumnavigation of Ualang in June 1855, SNOW remarks: »In almost every house at which I called, there were some fearful marks of the terrible disease which is this people bringing to their graves.«² GULICK says about it: »The entire populations seems saturated with the disease which is the wages of sin and is still rapidly on the decrease.«³ After these testimonies, there can be no doubt that the people of Kusae were contaminated by syphilis to a high degree. The decline of the population from LÜTKE until the fifties, the testimony of Captain HAMMET in the year 1853, the wide distribution, and the visibility of the sickness, force us to conclude that the sickness must have been brought before 1953, maybe even by the first whaler after LÜTKE. That there is currently no sign of it cannot speak against these facts. HERNSHEIM could state already in 1880, »Nothing is known here about epidemics and contagious diseases and most of all there is no trace of those ailments, always blamed on the poor whalers for the distribution.«⁴ Here we experience the spectacle that the symptoms of the sickness disappeared two generations later. Also, HERNSHEIM’s attempt to support the »poor« whaler, after the accusations of the Mission, cannot be supported. They were the first white people who had a during relationship with Kusea and who were the biggest part of the foreigners. Of course, not the entire class of people can be blamed. In addition traders and foreign natives could also be blamed. The question of the culprit is quite trivial. A few individuals can have the same effect and all three groups have a part in the breakdown of the population.

The other vices, described as »licentiousness«, or »immoderation« in the sources, are mostly sexual excesses. It is quite evident and does not need any more explanation that the events, bringing a colorful crowd of traders, crews, and foreign natives to the island, took over to a high degree in those days.

Finally, we also have to think of alcohol, even though it cannot have played a big role. First of all, it was not available for all the people. Then the King forbid brandy and even the production of the local palm wine a short time after the Mission started and without its involvement in it.⁵ Nevertheless,

we also have to mention it here. The independent ban of King George points to respective experiences, which he and his people had not only with the foreigners but for themselves. Besides, we doubt that the ban was closely observed and followed until the total christianization of the population. The person who enacted the ban was not adverse to drinking and had even once attended mass drunk.\(^1\) The following is reported about his successor. He greeted every new ship in the harbor with the question: »Have you any liquor?«\(^2\)

The gruesome trio, syphilis, sexual excesses, and alcohol, are the series of reasons, usually quoted by sources for the dying of the Kusae people. Obviously, a war in the year 1858 caused only a few victims. And the wheeling and dealing of the warlike and murderous Banaba and Nauru people was seemingly mostly directed against each other,\(^3\) so is of minor importance. Thus, we would have to agree with those voices who blame only the whites for the decline of the peoples’ strength.\(^4\) Certainly their influence was fateful; according to the few short accounts, syphilis especially must have had disastrous effects and the mortality rate must have climbed incredibly. Nevertheless, these reasons are not enough for a deeper understanding of the problem, especially because there is some scattered information that provide hints at further reasons.

At first, influenza seems not to have stricken on only a moderate scale, as seems to be the case with its mention in the reports of the Mission. Following the accounts of the old King, it supposedly was less the syphilis and more the »cough«, coming with the Europeans which had been the terror of the natives, as people died form it on a daily basis. It is well known how fateful influenza can be for indigenous people while it is harmless for us.

Further on, the question of probable inner causes arises. Even the voice of the mission, quite clear in their judgment otherwise agrees that inner causes existed. The doctor and missionary Dr. PIERSON, who stayed on Kusae in the middle of the fifties, even gives an inner cause a front position when he says, »The first great cause of this state of thing is, that for a number of reasons the people have lost all their ancient physical vigor. That there was once a people here of great vigor and energy there can be no doubt from the remains that still exist of their labors, as well as from the current traditions of the people. And now on this enfeebled race, one of the great scourges of the human family has been entailed and is annually increased by those who come from Christian lands.«\(^5\)

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\(^1\) M. H. 1854, p. 54; 1856, p. 314.  
\(^2\) M. H. 1857, p. 252.  
\(^3\) Compare BOLDREWOOD, chapters about Kusae.  
\(^4\) Compare also FINSC 1893, p. [452].  
\(^5\) M. H. 1857, p. 359.
SNOW, too, does not deny the presence of such causes when he accounts for syphilis in his oblique way, »It is true that to some extent other causes are operating towards wasting away the people, but all other causes are light compared to this.«¹

Dr. PIERSON points to the weak strength of the people. Looking for any indications of this, we have to return to the small density of the population in the 1820s, noticed by the first two expeditions. Unfortunately, we do not find any indication that this could have been different in former times. The old natives still tell about a time when many people had lived on Ualang. This supposedly was especially the case on the southern coast of Lölö-Harbor, in Utua, Wukat, and in Matante. In LÜTKE’S time, Läl, with only 35 adults, was the biggest settlement on Ualang.² In former times, the population of the southern coast of Lölö-Harbor had also settled high up into the mountains. The judgment of these informants is certainly tinted by the long lasting and steep decline of the amount of population during the European time. Anyhow, this seems to be an old tradition, proved on two excursions to Ualang, where we met old house sites high up on the slopes of the mountains again and again, just as they can be found on the lower slopes of Koplö several times. Thus, the suspicion is that the thin population density at LÜTKE’S time was nothing original. It cannot be determined whether the mission’s statement of 5000 souls for the former population is based on old memories of the natives at the time of the mission’s founding. We also should not conceal that the proportionally high number of children, as well as of old people at the time of the first expeditions’ visit badly correlates with the stated opinion.³

Looking at LÜTKE’S counting of adults in the individual villages and at the total sum of adults, we notice a big difference in genders. Next to 409 men there were only 301 women; thus, there were only 73.5 women for 100 men. The reason for such an unhealthy phenomenon remains hidden. The question if infanticide or the murder of girls was practiced in old Kusae is denied by the natives. Incidentally, incomplete and incorrect counting on LÜTKE’S part does not change at this fact much. In the village Läl, which he knew well, there were only 15 grown women next to 20 men.⁴ This correlates with his further observation, that there was a great number of bachelors, augmented by the prevailing polygamy.⁵ At the same time he correctly concludes another fact. Most of the early authors are full of praise concerning the strict morals of the old Kusaeans inferred

from the fact that they did not initially see any women. Confronting said circumstances and LÜTKE’s skepticism in this respect this is doubtful, By the way LÜTKE was in no way different from the other authors in his wild praise of the natives. Namely, he said: « …… et il doit nécessairement en résulter certaines habitudes qui ne sont pas tout-à-fait d’accord avec les bonnes mœurs, que nous regardâmes d’abord, peut-être injustement, come une des traces du séjour des premiers Européens dans cette île. Les Ualanaises ne peuvent pas se vanter de cette sagesse qui, d’après les récits, distingue les femmes de Radak. Je n’eus pas l’occasion d’éprouver la sévérité du devoir conjugal, mais il paraît, qu’elles ne sont pas toutes des Pénélopès, et quelles ne se piquent pas même de l’être; nous pouvons citer pour exemple la femme de Kaki qui prenait plaisir à attribuer sa grossesse à l’unde nos compagnons (qui cependant ne l’avouait nullement); et Kaki lui-même aimait a plaisanter là-dessus, en montrant souvent la manière dont sa femme pleurait l’absence de son bien aimé.«¹

Generally speaking these characteristics are signs of an unhealthy people, for which the whites certainly cannot be blamed. At the same time, we can conclude that the soil was fertile for the coming years and it would not be just to blame the later sexual degeneration only on the white foreigners. Even when white foreigners made it worse, we nevertheless should not only think of their lower moral code. Most of all, we have to take into account that both genders’ proportion of numbers was further changed with their arrival. To local men, we now have to add to the crews of the many temporarily anchored whalers and of the few trading ships, and the partially settled traders. We must add their entourage, the crowd of foreign natives, amounting to more than 100 and consisting mostly of men, in those times. Due to a happy chance, we are several times well informed about the proportion of the genders (of only the Kusaeans) at the later time, thanks to SNOW’S counting. The data offers us the following perspective:

<table>
<thead>
<tr>
<th>Year</th>
<th>Males (♂)</th>
<th>Females (♀)</th>
<th>Male %</th>
<th>Female %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1827/28</td>
<td>409</td>
<td>301</td>
<td>57.6%</td>
<td>42.4%</td>
</tr>
<tr>
<td>1855</td>
<td>642</td>
<td>464</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td>1857</td>
<td>518</td>
<td>312</td>
<td>62.4%</td>
<td>37.6%</td>
</tr>
<tr>
<td>1858/59</td>
<td>448</td>
<td>300</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>1858/59 (without »younger« children)</td>
<td>411</td>
<td>258</td>
<td>61.4%</td>
<td>38.6%</td>
</tr>
<tr>
<td>1874</td>
<td>237</td>
<td>160</td>
<td>56.1%</td>
<td>43.9%</td>
</tr>
<tr>
<td>1905</td>
<td>271</td>
<td>245</td>
<td>52.5%</td>
<td>47.5%</td>
</tr>
</tbody>
</table>

¹ LÜTKE 1835/36, I, pp. 390. [»And it necessarily resulted in there being certain habits which are not completely in accordance with good manners, which we looked upon at first, perhaps unjustly, as one of the vestiges of the stay of the first Europeans on this island. The Ualanese women cannot pride themselves on this wisdom, which according to the accounts distinguishes the woman of Radak I did not have the opportunity to test the severity of the conjugal right but it seems that they are not all Penelopes and they do not even try to be. We can cite, for example, the wife of Kaki, who took pleasure in attributing her pregnancy to one of our crew (who did not in any way confess to it). And Kaki himself liked to joke about it showing how his wife would cry over the departure of her lover.« R. + R. 1982, pp. 128.] Regarding morals compare in more detail with psychology in chapter IV demography.

² R. B. M. 1856, p. 190.
³ M. H. 1857, p. 98.
⁴ DAMON, p. 42.
⁵ Ibid
⁶ M. H. 1857, p. 136.
⁷ According to the counting of the German government
III. SETTLEMENTS AND STATISTICS OF POPULATION.

We can conclude from this table that the bad ratio at the time of LÜTKE was not an accidental phenomenon, that is existed over years, once again proving LÜTKE’S observations. Further on, we can see that it got worst in the fifties. Its maximum correlates with the time of the steepest fall in the number of people. In 1857, there were only 60 females for 100 male Kusaeans, and, from 1854—74, on average, 67 female Kusaeans! To crown it all, the same unfortunate phenomenon can be seen among the children. The ratio is the other way round in the youngest generation only in 1858/59.

1855: from 239 children are 143 ♀ 96 ♂
1858/59: from 79 »younger« children are 37 ♀ 42 ♂
1874: from 113 children are 62 ♀ 43 ♂
1905: from 220 children with and under 15 years are 112 ♀ 108 ♂

Under such circumstances, and under consideration of the amount of foreigners and their moral views, the already threadbare sexual morale further collapsed in the European time. The first missionary laments about licentiousness and immoderation is obviously only too substantiated and understandable.

Sterility. I not only wanted to create a better understanding for the moral decline and depravity with these observations but also to prepare an insight into another phenomenon. LÜTKE considered the number of offspring as considerably high. We cannot deny a disproportion of the genders over generations and the resulting sexual excesses must have had an effect on the fertility, especially as the female gender was in the minority here. What effect such circumstance had on fertility the epidemic occurrence of a severe venereal disease definitely caused an even quicker effect. Proof of this can be seen in the ratio of adults to children:

1855 .......... 239 children among 1106 natives = 21,6%
1858/59 ...... 79 »younger children« among 748 natives.
1874 113 children among 397 natives = 28,4%
1905 220 children under 15 years among 516 natives=42,5%

Even though the term child is not defined in this small table, it states enough; in 1855, there was only one child for every four adults and in 1874 one child for every three adults. The proportion must be considered as well in 1905. The commonness of infertility in the fifties can be concluded from the facts that SNOW found only one infant during his counting in 1855; but he accounted 18—20 new born ones in 1858/59,

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1 R. B. M. 1856, p.190. 2 DAMON, p. 42. 3 M.H. 1875, p. 136. 4 Sources like above.
5 R. B. M, 1856, p. 191.
of which 10 died.\footnote{M. H. 1860, p. 37.} According to Capt. Wright there were 29 deaths compared to only 9 births in 1880.\footnote{FINSCH 1893, p. [452].} In this respect, the recorded genealogical tables are quite remarkable. In accordance with them there was a time when quite a number of marriages remained childless. Further on, other families must have died out, as a result because there was no memory of any descendants despite their role in social life. The early death of both marriage partners might partially have been the reason for it. On the other hand, venereal diseases might be blamed. Finally, also abortion, known by Kusaeans since the old days, which had become such a bad habit by then that sterility resulted from it and played a part in it.

Thus, the high number of deaths and small amount of births went hand in hand, to bring about the extraordinary stumble of the population’s number.

Together with PIERSON, we can add the disintegration of the old culture to the before cited signs of a sick peoples’ body. Seen from our later perspective it will turn out that their decomposition was accelerated by the constant and numerous appearance of the Europeans in a similar way to the decline of the population. In certain areas, the disintegration started earlier and the people had crossed the zenith of their full flowering before the Europeans came.

To fully state the reasons for the population’s decline, we want to point out two more reasons. First the \textit{consumption of kava}. As we learned from LÜTKE, kava was a daily stimulant for Kusaeans, at least for the aristocracy who enjoyed it several times a day. He also mentions explicitly that he never saw any drunk person.\footnote{LÜTKE 1835/36, pp. 396.} The old King, who by no means was a adverse to alcohol and indulged when he could get it, accounted differently from his youth, around 1850. According to him, during festive occasions and also in daily life, in former times, there were real kava drinking bouts going on. The participants drank until they collapsed, intoxicated, and continue when they woke up again. There were proper kava boozers, who due their excessive drinking had little appetite to eat, but all the more appetite for kava. They aged early with their skin getting shriveled and chapped. The mission reported, too, that King George, who declared the ban on brandy and palm wine, quickly collapsed and died in 1854 due to excessive kava consumption. GULICK had estimated his age at about 30—40 years.\footnote{M. H. 1855, p. 218.} Therefore, alcohol might have had a predecessor in the local kava and the model of the Whites with their alcohol consumption might have created excessive mores in the kava consumption of the natives.

All these causes undermined the health of the people.
They certainly caused the main decline in the population. Also, when the sources remain silent about the decrease due to emigration, but it nevertheless continues to be a secondary cause. The old King told about the horror of the high death rate of those days, where hardly a day passed by without crying and lamenting because of a new case of death. That fear of death forced him and other compatriots away from their home island and made them serve as seamen on ships (whalers). The King himself, was away from Kusae, not less than 28 years (since 18620). The amount of emigrants cannot be estimated. Considering the general turmoil of the natives, in this busy time in the Pacific, it cannot be estimate as too small for Kusae.

We want to close with this observation, expanded so much because of its transparency of its nearer circumstances and because of the beam of light it might shed on analogous circumstances on other islands. After all this, you will understand that the first visitors of Kusae after 1850 were gripped by horror and pity with the sight they encountered. Snow said already in 1856, »I shall have performed the burial rite to the last native of Strong’s island in less than ten years.« With the sight of such a perspective, the »obviously not promising view of his activities« seem to be too heavy for one pair of shoulders and he packed his bags in 1862 and moved to Ebon. Further on, when Pierson expressed: »They are fast sinking, and there is no human power able to deliver them.« Even in 1880 Finsch deemed the extinction of the Kusaeans inevitable.

Reasons for the increase of population. Modern age proved these prophetic views wrong and Kusae had a sudden unanticipated boost in its number of people. A full explanation for this is not possible. The following reasons might be important:

1. The end of the constant and disastrous contact with Europeans and foreign natives. Their life had the partly imprint of moral decrepitude and adventurousness. Also the return to a modest and quiet time, as well as regulated circumstances.

2. Recovery of the peoples’ health from sicknesses, most of all syphilis, maybe because of its special character and expulsion of contaminated elements by death.

3. Abstinence from alcohol and kava, and the beginning of puritanical mores under the influence of the mission, as it became more and more powerful.

4. Removal of polygamy and increase of the marriageable age to 20 years. With these last measures, one cannot deny the mission’s part in the reincarnation of the Kusae-people, even when the missionaries left the natives to themselves in the difficult time from 1862—1879.

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In 1880 FINSCH could say, »One can see from this that even the Christian cultured behavior, prevailing on Kusae now for 40 years, with a strict code, monogamous marriage, etc., cannot stop the extinction of native peoples. The contact with civilization, which changed the clothes and life style of the natives completely, is partially to blame for this fall. This phenomenon, is repeated again and again in the South Seas, but nowhere so badly as on the Christian Kuschai.«

5. Return of healthy men, who had left.

6. Import of an amount of foreign blood, not to be underestimated. It can be proven that at least a third of the current total population is of mixed blood.

The regained health of the people is expressed in the absence of common diseases, a normal ratio of the genders, and an especially beneficial proportion of children to adults due to a low death rate and a high birth rate. The numbers mentioned before give information about this. To illustrate, I want to add here that since October 1905 to the beginning of 1910 only 13 men died. Also of 256 married and 260 unmarried men, 249 are younger than 20 years. At the same time, the following list gives an impression of the regained fertility of the women:

In 1905, the following families had more than 3 children:
- 1 family with 9 children, besides 4
- 1 family with 8 children
- 4 family with 7 children
- 7 family with 6 children
- 3 family with 5 children
- 8 family with 4 children.

These 24 marriages produced 134 children, more than a quarter of the total population. By the way, the first mentioned family had increased to eleven living children by 1910.

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1 FINSCH, loc. cit.
2 Compare this with the next chapter.
3 Concerning the recent large number of children compare also with the genealogical table at the end of the oeuvre.
VI. Demography.

1. Anthropology.

An anthropology of the current population encounters special difficulties because of the strong mixture with foreign blood in recent times. Therefore, it is advisable to start with genealogical tables and to determine the nationality of each individual. In this fashion, it is still possible, in 1905, to identify 20 persons from the 516 Kusaeans, descended from marriages of non-Kusaeans (7 natives from Pingelap, 5 from Banaba, 3 from Nauru, 2 cross breedings from Americans and women from Nauru, one native each from Saipan and Hawaii, one half cast Saipan-Ruk). There are also at least 20 half bloods with Kusaean blood of the first degree, and at least 42 half bloods of the second degree, considering only one pair of grandparents. If we considered both pair of grandparents the amount would probably be double, so that we have to estimate about 100 half-castes of the first and second degree altogether. As we also have to consider half-breed of the third degree, the amount of half castes would increase quite a bit, at least a third of the total population. The natives from Banaba, Nauru, and Rotumah, as well as Americans, are most involved with the introduction of foreign blood. If FINSCH did not find the slightest trace of mixed blood, then he probably only considered the mixture with white people, as can be seen in the context. Even though, at that time (1180), the mixing had already happened, it was still not so noticeable. We have to emphasize that the influence of white blood is generally small.

The anthropologist of the expedition, Dr. HAMBRUCH, thought to ignore collecting collection, as well as publishing about anthropology in consideration of the strong mixture. Therefore, we are restricted to a general description of the natives’ appearance in connection with the old sources.

The Kusaean type was described by FINSCH in his »Anthropologische Ergebnisse« shortly and precisely as follows: The Kuschaian are generally of middle height, the women rather small. The face is well proportioned, with small,
prominent cheekbones; a high front, wide, and flat nose, its tip rounded, nostrils big; big eyes; beautiful chestnut to black brown, the white of the eye quite clear; mouth well proportioned, lips mostly quite full, the upper one often protruding over the lower one, their color purple brown; the hair is black, simple to gentle wavy and curly; the growth of beard is mostly thin, but you can also see beautiful mustaches and side-whiskers. The main coloring corresponds with the numbers 30—32 and sometimes tends to 29.\footnote{Borca’s color scale.} Thus, King Tokoscha was quite dark, Queen Koscha, on the contrary, conspicuously light. Incidentally, the coloring correlates with the Marshallese and Gilbertese. I would have taken men from the last two groups, living on Kuschai, for Kuschaian, if I had not, by chance, learned their descent. In general, I had the impression that the Kuschaian were slightly built than the Marshall Islanders. Despite the visits of ships in the flowering of whaling, I did not see the slightest trace of mixed blood. This is note worthy in comparison to the widely distributed belief that in many part of the South Seas due the influence of the whites a completely different race developed.«

A few remarks to this. Nearly all visitors observed their relatively small size. LÜTKE measured one of the tallest natives as\footnote{LÜTKE 1835/36, I, p. 352.} 5 feet 7, inch engl.\footnote{LÜTKE 1835/36, I, p. 352.} According to LESSON, many were not even 5 feet tall, some only 4 feet 6—8 inches, the tallest were hardly taller than 5 feet 2—3 inches.\footnote{LESSON 1839, II, p. 483.} Today taller natives are not as rare, especially descendants of Rutumah distinguish themselves in this fashion.

Very curly \textbf{hair} is less often seen than in the western Carolines.

Considering the \textbf{eyes}, LESSON, LÜTKE and KITTLITZ already remarked on the slight leaning position mostly on men. Even today, this is still striking and can be seen in women, as well. It was especially strongly developed in two girls (plate 13, 3,4). This phenomenon, along with \textit{light} skin and special cultural traits once seduced LESSON, to attribute a Mongolian, especially a Japanese descent, to the Kusaeans.\footnote{LESSON 1839, II, p. 475.} The Missionaries were surprised by the Asian looks of the natives during their first visit, as well.\footnote{M. H. 1853, p. 84.} LÜTKE and KITTLITZ already rejected this emphatically.\footnote{LÜTKE 1835/36, I, pp. 407; KITTLITZ 1859, II, pp. 9} With the help of two people from the Aleutes traveling with them, they were able to observe the »incredible difference between the Mongolian and the Malayan physiognomy.« The fact remains that slanting eyes are more and stronger developed on Kusae than on the other Carolines, where I only noticed them occasionally. They can be seen from time to time in the rest of the Pacific, as well.
1. The King (Aoä Nesa II, 1890—1910).

2. Sefisä.

3. Telen-Kön (Krämer’s translator).

4. The old cook of the King.
1. My translator Kefas.
   (Father a negro from Jamaika)

2. Man from Mäläm (Ualang)

3. My translator Kelafa-Kön

4. Young man (Lölö).

5. Young man (Lölö).

6. Young man (Lölö).

7. Young man (Lölö).
The **physiognomy** varied quite strongly among the natives. Often because of its evenness it is very appealing, especially among men, and can also be called beautiful (plate 10—13). Already LÜTKE noticed the absence of strongly developed features, he rather rightly dismissed it as unimportant.¹ At that time there was the expression of good-natured character on all of them. In general, we have to agree with FINSCH, who does not recognize the types, as such, in the atlas of LÜTKE and DUPERREY. FINSCH himself had taken and brought home five facial masks from natives.²

The **physical beauty** of the younger women and girls were their big and fiery eyes and two perfect rows of teeth, according to LÜTKE and LESSON. Otherwise they did not find that the women were good looking, especially because of their from oil glistening bodies and because of the form of their breast, pointed, drooping, and with long black nipples even among the youngest.³ LESSON calls their walk forced and their hips too broad.

Already LÜTKE was surprised by the **suppleness** of the female limbs.⁴ First, he mentions their strange way of sitting. The thighs are tight to each other all the way to the knee. The lower thighs extended to the sides from there to the back and lie flat on the ground, including the inner part of the foot. This strange way of sitting is obviously a result of the short, poorly fastened, old clothing mat of the female gender. The man actually sits quite differently. They either cross both legs or else only one while the hold the knee up with the arms.⁵ Both ways of sitting are still practiced today. The female one is insofar surprising, as the modern long dress no longer requires the flexing of the lower thighs. Another example of the flexibility of the female limbs is the fact that they prop up their arms on the ground, when sitting down or getting up, the elbow protrudes outside in a pointed angle.

**Physical strength.** LESSON described the men as grown soft and without endurance. Even today they still are a bit lazy and slow in their movements. LÜTKE emphasized that they were not feeble and even recorded quite a physical feat as an example. Chief Sipa, one of the tallest natives, lifted a European of more than 180 pounds in his arms and turned him to all sides. One would not have suspected such strength.⁷

**Corpulence** could hardly be found in the old days. LÜTKE noticed its absence with the chiefs, only the King then had a substantial belly.⁸ He concluded that this was less a result of plant food, than the scarce amount of drinking nuts.

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According to the local experience, consuming drinking nuts on a regular basis results in fatness and are connected with the excessive kava consumption? Actually, LESSON describes the women as very fat.¹ I did not notice any obesity, but I certainly cannot describe some of the adult men and women as slim.

There is a **difference between the male and female gender** in size and skin color. The women are generally small and dainty. Their skin color is lighter, mainly due to their housework chores.²

LESSON also remarked on a corresponding **difference between the aristocracy and the common people**. LÜTKE contradicts it, but D’URVILLE confirmed it. He also reports some individuals who are closer to the Melanesian type among the people.³

Incidentally, the type of Kusaean does not differ from other Micronesians. Their small stature is similarly found on other high islands, while the inhabitants of the coral atolls, mostly in the western and central Caroline Islands present a rather strapping breed of people.

**Remains of an older population?** The accounts of wild people who once lived on the island seem rather strange at first. The natives themselves call them met lemnak = »wild people«. They lived along the mostly mangrove studded on the southern and western coast of Lölö-Harbor, from Tafojat to Pikisik. There still were some only two generations ago. They supposedly received their names because they very much feared the inhabitants of Lölö and those from other parts of Ualang. They did not want to be seen by them, but stayed hidden in the woods and allegedly did not even sleep in their houses at night. Sometimes the Lölö people caught them and took them to Lölö. According to an account of the King, who died in 1910, he along with four other young people caught two »wild ones«. Once, King George (1837/38—54) had one bound on his hands and feet and weighted with a stone to drown him. But, he was rescued by the King’s daughter. In the old days, in Lölö it was considered particularly »smart«, as the old King expressed it, to play tricks on the »wild ones«, especially to steal their meals. You noticed when and where a pillar of smoke rose from their earth ovens. Then you ran over and plundered it. Now and then there were supposedly fights, but usually the met lemnak had already left the area after leaving some of their food behind. Concerning their looks and their culture, these »wild ones« allegedly looked and spoke the Kusaean language just like the Kusaens. Their peculiarity was only, unexplained shyness and fear. In other places of Ualang, there supposedly were no »wild ones«.

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¹ LESSON 1839, II, pp. 483, 484.
² LÜTKE I p. 352; LESSON 1839, II, p. 484; KITTLITZ II, p. 4.
³ DUMONT D’URVILLE 1830, II, p. 624.
1. Sister of the King.

1. Daughter of Nr.1.

3. Woman (Lölö).

4. Woman (Lölö).
1. Woman from Mäläm with slanting eyes

2. Melanders wife, sister of the former (Lölö).

3. Girl with slanting eyes (Lölö).

4. Grown up girl from Matante (Ualang) with slanting eyes.
Although the accounts of the natives suggest seeing the remains of an older culture in the »wild ones« we do not want to make this conclusion, without further support. But there are similar traditions on Ponape, according to Dr. HAMBRUCH’s reports. This seems to be advisable because an explanation can be found in the local circumstances on Kusae, the development of the state that is the location of the homesteads just opposite of Lölö, the residence of the rulers. See also the paragraph about the Development of the State, under State.

**Sicklinesses.** Concerning sicklinesses, the first expeditions found the following:¹

Ruf, ulcers, which LESSON traced back to wading on the reef and in the river courses, and which KITTLITZ found similar to leprosy. According to my observations, this is the name for a harmless sickness specifically afflicting small children. It forms round concave ulcers on the skin.

Ringworm was quite common in those days. Most people were afflicted by it. According to LESSON, the sickness was called Uaranite (French ouaranite).

Besides these sicklinesses, LESSON also witnessed painful swellings of the legs. Further on, some old men had old catarrhs and one native with emaciation had big healed burns (»ponac«).

Currently we could not observe sicklinesses, and particularly skin diseases, because of full dresses. Generally the patchy parts of skin are on the rump. As we could see on the nude upper torso of men, this does not seem to be caused by ringworm, which might still occur. This did not seem to be caused by ringworm, but by the corrosive reaction of sweat, due to the stupid habit of being fully clothed. These are very big white-yellow patches on the darker skin.

Syphilis = pänos supposedly no longer exists. Its consequences are obviously the frequent deep saddle nose and pains in the gum, as some women complained about. When I gave one woman tablets of iodine (0.5 g) against syphilis, among other [tablets], and told her to take one a day, she lost consciousness after the first one; the same thing happened when she took only half a tablet.

Otherwise, at present, there are no special sicklinesses to report about.

2. Psychology.

The first two expeditions report about the character of the old Kusae people, especially LESSON, LÜTKE and KITTLITZ left detailed descriptions. They all come to the same verdict, full praise for the excellent character: peace loving as no other people in this world, submissive under the general order. This how they are, gentle, modest

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¹ LESSON II, p. 474; KITTLITZ II, p. 11.
honest, and extremely hospitable, etc. 90 years later it is not quite possible to cope with these description before presenting the cultural circumstances. Considering the time, we can assume that the first visitors were not free from effusiveness, in those days. Therefore, we will come back to some of these issues, later when describing the culture. For the moment, we will limit ourselves to actual facts and different individual traits.

The essential feature of the old character of the people encountered in all sources is the remarkable **peacefulness** of the natives. It is also quite extraordinary that the natives, after hesitating a while, met the first two ships, coming in close enough to reach, without any external peace signals and without any weapons. Initially fearful they also came close to the »Coquille« and boarded with reluctance, but soon moved around freely and unaffectedly among the strangers.¹ Those in the first canoes boarded the »Sejäwin« on rope-ladder at the first invitation. Two days later, a number of natives even stayed on board and slept there while the ship was still drifting on the open ocean.² Both expeditions could stay for weeks without any clash worth mentioning, and left the island without ever having to use their firearms. Of course, the Europeans also partially caused this behavior. Just as the Kusaeans honored the strange foreigners, initially referred to them just like to their own chiefs.³ At any rate, the trust of the natives and their peacefulness are admirable. Obviously, the tiny lush island with its small population was not fit for raising or preserving a warlike disposition. The lost contact with rather distant neighboring islands at an early time and it developed only one state entity. This may also be concluded from neglected weapon techniques, the high authority of the chiefs, and the slave like compliance of the people. Even if the authority of the people in power was not »purely moral«, and the observance of the people »not entirely out of their own will«,⁴ contrary to LÜTKE’s point of view. Nevertheless, the Europeans must have been filled with surprise by the »gentleness« of the natives in comparison with other islands they had come to know. They encountered the most extreme form of devout submission, the most natural direct obedience of the people. With just a wink or a word from the chiefs, presents they had received were taken away from them and they even let it happen without grumbling, even laughingly that

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¹ DUPERREY 1828, II, 1 p. (634); LÜTKE 1835/36, I, p. 289; KILITTLITZ 1858, I, p. 352.
² LÜTKE 1835/36, I, pp. 294; KILITTLITZ 1858, I, p. 357.
³ LESSON 1839, II, p. 489.
⁴ LÜTKE 1835/36, I, p. 399.
This former compliance, customary in the country, on one hand comprised **fear and modesty**, and, on the other hand, also great **obligingness**. People showed their obliging nature towards the foreigners in a much more natural way. This was shown when they refused to build their headquarters in the metropolis of Kusae, in Lölö, the seat of all the chiefs, despite repeated invitations and to the utter astonishment of the natives. Regardless of all their exterior glitter and strange treasures, they preferred to erect it in front of Ualang, the land of the »small people«. They, the great masters, came down to the level of the small people to deal with them mostly in a »man to man« fashion.¹ At the same time, the foreigners were generous with their much sought after treasures. People would not have received anything if the foreigners had gone to Lölö. They also paid for all services. Thus, people who lived close to the ship felt quite good in the company of the Whites. They liked to accompany them as guides and as porters for their strange instruments during their excursions all over the island.

We have to judge the **attitude of the chiefs** towards both expeditions from this sketched point of view and recognizing all their power. The behavior of the foreigners must not have pleased them. At one hand the foreigners lost status in their opinion by dealing with the »people«. On the other hand, the chiefs felt »slighted« even though they had not violated the local etiquette of hospitality during their initial visits in Wukat-Harbor and even though the Europeans did not lack attention during their excursions to Lölö. But that relationship is nevertheless plainly described when the King of the island does not think it necessary to visit the Whites himself and during their stay on Lölö. He used to receive them only for short periods of time. When some of the chiefs did not abstain the King himself brazenly initiated **thefts**. He even had one of LÜTKE’s carpenters robbed in order to get his ax.² And he had M. DE BLOISSEVILLE, an officer of the »Coquille«, robbed on his way back from Lölö.³ Characteristically, the thefts—there are only a few altogether—can all be traced back to the chiefs. The only frictions developed because of them. No harm was caused due to the decisiveness and carefulness of the leaders of the expeditions.

So, while the people distinguished themselves by commendable **honesty**, this was not the case among the individual chiefs. In contrast to the people, LESSON calls them greedy, insatiable, without nobility, envious and jealously guarding their privileges.⁴ This characteristic is obviously distorted. Inner conflict is expressed here next to the powerful position of the chiefs who were caught by the circumstances. LÜTKE explicitly defends them and calls them »en general, bons at hospitaliers, quoique, peut-être, pas au meme degré que les basse classes.«³

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¹ LÜTKE 1835/36, I, p. 294; KITTLITZ 1858, I, p. 357 a.o.
² LÜTKE 1835/36, I, p. 310.
³ LESSON 1839, II p. 500.
⁴ LESSON 1839, II pp. 388, 500, 514.
⁵ LÜTKE 1835/36, I, p. 405. [»... in general good and hospitable although perhaps not in the same degree as the lower classes.« R.+R. 1982, p. 134.]
The hospitality of all natives rightfully aroused the highest respect of the Europeans. If LÜTKE would he have known that the region Läl provided him daily fruits only with the permission of the chiefs and more probably following their orders, then he would not have doubted the chiefs so much and could have correctly appreciated their behavior.

One other source of misunderstanding for the first Europeans were the special forms and the severity of etiquette inside as well as outside the family. Loud conversations, disputes, and noisy happiness were forbidden, amongst other things and under many circumstances. A deep, decent quietness and detachment prevailed at a social get together of the natives so that »sometimes very ordinary actions had a festive atmosphere«. The old-fashioned observation of such etiquette might generally have influenced the character of the nation. LESSON was probably right saying: »Les Oualaniens sont en effet généralement calmes, peu gais, les Urosses surtout sont d’une gravité, à laquelle ils dérogent rarement.« Of course, LÜTKE went too far stating that the Kusaeans with all their »bonté étonnante ……, don’t on trouverait difficilement le pareil sur la terre« would »not know big emotions of the soul« like pain and happiness. By the way, he himself found them without any boredom and always willing to joke and laugh despite all »douceur sans égal«.

On the question of etiquette I want to add that I am not in the position to reach a conclusion for either the mysterious aloofness of the chiefs after LÜTKE’s visit in Lölö or the fact that not a single native came on board of the »Senjäwin« in Lölö-Harbor before its departure from Kusae was due to a breech of etiquette: During his visit LÜTKE had placed a cap on the head of the King with his own hands. The King’s head was extremely taboo for everyone. Open displeasure and grumbling of all the people occurred when DUMONT D’URVILLE, then first officer of the »Coquille«, and his companions rose to greet the King, The excitement ebbed down only after they sat down again.

It is a great error when LÜTKE denies that the natives have »any official entertainment« other than dancing such as fighting and games of chance, because they resemble war. War was unknown as well, according to his opinion.

Also his praise for family life, especially expressing »la douceur et l’égalité de leur caractère« seems to be biased. The men might have had reason enough to treat their women well, considering the small amount of women and the many bachelors. According to LESSON, they also

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1 KITTLITZ 1858, I, p. 375; compare LÜTKE 1835/36, I, p. 382.
2 LESSON 1839, II, p. 507. »The Oualaneans are in effect generally calm, not gay, the Urosse especially are of a gravity from which they seldom depart.« R.+R. 1982, pp. 69.] 3 LÜTKE 1835/36, I, p. 385. »… astonishing goodness, …. whose like it would be difficult to find on this earth.« R.+R. 1982, p 127.
4 LÜTKE 1835/36, I, p. 385.
6 LÜTKE 1835/36, I, pp. 322, 323.
7 DUMONT D’URVILLE 1835, II, p. 459; RENZI II, pp. 152
8 LÜTKE 1835/36, I, p. 381, 384.
9 LÜTKE 1835/36, I, pp. 386.
jealously watched the crew of the »Coquille« so that they would not flirt with their women. The men of Wukat-Harbor hid their women in the interior of the island after some sailors had tried their luck. This must be seen as a sign of this jealousy, and less of high morals. Despite the good contact with the whites and despite all the presents, they did not bring their families back before the ship left. This event might have been the reason that later on, to the surprise of the »Senjäwin«, there were no women to be seen. This happened even though the first canoe tried to coax it to anchor with the promise of many women and coconuts, both of which were rare. When LESSON and his companions visited Lölö, they were also offered some girls, if they stayed over night. The »Senjäwin« also soon received the visit of 3—4 young girls in the company of older people and with unmistakable intentions. The Kusaeans distinguished themselves from other South Sea islanders, who quickly offered their women to the Europeans. We do not know to what extent the disappointed chiefs were involved here. It seems prudent to conclude the general attitude of the natives relied on circumstances other than chastity, when considering all moments; the later immorality and the great skepticism of LÜTKE.

Status of the woman. We cannot realize why LESSON had the opinion that women were considered »creatures of a lesser order«. On the contrary, their position was due to a different reason, actually quite a pleasant one. Nevertheless this did not deter them to remain in the background during official events. A serious look from their husbands made them more reserved. According to LÜTKE, the woman was equal to the man in the family. He discussed issues with her and when he received presents he always thought of her. She also asked him for presents, as LÜTKE observed in the marriage of his friend KAKI. The marriage partners had a natural, great affection for their children.

The behavior of the female gender with Europeans was actually not so modest and fearful, as could have been expected after the initial invisibility. The women were not shy at all, but were very talkative, cheerful, and curious. They knew well to fish for presents, though always kept their natural grace and decency. Some young women in Lölö teased LÜTKE with a chant, repeating his name again and again.

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1 LESSON 1839, II, pp. 486; DUPERREY 1828, II, 1, p (636).
2 LÜTKE 1835/36, I, p 303; KITTLITZ 1858, II, p.3
3 LÜTKE 1835/36, I, p. 289.
4 LESSON 1839, II, p. 488.
5 LÜTKE 1835/36, I, pp. 306.
6 Compare LESSON 1839, II, p. 487;
7 LÜTKE I, p. 39. compare his words on p. 54.
8 LESSON 1839, II, p. 486.
9 LESSON 1839, II, pp. 481, 484.
10 LÜTKE 1835/36, I, pp. 388.
Generally, the women distinguished themselves by their industriousness and constant activity.\(^1\)

The men of all classes loved social gatherings very much, especially into the onset of dusk. But they never extended them deep into the night. Quite soon after dinner, around 8 o’clock, everybody went to bed. Contrary to the Polynesian Islands, people did not know any nightlife.\(^2\) This is still the case today, and might have to do with the small wide spread settlements and with the living conditions in the closed compounds.

Both sexes were actually quite talkative. They talked long and posed questions to the foreigners with vivid mimics. LESSON called the women, in particular, downright garrulous, but still one could only communicate by sign language.

The white skin of the Europeans caused most of the surprise and curiosity. Among cries of surprise, they looked at it, touched it with their hands, sniffed at it—or kissed it?—, and pulled the sleeves of the foreigners back in order to have a closer look. One woman even opened LESSON’S vest and was so surprised that she wanted to undress him completely.\(^3\)

Also, the furniture of the ships and the treasures of the Europeans was closely inspected with the constantly repeated interjection uä, an expression of surprise, which is still used today. Looking at the masses of woven textiles of cloths, tents and sails, they were surprised about the industriousness of the European women.\(^4\) The most sought after presents were nails or axes for men and glass pearls for women.\(^5\)

I still want to mention the following individual characteristics:

LÜTKE was repeatedly surprised with the natives’ astuteness in reading traces of certain chiefs in the dirt and sand. Following them they soon found the person they were looking for.\(^6\)

The natives were extremely sensitive to cold. During some dribbles of rain, they started shivering and looked for shelter everywhere against the wind. When LÜTKE was surprised by a rain-shower, the natives immediately started to run very fast while others hid behind LÜTKE and MERTENS. One, lacking any other shelter, grabbed two plates of stone and held them in front of his face. According to KITTLITZ, the natives also went into the water up to the neck to flee the experience of the physiologically cold rain drops.\(^7\)

During a visit of KITTLITZ in Läl one of the natives

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\(^1\) LÜTKE 1835/36, I, p. 329.
\(^2\) LÜTKE 1835/36, I, pp. 382.
\(^5\) KITTLITZ 1858, II, p. 4.
\(^6\) LÜTKE 1835/36, I, p. 327.
\(^7\) LÜTKE 1835/36, I, p. 355; KITTLITZ 1858, II, p. 17;
cut himself a little bit on the finger while looking at a clasp knife. Everybody was quite frightened and the victim was hit by such sadness that he sat there with closed eyes as if awaiting death. KITTLITZ dressed the wound but the fear of the wounded person and the others lifted only after he showed them the scars of some cuts on his own hand.¹

When LÜTKE kept one of the chiefs as hostage for theft on board, he was really downcast. The next day, he was left without any courage after one unsuccessful escape attempt, even though the other natives came on board just as usual. LÜTKE finally freed him out of pity.²

It was considered a sign of favor when a woman offered a man a flower out of her ear.³

One of the chiefs started to blind one of his subjects with a mirror he had gotten as a gift out of fun.⁴

LÜTKE reports that a movement to express joy is to slap with the right hand on the elbow of the left arm, pressed to the body, so that a rather muffled sound was created.⁵

I observed repeated clicking of the tongue with a closed mouth from women as a sign of displeasure. This supposedly is a special female tradition. — Concerning Interjection, see the linguistic section of the expedition’s report.

According to my investigation, suicide was common in the old days. This is also evident from some of the old tales. The motives are: Unhappy love, chagrin about the death of parents, fear of revenge, also anger was quoted. According to the accounts, one popular way of dying were from the flames of an ignited house; another one was to fall from a rock. In recent times, only one suicide is known. In this case the person shot himself.

LESSON allocates the chiefs more power of comprehension than the rest of the people, from an intellectual point of view. LÜTKE calls them »tout-à-fait stupides« because of their »certain molesse« and »certain assoupiissement de l’ésprit et du corps«.⁶

General judgment and current character. We certainly have to agree with the first authors about the general character of the Kusaeans as well as their individual characteristics. They are not a people of animated physical and mental mobility, but have a rare kindness and a gentle and extremely agreeable nature. They also have a dependent, servile mind. The lush nature of their small home island, their little understanding of the world, and their social circumstances are mirrored in their character.⁷

¹ KITTLITZ 1858, II, p. 27.
² LÜTKE 1835/36, I, pp. 315.
³ LÜTKE 1835/36, I, pp. 357.
⁴ LÜTKE 1835/36, I, p. 310.
⁵ LÜTKE 1835/36, I, p. 390.
⁷ Compare LESSON 1839, II, p. 467.
It has remained the same until today. In the course of recent history, the natives have proven to be quite well behaved, despite of all the hardship, coming over them from time to time. FINSCH gives accounts of the brutality during the time of the whalers. Among other accounts, a native was told to hold on to the blade of the knife and it was pulled through his hand. The first attacks on ships aside, the Kusaeans quickly and without any resistance, submitted to the Europeans and their culture. Rightfully, FINSCH calls them »in fact most pleasant and hospitable, but not the most intelligent, South Seas islanders ...., which I came to know«. The last statement can also be drawn from their small historical understanding, compared to that of the Polynesians. Only after a more intensive study with the history, was it possible to follow their historical understanding about 100 years past the middle of the 19. Century, and, it worked best using genealogical tables. At the time of FINSCH, an old man still remembered LÜTKE and could talk about him. KRÄMER experienced the same, while I, despite of all my questions did not hear anything about it.

In the meantime people have become emancipated from the guardianship of their old aristocratic government under the influence of the mission’s teachings and due to other reasons. During my stay there actually was a tendency to abolish all sort of local secular government. Also, people became more realistic about their hospitality. The puritanical strict piety is spreading even with all their individual kindness and friendliness. Seldom broken by a self-confident presumptiveness in the belief of their outer and spiritual similarities. This puritanical strict piety brings relative high seriousness and deep boredom over peoples’ lives, unlike former times with all its strictness and etiquette. False prudishness, is especially unpleasant when the public does not realize its phoniness. I myself observed adultery committed by important church members with my black boy, just as I have heard of such a case. Also, one case of theft, where one native stole the money of another, happened during the time of my stay. By the way, it is not difficult to gain the affection of the natives today, considering their nature. I had to give my calling card to the King, which he caressed on his deathbed with words of deep devotion before the eyes of a captain. At my farewell, one of my permanent servants stood on board of the steamer visibly moved. With downcast eyes, he could not utter a last word of greeting.

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1 FINSCH 1893, p. [453].
Special Part:
Material Culture:

I. Body Hygiene, and - Decoration, Jewelry and Clothes.

1. Body Hygiene.

**General.** In his points of view concerning ideal physical beauty the Kusaeanean is not modest at all. The following traits are important: Average height, not too fat shape, a long small nose, thick eyebrows, which should be grown together, good teeth, a pure skin, like tea with milk, and full long silky hair. Checking how and to what degree the Kusaeanean tries to achieve this ideal, as far as he has not been bestowed with it by nature, we have to say that normally he does not tend to be corpulent. He does not do very much to care for his teeth, though they are traditionally cleaned with the fingers. The first visitors commented on the magnificent rows of teeth of both sexes as a characteristic.\(^1\) Other body hygiene deals mostly with skin and hair. Hair care does not include attention to keep it free of pests. To LÜTKE’s utter indignation, aristocrats and common people ate them. When he commented, people were surprised and innocently joking threatened to throw them at him.\(^2\) Even today such cleanliness is not common with the women and their long hair. Although, when a foreigner appears, the hand quickly disappears from the head of the work in progress and from their own mouth, to persevere a dignified decorum. The care of skin and hair always consisted in washing and the use of cosmetic substances.

**Bathing and washing.** According to the accounts of the natives, physical cleanliness was at a peak in the old days. People bathed in the sea or in the rivers daily,

\(^1\) LESSON, 1839, II, pp. 483, 484, DUPERREY 1828, II, 1, p. (636); LÜTKE 1835/36, I, p. 353; KITTLITZ 1858, II, p. 4.
\(^2\) LÜTKE 1835/36, I, p. 378.
or twice a day, in the morning and in the evening. However, reading LÜTKE creates doubts concerning this cleanliness. In those days at least, the women’s cleanliness, as well as that of the girls and children, left a great deal to be desired, to the regret of the Europeans. LÜTKE actually calls the women »very dirty« and he says, »… ce vice les distingue à leur désavantage des autres insulaires de cette mer, don’t la propreté corporelle surpasse ordinairement la pureté des moeurs. Ces jolis visages, pour la pluspart, n’étaient pas moins couverts de crasse que ceux de nos beautés des Sithka.« On the contrary, according to him, the chiefs distinguished themselves by their extreme cleanliness. As reported earlier, the title holding chiefs even had their own bathing places in former times. The highest honoraries, especially the King, had several around Lölö, as well as around Ualang. When the »Tokosa« passed by one of his bathing places in his canoe he regularly at least dipped his hand into the water and swiped over his head and breast. Other people were not allowed to bathe in these places. They were regarded with certain awe. Special powers were even attributed to the water there. In a similar way other water places connected to superstitious beliefs (see more under religion).

In the present time, partially washing the body is more common due to being fully dressed and the related inconvenience. However, even though the full bath is still practiced, its effects are restricted as people generally are too shy to bathe naked. Men usually keep their pants on and women their dresses. This bad habit is also practiced while fishing, where the natives often have to go into the water all the way to their neck (plate 18,2). Even when you change your cloth afterwards, it has disastrous influences in this tropical climate and under such conditions. People do not have a lot of clothes and their general cleanliness leaves much to be desired. The more so, as custom and prudishness go so far to keep the clothes on also at night, as well!

**Cosmetics.** We have to mention two as means of cleanliness while bathing:

a) Kaki moul (=»living old coconut«). It consists of a grated old coconut, bound in coconut baste. These small parcels look like big primitive children’s pacifiers and are hung in the house. When used people squeeze them in the hand and rub the dropping oil over body and head, before or during the bath. LÜTKE observed the common people doing this.³

b) Kaki sok (= »rotten old coconut«). It consists of the halves of an old coconut bound together and kept hanging in the house as a whole.

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¹ LÜTKE 1835/36, I, p. 354, I, p. 327 [»This vice distinguished them in their disfavor from the other islanders of this sea, whose bodily cleanliness ordinarily surpasses the purity of their morales. These pretty faces, for the most part, were not less covered with filth than those of our beauties from Sitka.«
R. +R., 1982 p. 114.]
² Loc cit. I, p. 351.
³ LÜTKE 1835/36, I, p. 359.
After two three days, due to air circulation, fungi develop on the meat and it turns black on the surface. According to the natives, this increases the oil content of the meat.\(^1\) Before bathing, some of the kernel is scraped off and the scrapes are used like kaki moul.\(^2\)

In former times each chief, blessed with many children, designated one coconut palm to deliver its nuts as kaki sok. This palm was called »koanu säla« (= »coconut palm for rubbing on the body«) and was taboo for other purposes. A violation caused cutting down of palms and corporal punishment for the caught culprit.

c) sofa. It is a perfumed oil. The name derives from the fact that the oil was kept in a sofa, »coconut bottle«. The manufacture happens in this way: Old coconuts are grated and dried under the sun for one day. Then, they are pressed into a coconut cup. The content is distributed into other cups, all standing in one common fire for cooking the oil. Once this happens, quite a lot of substances are added in a pounded condition. These are mostly flowers of monak and pasak (two varieties of taro), kiof (Cimum), kämuak, for (Ponape flower), kenlak (Fregraea). Further on, leaves of kemkem, kito, kâme, oren (mint) and different sorts of fragrant resins, which are produced from drift wood (sak pat), tansak (white resin), feranko (dark to black resin), usur (white) and kūar (white) are added. Finally, folofol, the rotten wood of the Rhizophore and elân that seems to be a white lichen, which is parasitic on trees are added, too. The cooled it is poured in a coconut flask.

People rubbed a lot of »sofa« on themselves, after the drying off from a bath, as well as before going to sleep. This perfumed oil does not smell bad, however, it smells rather strong. KITTLITZ mentioned it, and it also seemed to be the one LÜTKE talks about; that its smell stayed in a comb for months despite washing, after a native had combed his hair twice.\(^3\)

d) eân, yellow root. In contrast to the rest of the Carolines, it was unknown as a substance to paint the body, but still it was used. Young mothers used it in the first months after giving birth. They rubbed their and their baby’s body with it while bathing and after oiling themselves. According to the belief of the natives, this supposedly prevents pimples and their development.

e) Further on, there also was a special substance against loss of hair and to achieve full hair. It consisted of pounded leaves of a sort of grass alülän and was used after the oil.

Of these 5 commonly known substances,\(^4\) coconut oil had a special meaning because of its daily use. Nevertheless, it was

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\(^1\) Can be simply explained by the evaporation of the water content.
\(^2\) This second kind is definitely the »fresh« oil which LÜTKE mentions loc. cit.
\(^3\) KITTLITZ 1859, I, pp. 53; LÜTKE 1835/36 I, p. 359.
\(^4\) LESSON 1839, II p. 506 by mistake denies the existence of cosmetic substances; according to him the chiefs used coconut oil for their hair.
used by the different classes, in a different intensity and frequency. The common people
had to deal with it rather economically, because of the scarcity of the coconut and sofa.
Many necessary ingredients must have been a rare and uncommon commodity. The
aristocracy could afford to walk around with a substantially oiled body and hair. The
reason for oiling the body exceeded cleanliness and beauty; it also protected the skin
from the drying effects of the sun and against the water. Thus, LÜTKE had reason the
envy the natives due to the latter effect.2

In the present time, the old substances were still used. But they have lost their
importance due to modern clothes and kaki moul and kaki sik found a competition in the
form of soap.

f) Further substances. In former times lightness of skin was an absolute necessity
for physical beauty. Therefore, according to DUMONT D’URVILLE, the natives cherished
the complexion of the Europeans more than all their other treasures.3 People tried to
achieved it by not exposing themselves too much to the sun. They avoided sunny places
or protected themselves by artificial means, such as a sun umbrella. The aristocracy
naturally had an advantage here as well. Therefore, their skin looked lighter than that of
the rest of the population.4 In the same fashion, women enjoyed a lighter skin color than
men because of their predominantly domestic activities.5

The generally better body hygiene of the aristocracy was based on the care they
could apply in their easygoing master’s life, as well as in their better diet. Therefore, their
physical appearance seemed more beautiful to LESSON and DUMONT D’URVILLE.6 Even
today, their few descendants betray their origin by beautiful features, although such also
exists among the common people.

Generalizing, we can say that the care of body and hair was well established among
the aristocracy and came close to the natives’ physical ideal in the old days. As they also
took great care in clothing and traditional dress, we can talk of their being orientated
towards a body culture, as LÜTKE also sees it. Also, he did not observe any special
anthropological differences.7

In modern times, the general life style of the people was probably ameliorated. But
in respect to body hygiene, it regressed. This is clearly expressed in their loss of clear
skin. In the old days, their clarity and

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1 Compare LÜTKE 1835/36, I, p. 359.
2 LÜTKE 1835/36, I, p. 326.
4 LESSON 1839, II, p. 485.
5 LESSON 1839, II, p. 484.
light color were described in blazing colors, and tales about the skin of certain beauties were praised as light and glowing like »lightening and sunshine«. Now supposedly a blotchy and patchy cover is on the rump, which often people like to hide in front of a foreigner. Finally, after long negotiations, I managed to organize some women who were willing to be photographed in the old traditional outfit and I learned the reason for my former futile efforts, not for reasons of morale, even though they might also count, but for shame because of their bad skin. The reason is most probably the acid reaction of sweat, due to the non-understandable use of full clothes and also the minder use of the old cosmetic substances. As natives no longer like the sort of clothes, which conform to the circumstances, they at least have to be taught to abstain from bad habits of uncleanliness, idleness, and stupid prudishness. They also have to be urged to more frequent baths and to more frequent washing and changing of clothes. This could be achieved without any harm to their souls!

2. Body Decoration.

Hair style. In former times, men and women let their hair grow long. Part of beauty was actually full and long hair. It supposedly reached all the way down to the upper thighs and even below the knees.

Both sexes twisted their heir to a knot (karak), men on the top of the head towards the neck, the women in a loose way on the right side of the head, so that it hung down towards the shoulder. According to LÜTKE, the women also wore their hair loose.¹ The old fashion is also depicted in the historical atlas of LÜTKE and DUPERREY (plate 14).

The hair was rubbed with the different oils and the afore mentioned hair growing substance just like the body (p. 73).

Currently, the men wear short hair and the women wear long hair. Adults put it up into a hairdo and sometimes even fastened in braids on the back of the head.

Beard fashion. Formerly, mustache and full beard were grown, as it still is done today. The hair was cut by carefully singeing it with fire. LÜTKE accounts that there were men without beards, who plucked the hair out. LESSON observed long beards coming down all the way to the breast.²

Pubic hair. Is not removed.³ To have little was considered rather ugly and you would be ridiculed.

Sexual parts. According to Prof. KRÄMER, there is no circumcision nor incision. This is confirmed by LESSON.⁴

Removing the testicles is, according to Prof. KRÄMER, unknown, too.

¹ LÜTKE 1835/36, I, pp. 356, 357; LESSON 1839, II, p. 485, only mentions knots of hair; KITTLITZ 1858, I p. 362.
³ LESSON 1839, II, loc. cit.
Long labia minora are considered beautiful; therefore, they were artificially elongated. According to Prof. KRÄMER, they are called »sof en sak« (= also clitoris).

At this point we also want to add the way natives relieve themselves. Both genders urinate by squatting a little bit away, so that they cannot be seen. Men perform their greater need in the bush and women, since time immemorial, in the sea or in a river. In former times, the men also had a sort of cesspool, behind a small stonewall. They hid there. It was called lan en bo = »foundation for the hand«. This expression can be explained in the following fashion: you stepped with each of your feet on a stone, therefore lan; bo = »arm« is a description and indicates the cleaning with the hand a well as the act itself. Such a description was used because people avoided calling the performance with its proper name »fak«. However, this word is the common among both genders today. An old noun is bak; currently, custom does not tolerate this word and it is substituted by fok = »dirt, mud«. As an explanation for lan en bo it would be more understandable to think of the wall as a »support for the hand«, but the natives contradicted this. —After they finished their business women sit on a stone in order to dry off. These stones are called äkbao (= »drying«). Old stones with such names are still lying in the channel of Lölö, among others.

Allegedly there is only one form of coitus practiced. The woman is succubus and lying with pulled up and bent legs, while the man is kneeling and pulls the legs of the women over his upper thighs. Cunnilinctus was formerly commonly practiced with women and supposedly still is. Onanie = netnet supposedly is not practiced. By the way, there are some known cases when men used cows.\(^1\)

3. Tattoos.

**Meaning.** Tattoos = sisön was formerly common on both sexes. But, even at the time of FINSCH, it could only be found on some of the older people, otherwise it had been abolished more or less by the mission. It only permitted »carving Christian names in capital letters«. Currently, tattoos can be considered to have disappeared.

Formerly, the tattoos distinguished themselves by the uncommon designs on this island.\(^2\) LÜTKE’s opinion, that the lines were not symmetrical and irregular, is contradicted by KITTLITZ who talks about a given scheme, having nothing to do with the taste or choice of the individual. It also did not have a subordinate meaning for the old Kusaeans, as FINSCH thought. But, it did not serve as an

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1 The King, who had traveled a lot in the South Seas, also reported the following observations on other islands: In the Marshall Islands the woman usually is incubus. In Hawaii, women train dogs for cunnilinctus. Women of Pukapuka, with whom he once went on a whaler to Hawaii, masturbated with trepang.

2 Compare KITTLITZ 1858, II, pp. 11; LÜTKE 1835/36, I, pp. 359; LESSON 1839, II, pp. 586 (T. = sise, schisché); FINSCH 1893, p. [483].
external expression of a difference of class, as LESSON thinks, contrary to LÜTKE. It was an external sign of age. MERTENS, a colleague of KITTLITZ, learned this, because he spent a lot of time recording tattooing. Unfortunately his records were lost due to his sudden and early death. There were three stages of tattoos, more or less the same for both sexes in their designs and arrangements.

**The Bonfa tattoos.** This sort of tattoo is very simple. It consisted of only a few forms of ornament. Its meaning, as well as the one of the later mentioned ones, could no longer be established (illustr. 2).

Illustr. 2. The bonfa tattoos of the old king. a and b: the right arm from the front and inside; c, d and e: the right leg from the outside the front and the inside

- **ta,** a big, fully black, horizontal square in the crook of the arms, it stretched all the way to the elbow. This design can also be seen on the clothing mats.

- **romok,** two long, fine and slightly bent lines, starting from the lower edges of the ta patch close to both its ends, and curving along the lower arm, ending on the inside of the wrist. The inner romok line continued on the upper arm all the way to the height of the shoulder. A similar line went on the middle of the front of each upper thigh from the beginning of the leg to the knee. Further, another one decorated each leg, on the outside and the inside, from the beginning of the leg all the way to shortly before the ankles, as FINSCH already pointedly remarked, »just like a military trouser-stripe«.
muät, a small lying cross ornament which accompanies the outer side of some of the romok-lines, to be precise, the ones on the upper arm and upper thigh. ¹

The here-described bonfa-tattoos are the ones of the old King. It represents the ones in the illustrations of DUPERREY (plate 14) relatively well. There, the external romok line of the arm continues to the shoulder. Further, there is a line on each of the buttocks and outer upper thigh, accompanied by muät-ornaments.

The bonfa tattoos of the women was the same, only a bit richer. They also had an inclining ta patch on the outer side of the beginning of the thigh, located towards the buttocks. Sometimes there was a similar one, called tufok, on the inside of the upper thigh. Further on, she carried a wide fully black stripe around her body.

The first tattoos were applied on both genders at the time of puberty, beginning with the appearance of pubic hair for girls.

Bonfa tattoos were the only ones, I still saw myself. There was only one among the women, and she was merely tattooed on one arm. She had not completed the operation because of the pain. Among the existing tattooed men, a few had some insignificant, unruly distributed designs on the upper and lower arm. Only one, bonbálan (from bo in bálan = »arm of abroad«, foreign design?) had a name and is old (illustr. 3).

The sekälik-tattoo. This supposedly consisted of 3 ca. 1—2 cm wide stripes along the lower arm, extending from the wrist to the elbow and also three similar stripes along the entire leg. The exact location of the lines is no longer known, just as their names have been forgotten. These tattoos were the same for both genders. They were applied in later age, supposedly around 40 years.

Obviously, these are the tattoos as they can be found in DUPERREY’s historic atlas on the plates 50—52, although they do not correspond exactly (plate 14).

Judging them, they were a wide ribbon for men, which seemed to wind over the entire arm in form of a spiral. The course of the ribbon cannot be seen on the leg. Here, it shows also reserved ornaments in it. The arms of the women do not have any special tattoos of this kind. There are at least 3 wide and long recognizable ribbons on the legs. Probably, the wide line in FINSCH’s illustration of a man’s arm tattoos (bonfa-T.) are part of this.

The sesätu-tattoos. They supposedly were also long lines, and, in contrast to the first two, they were applied to the rump (not the face). Concerning their rich design, they

¹ FINSCH saw this ornament as a Y, LÜTKE as a line, which splits at the top and at the bottom, he considered it as a depiction of a bird.


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supposedly were similar to the Marshallese tattoos. The sesatu tattoo was the same with both sexes. It was only applied at a rather advanced age.

While my informants still had known various people with sekälik tattoos, only one old man still remembered to have seen an old man with a sesätu tattoo during his childhood. But, all the other ones knew about the third, and richer, kind of tattoo.

The existing written sources do not mention any such decoration of the entire body. They only talk about designs on the limbs, although the members of the DUPERREY and LÜTKE expeditions met the King at the time, who was an old man of many years, by then. It is possible that the information of the natives about the richness of the last kind of tattoos is exaggerated. But, we cannot deny the former existence of a richer tattoo; it is also mentioned in an old chant. Therefore, we can conclude that tattoos were already on a decline at the time of DUPERREY and LÜTKE. Maybe they did not want to undergo the painful procedure at an advanced age.

The tattoo instruments were the usual. They consisted of an old hammer (skan top) with a round cross-section and a pointed end for hitting, as well as a comb, made of a dentate piece of bird bone, fastened to a small wooden handle (»kalis«). The bones were from a big, very rare sea bird, called kötä, which supposedly was easy to catch. When one of them came into sight, people ran together shouting loudly. Due to such commotion, he curiously came and flew so close that he could be hit with stones and sticks.

Knowledge of tattooing was restricted to certain men and women, called »mokul sakerom« or to be precise »matän sakerom«.

We could not find any deeper meaning connected to tattoos, other than the one initially mentioned. I still want to mention that, according to a message from MERTENS to KITTLITZ, a woman received a full tattoo at a younger age than a man. Further on, I heard about the following tradition. At the occasion of the construction of a canoe for high status title holders, the King invited the men with a sekälik and the younger people with a bonfa tattoo for a competition. Each party had to fell a tree, selected for the rump of a canoe, at the same time. The ones, who finished their job first, were considered the stronger age group.

4. Decorative Items.

Material. According to correlating statements of the first visitors, they did not notice any desire for extravagant decoration. They only saw a few pieces of jewelry. Only children were more decorated.²

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¹ FINSCH is mistaken, when he thinks that Kusae does not have such tattooing instruments. LÜTKE’S statement (loc. cit) that the skin was scratched by a shell, seems to be based on a misunderstanding. He also mentions it with reservation.

The main decoration consisted of flowers.¹ It has survived to this very day and currently represents more or less the only decoration. Flowers are appreciated because of their beauty and their smell. Even today the Kusaean woman likes to put a flower in her hair in playful joy, especially on Sundays, or she decorates herself with a flower garland as the young girls usually do, or with a small bouquet of flowers in her ear. I repeatedly met the Queen with a flower wreath on her head while doing her household chores. Different blossoms are chosen, kiof, oren (mint), for (Ponape flower) musköl (blossom of the pandanus), kämuak, pasok (taro) kalso (Ixora coccinea) and koja. In former times, decorative bushes were also planted right next to the houses, especially Ixora with their flaming red blossoms.² Instead of flowers, people also used leaves, especially fenmä (young orange leaves). In the old days, the koja flowers were exclusively for the chiefs. If they saw a common man decorated with it, they beat him up.

Further on, feathers in their natural form were used.³ The tail and wing feathers of the frigate bird and later the feathers of white roosters were used instead.

The rest of the material used for jewelry had to be created artificially, such as baste, turtle shell, and shells. The following pieces of jewelry, if not otherwise mentioned, were worn by both genders:

**Hair Decoration.** 1. Individual blossoms or flower wreaths (los). In former times, only the King and the Queen wore koja garlands.

I also want to mention that at the time of LÜTKE the natives put the objects received from Whites, such as nails and fishhooks, into their hair (plate 14,1) without much ado.⁴

2. susu, a male head decoration for dances consisting of two wings of frigate birds (sük) or of a white rooster, fastened to a circular piece of the rib of a coconut frond. The wings stood up vertically on the sides at the front of the head, at the temples. There were also pieces of jewelry made of 4—6 wings. They were called kara. In the people’s belief, usu and kara provided the person who was wearing them with the speed of a frigate bird.

KITTLITZ mentions such a decoration, where it seems the circlet was the back skin of the bird still attached to the wings.⁵

A sort of feather crown was also mentioned to me as susu, consisting of a ring of pandanus leaf with the feathers of the frigate bird vertically inserted into it. According to the judgment of the old King, this was not the susu decoration of the old days, but a decoration of modern times.

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3. FINSCH received, and also mentions, a head wreath as a dance decoration. It was a fiber string with small white shells attached, just as it is the custom in the neighboring Marshall Islands.¹

4. Combs for combing hair, supposedly did not exist. A hairpin, called jon, supposedly was introduced in modern times by the Rotumah natives. It was the midrib of a leaf, studded with feathers like a blender. Hairpins were mentioned in any of the sources. It is remarkable it is that HAMBRUCH found five combs from »Ualan« in LÜTKE’S collection in Petersburg. One obviously is identical with the one depicted in LÜTKE’S historical atlas, taf. 30, fig. 9. 3 others are presented here for the first time (illustr. 4—6).

The type of the combs varies only slightly in form and construction (the main body and the 2—3 teeth are made of one piece). It can also be found on the neighboring Carolines. I still want to mention to the depicted pieces:

Illustr. 4 has a black painted body with a white accentuated ornament made of notches. Short hibiscus strings with white shells, black coconut beads, and one yellow dyed piece of mark decorate the 4 corners. There is a natural colored piece of wood attached on the top, a black feather of a frigate bird is clamped to it.

Illustr. 5 has 6 white and black decorative feathers attached with twisted strings made of hibiscus and human hair. The strings end in three legs parts of lobsters. Illustr. 6 has a sticklike continuation on top of the main body, carved like

¹ FINSCH 1893, p. [484].
beads. On the top of this continuation there is a small fish hook made of coconut shell, enclosing the moth eaten bundle of feathers.

Two combs not depicted here (Petersburg 711\textsuperscript{153} and 711\textsuperscript{154}) have great similarity with the one presented in illustration 6.

In the present time, women use European combs to groom their hair as well as for decoration.

**Ear decoration** = säsa (seik = »my ear decoration«). 1. Decoration of the earlobe = nana. Only the right ear was designed for decoration and had the lobe perforated and stretched considerably (hole = sus). Women generally wore bushels of flowers in it, especially Ixora coccinea and leaves, while men were content with smaller bouquets.\textsuperscript{1} A good smelling resin from driftwood (kūar), called karkok was and is still worn as a decoration, mixed with coconut milk and wrapped in dry leaves in the ear (collection Sar. 1342).

The hole in the natives’ ear also took care of many objects, received from DUPERREY’s and LÜTKE’s people, such as nails, fish hooks, and even bottles and others.

According to LÜTKE, if you did not carry anything in the hole of your ear, then you placed the earlobe into the auditory canal. This certainly is a mistake. In such a case, the earlobe was placed over and behind the ear, like on many other islands.\textsuperscript{2}

2. Decoration of the upper edge of the ear. The right ear had a second, very fine hole (sekenarekaf) on the upper edge. It was dedicated to hold one single flower.\textsuperscript{3}

**Nose decoration.** In the drilled nasal septum (hole = sis in foa) a flower was inserted, too, though rarely, in order to have its smell close. European needles and rolled paper were also used here.\textsuperscript{4}

**Neck Decoration** = moalmoal. 1. Laces of grass and flowers.\textsuperscript{5}

2. eā. This was the typical and characteristic decoration of the female gender. Therefore and because even small girls would wear it together with their apron, it can be regarded as a part of clothing. It consisted of individual strings, which were twisted from each a white and black dyed hibiscus baste string. The strings were knotted in bundles on the neck so that the knot was hanging down like a plait. They were worn in such an amount that they covered the neck like a bandage or cuff\textsuperscript{6} (plate 14,2 and illustr. 7).

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\textsuperscript{1} Compare LÜTKE 1835/36, I, pp. 356, 357; LESSON 1839, II, p. 485 confirms that only the right ear was perforated, while according to KITTLITZ it could be one, as well as both ears. Compare also GULICK in N.M. 1862, p. 244.

\textsuperscript{2} LÜTKE 1835/36, I, p. 356,

\textsuperscript{3} Compare LÜTKE 1835/36, I, p. 356: he mentions it only of men.

\textsuperscript{4} Compare LÜTKE 1835/36, I, pp. 358: He mentions this decoration only of women.

\textsuperscript{5} Compare KITTLITZ 1858, II, p. 357.

\textsuperscript{6} KITTLITZ 1858, II, p. 5 considers this decoration by mistake for plaited on and together with LÜTKE the material for coconut string.
I. BODY HYGIENE AND DECORATION, JEWELLERY AND CLOTHES.

I want to repeat here LÜTKE’s descriptive report of this decoration: »Mais la partie la plus remarquable de leur toilette, c’est le collier, qui peut servir de prevue que ce n’est pas seulement en Europe que la mode se plait à contrarier le bon sens. Ce collier, ou, pour parler plus juste, ce bourrelet, a environ neuf pouces de tour, se compose d’une infinité de petit cordons de fibre de cocotier, fortement liés entre eux. Cette cravatte s’ôte jamais. On peut s’imaginer quell fatras de toutes sortes doit s’accumuler là avec le temps, chez des personnes aussi propres …«

Men also wore eä decoration but they were content with just one string, usually decorated with knots in irregular intervals (»eä foko = knotted string«).

The natives still knew how to make the eä decoration; the expedition bought different bundles of such strings.

3. i moa1, thin necklaces made of human hair, woven in strands like braids and which were also decorated with knots. The necessary hair was provided by his or her lover as a pledge. The one in Illustr. 8, according to DUPERREY, seems to be such a string of hair.

4. ät. This was a very much cherished neck decoration for both genders. A necklace made of red spondylus shell discs, all of them in the same form, as they are known from the Marshall Islands and so on.

The string was plaited from one white and two black pandanus leaf strings (ip en lol). The shell beads have a hole drilled in the middle and were each attached to the string with the help of the strong alko-baste (Pipturus) during the plaiting.

The shell, the name of which has been forgotten (!), was found in abundance in

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Kusae, at the foot of the reef. Others were delivered from the Marshall Islands and from the west strung on strings. These imported pearls were too thick for the Kusaeans and they were ground thin. The expedition could obtain a piece of such an ät-necklace as long as a finger (illus. 9). The old character of this decoration was also confirmed by the excavation in the ruins, undertaken by Dr. HAMBRUCH, which brought to light a greater number of faded red shell beads. Among them are relatively big beads that were not used on the ät-jewelry. Maybe these were not yet ground thin discs. Although the natives deny it we cannot exclude the possibility that red spondylus necklaces were worn, like in the Central Carolines.

This jewelry conspicuously was not mentioned by neither LÜTKE, nor LESSON, nor KITTLITZ. The reason may be that it was not worn on a daily base because of its value. On the other hand, all of them correlate in mentioning the following jewelry, the existence of which had been denied to me:

5. Neck strings made of white shell and black coconut shell beads. LÜTKE considered them male pieces of jewelry. KITTLITZ saw them on children. According to Tafel 50 and 55 in DUPERREY’s Historical Atlas, there must have been several kinds of such necklaces (Illus. 10). In the collection of LÜTKE in Petersburg, there are three completely identical necklaces from Kusae (711116, 711117, 711118), of which one piece is reproduced in Illus. 11.

6. Necklaces made from strung seeds are mentioned by LESSON and KITTLITZ, and are called »Houlé«

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1 See also trade and shipping.
2 LESSON 1839, II, p. 506; LÜTKE 1835.36, I, p. 357; KITTLITZ II, p. 13 »of shell and small wood pieces«
3 LESSON loc. cit.; LÜTKE 1835.36, I, p. 305.
by the first one. Oddly enough, the necklaces made of glass beads, given by the first Europeans and sought after by everybody, were rarely worn. Only now and then an aristocrat would appear with such a decoration.¹

**Breast decoration** = moalmoal. 1. metmet, one eā or āt string hung with two to three long pieces of turtle shell. It was a very common jewelry (Illustr. 12).

2. ka, a decoration similar to a fishing hook, made of turtle shell on an eā-string, a man’s decoration. FINSCH already showed such decoration on Plate 23, Fig. 3, as well as PARTINGTON on plate 175, Fig. 2. The latter one explained as a fish hook by mistake. The expedition acquired three such pieces (Sar. 1353, 1326; K. 782). These ka distinguished themselves from similar pieces from other islands (Songosor, Bur) by a hollow in-between the two sides. The jewelry supposedly was rare. According to FINSCH »ka was worn by men who had to appear in front of the Tokoscha (King) and they always wore only one piece«² (Illustr. 13).

3. puti. It is only mentioned by FINSCH, who collected several pieces and represented them on Taf. 23, Fig. 3. One other piece, which he did not print, is dented on the upper edge like the ka. According to him, puti is an analogue to ka female jewelry of women, worn in the same circumstances. At the same time, FINSCH mentions that ka and puti served as money (Illustr. 14.)³

4. LESSON also mentions that the composite fishhooks made of mother-of-pearl wear worn as breast decoration. He saw them on some chiefs. »They were very proud of them and would not have parted from them for any price.«⁴

More information about them is in the chapter trade and shipping.

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¹ KITTLITZ 1858, II, p. 5. ² FINSCH pp. [484]. ³ FINSCH loc. cit. ⁴ LESSON II, p. 505.
Some breast ornaments must be added. They were found by Dr. HAMBRUCH during his excavation:

5. Red spondylus shells faded by lying in the ground and perforated twice on the top. According to statements of the natives, they were worn on the breast. According to Dr. HAMBRUCH, they were called besa (see his contribution with illustrations).

6. Red pieces of spondylus in a special form with triple perforation (see Dr. HAMBRUCH’s contribution with illustrations). This one, as well as the before mentioned shell jewelry, are the same forms as we know them from the ruins in Ponape. ¹

Decoration for the nape of the neck. Uät, supposedly a 20 to 30 cm long and three fingers wide piece of turtle shell on eä-string, worn around the neck by the men. This jewelry has also been mentioned by LESSON and LÜTKE; the last one reports the size of the ūät of his friend KAKI as 4 inches long and 1 ½ inches wide. At the same time, LESSON has the opinion that the natives connected some superstitious belief with these charms, because they did not want to part with them. LÜTKE, on the other hand, thought they served as a tribal emblem, because he only saw them on his friend KAKI and later, on his village colleagues, during the farewell party for the »Senjäwin« in Läl. Their views do not seem to be justified (plate 14,1).²

Arm decoration. 2 sorts of bangles existed, only used by men.
1. luo, arm ring made of Conus millepunctatus (for). Only one ring, several centimeters wide, was made from one shell. The wider the ring, the more valuable it was. FINNCH managed to get several of such conus rings, some finished and some incomplete. The ring, depicted on Taf. 23, Fig. 1, is made of trochus, according to his opinion. It does not have any ornamentation on the outside. According to statements by natives, they often had a hollowed surface and a raised edge, decorated by notches. By the way, EDGE-PARTINGTON reproduced an undecorated arm ring of this kind on Taf. 175, Fig. 6. The rings also served as money. See also, under Trade and Shipping.

2. The shell rings were a dance decoration, worn on the upper arm. This is confirmed by LÜTKE and, according to him, they were called »moek«³ (illustr. 15).

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¹ Compare Sarfert in the year book of the Städt. Mus. für Völkerkunde zu Leipzig 1911/12, p. 37 and Taf. 8, Fig. 4—12.
² LESSON 1839, II, p. 506; LÜTKE 1835/36, I, p. 357; FINNCH 1893, p. [485] considers the pieces, according to LÜTKE’s description, mistakenly for identical with his mother pearl money, by translating »morceau d’écaille«=»piece of turtle shell« as »piece of shell«.
³ LÜTKE 1835/36, I, p. 384. By mistake, the word »moek« from LÜTKE has been reproduced as »mock« by FINNCH 1893, p. [485]. FINNCH relates this name to the neck ornament.
2. kilkil, an arm spiral made of turtle shell stripes, about $\frac{1}{2} - \frac{3}{4}$ cm width. Despite of all our doubts concerning the ingenuity of this piece of jewelry, the natives insisted, and EDGE-PARTINGTON actually depicts, such a spiral with the comment »Strongs Island« (Illustr. 16).

Leg decoration. luok, black string made of hibiscus plaited in a special way. Women wore it in thin bundles on the ankle. The ornament is also mentioned by LÜTKE, who thinks it is the same as the ät-string by mistake. Further on, he remarks that only one was worn on each foot.¹ The natives were still able to produce this decoration for the expedition (Illustr. 17).

5. Clothes.

The old way of clothes.² For both sexes, clothes consisted of the well known, often magnificently ornamented tol, made of banana fibers, the most beautiful and finest example of Micronesian weaving. These tol are very short and narrow. They end in fringes, just like the clothes-mats of the Central Caroline Islands. According to our survey, the natives distinguish 8 different kinds.³ The expedition managed to have 7 kinds, made by knowledgeable, older women in the good, old way, even though their production is no longer exercised.

1. The men’s tol. Just like the clothes-mats in the Carolines and in Polynesia, the maro is folded and worn T-like around the hips and back. The folding was done in such a fashion; it was first folded double and then four times, while taking care that the ornamented side, or at least the red middle line, will be visible on the top layer. Further on, one end was twisted in such a way that a small pouch was formed to contain the penis. LÜTKE compares it with a suspensory bandage. To form this covering, the most ornamented end (the sem-end) was used, so that the sexual organ was especially emphasized. The pubis hair of the men remained clearly visible. It was worn in such a way that the before-mentioned part was held in front of the body. The other part was pulled through the legs and wound around the hips. Both ends were looped around (plate 15,1,3; plate 16,1).

2. The women’s tol. It was worn without folding. Because of its shortness, small width, and stiffness, it was tight fitting. In front, it did not reach far above the pubis and reached halfway down to the upper tights. It was fastened

¹ LÜTKE 1835/36, I, p. 358.
² Compare LESSON 1839, II, p. 485; LÜTKE 1835/36, I, pp. 355; KITTLITZ 1858, II, p. 4; FRINSCH 1893, pp. [480].
³ Compare with weaving, contribution of A. Krämer and also the supplement there.
by simply pulling the fringes of one end in-between tol and skin. This insufficient fastening method caused women to constantly take care to prevent the garment from unfolding, so that LESSON said, »Le maro des femmes est si mal assujetti, qu'on les voit sans cesse occupées à le retenir avec les mains, et remplit assez mal l’office auquel il est destiné.« Concerning the way to wear it, we still have to remark that the most ornamented sem-end was displayed on the lateral side of the right thigh. Concerning the female tattoos, the tol covered the ta-patches on the upper thighs and the body ring of the women (plate 14,2; 15,2,4).

We already mentioned that the special characteristics of this piece of cloth caused the women’s characteristic way of sitting. Because of its easy way of fastening, any squatting had to be avoided. This also seemed to be demanded by modesty reasons. If this way of sitting is still practiced today, then it is an excellent example for the survival of a custom when the reason for it had vanished. LÜTKE and KITTLITZ also trace the women’s former, bent forward, way of walking to the characteristics of the tol. This does not seem to be correct; it probably was related to questions of etiquette.

In their early childhood, the children went around naked. But at a rather early age, they received a tol, made smaller and shorter. The female sex especially wore it just like the necklace from a very early age on. There was nothing known about special customs when wearing the tol for the first time.

3. kiaka matäta = »mat for sitting«, also kiaka sisik = »small mat«. While men wore only the tol, women’s clothes consisted also of this mat, made from pandanus leaves. It was mostly used among the women of Lölö. It was folded and worn on the buttocks and held by a string of hibiscus baste (eä foläla = »string to bind around the hips«) or by a string made of the same material decorated with knots (eä koko = »string with knots«) (plate 14,2; 15,2,4). This custom definitely goes back to the great pains the production of a tol caused. One did not want to unnecessarily soil it if there was no sitting mat nearby. Therefore, it was worn all the time in the house, as well as during short excursions and visits. This strange »piece of clothing« caused mirth among the first visitors, because it constantly hit against the legs of the women while walking. In the vicinity of the house, the women used their sitting mat as a rain or sun umbrella at the same time. They took such an old

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1 LESSON 1839, II, p. 486 [»The maro of the women is so ill fastened that one sees them constantly busy rearranging it with their hands, it does very little toward fulfilling its obligation.« R.+R. 1982, p. 57.]
2 Compare KITTLITZ 1858, II p. 5.
3 LÜTKE 1835/36, I, p. 356; KITTLITZ 1858, loc. cit.
4 KITTLITZ 1858, loc. cit.
5 KITTLITZ 1858, II pp. 4.
1. My interpreter Kelafa-Kön in the old traditional costume.

2. The king’s sister and her daughter in the old traditional costume.

3. My interpreter Kelafa-Kön in the old traditional costume.

4. The king’s sister and her daughter in the old traditional costume.
1. Men in their old traditional costume.

2. Natives in their modern Sunday outfit.
mat with them when they went fishing. Concerning their production, see also under Mats and Sewing Bags.

In former times, there were no other clothing than the ones mentioned. Although there exists a name for hat, serafrap, people deny its former existence. Supposedly the hat of the central Carolinians is only known since recently, but has not been used.

The notes of Prof. KRÄMER mention a mā susu, an umbrella for the eyes. According to my investigation, it did not exist. The thing means literally »thing to cover the head« and denotes everything which serves this purpose, such as a hat, a mat, a form of ornamentation, etc.

The sitting mat served as a women’s rain and sun protection and both sexes used a big taro leaf, which was plucked when needed.

Modern clothes have been introduced by the Mission, which did not approve of the old ones. The first visitors noticed that a chief had never worn a shirt, which he had received as a gift. Despite the nautical traffic, the tol was still generally worn as clothing when the Mission was founded. But, from then on the use of the old traditional costume declined rapidly. In 1873 it had been completely driven out by new clothing. Nevertheless, it still eked out an existence as a secondary garment under the modern clothing for some time. In 1880, it was still worn in this fashion. In those days, the new clothing was removed when working in the fields, so that the old ones were revealed. Currently, this undignified role is over and they have disappeared altogether.

For men the new clothing usually consists of shirt and trousers, accompanied by a jacket in the European cut for special occasions. For women, it consists of a shirt and a long colorful calico dress with sleeves, looking like a nightshirt. The modern moral opinion is already exercised with the clothing of the smallest children, and each mothers watches carefully that the foreigner might not see the naked skin of her baby.

We already described the hygienic effect of this clothing (pp. 63, 73, 75). Generally speaking, its esthetic impression also leaves a great deal to be desired. Of course, the natives do not have the luxury of an extensive wardrobe, as is necessary in the tropics, due to hygienic reasons. The majority has about 2–3 suits and dresses, respectively, and just as many shirts. They quickly get dirty and look worn. During the week, men usually wear only shirts and pants. Despite their al over civilized appearance, the Kusaean generally looks a bit like a vagabond. But this is not true when he is going to church, when he appears in a gala outfit, sometimes in a white tropical suit.

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1 Compare LÜTKE 1835/36, I, p. 356; KITTLITZ 1858, II, p. 5; FINSch 1893, pp. [481].
2 Compare LESSON 1839, II, p. 485; LÜTKE 1835/36, I, p. 359 considered this mat for something different than a sitting mat; FINSch 1893, pp. [481].
3 GULICK in N.M. 1862, p. 244.
4 KITTLITZ 1858, II, p. 5.
5 BOLDREWOOD, p. 179.
6 FINSch 1893, pp. [481].
a hat, and, some even in boots or shoes, that are an object of pride when they »squeak«. Once back from church, people generally take off this formal outfit quite quickly (plate 16,2).

Concerning other pieces of clothing, the shoes just mentioned, are a rare piece of luxury. On a daily basis, people walk around barefoot.

The hat = serafraf is a daily commodity. It has the form of our straw hat, but it is bigger and, therefore, quite similar to the Panama hat. Women only wear it while fishing. The natives weave these hats themselves; and this has been introduced from the Marshall Islands (see also weaving).

The sitting mat does not count as a piece of clothing, but, just like taro leaves, it is used as a rain or sun umbrella.
II. Sources Of Food And Their Use.

1. Agriculture.

Food plants. In the economic life of the natives planting food, the indispensable condition of maintaining life, takes most of the time. This important branch of providing food is exclusively shouldered by men, women do not participate in this respect. As much as man’s status improves thus in our eyes, he still does not burden himself heavily in this way. Nature facilitates his work and frees him from intensive care for his cultivated plants. Although Kusae is not blessed with a big variety of species, it nevertheless differs greatly in comparison with the poverty of coral islands and can even compete, to its own advantage, with other high islands of the South Seas. It represents a small paradise due to the quality and quantity of its fruits, due to its lush thriving of most cultivated plants even in the wilderness,¹ and by its great richness of varieties.² The number of species has been increased in modern times due to the introduction of new cultivated plants, of which nearly all thrived and even went wild. Only one shortage still has not been resolved the lack of vegetables; the food plants are exclusively fruit plants.

An overview of the species of food plants illustrates this statement. Here the introduced plants are indicated with *) and even the wild growing ones are indicated as such. We are following the natives’ division of the sub-varieties, which are mostly differentiated according to the form and the color of the fruits or the leaves and also according to the origin.

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¹ After the typhoon of 1905 the Missionary Dr. RIFE received a wild taro corm weighting 125 pounds! (M.H. 1906, pp. 85.)
² Compare LESSON 1839, II, p. 466; LÜTKE 1836/36, I, p. 368; FINSCH 1893, p. [458].
1. ketak = taro species\(^1\) (Arum esculentum) with rounded leaves and a soft well tasting fruit. The natives distinguish the following varieties:
   a) kuso
   b) ek in melak
   c) fofualal
   d) tarko
   e) taraso
   f) toa
   g) kuos
   h) nukor
   i) kuso keke (keke = »hard«)
   k) passim
   l) monak = Arum macrorhizum\(^2\)
   m) file = wild ketak.
2. Pasok = taro species (arum sagittifolium), with pointed leaves and harder fruit, the varieties are:
   a) ebon (named after Ebon-Atoll in the Marshall Islands?)
   b) masmas
   c) sim in ton
   d) ek in las
   e) mile (named after Mille-Atoll in the Marshall Islands?)
   f) sesa oa (oa means always as much as a good kind
   g) kirnesa
   h) pasok mutät = wild pasok
3. mota = yams:\(^3\)
   a) okani
   b) oaklap
   c) okasik
   d) okasikök
4. us = banana:\(^4\)
   a) män mes
   b) met konos
   c) met kafus
   d) abul
   e) finie
   f) matante (= region of Ualang)
   g) kelontol
   h) ui
   i) alokaf
   2. Pasok = taro species (arum sagittifolium), with pointed leaves and harder fruit, the varieties are:
   a) ebon (named after Ebon-Atoll in the Marshall Islands?)
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   c) sim in ton
   d) ek in las
   e) mile (named after Mille-Atoll in the Marshall Islands?)
   f) sesa oa (oa means always as much as a good kind
   g) kirnesa
   h) pasok mutät = wild pasok
3. mota = yams:\(^3\)
   a) okani
   b) oaklap
   c) okasik
   d) okasikök

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\(^1\) KITTLITZ 1858, I, p. 371: »katak«; LESSON 1839, II, P. 468: »taka«.
\(^2\) LESSON 1839, II, p. 468: »monaca«.
\(^3\) KITTLITZ 1858, I, p. 37o: »mata«.
\(^4\) KITTLITZ 1858, I, p. 37o: »mata«.
\(^5\) KITTLITZ mentions four kinds of banana: ush, kirreh, kalash, and kalanton, which can be recognized in our names, 1858, I, p. 7; 1861, p. 29.
\(^6\) LESSON 1839, I, p. 468: »oune kalasse«.
II. FOOD RESOURCES AND THEIR USE.

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u) us äpel (= »apple-banana«, from Manila). The last two kinds are currently most common.
with rounded leaves and a soft well tasting fruit. The natives distinguish the
[v) *) papaga: A banana from Manila, introduced by Capt. MELANDER. The
fruits are not eaten, the stem is used for the string production.]
5. to = sugarcane
   a) eir │ these are both
   b) esen │ the best kinds\(^1\)
   c) ponol
   d) to säl (sal = »black«)
   e) to in Kosa (= »sugar cane from Kusae«)
   f) to sä
g)*) to fasfas (= »white sugar cane« from Ponape and Hawaii)
h) *) to Ponpe (= »sugarcane from Ponape«)
i) fusanie = wild sugar cane, is not eaten)
6. seka = kava (Piper metysticum)
7. ean = arrowroot, was not planted\(^2\)
8. mokmok = a special kind of arrow root, also grows only wild
9. *) ponkin = engl. pumkin
10. *) water melon
11. *) potato (engl. potato) = sweet potato, after the last typhoon imported by
    Capt. MELANDER from Guam.
12. *) airis potato = irish potato
13. *) anion = onion
14. pain äppel = pineapple, introduced by the mission and now grows also wild.
15. *) sausap (engl. soursop) was introduced by the Mission and has also gone wild
Fruit trees:
16. mos = breadfruit:\(^3\)
    a) ek un lal
    b) mos in oä (oä = oa = best kind)
    c) safon
    d) patakäk
    e) pairkes
    f) fok keke (keke = hard, despite its size
      the fruit does not have much meat, but
      lots of fibers)
    g) inol
    h) fok sesak (sesak = »rough«, the skin
      of this kind is very rough)
    i) fok fas (fas =»white«; the fruits have
      light color
k) earkon
l) ek in bá
m) ek in fá
n) suf
o) ek in lik
p) måbon
q) fok säl (säl = »black«, the fruits have
   a dark skin color
r) mos in Kosa (= »b. from Kusae«) is
   also eaten raw.\(^4\)

\(^{1}\) They were supposedly planted by 2 gods.
\(^{2}\) Compare LESSON 1839, II, p. 512.
\(^{3}\) Concerning the origin of the breadfruit compare the legends nr. 11 and 12.
\(^{4}\) It is identical with the »mosse soucossa« of LESSON, which he described as wild (1839, II, p. 467)
s) fok kulo (kulo = »kernel«). Both the last two kinds have kernels.

17. nu = coconut; koanu = coconut palm:¹
   a) k. salsal (= »black c.«; fruits are dark green)
   b) k. sesa (= » red c.« it has reddish fruits)
   c) k. fasfas (= » white c.« the fruits are light green)
   d) k. nurem (= » yellow c.« the fruits are yellowish)
   e) k. selsel (selsel = many, the palms bear many small nuts)
   f) k. otoljok (otoljok = tantamount to a dividing wall; the nut supposedly is divided by a sort of wall in 2 halves)
   g) k sikā (= » small c.«, it only bears small nuts)
   h) *) k. küp (= » thick c.; it bears big nuts; was imported by Capt. MELANDER from Truk and by the Mission from the Marquesas Islands via the Marshall Islands)

18. men = pandanus:
   a) men oa
   b) esfirok
   c) esfien (fien = » young leaf «)
   d) tof
   e) fienful
   f) men esies
   g) bos
   h) men Kosa (= » p. from Kusae «) = wild p.

i) eok, another wild p.

k) *) soipep

l) *) men Jibon (= »p. from the Marshall Islands «) imported for the Production of of hats.

19. ma osä = orange² (= thing to eat raw «): There are two different kinds, a native one and one introduced by the Mission from Honolulu. Both have the same name. The first one grows wild and is not planted.

20. eis = papaya, was introduced by the natives of Rotumah and only initially planted as it is growing well.
   a) *) eis matän (= » female p. «)
   b) *) eis mokul (= » male p. «) This one only blossoms but does not bear fruits.

21. *) mäno = mango, was introduced from Honolulu. It has different blossoming times over the year. It is planted and there are quite a lot of them.

22. *) laim = a small kind of lemon. It, was introduced from Honolulu by the Mission and it is planted.

23. *) lemon (engl.) = a bigger, also introduced kind of lemons.³

24. kutär = pine palm.⁴ It only grows wild. Its fruits, as big as acorns, are sometimes sucked and eaten.

25. nes = kind of Eugenia,⁵ wild tree with red berries, which grow grapelike on the stem and are sometimes eaten.

¹ LESSON 1839, II, p. 469 mistakenly calls the coconut meat (kaki) »guano«.
² Compare LÜTKE 1835/36, I, p. 377; KITTLITZ 1858, I, p. 371; LESSON 1839, II, p. 469 (» meoazasse «).
³ LESSON loc. cit. also mentions local varieties of lemons.
⁴ According to KRÄMER; compare KITTLITZ 1858, II, p. 41.
⁵ Compare KITTLITZ 1858, II, p. 42.
26. I oa = eatable Morinda,¹ the fruits of which are sometimes eaten.
27. enenal = wild bush, the roots of which are sometimes cooked and eaten.
28. lo = Hibiscus populneus. Sometimes the water contained in the plant is sucked as a drink in the bush.
29. op = a kind of vine, the roots of which serves as fish poison. The water contained in the vine is also drunk in bush.
30. palä = another vine, which is drunk in the same way.
31. fuloful = the fruit of the mangrove, which is also sucked dry because of its sweet juice.

Economic significance of the food plants. Looking at the food plants for their value to nourishing the people, then the wild growing ones have to be ruled out as secondary ones from the list. In times of need, after sever typhoons, they gain importance just like all bush-food.² Both kinds of curcuma are well known in the households of the natives just like the native orange, and, next to the imported one, occasionally serves as food. The wild growing cultivated plants, especially taro and yams are welcome to the natives as they grow in such an abundance wild, that there is no need to plant them on a bigger scale.

The imported kinds of crops decidedly enrich and enhance the local varieties. Most of them are also planted but none of them can be considered a staple food of the people. The natives welcome them and from time to time eat them. Only the papaya and the smaller kind of lemon are consumed via being use din the kitchen. After the typhoons from 1905, the sweet potato seemed to become a daily staple food. It was generally planted. However, as soon as more of the native crops flourished again they were displaced, so that now they only grow wild. Irish potatoes and onions did not prove to be worthwhile, as they do not develop any tubers.

Thus, there still exists only a small circle of native cultivated plants which form people’s staple food. Among these taro varieties, yams, banana, sugar cane, breadfruit, and coconuts are the most important. Between taro, yams, bananas, and sugarcane on one side and breadfruit on the other there is a sort of a seasonal change. Kusae is blessed with breadfruit trees in a lavish manner and their ripening times, approximately from June to August and from December to February, are the natives’ feasting times of the year, when life is easygoing and gourmet like and when everybody feasts on these most prized fruits. The summer harvest yields more fruits than the winter harvest. Because the different kinds do not ripen at the same time,

¹ According to KRÄMER. According to LESSON loc. cit. Inocarpus edulis = hi, according to KRÄMER = kerrak.
² Compare M.H. 1906, pp. 85.
but after each other, the one kind that is ripe usually is the favorite kind. As all varieties normally yield a rich harvest, many fruits simply fall down uncollected, spoil and are lost to use. People try to save a part of them by conserving them, at the same time creating the chance to eat them all through the year. But this is not done to such extent that the preserved breadfruit lasts all the way to the next harvest. After 1—2 months this transitional time is also over, and, according to the opinion of the natives, the poor and lean time of the year starts. It creates big gaps in the amounts of the existing crops of taro, yams, and sugar cane, although these crops had already brought some change into the households. Finally, at the end of this time, the natives, with an inclined face and rather hesitantly, are forced to look for wild taro and yams.

The extensive cultivation of coconut palms in modern times did not bring much change into this yearly circle and the health of the population. Their crops mainly serve the economic use of trading with the whites in form of copra. As food, meat is mostly only a surrogate for fish, thus the current abundance of nuts only supports the laziness to go fishing, although for the natives, the coconut kernel can never substitute fish. However, the milk of the young coconuts has become a general and daily drink. In the old days this was quite different. Written sources and statements of the natives are consistent, that in former time there was a striking lack of coconuts.\(^1\) This was so, because the fruit was primarily considered a drink and therefore few nuts were kept for planting. In addition, the aristocracy, who mostly enjoyed drinking it, considered all coconut palms as their property. Therefore, the coconut was a cherished fruit for the natives, which the first Europeans only got in small amounts and had to pay dearly for.\(^2\) Only the intensive desire to own western goods and less use of coconuts due the decline of the population got the coconut planting going and to its current full flowering, when is dominates the external economic picture of Kusae. At the same time the coconut became a staple food for the population, without ever getting so important as a food item as taro, yams, banana, sugar cane, and breadfruit.

Together with the palm cultivation there also came palm wine as a beverage and as a sort of nutrition, which in the old Kusae must have been tapped only rarely. It also survived the former ban issued by King George, though,

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\(^2\) Compare LESSON 1839, II, pp. 499; LÜTKE 1935/36, I, pp. 346, 377; KITTLITZ 1858, II, pp. 43.
1. Banana on Lölö.

2. Return from the field (Rotumah islander).
due to the influence of the mission, it seems it was not used as a beverage but only for
the preparation of syrup.

The success of the coconut as a people’s beverage is countered by the loss of
kava. Thanks to the mission it is no longer brewed. In former times it was not a luxury
item for the aristocracy but a daily commodity.

We have to emphasize that sugar cane besides its use for cooking, was and is at
the same time an item of luxury and of refreshment, when it is sucked dry of its sweet
juice.¹ Fort the same reason we must also mention the last local cultivated plant, the
pandanus, as a part of the food plants. Here its fruits are not consumed as a dish, but it
is highly praised because of its sweet juice, which is sucked from the beans.²

Care of the crops. Today, just like in the old times, agriculture is restricted to
taro, yams, banana, and sugar cane. The field and garden crops introduced by
Europeans are planted more or less as a sideline. During the old times, when there was
a bigger population, the planted cultivated ground must have had a wider expansion
than in current times. We realize this especially at the mountain slopes right next to the
coast and in both hollows of Lölö-Wukat.³

The fields are small clearings in the middle of the low-lying shoreland or on the
mountain slopes. They do not offer a characteristic sight. According to the written
sources only the fields of sugar cane were regularly planted rectangles.⁴ Now the
bananas, too, are planted in a row. The little care and the extension of the taro and the
yams fields can be explained by the previously mentioned frequency of these tuber
plants in the wild.⁵ Generally the different varieties of crops are not grown on the same
field, although this does not apply to different kinds of the same variety. People also
consider the soil for the different crops. Taro grows everywhere especially in the
swampy lowlands and along the river courses. Sugar cane is usually planted on dry
ground and on mountain slopes⁶ in former times kava roots were planted there, too.
Bananas grow everywhere. As a result, the fields belonging to the villages and
individual persons are generally not close to each other but are scattered.

Except for the fields, arable crops are also planted in the vicinity of the living
quarters. On Lölö this is the norm. Due to the smallness of the island and the poverty
of good soil, therefore there it is the only form of plantation. Even today the small
fields are right next to the houses on the foot of Lölö-Mountain.

¹ Compare KITTLITZ 1858, II, p. 8.
² Compare ib.
³ LESSON 1839, II, p. 467; KITTLITZ 1858, I, pp. 369; II, pp. 39, 43; DUPERREY 1828, II, 1, pp. (634);
DUMONT D’URVILLE 1835, p. 457; RIENZI II, p. 150.
⁴ LESSON loc. cit; KITTLITZ 1858, II, p. 39.
⁵ Compare KITTLITZ 1861, p. 30; LESSON loc. cit.
⁶ Compare LESSON loc. cit.
⁷ Sarfert: Kusae
The old compounds of Lölö, today’s ruins, small gardens with arable crops and fruit trees are also harbored next to the houses of the owners. When the geographic circumstances on Lölö demanded a concentration of the cultivation of arable crops, they led to exact borders of the small properties of a person at the same time. This happened by fencing the land with a wall. In this way, when the settlement grew, it got the character of a tightly packed compound and garden town. Therefore, from a certain distance, the island offered an imposing sight, contrasting advantageously from the main island, Ualang, with its wildernesses. This also gives you an important clue to the explanation of the ruin-town of Lölö. It mainly does not represent anything other than a cluster of compounds and gardens, by which the small property of any inhabitant of Lölö was clearly marked. This is quite obvious and also emerges from the old literature¹ and the statements of the natives, as well as from the fact that the houses and the land belonging to them are even today walled off by walls of stones. In the modern compounds of Lölö there are not as many gardens; the reason lays in the fact that the compound walls have become a permanent component of a house and that the intensive use of the soil of the small properties became unnecessary due to the decline of the population, also on the main island Ualang.

Enclosures of a similar kind were not uncommon in the old days on Ualang. Thus, the houses of the formerly populous village Läl were situated in gardens, which were surrounded by living fences, composed of Dracaena terminalis. On the mountain slope behind, which was completely covered by plantations, »each individual property of these plantations was more marked than enclosed by a low wall of rough basalt blocks, overgrown with plants«.² In Wukat fences served as enclosures, because a taboo of the god Nösünsap forbade the use of stones here. DUMONT D’ÜRVILLE reports from the fields in the plane of the Wukat-River, »les palisades qui les environnent sont formées avec des tiges élégantes de dracaena terminalis, traverses par les baguettes de canne proprement ajustées.«³ DUPERREY also found a small plain with »plusieurs habitations dont les dépendences étaient entourées d’une légère palisade.« on the other side of the height towards Innem.⁴

Today these fields can no longer be found. The scarce number of people and the abundance available cultivated ground, seem to make this unnecessary, even though it would offer protection against the numerous wild pigs.

Of course, the laying out of a field starts with clearing by cutting down trees and bushes except for fruit trees, without

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¹ KITTLITZ 1858, II, pp. 45; LÜTKE 1835/36 I, p. 325; LESSON 1839, II, pp. 480, 496.
² KITTLITZ 1858, I, pp. 369; II, p. 45; LESSON 1839, II, p. 467.
³ DUMONT D’ÜRVILLE 1835, p. 457; RIENZI II, p. 150.
⁴ DUPERREY 1828, II, 1, p. (634).
removing the rootstocks which by and by rot away. In former times, clearing was done with fire and axe, currently only with an iron axe. Part of clearing the undergrowth (pakpök) is also pulling out the grass, which is left lying on the ground. Doing this is not considered fertilization. Agriculture does not recognize breaking the ground.\(^1\) It only includes care for sugar cane and bananas and consists of weeding and removing stones. Formerly, each individual stalk of sugar cane was supported by a stick.\(^2\)

The agricultural tools were the digging stick (ko), which usually produced in the bush each time when it was needed, and a small oyster shell (panak) for a knife. It was held with the teeth, in such a fashion that its concave side covered the lower lip.\(^3\) Both tools were used for planting and have been displaced by the spade and the knife, only the ko is still in use today.

As the weather lets the plants grow year in year out, there exist no developed rites of agriculture. Generally, planting and harvesting are done all through the year. Nevertheless, before the start of the breadfruit season they have to start planting in earnest in order not to encounter a time without breadfruit. Once taro has been removed from the ground, the man who brings it from the field cuts of the upper part with his knife and plants it right away again. In doing so, the earth is not removed but the digging stick or the spade hollows it just a bit. Yams are planted just like taro, or the entire root is cut in pieces, which are planted. People also get young cuttings from the wilderness. Yams actually needs more care than taro.\(^4\) When planting them, the earth is removed and freed from stones. Bananas are cultivated by young shoots, which appear next to the stem of the mother plant and which are hindered by it. Here also the soil is removed and cleaned of stones. Sugar cane is planted, just like taro, by taking the upper part for planting, while care has been taken to clean the soil.

Protections against pests, which exist in abundance, are seldom used any more. In former times, they were used for bananas and sugar cane. The ripe grapes of the good banana varieties were covered with nets for the protection from the Micronesian starling (uä = Calornis pacificus),\(^5\) and sugar cane was covered with blankets made of reed against the rats.\(^6\) People try to protect bananas, just like pineapple today, which the rats like especially, by

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2. DUMONT D’URVILLE 1835, II, p. 457; RIENZI II, p.150.
4. Compare KITTLITZ 1858, I, p. 371, he says about the taro root, »It seems that it is not planted in a formal way.«
5. KITTLITZ 1858, I, p. 378; FINSCH 1893, p. [458]. [Today called Aplonis opaca; comment CCHPH].
harvesting early and protecting it while it ripens, which means hanging in a secure place in the houses. A special method is used or the further ripening of bananas. A hole is dug in the sand, it is lined with taro leaves (monak-leaves), and the ground is covered with some pieces or entire fruits of ripe pandanus. Oranges, lemons, or papayas can also be used instead. This is covered with withered banana leaves and the banana bundle is placed on top of it. They are covered with taro leaves and the hole is filled with sand. It seems this method extraordinarily accelerates the ripening. We also want to mention that according to KITTLITZ in former times shelters were erected in the in the plantations against the frequent rain showers. They were meant as shelter for the guardians of the field and, quite contrary to the other houses, they were built with a straight ridge and an obtuse angled roof.¹

Usually the fields are in the middle of and under fruit trees, so that we can talk of a two culture system.² Just like the crops of the field, there are also fruit trees in the direct vicinity of the dwelling place. In former times, with great foresight, the coconut palms were only grown only close to the houses or the compounds.³ While the fields are time and labor intensive the fruit trees do hardly need any attention. Only the old leaves and the hanging baste are removed from time to time from the coconut palms. Though tree pit surfaces are not yet used. The natives also have not yet started with any protective measures against rats, which visit breadfruits and coconut palms in hordes,⁴ just as there is nothing against bats and wild pigs, although the planter MELANDER gives an example of fencing the stem of his young palms and placing metal rings on the older ones. The resulting profit cannot not yet bring the Kusaean to do this work, as the remaining amount of fruits is sufficient for him. However, we know from LÜTKE and LESSON about a special protective device, which they observed on individual coconut palms. Although this one was not against pests but against thieves. It consisted of a horizontal scaffolding at a height of about 30 feet around the stem.⁵ The use of the supporting stick (imual) was known for young palms.

Fruit trees are not planted in any specific order. But people know that coconut palms grow slower on the mountain slopes and have less nuts. This is the reason why coconut groves are exclusively restricted to the foothills. Now there are enough nuts to plant. To obtain them people let the nuts ripen until they fall off and start sprouting. In the old days if there were nuts for planting left over, big parts of the kernel were removed first; it seems that the nuts still grew and sprouted! For planting breadfruit

¹ KITTLITZ 1858, II, p. 17; FINSch loc cit.: compare also under graves in the section; The Immediate Family.
² Compare KITTLITZ 1858, I, p. 369.
³ LESSON 1839, II, p. 467; KITTLITZ 1858, II, pp. 45, 49, 50.
⁴ Compare KITTLITZ 1858, II, p. 25.
⁵ LÜTKE 1835/36, I, p. 377, footnote; LESSON 1839, II, p. 469.
a piece of root is used as a sinker. In modern times, people also learned to create roots by removing the bark and placing earth there. Reportedly pandanus is planted by planting a branch.

During the harvest of pandanus and coconuts people climb on the trees and pluck the fruits by hand. They climb the trees by running or sliding up. If the coconut palms are higher they use a climbing sling on their feet.\(^1\) Currently the trees also have notches for climbing. The copra-nuts actually should ripen until they fall off, but, to the despair of the trader, they often are harvested even before that. A special harvesting device, called tanes, has always been used for the breadfruit harvest. It is a long pole, the upper end of which is crossed by a stick, which is fastened to it in an acute angle facing downwards.\(^2\)

In general the fruits are carried home with the help of a carrying stick (sein ena aus sak in ena = »stick for carrying over the shoulder« or also sak belonjo). They are hanging there as a natural or artificial bundle (plate 17,2). On the other hand, the women usually carry loads in a basket under their arm; this carrying = äi.

**Beliefs and customs in agriculture.** We did not learn much about special customs that were directly related to agriculture:

1. All fruits, especially the highly esteemed breadfruit stood under the protection of the vegetation goddess Sinläka, who provided them with growth and prosperity. In her honor and in order to thank her a special breadfruit harvest feast was celebrated (see religion).

2. Bush food, especially wild taro, yams and bananas was under the protection of the bush god Selik. Before a new field was cleared, he was called upon with the following words:

»Selik kofein imä!« (Selik kofa in imä) = »Selik, food on your field.« This is a prayer to Selik, to furnish the field with many fruits. At the same time the term »kofein imä« was an old way of greeting.

3. The yam, variety mota bälän = yams from Ponape, was only planted with an empty stomach, otherwise it would not grow and would be eaten by rats.

**Labor division in agriculture.** As has been stressed, agriculture and transporting fruits for the daily food home was the main task of men. In former times, there was also a certain labor division according to the social standing. The titleholders and the entire aristocracy did not do any strenuous work, thus, also, no agriculture. They had this done by common people on Lölö and by the whole population of the regions under their power on Ualang. The land working people were simply called met orekma = workers.

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2. Fishing.

**Methods of catching fish.** Just as in agriculture, nature is also very kind to the natives when they exploit their second, still important source of life, the sea.

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\(^1\) Compare LÜTKE 1835/36, I, p. 380, footnote.  
\(^2\) LÜTKE loc. cit.
Admittedly, the smallness and occasional dryness of the reef-belt limits the space and time for fishing. On the other hand, these circumstances allow a safe and comfortable fishing industry, advantages which are still enhanced by the channel-like character of the lagoon. The mostly shallow depth of the reef does no harm the abundance of fish. In its different harbors, the small Kusae has enough wide entrances for the fish, so that the abundance of animals seems rich and inexhaustible. These special circumstances find their expression in the fishing methods of the natives. At first, fishing in the open sea obviously never had any special meaning. They ventured out at sea only in the summer time, because this is the time when the waves are lowest. Currently, it is completely laid low. Therefore, fishing on the reef, which had always flourished and where nearly all the fishing methods used in the Pacific are performed, is practiced more than ever. Especially, the richly yielding net fishing is practiced in many forms. Net fishing also suffered heavy losses in modern times, just like reef fishing in general and the many kinds of fishing that are no longer in practice. We can quote different reasons for this: The decline of the culture generally; the abundance of reef fish, which offers the small population enough pickings with their daily fishing methods; the ending of the constant demands of rich daily food provisions with fish for the old aristocracy; and finally also the benefits of substitute foods and new meat-foods in the form of abundant coconuts, domestic and wild animals. The emphasize on reef fishing and their really simple conditions seems to the have been the reason that the female sex has been used for fishing to a wide extend.

The equipment for fishing for women consists, besides the fishing tools, also in a fishing basket (foto in pätar), which is carried on the backside on a hip string that runs through the basket (plate 18, 1,2). In former times, when he was fishing alone, the man used a netted bag (tätä), in which the catch was stored. In it fishes were sent to friends as presents.

Fishing is presented from the point of view of the different fishing techniques and, later, of the different methods, which the natives distinguish in the following overview:

1. Fishing with the hand. This is more or less considered a game for children. The natives only use it to catch turtles. To catch so no (so = »catching fish«, no = »turtle«), the man goes in his canoe to a deeper place where sea grass is growing, as this is a place preferred by turtles. Once he has discovered one, he quickly jumps into the water and tries to catch the diving animal on the front end of its shield and with the other hand to press down the hind end, so that the turtle comes to stand vertically. In this way the animal is swimming to the surface. Another fisher man jumps in and bites it in one

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1 Compare LÜTKE 1835/36, I, p. 381.
foot. The effect is that it moves only a little and can easily be transported to the canoe.

2. Fishing with a hook. This is only rarely practiced; the reason being that, the iron hooks, which people received from the first Europeans, were not regarded as such, but as decoration. Currently it has become really rare. There were 3 kinds of local hooks (ka):

a) ka äla, hooks made of coconut shell (äla) in the form of our European hooks, without a barb and with a knob on the upper end to fasten the string. Pieces of a smaller fish was the lure. They were collected at low tide, as well as from crabs and small crabs.

b) ka muäk, composite hook made of mother-of-pearl, reputedly in a very similar fashion to the ones of the Marshall Islanders. They supposedly were borrowed from them even in the old times. In former times, they even were traded from the Marshall Islands, though it is said they were also locally produced. A lure was not necessary for it. FINSCH still got several blinkers in the form of the Marshallese blinkers and EDGE-PARTINGTON even depicts a complete fishing hook on plate 177, fig. 9. Here the hook is also made of mother-of-pearl and is also has a barb. The existence of mother-of-pearl fishhooks is also confirmed by LESSON. Mostly bigger fish were caught with it, especially bonito (oalwuöl). For more about these hooks, look under money in the chapter on trade and shipping.

Both kinds of hooks were first fastened on a small string (sosö), which was always twisted from the especially strong fiber of the Pipturus baste. The fishing line (ea) was from the same material or made of Hibiscus fibers.

c) Hooks for sharks. The root branch of a stilt mangrove was used for this one, just like nature made it. Only few sharks were caught, because the taste of the fish was considered not good and many people did not eat it. Now it is not caught at all.

The first two hooks were used in the following way:

a) loklok, fishing on the reef and in the open ocean. The fisherman fastened the line on his big toe propelling the canoe forward, so that the hook was jumping behind on the surface of the sea. For the ka äla a special lure was used, a piece of white bark from the breadfruit tree, or a feather, which had been broken into the form of a fishtail and was fastened to the back so that it constantly turned in the water.

b) sasa mokol = catching mokol fish (flying f.). To do so each a ka äla was attached to a closed, empty coconut and thrown it into the ocean. The twitching of the nuts showed that a fish had been caught.

c) tof (=swimmer), is a particular kind of the aforementioned method, which was used for different fish. Instead of coconuts, short and strong pieces of hibiscus wood were used and the fishing line was very short.

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1 LÜTKE 1835.36, I, p. 381 my mistake denied this fishing method. 2 LESSON 1839, II, pp. 505.

* Sarfert writes Taschenkrebs = pocket crabs; comment CCHPH.

3 FINSCH, 1893, p. [464].
d) pān. This was the name for fishing with a rod (fo), which was made from bamboo or a strong wood. People fished either from the beach or from the motionless canoe.

e) tukōk, a fishing method with the rod on the open sea to catch ulol, a red fish about as big as a hand, when the moon shines. It was only practiced in the summer time when the sea was not too rough. The fishing line was wound around small, flat basalt stones (rubble from the rivers) as sinkers and the stone and the hook were put into the sea, so that the string was rolling off. In this way the hook was prevented from drifting, because the fish does not stay on the surface.

3. Fishing with nets. This is the best developed way of fishing, the most practiced, and nearly the only one, where fish are caught according to ones’ needs.

I. nāk masa, the daily used hand net of the women,¹ which are used in a pair. They have the form of a long isosceles triangle, consisting of two wooden frames (ko), the long and bent »big stick« (ko sik), with the net is strung and fastened with 3 strings made of hibiscus baste (pat, sīs, and ōitu)in-between. The net consists only of string made of hibiscus baste. The knots of the net are like at all nets made in the same fashion (plate 19,1; 18,1,2).

The natives distinguish different techniques practiced with the nāk masa:

a) nāklap, named after the black egret (nāklap), which at low tide walks around the reef and fishes, just like the women. The women go fishing in bigger groups. They stand in wide circles, each one a net in her hand, then the come closer until the fish have to get into the net (plate 18,2).

b) sul, fishing in a dark night with the light of a torch (sul) on the reef. The fish are surprised in their sleep, they are surrounded, woken up, and, finally, driven into the nets.

c) matan eot (= »eye of the stone«). Two to three women walk in a dark night at low tide on the reef and close off the channels in the reef (the space in-between the edges of the stones). One of the women drives the fish, scared out of their sleep, into the nets of her female companions.

d) Concerning the further use of the hand net of the women, see under 6, b; 8, c, d.

II. nāk in moko, a small form of the nāk in masa, about as long as an arm and also for women. It is used at night, at low tide (without a torch) on the reef, where the women surround every bigger stone, lift it up, disturb the fish in their sleep and chase them into the nets. Especially the lasfol, a flat fish as long as finger, which is eaten raw is caught in this way.

III. nāk in sefos, a second particular type of nāk masa. It is of the same form and the same material but only ½ m long and it is a net for men. It takes its name from the fish sefos, a small fish about 2—3 cm long.

is pushed in great swarms to the surface of the open sea by predatory fish, in summer time during new moon. In former times men went in the morning crepuscule and scooped the small fish with their small nets, just like with spoons, into the canoe. The swarm of fish was easily spotted because of the many seagulls, which were hovering above it.

IV. näk pukok, a big rectangular net made of hibiscus string, which is stretched with 3 sides, among them the two small ones, in a frame of 3 long right-angled poles meeting each other (the longer = ko lap, the shorter = ko sik) in-between. The net in the collection (Plate 19,2) is ca. 4, 20 m long and ca. 2,30 m wide. It is a net for men analogous to the masa nets. People, armed with several nets, always walk in a group to go fishing, though only when the water on the reef is deep. 2 men are needed in order to handle a net; they hold the side poles inclined to the back and the cross pole up, so that the net is mostly under the surface of the water.

a) pukok. In this method men as well as women form a circle, which is more and more closed. The enclosed bigger fish try to save themselves by jumping and this is how they get into the net.

b) taptap (= »holding the net in such a way that the fish are jumping in). In the 2 nights of full moon, lofen and olmän land crabs of the ein kind migrate in big crowds to the shore, in order to spawn at high tide. Therefore, these nights are called fon in ein. The keraf*, a fish with a yellow tail and half as long as an arm, likes to eat them, consequently during this time many of them come close to the shore. This is the time when men and women swim or walk in a closed line, holding the pukok-nets on the water, towards the shore. The fish try to save themselves by jumping over the chain of people and thus fall into the nets. In this fashion the shore is partially fished.

c) Concerning the third use of trawl nets see under 7, a.

V. näk in kälak, a hand held net for men, made of sennit or hibiscus string in a composite oval frame with a long pole as a handle (plate 19,3). It serves to catch flying fish (kälak) at night with the light of a torch, on the open sea or in the harbor, generally in a canoe manned by 3 men. The one in the middle holds the burning torch, the other two stand in the bow and in the back, each with a net, and skillfully catch the fish, which are jumping towards the light. This fishing method is only rarely practiced.

VI. näk in sojä or näk in keraun. It is a hand held net for men similar to the former one and made of sennit string. However, it differs from it by its size and further on by a bag, at the back end. It also has a simpler frame and a shorter pole as a handle (plate 19,1). It got its first name from a special kind of fish ä, which in former times, was

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* [Square tail or yellow tail mullet, Liza vaitgensis; comment CCHPH].
caught from the canoe (= sasa). The other name comes from the fact that it is also used in connection with the following keraun-net.

VII. keraun, the long trawl net, which is generally made of sennit cord and has the usual form with shells as sinkers (tak) and pieces of wood as floats (tof). Normally ia 2—3 m long bag is in the middle, the same as in the former net, where it is only much smaller (plate 20,3).

a) The name of the net also indicates also the normal use, where nets of the former kind or also pukok-nets are combined with it. The trawl net serves to catch entire swarms of fish, which sometimes come on the reef at high tide. Both sexes participate in the catch. They start in several canoes, carrying the net rolled up on one canoe (plate 10,2). At quite a distance from the fish swarm, the net is put into the water and extended into a semi circle. 2 men at both ends drag it slowly and carefully in the direction of the fish, while the other participants follow with pukok- or sojä-nets. Under greatest care and complete silence the fishermen sometimes remain motionless and then move on, depending on whether the fish swarm is coming closer or moving away. If it tries to flee into the opposite direction, then some people frighten it back by shouts and by beating the water with sticks. Once it has moved more or less into the semicircle of the net, then the two leaders quietly and quickly draw the net to a circle. Immediately noisy life and movement start in the fish swarm. Now people have to act fast. The accompanying group barely has time to position themselves with their hand held nets and to form a closed circle behind and above the trawl net circle, before the fish have already realized the trap. The first ones jump over the trawl net in a more or less wonderful high curve, soon followed by hordes, while the tricksters cry out of joy, and shout and laugh, because this is their jump into death, which leads them into the second circle of supporting nets. Only a few of them save themselves by a lucky jump in-between a couple of people holding nets or by an especially bold high and wide jump even beyond the high pukok-nets. The majority of them wriggles in the supporting nets, a smaller portion gets caught in the trawl net that is pulled closer and closer.

In these few exciting moments—the catch actually lasts about 3 minutes—the entire swarm is the bounty of the laughing fishermen, who fill their canoes by hand. A single trawl net catch, which I by chance met, brings in hundreds of about 40—50 cm long white fishes, and fills the canoes half full. The pukok net,

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1 Such big nets are not called näk, but koa or ok. The trawl net is mentioned by LÜTKE 1835/36, I, p. 381; II. p. 292; KITTLITZ 1858, II. P. 19.

2 In former times also made from the string of
because of its rectangular shape and its size, is better suited than the sojä-net to build such a circle of supporting nets.

b) tajak. During high tide at night, specially suitable sections of the coast are cut off in order to pick up the fish from the now dry ground when low tide has set in.

c) tu (= »standing upright«). Only 2 men are necessary for this. They stand guard with a trawl net on a channel in the reef at a path from the reef to the sea, which is frequently used by the fish. When the water is ebbing out the fish look in vain for an exit, until the men close the circle of the net in the right moment, when sufficient fish have accumulated.

VII. ok un no (= »big net for turtles«). It has the form of a trawl net with very wide meshes, though it is wider, but not as long. The

![Illustration of ok un no net](image1)

Illustr. 19. ok un no. a 60.60 m long, 1.45 m wide. b swimmer 1/2 of its natural size. c sinker 1/2 of its natural size. (Collection Sar. 1312)
material is sennit cord, which is used double. The swimmers are wooden rolls with drilled holes. Instead of shells heavier and elongated round pieces of corals are used as sinkers (illust. 19). The net, held by 2—3 men, is spread out in a straight line, parallel to the coast, in the deep water. From the other side, canoes chase the already discovered turtle towards the net, in the wide meshes of which it gets entangled with its legs. All the while people shriek and hit the water with sticks and paddles.

IX. Telak maläp (telak = »pull up with a jerk«, maläp = a fish), hand held net for men to catch maläp-fish, a small net like a bag made from thread or string of hibiscus baste in a circular wooden frame, from which three arms go up to the handle, which is a long pole (plate 19,s). From a tree, where the fisher is sitting, the net is lowered into the lagoon. The fish are gathering around a lure (breadfruit) attached to the lower, pointed end of the handle. With one jerk up they are pulled into the net.

While we managed to get samples from the natives of all the so far mentioned nets, except for nr. II, although some of them had to be made for us. The collection of the expedition could not obtain a sample of the following two nets. Their use has been given up entirely, only some old men still could describe them.

X. köponä, a very long bag, like a tube, made from string of hibiscus baste, its opening is fastened to a frame in the form of a semi-circle. It was a sort of fish trap, which men placed at the mouth of the reef’s channels with the help of some stones. From the reef they drove the fish towards the exit of the channel and into the net.

XI. kien, a small floating net for men, made from the string of hibiscus baste. It was attached to a 20—30 cm long piece of lightwood, which served as a float. It was kept extended by 2 semi-circle like, downwards bended pieces of root from coconut palms, the ends of which had been stuck into the bottom side of the float. On the bottom side of the float, just above the net breadfruit as a lure was attached on a pointed piece of wood. The net was placed into the deep water of the lagoon. Fish got entangled in it and dove several times with it into the water until the fisherman grabbed it with the hand. This fishing method supposedly was a favorite sport of the men.

4. Catching with a net-bag or a basket:

a) top kepat, a men’s fishing method, conducted from the beach with the help of a net-bag. This was also conducted mainly for reasons of entertainment. The open netbag, made of sennit cord, with a lure in it, was placed into the water at the shore. At the spot where the net-bag is tightened 2 strings were fastened which led to the shore. Here one of them was attached to a flexible stick stuck vertically into the ground. The other one the fisherman held in his hand. As soon as fish—they specially looked for the kepat-fish— entered and made a grab for the lure, they pulled
1. Women fishing with their hand nets. Behind them the landing place of the royal compound (Lóló).

2. Women fishing with their hand nets.
Fishing nets: 1. näk pukok, 4 m long, 210 m wide (collection Sar. 1313). 2. näk masa 1,45 m long, 0, 45 m wide (collection Sar 1305). 3. näk in sojä with cut off handle. Length of the net 1,46 m, width 0,59 m (collection Sar. 1309). 4. telak maläp. Length of the net 0,45 m, width 0,38 m (collection Sar. 1310). 5. näk in kälak with cut off handle. Length of the ent 0,84 m, width 0,22 m, depth 0,35 m (collection Sar. 1372).
1. Canoe with rolled up trawl net (keraun).

2. Fishing with the method äal.
the net shut themselves. At the same time the stick shows the catch when bent down (top = »to hit down«) and the fisherman pulled the bag shut and to the beach with one jerk.

b) bos, special fishing method for women. A small stonewall (bos), about 1m long, and 1/2 m high, is erected on the reef, where fish can hide. At one end of the wall the women place their fishing baskets filled with stones, and with the opening facing the wall. Now the women remove the wall beginning at the other end and working towards the baskets, all the while throwing the stones behind them. The fish shoot to the next stone in the wall and finally hide in the stones of the fish baskets, which are quickly pulled up. Such a catch supposedly is very profitable and delivers fish to a length of 1/4 of an arm.

c) Catching with traps. Initially this was a men’s method but now it has become rare. We could not find a single trap, maybe because they are made of flexible wood and are only made shortly before they are used. They are bound on rope and lowered on the reef. The rope is fastened at the shore, so that the location of the trap is not lost. There are 2 kinds of traps (u):

   a) u tafon (= »defective trap«; we could not find out the meaning of the name). The trap is about 1 1/2—2 m long with a rectangular ground plan and a semicircular cross-section (ill. 20). The names of the parts are: base and back side = kap en u (= »the one behind the trap«), side walls and upper part = tuk un u (= »back of the trap«), front part = matan u (= »eye of the trap«), entrance for the fish = lal (= »down«), door to take out the fish (on the base) = sanal.

   b) u paspas (= »flat trap«), a trap of a very similar build and about the same size with rectangular longitudinal and cross section.

6. Fish weirs. Even now they are still occasionally erected on the reef. They consist of low coral walls or coral slabs vertically rammed into the ground. 2 kinds are distinguished by their form:

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1 Compare LESSON 1839, II, p. 505; LÜTKE 1835/36, I, p. 381.
a) sen. This kind consists of 2 long stone walls (bau = »arm«), which lead towards each other in approximately a right angle coming from the beach. They and at the open apex of the angle in a round part (kapo = »the one more behind«), with an entrance marked by walls. When the water flows out the fish stray inside and are collected at low tide (ill. 21).

b) ta, a system of walls (bau), which follow the coast in a zigzag line. The angles are located towards the sea while leaving the doors (kap en ta) for the fish open (ill. 22). The women position themselves with the hand nets (näk masa) there and catch the exiting fish.

According to the description of LESSON\(^1\) the fish weirs, which were closed at low tide in order to collect the fish, were rectangular. Maybe this was a third kind.

7. Fishing with a loop. Besides the method with the hook, in former times sharks were sometimes caught with a loop made from a rope of sennit and beaten to death.

8. Spear fishing.\(^2\) Now it is part of the past, because there are no spears of any kind anymore. At most a fish occasionally is stabbed with an appropriate pole. There were no dedicated fish spears; moreover people used the following:

a) mosä the spear for fighting made of coconut wood (see under war and weapons).

b) muot in ko, the dancing stick\(^3\) (see under dance).

There were the following fishing methods where men were active with fishing spears:

a) fakfoök (= »to throw the spear«). Standing on the beach they threw them toward bigger fish. This was considered a game.

\(^1\) LESSON, loc. cit.


\(^3\) LÜTKE 1835/36, I, p. 407 contradicts LESSON’s statement emphatically, that this stick was used for fishing, as god Nöünsap considered it holy. But as it was also used for other profane purposes (as a weapon), it was obviously not a pure invention of LESSON.
b) loläp (= »bachelor). The name comes from the fact that no women participated in this fishing technique. A bigger crowd of men positioned themselves in one line, on the reef, parallel to the coast. While shouting they moved towards the beach, beating the water, and stabbing the stones with their spears. In this way they drive the frightened fish in front of them, which were later speared in the shallow water or on dry land.

c) tok. 2—3 canoes go to a deep spot on the reef, which is known as a place for fish. Stones are thrown in, people jump behind, and beat the water while swimming. The fish come up and are driven into shallow water, where women armed with masa-nets and men with spears catch them.

d) nutnut (= »to grunt«). On the reef a few places are deep just like holes, which are called lof in kepät (= »cave of the kepät-fish«), as this kind of fish likes to stay there. These fish are said to have the habit of fleeing toward the beach and onto the sand, when hearing a noise. Therefore, people position themselves around those holes, jump in, and dive down while grunting. The fish come up, leave the hole and hurry to the beach, where they are caught with masa-nets or are speared.

e) sul in no, catching the turtle (no) by the light of torches (sul). Normally, a canoe is brought into the passage of the harbor. The turtles, which are just waking from their sleep, curiously come to the canoe towards the light, lifting their heads out of the water, and are speared.

f) äal (= »content«). Several op vines are bound together to form a long rope. Halves from coconut fronds are wound around like a spiral, so that the leaves stand off at all sides. This garland is weighted down with stones and lowered into the sea, though it is held with the help of strings by several canoes, or people wade and drag it through the water. In this fashion people preferably circle capes and then go towards the coast while producing a lot of noise. The fish, frightened by the coconut leaves and the noise, flee towards the beach, where men spear them and women catch them with masa-nets. Sometimes even turtles are among such a catch (plate 20,1).

g) According to LÜTKE and KITTLITZ the spear was also used while employing the trawl net.

h) Besides fish, big sea crabs, not uncommon on the reef, were speared.¹ Today they are speared with the pole when passing in the canoe.

9. Fishing with poison. 2 kinds of narcotics are used. bóbös = the fruits of the Barringtonia speciosa² and the roots of the op-vine. The techniques are:

a) op bóbös. The fruit of the Barringtonia is crushed and the material is placed under a big stone on the reef.

¹ LESSON 1839, II, p. 506. ² Concerning its origin, compare legend nr. 14 in the chapter Legends and Tales
b) op. While the former substance was used for smaller fish, the pounded root of the op vine serves to poison bigger fish. The way it is used is the same, the poison is only placed under a stone in deeper water.

c) op el (el = »juice«). The op-vine is pounded soft and pressed into some breadfruit, which is kneaded. Small pieces are thrown into the water from the beach as lure, after the fish had been lured to the spot before by good breadfruit pieces.

**Labor division at fishing.** As has been already mentioned, both sexes participate in fishing, although the numerous methods of fishing and fishing tools are used by the male sex by the bigger percentage. Women take part in different male fishing techniques, however they do only supportive tasks. Their one and only catching tool is the masa-net and its smaller version, the moko-net. Despite this fact it is the women who do most of the fishing. It was mostly women that DUPERREY, LÜTKE and their companions saw walking out to the reef daily, while the men were met there only occasionally and then only using the trawl net.\(^1\) The reason for this seems to be that the fishing technique of the woman is very simple and only needs little circumspection and effort. However, it yields a big catch. At the same time in this way there is a balance among the sexes in their care for survival. Men are busy planting the fields and harvesting the fruits and they also have some special time consuming duties in the household.

The aristocracy did not develop any taste for fishing, just as with agriculture as soon as it became regular work, and if individual members were not passionate for it. Based on its position the aristocracy preferred to be well and amply supplied by the rest of the people.

The remark is actually natural, that fishing, just like any other activity, is conducted by the different individuals, men and women to a different extent, and also in a different way, according to their liveliness, disposition, training, and skillfulness. Only a few have to deal with it in its entire extent, and, at all times there were shirkers, who preferred to get fish from good friends as presents or »invited« themselves to their house after fishing. Accordingly not every household owned and owns the tools necessary for all the different fishing methods, but always only a few ones. In the present time, as also in the past, only the masa-net is a permanent component in each household. All other tools are rare, have been given up, or are made just before they are used. In former times trawl nets were only in the possession of the nobles. Further on, each region of Ualang owned one. Currently there are only a few.

Besides the before mentioned forms of labor division, in former times there was also

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1 KITTLITZ 1858, II, p. 19; the same one also in LÜTKE 1835/36, II, p. 290; LÜTKE 1835/36, I, p. 381.
a special class of fishermen, of course not in the sense that they earned their livelihood from fishing. These fishermen, called met pala, maybe had special knowledge concerning the way of life, the residence, and the movements of the different kinds of fish and maybe also special skills, such a good eye and a good hand. These characteristics were handed down to the younger members of the family, or better they were trained in it. Under certain circumstances, even a friend who was eager to learn, was trained, for a compensation.

However, besides that, people saw in the pala a very intelligent and omniscient personality. He, though did not use his alleged omniscience profesionally. Unfortunately we could not learn anything anymore about his actual or reputed knowledge. Only one single pala was still alive, a feeble old man, who could not reveal them, because, according to his own statement, he did not know anything anymore. Some accounts give examples of the praised wisdom of these fishermen, unfortunately they are repeatedly the same. For the present and into the future, these former pala have saved their reputation as they found entrance into the Kusaean bible, in which the word »prophet« has been translated into »pala,« according to Kusaean opinion.

In former times, at big fishing expeditions where a trawl net was used, the pala as the leader should never be absent. The title holding aristocracy employed a pala with his supportive crew, especially in the summer, at the time of open sea fishing for some time. These fishermen were called met koa.

The position of a pala, as a class of fishermen, within a population where all practiced fishing is strange. People believed he had supernatural abilities without that his class had a religious character. However, mainly the word »pala« itself points obviously to the old class of navigators, of the vanished open sea shipping, the more so as the Kusaean language no longer has a word for captain.

Concerning the legendary figure of Nikon, the alleged »king of fishing«, see under state.

Fishing rights.* The reef (fenlo) is divided among the regions, which are situated behind it. Thus, people talk about a fenlo Mot, fenlo Målåm etc. On the individual sections of the reef there supposedly are still subdivisions with special names. In fact only the inhabitants of the respective region have the right to fish on the reef. In the old days only the immediate neighbors supposedly had the right, while people living more inland could only fish there with their allowance. It is said that in former times fishing on the reef of another region caused disputes and animosities. One legend even relates to it, mentioning that sections of the reef also had individual owners.

Under these circumstances some regions have been neglected by nature, because of a small or deep reef. Some areas like the districts Jat and Infäl

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* [Sarfert uses the word Fischereirechtsame, a word that does not exist in German. It seems to be a misprint for Fischereirechte = Fishing rights; comment CCHPH.]
on Lölö had no reef of their own at all. The same has been the case with individual regions of Ulang, where the reef situated in front of it, came into the possession of another region for unknown historical reasons. Thus, the reef section of Pok, Tenuak and Mantanlük, at the southern coast of Lölö-Harbor belonged to the region Sänsik in the same area. The reason why the reef of the region Tofol, also on the southern coast of Lölö-Harbor, belongs to the neighboring region Innem, who in former times had no right to the reef has been handed down in a legend. Because of the transition of regions into personal property, even today people still claim personal property rights to the respective reef. Thus, in 1910, the King also claimed the reef Jelpon in front of Tofol as the owner of the region Innem, just as the reef Te in Lölö, which is said to have since always belonged to the King’s. Every time when he saw women fishing on his reef areas, which were visited a lot by Lölö, he became angry. As can be seen here, today people no longer care so much as before about the fishing rights of the individual regions.

In former times the overseers of the individual regions ordered common fishing trips. Also the King often commanded one of the smaller chiefs to organize a fishing trip. Such fishing trips were called according to their kind and to the respective chief. Thus, people would talk about a pukok lon Siken = »fishing trip of Siken with pukok nets«, or op lon Sefisä = »fishing trip of Sefisä with poison«.

While all tools could be produced by anybody, the production of keraun-nets was restricted to the met pala, who made it a business. If the King had a trawl-net made, the respective pala only started making some individual pieces, when then were sent to the title holding chiefs to have their people finish them. Finally the pala united the individual piece to the final net.

Beliefs and customs in fishing. Just like agriculture, fishing also stood under the protection of special gods, most of them female ones. There were quite a few of them, who all had the name ofofos, and to whom sacrificed were given. People also turned to other gods, who initially had nothing to do with fishing (see under religion).

Male and female fishers also had to follow many regulations, of which the following were still known and partially still observed:

1. In the night before fishing in any technique, from sunset to sunrise people were not allowed to eat anything. In the morning, after sunrise only warm food is allowed. Disregarding this rule causes an injury on the leg in any fashion during the fishing trip.
2. In the night before going fishing no intercourse is allowed.
3. People going fishing are not addressed and also not greeted, otherwise they will come back without any catch.
4. Sometimes when catching fish with a rod the body of the fish bursts open crosswise, while it is pulled out of the water. The fisherman to whom this happens, stops fishing because it is considered hopeless.

5. When catching fish with the pukok-net, then fuarar fish, a special kind of fish with a long pointed snout are thrown out as one will hurt oneself at the next fishing enterprise.

6. When catching flying fish (mokol) a sweet smelling flower is placed into the ear or the hair. The mokol like to smell this and will come to the canoe in great numbers.

7. In the same case, once the fisherman has left his house, none of his immediate family is allowed to leave the house until they see the burning torches on the reef or until they assume that fishing has already started. Otherwise the fish will again jump out of the nets.

8. The immediate relatives of such a fisherman are also not allowed are not allowed to drink anything from the moment of his departure until the before mentioned time, otherwise the fisher will be attacked by the ejok-fish with its pointed snout and will be hurt.

9. When a mokol-fish jumps towards the canoe and then falls back into the sea where it wriggles with the fins, the wife of the fisherman, in the vicinity of whom this happens commits adultery.

10. All participants of a fishing trip where poison is used, have to urinate before entering the water, if you do this in water then the fish will not be poisoned.

11. Using the same method the stunned fish should not be touched with the hand but be speared or scooped by net into the canoe, otherwise the fish will revive.

12. The back of green turtles (ik muät or no muät) is burned with the coconut fronds, in order to chase away the fishing spirits (fofos).

For more customs related to fishing see under state (position of the King) and under religion.

3. The World of Land Creatures as a Source of Food.

Hunting. In comparison to the world of plants and the sea in former times fauna could only provide a rather unassuming contribution to survival, as domestic animals and bigger game were completely absent. Catching small animals obviously does not seem sufficient for the natives and further on is difficult and uncomfortable.

Only one animal has always been a daily food source. These are the numerous land crabs (maniko), which can be encountered everywhere in the beach area and which are also easy to catch. This is done en passant with the hand, by crushing the breast of the animals with a piece of wood or a stone. In former times they were also speared.

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1 LÜTKE 1835/36, I, p. 375.
The actual hunt was also extended besides of flying foxes only to birds. This was practiced against the opinion of LESSON, KITTLITZ and FINSCH, though seldom. The following birds were hunted: both varieties of doves (mulä and kwon), the numerous wild chicken (muon) and the black seagull (palen), the frigate bird (sük), the big and the small beach-walker (külül and katkat) and the small white sea bird called lo, which supposedly nests in holes in the ground in the mountains.

Formerly people had special methods to catch them, but all of them disappeared after the shotgun for birds was introduced. This also brought a time of lots of bag from the bird world. The doves were especially chased and their stock was so affected, that the mulä-dove, which existed in abundance at the time of FINSCH, can no longer be found in the vicinity of the beach and hunting it is no more as rewarding as in former times. As in recent times trading with shotguns for birds is forbidden, they hardly exist any more and the few unhappy owners of one are lacking ammunition. Thus, hunting birds is now a thing of the past, as the old hunting methods have not been revived. On the other hand the natives received the wild boar, from the domesticated pigs gone wild, which found excellent living conditions in the forests of Ualang and became big game. Though this one too, is unattainable for them at the moment due to the lack of guns and bullets and another harmless catching method. Only few hunt it, and mostly when the wild boars have done too much damage to the plantation.

According to the memory of the old men, in the old days there were the following methods to catch birds and flying foxes:

1. Catching by hand = so muon. This was the most common kind and was used with all the above-mentioned birds. It was practiced at the time of brooding. For catching frigate birds, which brood in the holes of trees and the wings of which were used as decoration, the lower beak of the young birds was broken and the sharp bend was pushed through the upper beak. The screaming of the young birds fetched the old ones and they could be caught by hand.

2. ful mulä. Twigs of trees, on which doves love to dwell because of the fruits are covered with the warm resin of the breadfruit tree (warming the resin makes it very sticky. People imitate the call and then break off the twigs with the birds hanging on them.

3. ful fok. A lump of the same bird glue is attached to the end of a long pole with which people climb into the trees, where flying foxes are hanging by the numbers. Once touched they remain glued to the resin.

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1 LESSON, 1839, II, p. 470; KITTLITZ 1858, II, p. 8; FINSCH 1893, p. [459].

2 LESSON 1839, II, p. 472; KITTLITZ 1858, II, p. 8, II, p. 62; FINSCH accounts in Cabanis Journal 1886, p. 304, a case where 4 marksmen caught in one day 186 pieces.
4. kasup muon, a long pole with a sling, the pulling end hanging down like a long string. With the help of it wild chicken were caught, by, while staying in a hiding place the loop is carefully slipped on the head of the bird and pulled tight.

5. sof in muon, a foot loop, especially for wild chicken. A small rectangular enclosure, is closed on 3 sides and surrounding the lure. On the fourth side there were 2 twigs formed like knees. A bent stick rammed into the ground behind the enclosure, held a crosswise piece of wood to two horizontal sticks on the two forks of the branches. Many were places on the lower stick as a sort of floor, which presented the entrance to the enclosure and on which the loop rested. As soon as the chickens jumped on the inclined floor and into the loop it pressed down the lower horizontal stick, so that the stick, which kept the tension got loose and the bent stick shot back and the loop closed (illust. 24).

6. Currently wild boars are hunted with trained dogs and a long machete as a weapon. The trail of the game is followed until the dogs have cornered it. The hunter tries to smash the back of the boar with the knife by jumping from the back on the back of the animal.

In this point we also have to consider catching rats. Today rats are caught with European traps of different kinds that can be bought at the trader. The local methods were.

1. People placed food at a spot and grass next to it, so that the rats could hide in it. Then the place was surrounded by masa-nets.

2. Some sort of lure is placed into a basket. As soon as a rat ventures into it, it is pulled closed with a string.

3. kasup kusük. A bit of food is places on the reed floor of the house. It is lowered together with a loop in-between the reeds. As soon as a rat nears sniffing ther loop is pulled tight.

4. alkäsem, the well known bamboo trap with a sling. It was introduced in recent time by people from Rothuma. No local trap like this supposedly existed.

Domestic animals. Conspicuously Kusae had in former times not a single domestic animal.1 However the local bush chicken is a domestic chicken gone wild, thus

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1 LESSON 1839, II, pp. 470; LÜTKE 1835/36, I, p. 375; FIN SCH 1893, p. [459].
once upon a time the natives must have tamed them and must have introduced them
themselves, although they do not have the lightest idea about this. Even at the time of
DUPERREY the chicken only existed wild and in great numbers.\(^1\) That this is an early
acquaintance is pointed out by the fact that in the Kusaean language it is called "the
bird" (muon = "chicken, bird"). At the arrival of the Europeans the natives did not
know pig and dog, their language also does not have a native name for them and the
sight of the first pig filled them with astonishment mixed with fear.\(^2\) In the present
cows, pigs dogs and cats are domestic animals.

1. The pig = pik or koso pig (from French cochon and English peak). It is the
oldest domestic animal and was introduced by DUPERREY, who left tow of three sows,
which he still had, of which one was shortly before giving birth.\(^3\) LESSON’S
prediction that the word "cochon" would be kept in the Kusaean language, came true, at the same
time the name was applied to nearly all new four feet animal.\(^4\) The word peak is from
the time of the whalers and displaced the word koso for pig. 2 1/2 years after
DUPERREY LÜTKE and his companions discovered only one pregnant sow, which was
presented to KITTLITZ in the middle of the night as an object of great rarity.\(^5\) LÜTKE
also left a pregnant sow for the King.\(^6\) At the time of the whalers the pig was obviously
reintroduced; in those days it was already an important trading item for the foreigners.
At present is very common and an indispensable roast at festivities (plate 21,1). On
Ulang it usually roams freely so that it easily can go wild. In Lölö it is kept in the old
compounds or in smaller enclosures enclosed by walls (imon pik).

2. The dog = koso nalnöl (nalnöl = "bite") seems to have been introduced in
the time of the whalers, as well as the cat and the domesticated chicken. In former
times it was also butchered, now it is a companion for the humas and a hunting tool for
wild boars.

3. The cat = koso kusük (kusük = "rat"). It was never considered food.

4. The domesticated chicken = muon oa (= "the good sort of chicken") is
now widely distributed in the form of the European and Asian chicken.

5. The cow = kau (ox = kau mokul = "male cow"; cow = kau matän = "female
cow"). Only a few lucky ones own some. Mostly in few numbers (2—3). However the
King and one other man still have a big herd, because it does well. It was introduced
quite some time before 1880, by an agent of the former trading firm CAPELLE. In
1881, there were only about one dozen. The animals are left alone

\(^{1}\) LESSON loc. cit.; KITTLITZ 1858, II, pp. 8, 62.
\(^{2}\) LESSON 1839, II, p. 471.
\(^{3}\) LESSON loc. cit.; DUPERREY 1828, II, I, p. (639).
\(^{4}\) Compare already KITTLITZ 1858, II, p. 8.
\(^{5}\) KITTLITZ 1858, II, p. 51; LÜTKE 1835/36, I, pp. 320.
\(^{6}\) LÜTKE 1835/36, I, p. 336; KITTLITZ 1858, II, pp. 67.
\(^{7}\) A.d.H. 1882, p. 156; FINSCH 1893, p. [459].
1. Feeding pigs with breadfruit in Matante (Ualang).

2. Basalt slab for pounding kava in \( \frac{1}{3} \) of its natural size.
to graze in Ualang and people only look from time to time after them. Therefore, from
time to time some animals get lost and people have to look for them for a long time or
they perish in the swamp. Unfortunately the cows are inflicted a great deal by ticks.
The natives try to free them from it with the help of salt water, by letting them swim in
the deep harbor basin, this supposedly is a good method. The planter MELANDER
-treated his with boiled stock from tobacco. The Kusaeans do not butcher the cows, but
consider them the biggest object of value, which therefore is turned into money. Their
meat is therefore also not as much valued as pork. Further on it is possible to buy beef
at MELANDER, because he slaughters a cow a week for his workers. Unfortunately this
man is also the only buyer of the cows of the natives, because the hips turn to him, as
the owner of a big herd, when they stock this important provision for themselves as
well as for the neighboring islands (Jaluit). Nevertheless, he is supportive and
accommodates the natives by buying their animals, for M. 60—100 a piece.

An attempt of the government to import the Kusaean cattle to the Bismarck-
Archipelago, unfortunately failed.

4. Preparation of Food and Eating.

Cook and cooking. 1. Cook and kitchen personnel. In the collection of
food resources the Kusaeans have a labor division according to sexes, which luckily is
well balanced. Freeing the women from the more severe toil of working the fields and
transporting crops back home has raised the position of women. This proportion is still
moved into their favor, as they traditionally are not much concerned with the
preparation of the food.\(^1\) Even today the man is still the cook. Currently all the women
do is roasting the fish and assisting the men. Due to these circumstances the man
becomes the decisive economic factor in the family. He is the bread winner, and when
he does his job well, which is usually the case, then he is busy most of the day. If there
are adult sons in the family, then they take over some of the chores from their father,
however he keeps his position as the main cook.

In the old days this was quite different in the bigger households, the like of the
overseers of the land and the title holding chiefs. Their households had a grand
appearance. Not only were there subordinates who took care of bringing fruits and
fish, the title holding nobles also had from time to time fishermen and, among others,
also a special kitchen personnel. There were cooks (met foko), kava makers (met tuk
seka) and servants to serve the food (tetafbo). The title holding aristocracy had,
according to their social standing, at all times several servants of all kinds. The King
alone, so it is said, generally had 4—5 cooks. At the time of LÜTKE the title holding
chief

\(^1\) Compare LESSON 1839, II, p. 486.
Sipa and the King had two kava makers each, and here all the cupbearers are not counted.\(^1\) In fact these circumstances are given a reference by the written sources, however currently such magnificence has disappeared. Only the household of the King is still a pale reflection of the old times, where the kitchen personnel consisted of an old man as cook and servant at the same time. Further on adoptive son and nephew, together with some young people, took care of bringing the food.

Next to the already mentioned class of servants there was also a hereditary class of cooks, the met fafa. They were no servants, but were specifically hired to prepare the most cherished dish, after breadfruit, the fafa, and they were paid for it. In the opinion of the natives only they could prepare this dish in the right artistic and tasty way. These met fafa were therefore in such a regarded that there were many of them among the nobility, even all still known Kings, except one (Sitel Tat) knew this art and are said to have practiced it (compare also p. 133, nr. 18)

2. The kitchen = unum\(^2\) (from im in um = »house of the earth oven«). As the control area of the man it formerly was at the same time a men’s and feast house, where the woman had nothing to do, and which she was not allowed to enter, so that she formerly was actually excluded from cooking.\(^3\) In case she wanted to roast a fish herself, then she did so on the fireplace of the dwelling house. Even today her place is mostly in this one, although she does some chores of the man in the kitchen.

Even today the cooking house as the men’s and feast house is bigger than the dwelling house. Its characteristic is, as the name already indicates, the fireplace (fonio) in the well known form of an earth oven = hum, which today usually is situated in the middle of the house. It is a hollow, in former times framed and lined with basalt stones, of about 1—1 1/2 m in diameter, filled with a low heap of basalt piece about as big as half a fist. When needed these stones are removed from the pit with the help of a simple long stick (telajok) and heaped next to it. A pile of firewood (etan) is stacked and lit, and the stones are placed on top. As soon as the fire has burned down and the stones are glowing, the bigger remains of wood are moved aside with said stake. Then the glowing stones are spread into a layer, the food is placed on top of it and the stones from the edge are placed on top of it with the help of a bent piece of root of the stilt-like pandanus tree as pliers (ok an kipär), then covering the oven, in order to keep the embers for a long time, with green then with dry banana and taro leaves, from which slowly clouds of smoke raise.

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1 LESSON 1839, II, pp. 497; KITTLITZ 1858, II, pp. 50; LÜTKE 1835/36, I, p. 371, footnote.
2 LESSON 1839, II, pp. 497; »lomme ounou«.
3 Compare LÜTKE 1835/36, I, p. 376.
This way of cooking is called hum. Next to it dishes are roasted (manman) on the hot stones of the open and used hum or on a special wooden fire. Today 2 iron sticks, placed on 2 stones, are used as a grating. The third manner of food preparations with fire, especially the boiling of water is done with hot stones and it is called oajok. Although cooking in pots is introduced everywhere, though it has not displaced the old cooking versions. The earth oven and roasting are still holding their old position, as these methods allow the preparation of great masses of food in a rather short time, therefore the natives preferred the such preferred food to the one cooked in water. Partly it also gains taste for our palates.

The old way of making fire was accomplished in only one way by employing the fire plane = ijä. Usually it took not longer than 1 minute. 2 pieces of hibiscus wood (lo) were used, ekal = the horizontal piece, mosa (= »spear«) = the pointed plane. According to KITTLITZ and LÜTKE this one was made of a hard wood. KITTLITZ calls the apparatus eaga from ea = fire, while Prof. KRÄMER and I, we both learned ijä from ii = rub and ä = fire.

Otherwise the kitchen is due to its size and the lack of bigger tools rather empty, also because most of the work is done on the ground. But it still houses next to all the kitchen utensils, also the tools of the man and the fishing gear, which are stored on the hanging floor or leaning against a wall.

3. At closer inspection the kitchen tools are not as few. The following old tolls have be mentioned for preparing food:

1. Scraper, grater, and rubber:
   a) panak, a small shell, which often can be found on the beach. Men also use it for planting. It is used for scraping and cutting

Illustr. 25.
The panak-shell, the old knife. 1/1 of its original size (Sar. 1348)

Illustr. 26. The toksak-shell for sharpening the panak-knife. 1/1 of its original size (Sar. 1349).

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1 Compare LÜTKE 1835/36, I, pp. 375; KITTLITZ II, p. 27; FINSCH 1893, p. [461].
2 About the origin of the fire see account nr. 13 in the chapter ‘Legends and Tales’.
3 Compare LESSON 1839, II, p. 497; LÜTKE 1835/36, I, pp. 365; KITTLITZ II, p. 375.
4 Compare LESSON loc. cit.
taro, yams and breadfruit. It also used for scraping clean the coconuts, when they are eaten. It was carried on the belt or on the lower lip, while holding it with the teeth, so that the white backside was visible. It was sharpened by pressing its blade on the raw outside of another shell (toksak = Tellina scobinata) (Illustr. 25 and 26).

b) ful in kōkō fūro, a shell (Cypraea Mauritania L = ful) the one end of which had been cut off and the bulge of which has a hole with a sharpened edge as a blade. It is used for scraping off (kōkō) the breadfruit peel, when preserved breadfruit (furo) was prepared (illustr. 27).

c) ukuk in furo, a triton horn (ukuk) with a sharpened hole, just like the before mentioned peeler. It served the same purpose.

d) älen kōkō (from āla in kōkō), a piece of coconut shell in the form of a kalotte (āla) with the same sharpened hole as the former ones and for the same purpose (illus. 29).

e) uoikan, the coconut scraper. The old Kusaean scraper was a forked piece of a branch with a upwards inclined neck, at the end of which a dented piece of coconut had been lashed on (illus. 30a). The parts are called:

the fork = ka in ne (= »body of the leg«), neck = kāwuā, grater = ip in āla (= »piece of coconut shell«).

The modern coconut scraper is a small board like piece of wood, at the end of which a piece of iron, with sharpened dents, has been lashed on (illus. 30b).

f) et saksak, a rough coral slab (et from eot = »stone«) as a »grater« for fruits (to grate = saksak).

2. Opener for fruits:

a) ko, stick (ko) for husking coconuts. It is sharpened at both ends and it is rammed into the ground. The nuts are held with both hands and hit on the pointed end, then the husk is pushed off and sometimes people have to help with their hands.

b) et in otat kaki. This was a ca. 20 cm long flat piece of basalt, with which the peeled nuts (kaki = old nut which contains meat) were hit inorder to open them (otat).

c) ta, ca. 40 cm long knife (ta) made of wood, in the form of our kitchen cleaver, for splitting breadfruits. It is still widely used today (illus. 31).

3. Knives:

Besides the panak-shell and the breadfruit splitter (ta) the following were also used: ta, a strip of wild reed (ā), in former times it was used to cut fish.

4. Pounder, pounding and kneading slabs:

a) tok sak, a conical pounder made of hard wood (sak = »wood«) with a knob in different forms. It was used to pound (toktok) peeled bananas.

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1 LÜTKE 1835/36, I, p. 368; KITTLITZ 1858, I, p. 376.  
2 Compare FINSCH 1893, p. [472].  
3 Compare FINSCH 1893, p. [461] with illustr.  
4 Compare FINSCH 1893, p. [461] with illustr.
II. FOOD RESOURCES AND THEIR USE.

Illustr. 27. Scraper ful in kókó furo
(according to FINSCH.)

Illustr. 28. Scraper ukuk in furo. 1/2 of its natural size
(Sar. 1339).

Illustr. 29. Peeler álen kókó
(after a sketch)

Illustr. 30. The old (a) and the modern coconut scraper (after a sketch)

Illustr. 31. Bread fruit splitter, 1/4 of its natural size (Sar. 1375).
In moments of breaks the pounder is propped up with the knob on the leg. This is also the reason for the knob, it should prevent that the pounder, which is covered with meat of the fruit will get in touch with the dirty skin of the cook.\(^1\) (illustr. 32).

b) tok eot, pounder made of basalt with a knob. All kinds of taro, breadfruit, and bananas are pounded with it. For the last ones a wooden pounder is preferred because of its light weight. Although stone pounders are no longer produced, however each household has one from the old times (illustr. 33).\(^2\)

d) tuk un seka, round ball like stone held by the hand. It is made of basalt and was used for pounding (tuktuk = »pounding with small hits« in contrast to toktok) the kava root (illustr. 34).\(^3\)

e) tapen, big slabs of basalt with a flat, often slightly concave surface. This is the pounding slab for the first two kinds of pounders. It is in every kitchen (plate 22, 1). These are pieces from the old times (pen = the sound, which the slab emanates when pounded, ta = tap = ?)

f) tapnan seka (from tapen in seka), big pounding slab made of basalt for the kava preparation. In former times each cooking house is said to have had such a slab. The nobles usually had several, some in the house next to the earth oven or outside

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\(^1\) Compare FINSCH 1893, p. [461] with illustr. on p. [462]; LÜTKE 1837, Taf. 29, Fig. 10; EDGE-PARTINGTON.Taf. 175, Fig. 11; LESSON 1893, II, p. 497.

\(^2\) Compare FINSCH 1893, p. [462] with illustr.; EDGE-PARTINGTON.Taf. 175, Fig. 10;

\(^3\) Compare LÜTKE 1835/36, I, p. 372; LESSON 1839, II, pp. 464, 497.
inserted into the ground. Numerous can still be found in the ruins of Lölö. Thsy
distinguish themselves from the former ones by their uneven rough surface and by one
or several hole like hollows or grooves of the diameter of a kava pounder. (plate 21,2)." f)
et in kaka furo, coral slab for kneading (kaka) of the breadfruit conserve (furo).
5. lüklük, strainer, a quadrilateral double frame made of short sticks, in-between which
a quadrilateral piece of coconut baste (inbal) is stretched and fastened. It is used
for producing flour.

Illustr. 33. Stone pounder.  a 1/2 of its original size (after a piece without
number in the museum in Berlin). b 1/2 of its original size
(collection He. 3832).

Illustr. 34. Stone pounder for pounding kava.  1/2 of
natural size
(collection Ham. 372).

6. la, a container made of a leaf, a taro leaf, which is folded into a round bag. It was
used to fetch water and was specially made for that purpose. People usually
carried two water bags like this, attached to each other on their shoulders. Nw
they have been replaced by pots and buckets 2 (plate 14,2).
7. Containers made of coconut (äla = »coconut shell«) 3
   a) äla so kof half a coconut shell (äla) for fetching water (so) and for drinking
   water.
   b) älen seka (from äla in seka), the old coconut shell cup used for drinking kava. It
   was stored in a small netting bag (uro), made of sennit cord, which was hanging
   in a corner of the house on a row of special hooks (illustr. 55). It was a horizontal
   pole, parallel to the wall, with protruding rungs, which were attached. Each rung
   was a hook. Each title holding chief had

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3 Compare FINSCH 1893, p. [463].
his own cup hanging in the big cooking houses of Lëlö, as well as in the cooking houses of the villages in Ualang, which were subordinate to him. The cup of the King was in a special small toto (see under 10b. c) Äla pol, a whole coconut shell (pol = «round like a ball») to fetch water and to make palm wine. It was carried on a string, which had been attached on a loose cross-stick in the coconut bottle.

8. Wooden containers (top). The are all colored red brown.

a) Top salep or top en fafa, a pointedly oval bowl made of coconut wood with a flat (salep = »wide«) bottom and a low edge, inclined to the outside (illustr. 35). The

size varies strongly, the length can be in-between 40 cm and more than 1 m. The height of the edge of the big bowls is up to 10 cm. In it food is prepared, the smaller ones are also used to serve fafa.²

b) Top aluet, wooden bowl, round like a circle (aluet = »moon«), flat, and low like the before mentioned one. It is not common and serves the same purpose (illustr. 36).³

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1 Compare LESSON lo. cit.
2 Compare illustration in LÜTKE 1837, Taf. 29, Fig. 12; FINSCHE 1893, p. [462].
3 Compare illustration in DUPERREY 1826, Taf. 55, Fig. 6.
c) top in sak, large bowl of a pointed oval form, like the top salep, but with a high (up to 1/2 m) vertical edge. Water was fetched in it for kava and for cooking with hot stones. Today it no longer is in use.
d) top oak or top oajok, enormously large bowl, of a similar form than the one above, though with slightly convex sides. Because of their form and size (up to 2 m long and 3/4 m high) it does resemble a canoe (oäk, oak). It is used for the preparation of food at festive events while cooking with hot stones (oajok). In former times the title holding nobles had show-piece vessels of special size, supposedly up to 2 1/2 m long and more than one m height. They were only for presentation. The bowls are made of so-called ito-wood. Currently they are not that rare. If not in use they are turned around and serve as a seat. (illustr. 37).
e) A wooden bowl of a rather strange form, and no longer found today, can be found in the collection of LÜTKE in Petersburg (illustr. 38). It has already been published in LÜTKE’S historical atlas Taf. 29, Fig. 15. Though it is only labeled as originating from the »Carolines« there.

9. Baskets. Of these only 3 can be considered important for food preparation. They are quickly made before they are needed (see also weaving in plate 24 and 25):
a) fusanie, in the form of a star, actually small baskets consisting of four rays of leaves (sa fusanie)

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1 Compare LÜTKE 1835/36, I, p. 365; FINSCH 1893, p. [462].
from the wild reed (ä), which is used for the preparation, serving, and storing of fafa.

b) fusanie kapiel or fusanie sa nu, a small basket in the form of the one above and for the same purposes, however a bit bigger and woven from individual young coconut leaves.

c) kuumpäl, basket with handles made of coconut fronds. The basket has its name because of its similarity with the plate made from coconut leaves (kuom) and because of its handle (pöla = »tail«). Fish were cooked in the earth oven in this basket.

Listed below are the special rat protection devices for the storage of the before mentioned nets and the baskets used for transporting fruits and fish, and for the plates and fusanie-baskets still holding uneaten foods.

10. Rat protection devices:

a) aluet (= »moon«), round, red-brown colored disk like hook made of wood¹ (illustr. 39).

b) toto, a quadrilateral, red-brown colored frame made of hibiscus wood with a bottom made of small sticks of reef. It hangs, on four strings, which unite, over or nearby an earth oven. The big cooking houses of the old days contained several, some of them were of a special size of supposedly 1 ½ m in square² (illustr. 40).

Food and beverages. The women in Kusae have twice the reason to be content with their men. They do not have to work in the kitchen the men regularly fulfill their duties with enjoyable enthusiasm, as well as with an artistic sense and taste. However, the preparation of food, and most of all eating, is their preferred activity. The menu is proof of this.

Despite the few cultured crops food, is prepared in a surprising variety and therefore this variety is quite informative.

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¹ Compare LÜTKE 1835/36, I, p. 365; FINSCH 1893, p. [469].
² Compare LÜTKE 1835/36, I, p. 365; KITTLITZ 1858, I, p. 373.
I. Fruit Dishes.

I. Uncooked raw dishes. The only one of the local fruits is the orange, nearly exclusively is the local breadfruit variety, mos in Kosa. Further on people like to eat raw all banana varieties and the coconuts. The coconut’s tender meat (bos in nu = »cover of the drinking nut«) as well as the hard meat (kaki) of the old nut (kaki) and the sponge like kernel (simet) of the sprouting nut (simet) serves as raw food. Of the imported fruit varieties, papayas, oranges, pine apples, soursap, and water melons are eaten raw. The last 4 are only eaten in this way. To eat raw = osäs.

II. The crops taro, yams, bananas, and the breadfruit variety pataktäk are eaten roasted (ketak manman = »roasted taro«).

III. Foods cooked in the earth oven (hum) form the normal fare. Generally dishes prepared in this way are called by the name of the food added to the hum. For instance, ketak hum = »cooked taro«. In addition to the two kinds of taro, yam, green bananas (us keke = »hard b.«), ripe bananas (us mäs = »ripe b.) breadfruit, sprouting coconuts, pandanus fruits, except for the kind men in Kosa, and papayas, in former times also potatoes were eaten in this way.

The breadfruit is always halved1 or cut in thirds, the number varies from place to place (sic!) for better cooking.

Cooked pandanus is a modern dish, which was not prepared in former times.

Before cooking the sprouting coconut is cut open and is then submerged into salt water.

IV. Mixed dishes except fafa.

1. Taro dishes.
   a) pasok ilil. Grated taro (ilil = »to grate«) is kneaded with coconut milk (see 4 c) and is cooked in form of small quadrilateral breads wrapped in banana leaves.
   b) pasok tiuktuk. Cooked taro is pounded (tuktuk) and the mash is mixed with grated coconut meat to form balls as big as a fist.

2. Yams dishes:
   a) mota ilil, a dish analogous to 1a made of yams.
   b) mota kal. Yam breads are prepared as in 1a. After cooking they are sprinkled with coconut milk, then stirred (kal), and served in fresh leaves.

3. Dishes made from preserved breadfruit. All varieties of breadfruit are used for the preparation of preserved breadfruit (furo) except mos in Kosa.2 Furo is prepared in two ways.

   The breadfruits are bound together with hibiscus bast into bundles (sämsem) of 10 pieces. 4 bundles are hung on a carrying stick and carried to the shore. Here the bundles are opened, the skin of the fruits is scraped off and they are placed

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1 Compare KITTLITZ 1858, II, p. 6.
2 It has too many pips. Concerning furo preparation compare LÜTKE 1835/36, I, p. 375; KITTLITZ 1858, II, p. 7.
9 Sarfert: Kusae
individually in one long row attached to a string of hibiscus for one day into the sea. The bark strips are attached on the beach with the nuts swimming in the sea. Then the fruits are brought to the mouth of a river where a hole is dug into the fresh or brackish water near to the shore. It is lined with grass and green banana leaves. The fruits are placed there and are covered with dry, little water permeable, then with green banana leaves, then with grass and in the end heavy stones are placed on top of it. Now the water of the river is once again directed over this place. After 4 days the furo is ready to be eaten. From time to time new fruits are added. They are always placed at the bottom and the hole is always newly lined with grass and leaves. This is also done when people come and fetch furo for eating as the leaves soon start molding and would spoil the furo. With this treatment the conserve keeps several months.

Another preparation is used in areas far from the coast and where people have no river nearby. Here, the fruits are not completely peeled, only several stripes of skin are cut off. They are heaped together with the sap of the leaves of the monak taro squeezed over them, and then covered with leaves. The sap from the taro leaves removes the water content from the fruits and prevents their going sour. The next day the fruits are peeled completely and placed into a hole in the ground where they are treated in the same way as the above mentioned.

In former times the inhabitants of Lölö buried their furo in the mouth of the small springs for safety reasons.

When the breadfruit is ripe, the title holding chiefs have breadfruit for furo preparation delivered from all regions at one day at the same time. People attached them to long strings and placed them into the sea in front of the house of the King. They also counted them, in order to see who had the most fruits. On some strings there sometimes were 2000—4000 fruits. The King received the longest string. The others were distributed among the title holding nobles, who gave some of it to their subjects in Lölö. People from Ualang were paid for their service. When the furo was finished, the title holding aristocracy gathered in the cooking house of the King to sample the furo. Fresh furo looks white and smells like cheese. When cooked its color changes. The yellowish red one is considered the best. Bad furo turns dark to black when cooked and it tastes sour. The owner of such furo was laughed at.

The following are furo-dishes:

a) furo kaka. Furo is cleaned from the outer dirty layer, it is kneaded (kaka) on a white coral slab and then it is cooked in the form of quadrilateral breads, wrapped in banana leaves and placed vertically into the earth oven.

b) furo kaki, the former dish, only kneaded with grated coconut.

c) furo tepenmär. The furo is crumbled and mixed with grated coconut,
formed to small balls, and cooked without any wrapping. This furo, which is not kneaded, is hard, therefore the name (tepenmār = »hard mass«).


a) talok. The scraped tender meat of very young coconuts (uf), just as big as a fist, is mixed with the meat of the old coconuts (kaki), and mixed with the water of the young nuts.

b) koison, scraped meat of drinking nuts (nu) with is mixed with the water of the same nut.

c) samo kaki = »old coconut Samoan style«

Coconut milk is prepared by scraping an old nut (kaki) and adding fresh water. The mass is pressed through coconut bast. The milk is cooked in half coconut shells, so that it becomes like soft butter. It is used as a substitute for fish. The dish is of recent origin, though supposedly local. It is said to have been invented analogous to the following dishes, which had been imported from Samoa:

d) palu sami (from the Samoan palu = »pressed milk« and sami = »saltwater«). Shipwrecked Samoans from a whaler imported it. Grated coconut is mixed with salt water and boiled with hot stones, then it is wrung through coconut baste and poured into taro leaves. These are wrapped first with banana leaves, which have been dried over a fire and then wrapped with breadfruit leaves. Then the bundles are cooked. The resulting butter is eaten together with the taro leaves as a substitute for fish.

e) ketak samo = »taro, the Samoan way« Grated old coconut is mixed with salt water and pressed out. The milk is poured over raw pieces of taro, which are placed in small baskets, lined with well dried banana leaves and then cooked.

f) kelās samo = »kelās bananas in the Samona style«. Eän-flour is prepared (s. 16), water is added and it is well swirled. Then pressed milk made from grated coconut and freshwater and finally peeled bananas are added. The mass is formed into balls, wrapped in young banana leaves and cooked.

5. Cooked pumpkin is cut on a plate and sprinkled with pressed coconut milk.

V. fafa-dishes.¹ This name includes the different pounded and mixed dishes, which are very much cherished.

1. era, raw fafa. Pounded raw taro and pounded raw bananas (us tuktuk) are pounded together. The mass is placed into small fusanie-baskets and pressed milk is placed on top. This is considered the best fafa. Only the 5 best banana varieties are used for it.

2. fafa era hum. The same fafa is cooked a second time for a whole night. In this way it will not spoil for several days.

3. fafa eo. Raw taro is grated, and is cooked in two leaves which have been placed cross wise and folded. Then it is mixed with pounded raw bananas in a

¹ Compare LESSON 1839, II, p. 498; LÜTKE 1835/36, I, p. 375; KITTLITZ 1858, II, p. 50.
a wooden bowl. Grated sugar cane is pressed on a grater-slab and put in a big wooden bowl (top oäk) together with pressed milk. The liquid is cooked with glowing stones until it is thick and brown. The mass of fruit is cut in pieces, half as long as an arm and then sprinkled with this mixture.

Today this fafa is a common food at weddings, just as it was the main dish at great feasts in former times. It is said that at such occasions it was carried on big rectangular stretchers made of hibiscus wood, of ca. 5—20 m length. Sometimes 20—60 men were needed to carry the stretchers. Sometimes the title holding aristocracy offered such fafa-stretchers to the King or the King made one of them and distributed it among them. The regions of Ualang sometimes had to bring such fafa-stretchers to the their chiefs, too. On the occasion of the big epan-feast they were produced in great numbers, though of a smaller size. These stretchers were called bos in sak in fafa eo (bos = »wrap«, sak = »wood«).

4. suklä. Grated raw taro and pounded raw bananas of the matanate, us muän, and kïre kind are kneaded, cooked for an entire night in banana leaves, and placed in small fusanie-baskets. The mass is sprinkled with pressed milk, which had been cooked with hot stones.

5. soan in to. Cooked taro is pounded just a little bit, formed into small clumps, and placed in small fusanie-baskets. It is sprinkled with the juice of sugar cane and pressed milk, which had been cooked together with hot stones.

6. sono ketak. Cooked taro is pounded, placed in small fuansie-baskets and sprinkled with pressed milk.

7. lika sünsün. Roasted and peeled taro is pounded, and then pounded again with good bananas. Pressed milk is sprinkled over this mass.

8. kapiel. Roasted breadfruit, of the kinds kinf ek un lal and mos in oä are peeled and pounded, placed into small fusanie-baskets, made of coconut leaves, and sprinkled with pressed milk.

9. eïer. Peeled breadfruit, of the kind mos in Kosa with the kernels removed, is cooked in yellow root leaves. Grated taro is cooked in banana leaves. They are then mixed together with a stick, placed in small fusanie-baskets, and sprinkled with pressed milk.

10. sofal. Peeled bananas of the 5 best kinds are wrapped in banana leaves to bundles of ca. 20 pieces. They are cooked for a whole night and then sprinkled with pressed milk.

11. kap in eoa. The same banana varieties are pounded raw, kneaded with pressed milk, and cooked for a whole night in closed coconut bottles.

12. puk un sa (= »end of the leaf«). The same mass is cooked in the pointed end pieces of banana leaves instead of coconut shells.

13. pot. Raw bananas of the same kind are cooked, pounded, and sprinkled with pressed milk.

14. kalamis. The same pounded banana mash is kneaded with grated coconut meat and formed into fist sized balls.
1. Pounding taro in a cooking house in Tafonsak.

2. Sprinkling fafa with pressed coconut milk in a cooking house in Tafunsak.
15. taikinis. The banana variety keläs is cooked for one night, then pounded and sprinkled with coconut milk.

16. eän kal or to be precise mokmok kal. Grated eän- or mokmok-roots are placed into a strainer (lüklük). Fresh water is steadily poured over it and strained into a giant pot (top öäk). Very fine and white flour settles on the bottom of the pot. People then pour out the water, mix the flour with fresh water, and cook it while constant stirring (kal) until it is a thick mash. This is placed into small fusanie-baskets and sprinkled with pressed milk.

17. eän käkä or the be precise mokmok käkä. The eän that is the mokmok-flour is kneaded with pressed milk and cooked in the form of small breads wrapped in banana leaves.

18. fafa pasok. pasok is prepared like eän kal.

As has been mentioned above, a special guild of fafa-cooks existed in former times. Their art consisted in their knowledge of the special proportions in the mixture of the different fafa-dishes and in the right way to pound. The last one had to be done in a timely well measured manner. Later, after mixing the mash, it was pounded again with a wooden pounder. The fafa-cook accompanied his important duty with the necessary loud sounds, he worked in a certain rhythm and knew to pound loudly and clashingly, so that he could be heard from afar. This manner of pounding was called kal tok = »to mix and pound«, as people rhythmically pounded the mash and audibly mixed it with the pounder. Today everybody produces fafa for himself. Therefore, it supposedly no longer has the quality of the old fafa. In former times it was considered extremely rude to serve fafa-dishes which had not been prepared by a fafa-cook. The fafa-cooks and the chiefs also took care that no one else did a botched up job because this business was also quite profitable.


Many fish and the saltwater crab, powuä, are often eaten raw.

Normally the fish and the crabs are roasted, just like the birds. However, they are also cooked in the earth oven, wrapped in leaves or in a basket. Crabs and birds are more cherished when they are cooked than when they are roasted. Pork and beef are always cooked. Boiling fish or other meat in water is rare.

One way of preparing fish, has recently been learned from the Samoans: ik samo. The fish are placed into baskets made of coconut fronds, which are lined with banana leaves. Pressed coconut milk is poured over them and they are cooked in the earth oven.

Another modern way to prepare fish, is to cook them in lemon water, in a European fashion.

The variety kälat was eaten from the shells.¹

¹ It seems to be identical with FINSCH’S kalik-shell (Psammotaea radiata Desh.) 1893, p. [476].
3. Beverages and others.

While the natives are quite industrious when it comes to food, they have conspicuously few beverages. The following existed:

1. Water = kof. In former times it was the main drink of the common people.¹
2. Coconut water. Considering the scarcity of coconut palms in the old Kusae, it was exclusively the beverage of the aristocracy.² Three kinds of coconut water were distinguished:
   a) soan in nu, The juice (soan) of the common drinking nut (nu).³
   b) soan in uf, water of very young nuts (uf). This is more of a frippery.
   c) soan in kaki, water of old nuts (kaki).⁴ It is not much cherished and actually tastes bad.
3. Palm wine = sekaro. It supposedly was already tapped in the old days, though only in small amounts. Therefore it also was a beverage of the aristocracy. The two kinds of palm wine are:
   a) sekaro emem = »sweet palm wine«. It is still used today.
   b) sekaro mukol = »sour palm wine«. It has stood for a few hours or a day in the bottle and has started fermenting. It seems it is hardly drunk anymore today. Nowadays syrup = sekaro manman (= »roasted palm wine«) is produced by boiling palm wine.
4. Among the beverages we also have to mention the fruits used as a refreshment and enjoyed because of their juice. Usually they are sucked dry (muimui).
   a) Juice of the sugar cane = soan in to. It has been consumed since the old times. In the past, it was mostly drunk by the common people,⁵ as was the
   b) Juice of the pandanus keys = soan in men and also the
   c) Orange juice = soan in ma. Though the last one is only drunk occasionally.
   d) People sometimes refresh with the water content of some wild growing fruits and plants in the bush (pp. 94).
   e) Some of the garden fruits, which have been introduced in modern times can be added to these fruits, as for instance the pine apple, etc. They are not only eaten because of the meat, but also used as a beverage because of their juice. A modern beverage is obviously also the lemonade (lemon juice in drinking water) = soan in laim or also soan in melon.

¹ Compare LESSON 1893, II, 498.
² LESSON 1893, II, 499. LÜTKE 1835/36, I, pp. 346, 377; KITTLITZ 1858, II, pp. 43.
³ LESSON 1893, II, 469.
⁴ LESSON 1893, II, 469, by mistake he calls »kaké« the fibrous cover.
5. Cow milk = soan in titi (= »juice of the breast«) is usually not much cherished by the natives.

6. kava = seka still belongs to the old beverages though it is no longer used.\(^1\) It had been a daily beverage of the aristocracy, next to water, coconut milk, and sugar cane. As the consumption of kava was originally a cultic action, it is described in the chapter about religion.

**Meals, food customs, and feasts.** I. Meals and food customs. A certain daily rhythm for food applies, as the preparation of the earth oven and the cooking of the dishes require a lot of time. Twice a day the hum is prepared, shown by the smoke columns in the cooking houses, in the early morning after sunrise and in the evening after sunset because a man usually stays in the fields during the day and brings home the crops for the evening and for next morning in the evening. Women usually go fishing only in the late afternoon. According to the statements of the natives, this was like this in the old days.\(^2\) However, the aristocracy affords to fire the oven four times a day to and to serve 4 meals a day, at lunchtime\(^3\) and in the afternoon besides morning and evening meals. Currently, there are not special meal times between the two main meals. Yet, people also like to eat during the day, when they eat what was left over from the morning. LÜTKE reports that a noble had fruits deposited at night next to his bedstead and I myself observed several times that the owner of my house got several times up at night in order to eat.

To some degree we can talk about a certain food related hygiene. People take care that food does not get in contact with the ground. In order to make sure, simple leaves are employed and meals are also served on special crockery. This consists mostly of:

1. The kuom, the generally used plate, a 3/4 — 1 m long piece, woven from a coconut frond (see weaving and plate 24).\(^4\)
2. fafa-dishes are usually served in the fusanie-baskets, in which they mostly are also cooked. They are also placed on the kuom-plate (plate 24).
3. Later the long (top salep) and the round wooden bowls (top aluet) were also used. See p. 126.

In the present time European plates are in use, too.

On the other hand, people have no cutlery, but use their fingers. If spoons are used—forks are rather rare—it is to bring as much as possible to the mouth at once. The local cooking utensils were mostly scrapers.

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\(^1\) LESSON 1839, II, p. 470; »seka ou schiaka«.
\(^2\) LÜTKE 1835/36, I, p. 374, did not observe special meal times, however LESSON II, p. 499 reports about them; according to KITTLITZ 1858, II, p. 6 on the countryside there were 3 meals a day (in the morning, at lunch time, and in the evening).
\(^3\) LESSON loc. cit.
\(^4\) Compare KITTLITZ 1858, II, p. 6; FINSCH 1893, p. [463].
They were used for scraping coconuts and were also used as spoons. These were:

1. the panak shell (pp. 121).
2. men kökö (from ma in kökö = »thing to scrape«) a wooden stick, with a sharpened elongated piece of coconut shell attached in the split end. Both tools are no longer in use, instead a knife and spoon are employed.

Sugar cane is peeled with the teeth. Often coconuts are freed of their last fibers in a similar fashion and a hole is drilled with a finger into one of the soft eyes. In former times they were also skillfully opened with the corner teeth. Now people usually cut off a small calotte with their knife.

While in the present time the family usually eats together, in former times the sexes commonly ate separately. It even was a rule that the wife was not allowed to enter the cooking house and that the men ate their meals there, while the woman and the small children ate in the dwelling house. Nevertheless, the separate eating custom was not a requirement, as LÜTKE had thought. The master of the house also ate in the dwelling house in the company of the women and the small children, just like the female sex could eat in the presence of men.

Normally, the main meals consist of mixed foods, with foods made from fruits forming the biggest portion. Fish, crabs, and meat, as well as the surrogate for it, raw or cooked coconut meat, is only an addition. Dishes made of fruits, without meat or with coconut meat, are considered poor and not tasty. Coconut meat is never eaten with fafa as the natives think these two do not fit and are not appetizing. People prefer fish and crabs most of all.

In former times the common people served sugar cane as a beverage and refreshment, while the nobles consumed drinking coconuts.

The meals were more copious in the big households of the aristocracy and of the overseers on Ualang. They also had a more official aspect. Servants picked up the dishes, the moment they were ready and carried them on plates from the earth oven. They placed them in front of the master of the house or the guest who distributed them by throwing the food to even those people the furthest away. They also brought the meals to the women and children in the dwelling house. Until the master of the house, or the guest had distributed the dishes, other people sat »patiently and unmoving in a circle. However their skill in catching the food that was thrown to them, showed that they were well acquainted with local life style«. Normally, there were different dishes. A special religious and ceremonious action was the preparation of kava as a beverage offering for the gods. According to the statements of the

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1 LESSON 1839, II, p. 469; KITTLITZ 1858, II, pp. 50.
2 LÜTKE 1825/26, I, p. 376.
3 Compare LESSON 1839, II, p. 499;
4 Compare LESSON 1839, II, p. 498; KITTLITZ 1858, II, pp. 50.
5 KITTLITZ 1858, II, p. 6.
natives this happened at each main meal.\(^1\) A fruit or a drinking coconut was served as a desert.\(^2\)

Just as the quantity of the dishes differed, the quality differed a lot between the different strata. The nobility had not only reserved the coconuts for themselves, but it claimed the best varieties of fruits and fish. The common people had to content themselves with the worse varieties. LÜTKE already noticed this. He remarked that, for this reason the low class people gathered in front of the tents of the whites during the meal times in order to catch something, while the aristocrats were also rather choosy about European dishes. They mostly coveted salted meat and the sweet Chilean wine. In those days they still abhorred brandy.\(^3\) Among the fish, one which was about as long as an arm, the sap-fish, always had to be delivered to the King.

In the old Kusae the custom of hospitality surpassed even that usually practiced among primitive people. Certainly the social circumstances contributed to it. We want to mention the following special characteristics; a present for the host was not expected, the guest received his place next to the master of the house, who also gave the signal to start with eating and drinking kava. And, at farewell, there were food presents for on the way. Loads of food were carried for high ranking guests. The old travel accounts of the first expeditions are full of praise about the hospitality of the natives.\(^4\) The neighboring region Läl provided the »Senjäwin« each day with fruits and no aristocrat visited the ship without a canoe filled with fruits as presents. Hospitality today is not on the same former level, due to the growing idea of values brought on by the long relationship with white people, but we can still only praise it. We just want to mention that during the entire time of my stay the King provided food to my two boys.

II. Feasts. As great friends of food, the natives enjoy their feasts. They use personal and general events as an opportunity for festive repasts. They generally call the feast kofa = »great quantity of dishes« or more modestly hum = »earth oven«. The quantity is especially emphasized. According to the account of the natives, on the occasion of a festive event, the big national feast, Kusae was »a single heap of food«. The old feasts are the following:

1. epan, big national feast of a religious character. See more about it under religion.

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\(^1\) Compare LESSON 1839, II, p. 498; LÜTKE 1835/36, I, pp. 371. KITTLITZ 1858, II, p. 52.

\(^2\) KITTLITZ 1858, II, p. 6.

\(^3\) LÜTKE 1835/36, I, pp. 376, 399.

2. Sinlåka, harvest-celebration honoring goddess Sinlåka. See religion.
3. ärman, big feast at the beginning dancing feasts. See under dance.
4. fukosio, feast at the end of the dancing celebration. See under dance.
5. hum nen ot, marriage celebration. See under social circumstances, section »closer family«.
6. hum sael, 2 kinds of meals at the occasion of death. See under »close family«.
7. kofen malof (from kofa in malof), a joyful feast, when somebody evaded danger, as for instance sickness, a dangerous fall from a tree, death by drowning, after a fight, etc.
8. On the occasion of the construction of a house 5 meals are served. See under house in the chapter house, compound, and village.
9. kofen pot (from Kofa in pot), festive meal when the construction or extension of a wall of the compound (pot) is finished. See under compound in the chapter house, compound, and village.
10. kofen oak (from kofen in oak), festive meal after the completion of the construction of a canoe. See under canoe in the chapter trade and shipping.
11. kofen imä (from kofen in imä), festive meal after the preparation and planting of a field.
12. sajok, festive meal for the fishermen of the title holding aristocracy, when they caught a lot of fish.
13. urtop, festive meal for the same fishermen at the end of their period of serving.
14. Besides these festive occasions, which were regularly celebrated at the mentioned events, in former times the aristocracy also staged improvised festive meals. See under state.
15. A special form of a feast was called akofai. Actually these were gift-giving competitions for honor and prestige between good friends. Among the noble Kusaeans such competitions were on a grand scale. This feast was initiated by sending the friend a basket with food, containing a prepared fruit and either fish or chicken. Some time later the receiver of the present answered with a similar basket, which was already filled with more presents. In such a way the presents went back and forth and slowly increased until utility objects, mats, cloths, money and finally also bigger objects of value, such as canoes and in the end even land were added to the food. Ultimately, one of such a present surmounted the capacity of an individual so that relatives and friends contributed until, in the end, the resources of one party were exhausted. The received masses of presents were distributed according to the contribution of the participants. These competitions were not only performed because of an addiction to prestige, but they were primarily an expression of esteem for the person who received the presents. A friend (kawok) is generally a person with whom people eat a lot and who receives a lot of presents.
The feasts of the natives nearly always have the same character. Friends and relatives participate in private feasts with food and probably valuable items, and the host of the feast distributed the masses again to the guests or families. Smaller festivities are not announced beforehand. Neighbors and friends observe the intentions anyway. When someone is carrying home many fruits and the meals are prepared for the feast, people secretly investigate and start their own preparations.

The big national feasts with a religious character have completely disappeared. The number of the remaining feasts has also declined. On the other hand there are now also feasts for baptizing and birthdays and especially Sundays and church festivities. They are commemorated by not working, church services, and festive meals in the circle of the close family.
III. Technique.


I. Techniques with wood. The products are mostly the same as in the old days. They are mainly:

1. The different kinds of wooden bowls (pp. 126).
2. A wooden chest with a lid, called toptöp, which no longer is in use. It was used to store woven aprons, shell knives and fishing hooks.
3. Pounder to prepare fafa.
4. Materials for canoes and houses.

Among the tools, the most important was:
1. the adze = töla. According to certain statements of the natives there were 2 kinds. They were called:
   a) töla muän (= »Male adze«)
   b) töla oa (= »good kind of adze«)

Unfortunately, none of the old men could remember how the parts of the first adze were joined. People only knew the names. The second kind, however, is still well known. It is the kind depicted by the first expeditions, some examples of which are in the museums (illustr. 45—50).

According to the old descriptions, all adzes had the same form, even when their size differed. The largest blade, LÜTKE saw had a length of 20 inches and was about 4 inches thick. He found these giant adzes in the houses of the overseers of the regions. They were lying in the same corner, with the »stick of Nösünsap« among other things, and they seem to have been regarded as a common property. According to LESSON, these big adzes were used to hollow out the canoes »en frappant à grands coups et en décrivant un grand cercle au bout du levier qui les meut en cadance«.

According to LÜTKE and KITTLITZ, and according to statement of the natives, the blade (töla) was always made of tridacna (nä töla). According to the testimony of LESSON, the smaller ones were made from »un vis tigre ou une mitre épiscopale«. In fact in 1880, FINSCH

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1 KITTLITZ 1858, I, p. 375: »töla«.
2 Compare KITTLITZ loc. cit.; LÜTKE 1835/36. I, pp. 367; LESSON 1839, II, pp. 504; FINSCH 1893, pp. (470); EDGE-PARTIGTON plate 179, nr. 1.
received a blade made from Mitra episcopalism, called »momosch« and another one made of Terebra maculata, thus both blades »to hollow out big bowls and others«. Further on, LÜTKE remarked explicitly that he saw no blades made of basalt. However, LESSON saw quite a few of them. Nevertheless, he is mistaken when he considered some of the blades made from tridacna as made from coral, because of their »convergent lines in the interior as well as because of some pores«. Probably the basalt adzes are the first kind of adzes. Natives still remember the name »tōla muān«, especially as they call basalt the »male stone« (male = muān). Concerning the many different forms of the blades made of tridacna, see illustr. 41—44.

Consistent with the old descriptions, all the blades could be turned. According to the depictions of LÜTKE and FINSCH, however, the blades made from terebra were solidly attached to the knee part of the handle (illustr. 47).

The ability to turn the tridacna blades was due to a special middle part, (amam, probably from ames = »press together. It had a quadrilateral to oval cross-
section, which had at the with a strongly defined cone at the top, and a strongly defined the sheathe for the blade at the bottom. This sheathe is not closed in the middle of the front side, but leaves an open vertical split, so that when the blade is inserted, it extends to the outside. The middle part of the smaller adzes, with the except for the sheathe is dyed black. The bigger ones red with black vertical stripes, and white dots, small hollows filled with lime, are added for decoration (illustr. 49b).

The handle (fofak, according to FINSCH ruwak) is bended towards the end and also dyed red. The knee-part is concave on the front side. The round part of the middle rests here, so that this one, together with the blade can be turned (illustr. 44a).

The binding (äio, according to FINSCH amem) of the blade to the middle part, and the middle part to the handle, is.
made of yellow and black dyed sennit cord and made in such a fashion that an ornament is created.

The museum in Leipzig owns 2 complete Kusaean adzes. One of them is a very big one, as described in the old reports. It comes from the old KLEMM collection (illu. 49). The small adze is from the Museum Godeffroy. Its middle part cannot be turned because the front part of the knee-section is flat and the cross section of the cone of the middle part is triangular (illu. 50.) The blade was found in the ashes of a burnt house, the other part must have been made especially for it.

The red color and the bent handle, the coloring of the middle part and its form, and the especially beautiful ornamental bindings are special characteristics of the Kusaean adzes.

At the time of DUPERREY, the natives did not know about iron. Initially, the European axes were not much liked as people did not know how to handle them and they cut off too much wood at one time. However, LÜTKE found iron adzes, which must have originated from the »Coquille«. Obviously people had used iron for planes in the old attachment. Currently, even in this form, only European axes are in use.

DUMONT D’URVILLE, who had met natives in Läl working on a canoe, says about the usefulness of the old shell adzes, »Je m’étiais toujours imaginé qu’il fallait un temps immense à ces sauvages pour terminer de semblables travaux avec des outils aussi imparfaits; mais je vis qu’ils allaient encore assez vite: chaque coup de leur hache de coquille faisait voler des copeaux de bois assex gros, et je remarquais même que leurs lames, par leur forme, convenaient beaucoup mieux à leur travaux, que celles de de nos instruments d’acier. Aussi le maître de ce atelier, tout en admirant la hache que nous portions à l’urosse et surtout le pouvoir prodigieux de son tranchant, essaya un moment de s’en servir; puis il nous la remit en disant qu’elle coupait beaucoup trop.«

2. The drill = mä bat (= »thing to drill«). It is not mentioned in any source. It had a flywheel mä for (= »the thing that turns«) and a crosswise stick for drilling. A piece of a shell served as the point. Currently people buy European drills. They are called mä ol (mä = thing, ol from the English term hole?).

3. The file = boi, according to FINSCH beui, a flat piece of wood covered with the skin of a ray (illu. 51).

4. Knife. People only had the panak-shell.²

5. FINSCH also mentions the pumice = uon« for smoothing.³

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¹ In RIENZI II, p. 150. [«I always was thinking that it would take a very long time for these primitive people to achieve such works with so rudimentary tools; but I saw that they were going quite fast, each shell axe stroke was cutting fairly large wood shavings and I even noticed that the shape of their blade fitted much better their work than our steel tools. Thus the master of this workshop, while admiring the axe that we were carrying and even more the fantastic cutting ability of its blade, tried to use it for a while, than he gave it back to us saying that it was cutting much too much.»]


³ FINSCH 1893, p. 472.
II. Shell technique. The products were adzes, fishing hooks, different sorts of money, and beads. The finish was accomplished by grinding with coral stones. According to LESSON, also with the dust from basalt.

According to the statements I had made, women smashed the shells into small pieces to produce beads. The men then ground the pieces, strung on a stick into beads, on stones.

III. Turtle shell technique. The products were decorations. The finishing was accomplished by immersing the piece of turtle shell into hot water and cutting it with a tightened string. The spiral for the arm reputedly was made by winding the small cut strip of turtle shell on a round piece of wood and leaving it there for an extended period of time.

IV. Stone technique. Most products were pounders for kava roots and for the fafa dish. Neither kinds is produced any longer, although the last ones are still in use. Their finishing was accomplished by cutting off and grinding, and so it is said, it was really arduous, because the nearly finished pieces often broke.

Currently, coral stones are worked on. They are brought home in the form of an ashlar block and worked on with European axes.

2. Rope Making.

Rope making is mainly done by older men, as it is a simple and easy technique as and because they are considered to be of economically inferior power. The husk of the coconut was the raw material as well as the baste of Pipturus and hibiscus.

I. Different kinds of string. The natives distinguish three kinds of string according to these different materials.

1. Sennit cord (fo). The husk of the young coconuts is watered in a special way. It is placed into a round dam made of stones on the beach, so that high tide tops it, and then covers it with coconut fronds and stones. This special treatment brightens the sennit cord. After 5—6 weeks of watering, the soft mass of fibers (= feifokfok, also fo) of the coconut husks are loosened by beating (top top) with a round stick-like piece of wood (sek an top from sak in top = »wood to beat with«) on a basalt slab. Then, they are further loosened by washing them in the sea and then the loose fibers (fe metal) are hung to dry (äkbao) in the house or in the open air. Old men take several of the fibers (kosa) and twist (kokal) them on their knees into fiber cord (isäp), until they have a big heap of them. These isäp cords are quite long, about 40 cm. Two of them are then twisted on the knee to a simple sennit cord (fo kokal), by stroking first down the thigh and then upwards.

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1 Compare LÜTKE 1835/36, I, p. 367; LESSON 1839, II, p. 504.
No other way of producing simple string is known.

2 kinds of string are distinguished by their thickness.

a) fo kokal = strong sennit cord. The thickness of it varies greatly. According to its usage, this string is made of thicker or thinner isäp. It is mostly used to bind, and also for fishing nets (näk in soja, keraun, ok in no) and netting bags.

b) fo sik äoa (= »small string for binding«) Thin coconut string was used in great amounts for bindings or ornamental bindings of the canoe and in the construction of a house.

Both kinds of string are first wound over the hand and the elbow and then on a piece of wood into bundles (pinpen), stored by hanging them in the houses.

2. Pipturus string = ea alko (from ea »string except sennit cord and alko = »Pipturus«). It is made from the baste of young Pipturus trees and is dried several hours under the sun. Then, the baste can easily be peeled off in thin threads (kosa). These are twisted to isäp and then made into ea. This kind of string is much stronger than sennit cord and therefore is exclusively used as fishing line. Today, it is used as a cloth line.

3. Hibiscus string = ea lo is made from the baste of the bark of hibiscus (lo). It is soaked in the sea under a stone or attached to it for about 8 days. The baste is spliced into threads = ne. The women use these ne-threads as normal thread; it can be used at home or in the woods.

Men also twist cord from these threads, without producing any isäp beforehand. This hibiscus thread is the material from which fishing nets of the kind näk in
kälap and telap malap are made. In the old times, it was also the usual string for decorations of the body. Very strong hibiscus thread was a substitute for fishing lines, as well.

4. In former times, thread was also twisted from the variety of sea grass called kap. People used it for the big trawl nets = keraun, which were then called ok kap (= »big net made of kap«).

Only the strong kind of coconut sennit cord, (fo kokal) is used for the production of rope (söl). In former times there were thick ropes made of Pipturus strings were used as fishing lines, too. The coconut rope is distinguished by the number of strings used. Thus, people talk of sol luk = »rope made of two«, and sol tolko = »rope made of three«. More than three was unusual.

II. There are 3 different old methods of fabricating rope:

1. top sol, twisting rope with the help of cross-wise sticks (sekan top from sak in top = »stick to beat with«) by the free ends of the strings, with the other ends knotted in a loop and attached to the big toe or to a pole. Initially, the strings are further tightened by turning the crosswise sticks in the direction of the rotation of the string. Then they are nearly completely wound on the crosswise sticks in order to turn shortly and achieve a very tight rope. When people want to produce a triple rope, they first make a double one and then twist a third over it. This method is very simple and requires only one worker.

4 people required for a variation of the rope making method. One man holds the united ends on a wooden stick. The free ends are also held by one man each. While they hand these ends vertically in a circle, each man turns his wood in the counter direction, each time tightening the string, the fourth man tightens it with a slight turn. (illustr. 52.)

2. pup söl. Thicker ropes are produced by attaching the individual strings to a horizontal beam of a roof. The workers are sitting, handing over the strings, attached to a crosswise stick, to each other. They also strongly tighten the string by turning it in the direction of the rotation.

3. pup äla. In this strange way of rope making, the procedures are similar to the one in nr. 1. Half a coconut shell is always inserted in front of the cross wise stick, just like it is done sometimes in that kind, too.
A triple rope is always supposed to be produced. Instead of the three men on the free end of the strings, handed on to each other, in this case they keep them in their hands and only turn themselves around, to achieve a strong tension in the cord. In the meantime, a fifth man spreads the strings in such a way that the first and the third cross each other. In this way, he also tightens the strings and, as soon as he notes that the tightening of the strings is too strong, he quickly moves with the hand towards the free end. The result is that the preceding parts of the strings twist themselves with a jerk into a rope. This method does not achieve a simple twisted rope, but a woven one.

In the present time making rope is no longer practiced as much as it was in the old days. The strings are brought in bundles on a steamer from the Marshall Islands, where they are ordered by letter from a native whom people know. However, it seems that coconut sennit cord has been an important article of import since old times, although people no longer know about it. Despite its rarity, the coconut sennit cord is important in the technique of the natives. Even the old sources do not mention any other kind of string.\footnote{LESSON 1839, II, p. 506; KITTLITZ 1858, II, p. 15; LÜTKE 1835/36, I, pp. 381, 369.}

3. Filet knitting.\footnote{[Sarfert means netting; comment CCHPH].}

Both sexes make fishnets. The women produce masa-, moko-, and pukok-nets. The men make the other nets and the net bags. The material used for fishnets has already been discussed. The net bags are made of coconut string (fo kokal). They all are similar in form and technique; however, the natives distinguish 3 kinds of bags.
1. uro sisik, the small net bags (sisik = sik = small) for the kava bowls (illustr. 55).

2. uro ik, a net bag a bit bigger for catching fish, using a now, less popular, fishing technique called top kepat.

3. tāta, big net bag for men, in which the fish were transported during a fishing trip, or in which they were sent to friends.

Both the first two kinds of net-bags are no longer produced. The third one, too, is seen only rarely.¹ All three kinds have a string to pull it shut.

During the production of nets and bags, the string is attached to one of the big toes and the meshes are looped with the help of a small, short, flat wooden board pap (illutstr. 56). The netting needle, which my interpreter used when he was knitting net-bags for me, had the usual form. Mrs. Prof. KRÄMER gives a detailed account in the following attachments about filet knitting = tatō.

¹ Compare FINSCH p. [470].
Attachment 1. Production of a karaun net, by Elisabeth KRÄMER-BANNEW.

The big fishing nets consist of hibiscus baste = nä,\(^1\) delivered by the thin branches and switches that grow without branching off. The bark of such sticks is removed (kolosla = to strip the bark off) and the bark is placed into seawater for about 8 days so that the different layers of baste can easily be removed from the hard external bark. The baste is washed, cleaned of any slimy and sticky substances, and hung up to dry. After drying, people split (sa = to split) the baste into strips of merely 1 cm width, which are twisted on the knee into string (kokail\(^2\) = to twist to become string). Then, they are knotted (fogo\(^3\) = to knot) to each other. The knot is different from the knot used by weavers insofar as it has one more loop. That one has a fixed and a lose eye, with the ends of the knot are bent through it. This hibiscus knot, though, shows one fest and two loose eyes. Just as with the weaving knot, the short end of the string is bent backwards, first over the fixed eye and then through both the loose ones. When both the loose eyes are pulled tight, the new string, which the knot tightens is taken into the mouth and held in-between the teeth. Care is applied to have both ends of the string bent so short that they barely reach out of the knot. Once a sufficient amount of yarn is made ready, then the end is attached with a loop to the small toe and the yarn is wound around this one and the thumb, held about two hand spans away. This produces a loose skein = kaid. If the right hand is used for winding, then the string is placed around the small toe of the right foot and the thumb of the left hand.

\(^1\) According to SARFERT ne.  \(^2\) According to SARFERT kokal.  \(^3\) According to SARFERT foko.
Winding the yarn is done in a very strange manner. A stick is split more than half way = săüoi (illus. 57), with the connected end used as a netting needle. The beginning of the yarn is placed into the split. The left hand holds the piece of wood at the connected end. Then, the right hand grabs the yarn hanging out of the split and winds it coming down on the outside over the bent left upper arm, pulls it from below up through the split, winding it once around the piece of wood, away from the person, down around the outside and up again on the inside to the starting point. The left thumb holds the yarn tight to the wood, now placed into the split from above, so that it hangs out below (illus. 57). Now, the circuit starts anew. The thread is placed on the outside, around the upper arm, pulled up on the inside and through the split, from the outside around the stick, held by the left thumb, and then from above it goes down into the split. It continues this way until there is quite an amount of such loops inserted on the săüoi. The net is made with this yarn and this tool. The lineal = bab determines the size of the loop mesh. It has the width of fingers placed next to each other and the length of a middle finger, thus about 3 cm to 10 cm. During the work, it is pushed out from the finished meshes and pushed further to the right, as it can only take a small amount of meshes, due to its short size. (illus. 59). Knotting a net is the same as on many Carolinian islands.

After starting with a certain amount of loops, wound over two pieces of wood and taken together in the middle (illus. 58), the actual netting starts after the bundle has been fastened by a knot.

The lineal is placed under the eye and held tight there with the left hand. The right hand holds the tool săüoi with the yarn (the end has been knotted to the end of the eyes hanging out). Then, starting from left to right, each mesh is passed through individually and a new mesh is added by knotting below it. The yarn is lead tightly down from the back and up in the front around the lineal. It enters from above into the first mesh, and it is held fast to the wood with the left hand behind it. Then, it goes around, down at the back of the lineal, (illus. 59) atop the front and up, so that a second, looser eye, around the lineal is created. Now, the yarns is placed left from the first, held tightly, eye over the lineal, to the back and at the same time pulled through the eye. This one is pulled over the rounded right end of the lineal where the new yarn, still held tightly, touches the first eye.
III. TECHNIQUE.

The first mesh is finished. The thread is once again placed behind the lineal in order to lead it around. Then it is stuck into the next eye on the right hand side and held tight behind it. Then it leads a second time around the lineal (the second loop remains loose) and disappears left from the eye in the space in-between this one and the first eye. The thread, together with the eye is pulled through the second loose eye and over the second mesh, slipping away below the lineal. It is held tightly, to a knot, in order to start the third knot. It continues this way until all eyes have knots with new meshes and the tool säoi has finished the last mesh on the right side. This is the moment when the lineal is pulled out. The piece of work is turned around, so that right is now left. The woman who is netting places the lineal under the finished meshes once again and starts from the left to knot a new row. In this way, she continues one row after the other until the net is finished.

Attachment 2.

Production of a Garland Made From Käuak-Flowers
by Elisabeth Krämer-Bannow.

The Kusaean women like to decorate their hair with garlands made of blossoms, a friendly custom predominant on many Caroline Islands, leading the taste of people to many (different) changing ways of this art. Sometimes these are flowers, sometimes blossoms, or a larger amount of leaves, bound to each other. The most common form is a large amount of the same kind of small flowers in a row. I met Mrs. Rebekka in her house while she was making a garland from käuak-flowers,¹ which she had in a big leaf next to her. These are small white flowers, decorated with bright red stamen. They grow on a bush (Clerodendron inerme, according to Prof. Volken-Berlin), often in the vicinity of the sea or near to brackish water. Rebekka sat on a mat, united 4 strings made of baste, and attached them to the big toe of her stretched leg.

¹ According to Sarfert kämuak.
Illustr. 62  a—e.
She bent them in such a way that two of them were placed to the left, and the other two to the right (illu. 62a). In the middle she places, a käuak-flower, head down and bends the right thread nr. 1, which is the furthest away from her, over the flower to the left, where threads 3 and 4 are located. The thread furthest away from the left hand side, nr. 3 is placed to the right, over thread 1 and the flower, so that threads 1 and 3 surround the tube of the calyx and threads 2 and 3 are sticking out on the right side. Threads 4 and 1 stick out on the left side (illu. 62 b). Now, she bends down the tube of the calyx, which is standing straight up, over the crossed threads, (illu. 62c) and places another flower, just like the first one with the head down, next to it.

Thread nr. 2, in the back to the right, is placed to the left across the tube of the new flower. Thread nr. 4, in the back to the left, is also placed over the flower and he thread to the right. Now, on the right hand side, 3 and 4, and on the left hand side, 1 and 2, are sticking out (illu. 62d). Once again she bends the tube of the stem over the crossed threads, one new flower is inserted, and the threads furthest back on the right and left hand side, are crossed over the tube of the stem. The work is continued in this way, as can be seen in the drawings e and f.

4. Dyeing.

The Kusaeans deserve special attention when it comes to their dyes. First the use of dyes is very much enjoyed and was the more so in the past. All objects made of wood, houses, canoes, and household utensils such as bowls, wooden chests and warping benches, as well as the handles of the adzes, were and still are dyed. The colors are of great taste and partly light fast and water tight, too.

I. White dye = fas or fasfas. Lime cooked in the earth oven is slaked with water. Then, water is added and it is applied with a pencil made of coconut fiber, without applying a final layer of oil. The color is not much in use, mostly for the walls of the houses and for parts of the canoes. It is still produced and in use, though only by men.

II. Black dye = sal or salsal. There were 2 different kinds:

1. The bark of the hard fruit of the mangrove kind sal is scraped off. The scraped off material is pressed into a coconut shell, and the tanning material charcoal is added as a dye. The color is applied with a sponge (insäl), without adding a layer of oil. It is only produced by men and used to color wood.

2. Women mostly produced a second kind to dye threads for weaving. In former times, it was also employed to dye threads made of hibiscus baste, the decorative thread of the binding, and ornamental cord, made of sennit cord, for the house, the canoe and the adze. Concerning their production, see under loom-weaving.

III. Red dye = sesä. There are also 2 kinds of red dye.

1. The red dye to color wood is from red earth = lap; it can be found in several places on Ualang (for instance in Likinlöläm, Nefalil, Sölmöa, Wukat).
It is soaked in water for one night, then smeared with the hand and well stirred. The root fibers of decaying banana stems are used as pencils. Once the dye is dry, it is especially painted with oil (äsöt) from the Parinaria nut (äsöt). This is done with a sponge (insäl). The Parinaria nut is crushed and the hard kernel scraped into some leaves, with the help of a panak-shell. The scrapes are formed into a ball and are cooked in a small earth oven. Then, the mass is pressed into a coconut shell and their produced oil is cooked once. The dye as well as the oil is applied twice.

This red or red brown color is very much in use even today. All bowls and wooden containers and the warping bench are colored with it, as well as the canoe. In former times, parts of the house and the handle of the adze were colored with it.

2. The second kind of red color was used for the threads in loom weaving. About its production, see under loom weaving.

IV. Yellow dye = ran or ranran. This color was made from curcuma and was exclusively used in loom weaving. About its production, see under loom weaving.

5. Sewing Mats and Bags.

Today, the most common form of mats is the sewn mat. This technique, which also involves sewing bags, is a female occupation. The material comes from the pandanus, and this is the main importance of it for the natives. Generally, dry (yellow-brownish) pandanus leaves are employed. In the absence of such, people dry green leaves over a fire. These then look whitish and more beautiful, although they are less durable than the yellow ones. The wide bottom ends of the leaves are cut off with a panak-shell and the dented edge and the sharp mid rip are ripped off. People then fold the leaves (lol) into the same length, 10—15 stacked over each other, and beat them soft and tender with a basalt stone as beater (tuk un lol) on a basalt slab (eot in tuk lol). Currently, people use a special wooden beater, which they reputedly came to know in recent times from the neighboring Caroline Islands (illustr. 63). The beaten leaves are rolled to rolls and stored in the house for further use.

On a rainy day, the woman starts sewing a mat. While sitting, she attaches a thread made of hibiscus baste (ne) to both her small toes. Over
it, she hangs a row of folded leaves so that they overlap each other on the edge. Shortly underneath the thread she sews the leaves together with straight stitches. The black dyed thread made of hibiscus baste (ne sal) serves as yarn and, in former times, the pointed piece of the bone of an egret or of a flying fox, with an eye inserted, was used. Now, she slides a folded pandanus leave in-between the first leaves and sews them tightly with a second seam, parallel to the first one, made with hibiscus baste in its natural color.

She continues in the same fashion. The last seam on the edge is once again made from black ne-threads and the upper edge of the folded leaves is folded in and also sewn tight. One half of the mat is finished in this way. Two of them are combined into one mat by placing both halves on top of each other and connecting them with a seam made of straight stitches on the formerly created edge (Illustr. 64 and plate 23,5). Sometimes these sewn mats are cut at the edge in a dent-like fashion and ornamental seams are added (Illustr. 65 and plate 23,3). While, in the old days, these mats had only 4 seams, 2 seams
on the side and 2 seams in the middle in black dye, they are now also used for the other seams, along with differently colored thread, red yarn, or thread made from baste colored with European dyes.

Bags are also made in the same fashion. The products of sewing these leaves are the following:

I. Mats. The general name for mats of all kinds is kiaka, though mostly sewn mats are meant by it. More precisely, they are called kiaka fakfok (fakfok = »to sew, pierce spear«). To distinguish the mats made from green, artificially dried leaves rather than from withered leaves, they are called by the name lal.

a) tölä, big sewn mat, which is used as a pad for sleeping or as a cover (plate 23.)

b) kiaka sisik = »small mat« or kiaka matäta, »sitting mat«. Such mats were in abundance in every house. They are lying around on the floor or folded under the roof, or on a shelf. As a rule people do not sit on the floor, but on such a mat. When a guest enters, such a mat is immediately spread for him (illustr. 64 and plate 23,5). In former times, the women used to wear the same sort of mat folded on the buttocks at home or in the vicinity of the compound. However, the outside of the visible folded part was usually decorated by specially stitched ornaments (plate 15, 2,4 and illustr. 66). Compare about them, under clothing.

Currently, the women wear their sitting mats under their arms. Both sexes also carry them with them to church. Today it is also used as a shield against rain and sun, as it was before.
Mats and bags: 1. saki-mat with decorated edge, 110 cm square (collection Sar. 1383). 2. sapko-mat, 86 cm long, 64 cm wide (collection Sar. 1287). 3. son-bag with closed lid, 57 cm wide, 35 cm high (collection Sar. 1295). 4. son bag with opened lid, 37 cm wide, 35 cm high without the lid (collection Sar. 1292). 5. Sewn sitting mat embroidery on the edge, 117 cm long, 86 cm wide (collection He. 3842)
III. Technique.

In former times, an especially small kind of this mat was reputedly used as a diaper. Today it has been replaced by a small woven mat.¹

II. Bags. a) son, a quadrilateral bigger bag, with the bottom part reaching over the opening of the bag, so that a closing lid is created. This kind of bag is comparatively rare. These are not bags to be carried around, but threads for weaving are stored in there (plate 23,3,4).

b) atero, smaller bag, of the same form; however, without the lid. It distinguishes itself because of 2 or 3 horizontal strips of very delicate black embroidered ornaments applied on both sides (illust. 67). According to the testimony of the natives, this bag is their old wallet. Today, it serves as a folder for books, especially songbooks when going to church. Nevertheless, not many of such bags can be seen. Part of those in the collection had to be newly made.

6. Weaving.

I. Weaving mats. While sewn mats can currently be found everywhere, surprisingly, the woven mats are very rarely seen. In the old times, they reputedly were used more often. In fact, even FINSCH talks about the large »amount of different mats, in different sizes, mostly used for sitting« woven from strips of pandanus leaves. He mentions the recently widespread sewn mats only as sleeping mats for common people.² Judging by these facts, sewing mats reached their full flowering only recently. From a remark in KITTLITZ, where he calls the »sitting carpet« of the women a »wickerwork of mats«, it seems that then even this sitting mat was woven. However, this does not correlate with his sketch which suggests more of a sewn sitting mat.³

The fact that mats made of coconut fronds were never produced and are also not produced today is also extremely conspicuous. Obviously, the reason for this was the lack of coconut palms in former times. The material for woven mat is only pandanus leaves. There were two kinds of such mats:

a) sapko, woven mat with the width of the strip of the natural leaf. It is less carefully done than the so-called sewn mats. Withered leaves are used. However, they are not initially beaten, but the teeth and the mid rip are removed. They are smoothened (kerära) with a panak-shell and the tip and the foot of the leave are cut off. All that remains of the last one are only 2 tails at the edge, the natural folded edges of the withered leaves. These tails are plaited into a braid.

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¹ Already FINSCH 1893, p. [469] reports that infants were bedded on very fine mats (with merely 55 mm wide stripes).
² [footnote not indicated in the text] FINSCH 1893, p. [470] also mentions the sewn bags, but with the name »artro« small baskets made of pandanus leaf. Compare also the illustrations in CHRISTIAN p. 158—159.
³ FINSCH 1893, p. [469].
⁴ KITTLITZ II, pp. 1 with a sketch.
at the bottom side of the mats, where they are actually started, to weave and finish them to both sides. This kind is easy to make and can also be made quickly. It serves as a pad for sitting and as blanket (plate 23,2).

b) saki: This kind is approximately square and more carefully done. It also needs more time and preparations; however, it is not as durable because it is woven from lighter pandanus leaves, dried artificially (salål = »to dry artificially«; oajok = »to dry under the sun«) on the fire. The strips (ip en lol) are about 1 cm wide. People start the mats in the middle; the strips for weaving are bent over at the edge of the mat and inserted (plate 23,1).

The säki-mat is used as a blanket. Mostly, though, it is part of the usual presents during feasts. Presents for the feast as well as money and other small things were carried at the same time. Therefore, it was folded to a bag in a special way (illustr. 68). Further on, the outer side of the bag-like part was embroidered by a simple and rather coarse embroidery (plate 23,1). The LÜTKE expedition had already bought such a mat. Today it still is in Petersburg. It has fringes at the edge and is embroidered in a similar fashion as it is done today, with strips of hibiscus baste dyed red brown. (compare illustr. 69 and plate 23,1). FINSCH says about these mats; »In former times these saki-mats still belonged to those items handed to the King at full moon as a tribute. The commoners are not allowed to use them.«

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1 FINSCH 1893, p. [469].
II. Basket weaving. There are several kinds of baskets (basket = foto). The materials are coconut fronds, the leaves of sugar cane, or of pandanus. While coconut fronds have not yet been used for mats, it has displaced the old material for the baskets in recent times. According to FINSCH, baskets were mostly made from pandanus leaf in his time. Despite such circumstances, all varieties of baskets, except one, were presented to me as local and old!

Men, as well as women know how to make them (plate 24,1). Men made and even used most of these different kinds, while women made only the first 2 and their fish basket, all of them are mentioned later. Nevertheless, men also know how to make women’s baskets and women know the ones of men. Concerning the quality, the ones made by women excel above the ones made by men.

1. kopes, a small rectangular, flat basket made of pandanus strips with low vertical side walls. When making it, people start with the bottom. The edges are enforced by strips of the rib of a coconut frond. It is a female basket for weaving utensils (illustr. 70).

2. kopes afoif, a similar basket, with an attached lid. Female basket for the same purpose (illustr. 71).

3. kuom, the usual plate for food made from a piece of coconut frond. People first weave the leaves and finally skewer the rib. According to DUPERREY in those days the »petites claies« were made of »feuilles de vaquaois«. They are made by men (plate 24,2)

4. fusanie, small a basket for all fafa foods made from the individual leaves (sa fusanie) of the wild sugarcane (ä), its form is like a four rayed star. The small basket is closed by putting through the opposite rays. Men’s work.

5. fusanie kapiel, small basket of the same form like the one before, however bigger and made of individual coconut leaves. It serves for breadfruit = fafa kapiel. Men’s work.

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1 FINSCH 1893, p. [469].
2 Compare FINSCH 1893, p. [470]; he calls the small basket kobäschi.
3 DUPERREY 1828, II, 1, p (639).
6. foto kuumpäl (foto = basket, kuom = plate for meals, pölä = tail, handle). Two pieces of coconut fronds, a and b, are halved. The halves are interwoven in such a way that the sides of the basket consist of the two halves, a₁ and b₁, or, to be precise a₂ b₂, and a₁ a₂ and b₁ b₂ are opposite of each other. The ribs form the edge of the basket and the ends of the leaves are braided to 2 braids at the bottom and elongated with hibiscus baste to a handle. The basket is used for cooking fish. Men’s work (plate 25.2),

7. foto in kaki or foto kotkot (= »basket for old nuts« or »snapped basket«) consisting of one piece of coconut frond with the rib forming the bottom. The leaves on one side of the frond are interwoven with each other, and the ends are in two braids on one side. By knotting it with the braids of the other side, 2 handles are created, which cross each other. The rib of the frond is snapped twice so that it has the form of a keel. The basket is used to carry all kids of coconuts. Usually, two baskets are hung on a carrying stick, in the front and in the back, one each. Men’s work (plate 25.1).

8. foto fon. The production is similar to the plate kuom. However, the fronds are woven to a greater width and the small sides are also woven shut. Here, too, the rip is halved when the basket is finished. It serves men to transport the different foods and the women to collect crabs. In the last case, the rib of the frond is not halved and the crabs are pushed through spaces in-between the leaves into the basket. Men carry it on a carrying pole. Men’s basket (plate 24.4).

9. foto Rotuma, basket made from a single piece of half a coconut frond. The rib is rounded and forms the edge of the basket. The ends of the leaves are formed into a braid at the bottom. The basket is used to transport fruits and meals. It is not a local one, but has been imported during the time of the whalers by natives from Rotuma. Men’s basket (plate 25.4).

10. foto in kälät, smaller and deeper basket to collect kälat shells. The kälat are eaten and the shell serves as a knife for the female weavers. It is made in a completely similar manner as the former one. However, the end part of the coconut frond is used for it. Men’s basket (plate 24.5).

11. fofo läle, basket made from the end pieces of 4 coconut fronds which are not halved. They are woven with the broken off end of the rib on top. The ends of the leaves form a braid at the bottom. It is a basket to transport fish, crabs and also for fruits. The four ends of the ribs are connected with hibiscus baste and hung on a carrying stick. Men’s basket. läle = »to enlarge a cavity by adding a piece« (plate 25.6).

12. foto in pätär, women’s basket for fish (to fish = pätär). It is made from one piece of coconut frond which is not halved. The ends of the leaves are partly ripped off so that the leaves all have the same length. The basket is started on the edge, by
Baskets: 1. foto in kaki. 57x37 cm (collection Sar. 1321). 2. foto kuumpiil. 46\(\frac{1}{2}\) x23 cm (collection Sar. 1284). 3. foto in pätar. 38x31 cm (collection Sar. 1275). 4. foto rotoma 45x33 cm (collection Sar. 1281). 5. foto lol. 32x28 (collection Sar. 1269). 6. foto läle. 54x42 cm (collection Sar. 1282).
turning the leaves of one side of the frond to the other and actually all into the same direction. The rib of the frond is rounded to form the edge, usually the braid is missing (plate 25,3).

13. foto lol, basket made of pandanus leaves, the strips have their natural width. A string made of baste forms the edge around which the leaves are folded. The elongation of the edge-string also serves at the same time as a handle. This form has now become very rare, in the time when there were not many coconut palms it was the most common form and so it seems, it was this form, which Finisch observed most. (plate 25,5).

The names of the parts of all baskets are:

- edge = naso (also with other vessels)
- bottom = käpo (= »the one behind«)
- braid = irok
- handle = póla (= »tail«)

III. Weaving hats. This branch of weaving is still young and was introduced by the women of stranded Marshallene islanders. Finisch does not mention it at all. Also in Kusae weaving hats is a female business.

Pandanus leaves are the material used, actually the local kind, men Kosa and the special kind men Jibon, imported from the Marshall Islands (jibon = Marshall Islands). The leaves are dried over a fire. With a modern needle, made of steel, it is split into very thin strips, which are placed over-night into a pot with fresh water, weighted down by a stone. The next day the strips are washed in salt water and hung for 1—2 days in a row on a string to dry and bleach in the open air (under the sun).

The weaving of a hat is started in the middle of the head section. This part is done in different designs. A short cylinder made of hard wood (sekan serafraf, from sak in serafraf = »wood for the hat«) serves as form for the head. The hats have the form of our stiff straw hats, however the brim is very wide. They are extremely finely woven and therefore very soft. In this respect, and in the width of the strips they are similar to Panama hats.

IV. Kinds of weaving. The natives only distinguish 2:

1. uotuot fasa, a simple cross weave. The name comes from the fact that in the old days, very often, the leaves of the nipa palm (fasa) was used for weaving. This leaf, because of its width, cannot easily be woven in any other fashion. This also is the reason that Kusaean weaving is nearly always accomplished in the simple way of cross weave. In all the mats and baskets, except in the fishing basket of the women and the fusanie-basket of the men, there is no other kind of weaving, although the nipa palm no longer has any significance in weaving. Thus, it seems that, in the course of time in Kusae, obviously a double change of weaving material happened. From the leaf of the nipa palm, people started using pandanus leaves and in modern times this was displaced by coconut fronds.

2. päfuäs, a kind of weaving, where the strips are always lead over and under two other ones
It is seldom used, in modern times also when weaving hats. Strangely enough, the fishing basket of the women merge both kinds. There is no name for this and the natives also cannot give any reason for it. The women who were asked thought that, in this way, the basket would be more durable.

7. Loom Weaving.

a) The Loom Weaving Technique, by Elisabeth Krämer-Bannow.

I want only to describe what I have seen myself and I want to be so clear that the art can be accomplished according to my words and drawings.

The tol-belts of the Kusaeans belong to the most beautiful and in a way most accomplished that can be achieved by hand made loom weaving. Their charm lies in the rich and appealing coloring, shown in the warp, which has been knotted many times.

As artful as the mats are in this direction, they are only produced in a half loom weaving fashion,¹ like all mats of the South Seas and from a purely technical perspective they are an initial step of loom-weaving.

During the journey of Captain Lütke, it was mostly F. H. von Kittlitz who mentioned the Kusaean mats.² The explorer Hale, from the United States exploring expedition 1838—42 had the greatest admiration for the loom weaving of Kusae, »Some of their manufactures evince a skill which seems to be the offspring of civilization. This is particularly the case with their cinctures, or sashes, which are made of the fixbrous filaments of the banana plant. They are not braided by hand, like the fine mats of Polynesia, but woven in a simple loom. The shuttle resembles very closely in appearance, as in their use that of our weavers. These sashes have attracted much notice and admiration of foreigners, for the elegance of their texture, and the beauty and regularity of the colours which are inwoven.«³

In Dr. Hugo Ephraim’s book ‘Über die Entwicklung der Webtechnik’ (Leipzig 1905) the Kusaean loom weaving is mentioned. He cites Dr. O. Finsch and mentions as source his ‘Ethnologische Erfahrungen und Belegstücke’ 1888, pp. 445. Finsch has surpassed all others in the care he devoted to describing the art of Kusaean loom weaving. Thus, there is little more to say. Nevertheless, I dared to approach this topic, after I had done some background research in Europe and after I had first hand recorded the mat production in Kusae as far as this was possible as my time was filled with making watercolors and drawings.

¹ I found this term in the already mentioned book of Ephraim and although, some have discouraged me to use it. Some advised me to use instead for instance the term grip weaving. However, the term seems to me descriptive and short for the simple kind of these South Seas people, who only use the shed rod and heddle string, instead of both shafts, with would indicate the greater perfection.
³ Hale p. 75.
How little the Kusaean loom weaving is known can be seen by the fact that in Max HEIDEN’s extensive ‘Handwörterbuch der Textilkunde aller Zeiten und Völker’ (Stuttgart 1904) there is no mentioning of Kusaean loom weaving. However, already at an early time it had attracted the attention of seafarers. Strangely enough, the earliest news from the journey of the »Coquille« in the year 1824, are also the most detailed ones. R. P. LESSON offers in the »Journal des voyages« a good description where even a glossary is included and also the depiction of the loom and the warping bench in the heft 79 and 80 are of great interest.

More glamorous, are the colored etchings in the picture atlas of DUPERREY, the captain of the »Coquille«, plate 52, 54, 55, and 56.

As the weave of the textiles is the most simple one, the plain weave, therefore, you only need two devices in order to achieve it, to build the shaft: shed rod and heddle rod.

For those readers, who are not current with these technical terms of loom weaving, I give the following explanation.

Each textile needs strings in 2 directions, which run in at a right angle to each other. The threads running along side the textile are called warp.

The cross strings of the textile, which will be woven, are called weft.

It is accomplished with the help of the shuttle, an elongated spool of yarn, in the middle of which the yarn is wrapped around, while the sides meet in a pointed bend and give it the form which serves well for gliding through. The shuttles have diverse forms according to the different people and I am only describing the one from Kusae (illust 72 and plate 26).

![Illustr. 72. The shuttle. 1/2 of its natural size (collection Kr. 682.)](image)

If the weft should bind the warp threads in the right fashion, so that a textile is created, then the warping threads have to be divided into upper and lower ones, according to a certain system. In the Micronesian loom (illust. 73) this is accomplished by having run half of the threads, for instance the ones with even numbers, around a round stick, while the uneven ones run under the same one. This round stick I term shed rod*, because it separated the threads into upper and lower ones.

The space which is created by the separation of the threads in upper and lower ones is called shaft. The shed rod forms the first and the natural shaft, in contrast to the artificial one, of which we will speak now.

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1 The knowledge about and an extract of this oeuvre I owe to Dr. Paul HAMBRUCH.

* [Safert calls it Trennstab = separation stick. In this translation all terms concerning loom weaving have been translated according to common weaving terminology; comment CCHPH.]
If a textile is created, then a second shaft has to be formed where the warping threads change their position. This means the ones on the bottom of the shed rod must be on the top, while the ones, which had been on the top come down. This is accomplished with the help of the heddle rod. All threads, which are at the bottom of the shed rod, for instance, the uneven numbered ones, are attached one after the other on a thin stick, the heddle rod, with the help of an uninterrupted thread (illustr. 74 a and b). This corresponds with the heddles of a European loom. On the loom this one is closest to the weaver, behind it is the shed rod.

Creating the shed-shaft, the shed rod is moved close to the heddle rod, when creating the heddle-shaft, it is moved backwards. When the weaver lifts the heddle rod, he lifts, at the same time, the unevenly numbered threads, while the even ones, which formerly had been on top are now at the bottom. In this way the second shaft, the artificial one or the heddle-shaft is created. (In illustr. 73 the loom is open in the heddle-shaft).
Now, in the weaving process a small flat piece of wood, formed like a lancet, the batten is inserted into the shaft (illus. 75). It is placed there on end, which makes the shaft clearly visible (illus. 73). Now the shuttle with the cross thread is shot through the now separated warp threads (the before mentioned shaft) and the thread is pulled slightly tight. This cross thread, called the weft, crosses once, for instance, in the shed-shaft from left to right. The next time, when the heddle-shaft has been formed from left to right. In this way, on both sides of the textile an edge, the selvedge, is produced (illus. 76).

Each weft must be beaten strongly against the finished textile. If now, after the weft the new shaft has been formed, then the flat lying batten is inserted and, with the blade, the threads are strongly beaten against the textile. In this case, the batten substitutes the rigid heddle or the comb of a European loom.

The way in which the warp threads are bound by the crossing weft in the changing shafts is called weave, because only by running the cross thread once above and once beneath the same warp thread a weave is created. The simplest weave is called plain weave. It is the one just now described (illus. 76), where the weft first covers the evenly numbered threads of the warp, 2, 4, 6, 8 and then the uneven numbers 1, 3, 5, 7, 9, etc.

The cross stick is used to keep the warp threads in order. In a loom, which produces a plain weave, 2 flat sticks are inserted, one under the evenly numbered threads, the other one under the uneven threads, so that in-between them the threads of the warp cross each other. These sticks form the cross.

In the Micronesian loom each individual thread runs around a round stick, the cross stick, thus it crosses itself in its course (illus. 77).
If a woman starts weaving a mat on her loom she inserts, as the first weft, a small flat stick, as a second, third and fourth a stronger strip of baste or similar, in order to determine the width of the textile with these stiff inserts, on which the warp threads are pushed in order. The strips of baste or the stick are used as stretches (illustr. 78). Due to their stiffness in connection with the tension in which the weft is kept, they make it impossible for the textile to be pulled too tight.

In our European loom, the warp threads are rolled onto a kind of roller, the so called back beam, which is located at the back end of the loom, far away from the weaver. The other end of the warp is attached to the front beam, another roller.
which is located on the front part of the loom, where the finished textile is stored. What is rolled off from the warp beam is little by little added to the front beam. In all the South Sea looms the warp is a continuous one, this means an uninterrupted thread is warped as many times around two round pieces of wood, which are placed at a certain distance of each other until there are enough threads placed next to each other on the pieces of wood. Thus, the mat must be cut through once it is finished, as it initially forms a tube. In the weaving process one of the pieces of wood is replaced by the back tension board, basically the warp beam. This piece of wood is attached into a fixed frame. The other piece of round wood is replaced by the front tension board, comparable to our front beam. It is held close to the weaver. On each side it has a tenon. The lateral eyes of the back strap or the weaving belt are inserted there. In this fashion the back strap with its eye, coming from the tenon, is lead around the back of the female weaver and the second eye is inserted into the other tenon (illustr. 79). In this way the female weaver can tighten the warp by bracing her feet against the frame or just be leaning back against the back strap to create the tension. In nearly every house on Kusae on the veranda or in a door is the frame, in which the back tension board can be attached (illustr. 79).

Warping the warp. The preparation for each weaving process is the »warping« or wrapping the warp. According to the kind of ornament, which is going to be woven, this wrapping of the warp can be simple or complicated. In the case of the Kusae-mats this preparation of the warp is, by far, more work than the weaving. Everywhere in Micronesia the warp is wrapped around pegs stuck in the ground, the least amount of which is 5. Usually they are knocked into the ground in a more or less straight row. The distance between the first and the last is half of the mat, which is going to be woven.

As an example I am drawing the warp of a Tobi-mat (illustr. 80). The pegs are numbered one after the other and they are substituted after the warp is finished:

No. 1 by the front tension board (breast beam)
» 2 » » heddle stick
» 3 » » shed rod
» 4 » » back tension board
» 5 » » cross stick
The thread of the warp is lead alternately in two different ways (illustr. 81). The first circuit is (starting from one): (illustr. a) The thread runs behind all the pegs until four then it goes to the front, around five, crosses itself and runs back in front of four, in front of three, behind two and in front of one, around which it is running.

Thus, the first circuit for the shed-shaft is finished. The thread, which is lying in front of the shed rod (3), will be in the weaving process above the shed rod.

The second circuits starts in the same fashion: (illustr. b). The thread runs behind one, two, three, four, then to the front, around five, crosses itself and goes back behind three and two and in front of one. However, this time at two, the heddle thread is placed around it, which is warped to a small ball. The ball is slid underneath the warp thread to the back and then it comes back over the same one.

This now happens at each heddle-shaft-circuit alternating once on the right hand side and once on the left hand side of the heddle stick 2, around which each time a loop is formed. Later in the weaving process this enables to lift this warp thread, which is placed underneath the shed rod, when it is lifted up by the weaver. Thus, this thread comes over the shed-shaft-thread and the heddle-shaft is created see illustr. 83. For the plain weave,

—and this is what it is all about here—only the two described circuits are applied alternately, forming once the shed-shaft, once the heddle-shaft. During the last one, each time the thread of the heddle is inserted, until the warp is finished. Then the pegs are substituted by the respective weaving tools, the tension boards, cross stick, heddle stick and shed rod.

This is the way a simple mat in plain weave is made.

For the Kusae-mats of the old style one characteristic is added which none of the other Micronesian weavings has (and, as far as I know, no other weaving technique has it in the same perfection). A rich design, by a color
structure is planned in the warp, in such a way that four to five colors alternate in symmetric succession and the warping threads have to be interrupted and newly knotted at each color change. In order to create precise and clear design, so that the knots are in a straight row one above the other and the forms can clearly be seen, the distance of the interruption of the thread each time has to be measured. In order to do this, people use a small instrument, to which I will return shortly. It is inserted into the warping bench, together with the warping pegs.

The warping bench, päusch,¹ per se, distinguishes the Kusaeans from the majority of the weavers in the South Seas, who with few exceptions (for instance Yap and Kapingamarangi etc.) knock the pegs into the ground.² The Kusaean warping bench, päusch, is a small

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¹ The name means also »stem of the banana«, as it seems that the warping pegs were inserted into one like this. A.K.
² On the Mortlock Islands sometimes knotted warp thread can be found, but this cannot be compared [with Kosrae]. In Indonesia on the other hand the ikat technique tries to achieve a similar effect. The magnificent œuvre: »DeWeefkunst«, II volume of »De Inlandsche Kunstnijverheid in Nederlandsch Indie« by JASPER and PIRNGADIE, Haag 1912 offers many examples.
showpiece among the weaving tools. It consists of a three-sided soft wooded part, shaped like a prism, inkaint páusch, which rests with the pointed side downwards on two tail-like stands, falak, so that one side of the prism forms a horizontal plane on the top. This space is not as long as one half the mat that is going to be woven, therefore the warping pegs are arranged in such an order, that the thread reaches the necessary length by forming angles (illustr. 87).

In the said surface of the prism, seven flat-roundish, at the lower end pointed warping pegs, seak, are inserted. This means with the help of a stone or a small wooden hammer, bangbang, slight hollows, in the form of a slit, are beaten into the wood. With small pieces of reed, with the length of the individual distances, they are braced against each other, so that they cannot sink to the ground when the warp is tightened. The ends of the reeds rest in the hollows in-between the two beads of the warping pegs. The warping threads are wrapped over the higher bead on the smooth shaft of the pegs.

The warping bench, (prism as well as the stander) are usually covered with red earth and a lacquer lack. Rich ornaments, usually in the form of notches, which are chalked white, lets the design shine out. Some warping benches have a blue or black paint on the triangles of the prism, which become visible on the side on the stands of the warping bench, as well as on the thin edges of the stand.

The arrangement of the warping pegs on the warping bench is almost without exception, the following (illustr. 87): In the front in a straight line the pegs K, T, L, c, which means: K the cross-stick ibuan, T the shed rod (inual), L the heddle rod (ngung) and c the front tension board (fuensäm). Behind these are the pegs, a for the back tension board (bab lük), a little bit closer to the front ones is peg V (inbon) that elongates the warp, because instead of going straight from K to a, the threads are lead in an angle around V. This causes the warp to get longer. Finally b (langengosies), the one that keeps a distance,
which means it keeps the warping threads away from the heddle stick. The Kusaean mats have a plain weave, thus the warp is wrapped in two circuits. The first circuit, (illustr. 87) which forms the shed-shaft, goes from left to right, behind a b c and around c, now from right to left behind L, in front of T, behind K and around K, the thread crosses itself, in front around V and back to a.

During the second circuit, the heddle shaft (illustr. 88), the thread also runs behind a b c, around c to the front and continues in the opposite direction behind L, where the heddle string is inserted, this time behind T and then exactly as in the first circuit back to a. Illustr. 89 shows both circuits.

In this fashion, the warp is prepared for the old Kusaean mats of the old times and the belts, which are used nowadays, which the mission had introduced. For the multi colored belts there is only the measuring grid kal (illustr. 90). This is a structure made of 11—14 or more midribs of the coconut leaf that are bound in the same regular distance to each other on two cross sticks of the same material. The crossing points of the small sticks are tightly wrapped, the cross stick are completely covered by binding, so that this creel is strong and unmovable. The 2 final ribs and the one in the middle are longer than the others. These are beaten into the soft wood of the warping bench, in such a fashion that the first stick from the left side stands in front of the shed-rod-peg of the warping bench and the last on the right in front of the peg for the heddle stick illustr. 90).
Before I describe the painstaking art of a knotted Kusaean warp, I have to say a few words about the material. The mats are, without exception, made from banana fibers = gosies. People mentioned the varieties kūrrā for coarser and uschuosch, according to Sarfert, us mos, for finer fibers. Both banana varieties have sweet fruits, however, such a musa should not have had any yet, if the stem is to be suited for the production of yarn.

The meaty stem of the banana consists of different layers of the beginning of the leaves, placed on top of each other. The exterior ones are already removed when cutting the stem, because they are dirty and cannot be used. The woman whom I watched when she prepared the yarn loosened a medium wide strip of about three fingers width, ripped it off the stem and placed it on a round peeled wooden cudgel, neilo, which she kept in the same position by placing her knee on it. The right hand holds the scraper, a piece of coconut shell (ipän alla), which has been sharpened on the edge with the rough shell (dokschak) (a Venus shell)\(^1\) tightly against the round wood. The left has the banana baste and pulls it several times through the scraper and the wooden cudgel so that wet and meaty parts are left over as waste (bokensiäsä) (illustr. 91), and the cleaned threads of the baste become silky white.

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\(^1\) deida sharpen.  
\(^2\) siäsä smoothen.
Once a strand (sifen gosies) was defleshed, the woman collected it in-between the toes of her foot. Soon a new strand was added, and another one, until a certain amount of yarn had been finished. This was hung up for drying and later on was twisted to a hard ball. The material now consists of individual hair thin threads. Before being used it must still be twisted to a string. First it is loosened\(^1\) because the threads often stick to each other and are stiff.

The strand is taken with the left hand in the middle, the right hand folds the ends which are hanging out in small folds like a fan. It holds it pinched and then smooths it even. Then the yarn is spread apart with the fingers and the process is repeated. In this fashion it becomes flexible and smooth for twisting. 3 threads are taken out and the left hand holds their ends. The right hand twists the three strands strongly on the knee to a loose string. For fixation, both ends receive a small knot, guamota, which is created between the thumb and index finger. On this the new thread (also provided with a knot) is attached, with the help of the Kusaean weaving knot, which differentiates very little from the German one.

The weaving knot. Both ends of the thread, with their small twisted knots, which have to be knotted, are lying in-between the index finger and the thumb of the left hand (illust. 93a).

The right hand has joined the small knots by once again twisting them. Now it makes a loose loop around the thumb of the left hand and the two joined ends with the lower course of the new knot (which has to be attached). Afterwards it makes another, tighter one in the same direction and only around the ends (illust. 93b), and the last one, the tighter loop is pushed slightly underneath the left thumb.

The right thumb bends the shorts ends over the tight loop into the big loose one and back to the old thread, which is placed on the index finger of the left hand (illust. 93c). With the new thread the loose loop is pulled tight until the knot (illust. 93 d and e) is created. The ends, which are hanging out, are

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\(^1\) gakä gosies = to loosen the yarn.
\(^2\) kogal gosies to twist weaving yarn (to string) ischäb (from coconut sennit cord). [No indication of this footnote in the text; comment CCHPH]
Illustr. 93 a, b, c, d, e. Stages of the Kusaean weaving knot.
(a. F. = old thread, n. F. = new thread).
cut off quite close to the knot with the shell, kālot.\textsuperscript{1} It is a small dark violet shell with a smooth edge. This cutting shell is sharpened with the cooked claw of a lobster, inging (illustr. 95). This shell is placed with the inside against the claw and the edge is pressed in a back and forward motion against the curve of the claw. This causes some of the brownish external layer to chip and the thin, glasslike interior layer with a sharp edge is revealed.\textsuperscript{2}

Illustr. 96. Rolled yarn ready for use.


Each female weaver had these small instruments in her small yarn basket made from pandanus. The weaving yarn, gosies, is wrapped, kolsop, very delicately and carefully on sticks of reed and the female weaver has the different colors white, black, red and yellow ready for use.

**Dyeing the weaving yarn.** Black = salsal or schalachal. fokinfol, the faded calyx of a mangrove, probably Rizophore, are pounded,\textsuperscript{3} mixed with some fresh water\textsuperscript{4} and pressed out. This liquid is poured into one of the big, leather like leaves of bush taro\textsuperscript{5}, which is placed over a wooden vessel. The yarn to be dyed is placed in there and left soaking, then it is strongly wrung out and taken out.

Some rivulets contain a certain grey mud (it probably contains iron),\textsuperscript{6} used for dyeing. In small amounts it is fed into the mangrove juice and stirred, until a thin grey mash

\textsuperscript{1} In the picture atlas of DUPERREY, mentioned above, the knot is stated very similar, though not correct.
\textsuperscript{2} taté = to sharpen
\textsuperscript{3} tuktuk to pound, tok pestle (stone for pounding), daboeng pounding board or stone.
\textsuperscript{4} kofonot fresh water.
\textsuperscript{5} dja uannak leaf of the bush taro.
\textsuperscript{6} fok schalschal fresh water mud.
develops. The yarn is soaked in there and kneaded for an extended period of time. In the end it is loosely pressed out and left resting for one day, wrapped in a taro leaf. Then, it is well rinsed in fresh water and freed from all mud particles. After that it has a beautiful dark color, not unlike a mat grayish indigo blue (I never saw deep black weaving yarn, though black baste, which is used to decorate the woven works.)

**Yellow** = ran. The yellow root corm āan¹ is used to color yellow. After it has been cleaned, it is scraped with the violet striped shell buannak. The scraped material is placed on the leaf of bush taro, the strands of yarn are also placed in there. They are loosened and filled with the scraped yellow root. Now both of them are kneaded and wrung until the juice comes out, without that any water was added. Finally, the leaf is folded around the yellow root and the yarn and is left like this for several hours. Afterwards, the yarn is rinsed in water and hung up to dry. It has a rich golden yolk yellow color, which unfortunately is not light fast.

**Red** = sesa. The red color needs more work and time. It is produced by a few men who know the secret of the red dye. The shade of the color differs, sometimes it is lighter sometimes darker, bloodier or more dull. In one mat for instance there was a dark brownish and a shining light red used next to each other. The old Singan showed A. KRÄMER the production of the red color who reports the following,

»An old man, Singan, scraped the washed piece of morinda citrifolia root with a banak-shell. In a wooden bowl, he mixed the scraped material with the ashes from a trunk of the Alsophila fern tree, which immediately caused the red coloring. The juice is then pressed out and used to color the baste, which was brought by women from all sides, as soon as it was known that the color was ready. This was because some time ago, only Sesseng who lived on Sangeras place, Mālām, Wukat, and Mālo had the privilege to prepare the red brown color. The work was called lo and was holy to the spirit Seangofo. Therefore, the name Seangofo is transferred to the dyer and »Seangofo cut« is the slogan for all the related work. An individual small cooking house, im in lo, which was taboo for all not involved, was erected. During the work, which lasted 1 to 3 months, the dyer was not allowed to have sexual contact with women, there were many fish he was not allowed to eat, and while looking for ingredients in the bush, it was completely forbidden to talk and to eat.«

These differently colored yarns are used to knot and wrap the warp for all colored, old mats.

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¹ In some parts of his Ethnolog. Erfahrungen und Belegstücke etc. FINSCH denies the existence of the Curcuma corm on Kusae. In our time it existed.
I will try to paint a picture of the way the measuring and knotting of the colored pieces is accomplished. I watched several people doing this. By long inherited training of the art they have achieved a confidence in doing it, which is baffling. They have the designs in their heads, however, sometimes orientate themselves after old small, frayed pattern pieces, which they keep in their basket. Rarely do they invent something new. Thus, they seem to be old traditional designs that have names and still among all the material, which was available to me (about 40), I did not find two similar mats.

All these textiles were ornamented strictly parallel from the middle of the width starting to both sides and I have hardly ever been able to find any mistake, as irritating the constantly changing patches of color seem to be in the tightly pushed warp. The mats all have a black middle part and colorful ends of about $1\frac{1}{2} - 2$ hand spans length. One of these ends has broken (knotted) designs in especially rich color change, the other one is more simple, sometimes even unbroken with smooth, alternating warp threads.
The old Talipe had promised, to prepare the warp of an old mat in front of me (illustr. 98). She sat down on the veranda of her house in front of her warping bench inserted the warping pegs by beating them, gave them the necessary distance and durability by the small pieces of reed in-between, inserted the measuring grid in front of the shed rod and the heddle peg and started to wrap six circuits with black yarn, alternating shed rod and heddle shaft, as described above. Only with the seventh circuit was the measuring grid used. The colored balls of yarn are placed in a row on the floor behind the warping bench. Their threads have been unwound slightly and placed over the surface of the warping bench and have been pulled through different gaps of the measuring grid. They hang down in front of it, so that they can be easily found. Talipe places the thread at a certain rung of the grid. Thumb and index finger of her left hand hold the thread close to it, the right hand cuts about 11/2 cm off and places the new thread, for instance red, next to the old black one, without the left hand loosening or shifting the old thread in any way. Now the right hand places a loose loop with the new thread around both short ends. This sticks out in-between thumb and index finger of the left hand and makes a knot in the above-described fashion. The thread, for instance white, is once again placed against the grid and measured or two rungs further down. It is cut off and added with a knot. Then, after measuring each time red, yellow, black-red, white, red –yellow, black-white, black. Now black remains for about three spans of a hand, which in the woven textile forms the middle part. For the design on the other side, once again a colored thread is knotted on, which stays uninterrupted until the end of the circuit. In this mat each circuit has about 19 knots. It is easily apparent that these could not simply be measured on the grid, which in this case consisted of 11 sticks. The female weaver had help herself with warping pegs, around which she, from time to time, placed the thread in order to be able to use the measuring grid once again from the front. The measuring grid is also sometimes used for measuring from left to right, then from right to left. From time to time, Mrs. Talipe places the thread also in its correct order around the pegs and compares the knotted design with the former circuits. In this fashion, any possible mistake is immediately detected. I had to watch her for quite a while before I realized that certain repeated positions of the thread served only for measuring, and had nothing to do with the shed-circuit or heddle-circuit. Before these were wrapped the thread had to be unwound each time in order to wrap the correct way for the heddle shaft circuit or the shed rod circuit. I want to call these possibilities of positioning the thread measuring position. I distinguish five such measuring positions.

I. Measuring Position.

The thread has to go around peg a instead of continuing to b, on the right side it crosses through to the front in-between cross peg and shed peg, ready to measure from left to right on the measuring grid.
II. Measuring Position.

The thread goes again in the normal fashion around a, and then from the right side around the heddle peg crosswise right to the front. It appears on the right side of the heddle peg and turns to the left, in order to use the measuring grid, this time from right to left. This is the continuation of the first measuring position.

III. Measuring Position.

It starts as in II, the thread is coming on the right hand side from the back around the heddle peg and turns in-between this one and the grid to the left behind the shed peg and leads around it and then on the left hand side of it to the front, so that is in front of the grid, where this time it is measured from left to right.

IV. Measuring Position.

Again like II and III, though the thread does not come to the front on the left side of the shed peg in order to turn right, but continues to the left, in front of the cross peg, around it and goes further in the direction to the right to the grid. Here it is put from left to right to measure.
V. Measuring Position.

This is the most simple of all. The thread runs its natural course behind a, b, c and around c to the front. Then it turns to the left and is measured on the grid from right to left.

Illustr. 103. V. Measuring position.

Now, as I will try to describe the measuring and knotting of the warping threads in more detail, I will indicate the measuring position of the thread by the Roman number I, II, III, IV, V and the respective stick on the grid where the thread has been interrupted with the German numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. For instance:

The red thread is in the measuring position III, measures to 3 (stick of the grid). It is cut off (I will indicate this by an X), white is knotted on to 5X, (cut off), black knotted on to 6 X (cut off), white on to 7 X red to 8 X black (illustr. 104). Now the thread is placed into its right path (it is the heddle circuit) and in the above described way wrapped to the starting, peg a.

Illustr. 104. Example for the use of the measuring grid.

Shortly expressed the same looks like this:

III red 3 X white 5 X black 6 X white 7 X red b X black heddle circuit
I noted a part of the mat (illustr.) Black II 5 red
III 3 X white 5 X black 6 X white 7 X red 8 X yellow 9 X black shed-circuit
III 3 X white 5 X black 6 X white 7 X red 8 X yellow 9 X black shed-circuit
II 5 X red
III 3 X white 5 X black 6 X white 7 X red 8 X yellow 9 X black shed-circuit
II 5 X red
III. Technique.

I 3 X yellow  1 3 X red
II 5 X red
III 3 X white 5 X white 6 X red 6 X yellow 9 X red 11 X yellow
IV 7 X red 8 X yellow 11 X red
V 5 X yellow 4 X black
heddle-circuit
I 4 X yellow
II 5 X red
III 3 X white 5 X white 6 X red 7 X yellow 9 X red 10 X yellow
IV 7 X red 8 X yellow 11 X red
V 5 X yellow 4 X black
shed-rod-circuit
I 4 X yellow
II 5 X red
III 3 X white 5 X white 6 X red 7 X yellow 9 X red 10 X yellow
IV 5 X red 6 X yellow 9 X red 10 X yellow
V 4 X black
heddle-circuit
I 4 X yellow
II 5 X red
III 3 X white 5 X white 6 X red 7 X yellow 9 X red 10 X yellow
IV 5 X red 6 X yellow 9 X red 10 X yellow
V 4 X black
shed-circuit
II 5 X red
III 3 X white 5 X white 6 X red 7 X yellow 9 X red 11 X yellow
IV 7 X red 8 X yellow 11 X red
V 5 X yellow 4 X black
heddle-circuit
II 5 X red
III 3 X white 5 X white 6 X red 7 X yellow 9 X red 11 X yellow
IV 7 X red 8 X yellow 11 X red
V 5 X yellow 4 X black
shed-circuit
II 5 X red
III 3 X white 5 X yellow 7 X black 8 X yellow
9 X white 10 X black
heddle-circuit
I 4 X white
II 5 X red
III 3 X white 5 X yellow 7 X black 8 X yellow
9 X white 10 X black
shed-circuit
I 4 X white
e etc, same like the circuit before.

♦

In order to keep the layout, yellow sometimes has to be abbreviated to yell. in this section of the text; comment CCHPH]
Here I was interrupted. Mrs Talipe worked on the middle section of the warp in my absence. This section contains more black than the edges.

At the other edge I had again the opportunity to observe.

II 5 X red  
III 3 X white 5 X white 6 X red 8 X yellow  
    9 X red 10 X white 11 X black  
IV 5 X yellow 7 X black 8 X white 9 X red  
    10 X yellow 11 X red  
V 5 X yellow 4 X black  
    shed-circuit

I 4 X yellow  
II 5 X red  
III 3 X white 5 X white 6 X red 8 X yellow  
    9 X red 10 X white 11 X black  
IV 5 X yellow 7 X black 8 X white 9 X red  
    10 X yellow 11 X red  
V 5 X yellow 4 X black  
    shed-circuit

II 5 X red  
III 3 X white 5 X white 6 X red 8 X yellow  
    9 X red 10 X white 11 X black  
IV 5 X yellow 7 X black 8 X white 9 X red  
    10 X yellow 11 X red  
V 5 X yellow 4 X black  
    shed-circuit

III 3 X white 5 X white 6 X red 8 X yellow  
    9 X red 10 X white 11 X black  
IV 5 X yellow 7 X black 8 X white 9 X red  
    10 X yellow 11 X red  
V 5 X yellow 4 X black  
    shed-circuit

I 4 X white  
II 5 X red  
III 3 X white 5 X red 8 X yellow 10 X red  
    11 X white  
IV 5 X black 7 X white 8 X red 9 X yell.  
    11. X white  
V 5 X red 4 X black  
    shed-circuit
I 4 X white  II 5 X red
II 5 X red                        III 3 X white 5 X red 7 X yellow 10 X red
III 3 X white 5 X red 7 X yellow 9 X black
        10 X red
IV 5 X white 7 X red 10 X yellow
     11 X black
V 5 X white 4 X black
        4 circuits completely in black without
        knotting anything on.

With this the warp, lola, is finished. I described only a small portion of it. The
female weaver loops the end of the warping thread around another warping thread, and
knots it with it, just like it has been done with the beginning of the thread. In the same
fashion, with a knot, the heddle thread has been attached. The warp is going to be
removed from the warping bench and first the different shafts, in which the pegs are still
sticking, have to be kept. For this, threads made of hibiscus baste are twisted and inserted
into the formation of the shaft, next to the pegs. Then their ends are knotted together over
the threads. Only when the warp has been bound at different spots is it carefully removed
from the warping bench and the respective weaving tools, which have been slightly oiled
with coconut oil, gaki, are inserted.

As has been intimated on p. 167 and 170, instead of the warping pegs, the weaving
tools are inserted into the tied separations of the warp (illus. 80, 87 and 88 and plate 26).
The wide gap which had been kept open by pegs a, b, c are taken on the upper and lower
end by the two tension boards,1 more or less the breast beam and the warp beam.

The cross stick2 is inserted into the opening, which peg K leaves when removed and
the warp is exactly placed in order in the individual eyes.

In the same fashion the thick shed rod3 is inserted for peg T (illus. 73) and for peg
L the thinner heddle stick4 is inserted into the many eyes of the heddle string.

Now the female weaver fastens the back tension board into the frame,5 places the
belt or back strap,6 which is made from strong pandanus leaves, on her back, and inserts
the eyes of both its end on the tenon of the front tension board. She leans back until the
warp is pulled tight and starts, with great care and patience, to put the threads into order.
Closest to her, about a hand span away from the front tension board is the heddle stick
(illus. 73).

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1 bab an, front tension board with the cones to attach the back strap, substitutes our breast beam. bab
onguau, the back tension board, which is attached to the frame, substitutes our warp beam.
2 in buan, cross stick
3 inüal, shed rod
4 ngüng, heddle rod
5 lang, frame to which the warp beam is attached.
6 äfat, back strap, weaving belt.
right behind it is the shed rod, then there are the cross in-between shed rod and the back tension board.

The vertically to the warp running row of small knots, which should be in a line, can clearly be seen. With a small stick, called shi, they are pushed into the desired rows, in case they should have shifted.

Finally, the warp is in the desired order and weaving can start. At the beginning of the mat, as a first weft, a bundle of threads made from baste are inserted and on them the threads are once again evenly distributed. After the first weft has been hit strongly the second shaft, formed by lifting the heddle stick, by inserting the batten and by positioning it on end, also has a bundle of threads made of baste inserted. The batten is removed, the shed rod that had been moved a bit during the heddle shaft, is once again brought close to the heddles, which makes the shed-shaft visible. The batten is inserted and the former weft is hit strongly, the batten is positioned on end and once again strips of baste\(^1\) are pulled through the shaft. Into the next two shafts even small flat bamboo pieces are inserted. For the next three wefts, again baste and finally once again a bamboo splinter. In this fashion, the exact width of the mat, which is going to be woven is determined. The strips of baste and the bamboo splinter serve to hold the width and the actual weaving starts (plate 27). The black weft has been wound on the shuttle, kadab\(^2\), and with each forming of the shaft it is thrown through the weft, first from the right and then from the left. After a stretch of plain one color weaving the female weaver comes to a spot where through the entire width of the warp other colors have been knotted on, so that here a constant row of knots is situated, (see plate 27). Through this one an especially thick weft is pushed, by adding some yarn to the thread. Understandably the warp gets easily tangled at these rows of knots. They stick to each other and takes much pain and care until the shaft is correctly separated. Now follow the small colorful strips. Three times the colors have been changed by knotting, then a standardized cross band shows in the weft, it is part of the design of most mats. Sometimes this strip is decorated with designs in a plaiting technique.\(^3\) Here the needle (schi is employed). It is mostly made of hard wood and like all the Kusaean tools it is delicate and pleasing in its form.

The plaiting technique is as follows:

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\(^1\) asso asso, bamboo splinter or wooden stick inserted into the weaving, serves to keep the width. asso asso, the inserted strips of baste serve the same purpose. In plate 27 the strips are visible in-between the warp threads.

\(^2\) kadab, the shuttle. Sisi, the weft.

\(^3\) schaim or schoäm, plaited work during the weaving. schi, brocading needle.
1. Loom from Kusae with shuttle. Tol-mat of the riel kind. foil. then to the right luo band than setok. ¼ of its natural size. (collection Kr. 683).
2. Modern ribbon with decorative stitches. The two on the right side in its natural size. (collection He. 3002)
2. Heddle string and heddle stick. Sticks securing the width are visible on the right. (collection Kr. 683)
Once the weft is inserted, then, with the help of the needle, a thread in another color and in a certain design is pushed through, sort of interlaced, sometimes covering a few warp threads, sometimes running underneath them. The careful female weavers count the threads, while more careless ones are content to have a good eye.

The next weft follows and again the plaiting thread is led through according to the design. This continues until the small plain strip of warp is finished and the undisturbed plain weft continues.

In other mats there are individual quadrilaterals of one color in-between the colorful small stripes of the design, which can also be decorated with plaiting, schaim. The one sided multi colored men’s mats, too, often have schaim. Further on, with few exceptions it is plain weaving. Dr. Hugo EPHRAIM talks about it in his book Entwicklung der Webtechnik in the chapter Kusaean weaving:¹ We think the work is done like this: The female weaver intends for instance to weave a design, where the warp interacts six times differently with the weft. This means only with the seventh weft, once again, the same warp threads are above respectively below the weft, as it had been in the first. With the brocading needle she distributes the weft threads in the respective order of the design on the six selvages (such selvages the author claims to have found sticking crosswise through the weft of a loom, which is in the museum in Leipzig). At the first weft the first selvage is placed on its small edge and the batten is inserted to enlarge and secure the shaft. Then the shuttle is made to glide through. Finally, the last one is hit close to it and the batten and the first selvage are removed, then the same procedure follows with the second shaft, etc. Once all six selvages have been removed then the textile has grown six wefts and the weaving in this fashion starts anew.

So far EPHRAIM or maybe also FIN SCH, on whose studies this chapter is based. There is no further explanation where the author of the book and where FIN SCH is talking. However the pluralis of the person talking points more to FIN SCH.

If the author of those lines is correct then there must have been other mats with more complicated weaving. I have not yet found in any museum a mat with six weaves. All the old Kusaean mats which I have seen in the museums and all the tol which were ordered and bought by us mostly had plain weave.

There are about 8 kinds of which we will talk later on. In some of these, the menkof, the small and colorful design, which is only on one side and which goes through black colored middle part, we can find decorative stitches of the warp, if I can call them like this. Some of their threads, the color of which differs from the ground, were not bound three times by the weft and thus decorate the textile as loose stitches.⁰

In order to achieve this, there was a new shaft necessary. One more is added when the loose

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¹ EPHRAIM, p. 59.
⁰ [E. Krämer means floating warps; comment CCHPH.]
decorative stitches are also on the backside, as is the case in many mats. In this way four shafts have been used. I have not yet seen a Kusaean mat with six shafts.

In the modern belts and hat bands the loose decorative stitches can often be found, while here the knotting of the warp is not practiced. I watched when the warp of a belt with a four times weave (where the fifth weft was like the first) was made. The female weaver made the warp ready for plain weave. Later on two supporting sticks, \(^1\) called toa, were inserted.

The first toa was pulled under certain threads of the shed-shaft, which also differed from the ground. They are according to the designm lifted together with the heddle stick, so that the respective thread, which had been on top in the shed-shaft, and which should actually be at the bottom in the heddle shaft, is kept on top. The next time during the shed-shaft, this thread is once again on top and thus, it is lying three times above the weft.

There is a reversed effect of the same kind. For this one a second toa stick is inserted. It is pulled through the warp in exactly the opposite way. Everything which had been placed on top of the first toa, a small round stick, is covered by the second toa, a flat and wide stick, while the thread which had been covered by the first toa are now over the second toa. This shaft is used together with the shed-shaft. It holds the colored warp threads of the design, which have been for three wefts on top, as described above, for just as many on the bottom. During the heddle shaft those threads, which were on top during the shed-shaft, are by nature on the bottom. If now the shed rod comes and cannot lift them because the toa is on end and keeps them down, then they have to stay down, just as during the following heddle shaft, thus three times. At the point where shed rod and toa worked together a small piece of warp is visible in the design, while on the backside of the textile the same elongated decorative warp is visible, as in the first described way on the top. The weft thread and the decorative stitches are clearly visible on the right side of plate 26.2.

Most designs of this kind show the decorative stitches over three wefts and they are woven in the following fashion: For visible, decorative stitches on the upper side of the textile — some mats have only these (then the second toa is missing) — the weaving goes as follows:

Heddle, shed-shaft, heddle with the first toa, shed-shaft
Heddle, shed-shaft, heddle with the first toa, shed-shaft and so on.

The second kind with the reversed effect, where the decorative thread is held down:

Shed-shaft, heddle, shed-shaft with the second toa, heddle
Shed-shaft, heddle, shed-shaft with the second toa, heddle and so on.

When we arrived on Saturday February 5 in Kusae not a single top-mat was offered to us, even when we asked for them. Only small fringed pieces of old tol were found now and then in the small baskets.

\(^1\) toa, stick which creates a shaft.
of the female weavers. However, »belts« = belts or hatbands were for sale in huge numbers. 1—2 Mk are paid for them. Once people, who had been under the influence of the missionaries since the middle of the 19th Century, started to wear clothes the weaving of the fine and magnificent mats had become obsolete. It seemed hopeless to still find some of these creations of a lost art. Plate 15,1–4, shows the use of the tol-belts in the old time according to the description of the natives (compare plate 14,2). In those days FINSCH had paid 8 to 10 Mk. for such tol-mats. There was no market for these expensive items, as for the before mentioned belts which are traded on the ships and also by the missionaries to America. I tried to revive this extinct branch of Kusaean weaving, which is unique among all the weaving arts, which I have to stress again and again. I talked a lot with the women and did not tire until my aged friend Talipe promised to give such a mat a try. Maybe she would remember this work. In due course, I visited her daily and had to encourage her energetically to continue her work. The frequent hours of praying of the natives made the progress difficult. My time was measured, however, I managed to record the described sections of the warp. In the meantime, I had also asked the other women and by message from the female missionaries had asked the female traders to attend to the production of tol. We wanted to buy all and were willing to pay 10 Mk. To my great surprise and joy different women started working on it, so that I even had a chance to compare the studies which I had made with Talipe. It is very interesting that I saw all of them using the same measuring positions (pp. 178). I also took notes that did not reveal anything remarkable. Only Mrs. Snigain used one more color, the already mentioned brown, next to a, in her case, very light red. Yet, this did not change anything in the way of her work. Of course it was a very richly structured warp. She called the colors sesa fokfok = brown, furürur = red, fasch fasch = white. On February 22 we had to leave the island, without having seen more than one finished tol, the one from the old Talipe. SARPERT remained on Kusae and he managed in the meantime to continue the studies, which had been started by KRÄMER, to record on the rich material, which was created during our absence, the names and uses of the mats, as well as their designs.

I still have to mention that upon our return, when we anchored in front of Kusae, March 14–17, we had the joy to get about 30 very different tol for the expedition. They were made beautifully and carefully, a sign how well known this art was still among the people.1 I wish there would be some sort of use for these precious small pieces of art, so that this beautiful variety of weaving may be kept alive.

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1 Maybe some of this success is owed to the friendly encouragement of the female American missionaries, who had promised me to help. Generally, they had been obliging and hospitable to all of us and especially to me.
c) Order and Ornaments of the Clothing Mats of Kusae and their Relationship with those from the Ralik-Ratak Island by Prof. Dr. AUGUSTIN KRÄMER.

During the expedition’s 14 days stay on Kusae I recorded the language etc. and tried to establish some information about the order and ornaments of the mats, as I had done in 1898 on the Ralik-Ratak Islands (Marshall I.). The basis for this study are 20 mats which had been ordered and bought by E. KRÄMER; I added 9 from SARFERT, which had been bought later on, in order to present all of them here.

It soon became clear that unlike on the Marshall islands, where there was only one main kind, there were different sub kinds. Concerning the ornaments only the mentioned 29 mats were researched. They were subdivided into 5 groups. Some rarer ones, partly unprepossessing, partly not received, I do not consider (see under c).

The sub kinds, purchaser and amount are noted here:

<table>
<thead>
<tr>
<th>KRÄMER</th>
<th>SARFERT</th>
</tr>
</thead>
<tbody>
<tr>
<td>menkof</td>
<td>—</td>
</tr>
<tr>
<td>kiel</td>
<td>2</td>
</tr>
<tr>
<td>sifuen fok</td>
<td>2</td>
</tr>
<tr>
<td>tafon tol</td>
<td>1</td>
</tr>
<tr>
<td>fensem fon</td>
<td>2</td>
</tr>
</tbody>
</table>

This result is not unimportant, as we did not know what kind of mats we would get and did not influence the women.

All five kinds always consist of 3 parts:

The head fesoma, the meaning seems to be »over«, fen, siom »your belly; SARF. Soma, sem, »design-stripe«, which means the section of the mat which is lying over the thigh.

The medium section inkabo, (in =»in«, kab = »buttocks«, as the middle part is situated at the crotch, SARF. came to the same conclusion)

And the tail tafotok (according to SARF. tafo = »half«, tok = »back« because this section is lying on the back).

Within this structure only the ornaments vary extensively, according to the sub kind of the mat. In most cases, the head and the tail are richly decorated, the mid section however not at all. With the exception of the first, menkof-kind, it is black (salsal) in all others.

Concerning head and tail, the first one is characterized by cross stripes and the last one by vertical stripes. Further on the knotted broken designs are mostly in the head, although the delicious tails of the fensem fon mats are an exception.

At the beginning and at the end of each mat there are fringes (gufen mota, according to SARF. pöla), which can be explained from the weaving technique. If the color of the fringes is white, red or

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1 See »Die Ornamentik der Kleidmatten und die Tatauierung auf den Marshallinseln usw.«
yellow, then they are called sifuen fok ffasfas, … sesa or … ran; the white, red or yellow in the neck of the flying fox.«¹ The last yellow kind is also called motantal tol ran. However, from time to time, the threads are not in one color, for instance that a red tip is knotted to a white thread, a yellow to a red one, and the other way round in the way of the »pleureusen«. The fringe never changes immediately into the colored textile, but it always has a transition in the form of the similar colored basic woven textile, the »fringe-stripe.«

The actual three parts of the mat are situated within the fringe-stripes.

Their different fashioning can be described by presenting the five kinds of mats (compare with it plate 28—34):

I. menkof, according to SARF. from ma in kof = »thing for the water«, because being the most simple one it was worn on fishing trips. In fact, the knotted designs are the least developed here: The head has, seen from the head part of the mat (do not confuse the upper and the bottom part!) on the other side of a cross stripe called setok, always a stripe of knotted design which runs along the side of the mat and which is called künt². It takes about one third of the mat’s width. The rest is always black.

The long stripe künt, continues as a toa stripe in the middle part, so that the middle part and the head (besides the setok cross stripe) are externally exactly the same. The

¹ kok the Pteropus.  
² künt or gün according to SARF. »to touch something in order to break it

* [Indication for mourning attached to clothing, or long, knotted and colorful ostrich feathers attached to hats, http://www.kaestnerfuerkinder.net/begriffe.php; comment CCHPH].
only difference is that the kün of the head has a knotted design, while the design of the 
toa has been created with 1–2 shaft building sticks made of toa wood within the long 
unknotted warp. Once the toa sticks are left out in the continuation of the weave then 
there is a simple design of long stripes, which are shortly called sisä. Thus, while the 
head of the menko-of-mat always has a setok, horizontal stripe, and a kün, vertical 
knotted band, then the middle part has its toa vertical stripe ending as sisä.

The tail of the mat is always wide and consists of not knotted vertical stripes that 
are called sim; mostly the golden color dominates.

We still have to say a bit about the cross stripes of the head, because they are also 
part of the other mats. As a rule, the menko-of-mat only has one setok-cross stripe, 
going over the entire width of the mat. The smallness in nr. 1 (plate 29) must be seen as 
an exception.

The mats 2–6 have one stripe, just as it should be. However, a plain red stripe 
comes first in nr. 7 and 8 (plate 30). It is called luo, and under it, as a second, comes the 
setok-stripe.

In nr. 9 and 10 there is the same red stripe, decorated by gold threads in the weaving 
process and therefore such a yellow ornamentation stripe is called sem, underneath 
which the setok stripe is located. Nr. 10 finally has two setok-stripes one on top of the 
other. If now the two horizontal stripes of nr. 10 are placed on top and the two other ones 
from nr. 9 underneath, then the upper part of the head of mat 11 and 15 is created (plate 
31).

II. kiel, the lower part is divided by three vertical lines into four black fields. The 
outer fields are called siskä (according to SARF. »edge«), the inner fields are called lo 
(according to SARF. »inside«). The thicker middle line is distinguished as fullo »ridge«. 
However, four horizontal stripes as the upper part of the head are not at all the rule. In 
mat 16 there is a step back to menko, as there is only one sem and setok. However, the 
first one has double width. But, mats nr. 12, 13, and 14 (plate 31) show, instead of two 
already three horizontal stripes in the upper most head part. Further on these are no 
longer setok stripes, but the three together form one of the knotted designs foul (13), 
bonbei (14/17) nemuot (12), etc., which are discussed in detail further down. The 
middle part of the mat is always black. The tail has the usual vertical stripes sim. In 
mat 13 there is a »red« middle line fullo »sesa«. In nr. 14, 15 and 16 the vertical division 
starts in the middle and the side stripes. In nr. 14 it is called sim ran »yellow sim« in 
contrast the white one, is called sim »fasfas«.

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1 According to SARF. ta = »to weight something with something else down« also to »bury« bananas, further on the breadfruit knife.
2 According to SARF. the meaning is the »ripping« of a leaf and the like, in contrast to sikä »the border, edge.«
3 According to SARF. from tok »the back«.
4 sim, according to SARF., »to draw, to draw a line, now also to write.«
5 According to SARF. an old Kusaean piece of money had this name, a shell bangle of approximately the same width.
6 Meaning unknown.
7 SARF. cites a kind as kiel sal, from sal sal black, because the entire belt, except he three längst stripes are on both ends dark in one color, a female balt.
8 fullo »first« (SARF.).
This partitioning into threes leads clearly to a fourth kind, the tafontol mats, while nr. 17 reminds one in the tail part of the last, the richest kind, the fesem fon, because here the simple sisä lines (see for instance the middle part of mat 5) alternates with knotted vertical stripes. This mixture is called sisäken, according to SARF. sisä kün, thus a mixture of sisä vertical stripes and kün broken stripe. It appears as expected in the next kind, in nr. 19, 20 (in the tail).

III. sifuen fok, according to SARF. from sufo¹ in fok = »head of the flying fox« to which the three lines of the head of the mat supposedly point to, the filling of which in nr. 21 and 22 (plate 33) is beautifully colored in brown-red.

In mat 18 and 19 they are free standing and the four black fields have the same name siskä and lo², as in the kiel, only here everything is much closer together, because on both sides of the three lines there is a kün stripe of the same length, which is in the first kind, menkof, only on one side.

Towards the middle of the mat, just as in the menkof-kind, these kün stripes are clearly bordered by a special line, called tesen kop³, which, however, is not knotted, in contrast to the three singular middle stripes, thus completely straight (linear).

On top of the two wide kün and the three thin middle stripes are the same cross stripes, as in the kiel mat, one cross stripe in two or three layers (according to the love of splendor), below a golden stripe sem and a setock stripe. The middle part of the mat is black. The tail of the mat is often divided in three vertical parts. In mat 18 the two stripes on the side are divided in toa and sisä, exactly as had been the case with the middle part of (1.) menkof. Mats 19 and 20 are sisäken, mixed, here everything reminds of the kiel mat.

IV. tafo tof according to SARF. from tafo = »half« and tof = »mat«, because it only has half the knotted designs, thus mostly on the head part while, with the next one, the tail is also richly decorated. The head always starts with five cross stripes like nr. 18 and 19 from sifuen fok. In mat 24 and 25 (plate 33) there has been no sem stripe included. Thus, there is only a red luo. In the lower half the middle is also filled with knotted designs. The middle part is black. The tail always seems to have three stripes, either all of them consist of straight lines (22 and 23), mixed (24) or knotted in the middle and linear on the sides (25).

V. sifuen fok according to SARF. from sifuen »head of the flying fox«, »mat«, and fon »completely« decorated with knotted designs. The head is the same as before. The middle part is black. The tail is no longer divided into three parts, it also does not show any straight lines but everything is covered by knots. These are the richest mats.

The ornaments within the parts, determined by their structure are the following:

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¹ I noted down sufū or sufennmet.
² lo = »inside« (SARF.)
³ According to SARF. from kop the threads of sea grass for the production of fishing nets; des the outer part of the coconut husk for polishing. The line supposedly is a wavy line, however it looks straight.
1. The knotted brocading designs, among which the thick stripes (ganabo) and the small ones (moakin kin) are distinguished:

a) nemuot, the word supposedly is the name of a village in Utua (SARF.) its meaning is not known (muot the station of the mission). The design is structured like steps, see mat 3, 4, 10, 11, 20, 24, 28; nemuot fullo, when a middle line »ridge« is in the nemuot design, see mat 12 (plate 31 and 28 c).

b) foul according to SARF. »The pointed angle of a house«. In fact the design builds up in a pointed angle like rhombi. It usually has a black center, see mats 5, 9, 13, 18, 19, 28 (plate 29—34 and 28a).

c) bonpei, named after Ponape, without more detailed explanation (SARF.); similar to foul, only here wide yellow stripes, see mats 14, 17, 20, 24, 28 bonbei fullo, »ridge of the bonbei«, because here is a mid rip.

d) benso after a place with the name in Lälä, see mats 10 and 20.

2. Ornaments, saim, brocaded while weaving with the help of a needle (see E. K.).

a) muis in kesek, »tooth of the rat; see the middle part, toa, of mat 5, 8 etc.

b) aikil according to SARF. »the red squares«, which »pass each other in the opposite direction«. These sections muot sesa (»patch red«) are for instance in the head of the mats 1, 6, 28. Although there I did not note down the term aikil, but did so concerning mats 3 and 4 (toa). (Compare explanation of mat 3).
e) talpe design like a rhombus in the golden stripe sem. The meaning is unknown, it seems to be the name of a woman, see mats 11 and 13 and illustr. 110.

f) safo Isik from sik small (salfol?) see mat 8 and illustr. 111.

g) fuos letter like ornament

Finally we have to mention some designs here which have been borrowed from the Raliks and which are also brocaded with the hand, as in illustr. 113, which in fact is depicted in my above mentioned publication on p. 9 as »big star, which only shines on one side«. Further on see mats 8, 12, 14, 15, 18.

We further have to mention that the four red muot sesa squares, as in mat 1, can also be found on the Ralik mats. There they are called dram »corner« because they are situated in the corners (see for instance my publication plate II,g).

Thus, the relationship of the Kusaean mats with the ones from the Ralik-Ratak Islands lies not alone in the structure, but also in the ornaments within this one, which is not really surprising, considering the vicinity.

Much more peculiar is, however, the fact that the Ralik people did not move on to loom weaving, but that this one stopped in Kusae on its march towards the east. Of course, the Marshallese people knew the products from Kusae. The impression of the colorful tol was a lasting one for them. This can be deduced with certainty from their woven mats decorated so ample in two colors that nothing similar among the weaving of Oceania can be compared with them. But why have they not woven these mats on a loom? Here the Polynesian influence of clothing with their big woven mats must have been influential,
like the treasured ‘ie toga, which is worn by the virgins and sometimes also by men at festive occasions on Samoa.

On the Gilbert Islands, the mat is most of all men’s clothing. On the Marshall Islands it is a female attire, although rarely worn by men, too. The Ralik-Ratak mat distinguishes itself from the two first mentioned ones in a remarkable way by the position of the stripes, which contrary to all the other ones in the Pacific, are vertically to the edge,

Just like in the loom woven mats. As a rule in a woven mat the stripes run diagonally, while in a loom woven mat the threads are vertical to the edge. Only in the Ratak-Ralik mat the threads run vertically to the edge. Only in this position was it possible to achieve the rich ornaments in the stripes in the sense of a loom woven mat.
The ornaments in loom woven mats from the Carolines and from Indonesia is mostly done in cross or vertical stripes. The last ones characterize the mats of the Central Caroline Islands: Truk, Mortlok, Lamotrek, Voleai, Feis, Yap, etc. while the cross stripe can be found in the west, on Tobi (Togobei) and Mokemok and in the east on Ponape and Kusae. The Ralik-Ratak mat also belongs to the forms with cross stripes, of which we know such beautiful designs, as for instance, from the Batak people on Sumatra. It is not difficult to construct a Batak-Ratak relationship, if one is inclined to do so. In the Micronesian knee, Indonesian and Polynesian influences clearly meet. United they produced the strange object of a cross-striped woven mat. We can even go further, there are mats on the north west coast of North America, which are quite closely related to the ones from Ratak-Ralik Islands. As these are really Oceanic, the north west American Indians must have been the takers and not the givers. With this, an influence of the people from the Ocean for the Indians has been proven.

3. Appendix.

In addition to the articles of E. and A. KRÄMER we want to mention a few topics, which could not be taken into account there.

Not only 5 but 8 kind of mats are distinguished. Besides the ones mentioned by KRÄMER there are the following three.

1. Nösünsap. This belt has no ornament and is woven from undyed, shiny white banana threads without any knots. It has the name of the god Nösünsap, to whom it was obviously dedicated. It was nearly always used and worn for ritual purposes. Beside this, it supposedly was the clothing worn for a special dance (ärman), for dance competitions (fukosio) and for catching flying fish. It was a man’s belt. LESSON saw individual chiefs wearing these white belts.¹

2. kiel sal. This kiel-belt was completely black and as a design had only 3 red vertical stripes in the head end (collection Sar. 1663).

3. kün in käpo: This was the most decorated belt. Unfortunately, the expedition did not receive a single one although a woman had been commissioned with it. It had on the head end and on the tail end only knotted design (kün =

¹ LESSON 1839, II p. 502.
»to knot«) which were connected by a vertical knotted stripe, like the menkof-kind, it however, was also executed in knotted designs. Of the different kinds menkof was supposedly the belt of daily wear and for working for both sexes. All the other ones, with the exception of Nösünsap, especially the richly decorated belts were more or less exclusively female belts. As has been emphasized in the discussion of clothing, the special ornamented head end, which was worn in such a way that the popular golden colored thread embroidered sem design was clearly visible. More about it under clothing. The designs of the embroidery in the sem-cross-stripe are the same with which the atero-bags are decorated.

Due to his journey to Petersbg, sent by the Wissenschaftlichen Stiftung in Hamburg (spring 1914) Dr. HAMBRUCH had a chance to see the large amount of clothing mats, which the LÜTKE expedition had once obtained. He also brought some photographs and drawings about it back and also bought 4 such old belts for the Museum in Hamburg. Although this material is remarkable in a few respects, a comparison reveals, that the Kusaean weaving of those days did not differ very much of those of later times, when it comes to technique and designs.

The warping bench of the Petersbg collection is of the same type and built in the same way as the modern one. Yet, it is build from breadfruit wood, only colored red without any decoration of notched cuts. Its horizontal part is not only inserted into the triangular cut-off but also lashed to the protruding cones of the legs with coconut sennit, which runs through drilled holes.

Among the large number of clothing mats there are conspicuously only 2 more decorated ones. Both obviously belong to the kind tafon tol. One of them merits to be mentioned because of its diverging kind of design within the setok-stripes in the head part. It consists of a single system of pointed angles, which are pushed into each other, with sides made in a broken fashion.

All the other belts, without exception, seem to belong to the above mentioned kind kiel sal. However, they have lines not only in the head part but also in the tail part, and they are not only red but also in other colors. Further on there are not only 3 individual lines but 5 lines or systems of lines, of which the one in the middle usually is wider and stands out more. As the large number of these simple and less decorated belts proves, this kind seems to have been the most common one.

From a technical point of view, it is remarkable that these simple belts are rather coarsely woven in contrasts to the two with lots of decoration and to the textiles of a later time. The meshes are not close to each other but at a distance of about 1 to 2 mm and even more so that the belts are actually transparent. The quality of the two richly decorated belts from Petersbg prove that, in that time, weaving was not only done in a coarse manner,
as does a paragraph of DUMONT D’URVILLE, who reports, rather annoyed, that when he
visited Lölö the King gave him only 2 belts, which were new, though of very coarse
weave.¹ We can actually even doubt that such belts have ever been worn. They probably
only served as money or as a trade item. According to statements of today’s natives the
clothing mats played an important role in it.

The modern weaving products are slim hatbands, which are also called tol. Besides
being small they distinguish themselves from the old tol by their white background color
and lacking of the knotted technique. Therefore, they have broken designs and only use
vertical lines as ornaments, which actually often are executed in European colors. Yet,
these ribbons too are extremely carefully made. In former times, after the decline of the
knotted technique, people also exported actual wide tol, woven in a style like these
ribbons, and which can often be found today in the museums (plate 26).²

¹ DUMONT D’URVILLE, 1835, II, p. 459.
² Compare also the illustrations of hat bands and modern belts in CHRISTIAN, pp. 394/5, 396/7.
Plate 28.

a) Knotted design foul (see ornaments p. 192), broken by a red luo-stripe.
b) The entire head of mat 11 (see there).
c) nemuot-design (see p. 192) the formation in four parts at the bottom has
   a line on the left side, which is called fullo »ridge« (see mat 12 on top
   and the following d). Right on the top is the aikil-design in the toa part
   which in its lower part must be considered a nemuot-design.
d) In the middle of the plate nemuot fullo-design. The red partially fullo-
   line is located on the left side (see c).
e) bonbei–design (see mat 14).
f) bonbei-design (see mat 17)
Plate 29 Illustr. 1—5
Tol-Mats 1—5 menkof-Kind
Plate 29. Illustr. 1—5 Tol Mats 1—5 menkof-Kind.

Mat 1 (Kr. II), menkof-kind. Size of the mat: 121,5 cm long, 14,5 cm wide.¹ 
Head: top stripe setok, underneath in the kün part is ganabo and moa 
kinkin (see pp. 190). The 5 red squares are called muot sesa and they are 
located in the knotted foul design (plate 28a). Body: design on the top 
toa, on the bottom sisä. Tail: sim.

Mat 2 (Kr. XV), menkof-kind. Size of the mat: 98 cm long, 11,5—13 cm wide. 
Head: top stripe djetok, underneath läfoul. Body: like nr.1. Tail: sim 
with a central and 2 side parts.

Mat 3 (Kr. XVIII), menkof-kind. Size of the mat: 116 cm long, 12,5—11 cm 
wide. Like nr. 2. In the kün-part the design is nemout (plate 28c); in the 
body there is a new design in both parts together which supposedly is 
called aikil (see plate 28c).

Mat 4 (Kr. XVI), menkof-kind. Size of the mat: 118 cm long, 18—15,5 cm 
wide. All like nr. 3, only the aikil design of the body has a small additional 
piece of sisä.

Mat 5 (Kr. XVII), menkof-kind. Size of the mat: 117 cm long, 17 cm wide. Red 
fringes (sifuenfok sesa) Head: underneath the setok ran 2 stripe in the 
kün-part, the knotted design foul (plate 28a), Body: in the upper toa-part 
the rat-tooth-design, muis in kesek. Tail: like nr. 2.
Tol-Mats 1—5 menkof-kind.
Plate 30 Illustr. 6—10
Tol-Mats 6—10 menkof-Kind
Plate 30. Illustr. 6—10 Tol Mats 6—10 menkof-Kind.

Mat 6 (Kr. VII), menkof-kind. Size of the mat: 103 cm long, 11,5 cm wide.¹
Head: on the top setok-stripe underneath in the kün part is the knotted design lä foul and squares like in mat 1. Among those there is a ladder of cross stripes, the design has been brocaded by hand while weaving, first the zigzag stripe bonbei (illustr. 108), then the rhombi foul (illustr. 107), then the letters M fuos (illustr. 112b) etc.

Mat 7 (Kr. XX), menkof-kind. Size of the mat: 116 cm long, 12,5—10,5 cm wide. On top is a luo stripe (plate 28 a), then follows the setok-cross stripe. Underneath in the kün-part a lot of embroidered semi cross stripes, especially in the designs illustr. 114f, b, d (twice) etc.

Mat 8 (Kr. XVIII), menkof-kind. Size of the mat: 128 cm long, 15,5—14,5 cm wide. White fringes (sifuen fok fasfas) »white on the flying fox«. Head: on the top cross stripes like in M7, in the kün part next to the knotted part there are four however they are not only in the one color, red, like in mat 1 and 6, but they are ornamented: the upper one with bonbei fullo (illustr. 109a), the second with the Ralik design (illustr. 113), the third with safolsik (illustr. 111, 114) and the the one at the bottom with fuos (illustr. 112a). Body: in the toa-part once again the rat-tooth-design, like in M. 5. At the bottom sisä. Tail: sim, like always.

Mat 9 (Kr. III), menkof-kind. Size of the mat: 124 cm long, 16,5—45 cm wide. Head: the strip on the top (instead of luo M. 7 and 8) sem with ralik-design (illustr. 114 k »sails«). Underneath a setok-stripe. The kün-part with the full knotted design foul (plate 35a), divided in the middle by a red, luo-like cross stripe. Body: with toa and sisä, like above. Tail: sim, here though a wide middle part with 2 different kinds of stripes on the side, as also in M. 2, 5 and 7.

Mat 10 (Kr. VI), menkof-kind. Size of the mat: 130 cm long, 14—12,5 cm wide. White fringes. Head: on top 2 benso-cross-stripes, underneath knotted design nemuot, like in M. 3. Body: With cross-stripes, in the toa-part.
Tol Mats 6—10 menkof-kind.
Plate 31 Illustr. 11—15
Tol-Mats 11—15 kiel-Kind

Mat 11 (Kr. I), kiel-kind. Size of the mat: 124 cm long, 17—15 cm wide. Fringes gufenmota. Head (plate 28b): two cross stripes with nemuot-design, underneath a yellow sem-stripe with talpe-design (illustr. 110), at the bottom is here a setok-design. Then three vertical lines into the dark follow, the middle one of them consists of the knotted design fullo. Both interrupted ones on the sides are sisä, as in the tails. Body: dark salsal. Tail: sim.

Mat 12 (Kr. XII), kiel-kind. Size of the mat: 128 cm long, 16—14,5 cm wide. Fringes white-red, Pleureusen-similarity (»red on the flying fox« sifuenfok sesa). Body: on top three cross stripes with the knotted design nemuot fullo (plate 28d middle), underneath a golden sem-stripe with Ralik-design (illustr. 113), at the bottom a setok-stripe.

Mat 13 (Kr. XIII), kiel-kind. Size of the mat: 141 cm long, 18—16 cm wide. Red fringes (compare M.11). Head: three stripes with foul-design (plate 28a) a golden sem-stripe with talpe-design (illustr. 110a), underneath a golden setok ran-design. The middle on of the three vertical lines consists of fullo-design (compare M. 11). Tail: sim with a red middle line fullo sesa..

Mat 14 (Kr. XIV), kiel-kind. Size of the mat: 125 cm long, 17—15 cm wide. Head: on top three stripes with bonbei-design (plate 28e) otherwise like M.12. Tail: with »yellow« sim, outside »white«, sim ran and sim fasfas.

Mat 15 (Sarf. 1368), kiel-kind. Size of the mat: 139 cm long, 15,5—14,5 cm wide. Head: like M.11, however sem with Ralik-design (illustr. 113). Tail: inside white, outside yellow.
Tol-mats 11—15 Riel-kind
Plate 32 Illustr. 16—20
Tol-Mats 16—17 kiel-Kind,
18—20 sifuenfok-Kind.
Plate 32. Illustr. 16—20 Tol Mats 16—17 kiel-Kind, 18—20 sifuenfok-Kind.

Mat 16 (Sarf. 1365), kiel-kind. Size of the mat: 144 cm long, 18,5—17 cm wide. Head: instead of the top three stripes there is a single wide one with zigzag kololtuluk (Sarf.) (illustr. 114a), underneath a setok-stripe.

Mat 17 (Kr. VI), kiel-kind. Size of the mat: 150 cm long, 17,5—15 cm wide. For men and women. Head: three knotted cross stripes with bonbei-design (plate 28f) underneath instead of the a yellow sem-stripe a red luo-stripe, which is positioned in mat 7 and 8 right on the top. Underneath the typical setok-stripe. Tail: knotted sisäken.

Mat 18 (Kr. VIII), sifuenfok-kind. Size of the mat: 138 cm long, 15,5—12 cm wide. Head: the three top stripes with foul-design like M.13, yellow sem-stripe with Ralik-design (illustr. 113) setok-design. Underneath the middle vertical stripe fullo, the two side design stripes kün, like the one in the menkof-mats 1—10, hier with nemuot-design (plate 28c). Tail: middle monotonous sim-stripe, the two on the side divided in toa and sisä, like in he body of the menkof-mats 1—10.

Mat 19 (Sarf. 1382), sifuenfok-kind. Size of the mat: 131 cm long, 18,5—17 cm wide. Explanation is missing. Head: The top three stripes in foul-kind like M.18. sem-stripe with triangle design (illustr. 114k). Sides kün-stripes with three red squares like in M.1, etc. Tail: knotted.

Mat 15 (Kr. IX), sifuenfok-kind. Size of the mat: 140,5 cm long, 15—13 cm wide. Head: two (nemuot) stripes (setok?), one sem-stripe with bonbei-design (illustr. 109b), underneath in the stripes on the side kün also the foul-design, interrupted of three stripes of benso. Tail: knotted (sisäken).
Sarfert (Contribution A. Krämer), plate 32.

Tol/mats  16—17 Riel-kind
         18—20 sifuenfok kind

Publishing house: Friederichsen & Co., Hamburg

Printing by Knackstedt & Co.
Plate 33 Illustr. 16—20
Plate 33. Illustr. 21—25 Tol Mats 21 sifuenfok-Kind,

22—25 tafantol-Kind.

Mat 21 (Sarf. 1371), sifuenfok-kind. Size of the mat: 114,5 cm long, 15,5—14 cm wide. The explanation is missing. Head: on the top two stripes, obviously foul, sem-stripe with new ornament, underneath the usual setok-stripe. In the stripes on the side foul-design with red squares in the center. New is here that the sisäk-stripes are darker than the lo. Tail: not knotted.

Mat 22 (Sarf. 1369), tafantol-kind. Size of the mat: 124,5 cm long, 16,5—15 cm wide. The explanation is missing. Head: three cross stripes (bonbei fullo?) luo cross stripe, setok. Underneath in the middle of the foul in form of a pyramid. On the sides foul with red squares like in M.1. Tail: not knotted.

Mat 23 (Sarf. 1364), tafantol-kind. Size of the mat: 138 cm long, 15,5—12 cm wide. The explanation is missing.

Mat 24 (Kr. X), tafantol-kind. Size of the mat: 111,5 cm long, 16—14,5 cm wide. The explanation is missing. Red fringes with yellow tips. Head: three cross stripes bonbei-design (plate 28e), luo cross stripe, underneath setok, underneath tafomet (illustr 106d) in the middle of the bonbei. On both sides nemuot. Tail: not knotted divided by six vertical stripes.

Mat 25 (Sarf. 1366), tafantol-kind. Size of the mat: 138 cm long, 18—15 cm wide. The explanation is missing. Head: on top and in the middle of tafomet is bonbei (?). Tail: stripe in the middle knotted, on the sides not knotted.
Sarfert, Kusae, (contribution A. Krämer), plate 33.

Tol-mats 21 sifuenfok-kind.
22—25 tafantol-kind
Plate 34 Illustr. 26—29
Tol-Mats 26—29 fenjemfon-Kind.
Plate 34. Illutr. 26—29 Tol Mats 26—29 fenjemfon-Kind.

Mat 26 (Sarf. 1367), fenjemfon-kind. Size of the mat: 121 cm long, 17—16 cm wide. The explanation is missing. In the sem-stripe design illustr. 114e.

Mat 27 (Sarf. 1370), fenjemfon-kind. Size of the mat: 135 cm long, 19,5—17,5 cm wide. The explanation is missing.

Mat 28 (Kr. XI), fenjemfon-kind. Size of the mat: 127,5 cm long, 18—16 cm wide. Head: the three top cross stripes in foul-design, yellow sem-stripe with bonbei fullo-design (illustr. 109b), underneath a yellow setok ran stripe. In the middle of the tafomet-part foul and red squares, On the sides nemuot. Tail: bonbei-design.

Mat 29 (Kr. XIX), fenjemfon-kind. Size of the mat: 127 cm long, 14 cm wide. The explanation is missing. Head: foul on the top, bonbei in the middle of the tafet-part.
Sarfert, Kusae (Contribution A. Krämer), Plate 34.

Tol-mats 26—29 fenjemfon-kind
IV. Trading and Shipping.

1. Internal Trade and Money.

General. LÜTKE tells us that the old Kusaeans had no perception of trade, not even of barter, and that he and his companions, in their own interest, tried in vain to initiate it. The natives asked him and his companions for some things often enough, but they never considered them as barter for their presents. This opinion is not tenable. However, it seems the present was an important form of exchange of goods, without expecting a present in return. LÜTKE’s experiences can best be explained by the native’s perception of hospitality and friendship in general. The friend, »kawok«, is a person with whom people spend a lot of time eating and who receives a lot of food and other presents. Initially, the white foreigners, with their large amount of strange treasures, received the general encompassing hospitality. At the same time, people tried to get friendly with them by presents. From other sources, and quite in contrast to LÜTKE, we hear that the first whites traded with the natives. Thus, this form of barter was known to them.

Money. LÜTKE probably did not remark on any trading because the internal trade in Kosrae had already a monetary character except between visitors and good friends. Initially, certain objects such as fruits and food, sewn mats, mats of the saki variety, clothing mats (tol) and valuable pieces of jewelry, were regarded as money and bartered. In addition, there was also real money (muäk). This existed in the form of shell money and was used in different forms and values. Nearly all kinds of money were made of mother-of-pearl (fae). We still learned about 7 of these, and also obtained 8 pieces for the collection of the expedition.

1. fae in Kosa (= »mother-of-pearl from Kusae«) is a long piece made from the middle part of big mother-of-pearl shell (Meleagrina marginalifera, according to FINSCH). These pieces were common and not considered as very valuable. However, their value would rise according to the size and the thickness of the piece of money. FINSCH still received several pieces of this kind of money and also depicted one; the expedition was only able to get one piece (illustr. 115).

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1 LÜTKE 1835/36, I, p. 387; compare KITTLITZ 1858, II, p. 2.
2 LESSON 1839, II, pp. 490, 500.
3 FINSCH 1893, p. [482].
2. ka muäk (\(ka = ?\)), hinge of mother-of-pearl shells. Instead of being as long as possible, like the former, these should be as wide as possible. In all of Kusae there was not a single such piece to be found, though it seems there are two pieces in the museum in Berlin (illustr. 116). Normally this form of money supposedly does not represent a high value. However, once again the size and the thickness of the individual object determine its special value.

3. kul in fae (= »skin of the mother-of-pearl shell«). Nobody could even tell the form of this kind of money anymore. Reputedly, it was just small change. Judging by the name, it seems to have consisted of the shiny upper layer of the mother-of-pearl shell.
IV. TRADE AND SHIPPING.

4. Jibon (= »Marshall Islands«). These were blinker from Marshallese fishing hooks and they were made of mother-of-pearl. Form there, money also originated and was obtained. It was a valuable piece of money and the expedition still could obtain 3 pieces. FiNSCH, so it seems, was also able to get this kind (illustr. 117)¹.

5. fæ metmet, composite fishing hook made of mother-of-pearl and the same size like the Marshallese hooks. However, this kind supposedly is native and was produced on Kusae. The characteristic of the blinkers is that no hole is drilled on the upper end, quite contrary to the ones from the Marshall Islands. On the lower end, instead of several notches, they each have just one bung on each side, where the actual hook had been attached. They were also made of mother-of-pearl, had holes drilled in, and had no barb. Two blinkers are in the collection of the expedition. They were obtained by Prof. KRÄMER and are termed »money« without any further explanation and correlate with the description of the natives (illustr. 118). Dr. HAMBRUCH also found a binker without a hook during his excavation, though this one does not have an eyelet. Identical blinkers are known from the ruins on Ponape².

These fishing hooks were considered very valuable pieces of money. Unfortunately, I have no information if they were also used for fishing. The missing hole, where the fishing line is attached, seems to contradict this idea. On the other hand, the collection of the expedition has two blinkers excavated by Dr. HAMBRUCH, which seem to belong here, and which people identified as money, as well as one piece of blinker-money from Prof. KRÄMER. In addition to two bungs on the lower end, all three of them have analogous bungs on the top end, where a string may have been attached. The natives also reported that they used locally produced composite fishing hooks made of mother-of-pearl as well as imported Marshallese hooks. Thus, it seems probable that these were such hooks. Because of its rarity, it might have been primarily used as money.

¹ FTNSCH 1893, loc. cit.
On the other hand, the Marshallese hooks also had monetary value and have to be counted among the »fae metmet«, since the composite fishing hook is called ka muäk = »fishing-hook money«.

Further on, the name »fae metmet implies that fishing hooks made of mother-of-pearl also served as pectoral ornamentation (metmet), even though the natives were not able to provide any information about this. However, this is also proven by an observation of LESSON. While talking about fishing, he remarks, »Ils emploient encore des hameçons de nacre, mais très rarement, et plusieurs Urosses en portaient quelques-uns suspendu au cou, auxquelles ils tenaient beaucoup et que rien ne put les engager à céder.«¹

6. muäk ä. This kind did not have a defined form. Maybe they were especially big and thick pieces of shell of the form »fae in Kosa« as well as blinkers of the just mentioned form. These large pieces are identified by name. Usually, they had the name of the person who found them, who worked on them, or of the place where they were found. Pieces from half fossilized shells have an especially high value. This kind represented the highest valued piece of money on Kusae. Even today, the names of these pieces of money are still known. Thus, the following were mentioned to us: Sina-Nemesäl (name of a chief called Sina); Kelofon-Nä (ô); Kefas (name of the grand father of my translator; this piece supposedly was as big as half the lower arm); Sä-Makik (ô); Sä Intä-plos (Φ); Luköń-Kelafa (ô); fæ – Koas (called after the region Koas); fæ Läs (after the region Läs).

Under King George, a woman found such a piece of money on the land plot Koslo, which had been unearthed by crabs. When people started digging, at the order of the King, they found 2 baskets filled with this kind of money. All these pieces circulated under the name muäk Koslo, except for the one found first, which was called Nimen-Jifo, after the women who found it. In the past often a rich man would bury the money he possessed and even his family would not know the place.

The expedition bought one piece of such a money with a name, called »Djualus in bälan« (illusr. 119). The name means »Jaluit the foreigner« (Jaluit in the Marshall Islands). We could not learn why it had this name. Further on, there is a blinker in the collection, which is even larger than this one and which seems to belong to this sort of money, too. The piece from FINSCH, also depicted, is 17 cm long and 6 wide, and one that he mentions, which is 23 cm long and 85 mm wide, also seem to be this sort of money.

¹ LESSON 1839, II, p. 505. [»They still use pearl fish hooks but very rarely, and several Urosse wore them hung around their necks. They clung to these hooks and nothing could get them to give them up.« R. + R. 1982, p. 69.]
7. luo. In addition to these 6 kinds of mother-of-pearl money, there was one other kind of money, called luo. It consisted of rings of shell, the same ones worn as a decoration of the arm during dances. Their value was not very high, although it differed according to the size and thickness of the rings. Besides, there were also smaller rings, which could not be worn as decoration, which only served as money. A broken piece with a dented edge was excavated by Dr. HAMBRUCH in the ruins.

Among the prehistoric excavated pieces of Dr. HAMBRUCH, there are two individual large beads or discs made of mother-of-pearl, which the natives also identified as money. If they belong to the luo kind or represent another kind of money was not determined. By the way, from the analogy of the findings in the ruins of Lölö and those from Nan Madol, we may conclude that Kusae had similarly decorated money-rings like Ponape.

The circulation of money. Money was necessary to buy certain objects. In addition, it was an absolute necessity for the running of a respected household, befitting its social standing. While in barter, goods were used as surrogate money in the small trade, for big trading deals or for important services, it was common to pay with additional money. Thus, the title holding chiefs remunerated the tributes of their subordinates on Ualang with money among other things.

Considering the amount of people necessary for certain services, such as the installation of a field, or the construction of a house, the wall of a compound or a canoe, it was easily possible that the expenses surpassed the fortune of an individual. Maybe this is the reason for a special kind of payment, still practiced today at such circumstances. The days of payment are, at the same time, festive occasions. All people involved, the workers, bring their share of food and support the host with objects of all kinds, which have monetary value, and even with money. It is said that the entire sum of food and money is then evenly distributed in equal parts. It is a question of honor for relatives to participate and they do not get nay payment. For instance, at the occasion of the construction of a house the owner will have 10 Mk. cash and will receive 12 Mk. back for it. And he did not expect more. The profit depends obviously on the size of the fortune of the respective owner of the future house.

Fortune and poverty are unequally distributed on Kusae. So these construction feasts, where the natives want to appear, of course, magnificent, are also a reason for making debts. For instance about one or two years before my arrival, a man had lent a cow to one of his acquaintances for such a feast. The cow had been turned into money and the money was spent. However, the amount had never been paid back. Therefore the concepts of debt »misa« is actually known to the natives. (I owe you na soämoul nasum.¹)

¹ According to KRÄMER.
Due to dealings with white people, local money was soon displaced by the American dollar, and has been substituted by German money recently. Minted money is called with the American term »money«. However, food and objects from local industry still serve as payment.

In the present, the natives, so it appears, have hardly any cash. Even the King seems to have little. This form of economy obviously is still foreign to them. Usually, cash is immediately transferred into European objects of daily use: knives, adzes, scissors, textiles for cloth, needles and thread, combs, pots, lanterns, oil, matches, irons and soap—toilet soap is cherished less for its purpose than for its perfume—sometimes even flour or meat or just rubbish. People love to shop for these articles on a large scale; thus, they will make copra or even sell a cow. In the same way, the means for the big feasts are obtained. Therefore, usually a strong need or an economic necessity forces the native to produce copra on a larger scale. This attitude is not much loved by the traders, who would prefer a continuous rich copra production and who would fare badly without the harvest of their own copra plantation. However, the fact that the natives have only very limited cash is also based on another fact. Except on festive occasions, they rarely have an opportunity to use any money among themselves. The exchange of goods on a grand scale, among the people, the title holding nobility of the former days, and the commercial classes, disappeared together with the old organization of the state just like the culture generally disappeared with the onset of the European goods. Therefore, currently the flow of money is mainly restricted to dealing with the white people. The mission collects »free contributions« to support the church and the school, and, obviously on the side, is secretly in competition with the traders. However, the traders represent more or less the center of trade and finances of Kusae because the entire circulation of money is in their hands. The circulating money mainly originates from here and should quickly, without much loss, return here. Thus, the reasons for destruction of local internal trade among primitive people everywhere, were here as well.

2. Shipping on the Open Ocean and External Trade.

When the Kusaeans came to know the Europeans in the expeditions of DUPERREY and LÜTKE, their own open ocean voyaging was no longer practiced. There was no doubt when looking at their canoes and lack of sails. This is one topic in which the decline of the local culture in pre-European time can be openly observed. Obviously, their own inter-island traffic had lost its appeal. One of the reasons is the isolated location
of the island. Further on, as for the other high islands of the Carolines, the poorly outfitted coral islands in the neighborhood were not much incentive for trading at such a distance.

If we can believe the first expeditions and FINSCH, the isolation of Kusae had come to such an extent by 1825 that they did not know anything anymore about their neighbors and the other islands.\(^1\) »They only knew their own island« and had »no more memory about their own seafaring nor about their origin.«\(^2\) While the complete nautical inability of the natives in those days has been established, we have to doubt the other statements. In fact, both ships, the »Coquille« and the »Senjäwin«, coming from the direction of the Marshall Islands, were addressed by the natives with the Marshallese word »iros« or »urosse« when they enquired about the captain. They did not use the native term for chief when dealing with the foreigners. In the 90 years since those days, the memory concerning their own shipping obviously has suffered some more. Therefore, when questioned in this direction, people denied ever venturing into the open sea and knowing other islands, just as when dealing with the other expeditions. On the other hand, when questioning more closely, a number of memories can be discovered.

**The old geographical knowledge** of the Kusaeans can repeatedly be found in the old legends and chants. Even today, the outer world is termed bälan = »foreign«. Legends and chants transmit the following old names for islands:

- Jibon = collective term for the Marshall Islands; it seems originally it was identical with Ebon.
- Muäe = an island in the Marshals, obviously Uyaë.
- Jeir = »south« at the same time a collective name for the Gilbert Islands.
- Taroa = one of the Gilbert Islands, obviously Tarawa.
- Pünlap = Pingelap; Interestingly tradition from here reports that, in the old days, it was located near Kusae, but when a Kusaean god stepped on both islands and spread its legs, they pushed the islands apart in this fashion.
- Ponpei = Ponape.
- Nasik = Ngatik.
- Jap, Juap = Yap.
- Tona = Tonga-Islands.
- Not confirmed by a direct statement from the natives, a chant or a legend:
  - Djalus = Jaluit. It is in the name of the piece of money Djalus in bälan = »jaluit the foreign one«.
  - Ratak = supposedly the name of an island in the Marshall group from the old times. It definitely is identical with the Ratak Chain.
- Kuram = ?

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\(^1\) LESSON 1839, II, p. 477; LÜTKE 1835/36, II, p. 324; KITTLITZ 1858, I, p. 354.
\(^2\) FINSCH 1893, pp. [453], [478].
These and other names of islands can also be recognized in names of persons and settlements:

- Niponpei = »Woman Ponape«, name of a person.
- Punlap, a settlement in the region Koplā = Pingelap.
- Jibon, a settlement in the region Likiinclolām = Marshall Islands.
- Bikini, a settlement in the region Innem = name of the Marshallese island Bikini.
- Nämo, a settlement in the region koas = name of the Marshallese island Nämo.
- Äköla = atoll Kili in the Marshall Islands?
- Kunjäson, a settlement in the region Likiinclolām = place on Jaluit.¹
- Mot, a region in Ualang = Mo, an island in the Mortlok group?

Among the first visitors, LESSON believed he heard three names of islands, though he cites them with reservation:² Haät, Nécat, and Nun-Monsol. Of these, the last is definitely not an island, more like the name for »harbor«. Whether both the other names are for real islands remains to be seen.

With our list of island names we first contradicted the opinion of earlier authors. Therefore, it is all the more surprising that the geographical horizons of the old Kusaeans actually stretched quite far, all over Micronesia and all the way to central Polynesia. At first, we could doubt that Jap = Yap and Tona = Tonga. That Yap is the seat of the Kusaean gods, just as it is for the Central Carolinians testifies for the correctness. Furthermore, he fact that in the tradition the mountainous character of the island Yap is pointed out twice. In one legend, a mountain in Yap is mentioned and, in one chant, it is said that »Jap seik« = »Yap is inclined« or »on the edge«, a very descriptive picture for the course of the crest line of Yap. For the assumption that Tona = Tonga, there are no proofs. However, first, tradition places it in the south and. Second, the knowledge of Yap, despite its far distance, may be proof of it. Finally, the cultural circumstances of Kusae, with their Polynesian and Micronesian elements could be a hint.

**Long distance journeys.** In addition to the indirect testimony of the island names for former long distance journeys, local tradition also has direct proof in their legends, as far as they deal with journeys to other islands. Accordingly, the motives were the same as the ones of the central Carolinians today: Family relationships, war parties, and religious dependencies. Legends talk about a visit of relatives in the Marshall Islands, in the Gilbert Islands, on Ngatik and on Ponape. 1 big national legend glorifies a fortunate warring trip against Ponape and, in another legend, the visit of the breadfruit goddess Sinlāka is reported. But, we learn nothing about trading trips in these traditions.

Finally, testimonies of other islands confirm the old tradition of open sea trips

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¹ According to statements of known Kusaeans on Jaluit.
² LESSON 1839, II, p. 493.
of the Kusaeans. As can be proved, their ancestors went all the way to the Central Caroline Islands where their descendants are still considered immigrants from Kusae. According to my data from Puluwat, the western outpost supposedly is Ifaluk. In the warlike Puluwat, the immigrated Kusaeans are not only one of the oldest, but also of the noblest, families. They are called Saupolowat = »the people from Polowat«. Their origin is secured by the fact that some extended family in Ruk, to this very day, still has the name Āau = Kusae. Further on, GIRSCHNER reports in his monograph about the island Namoluk. »In the old days the inhabitants of Kusea must have been great seafarers. Tradition reports that they formerly visited Ruk, actually the island Wele, on a regular basis in their big canoes. In those days they used the entrance called Taulalap. The Mortlokese also affirmed that, in former times, people from Āau or Kaūau had come to Moō through the entrance, which is called Tau en Adau or Kadaū according to them. The inhabitants of Polowat trace their origin back to lost people from Kusae, as I was told by the chief of the island. And on Ifaluk, people supposedly still speak Kusai. In Ponape, there is also a legend that, in former times, the island was attacked and conquered by 333 people from Kusai. Here Kusae is called Kusai, Koto, or Katau.1

One other question is how long the visits of foreign natives lasted on Kusae. The Kusaeans only knew one, which happened in modern times. Under King Aoā Neoa (1856—1858) 5 Marshallese canoes came to Kosae with the »King of the Marshall Islands« on board, supposedly for warlike reasons. But, a longer journey at sea finally brought them to their goal famished and completely exhausted, so that they abandoned their warlike plans. Written sources acknowledge the statement of the natives on the time and the amount of canoes1: However, according to them, these were 5 lost Marshallese canoes with about 100 people, men, women and children, who arrived in Kusae after a 15 day odyssey. They built new canoes and left with four canoes for the Marshall Islands on August 18. Three men who stayed with the mission, were returned home by the »Morning Star«.2 Despite the lack of other examples, the Kusaeans still know that Marshallese visited their island for trading reasons, actually to pick up breadfruit. In recent times, the Gilbert Islanders did the same on trading ships and whalers. Further on, the detailed occupation with the material culture showed that different things were obtained by trading with other islands. Thus, red shell beads, together with fishing hooks used for fishing and for money, came from the Marshall Islands and from the west, fishing hooks used for money only in form of blinkers. Dancing drums came only from the Marshall Islands. Probably sennit cord

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1 BAESSLER-Archiv II, p. 129, footnote 1. The statements of GIRSCHNER concerning Polowat and Ifaluk are tested for their correctness in a special report.
was also among these trading articles due to its scarcity on the island and the great amounts which were used.

Thus, it seems the passive trading connection of the Kusaeans had already ended in pre-European times. According to GIRSCHNER, the Mortlokese and Namoluk Islanders had already given up their trips to Kusae for a long time. I myself, did not hear anything about trips from the Central Caroline Islands there. On the other hand, it seems that the passive external trade of the Kusaeans lasted much longer than the trips abroad by the Kusaeans. The fact that the name of the islands is well known over the entire Carolinian chain testifies to this. People even still knew the imported articles, without this knowledge being incorporated in legends. Actually according to one testimony it lasted all the way into the beginning of the 19th Century. The young English man FLOYD, who had been picked up by LÜTKE on Murilo, recounted that 5 years prior to his arrival—he stayed about 1 1/2 years—a Rua canoe had drifted to Ponape. From there it went, together with Ponapean people, to Kusae to trade for roots for red dye, mats and woven belts. Of all these articles, the yellow root, very important for the rest of the Carolinians, was probably the most cherished article, especially as it was not used in Kusae to paint the body and little used otherwise. Maybe, because of this, Kusae was a similar trading center for yellow root, in the old days, as Ruk is it today for the neighboring coral islands.

Although this is no proof that the Kusaeans went on trading trips of their own, we still have to count this motive for open ocean sailing, especially as it is established that trade connections existed with the Carolines and the Marshall Islands in former times.

Drift voyages. Just like on other islands, people on Kusae can tell about intentional sea journeys as well as about unintentional ones, involving local and foreign natives.

There is only one example of lost Kusaeans known from the European time. Once upon a time, 4 natives going in a European boat from Utua-Harbor to Lölö-Harbor, drifted on the equatorial counter current to the east, and nothing was ever heard from them (according to KRÄMER).

On several occasions Marshall Islanders drifted to Kusae.

One example from the year 1856 was already mentioned.

Already under King George (1837/38—54), several Marshallese canoes once drifted from Ebon to Kusae. Also the King could tell of 4 other incidents in his youth, also involving Marshall Islanders.

Also, under King George, 2 people once drifted in their canoe from Pingelap to here.

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1 BAESSLER-Archiv II, p. 183.
2 LÜTKE 1835/36, II, p. 323.
3. Remaining Nautical Knowledge.

Of course the old nautical knowledge has long been forgotten. The names of stars and the compass card can be considered the last remains.

Names of stars. LÜTKE already handed down the names of some stars to us.\(^1\) Some of them are still known today.

According to

<table>
<thead>
<tr>
<th>KRÄMER and SARFERT</th>
<th>LÜTKE</th>
<th>KRÄMER</th>
<th>LÜTKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>näisren</td>
<td>Neasbiren</td>
<td>Morning star</td>
<td>Sirius</td>
</tr>
<tr>
<td>itu näko</td>
<td>—</td>
<td>Evening star</td>
<td>—</td>
</tr>
<tr>
<td>tumur</td>
<td>Tomor</td>
<td>Southern Cross</td>
<td>Venus?</td>
</tr>
<tr>
<td>Kokaen</td>
<td>Kokoan</td>
<td>—</td>
<td>Archanar</td>
</tr>
</tbody>
</table>

numomla ta (nuomlata according to KRÄMER)

<table>
<thead>
<tr>
<th>Saforo (safero according to Kr.)</th>
<th>Saforo</th>
<th>Plejades</th>
<th>Plejades</th>
</tr>
</thead>
<tbody>
<tr>
<td>itu pusapas</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

muis enanen (mus ananen according to Kr.)

| — | — | Milky Way | — |

The meaning of individual names of stars:

kokaen = sea eel (according to KRÄMER and SARFERT).

numomla ta = two stars which are regarded as two sisters (according to KRÄMER and SARFERT). According to LÜTKE, these are the 4 main stars of Orion, which are considered to be 2 couples.

itu pusapas = »the star that steals«. It is chased by a greater number of stars, from which it stole the harvest. As soon as a heap of stars becomes visible the thief disappears on the western horizon.

muiс enanen from muis = half a year from March to August and enanen = half a year from September to February. Connection?

According to KRÄMER the compass card of Kusae indicates 8 directions:

<table>
<thead>
<tr>
<th>N = iepan (äpan according to LÜTKE(^1) épan)</th>
<th>S = äir (air, SARFERT eir, LÜTKE eir)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO = Kata äban</td>
<td>SW = rotaäir</td>
</tr>
<tr>
<td>O = Kataläb (LÜTKE Kotolap)</td>
<td>W = roto (LÜTKE rotto)</td>
</tr>
<tr>
<td>SO = Kataäir</td>
<td>NW = rotaäban</td>
</tr>
</tbody>
</table>

Further remains of former open ocean sailing are the constellation of the pala and the legendary figure, Nikon.

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\(^1\) LÜTKE 1835/36, II, p. 374.
\(^2\) In the Central Carolines »tumur« and in the Marshall Islands »tümur« = Antares.
\(^3\) LÜTKE 1835/36, II, p. 374.
4. The Canoe.

The loss of open sea voyaging naturally affected the canoe (oak, oääk). Already at the time of DUPERREY and LÜTKE, it was reduced to a light vehicle to be used in the lagoon. The first Europeans especially observed that no sails were used, as this is rather rare in the South Seas.\(^1\) The loss of the sail is obviously connected with the characteristic of the reef and the importance of reef fishing, both making the sail obsolete. At any rate, in those days, the natives were not yet the distinctive land-lubber as they are today, where they never go beyond the lagoon. The »Senjiäwin« repeatedly received visiting canoes while she still was on the open sea. One day, when it had drifted about 12 miles from the island, 3 canoes had the courage to come.\(^2\)

Even though the canoe was mostly destined to be used in the lagoon by then, the statement is interesting because the canoes’ regression was not yet complete. Then, a different canoe was used than the one used in the present. It still resembled the old open ocean sailing canoe in certain traits.

**The old form of a canoe.** We have several depictions of it.\(^3\) These depictions show discrepancies in certain respects. The ones of KITTLITZ, LÜTKE, and DELLESSERT give the impression of quick sketches, while the ones of DUPERREY is distinguished because of its precision. The last ones also correlate with the model, made for me following the instructions of old people. Although, according to the statement of the King, it did not turn out quite correctly. Further on, there was a second model in the Museum of Freiburg i. Br.

The characteristic traits of the old form are, according to the old descriptions,\(^4\) the following: slimmer, smaller, lighter body, the keel angles sharply towards the bow and towards the stern, at nearly right angles; high upper parts on the bow and the stern to separate the waves, carved on the top, similar to the upper parts found in the Central Carolines, but they do not have their expressive form of a tail of frigate bird. The walls of the rest of the hull were specially raised by planks. They had a strange and complicated way of attaching the swimmer on the straight outrigger.

Concerning details we want to mention the following:

- It was constructed from the wood of the breadfruit tree.
- Underneath the carving of the upper part of the bow and the stern, there was a bulge, considered the seat of a god who is no longer known today.

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\(^1\) Compare also KITTLITZ 1858, I, p. 356; DUPERREY 1828, II, 1, pp. (637).
\(^3\) KITTLITZ 1858, I, p. 353; LÜTKE Historischer Atlas, Taf. 22 and 23, DUPERREY Hydrographischer Atlas, Taf. 49, No. 14—17; DELESSERT, p. 298.
\(^4\) Compare especially LESSON 1839, II, pp. 502; LÜTKE 1835/36, I, pp. 368; KITTLITZ 1858, II pp. 15.
IV. TRADE AND SHIPPING.

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Special loops made of string were attached for the paddles and the pole on the outrigger side of the canoe.

The individual wooden parts of the body of the canoe were lashed together with string.

Warmed resin from the breadfruit tree (ful; according to LESSON «pouasse»), red earth color (lap), lime (fas), and the boiled and pounded fruits (nukor) of the sekasek tree, were used for caulking.

Anything available was used, even breadfruit meat to close a suddenly appearing leak.

All parts of the canoe, except for the platform made of reed, were painted with red colored earth (lap) and oiled over so that they were shining. The upper part of the board and part of the upper side of the frame of the platform were decorated with ornaments made of notches, painted with white lime. All lashings of the canoe parts were ornamental and made with yellow (natural) and black dyed sennit cord.

The canoes were very carefully worked and were a clean and beautiful sight because of their coloration and ornamental lashings. Only the small ones were carelessly made. According to LÜTKE, the big canoes of the chiefs were 25—30 feet long, only 1 1/2 feet wide, and seated 8—10 men. These big canoes for the chiefs were not called oak but oroso.

The illustrations and the following overview of the individual parts offer more detailed information about the construction.

inkän oak (from inkän in oak) = «body of the canoe», the hull of the canoe, made from one piece.

läle (= «to extend a cavity by adding a part») to heighten the middle walls of the hull by adding planks. According to LÜTKE, it added about 1 foot at the bigger canoes.

matan oak = «eye of the canoe», the upper parts of the bow and the stern, heightened the walls of the hull a certain length.

alin muon = «beak of the bird» the carvings at the upper part of the bow and the stern.

Silat, sharp part of the keel.

bab, the thin lath that formed the edge of the board. It was ornamented on the upper side.

lua, sitting benches set in-between the bab and the läle or the matan oak.

sirät, the loops made of string on the side of the outrigger where paddles and poles were kept.

küäs, the outrigger poles.

küä, the platform.

sekan küä = «poles of the platform», the wooden frame, also ornamented on the upper side.
Illustr. 120 a—d. Different views of the old canoe according to DUPERREY.

2. The canoe in the year 1827/28. 
   According to Lütke.


Publishing house: Friederichsen & Co., Hamburg 
Printing by Knackstedt & Co. Hamburg
ba, the floor of the platform, made of reed.
em, the swimmer.
badit jem, the small attached ends of the swimmer that are bent upwards.
silenfon, the connecting poles in-between the two outrigger poles, each one connected one outrigger beam to the swimmer. They were not inserted into the swimmer, but were lashed to it.
lok, 4 pairs of sticks, formed in an obtuse angle, served as an attachment to the swimmer (lok = »bend«) (plate 35, 36 and illustr. 120).
soa, 2 sticks formed like an arc, for attaching the lok-pieces with the outrigger poles.
sosö, a string, vertically attached, from the swimmer to the end of the outrigger poles.
akok, lashing the canoe parts to each other.
aïo, the ornamental bindings of the other parts.

Despite the leaking of the canoes, which caused a sympathetic smile of the whites, and despite it being mostly used in the lagoon and the lack of a sail, its form still betrays its origin from the old ocean going canoe, which might have just been built more sturdy. At the same time, it shows a close relationship with the Carolinian forms, which KITTLITZ already recognized. In this connection, the remark of 2 Kusaeeans who had lived several years on Chuuk and Yap is noteworthy. According to the tradition of these islands the open ocean going canoe of the Central Carolinians, with its frigate bird like upper part on the bow and the stern, supposedly originates from Kusae. At the same time, the name of these carvings, known in Kusae as »beak of the bird«, like those for the bow and the stern as »canoe-bird«, sheds light on the development of this part on the central Carolinian open ocean voyaging canoe.

At this point, we also want to remark that there are two pieces in the collection of LÜTKE in Pertersburg, with the attached comment »upper part of the canoe? rudder? of Ualan«, one being depicted in illustr. 122. If one of the two interpretations fits—any other one is hardly imaginable—then it probably could only be the first one. Nevertheless, this piece differs so greatly from the upper parts of canoes, as shown in the above illustrations—of course it could
also only be half of the upper part—so that this interpretation also seems hardly possible. Thus, just for the sake of completeness, we are referring to them here.

According to information provided by the natives, in former times, there were no different canoe forms. LÜTKE, too, states that the small canoes were similar to the big ones in all parts. However, there are circumstances, which create doubts about this: the lack of carved upper parts on bows and sterns in the illustrations of LÜTKE, the simple attachment of the outrigger according to LÜTKE, KITTLITZ, and DELESSERT, the special name oroso for the canoes of the chiefs, and one remark of KRÄMER while working on language, that the »beak of the bird« was only on the oroso. Therefore, it cannot be ruled out that only the canoes of the chiefs had safeguarded the old form of the open ocean voyaging canoe, while the other ones were already made simpler.

As soon as the canoes of the chiefs were used, there were identified with a specials sign on the bridge to the outrigger. It was a four sided upper part, shaped like a pyramid and called palpal. It was made of thin sticks, with alternating small white and brown shells attached, so that the entire structure seems to consist only of string and shells.\(^1\) Besides being an emblem, this upper part also served to protect any food carried on the canoe and covered by it.

**The modern canoe.** It was developed about 50—60 years ago, for a simple reason, that the old form was »too much work«. The natives deny that the new form was based on a foreign form. However, we suspect that the form of the bow and the stern show Hawaiian influences (by the mission) (illustr. 123). Further on, this modern canoe is a tremendous simplification and change from the old one. FINSCH only came to know the modern canoe. He also did not realize the difference in the older form when he compared it with the old descriptions and illustrations.

The characteristics of the modern canoe\(^2\) are: its purpose as a pure lagoon vehicle, according to its construction and its use; its hull is no longer heightened by a plank;

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\(^1\) Concerning this, see also DUMONT D’URVILLE in RIENZI II, p. 151.

\(^2\) Compare FINSCH 1893, pp. [478] and illustrations in HERNSHEIM pp. 52/53.
and a restricted, small edge of the board or raeling; a lack of the old upper parts, with their carvings, on the bow and the stern; different height and form of the stem and the stern post; red color of the canoe, white color of the edge of the board; simplification of the outrigger and its attachment; these parts are no longer colored red; and no more decoration or ornamentation.

Form and construction can be deducted from illustr. 123 and from the additional mention of different parts.

umua, the front half of the canoe with the raising bow.
muon oak (according to KRÄMER), box (obviously from muon in oak = »canoe bird«).

unoäk, back end of the canoe.
mangsas, stern (according to KRÄMER).
Kabenak, floor of the canoe (according to KRÄMER); literally »the one behind the canoe« (kap in oak)
bab, raeling (according to KRÄMER).
baraf, wooden board on the outrigger poles in the canoe (according to KRÄMER).
palpal, wooden board that replaces or elongates the bridge (according to KRÄMER).
lok, 4 forked pieces of roots from stilt mangroves, for attaching the swimmer.
aptenbal, two horizontal sticks for attaching the before mentioned ones.
sosö, three vertical connections made by string between the swimmer and the before mentioned cross sticks.
kavok, anchor (according to KRÄMER).
oänikuik, rudder (according to KRÄMER).

The canoes of different sizes have no names. People only talk of big or small canoes. The European boats are called, according to KRÄMER, räoa, ships as oäk bälan = »canoe of the foreigners«. We also have to mention that rafts have always been known, according to KRÄMER, they are called bak.

Accessories: In former times the locomotion of the canoe, as well as of the modern canoe, was almost exclusively accomplished by paddle = oa and pole. The first is still the same as in ancient times, ca. 1,50 m long, with a long lancet like blade and a subtle midrib, disappearing in the middle of the blade and reappearing at its end, to form a blunt point. It is colored red (illustr. 124).
The sail = nes has recently been reintroduced by Europeans. At any rate, it is questionable if the word still originates from the old days. FINSCH mentions that, in former times, the natives sometimes used sails made of bunches of big (about 2 m long) taro leaves as a sail, which he himself saw being used. I also observed the use of a coconut mat for this purpose. The word for mast = goisu is obviously also not of recent origin. Also, in the present time, the sail is seldom used. At the time of FINSCH there were some of quadrilateral form, made of linen. Now there are only those of triangular form, with 2 yards in use. The mast stands in the hole of one of the canoe benches in the front and is held up by some ropes (söl).

The bailers = änom are made of wood and they are the same as in the old times (illustr. 123). One bailer, in the collection of LÜTKE in Petersburg, has carvings in the form of fishes on the surface of the back end of the handle.

Canoe houses = imon oak (= «house for canoe»). According to the information of the natives, they always existed. However, they have always been rare. In the old sources we hear nothing at all about such houses. In the villages, the canoes were hung in the gable space of the village house instead.¹ The chiefs in Lölo stored their canoes in the space of the gable of their cooking houses. KITTLITZ reported this about the chiefs Sikera and Sipa.² According to FINSCH, during his time, there were no canoe houses, »usually the gable of the houses is used for storage«. This manner of storage is no longer practiced and it is no longer possible, as the modern cooking houses are nearly always closed off and no longer have removable walls. Even today, canoe houses are extremely rare. In all of Lölo, there was only one canoe house. Mällam settlement had several of them and some were found in other hamlets. They are big structures with gable roofs and without any walls (plate 35, 3).

The usual way of storage is to pull the canoe up on the beach, where it is left covered with coconut fronds, or it is placed with each end of the keel on a heap of stones or on a pole rammed [into the ground]. Strangely enough, in the old days the regions Wukat and Läl could only store their canoes on the ground, due to a restriction (tabu) of the god Nösünsap.

¹ DUPERREY 1828, II, 1, p. [638].
² KITTLITZ 1858, II, p. 46, 49.
Landing places. Even today in Lölö you can see big quadrilateral landing places filled with stones, extending from the beach out into the sea. They served as landing places during high tide. At the time of CHRISTIAN (1896), there seems to have been quite a number of them (plate 35,3). Remains of similar landing places, constructed from huge basalt boulders, could sometimes be encountered in Ualang. They seem to have been common in the areas of mangroves. The stone lined shores along rivers and the mangrove coast seem to have served the same purpose of a comfortable landing (compare pp. 32, pp. 41).

The canoe builders = met sola. In former times, they were a class of artisan on their own who handed down their skills within the family. They shattered attempts of competition from others by magic (änütnüt). According to the belief of the natives, they thus killed their competitor and let his canoe smash into pieces. At the present time, each man is his own canoe builder, as the simplicity of the vehicle does not require special skills and no special ceremonies have to be observed. Any memory of special ceremonies has been erased. Special working chants (bas) were common when pulling down the felled tree trunk. The met sola reciting more than sang and, at the end, everyone started pulling at once. See, under chants for examples of a greater number of such chants. Just like today, when helpers were employed, the construction was ended with a special feast (kofen oak) for the met sola and the other workers.
V. House, Compound, and Village.

a) The House.

Kinds of houses. The word for house is the Polynesian, lom. We also have the Malayan-Polynesian form, though only in the connection with combinations, such as imon sias = »working house« or »likin im« = »outside of the house«.

Each household consists of at least 2 houses:

1. imon soas = »the house of work«. This is the dwelling house of the family, where the married couple, the smaller children and the adult daughters lived. Especially, the woman is nearly always in this house. In former times, a man had several women and built such a house for each of them.

2. unum (obviously from im in hum = »the house of the earth oven«). This is the cooking house, which formerly was an exclusively a men’s house. Here the bigger boys and the adult sons slept. When the last ones were married, they slept in the »imon soas«, in case they did not have their own dwelling house.

Special houses of this kind served also as village houses. Every chief had an especially big unum, which was called lom elap = »big house«. Even today, the cooking houses are usually bigger, though technically not as well built as the dwelling houses.

In former times, the big households of the chiefs also had other houses:

3. imon foko = »house for cooks«, the dwelling house of the cooks and servants (tetafbo) and their families.

4. imon taman, »the house for the children’s male and female guards«.

5. imon gogo = »the house of babies«. Here, the smallest children were under the constant care of male or female guards.

Further houses are:

6. imon mäsük, the house for menstruating women and girls. Today they are no longer in use. Formerly each chief had one in his compound for his women, otherwise, each village had one.

7. imon pötäta, the house for pregnant women and for birth. They were only erected when needed and supposedly were only common for chiefs.

8. imon oak, the canoe house, see p. 230.

9. imon lölap, »the house of bachelors«. These are the houses where young men spend their time and had fun. In the old days houses like these were not known, but now there is one each in Lölö, and in the villages Málam and Matante.
Another kind of house was: imon eton = «house for fire wood». KRÄMER also mentions imon mono = «house for food», storage house. People also talk about imon pik = pigsty and imon muon = chicken shed.

In the modern times, the architectural style has undergone some change, which was not to its advantage. Abandoning the old architecture means not only the loss of a characteristic feature of the local culture, but also a decline from a notable technical achievement. It is rather remarkable that the natives themselves call their old architectural style mesa oa = «good architecture». The modern style, mesa in jeîr = «style of the south», developed in European times and supposedly was introduced by the Mission. FINSCH still describes the old style, and CHRISTIAN, too, still found it here and there. At the time of the Hamburg Expedition, there was not a single house in the old architecture left, but the expedition caused a cooking house to be erected on the old style once again, which Dr. HAMBRUCH saw finished when he came back to Kosrae. Hopefully this will not be the only example.

The old architectural style. We have good depictions of it in DUPERREY’s historical alas, plate 53 and in LÜTKE’s historical atlas, plate 18. The most characteristic feature was the high and steep roof with its ridge shaped like a keel, the like no longer exists in Micronesia. In addition, the construction of the building, just like the old canoe, distinguished itself because of its surprising elegant architectural style, and because of its complicated construction of the roof, rich decoration, and ornamental bindings. This was especially the case with the houses of the chiefs, which, according to LESSON, did not show a piece of wood that had not been painted red, black or white (plate 37).

The foundation of the house was a rectangle, called puälan, which consisted of long basalt slabs, and which was not filled in. This was not mentioned in the old descriptions, probably because it was partially covered by the artificial floor etc. Also, a taboo of god Nösünsap required the regions around Wukat-Harbor to built directly onto the ground. Even today, old settings of houses in Lölö and Ualang are marked by such stone rectangles. The supporting posts for the roof were inserted into the ground on the inner edge of the stony rectangle. The wall posts were inserted in a layer of beams that rested on the foundation itself (illustr. 126).

The description below follows the model of an old dwelling house that had been constructed for the expedition (illustr. 127).

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2 LESSON 1839, II, P. 481 seems to make a remark concerning the foundation of a house during a visit of Lölö: «Les cabanes élégantes de ces insulaires bordés les rues sur des terrêtes élevées» [the elegant houses of the Islanders bordered the streets on raised mounds; R. R. 1982, p. 53] and KITTLITZ’ sentence, 1858, II, p. 49 about the compound of the title holding chief Sipa. «This one is set in such a fashion, that the humidity has a drainage to all sides, a precaution which we also always noticed at the individual houses on Ualang». 
Illustr. 126. Base of beams of the old house including the floor and the fire-place.

Illustr. 127. Model of the old house (Sar.1380) the shading represents red colored parts. \(\frac{1}{4}\) of its original size (collection Sar. 1380).
1. In the compound of the title holding chief Sipa, in the year 1827/28. According to Lütke.

2. Village on Ualang, in the year 1824. According to Duperrey.
The roof = faso protruded on the sides of the gable, although it did not hang over at the long side. The gable sides had a special porch over the actual wall of the house, with a sort of protective roof, called eob.

1. eol (= »mountain«), the middle section of the supporting posts for the roof (illustr. 126 and 127).
2. su, the exterior sections of supporting posts for the roof.
3. kailäp, longitudinal beams, resting on nr. 2.
4. lala, crosswise beams.
5. folo, both the lower ridges.
6. sako muän, the upper ridge.
7. bok mos , the lower layer of rafters
8. sak bas, the cross wise rafters.
9. esük, the upper layer of rafters.
10. sekan im = »stick of the house«, the crosswise stick at the end of the scaffolding of the roof, at the eaves. It was colored red.
11. kesis, first rafter of the gable’s roof, it was colored red.
12. inwuä, second to the fifth rafter of the gable’s roof. They correspond with nr. 9 of the rest of the roof, but they were colored red.
13. rufsi tu, 2 crossed poles on the gable, they were dyed red (tu = »stand upright«).
14. rufsi petök, the horizontal rafters of the gable at nr. 13; they were colored red (petock = to turn in 90°).
15. jön Kosa, diagonal poles under the scaffolding of the sides of the roof (kosa = Kusae).

The roof was thatched with mats (faso) made from the leaves of nipa palm (faso). The leaves were hung over bamboo and sewn on with tok in uot = strips of bark from the mountainous bush with the same name, probably rotang (uot = »mountain«). This was accomplished without any needle, simply by pointing the strip and drilling it through the leaves. Along the ridge there were special ridge mats = sao.

The wall sinkä was low. The one on the gable side over the canopy had the special name poen, usually it was
colorfully ornamented. The walls of the cooking house were walls that were simply fitted in, they could be removed as needed. Parts of the walls are:

16. koa susu, post of the wall, they were colored red.
17. fulo in sinkā = »ridge of the wall«, crosswise slat, colored red.
18. tofot, thin vertical sticks , with were bound to nr. 17. They are missing in illustr. 127, but see illustr. 128.

The fillings of the wall = bab (nr. 19 in illustr. 127). It consisted of halved hibiscus sticks, which were bound horizontally, and with the curve outside (illustr. 128). The decorated boards already looked already brightened by nature, but usually they were painted with lime.

The binding = aïo of all the parts of the house was done with sennit cord. All important beams of the scaffolding were connected with a binding of yellow (natural) and black dyed sennit cord in such a way that usually diamond shaped ornaments (sem = »design« were fashioned (illustr. 129).

Often, the cooking houses were supported against the danger of storms by special poles, called malsāf, along the long side and fastened to the kailāp-beams.

In the dwelling houses and in the cooking houses of the aristocracy, the floor = ba consisted of bamboo tied together. They rested on the stone foundation so that a cavity was created underneath the floor (illustr. 126). Around the outside of the dwelling houses of the chiefs there was a wide stone pavement covered with rubble
and sand, on top of which there was also a floor made of bamboo poles, called ba likin (plate 37,1). The cooking house of the chiefs had a wide stone pavement, sesot, without a floor on the front side, where the subordinates put down their tribute of fruits etc.

Among the aristocrats, the interior of the dwelling house was separated by a crosswise wall (fokil) into a front room (tafon im tok) and a back room (infokil or tafon im met), which were connected by a door. It had the same height as the walls of the house and just like them, it was built from bab-boards. The back room supposedly was destined for one of the marriage partners in case of sickness. The front room was the living and sleeping room of the couple and smaller children. At night the married couple erected a transportable wall = seleti made of aerial roots.

On each side, the front room had a door (sanal) and, indeed, two big doors (matan oäoa). The front part of the room is called eob, the left one gadem sisik and the right one gämuän. The aristocracy also had, in the front, on the right side, another small door (oa meme), which the servants had to use.\(^1\) In the middle of the room was a small fireplace, which only served to provide light and warmth. For the last purpose, the servants of the aristocracy had to tend it all night long.

The interior of the cooking house was also separated into two parts by a seleti = wall, the front room = eob and the back room = insüs. For the aristocracy, the floor was made of bamboo all around and in the middle of each there was an earth oven. In chiefly families a special cook cooked for the family in the back room, while the cooking for the servants was done in the front room. During feasts, the back room was the main kitchen, but fafa and kava was prepared in front of the eyes of the guests in the front room. Therefore, the basalt pounding slabs for fafa and kava were located here. Each side of the front room had once again a door, the right side also had two small ones for the servants. The big door on this side was only meant for the head of the household and high visitors. The right corner of the front room was called folkil aoä = »corner of the King«. Here was the place of the head of the household and of the guests. According to LÜTKE, here, on a special rack, lay the »stick of Nönsüsinsap«, shell trumpets, kava leaves, and a big axe. There was no other lighting of the houses, other than the fire of the hearth.

The furnishings and fittings of the houses were scarce. Those of the cooking house have been mentioned earlier. Here we want to add that, according to KITTTLITZ, a decorticated tree trunk along the wall could serve as a sitting possibility. Further on, sitting mats were part of the furnishings, because people never sat directly on the floor. Usually, they were kept on a shelf (according to KRÄMER fenfo).

In the dwelling house, the furnishings consisted of small drop ceilings (toto), hooks

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\(^1\) In illustr. 126 the doors are not correctly depicted.
(aluet), sitting mats, and finally beds. The last ones (according to KRÄMER, kuilos) were plank beds along the wall, made of bamboo poles tied together. According to KRÄMER, an old rolled mat served as a cushion. Following a taboo of the god Nösünsap, the regions at Wukat-Harbor were not allowed to have beds, but had to sleep directly on the ground on their mats.

The modern architectural style. It is by far simpler and less artistic than the old one, characterized by a straight ridge, a rather flat roof with a simple construction of the scaffolding, no more projecting roof on the gable sides, no painting and ornamental bindings, and no special veranda around the dwelling house. Nevertheless, concerning the technique, there are still some features in common with the old architectural style, such as the foundation made of stone, the layer of beams on top of it, the main parts of the wall and roof scaffolding, the filling of the wall with small boards made of hibiscus wood, and the floor made of bamboo (plate 38,2). Today, the stone foundation is mostly made of coral blocks, which are hewn, with the help of European axes, into real ashlar blocks. These stone foundations are seldom higher than one layer (plate 38). In the region of Matante there was one case where the foundation rose to a complete massive platform made of basalt stones as high as a man (plate 39,2). At the time of FINSCH, the dwelling house of the King was situated on a similar platform (plate 39,1). These platforms supposedly are foreign to the island.

Today, the roof only has a few rafters and only two ridges (plate 38,1). The wooden posts are now mostly quadrilateral. The filling of the wall is no longer attached to a special frame, but simply inserted into the pillar of the wall. There are also walls, as well as floors, made of European boards (plate 40). Floor-boards are now rather rare in the cooking houses.

The veranda is a very simple construction. Its roof is discontinued from the roof of the house. Its floor is also made of bamboo or boards and raised above the ground, by placing the floor onto a special second rectangle made of stones surrounding the house.

While the inner room of the cooking house is not separated, in the dwelling houses, it is often divided into a living and sleeping room by a wooden board. Usually, the bigger sons also sleep here.

Of course the furnishings now have partly a European touch, although chairs and tables are nearly always missing. Light is provided by kerosene lamps.

The construction of the house. We still have to say the following about the construction. Despite the size and the excellent technical execution of the old houses, there was no construction guild. Even today, you hire just a few friends as helpers, for the small houses, not more than 2—3. In former times, the number of workers was, of course, respectively higher.

In former times, before the construction of a new house, the chiefs sent special envoys around the main island Ualang. They had to collect a necessary amount of sennit cord in the villages. This tour was called sufo.
Even today the construction starts first with setting the stone and beam foundation, then erecting the scaffolding of the roof and of the wall. Finally, the roof is thatched and the walls filled. According to an old custom, the four corners are distributed to one man each, called tutusu, who compete against each other, with the help of their workers to finish their part first.

Formerly, when the roof is first thatched, the tutusu says a special working chant, called »amelä«. We could only collect this one as an example:

- Süb siken im! Fasten the lowest crosswise rafter!
- Gāl sakoi muän! Grab the top most ridge!
- Dale afle! u! eä! Thatch, thatch the roof! u! eä!

Although the construction workers received food regularly from the person who is having the house built, special feasts also celebrate the construction. In former times, there were no less than five of such house-construction-feasts:

1. kofen amas, the day when the posts for the roof are erected.
2. kofen kiluf, day when the rafters are attached to the roof.
3. kofen fas , day when the roof is covered with mats.
4. kofen bat, day when the foundation made of beams is laid for the scaffolding of the wall. This was the biggest feast. It was dedicated to the housewife, according to the natives’ opinion.
5. kofen soas, day when the walls were filled and the construction was finished. At the same time, payday for all who had helped with the construction.

In the present time, only the 3. and the 5. feasts are celebrated, with the most food during the first one. Not only each worker, but also friends and relatives of the person who had the house constructed, participate at payday. In doing so, people do think less of their own merit, but with helping to work and with contributions of money and valuables they build an obligation for services in return, when they build their own house. The feast is for the participants, though only the workers receive payment. The owner of the house pays the 4 tutusu and they, in turn, distribute what they have received among their helpers. The owner of the house pays the tutusu separately by giving them each a saki-mat with contents. The participants of the feast take the left over food back home.

2. The Compound.

The living arrangements have the character of a compound settlement with the household distributed in at least 2 houses. This character is further enhanced where a common wall encloses the houses.

It seems that this last criterion has never become a dominating tradition on Ualang.

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1 melā=quick. 2 Actually sekan im. 3 Actually sak muän.
However, LESSON’s statement, that the gardens surrounding the houses were enclosed by fences of teminalia, can be understood in this sense.\(^1\) KITTLITZ, too, mentions these living fences.\(^2\) Regarding Lölö’s walls of the compounds, he also remarks that he had observed similar ones, though on a smaller scale, in other villages, especially in Läl. He says only that in the plantations each individually owned plot of land was surrounded by low basalt walls in the plantations.,. When describing this village.\(^3\) In addition, I observed ruins of low walls of compounds in the region Koplö and on the reef island, Melak, in Utua. By the way, this tradition is no longer observed in Ulang. On the other hand, it still is customary on Lölö to surround the houses with a rectangular low wall made of coral slabs, about as high as a man (plate 8 and 37).

\(^4\)When building the wall of a compound = pot, ample food is prepared for the workers every day. It ends with a special feast, which also is payday, and which is called kofen pot = »food for the brick layers.

In the old days Lölö was much more of a compound settlement. The compounds of the aristocracy, of the title holding chiefs, were especially well built. First, because of the massive walls, which consisted of basalt blocks in many cases, on the other hand, because of the many buildings, which were in them, and also because of the division of a compound into individual yards by low crosswise walls and fences. In relation to his visit in Lölö, KITTLITZ says: »Here all apartments are surrounded by garden walls made from basalt blocks. Although, admittedly in comparison, what we see here we have already observed, though on a much smaller scale, in other places, namely in Lyäl. Small, because of the frequent rain, very muddy lanes lead, like a maize, in-between these walls that cover the biggest part of the island. Often we were surprised by the sheer mass of stones, which were stacked here and it seems nearly unexplainable how walls like these could have been built by the current inhabitants of the island who lack all mechanical support. From the interior of these compounds, surrounded by walls, tall, half moon shaped roofs with delicate gables, which look like a basket made of thin sticks, rise up. The woodwork of these gables is usually colored red, like the pirogues, with charming white ornaments, This is mainly on those buildings serving as living quarters of the leaders. Thus, such a compound, walled off from the world, forms, so to speak, a miniature urban setting. The number of buildings erected within, as well as the division of the space in smaller yards, reflects the personal circumstances of the owner.«\(^5\)

\(^1\) LESSON 1839, II, p. 467.
\(^2\) KITTLITZ 1858, I, p. 371.
\(^3\) KITTLITZ 1858, II, p. 45; I, pp. 368.
\(^4\) Compare FINSCH 1893, p. [466].
\(^5\) KITTLITZ 1858, II, pp.45.
As the giant compounds of former days have been abandoned for a long time, we have to relay the setting of an individual compound on the archaeological records, and, further on, the accounts of the first visitors of Kusae. Concerning the first one, we have to refer to Hambruch’s contribution about the ruins of Lölö. Lütke and Kittlititz described the same compound for us in detail. It belonged to one of the title holding chiefs of the region Läl, of whom they were guests. Lütke even made a map of the compound. It was an unfortunate mistake that this map was not published in the French edition of Lütke’s travel, while it was published in the Russian edition. This error is unfortunate indeed, because the map is of outmost importance for the interpretation of the so-called »ruins of Lölö«. If it had been published in the French edition, such unfounded hypothesizes about the walls of Lölö would hardly have developed, as it happened later on. People simply could have looked at Lütke, in order to realize that these »ruins« do not represent anything other than the later abandoned walls of the compounds of the inhabitants of Lölö. Because of the importance of that map of the compound referred to by Lütke in his account and, because the author did not know the Russian edition in which it was reproduced, the author insisted on looking in Petersburg for the whereabouts of the map. Indeed, the map was found by Dr. Hambruch and, at last, is reproduced here, accompanied by Lütke’s description and next to it, for reasons of comparison and completeness, the one by Kittlititz (see illustr. 130):

* »L, L, L, sont les murs construit en grosses pierres, don’t sont entourées toutes les habitation des urosses. C’est une chose assez étrange, que quoique Yat, où, comme nous l’avons déjà dit, demeurent la plupart des urosses, soit la propriété de Sipé, la maison de chaque urosse est entourée d’un parail mur. En venant de la rue, très-boueuse, pour le dire en passant, on trouve d’abord une maison (A) qui comporte en belle la destination de nos salons, »drawing rooms«, salles à manger, etc., et que j’appelle, pour la distinguer des autres, maison à manger. C’est là que le maître passé la plus grande partie de la journée, assis ordinairement à gauche de l’entrée en A. Là on cuit les fruits à pain, on prepare et sert le séka; c’est là

> Now we follow Iros Sipe to his own dwelling place nearby. We found this one much more extended than any other one we had seen. The entrance from a small lane formed by garden walls is in one of the corners of the quadrilateral, which forms the entire setting. It is positioned in such a way that the humidity has drainage to all sides, a precaution, which always can be observed at individual houses on Ualang. In the first yard, left, next to the entrance there are two spacious buildings, where pirogues of Iros Sipe are kept on scaffoldings, just like as we had seen at Iros Sigra. The lower space

Qu'il reçoit les visites, en plaçant les
personnages distingués à côté de lui, et les
autres en cercle vers B, B, B; les moins
importants, ou ceux qui s'occupent de
quelque besogne qui les empêche de
prendre part à la conversation générale,
se tiennent à l'autre bout (C,C,C). Là,
depuis le matin, jusqu'à la nuit, afflue un
concours de peuple qui, de notre temps,
était ordinairement si nombreux, que la
plupart étaient obligés de rester en
dehors de la maison. Un mur en cloisons
de bambou fendu (K,K,K) sépare les
appartements intérieurs de l'urosse, où
personne n'a d'entrée, excepté lui et les
gens qui tiennent immédiatement à sa
maison, au nombre desquels nous étions
comptés. En entrant par la porte M, on
trouve des deux côtés un paroi mur de
cloisons, derrière lesquelles sont deux
maison séparées: C'est la demeure
pavant le jour de la première femme de
Sipé; la seconde sultane habite en D;
nous vîmes toujours en B un grand
nombre d'enfants, qui étaient pas ceux
de Sipé même, mais qui appartenaient,
d'une façon quelconque, à sa famille, là
couchaient aussi son fils, enfant à la
mamelle, né de la femme favorite, sur la
surveillance d'une veille bonne; j'ignore
la destination de la maison E. Après
avoir passé le corridor, on arrive à un
petit cour, où sont trois maisons, deux
(F, G) a peu près de la même grandeur
que les autres, et la troisième, H,
beaucoup plus petite. Sipé soupaît et
passait la nuit en G; Mme Sipé couchait
en H, avec sa fille, de quatre ans; c'est là
aussi que se rassemblaient et
s'amusaient à divers jeux les amies
de Mme Sipé. F était le logement qu'on
seems to be destined for the servants and
the country folk, who had come into
town. Opposite these, in the first yard,
are two other buildings with high raising
roofs. The bigger one in front, with an
overhanging rain roof attached, is the
actual drawing room. Here we were
served food and here we slept. The
smaller one next to it has a special yard,
formed from walls made of woven reed.
A couple of women lived here, among
them the mother of the head of the
household. The main yard is separated
from the adjoining interior one by
stonewalls and partly by ephemeral
walls. The interior yard is surrounded on
three sides by gardens with many
coconut palms and breadfruit trees.
Inside there are two houses of about the
same size, both with high and delicately
built gables. In our time, valuable
objects were stored in one of them, We
then called it the treasure chamber. The
other one was the special dwelling place
of a woman, who seemed to be the
chosen wife of Iro's Sipe. A small hut
right next to it seemed to be part of this
dwelling. We found several female
servants busy with female tasks in there.
The women herself worked in the
doorway on a small, especially delicate,
loom. I could not imagine a more
charming genre-picture than this scene
in the shadow of the marvelous coconut
palms and breadfruit trees. However, it
was not possible to make a drawing of it
because of the prevailing nervousness

1 It seems that these are the two houses depicted in plate 38, 1. SARFERT.
nous avait assigné, don’t nous disposions à volonté, et où nous avions même transporté notre baidarke. En I était une de ses pierres sur lesquelles ils broient le séka, mais nous ne vîmes pas employer une seule fois. En O était une enceinte pour la trouie que leur avait laissée le capitaine DUPERREY. Tout l’espace en dedans des cloisons K.K était couvert de lattes de bambou très-propres, excepté la partie N, N où quelques cocotiers, bananiers et arbres à pain, formant un petit jardin domestique, variaient agréablement l’intéressante tableau de famille. L’emplacement entier était de soixante-dix pas en longueur, et de trente en largeur.«¹

There is no point in discussing the differences and contradictions, existing in these accounts. Here, we only want to point out that there are sources showing that compound settlements have been common on Lölö since the old times. While in this case the compound was not closed off to the outside by a wall rather than a fence on one side, it nevertheless was the rule to have it completely framed by walls, with open spaces as doors. It is very interesting to see how substantial a household was in the aristocracy. Next to the house of reception, not even mentioned by KITTLITZ, and which was the great cooking and feasting house of the owner (lom elap) at the same time. There was an imposing number of buildings in the compound of a noble for living and sleeping of close family members, for servants quarters, and for other purposes (see under house). The division in yards is remarkable, as well, where obviously the innermost division had the most intimate character. Generally, there were not many of such manor houses. Probably, most of the compounds had only a dwelling and a cooking house, next to the garden area as in present times.

3. The Village on Ualang.

In the 3rd chapter of the general part we already discussed the location and the size of the Ualang villages in the old times and recently. Here, we still have to say a bit about their appearance.

A village in Ualang never had a regulated, particular arrangement of houses. We can only remark that when settlements comprise many houses, then

there is a tendency to one-sided elongation toward the beach, which is only natural considering the importance of the sea for the natives. Only the rare canoe houses are right on the shore and the rest of the houses only behind the beach under the protection of the trees—today they are mostly coconut palms. These are not nestling close to each other, but leave easily passable space between each other; partly, they are also have the character of far-stretched hamlets.

It was not much different in the old days. Then, there was only one difference compared to modern villages. In former times, each village had one especially big house for a community center. It surpassed all others in size. According to LÜTKE, they were 8 toises* square and 30—40 feet high. According to DUPERREY, they were even as long as 60 feet long and had about the same height on the side of the gables. Also according to DUPERREY, they were open on all sides. According to LESSON, they had a bamboo floor all around in the interior, while the middle part was bare ground with the earth oven. According to the same author, they were called »lomme ounou« and sometimes also »paé«. As we can read in the different sources, they served as a public meeting house of the men, as a common cooking, feasting and working house—DUMONT D’URVILLE met the men of Läl in the community house while they were building a canoe—and as a canoe house. DUPERREY reports about following detail about them: »Le chef, et la portion de la population qui réside auprès de lui, s’y tiennent presque journellement ensemble. C’est à-la-fois le hangar sous lequel sont suspendues, à une hauteur convenable, les grandes pirogues que l’on conserve avec soin, et le magasin où sont réunis tous les instruments utiles à la communauté; nous y avons retrouvé nos haches et divers autres objets d’échange que nous avions donnés aux habitants, et nous avons aquis la certitude que si de semblables objects deviennent la propriété du chef, ils sont du moins déposé dans un lieu où toute les membres du même district peuvent en disposer leur gré.«

According to the information of the modern natives, such a house was called lom elap = big house and it was the cooking house of the mayor, of the region’s met suksuk, and, at the same time, served as a public building for the men. The statement of the old sources, that it was the common cooking house of a village, is rather doubtful. This seems to have happened because all men of the village participated when the met suksuk hosted feasts for the Europeans; because they first had to deliver the food items. Nevertheless, it is noticeable that the sources do not mention the division of the people’s household into a dwelling house and a cooking house. This is contradicted by the modern practice and also by an observation of KITTLITZ, that in Wukat, where there were numerous houses, there often were small housess » especially for women and children and, therefore,

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1 LÜTKE, 1835/36, I, p. 308.
2 DUPERREY in A.M. 1828, II, 1, p. [638]; LESSON 1839, II, pp. 496; DUMONT D’URVILLE in RENZI II p. 150; LÜTKE 1835/36, I, p. 361; KITTLITZ 1858, I, p. 369; II, p.3.
3 [On 16 May 1766, the toise was made the legal standard for France by an order of Louis XV, replacing the toise du Grand Chatelet. It is about 1.949 meters (about 2.1315 yards). http://www.sizes.com/units/toise.htm]
4 loc. cit. [The chief and the portion of the population which resides near him gather there daily. It is, at the same time the boat house—in which the large boats, maintained with care, are suspended at a convenient height—and the store in which are kept all the instruments which are useful to the community. There we found our axes and various other objects which we had given in trade to the inhabitants, and we became certain that if such objects became the property of the chiefs, at least they were put in a place where all the members of the district could use them at will. R. + R. 1982, p. 18.]
it was much more closed off by ephemeral walls than others.«¹ That scarce attention, or to be precise, no attention, was paid to the actual dwelling houses can only be explained that both types of houses did not differ in form, only in size, in former times. It cannot be otherwise expected; during their visits on land, the Europeans were led into the cooking / men’s house. Besides, considering the small size of the villages, sometimes consisting of only 3—4 houses, and which were a family settlement, it actually was easily possible that they only had one common cooking house. Although in bigger settlements such as Wukat, for example, this was hardly the case.

In former times, there were no artificially constructed paths on Ualang. Compare p. 132.

For more about artificial landing places for canoes, compare p. 231.

4. Lölö as a Village.

The island Lölö has always also been a settlement on its own. As a residence of Kusae, it was the largest settlement. Its dense population in comparison with the villages on Ualang was explained in detail in the general chapter about the circumstances of settlements. If we are dealing once again with the village Lölö, then this is mainly because of the buildings, called »the ruins of Lölö«, which gave the former Lölö settlement a special appeal. Even though the overall appearance [of this book] suffers, the description of these ruins has to be done by Dr. Hambruch, who recorded them and therefore knows them very well. Here, I just want to explain their importance and origin in detail.

Unfortunately it was not possible, to have one author deal with the subject consistently.

Due to the impressive character of the structures, which are called »the ruins of Lölö«, they caught the attention of every visitor to Kosrae. In contrast, the different recent reports, oddly, bring rather imprecise and superficial information about their origins. This is caused by the fact that already the Boston Mission no longer found the ruins used for their original purpose, further on, because the original sources have been neglected, and finally, because obviously nobody took the trouble to talk with the natives about these buildings. Finsch is the first one who insistently points to their use at the time of Duperrey’s and Lütke’s expeditions. But, he too is mistaken when, taking them into consideration. He says, »Today’s inhabitants no longer know anything about their own past«.² The fact is that the mass of the natives apparently lost interest in their local traditions, due to the

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² Finsch 1893, I, p. [468].
rapid decline of the population and their culture. Obviously the quick judgment of certain whites has made them reserved in their remarks about the structures. This caused doubts about the correctness of their traditions. For instance, a Spanish governor told the King that the ruins could not have been built by the Kusaeans and awarded them to the Spanish or the Japanese.

**The significance of the walls.** According to the tradition of the natives, the majority of the walled rectangles represent the compounds of the ancestors. This diagnosis correlates completely with the character of modern compounds in Lölö, which FINSCH already points out.\(^1\) Except that in the old time, the compounds of the aristocracy, that is the families of the chiefs, distinguished themselves by exceptionally high walls, partially made of basalt blocks. Since ancient times, Lölö was the residence of Kusae and, as such, the seat of the aristocracy and of the official dignitaries. Even today, some individual natives can recite which title holding chiefs were the last ones who resided in the different compounds, just as they still know the names of all the compounds. The oldest among them, such as the King, who passed away in 1910, still saw the ruins inhabited when they were boys.

To crown it all, the accounts of these native traditions correlate completely with those accounts of DUPERREY’S and LÜTKE’S expeditions, which were the only ones that still saw the compounds in use. The character of the massively walled rectangles as compounds can quite clearly be deduced from LÜTKE and KITTLITZ; that it is not necessary to cite these paragraphs word by word. I just want to refer to our detailed description of the compound in Lölö.\(^2\)

According to the information from the natives, some parts of the walls also had significance other than as walls of compounds.

The King called the enormous quadrilateral of Kinjer as an old fortress, as protection from raids by the inhabitants of Ualang. This statement correlates with the existence of a wall-path made of stones leading along the inner side of the walls of this quadrilateral. To crown it all, according to the tradition in pre-European times, Kinjer obviously served as a fortress and place of refuge for Lölö. But, we want to add that supposedly this quadrilateral also was a compound. According the old King, the title holding chief, Sina, was the last one who lived in there.

According to the natives, the quadrilaterals areas, bordered by walls and lying lower than the current ground of the island, which are still existent today situated in one row along the harbor side of Lölö. These were the taboo places of old Lölö. In recent times, some of them have been filled with stones and been transformed to dwelling places.

Concerning the places called sarö, only the King could provide some information.

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\(^1\) FINSCH 1893, p [466].
\(^2\) Further on compare LÜTKE 1835/36, I, p. 325.
According to him, these were mock graves, which were used during the burial of a King. All together there were 4 sarō. My informant reported: Sepos, a special spirit, always hunted the body of the King and wanted to eat it. Therefore, people gathered in the house of the King, in order to guard the deceased. In the meantime, a coconut palm was secretly felled. A piece of the trunk, about as long as a human being, raw and not carved, was rolled in mats. Some men had to carry this trunk, as the seeming corpse of the King, out of the house of mourning and had to throw it into one of the sarō. Some men also seemingly had to stand guard, to make the spirit believe, that the King was actually buried here. According to peoples’ beliefs, the spirit took the trunk and devoured it. During this mock burial, the actual funeral of the King happened at his graveyard. In this way the spirit Sepos was tricked of his prey. There were several sarō because, for better cheating the spirit, these mock burials were not always conducted at the same site.

According to their setting and the report of the excavation, this explanation can hardly represent the original purpose of the sarō. Probably, it is nothing more than a pure combination of ideas from recent times. It is much more likely to see them as actual burial sites for high ranking families or individual dignitaries. According to LESSON, this is the case, as he describes one of the sarō with the following words.

»Ils (les blocs de pierres) formaient des murailles hautes de plus de quize ou vingt pieds, qui ceignent une colline rassée au niveau des murs, et forment un emplacement quadrilatère sur lequel s’élèvent des touffes de bananiers ou de bouquets de cocotiers. Nous apprîmes que cet endroit servait à la sepulture des Urosses, et quoique les naturels manifestassent la plus grande repugnance à nous le laisser examiner, nous parvînmes à en voir la surface que recouvrait seulement un épais gazon.«

So far, the modern tradition of the natives and the oldest source correlate concerning the significance of the ruins. Concerning this question, we could not learn anything else from the natives. But, there are still some sources which we would like to mention.

**Other significances, according to early sources:** The beach walls are directly connected with the system of the compounds. We talked about this already in the chapter, »Settlement and Geographic Circumstances«, and we acknowledged their special significance as a protection from the dangers of the sea there. In this we correlated completely with LÜTKE, DUPERREY, and LESSON, the only authors who speak about to these structures. Further on, LÜTKE and KITTLITZ are, strangely enough, the only ones—besides FINSCH, whose facts are based on theirs—who emphasize the walled quadrilaterals as compounds and typically do not mention any other significance. The same

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1 LESSON 1858, II, p. 496. »They form high walls of more than fifteen to twenty feet, which encircle a hill shaved down to the level of the walls and form a four-sided site in which clumps of banana trees or coconut trees are to be found. We learned that this place serves as a burial ground for the Urosses, and although the natives manifested a great deal of repugnance in allowing us to examine it, we succeeded in seeing the surface, which was only covered by thick grass.« R. + R. 1982, p. 63.]
can be read at DUMONT D’URVILLE\(^1\) and DUPERREY\(^2\), although not as clearly. LESSON
does not talk about it at all. These authors have little attention for the walls, as walls of
compounds, because they, most of all, seemed to have been surprised by the size of the
walls. They just asked for their meaning and otherwise they dedicated their attention to
those structures that served other purposes than the normal ones.

Thus, DUPERREY said only, »Les murs entourent les propriétés sont moins propres
a repousser une agression qu’à soutenir le sol at ‘’encaisser les torrens qui, dans la saison
pluvieuse, doivent occasioner des grands dégats.«\(^3\)

So LESSON admittedly describes the walls, but talks about the purpose of the sarō as
the graves of the chiefs, in particular. When talking about the way of burials, he repeats
that chiefs were buried at sacred places marked by high walls.\(^4\) This one sided limitation
very much supports errors in the general judgment of the walls.

DUMONT D’URVILLE considers the high walls an attribute to the dignity of the
chiefs. Further on, he talks only in detail about the purpose of a rectangular plot of land
with a large hut in poor condition on it. This was situated behind the royal compound.
According to the nonverbal communication of the natives, he believed it was
occasionally used as a place of cult worship. In this case, it most probably was one of the
taboo places.\(^5\)

Once the ruins were abandoned, naturally the creation of a slightly contorted
version of their purpose was much easier. Immediately, GULICK’S remarks about them
are highly misleading. Judging by his words, during a walk around the mission, he had a
conversation with the King about it and he reports, »As to their uses, he said the wall
about the hill was for defense from aggressors from the main island, and that many of the
remaining walls were in honor of the dead ….. The inhabitants of Kusae are even now
skilled in wall building. We were told one of their most decisive evidences of public grief
is to rebuild the wall about the premises of the bereaved chief; and to this day chiefs are
buried in the ancient enclosures, as though they were the mausoleums off the great.
Possibly they may in their first instance have been built around royal residences, and on
the decease of the builders, have become their magnificent sepulchers, though the
analogy of present Micronesian customs decides against it.«\(^6\) With these few sentences,
the ruins suddenly became exclusively fortresses and monuments of the dead,

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1 At the first sight of Lölö DUMONT D’URVILLE only mentions »de belles cases entourées de hautes
muraill« [beautiful houses surrounded by high walls] (RIENZI II, p. 152); at a later occasion (RIENZI II,
p.154) he says, »tout ce que j’ai pu remarquer, c’est que les résidences des Urosses étaient toujours
accompagnées de ses enormes mures, qu’ils nomment pot-ouro ou simplement pot ….« [all that I can
mention, the houses of the chiefs were always accompanied by these enormous walls called pot-ouro or
simply pot ….«]
2 See the citation of footnote 3.
3 A. M. 1828, II, 1, p (637). »The purpose of the walls, which surround the properties is not so much to
repulse aggression as to support the earth and to bank the torrents, which in the rainy season must cause
much damage.« R. + R. 1982, p. 16.]
5 RIENZI II, p.154.
6 N. M. 1862, p. 243.
as if earlier, the expeditions of DUPERREY and LÜTKE had not stayed in the compounds, and, especially, as if LÜTKE and KITTLITZ had not said anything about them. Kinjer definitely was not only a compound, but also a fortress. Certainly, the families buried the dead in their compounds, as well. If, further on, the walls of a compound were raised, or even rebuilt, at the death of a chief, unfortunately cannot be proven. Unfortunately, I also did not ask for this. Though this is unlikely, as then the natives would still have more detailed knowledge about the structure and the high walls made of basalt, and they would not consider it a »miracle« and tell about an immediate erection of all the high walls in their old legend.

HERNSHEIM and CHRISTIAN talk in a similar fashion, considering all walls as fortresses against Ualang. The last one, according to his statement, recounts the words of the natives.\(^1\) With our current interpretation of the ruins, all we have said so far is based on the tradition of the natives, on the best observation about it, and on the modern settlement, which can be in doubt.

It is a special question, if Lölö was a sacred city for the old Kusaeans, as Nan Matol was for Matolenim on Ponape. As far as we can say, in this general form, this has not been the case in the historical time. The tradition of the natives, as well as the circumstances at the time of DUPERREY’S and LÜTKE’S expeditions, contradict this, especially as there was frequent traffic between Ualang and Lölö. Naturally, all except certain priests were forbidden to enter the taboo places of Lölö, just like an unappointed person certainly stayed clear off the sarö and the other burial places of the families within the compounds. Further on, it was a common custom not to enter without being invited into somebody else’s compound, just like today, when you still sit only in front of the house or on the door, if you are not invited to step closer. Most of all, anybody not belonging to a compound would not have ventured into the inner yards. There, only well know relations were led, just like LÜTKE and KITTLITZ reported. By the way, relations with the outer world were conducted in front of and in the cooking house. Of course, this etiquette was especially carefully observed with regard to the title holding chiefs. The mass of people was held off from the compounds of stately persons because of the fear of them and because of the godlike veneration of them. The common man only entered the compounds when fulfilling his task and, even then, with a feeling of trepidation. In this sense, Lölö, as the seat of all title holding chiefs, and, the most of all, the god like King had a special veneration in the eyes of the people. Nevertheless, it was not a sort of »forbidden city«. At any rate, people knew to tell that Lölö actually had been taboo for certain

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1 HERNSHEIM, p. 47; CHRISTIAN, p. 157.
regions, except at special occasions. These regions were Uiä and Salat. Nothing was known about the reason for this. Certainly this reflects religious circumstances, as Uiä and Sialat were the residences of the goddess Sinlåka. Besides, this taboo was reciprocal, as there was also a taboo for the title holding chiefs of Lölö, who supposedly were banned to enter those two regions.

The origin of the walls. What was the reason to build these structures, and most of all, to raise certain walls to their astonishing size and height? Today, the natives no longer have an answer. Nevertheless, even today, a response is perfectly possibly. We already answered the question about the creation of the walls of the compounds, including the ones along the beach, in chapter 3. Here, we want to repeat it and to slightly elaborate it: It was the custom on Ualang to surround the fields with fences and even with stonewalls and also enclosed compounds could be found there. Further on, the precondition for settlements with walled compounds was generally given as a result of the division of the household into several houses. With the scarce settling space and culture ground in Lölö, along with their dense population, this development commanded it actually. Besides, the settlers of west Lölö also had a special reason; they had conquered their small land ownership by battling the sea. In doing so they had learned the use of a huge amount of stones as an abundant building material. There is the fact that houses, too, were placed on a stone foundation. Thus, the walls developed from compound walls, as are still used today on Lölö.

Another tip off is provided by Lölö’s beach walls. We cannot say whether western Lölö was wrenched from the sea all at once. If this is the case, then we may consider the individual compounds as stages of this task, too. The newly created plot of land could be surrounded by a wall for protective reasons against the sea at the same time. This could also be the reason to make just the walls of the compounds of West-Lölö more resistant, by extending them in width and height.

The following reasons are also given as an explanation of the enormous extension of the walls:

Later, we will explain how Lölö gained its hegemony over Kusae in the first place by sheer force and also kept it in this way. In the wars with Ualang, the walled compounds of West-Lölö could prove their worth as structures of fortification, which also suggests their extension as such. The west of Lölö was vulnerable to raids from Ualang, due to its connection with Ualang over the reef, which was easily passable on foot at low tide. This also correlates with the location of Kinjer that pushes westwards with its walls. In this context, we can also regard
the height of the walls of other compounds in West-Lölö and at certain places of the beach walls as defense measures.

As the compounds with the giant walls were the residences of the old Kusaean aristocracy, we can further conclude that the height of the walls was also an external sign of a family’s reputation and of their exclusive character, as DUMONT D’URVILLE already suspected.¹

Finally, should GULICK’s statement about the rebuilding of the walls at the death of a chief be based on facts, then this could also have led to the construction of giant walls as a honor of the dead and of his family.

The construction technique. Concerning the technique of simply stacking the stones, the only question of interest can be how the big basalt blocks were moved and been stacked. It already occupied the first visitors. While the building material for the coral walls was in abundance on the reef in front of Lölö, the basalt columns definitely came from the main island, Ualang. This is also stated in the legend about the construction of the ruins, where the regions Täf and Fenkol, to the west of Utua-Harbor delivered the building stones. In fact, even today, loosened basalt columns of great size are lying around in abundance in and along the bed of Fenkol-River, as cannot be observed anywhere else. According to local tradition, the transport of the mass of stones over land was handled with the help of the magic of individual persons and, on water with giant rafts manned with many people going to Lölö harbor, outside of the reef. Here, once again, the blocks were stacked into walls with the help of magic. It is remarkable that even today the place where the giant rafts were anchored for loading can still be seen. It is a big rectangle on the sandy beach of Täf, which is marked by big coral boulders. This stone quadrilateral supposedly made sure that the rafts had a safe position during high tide. 2 working chants are still known that were created during such rafting trips. Unfortunately, their content does not offer anything interesting. By order of the King, the construction was executed by the entire population of Kusae.

Apart from the part of this tradition, which is taken by fantasy and the magical transport of the basalt blocks, we have every indication to believe the other statements are historical. We are better informed about this construction technique than only what is handed down from legend. In contrast with the magical construction, we have already DUPERREY’s account, which he cannot have gotten from thin air, »Les naturels les construisent en employent des cordes et des leviers d’une grande dimension ....«²

Conspicuously, even GULICK still learned from King Nelebaluk I. about the lifting of the basalt blocks: ».... they were

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¹ RIENTZI II, p. 154.
rolled up from one level to another on inclined planes of logs and stones …«¹ and the deceased King also told me, from hearsay, that supposedly the blocks were pulled up by thick ropes along inclined tree trunks.

Considering all this, the inhabitants have not entirely forgotten the construction technique and it does not represent a puzzle. Concerning the transport of the stones on flat ground, plainly, they are dragged on strong ropes, just like the big tree trunks for canoes and house posts I former times. The chiefly power could easily summon the necessary crowd of manpower.

The architects of the walls.Amazingly enough, none of the first visitors during their visit of Lölö got the idea that the walls were constructed by anyone other than the natives. In view of all the life in them, this was the last thing imaginable. It was quite different in the following time, when the old compounds were abandoned and partly collapsed.

The hypothesis of the Spanish architects no longer has to be seriously criticized.²

According to Capt. HAMMET, who came to Kusae in 1853, the natives did not know anything about the origin of the stone structures. They supposedly had found them here when they arrived many years ago from Ocean Island«.³ The first part, as well as the second part, of this statement is obviously proof of a superficial investigation. It has also been countered by the judgment of the missionaries, based on the information of the natives, which considers the ancestors of the Kusaeans as the architects.⁴ FINSCH also does not doubt this.⁵

Notwithstanding all this, CHRISTIAN firmly attributes the buildings to the Japanese, which formerly settled on Lölö. In doing so he bases his statement on the trading trips of these people before ca. 1640, which he had heard about from a Japanese trader on the fact that a Japanese junk was stranded in the Marshall Islands during 1885, and the information provided by the people of Lölö about a »dominant foreign race who arrived in vessels (wak palang) from the north west and who raised these forts as defenses against their neighbors in the mainland ….«⁶ This opinion is nothing more than a hypothesis. It would be rewarding to follow it, if the information CHRISTIAN received from the natives, would in fact correlated with their own tradition and if there were other clues supporting it. As they cannot be found this information stands rather isolated. Looking for the source, the now deceased King

¹ N. M. 1862, p. 243.
² Compare GULICK in N. M. 1862, p. 243 ;STONEHEWER COOPE II, p. 268; WAITZ V, part 2, p. 74.
³ N. M. 1854, p. 63.
⁴ GULICK loc cit; M. H. 1857, p. 359.
⁵ FINSCH 1893, p. [468].
⁶ CHRISTIAN pp. 156.
seemed to have been CHRISTIAN’S informant. When we heard from other parties, among them also some local Whites, how the information was collected and generally about CHRISTIAN’S method of working, we no longer have to take his statements serious.

Considering all results, we rather have to see the ancestors of the Kusaeans as the architects. There is no proven clue for any other consideration, just as there is no other local tradition. Those results are:

1. Our presentation about the origin and importance of the ruins and about the existence of the technical possibilities of the natives to build them.

2. The use of stone blocks (coral and basalt) as building material in the oldest, and in recent times, in Lölo as well as on Ualang (stone foundations for houses, and landing places built of stone, shore walls and beach walls along the course of rivers, lagoon channels and reef islands, walls of compounds).

3. The extension and raise of reef islands (Pisin and others) and the extension of Lölo.

4. The social organization according to suf and the legends about the origin of the suf, according to which the old population of Lölo does not have any other origin as the one from Ualang. Therefore, since ancient times, the inhabitants of both islands have been connected by close family ties.

5. There are stone structures in the rest of Micronesia and Polynesia.

6. The local tradition about the construction of the ruins, which is part of a legend.

It may follow in the original text with a free translation:

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Menmen.

Tokosa si el sap met Kosae nakemua in ako pot Löloie. Ewl sapla ne sel Satäf lan took ui etet pot. Ta el sapla na sel Löpankosa-Jämual eltal in took ui etat pot. Met kosae nakemua tari elos ako tarifaseni na Lölo in etat pot. Satäf Mokena kolie. Tokosa sapla na sel lan to faso lutu; pot ä etat lutu. Ta el ma el ä tofa took mulelä; el ä sáno talik luo natal

The Miracle.

A King raised all the people of Kusae in order to make the necessary preparations for the construction of Lölo’s walls. He ordered Satäf, to participate in the construction of the walls, just as he ordered Löpankosa from Jamuä. When all the people of Kusae had finished the preparations, they gathered in Lölo in order to build the walls. Satäf alone made them wait for him. Then, the

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1 Even today a short version of this legend can be easily obtained, so that we are quite surprised that it was not known earlier. KRAMER as well as I learned it on the very first day of the expedition’s stay. As can be seen immediately and could soon be heard, it has a fragmentary character. The detailed version is only known to one man in Mäläm, the native father-in-law of Capt. MELANDER. Just by chance, I was able to talk to him after weeks on Kusae. As this detailed legend contains all statements of the two short versions, it is now published. It has been recorded in its original version.
in toko; ta el fa toko. Ke elos sanel patlä, elos matâmuäak pot.

King sent him the message he should come the next day; the walls would be built the next day. He replied that he would come the day after the next day, as he was waiting for the return of his two sons. As soon as they were back, he would come. But, when he also did not come at the set day, people started with the construction of the wall.

When Satäf heard about this he quickly built a small wall for himself, in order to destroy the walls of Lölö. As soon as he removed a stone from this one, the walls of Lölö collapsed. But people rebuilt them again. When they were finished, Satäf once again pulled a stone from his wall and the walls of Lölö again collapsed.

Then, the King sent a message to Satäf that he should come as quickly as possible. Satäf made his raft ready and met with Lopankosa from Jämual to talk about the trip. Lopankosa wanted to go around Jenmuän(a), but Satäf did not. Thus, Lepankosa went alone around Jenmuän(a).

When Satäf had finished his raft, he ordered the stones to hurry onto it. When the raft was loaded he stepped on the beach and said the following bas:

»Outside in front of Tauesmo, =
in front of Tauesmo, in front of Tauesmo,
Outside in front of Tauesmo,
Stands a lonesome coconut palm =
Inclined is her trunk, =
Held by a stick, =
It bends down
And lifts itself up again.
Good Söap! Söap!
Leave the small weaves,
Send me big waves!
Sisiom läluo
Sem fae soko
Söap mo, Söap!«
Na älon na äs na nana tokäna to sekäk baka, uisäk na muöä. Ta el tofa ,
bis äso. Els orek hum fafa, pätar, tuk söka fen bëka.

Kel toko na Löloie, el fili Jat aktetal
ne sin Tokosa. Tokosa fak na sel: »Soasas
tari, na pot siful mokuklä na fou.«

Kelos orek kofa tari el tofa
matämuääk soas läl. El fas na käskäa:
eota käös na etat ne ke tari.

Ke talik luo patlä in toko, Satäf el
likijä eot luo eltan to uis tokol na Lölö.
Eltal san sak soko belonjo, sok; to
toäs.Ninä kiettal ison altäl, sap eltan
sanläni. Siful sok, Na eot säsä liki
fusanie. Na eot säs eltan fas met. Eot
käsös tokoltal.

Ke muän luo natal toko el siok efo
eltal ko patlä fok. Eltal ma eltal patlä na.
Eot luo talik luaa ues el sap in ona lan
met me fosfos.

Kel ut Jenmuëna jak el to sonol
Lepau-

Take instead this läluo.1
Take this fae!1
Good Söap, good Söa!«
Then came the flood, the current of
the sea and the weaves. They lifted the
raft high and carried it out to sea. Satäf
directed the current of the sea. On the
raft, people started to prepare an earth
oven, made fafa and prepared fish.

When Satäf arrived in Lölö, he
landed in Jat and announced himself to
the King. The King told him, »When the
task was finished, the walls once again
collapsed.«

When the feast was over, Satäf
wanted to begin with his work. He went
and talked: The stones came on their
own and stacked themselves one on top
of the other, until the construction was
finished.

As his two sons had not yet
returned when he had left Täf, he had
left two stones behind for them ,to
supposedly bring to Lölö. In order to do
this, they took a carrying stick and lifted
one, but it was too heavy. Their mother
was laughing at them and told them to
leave the stick. She wove baskets from
the leaves of wild reed to enclose the
stones. But, when the sons again lifted
the heavy burden, the stones slid out of
the baskets. Then, the woman told her
sons to walk ahead and the stones
followed them behind.

When the two boys arrived in Lölö
Satäf asked them why they were late.
They told him why. Satäf told the stones,
which they had brought, to lay down to
warm for the people.

When Satäf returned home via

1 Kinds of money.
V. HOUSE, COMPOUND, AND VILLAGE.

Jenmuëna, he met Löpankosa. He was stuck in Matanol\textsuperscript{1} because of low tide. Satäf asked him and Löpankosa told him that he had to stay behind because of shallow water. Then Satäf asked him to throw the stones away and come with him. Löpankosa followed the advice and they both returned home to Täf.\textsuperscript{2}

When and why were the old compounds abandoned? Thus, the ruins of Lölö are one further cultural achievement of their old inhabitants, which is an honorable successor of the creation of West-Lölö. It is only strange that this venerable settlement was given up so quickly by the natives. It was already abandoned only a quarter century after DUPERREY and LÜTKE. Conspicuously, none of the sources reports the reason for it. The modern natives also do not know anything concrete. Thus, we can only make assumptions. In all probability, it first became uninhabited by the rapid decline of the number of people. Without any doubt, this catastrophe mainly hit the old and exclusive aristocratic families, the inhabitants of the giant compounds. Especially, the drastic decline of the population in Lölö, which formerly had been settled exclusively by the nobles, gives evidence of this. Beginning with both the first expeditions up until the fifties,\textsuperscript{3} the aristocracy completely disappeared in present time. According to the information from the natives, entire noble families died so that, today, not even the name remains. Even before 1850, the kingdom had already become a sort of elective kingdom. In recent times, it had been more and more difficult to find somebody for the throne and the number of title holding chiefs declined. Besides we must consider the abandonment

\begin{itemize}
\item \textsuperscript{1} Settlement in the region Pötak.
\item \textsuperscript{2} In this way the legend explains the big basalt blocks, which are lying around in Pötak.
\item \textsuperscript{3} More about this see pp. 48.
\end{itemize}
of the compounds by their own free will, maybe due to superstition, because of the many deaths. Probably, this is also the reason for the modern day superstition that the spirit Sepos is up to his mischief, and this is the reason why people only venture there reluctantly.

The two following reasons seem to be why the compounds have not been resettled:
1. Their great respect and their shyness for the for the old dwelling places of the high title holding chiefs, the origin of which was considered a miracle.
2. The unfavorable location in the closed off compounds in comparison to a location on the beach of the harbor. This was intensified when frequent traffic with Europeans brought a new and interesting life to the harbor. Because of the great decimation of the population, there was enough land to settle in this place. This also might have been one of the reasons for giving up the old compounds.

Certainly the old compounds were not abandoned all at once. Some old natives still saw them partly inhabited during their childhood years. DUPERREY and LÜTKE probably were not the only Europeans who found them inhabited. At least we can gather this from the following words of GULICK, starting his description of the ruins, »From M. D'URVILLES reports and from the accounts of sea captains, we had received glowing ideas of the architectural exhibitions on Lela; we were to find a native city, handsomely laid out, with paved streets and, at frequent intervals, handsome piles of stone-cut masonry.« It seems that only the compounds with basalt walls, in the interior of west-Lölö, were the abandoned at the time of the founding of the mission. They are usually the ones which are described as »the ruins«. The other compounds, the ones surrounded with coral walls, seem to have been partially abandoned at the time of the founding of the mission, when the decline of the population advanced even more rapidly. If we want to set a date for the abandonment of the big compounds in the interior of Lölö, then we primarily have to think of the years 1830—45.

Currently, the old compounds are the property of individual natives and serve as land for fruit trees.

**Districts and land parcels of Lölö**¹. (Compare also the map »The Island Lölö« etc.)

I. District Te:

According to Sarfert.  According to Krämer.  According to Hambruch
1. Pesin  1. Besin  1. Pesinn

¹ They have been noted down for different purposes by KRÄMER, HAMBRUCH, and me. As the spelling differs greatly, they are all presented next to each other. Further on, KRÄMER has a number of names for the interior of the island, which were not inserted in the map, because they have not been localized. Therefore, we were not able to put them into the list. Because of the same reason, KRÄMER’s plots of Lük and other districts, listed in his documentation as belonging to the districts Safoiräi and Mitais, are missing in the above list. As these districts do not have any importance, the names can also be omitted. The location of certain plots, as indicated by HAMBRUCH and myself, unfortunately does not correlate, as can be seen in the list.
<table>
<thead>
<tr>
<th><strong>According to Sarfert.</strong></th>
<th><strong>According to Krämer.</strong></th>
<th><strong>According to Hambruch</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Bakinmä</td>
<td>2. Bakenmet</td>
<td>2. Pikomma</td>
</tr>
<tr>
<td>(from bak –shit?)</td>
<td>(= »toilet for men«)</td>
<td></td>
</tr>
<tr>
<td>3. Fenpe</td>
<td>3. Fenpe</td>
<td>3. Finnpe</td>
</tr>
<tr>
<td>5. Matankin</td>
<td>5. Matangen</td>
<td>5. —</td>
</tr>
<tr>
<td>11. Fennmona</td>
<td>11. —</td>
<td>11. —</td>
</tr>
<tr>
<td>(= »place for boys«)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. —</td>
<td>15. —</td>
<td>15. —</td>
</tr>
<tr>
<td>17. Lukolölö lan</td>
<td>17. Lekanlolo</td>
<td>17. —</td>
</tr>
<tr>
<td>(= outside of Lölö above)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(= outside of Lölö below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(= »sitting place to take a shit«)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. Likesa</td>
<td>27. Lekesia</td>
<td>27. Lageisa</td>
</tr>
<tr>
<td>29. —</td>
<td>29. —</td>
<td>29. Unsinn I</td>
</tr>
<tr>
<td>32. Usen lan (= »upper Usen«)</td>
<td>32. —</td>
<td>32. Unsinn II</td>
</tr>
<tr>
<td>33. Jakaf</td>
<td>33. Jerekaf</td>
<td>33. Fennbuk</td>
</tr>
<tr>
<td>34. Fenpok</td>
<td>34. Fenpok</td>
<td>34. Fetonnta</td>
</tr>
</tbody>
</table>
---|---|---
35. Kärense | 35. — | 35. Karringse
37. Käfal | 37. — | 37. Gefal
38. — | 38. — | 38. Kenineal
41. — | 41. — | 41. Käpugasuk
42. Los | 42. Loj | 42. Loy
43. Fenläs | 43. Fenlas | 43. Fennläss
II. District Jat: 44.
44. Funseal | 44. Fenjael | 44. Fennsity
45. Ikoanon | 45. Inkanong | 45. Ingoanong
46. Jefokfas | 46. Jefokfas | 46. »
47. Pennem | 47. Ben’ nem | 47. Pinnimm
49. Jeme ten | 49. Jeme | 49. —
(= »lower Jeme«)
50. Jeme lan | 50. — | 50. —
(= »upper Jeme«)
52. Foton | 52. Foton | 52. Fottón
53. Uätu | 53. Uätu | 53. —
55. Funbon | 55. Fenbang | 55. Fennbang
56. Mununlos | 56. Mongenlos | 56. —
57. Pösal | 57. Bejel | 57. Peotjall
58. Kefo | 58. — | 58. Geoeo
60. Inlokpus | 60. Inlokboj | 60. Inlokpus
63. Fenso | 63. Finisa’ lang | 63. —
64. Kenjöla | 64. Keniöla | 64. —
67. Likinpot | 67. Likinbot | 67. Likinnbot
68. Lörran | 68. Lärrran | 68. Lörran
69. Inmakauk | 69. Inmakauk | 69. Inmakauk
The Island Lölö
with the current settlement and the ruins,
recorded by E. Sarfert
considering P. Hambruch's map of the ruins.

Scale 1:4500

Legend:
- dwelling houses
- cooking houses
- canoe houses
- still standing walls
- destroyed walls
- borders of districts

Explanation of the numbers, see pp. 258 of the text.
--- | --- | ---
III. District Infäl:
70. —— | 70. Fenäna | 70. Fänäna
71. —— | 71. Bät | 71. Bat
72. —— | 72. Insara | 72. Insra
73. —— | 73. —— | 73. Insarong
74. —— | 74. Inol | 74. Innoll
75. —— | 75. Inollang | 75. Innolang
76. Insomuon | 76. Insouan | 76. Insuenn
77. —— | 77. —— | 77. “ lang

IV. District Mitais
78. Koslo | 78. Kojlo | 78. ——

V. District Safoïrä
79. Fenbea | 79. Fenpää | 79. ——
80. Matansem | 80. Matanjem | 80. ——
81. Fukil | 81. Fökel | 81. ——
82. Jöl | 82. Ial | 82. ——
83. Infalok | 83. Infalok | 83. ——
84. Sumaje | 84. —— | 84. ——
85. Fennem | 85. Fennem | 85. ——

VI. District Lük:

The modern settlement Lölö is, as has been already mentioned, is restricted to the harbor side. Here the houses and compounds are situated, next to, but separated from each other. In front of them, right behind the beach, there is the modern path, also leading along the north coast to the Lölö-Mountain. In the flat West-Lölö it is raised on coral slabs and pieces of basalt to a sort of dam-path. It was constructed mostly under the influence of the German government. Further, from the rocky slope of the Lölö-Mountain to the harbor, it is also bordered by a very low beach wall, built from coral. By the way, the attached map orientates according to the the setting of the modern settlement.

5. The Ruins of Lölö
By Paul Hambruch

The course of measuring. The reports of the discoverers aside, news about the Eastern Carolines have always been scarce. Their remote location, far from the frequented traffic lanes crossing the Pacific Ocean kept them isolated. Besides the whalers who came there to recover during the winter months, only rarely did European ships come into these areas, the economic exploitation of which had only started. The first ones
did not bring any accounts. On the second ones there sometimes were captains, super cargos, travelers, and researchers who were interested in land and people and who wrote short reports about their observations and experiences. In some of them the description of the massive stone constructions on Ponape and Kusae hold a special position. As each of them was working for himself, and because the presence of the individual was always only a few days, thus excluding an in-depth investigation of the natives, each developed his personal opinion about the meaning and the creation of the structures. As Sarfert emphasizes on p. 146/247, this would never have happened if they had carefully read the reports of the first visitors. At least this is true for Kusae. On Ponape the circumstances are a bit different.

Today, after the complete survey of the formerly, just 70 years ago, densely populated city of Lölö, it is difficult to understand, how such an enormous complex, crowded on a small scale, could have been forgotten, although the sea charts, most of all the English ones, to this very day indicate the old system of streets and canals of Lölö-Island. You only have to follow them in order to reach the structures. Although, today it is no longer easy to find the stonewalls of the old compounds in the thick jungle which covers the ruin city. The old roads and the canals indicated in the charts are covered in mud and overgrown by a thicket of hibiscus so that they even evade the eye of the one who knows. Only one place always stood out, the fortress Kinjer felät; although it is not the most imposing structure, it is located so close to the landing place of the trader Melander and his little plantation in Pennem and Ikoanon, so that it was impossible for foreigners, who visited the trader and his compound, to pass it unnoticed. Thus, HERNSHEIM gave a good description of this construction. Around the same time FINSCH visited the structures. According to their reports, the setting was then, in spring of 1880, in a much better condition and allowed a clearer view than when CHRISTIAN saw it in 1895 or the Peiho-Expedition in 1910. In both cases, shortly before, in 1891 and 1905, fateful typhoons swept over the island and felled many trees, which in falling made many parts of the walls collapse. The compounds and the sacred places of the Kusaeans could have been, until these years, in a passable condition, because the finds prove that compounds had been inhabited until the 70s and even later. They were abandoned with the increasing lack of people and when some aristocratic families became extinct. The illustrations which HERNSHEIM has on p. 46 of his »Südsee-Erinnerungen« (Abb. 131), shows the relatively good condition of the building. It represents the NE-corner of Kinjer. CHRISTIAN saw the building already in increasing dilapidation and in the few hours of his stay on the islands he accomplished a sketch and took measurements under great pains. This sketch is incomplete and inaccurate. Nevertheless, for many years it was the only one. When the Peiho-expedition surveyed the
Structure, the vegetation had thickened even further. On the NE- and SE-corners grew enormous Banyan trees along the walls and had covered them with their roots. The other walls were also covered with ferns, bushes and the like, so that the walls were only visible in a few sections. The entrance of Kinjer and its interior had disappeared into an impenetrable maize of vines, hibiscus bushes, breadfruit trees, etc. It was difficult to clear a way with the machete. Hardly a ray of sun entered through the canopy of leaves. The forward groping foot more than once slips on the paths covered with rubble of the rocks.

Therefore, in order to enable a detailed survey of the fortress it was decided to clear the area and HAMBRUCH was entrusted with it. Together with the five black boys of the expedition, nine adult Kusaeans and twelve boys, to which seven more were hired at a later stage, he went down to work. The survey started on February 9 and one of the main structures was finished by February 12. The days from February 13 to 20 were spent with measuring the smaller compounds and excavation sarō. Working hours were from 8—12 in the morning and 2—6 in the afternoon.

While the entrances of Kinjer felāt and a part of the walls were cleared, HAMBRUCH tried to get more information about structures, which were indicated in the sea charts. Inquiries among the inhabitants of Lōlō were unsuccessful. They really did not seem to know anything. Others did not supply their knowledge and like the old Tokoscha they later admitted that the structures and their places which were finally found
were considered »sacred«. They still were afraid to be punished by the spirits for giving them away. Despite more than 50 years of missionary work, the respect for the ancestors had not disappeared and their influence continues. During the excavation and the opening of the sarô many refused their collaboration and did not want to step in this area. As the direct investigations were not successful and we did not receive any detailed information, we nevertheless could hear hints in conversations of even bigger buildings than Kinjer felät. Still in the afternoon, while a group had been working to uncover the SE-corner of Kinjer, the other structures were found. It was low tide, which allowed us to penetrate the channel between Kinjer and Bat that was filled with mud and overgrown by mangroves and soon we were standing in front of the huge basalt walls of this taboo place. Coming through hibiscus thicket we entered the, partially under water, quadrilateral and came to the wall of Insomuon. With the help of the banyan tree, which is growing there we climbed the wall. From the height of the wide crown we had an overview over Insomuon and the neighboring compounds Innol and Insaron. A small lane led from Bat and Insaron towards the west. We advanced into it and after we had climbed over a small coral wall that separated Insaron from Insra, we kept to the left until walls, thicket, and the channel hindered any progress. Only now and then an opening in the undergrowth allowed a glimpse of the opposite lying massive and well preserved basalt walls of the compound of Lörran. While we kept the channel to our right we advanced once again towards the east, climbed over the separating wall of Insra and Insaron for a second time, and made our way further on until we reached the place where the basalt walls of Insaron and the low coral walls of Innol meet. Once again we climbed over this wall and turning to the SE we reached the channel, which separates Innoll from Likinpot. The low walls did not offer any obstacle. The channel was easily crossed and in Likinpot the bush got less dense, here some coconuts were planted and to our right the massive walls of Lörran flashed through. Aiming towards them we saw the door, which offered easy access to the quadrangle. This compound was covered with a nearly impenetrable hibiscus thicket among which only a few coconut palms and breadfruit trees tower above. The ground was covered with numerous broken basalt blocks, kava stones and the like. Painfully making a path with the machete we reached the southern exit. We squeezed through the bushes and after a few minutes we were on the path that leads from the southern side of Lôlô, along the mountain, to the northern side. It was late in the afternoon and therefore any further investigation was made impossible by the quickly setting darkness. In the evening HAMBRUCH reported to the other gentlemen about him finding structures forgotten for more than forty years, their condition, and the necessity to thoroughly investigate also these buildings.
The decision about it was not made until the next day. Early in the morning Krämer went on land with an interpreter in order to have a look himself at the newly discovered pieces of architecture and to make a decision afterwards. Around midday he returned with new insights about the overgrown living quarters of Ketaf, Fenlás, Koslo and the so-called »royal path«, which leads from the northern side of Lölö to the SE all the way to the place Inmakaük. The mooring time of the »Peiho« in Kusae was very limited, for all the work to be accomplished. This would relieve Sarfert during his anticipated longer stay. A new work program was therefore decided upon. This would offer a fair chance to finish a complete survey of all the structures, from February 8—22. The tasks were distributed in such a fashion that this survey was entrusted to Hambruch. Lorenzen, the officer of the ship, was assigned to measure the channels of Lölö. Hellwig was supposed to initially supervise the work in Kinjer, too, to train the native laborers in clearing and, after enough teaching, to investigate the old compound of Lörran. Recording today’s settlement became Sarfert’s work.

With the help of axes and machetes the basalt walls were freed from their overgrowth, the interior of the compounds of Kinjer felät, Lörran, parts of Bat, Insomuen, Innoll, and Insaron were cleared. The vegetation in the part of the channel in-between Baslalap and Fänäna all the way to Lörran were cut down. Enough of the vegetation coverage of the other, smaller coral walls was removed so that the course of the wall could be determined in the most necessary way. Rough sketches of the map were drawn into a notebook, and after we plotted our position with a Routen compass—Hellwig had to do with a normal compass—the general direction of the wall was established, their length, was measured with a 20 meter tape, the height and depth most of the time with a wooden scale. The produced results were, on the spot, jotted onto a sheet of graph paper. After the structures were sufficiently cleared and thus space and light for photos was produced, this became Krämer’s main task. Most of the pictures he made measured 18 X 24 cm. Hellwig supplemented his topographic pictures of Lörran with numerous photos of the size of 13 X 18 cm. Sarfert made some pictures of the size 13X18 and Hambruch of the size of 9 X 12. All together 51 photos were taken of the buildings, supplemented by a number of accomplished watercolors by Ms. Krämer. Unfortunately the work was often impeded by the unfavorable weather. Heavy rain showers, lasting for hours, often forced us to stop working. Nevertheless, they were all accomplished in the affordable time so that, by the time the expedition moved on to the Marshall Islands, only the settlement east of Pekäf and in Mitais were not finished. In the first two weeks we were able to establish the setting of the structures in such a way, that the old settlement stood out clearly in all its forms.
I still have to mention that the destructive forces of the tropics, rain, vegetation, and most of all typhoons, which quickly visit the island one after the other, have destroyed quite a lot, of what still stood in awe inspiring beauty and grandeur at the time of KITTLITZ and HERNSHEIM. In those times, the survey of the buildings would have been accomplished much easier. It was surprising to see, when HAMBRUCH visited Kusae half a year later, how the vegetation had regained ground. Except for the compounds cleared by the expedition, Kinjer felät, Lörran, and parts of Bat, where the natives had planted sugar cane, all was once again covered by a think blanket of vegetation. Hibiscus had grown to such an extend, that a visit of Lörran’s channel bed was completely impossible. Today, the buildings probably slumber in the native’s renewed oblivion. The expedition’s recordings saved it for mankind. Although the survey has been a fleeting one—under the given circumstances they could not have been different—it nevertheless does not lack anything important. A more detailed survey, would have needed better equipment, instruments, and just as many months as the expedition had weeks, it nonetheless would not deliver a different result.

The setting. Despite the decay of the buildings, one can still observe that they were about to extend them when the island came under the influence of the whites. According to our findings, and further according to the statements of the natives, large sections were then under construction. Though the principal features had been preparatorily sketched, it is not always easy to distinguish the unfinished sections from the leveled ones at first glance. The statements of the natives offer a certain security for the last ones. Thus, the massive separation wall in-between Kinjer sisik, Jefokfas and Inkoanon once went all the way down to the beach and separated Kalan from Funsael. This part of the wall had just as well been abolished as a similar basalt wall, which separated Funsael, Jeme ten and Uätu from Inkoanon, Jeme Ian and Kepal. Only small remains of both walls currently exist, individual blocks still give away the old position, because the other material was used to fill in Funsaal, Jeme ten and Utäu, which today form the MELANDER’s wharf. The coral wall on the southern side of Bot was also leveled and the same fate befell the basalt walls, which still had been under construction on the south side of Matankin, at the mouth of the main channel into Lölö-Harbor. During high tide the remains of the walls are here under water, though at low tide their course is still well visible (plate 5,1 and 9,1). The border walls of the channels were also about to be extended. Only the entrance of the small channel between Matanbak, Bakimä and Fenpe and where the channel has its course in-between the rectangle of Fenläs Fänänä and Tsemuta, Fänänä, bat nd Baslalap, Insra, Fennbota and Foton, Luorran, Insra, and Insaron. Basalt walls supposedly should cover it on all sides, and
1. The channel side of Lörran compound.

2. The master’s entrance on the NE side of Lörran.

3. The servants’ door in the channel walls of Lörran.

4. Basalt frame of the foundation of the house for foreigners and guest house in Lörran.
1. The door C (Illustr. 135) in Kinjer felät with the walled path and separation wall in-between compound II and IV.

2. View over Lörran compound, from the house for foreigners towards the royal entrance. In the foreground several basalt stones for kava pounding.

3. The basalt sitting stone for the King in Lörran. View towards the royal door and the place Kefo.

3. The servants’ door in the channel walls of Lörran.
the foundations supposedly were also made of it. Only in very few areas, such as in Käpugasuk, the western side of Käfal, Kärense, Usen lan, Usn and the channel islands Usen and Nau Uamik, as well as on the northern side of Jatkäf have they been replaced by coral blocks. This material is easily available, while basalt has to be brought from far away. Therefore, we are not surprised that the compounds of Lölö are only one quarter built in basalt and it seems that it was not always related to the importance of a compound, as the overview of the individual compounds with the respective residents make it visible. The royal compound, for instance, in Pösal does not have the imposing appearance, which Lörran, as the seat of an aristocrat like the sesa, must have had. But still, it is possible that in former times the seat of the King had been in a better-looking compound. This actually can be assumed because in Ponape, too, the absolute ruler of the island resided in the splendid compound of Pan Katera. However, we have to stick to what we find today, thus, we have to distinguish three different settings: The basalt stone enclosures, which surrounded living compounds, taboo and cult places next to the sarö-burial chambers, then the living and cult areas surrounded by coral stones, and the channels. All three form an organic unity. Except for the last ones, they are all for the greatest part constructed on artificially raised ground. The investigations of the ground of Lörran, Kinjer, Penso, Jatkäf proved that human hands had built them using coral rubble and pieces of basalt. When we dug in Ineoluk we found, after the removal of the top soil layers, the old 3/4 m high coral sand on top of the actual reef. A similar diagnosis were the result so of the excavation of the sarö in Ínnoll and Käfal. Here the sand layer over the reef was about 1,20 m or 0,80 m high. The artificial raising did not happen everywhere to the same extent, so that the level for all the structures would be the same, they are all different. But the living yards were raised so much that the high tide did not go beyond these yards, even when the paths to them and the neighboring areas were under water. The house places were always dry, as can be seen clearly today in Penso, Bat and Fänänä, while this cannot so clearly be seen at the alterations and raised parts, which have been executed for the living yards on Lölo-Harbor from Lanošak to Uåtu. As far as our investigations can be unified into a result, Lölo is built on at least two reef islands and on one sand-bar. From Pisin it was established by SÄRFERT (p. 44), the second reef island comprised the places Kinjer, Fenkalkol, Lukonlölö, Irläp and Ineoluk. On the sand-bar to the west of Lölo-Island are situated: Usen, Jatkäf, Fenpok, Kärense, Motonte, Kenineal, Ketaf, Los, Fenläs, Koslo, parts of Insomuon, Ínnoll län, Innoll, Inmakauf, Likin pot, Jomela, a small part of Lörran, Katem, parts of Pösal, Funbon, Penkom, Pekäf. Maybe Matanbak and Likesa are also an extended sand-bar. No
respective investigation has been conducted, nevertheless, both mentioned places are dry at all times. They, as well as the other not especially mentioned places, all have to be considered as artificial buildings erected on the reef and during high tide no pushing water can be detected, which is so characteristic with the other yards.

The Method of Construction. Two sorts of material can be considered for constructing the buildings, basalt and coral blocks. The first one was brought from the main island. SARFERT offers us more insight on p. 252. The coral blocks were brought from the neighboring reefs. The basalt, eot salsal (stone, black one) also called eot muän (stone, man) is used in spherical blocks, eot muän tukunkun, in massive, irregular ashlar blocks, eot muän, and in the form of four to six angular, quite irregular columns, eot maspan. The coral stones, eot ian (stone, woman) also eot fasfas, is used for filling, hos uis, in the spaces between the basalt walls (pot lalap). For this mostly small and big irregular blocks are used, while the coral blocks are used for stacking low, separation

walls (pot sisisk) in the big compounds and for fencing places of the second order. We could not learn anything about how the basalt blocks have been broken. No traces were found on them from artificial blastings, probably natural fissures in rocks were enlarged. The most adapt material will have been chosen from the fields of detritus and from the erratic blocks, many of which are distributed all over the island. Individual blocks are up to 2 1/2 m long and 3/4 m wide. The spherical blocks measure 21/2—11/4 m in diameter. Without any doubt the Kuseaeans, with their simple tools, accomplished quite an achievement. In many cases they had to move blocks of several tons. SARFERT reports about the transportation of the blocks and their stacking to the present Cyclops’ walls p. 252 and 253.

Each basalt wall consists of sets of layers, lane ne mulō (illastr. 132—134). Stretcher and binder alternate, though there is no uniform
V. HOUSE, COMPOUND, AND VILLAGE.

The system in the construction of the walls. The consistency of the material determines their usage. In general the principle is followed, the foundation (ka eot) and the corners (tsuna sik en pot) of the walls as well as the frames of the doors (le uenior) are uniformly built from specially heavy blocks (compare plate 42,1:42,2; 43,1; 43,2; 43,3; 44,1). The bottom layer of the walls, which is mostly covered by the raised ground and therefore not visible, consists of big roundish blocks, ashlar block or columns, over which the next layer consisting of binders made of the same material is placed sideways. The resulting cavities are mostly filled with coral rubble but also with smaller pieces of basalt. This way of construction can be seen best where the walls have been built by basalt columns (compare plate 42,3 and 44,1 and the diagrammatic sketches illusr. 133 and 134). The internal consistence of the walls can be seen where they collapsed in the course of times and the coat of the wall broke off and its interior was revealed as at the NE door of Lőrran (compare plate 43,2). Here the outer filling of the wall with coral rubble can best be seen. No mortar and no wooden connection cramps, to secure the strength of the individual blocks, were used. The resulting holes and cracks of the walls, due to using mixed and irregular material, were evened by inserting smaller pieces of basalt or coral in and between (compare plate 42,1 and 43,3). The walls were not raised vertically, but they get smaller at the top. Their width varies. Basalt walls are at the bottom between 3 and 7 m and on the top they are $1 - \frac{1}{2}$ m smaller. The low coral walls are $\frac{1}{2} - 2$ m wide. The widths are not much different from the top of the wall fuai e la to the bottom. For the external sides (lik en pot) heavy, solid, and
bigger stone material is used for the wall than for the inner side (län en pot) (compare plate 42,2 with 42,3). The doors in the living compounds and in the fortress were built with raised abutment piece and were closed with palisade fence (kal), if necessary.

1. The fortress Kinjer felät. The best known and formerly for Lölö most important structure is the living compound Kinjer felät. It served the inhabitants of the city in troubled times and times of war as a refuge and it was as the center of the defense outfitted as a fortress. Accordingly it had a commander, the Sina, which was appointed by the King from his aristocrats. This honor was hereditary. After his death another suitable man was chosen.

Initially situated on a reef island and built very close to the water, when the surrounding parts of the reef were not yet raised and built on, this situation must have offered excellent defense opportunities. In the coming years this, with the many changes in close proximity this was no longer the case. Nevertheless the old purpose was kept.

The structure forms nearly a rectangle, the big axis of which runs from NW to SE and the small axis from SW to NE. Mighty Cyclops walls, consisting of 7 units and 10—14 layers, several meters thick, enclose the space. Low dividing walls made of corals separate the compound into 4 partitions, of which III served the burial of the commander and I, II and III served as living quarters. 7 doors, or better entrances, lead into the interior, they have raised abutment pieces, the height of which is the same as the walled path, which is behind the high basalt walls and on which the defenders could fend off the hostile onslaught. The ground of the fortress is artificially raised with coral rubble and is about ¾ m higher than the level on the outside. The incline leading to the abutment piece of the door thus has a smooth course and a sudden descent at the exit. Today these descents are hardly noticeable—probably best at the NW door—because the natives created more comfortable access to the interior of the court by leveling the abutment pieces. Only two small doors, door a from the NE side and door b from the SE side, do not have these abutment pieces. Here comfortable paths lead into the fortress and out again. Due to their relative smallness, door a is 3 m, door b 1,30 m, their defense, in case of war might have been easy, especially because a leads to the landing place at the channel, b only to the only 2,20 m wide defile in-between Kinjer felät and Pennem. The doors are not the same size. The middle door on the NE side (b) is the widest: 6, 50 m. This door together with the 3,70 m wide NW door and the 3,60 m wide SW door are the main entrances. Secondary entrances are the 3 m wide door a and the 3,40 m wide door c on the NE side and the 3,60 m wide door a and the 1,20 m on the SE side. The measurements present the width of the abutment pieces. On top, in the open, we have to add 1—1½ m to the measurements. The side walls of these doors are lined with
basalt blocks and columns (compare plate 44,1). On the corners special heavy blocks were inserted, the weight of which caused the collapse of the walls because of the necessarily faster weathering and crumbling of the coralline filling material.

which happened in the direction of the gravitation of the wall, towards its interior.

The height of the wall is generally 5 m. The NW and the SE corners are 6,50 m high, while the NE corner measures 4,50 m. As can be seen in illustr. 135, the course of the walls are not dead straight, but all sides, most of all the NE side, have small uneven patches which is, in the case of the last one, probably caused by threefold interruption. The thickness of the walls is also not uniform; on average it is 2½ m. They are built from heavy, impressive basalt blocks. The biggest ones were used for the fundament, the lower half of the wall and for securing the corners. Ripping the walls apart was impossible during a hostile attack. Quite different is the case with the upper half of the wall and their top. Building these parts, lighter material was used, the handy basalt in form of columns. Courageous climbers could easily reach their goal and cause a breach in the wall, especially because the filling material between the inner and the outer wall consisted of easily movable and yielding coral stone. In order to easier defend the most endangered points, a wall path was built behind all the walls, of which today only remains exist. The main wall provided enough shelter for the defenders and made it possible for them to quickly climb on top of the wall in order to send off the enemies. The wall path consists of stacked basalt pieces and is about 2 m above the ground of the yard and about 2 m wide. It is interrupted at the doors. In the NE and SE corners the wall path was a little bit wider, here it contained a 1,10 m wide and 2 m long bend. We could not find any reason for this, on clearing the area nothing was found.

The dividing walls in the individual yards consist of coral stones. The separation walls between I and II is 0,90 m high and 1,20 m wide. A 1,70 m wide opening leads from I to II. The height of the walls between II, III and IV is also 0, 30 m, but they are smaller. Between II and III it is 0,75 m, between III and IV 0, 65 m wide. A small opening hard at the NE wall leads from II to III. III does not have a connection with another yard. Here the wall had to be climbed.¹

CHRISTIAN has a map of Kinjer felät, which he calls Pot Falat, in his book ‘The Caroline Islands’, between pages 170 and 171. This record, which had been done in the course of a fleeting visit, is wrong and incorrect. The orientation is not correct. The map is up side down. Instead of NW we have to place SE, instead of NE SW, instead SE NW, and instead of SW NE. The door on the NW side is missing, just as both the middle doors on the NE and SW side. The dividing wall between the yards I and II is wrong recorded, the walls between II, III and

¹ In the last years the compounds were used for raising pigs. While the expedition was in Kusae this usage had been given up and lush vegetation became the owner of the compounds. In order to prevent the pigs from roaming, the doors were closed with stones up to 2m high, which, on first impression, pretend to be a defense structure.
1. The SE corner of Kinjer felät with the defile in-between the fortress and Penem (compare Christian The Caroline Islands, cover image).

2. The NW corner of Kinjer felät (compare illustr. 131)

3. Door of Kinjer felät on the NW side, seen from the inside,

4. Door of Kinjer felät on the NW side, the outside, in the front two grave yards.

The fortress of Kinjer felät
IV are missing altogether. The existence of the wall path has not been recognized. On the other hand, other things have been recorded, which are only partly there or not at all. This is most of all the case of the channels, which CHRISTIAN recorded on the N and W side of his map. Actually the branch of the main channel in-between Kinjer felät and Penso reached only to the door a on the NE side. Its continuation on SE corner of the building is dry and lined with coral plates, just like the defile on the SE side is lined with coral plates, which CHRISTIAN also sees as a flat channel. This defile leads to the dead arm of the channel in-between Penso and Fenbota, which also branches from the main channel. As plate 42,1 shows, this course is blocked at the end with a stone barrier. The barrier indicated on CHRISTIAN’s map, in the NW corner in the W channel, is actually the small basalt wall of the SE side of Penso, which reaches to Kinje felät. Both the other stone barriers, which he indicated do not exist. The one way channel (inin sisikena) between Kinjer and Penso on the NE corner of the structure served for the arrival of canoes coming to Kinjer and also as a bathing place for the commander and his family. Around and next to Kinjer felät there are several other compounds, which in former times also served as living areas. These are Lukunlölö lan, Lukunlölö ten, Kinjer sisik, Jesäka, and Inmatok. They are fenced by a common wall, which is about $1^{1/2}$—2 m high and 80 cm thick and consists of stacked coral stones. The path to the settlement leads past it. On the SE corner it is built from monumental basalt blocks. This wall is 5 m heigh and about 5,40 m thick. It continued on the other side of the path all the way to the beach, which has been leveled today. Lukunlölö was the residence of the aristocrat Sipa (compare LÜTKE and V. KITTLITZ). Kinjer sisik the one of Sefisä. Of these old compounds only the walls and the graves remain. The house sites are no longer recognizable. All, except the surrounding area of the modern house of Maia in Lukunlölö, was covered by dense vegetation, mostly bush, some breadfruit trees, and palms. Both parts of Lukunlölö are not separated. On the NE side and the next quarter of the NW side the main channel is the border. The NW side accompanied from the path to the channel, leads dead straight, while the SW side has a right angle where it meets the NW side. Behind the second niche of this one, is the location of the big, closed burial square of the former inhabitants, which is enclosed by coral stones. The SE side is formed by the walls of the fortress Kinjer felät and continues for 33 m in a low coral stonewall, which also separates Lukonlölö from Kinjer sisik. Then it suddenly turns in a right angle to the east but after 25 m continues in the old direction to separate Lukonlölö from Jesäka. Wherever it encounters the path is
a single occupancy grave enclosed by coral walls. This living compound also has two more burial places. The first one is a closed rectangle build of coral stones, which leans against Kinjer felât. It contains two collapsed graves, which are covered with coral slates. Here supposedly two women were buried (plate 42,4). The other one is only a few steps further on to NE, on the left hand side of the NW entrance to the fortress (plate 42,4). It is a rectangle made of coral stones, which is open on the SW side, and has a small entrance here, which leads to the stone covered single occupancy grave. It had been planned to extend Lukunlõlõ towards the channel. Preparations for this had been under taken. A part of the NW walls has been torn down and the foundation of the place has been pushed further to the NE side into the channel. They also had already started to raise the ground. Kinjer sisik is comprised of two differently big, irregular yards. The separating wall starts at the eastern side of the SW door of Kinjer felât. In continues in a south western direction, two right angles aside, and ends on the NE side of the enclosing wall of Inmatok. The same wall borders the second yard in the SW. The NE side forms the wall of Kinjer felât, while the continuation of the SE wall of the fortress, only once broken, closes the compound towards the Kinjer felât in the SE. These bordering walls are built with coral stones. They are about 11/2 m high and 80 cm thick. The closed rectangular area is built from the same material and in the same way it encloses the burial grounds of the inhabitants of Kinjer sisik, which is directly leaning on the walls of the fortress.

The compounds Jesäka and Inmatok do not have any separating walls, Both of them have a rectangular burial area enclosed by coral stonewalls, which protrudes towards Jesäka.

**The residential compound Penso.** On the NE side of Kinjer felât, separated only by a small dead end channel and a moderately wide path, is the living compound Penso with the outlying farm Baslalap. They form an artificial island, which is built deep into the main channel. Penso was assigned as the residence to Sikaus, who had been appointed by the King. In the Yard I (compare with the map) the secondary chief Sikiak had his residence, while yard II contained the quarters of the servants. The walls are still in good condition, but nearly everything is covered by almost impenetrable bush.

Penso has a trapezoid ground plan and is surrounded by 2—3 m high and 11/2—2 m thick walls, which consists mostly of basal in the form of columns. A second quadrilateral made of coral stones, the heights and thickness of the walls of which were 21/2 m, has been constructed on this artificial island. Thus, it divides the compound in an actual 24x30 m interior space and three wide atriums. Once upon a time, different houses, the traces of which are lost today, were standing in all these yards. A small, elongated quadrilateral leans on this interior space, which has an entrance to a dead end channel between Penso and Kinjer
felāt and two small doors on the SE corner. On its NE side is has a small entrance. In former times it served as a burial place of the masters of Penso. The atrium on the NW side has. on the Kinjer side, the bathing places. On these there are two, one as an angle in-between the wall of the dead end channel and the NW corner of the wall around the inner area, an oval hole lined with stones. The second one is situated right next to it. There the channel wall forms a bridge of the 7 m long and 2 m wide dead end channel, which protrudes from the atrium and which branches off from it in a right angle. On the NW side of this atrium is the outlying farm Baslalap surrounded by walls of coral stone. The NE atrium has two opening, of 6 and 2 m width, towards the main channel. Here the canoes docked and their passengers could enter Penso. On the SE side it is closed off from the SE atrium by a basalt wall, which protrudes 7 m deep into Penso. A wide entrance connects both atriums. The third atrium has a 2 m wide landing place on the main channel opposite of Bat. A second one is opposite of Fenbota, next to the separating wall of yard I of the Silkiak. In the corner the basalt interior wall of the NE and SE atrium is remarkable, because it is the toilet of the inhabitants of this residential quadrilateral. In the channel walls made of basalt, a niche is built with a shaft, the bottom opening of which leads out into the channel. Trash and faeces were directly disposed into the bed of the channel.

The residential compounds Bat, Fänänä and Tsemuta. These three compounds are enclosed by a massive, well preserved Cyclops wall made of basalt. They are situated on the main channel, the other side of which is bordered by Penso. Thick hibiscus bush covers the walls and also renders the interior impassable. Bat was the residence of the Sikera.

The three compounds, of which Bat is the biggest, while Fänänä and Tsemuta together are approximately as big as Bat, form a rectangle, the NW and SW sides of which are on the channel. The NE wall borders with the taboo place Insomuon, the SE wall with the one of Insaron. The channel walls are the most impressive ones. The one on the main channel is about 95 m long, 6½ m high and 4½ m thick. Four opening, each 6 m wide, served as landing places for canoes. Two of them lead into Bat, both the other ones into Fänänä. Rectangular to it is the second channel wall, which is 58 m long, 7 m high and 4 m thick. Two openings of 5 m width lead into Tsemuta. The 55 m long wall towards Insaron is closed. Its height is 5 m and its thickness 3½ m. The 2 m high and 1½ m thick border walls towards Insomuon is only closed towards Bat. From Tsemuta there are two entrances into this taboo place. One is 7 m wide the second one 2½ m wide. Here the wall is 5 m high and 2 m thick.

In the middle of Bat there is a 18X20 m big stone enclosure, which has on its SE
side a small door. The walls, consisting of coral stones, are about 1, 50 m high and 60 cm thick. With a 22 m long connecting wall the enclosure leans towards the basalt walls of Insomuon. While the compound of Bat is mostly under water, the interior of the enclosure is considerable raised with slates made of coral stones and carried the dwelling houses of the Sikera. The separating walls between Bat on the one hand and Fänänä and Tsemuta on the other, and in-between these, are closed. They consist of coral stones, about 1 m high, and 60 cm thick. Fänänä is divided into three section by two parallel coral stonewalls, of which only one is finished.

In Fänänä and Tsemuta, too, the artificially raised ground has caved in due to weathering. At times of high tide the compounds are under water, during low tide covered by an impassable mire.

4. The royal compound Pösal and the neighboring residential compounds. Considering the so far described residential compounds the seat of the Kings of Kusae is not really impressive. It does not form a complete unit like Kinjer, Penso, Bat, etc. Its setting is open, most of the yards are only separated from each other by low coral stonewalls. Only one mighty basalt wall, 60, respectively 45 m long, 4.50 m high, and 3 m thick, separates the royal compound from a part of the other aristocratic residences. (Compare with the map). Katem sisik, Pösal, Kefo, Katem, Pekäf lan, Fenso, Inlokpus, Pekäf, Penkon, Funbon form the seat of the Kings, among which Pösal once was the main place. This has been taken over today by Fenso and Pekäf. Today, only the last two have been readied for residential means (see pp. 41 and 247). All the others are mostly overgrown. Pösal itself is a meadow covered by grass. The barriers between the individual residential places (compare map) are formed by low 1\(\frac{1}{2}\)—2 m high and about 80 cm thick coral stonewalls, mixed with basalt pieces.

Of some of the residential yards the gravesites of the inhabitants are still preserved. As for instance in Pösal, which has two graveyards, which are bordering to Katem sisik and Kefo, and are surrounded by closed walls (compare plate 45,2). Here the deceased women and men were buried, with the exception of the Kings, who were interred in the sarō. Only after the beginning of the Christian Mission, the Kings also found their last resting place here, thus King George, next to whom the 1910 deceased old Tokoscha had been buried. The burial site of Kefo, where Sesa uil had been residing, is situated right next to the one of Pösal. Katem was the residential compound of the Kanko. All that remains of it is the border wall with Kefo and Pösal and the burial place. It consists of two burial chambers, which are separated by a crosswise wall.

5. The residential compounds in-between Kinjer and Pösal. In-between Kinjer and Puosal are a number of compounds, not all of which have been preserved in their original way. Quite a number have been adapted to today’s needs and
necessities. In particular Funsael, Jeme ten, and Uåtu, which are now the property of the trader Melander. In comparison to before, they look completely different (see p. 42). The places situated in the west offer a chance to imagine how it must have looked in former times. In order to do so, we have to imagine the former 5—6 m high basalt walls, which recently have been leveled, and of which only a few heavy blocks remain. Only 40 years ago, they formed the continuation of the SE wall from Kinjer all the way to the beach. Then the before mentioned places next to Inkoanon, Jeme lan and Kepal, today north of the village path knew.* The three last ones are separated from the path by a low coral stonewall, from Katem sisik and Pösal by a 60 m long, 4.50 m high, and 3 m thick basalt wall. Jeme lan is part of Kepal, Inkoanon consists of two parts, one closed one, a rectangular yard surrounded by coral stones, and an open one, which is neither separated from the village road nor from the neighboring place Jefkofas by a distinguishable border. Jefkofas was the residence of the Selem. Today, there is only one burial site, a small open rectangle on the SW side. Towards the next compound, which had been the residence of Sikera, it is also not walled off (compare with the map). Maybe the walls that are missing today, of which only some remains are recognizable, have been leveled with the construction of the small coconut plantation in Jefkofas and Penem. On the other hand, the residence of the Hallek nana in Fenbota is completely preserved, as well as the compound Foton, which is separated from it by a 4 m wide path. Both are situated on the main channel that leads to Lörran, and they have a common landing place for canoes, which has been constructed at the end of the path between both compounds. Foton has a small special landing site on its own, which is situated a little further up the channel. Towards the water side Fenbota is bordered by a 4.50 cm high, 2 1/2 m thick basalt wall, while the wall bordering Pennem and Fefokfas and some small yards which probably were burial sites, consisted of 3 m high and 1 m thick coral stonewalls. A 10,50 m long and 2,50 m wide extension is inserted into the channel, the walls of which are 6 m high. Foton is a compound enclosed by a massive 4,50—5 m high, 2,50 m thick basalt wall, which is only separated from Katem sisik by a low coral stonewall. From the 4 m wide path on its NW side two, 11 m and 13 m wide entrances lead into the interior of the compound, which is today overgrown by impassible hibiscus bush. Both entrances had been closed off with 31/2 m high coral stonewalls. Nothing could be learned about the inner composition of this setting. However, remarkable is the 10 m long stone terrace built with basalt pieces along the channel wall, where in former times the inhabitants enjoyed their rest. On the SE side of the compound there are two entrances to Kefo, as on the NW side. They, too, have been closed with left over stones.

6. The residential compound Lörran. The best preserved setting among the residential compounds of

* [Sentence does not make sense; comment CCHPH]
Lölö is Lörran, the former seat of the Sesa.\(^1\) It offers, next to the

\(^1\) According to accounts of SARFERT only the King had a residential compound (Pösal), not the other title holding chiefs. The statement that chief Šesa lived in the compound must be understood in the sense that the last inhabitant was Šesa. Its predecessor could have been another title holding chief.
described residence of the Sipa by LÜTKE and V. KITTLITZ, an excellent insight into the old life style of the Kusaenans. HELLWIG’s careful clearing, he had each unnecessary tree removed and afterwards cleaned the compound of all grass, leaves, and weeds and his recordings made it possible to get precise hints about the old setting. The results are presented in the map of Illustr. 136.

After Penso, Lörran is the biggest compound, in that it has been designed only for residential purposes. It has a trapezoid like ground plan, only the SE corner jumps 5 m into the compound. The walls are mostly made of basalt (compare plate 43,1–4, 44,2–4 and 45,4). Only the S corner on the right side of the main door for the King until the opening in the SE wall is built 2 m high from coral stones. It is 2 m thick. The basalt walls are built much stronger. Huge blocks of 21.2 m length and about 1 m thickness and width are inserted in it. They are not only in the foundation or on the ground level, but in some places also at a height of 2—3 m. These walls have a height of 3—7 m and are 2—7 m thick. (see illustr. 136). A number of openings lead through the walls. Their widths are quite different. The biggest door is 9 m wide, the small gaps 1½ m. The side walls of these doors (compare plate 43,2) consist of imposing, partly chosen, straight, and sharp-edged basalt columns. The heaviest are located at the bottom, towards the top the wall becomes narrower. Here, smaller pieces of basalt are used for the construction. Unfortunately, a number of doors has collapsed. With the exception of the wide door on the SW side all openings have ½—1 m high abutment pieces. They were closed off with fences made of palisades through which led only a small entrance.¹ The purpose of the doors was different (see illustr. 136.) The aristocrats used the wide one, the master’s doors (compare plate 43,2). The servants and the common people came and went through the small ones, the servants’ doors (compare 43,3). Only during big celebrations were the wide doors opened for everyone, especially when the column came with the prepared food. A part of the top of the huge channel wall had been made ready, so that in the beautifully moon lit nights people liked to sit there. A special sitting opportunity was the 24 m long and 1 m wide wall path on the inner side of the channel wall in the W corner. A bathing hole is in this wall path. It measures about 1½ m in diameter, is 3½ m deep, and was fed water from the channel, which came in through cracks in the channel wall. Like both other bathing holes (see illustr. 136), which are set into the ground level of the compound, they are 1½ m deep and get their water from the same source, it was lined with basalt stones (compare plate 44,4). A man could bath in there, better he could cool off and rinse off. In-between the two bathing holes, close to the door, which leads to Kefo, a 3/4 m long piece of an even seven-sided basalt column is situated, (compare plate 44,3). This is the place of honor for the King, during his visits in Lörran, no other compound had the like.

¹ Today this part of the walls is closed with defensive stone structures in order to prevent pigs, which are kept in Kefo and Jomela, entering.
Once the area was cleared and wrestled free from the bush, as in Kefo, it had mostly consisted of hibiscus thicket that had been cut down (compare plate 44,3), we had a good overview of the former residence. As there were still natives who could inform us about the cleared areas of the compound and the house foundations, Lörran deserves detailed recognition. We have to distinguish between three secondary yards, I—III in the large residential compound (see illustr. 136). The middle yard II is surrounded by a 1½ m high coral stone wall and served as a burial place. Three gravesites were still well recognizable. In them the Sesa and two of his relatives are buried. In the grave of the Sesa, left from the entrance, we made a number of findings: pieces of metal, the housing of a ship’s lantern and others, but all this seemed to be from the whaling period of Kusae. The other graves had nothing. The skeletons were molded, so that it was impossible to save them. According to the information of the natives, the secondary yard I supposedly also had been a burial place. It had not been used, for a long time, now it is completely leveled, and there is no trace of the burial sites. The secondary yard II, judging from the poor remains of a coral stonewall, had once been closed off from the main yard. It is not known what purpose it served. Important and interesting are the seven uncovered places of houses IV—X (see Illustr. 136). IV is the biggest foundation of a house (compare plate 43,4 and 44,2). It was the cooking house which served at the same time as a men’s, foreigner’s or guest house. The actual foundation of the house measures 12 X 11 m. In front of both the smaller sides are approximately 3½ and 5 m respectively front places, which are carefully lined with basalt columns. The wider one is paved with basalt slabs, the smaller one with coral slabs and both served as sitting places. The basalt pavement was reserved for the aristocracy, on the other one sat the domestic servants. A smaller front place on the SW side of the house connected both places. It was paved with coral stones and also lined with basalt columns. According to old pictures of Kusaean houses, the house itself did not have a stone pavement, but a wooden grating on the ground. Today, only the bottom part of the former corner posts of this house are still existent. On the servants side there was a separate 3½ m wide room, in which were four square fire place, lined with basalt columns (compare plate 43,4) while inside on the NE side of the house there were three massive kava stones (compare plate 44,2). These kava stones testify to their intensive use, because in the middle they have groove, which nearly breaks the stone in half, where in former times the kava was pounded. The other, the bigger part of the room served as a sleeping quarter. From the master’s door, on the NE side of Lörran a wide and paved path, lined with basalt columns leads to the spot, where in former times the entrance of the house must have been. A similar but shorter path leads to the next foundation of house V (compare plate 43,2), the last residence of the Sesa. It measures 4½ X 6½ m and on the side towards the graveyard it also has a
sitting place. The four corner posts and the fireplace in the middle are still existent. A path lined with basalt columns leads in the secondary yard I. Separated only by 1 m from this house is the old residence of the Sesa. It had bigger measurements. The foundation measures 7 X 8 1/2 m. The corner posts of this one are also still there. The fireplace is close to the NE side of the house. The other four houses of the residential compound were built close to the wall of the channel. VII was the residence of the predecessor of the Sesa. It has a square ground plan, 6 1/2 X 6 1/2. Today, there is only the fireplace in the middle of the house left. The borders of the other three houses can only be distinguished with great difficulty. VIII was 4 X 8 m large and was the house of the 2. wife of the Sesa. IX was 4 1/2 X 6 m large and was the house of his daughter. X, in the corner of the compound, was 5 X 6 m large and served as residence for the cook and his family. Only the Sesa had constant access to the residence, which, at the same time, was the women’s and the children’s house. For all others it was forbidden.

The compound Likinpot hugs the NE side of Lörran. It is surrounded by low coral stonewalls and contains one more closed off secondary yard, which is built along the wall of Lörran. Likinpot supposedly was also a residential compound. The NW side is bordered by the end of the main channel, the NE side by a path, which once led to the end of the main channel, then continued as the crosswise path from Lölö-Harbor to the northern side of the island. The so-called »royal path« ends also on the main channel. It leads towards the northern part of the island, past a number of residences and taboo places aiming for Innakauk, where it suddenly turned at a right angle to the end of the main channel. The elongated place Jomela extends along the SE side of Lörran and Likinpot. It is divided into two parts, both of which are surrounded by closed low coral stonewalls. We only learned that it served as a piggery for the royal places. We could not ascertain if it formerly had another purpose, because pigs had only been introduced by the Europeans. Thus, we do not know if this stone enclosure had only recently been built.

7. **The other residential compounds.** During the survey of the old settlement the compounds Kalan, Fen kal kol, Innoll, Fenläs, Ketaf, and Jerekaf were explicitly described as residential compounds. Of the rest, besides the 8 taboo or grave sites, we could not get any more information. The indicated compounds served as residences for the relatives of the aristocracy. Kalan belong to Siken, Fen kal kol to Seas, Innol to Sisapuän, Fen lass to Selik, Ketaf to Seku and Jerekaf to Semuta. These compounds do not offer anything special. With the exception of Fen lass, which is partly surrounded by high basalt walls, they all have low coral stonewalls. Half of Kalan is part of Melander’s compound, the closed off quad of the gravesite is still there. Fen kal kol is today a desolate place, the same is true of the Jerekaf, the double compound Ketaf and Innoll, which is divided in three parts: the taboo and säro
place Innoll, the residence Innoll with the grave site Intja, and the yard Innoll lan, the length of it occupies almost a third of the »royal path«. Fen lass is build along a side arm of the big main channel of Lölö. The whole setting is one of the biggest ones in the settlement. It is divided into a main yard in the NW and SE corner of which two secondary yards have been divided off, while on the northern side a yard, separated by a wall, has been added. The channel walls consist of basalt and are about 4 m high. On the southern side there is a landing place for canoes, about 3 m wide. The other walls are made of 2—3 m high stacked coral stones, which completely enclose the compound. No entrance into the compound exists from the path, which finally ends on the channel. In Kusae this settlement was interesting because is should be the residential setting which was described by LÜTKE and KITTLITZ (see p. 241/244). However, the translator had made a mistake, because once we had found LÜTKE’s map (see p. 241) it turned out that it was impossible that this could be Fen läss. The paths, which are indicated by LÜTKE, and further on the measurements of the structure do not correlate at all with the map (compare map). Lukonlölö is the compound described. Though the way it looks today, it can hardly be recognized as the described one. However, the setting of the paths and LÜTKE’S measurements help with the identification, just as the statement of the natives, that the Sipa had his seat in Lukonlölö correlates with the portrayal of LÜTKE and KITTLITZ. LÜTKE writes: »L’emplacement entire était de soixante-dix pas en longeur, et de trente en largeur.« The old pas measurement correlates with 2 1/2 pieds and this is approximately 0,81 m. Thus the compound had a length of 56,70 m and a width of 24,30 m. The road, which leads along the compound, is today’s path which runs approximately parallel to the beach. The road, to which the residential compound opens, the path that branches off at the forking of the main channel.* The width of the compound is apparent from the border walls in-between Jesäka and Lukunlölö lan; 24 1/2 m. The distance from this wall, which hugs the path to the main channel, is 57 m. The original measurements of the length and width of the construction have been preserved. In later years the long walls have been modified. The section of the wall next to which the houses D and E of LÜTKE’S map have been erected has been leveled. The open entrance towards the road has been closed and the SW wall in the area of the house A has been included at a right angle. In addition, at the places where the houses B, B, D, and E are situated, a gravesite has been built. In KITTLITZ’S portrayal we can see that the compound of Sipa had been situated quite close to the landing places of Lölö-Harbor. This would also correlate with Lölölan, which actually can be reached just a few steps from the beach.

On the map there are still more places, surrounded by coral stonewalls,

* [Verb is missing: comment CCHPH.]
indicated but we could not find more detailed information if they were residential compounds or taboo places or burial places respectively.

8. Taboo and burial places. A number of partially, with massive walls enclosed compounds served cultural purposes. With the decline of the old Kusaean religion they lost their importance, so that today we only know the original purpose of a few. Of most of them it has been lost. The natives only seem to have a certain shyness of the former gravesites and mock gravesites, the sarō places of Insaron, Innoll, and Insomoun. The sarō place of Käfal has been completely forgotten. Initially HELLWIG and HAMBRUCH had to
overcome the resistance of the natives to enter these areas. When Lörran was surveyed several people fearfully avoided to get close to the bordering wall with Kefo, as even during daylight hours evil spirits were playing games.

On the other hand, places, which had formerly be considered holy were quickly and thoroughly desecrated. As for instance, the formerly important places Keänmuän and Ineoluk, where at certain times turtles had been sacrificed. Today, Keänmuän has been reduced to be the common toilet of Lölö-Settlement. It is situated on the fork of the path opposite of Lukunlöö. Low coral stonewalls surround it and separate it from the adjoining Ineoluk, which reaches all the way to the main channel and is bordered on the water side by 3 m high basalt wall. In former times, the sacrificial place was located here. Today it is hidden under rubble and dirt, but a ditch, which had been dug crosswise through the construction, allows us to reconstruct the approximate appearance of this hearth (illustr. 137 and 138). The ground plan of the construction forms a 6x7m measuring rectangle, it consists of blocks of coral stones which are set about 30 cm deep into the ground (D). In the middle there is a 1,20 m long and 80 cm deep pit, which originally had been left empty and which also had been filled with coral stones. Two 45 cm high and 90 cm wide steps lead to the top, where the structure is only 2,60 m wide, they consist of coral stones (A), so that the pit originally had been 1,40 m deep. Initially, the sacrifices were made in the pit, this is indicated by a mass of densely filled burned lime, charcoal and turtles’ bones, which are stacked in regular layers above each other, separated by layers of charcoal. Over time, the pit had been filled and the mass, as a massive block (B), stuck out of the construction and finally raised 60 m above it. The layers make it obvious that in the end the sacrifices were made on this base. After there were no more sacrifices the sun and the rain caused pronounced weathering of the sacrificial block. The products of the weathering fell off, covered the steps and thus created an ungainly hill, of which nobody could notice its former purpose, until it was reopened with axes and spades.

With the exception of Käfal the sarö places Insaron, Innoll, and Insomuon are located next to each other. Concerning the significance of these sarö SÄRFERT pp. 247 offers remarkable insights. LESSON, II, p. 496 describes their former appearance quite vividly (see p. 248). They, too, have fallen into disrepair, but the research made a reconstruction possible, which correlates well with LESSON’S statements (illustr. 138—140).

Insomuon is the largest sarö place. Massive basalt walls, on average 4½ m thick and 3 m high surround the compound that borders the SW side on Bat and Tsemuta, with which it is connected by one small and one wide door (see p. 276). The NW side is 70 m, the NE side 84 m long. Here the 14 m wide and 84—90 m long atrium Insomuon lan has been added, which reaches all the way to the »royal path«. The SE side of Insomuon is 80 m long and in the middle has a 10 m wide door which leads into Innoll. The interior of the compound is partially badly swamped.
In particular the wet parts are overgrown with dense hibiscus undergrowth. In the NW corner the biggest sarō of Lölöhas been erected. Originally, the sarō was a deadened pyramid (compare illustr. 140), the area measuring 6 X 12 m. It is enclosed by a 2 1/2 m high band 3 m thick basalt wall, which again is surrounded in a distance of 4 m by a second 24 x 26 m long and 3 1/2 m thick basalt wall. On the SW side it is open and has here a 4 m wide door. Unfortunately, it was not possible to open this sarō, as the building had been forgotten for decades and was overgrown by trees and bushes. The typhoon, which had hit the island shortly before had partly uprooted the trees and this had ripped the original construction apart, so that it presents itself today as a heap of stones.
Innoll is right next to Insomuon. It consists of several yards (see map), the residential compound of the Sisaruān (compare p. 281), the small sarō yard with two sarō, with an atrium for the sarō in the NW corner and the atrium Innoll lan, which stretches in front of the entire construction and which also reaches the »royal path«. The atrium of the sarō, enclosed by a low coral stonewall, measures 46 X 56 m. The sarō (see illustr. 139) hugs the high basalt walls of Insomuon. It has a square ground plan and measures 6 X 6 m at its base. It is about 2½ m high and it is built by coral stones and pieces of basalt. This sarō offered a good insight into the construction method and the purpose of the construction. After removing the top layer of a about 1,20 m thick coral stone slabs, the actual burial chamber was cleared. Its purpose was easily derived from its structure. After the coral stones had been removed a 1,20 m wide and 2,50 m long rectangle emerged from the rubble. On the sides it was lined with basalt columns and was also crosswise covered with the same columns. In the area of this rectangle everything was removed, mostly loose coral rubble. Only at the depth of 11/2 m we reached coral sand, from which we finally sieved out the first findings, disks of mother pearl shell, in a depth of 2,30. After we had thus established the chamber might contain an interesting find, all the coral sand was removed and mixed with water and sieved through a hair sieve. In this way the content could be rescued (see the findings). The burial chamber had a depth of 2,60 m, measured from the edge of the lining. Here we reached biological ground, the old coral reef. Thus, the investigation found its natural end. The excavation offered not only insights into the construction method of the chamber, its walls, which were constructed like the walls of the large compounds by stacking stretchers and binders directly on the level of the former sandy beach, which at this spot measures still 3/4 m thick down to the reef (see illustr. 139). Afterwards the sides were strengthened with coral stones and slabs and the sarō was raised to its current height. A low coral stonewall divides the yard in-between Innoll and Insaron into two parts. The smaller one forms the yard for a third sarō, which has a small entrance, after the atrium of Insaron, which is situated on the main channel. This sarō was completely collapsed and broken down, so that we did not investigate further.

Insaron forms another yard, which is surrounded on all sides (see map) by a low coral stonewall. Starting at the NW side it measures 74:46:66:60 m. A 15 m wide atrium, which reaches to the main channel, is in front of the SE side. On the SW side a 20 m wide and 55 m long outlying farm has been built into the main channel. 2½—3 m high basalt walls enclose it. A 4 m wide opening in the wall of the channel serves as a landing place for canoes and offers an entrance into Insra. The coral stonewall in-between Insar and Insaron has been interrupted
in two places for 2 m and 3 m respectively. Through these entrances you can enter both sarō, which are situated right next to each other, with only a distance of 6 m between them. On the NW side a 2 m wide defile (see plate 45,1) separates Insaron from bat. Insra and Insaron are both badly overgrown. Nevertheless, we tried to closer investigate both burial chambers. The excavation of the dilapidated sarō, which once upon a time had been constructed with basalt found no success. We could identify the burial chambers and we emptied them but did not make any finds. Either they had been empty, or the content had been smashed when years ago the structure collapsed. Nevertheless, the exterior form of the sarō was more or less preserved, so that we could reconstruct the original appearance and construction method of the sarō (compare illustr. 140 and 141).

Originally the sarō of Käfal was very low, and collapsed and was just a formless heap of stones, the investigation of which did not reveal anything.

![Illustr. 140. Reconstruction of the sarō of Insaron.](image1)

![Illustr. 141. The sarō of Insaron and the burial chamber.](image2)

**9. The channel.** Concerning the creation and the necessity of the channel, which leads through the old settlement Lölö, SARFERT p. 46/47 made some suppositions, which altogether are correct. Today, it is muddied and swamped, filled with all kinds of trash and studded with mangroves.\(^1\) It lead to all the main compounds, which have special landing places for canoes, but which could not easily be reached over land (compare map). In Lölö-Harbor it has two mouths, the main entrance, today fallen into ruin, is on the south side in between the places Matankin and Bot (see plate 9,1). The second one is on the west side of Lölö, opposite of Pisin. This secondary entrance is still well preserved. Today, it is blocked by the dams that pass it. Heavy, carefully executed basalt walls form the channel walls. In front of the channel entrance is a collecting basin, which is also lined with basalt walls. Here canoes could wait, when others were in the channel and were coming towards them, because the channel here is only 4—5 m wide, so that two canoes could not always pass each other.

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\(^1\) Compare also SARFERT’s map of Lölö.
Traces of today’s channel lining show that formerly a careful embankment and regulation of the channel road by basalt walls had been planned, which later on had not been executed. Only the channel island Usen and the places Usen, Usenlan, Kärense, and the W border of Käfal still have linings made of coral stonewalls. All the other places and the second channel island Nau Uamik the channel linings have been substituted 1—11/2 m high basalt walls, which today have been mostly destroyed (see map). The channel does not have the same width everywhere. At the main entrance measuring 10 m it leads in a north western direction into a wide basin, which is closed in the NW by the island Usen and in the SE by the islands Nau Uamik. The main road continues in-between both islands in a north eastern direction and turns at Fen fokar to SE, mouthing into a second basin. From this basin two dead end channels start. One makes a connection with Kinjer felät and Penso, the other one with Fenläs. The main channel leads out of this basin in-between Fänänä, Bat and Penso into a third basin and from here in-between Insra, Fenbota and Foton towards Lörran where it turns in right angle to NE, in order to end in-between Innoll and Likinpot at the »royal path«.

8. The paths. Next to the channel, as the main traffic artery, some paths connected the individual compounds. Today though, their importance for the traffic in the settlement has shifted extremely, they have mostly become obsolete. This is connected with the task of the old residential settlement, today’s ruins. Today there are actually only three paths, which are considered for traffic. The newly created path, which runs parallel to the beach and which had not existed in the old days. It only uses the old path from the royal compound, leaving the ruined city to its right to the old taboo place Bot, at the entrance of the main channel. Then it continues to the west of Lölö. Its way back along the northern coast is very recent. An old path runs also in the middle of the settlement. The roads starts on the northern side in-between Motonte and Ketaf, it leads to the SE and crosses the channel, passes by Fen kal kol and it meets in-between Keänmuän and Lukunlölö the above mentioned peripheral street, with which it ends. The third path, which remains from the old times, is the one in the far east of the settlement, leading along the mountain slope, connecting the northern part with the southern part of Lölö. However, the map still indicates a lot of other paths, of which some were formerly very important means of traffic. Thus, one path leads from the NW side of Lölö, starting in-between Likesa and Usen, towards the channel island Usen. It is of secondary importance and only offered access to the neighboring compounds. Very important is the parallel path in the east. It starts where the path from the main island, leading over the reef, reaches the northern side of Lölö. It passes the residential compounds Jarrehet, Fenpok, Jakaf, jerekaf and Usen lan and leads into the first wide canoe basin. The shallow water
1. Defile in-between Insaron and Bat.

2. Burial site Kefo with the grave of Aoä Nelepaluk (King George)

3. The channel in-between Fennfokar and Fenn Kal Kol, see towards Käfal.

4. Main channel in-between Insra and Foton, seen towards Lorrän.
of the channel, could be crossed without any discomfort, due to sparse clothing of those days. It left Nau Uamik to its left and reached once again firm ground at Jätkäf, reaching there a wide road which leads in-between Bot and Jätkäf, crossing the old main path, to a wide basin in-between Bot and Umten, where formerly, canoes were anchored. The next road, further east, brought access to Fenpok, Motonte, Kärense, and Kenineal. Then follows the second path, which had been mentioned as still important today as a connection from the north to the south side of Lölö. The path, which lead from the end of the dead end channel of Fenläs to the north side of Lölö, was a private path and thus is of no importance. Though, very important was the so-called »royal path«. It starts on the north side of Lölö, leading in a nearly straight line to Inmakauk, there it turns in a right angle and ends at Likinpot at the end of the main channel. Still today, the fresh water source is here, trickling out of the mountain Täb. In former times is was very important for Lölö’s fresh water supply, if not for the nearby compounds of the aristocrats. On this path all the low class people communicated, bringing food in heavy loads for the residential compounds. The waterways and the before mentioned paths were only open for them at certain times. Whoever was found in Lölö, within the residential city, at other times and outside of the »royal path« was severely punished, possible even with capital punishment. Finally, the last path on Lölö’s southern side served from Umten and Matansoaik as a connection between Lölö-Harbor and the first old path through the settlement.

With the exception of the path leading along the mountain, the old and the recent paths are lined by the walls of the compounds and are paved with coral reef slabs (see plate 8,2). Covered with moss and weathered they are mostly dirty and slippery, but still comfortable to walk. The crossing point in the channel has been made passable with coral blocks and kava stones, while dams cross the channels’ entrances.

9. The beach walls. In their accounts LESSON and LÜTKE report about walls, which stretched all around Lölö, in order to protect the compounds and plantations on the artificial land from the waves. Only at a few places had this ring of walls been interrupted, namely where trees and rocks offered a natural protection SARFERT reports about them in detail on p. 45/46, thus, I can only refer to what he writes there. Today, there is not much of it left in the area of the old settlement of Lölö. All the walls on the harbor side of Lölö have been leveled, some remains are in Matansoaik, Umten and Bot. The foundation of Matankin’s beach wall made of basalt exists still partly under water see (plate 5,1 and 9,1). On the W side of Lölö they have completely disappeared. Only on the northern side from Motonte to the Fenläs path there is still a part left, although
it is partly ripped open. Nevertheless, the importance of the old walls can still be seen. They have been erected immediately on the sandy beach, along the high water mark and they consist mostly of 2—3 1/2 m high coral reef slabs, and also from walls made of stacked basalt blocks, which is about 1 1/2 — 2 m thick (compare map and plate 9,2—4).

The findings. The error to think that the ruins of Lölö were especially old monuments of Kusae’s architecture induced several visitors to gain insights about the structures by excavating. They were all conducted in Kinjer felät, the structure which had remained known all the times since the discovery of the island. FINSCH, CHRISTIAN and in May 1909 even Dr. PAUL SCHNEE, who as the government doctor, stayed a few months. They all conducted excavations, without producing any results. It was the Peiho-Expedition, which while surveying the ruins excavated at several locations with more or less success. Altogether they also were rather scarce. If we had had more time we could have excavated at a few other places and maybe would have brought to light more pieces. This, however, would not have changed the final result, which was produced from the ruins.

Findings in Kinjer felät. The ground of the compound had been dug up repeatedly. Searching it had not been successful, except for two big kava stones which were situated in the defile in-between Kinjer felät and Pennem (see plate 21,2). From the top of the wall in the NW corner we dug out a Chinese porcelain shard. It is a fragment of a large octagonal bowl, strangely without a ring for standing. It is decorated with blue paintings under the glaze and it dates probably from the 18. or 19. Century.¹

In the NE corner, in-between the pieces of the wall and the wall path we found the heavily rusted blade of a European light sword and three kava stones, big like a fist (illustr. 142). All three are made of basalt and have been more or less successfully

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¹ According to the expertise of the Museum für Kunst und Gewerbe in Hamburg.
The Ruins of Kusae on Lōlō-Island
survey by Paul Hambruch
February 1910.

scale 1:2000

basalt walls
coral stonewalls
started or destroyed basalt walls
started or destroyed coral stonewalls
paths
residential houses
old sandy reef islands
the residential compound of Si'pe, described by v. Kittlitz a. Lütke
shaped into a spherical form, by grinding them. The diameter is 5½ and 7½ cm. The pounding areas on top and on the bottom are flattened.

**Findings in Lörran.** The excavations in the grave yard (see illustr. 136) were only successful in one spot, not counting the findings of bones, which could not be preserved. Next to a 4½ cm long and 1½ cm wide blade of an adze made of tridacna (Illustr. 143), the fragment of a bigger shell blade of an adze, we found, in the investigated graves, a number of offerings, coming from the European time of Lörran. A number of differently rusted metal pieces from ships, plates of stoves, hole punch, crowbars, iron ship nails, pieces from the metal parts of barrels, a few bronze rivets from ships, which had been sharpened into chisels, and the well preserved housing of a ship’s lantern. On the bottom part it has the business label Ww. Porter & Sons N. Y., and further on, the dates for the patents of this lantern are indicated there, the last one dates from December 12, 1882. From this we may deduce that Lörran was still inhabited in the first half of the 80s. This correlates well with the information provided by the old Tokosa. Next to it, there were different shards, also the fragment of a Chinese pot with blue painted decoration under the glaze, dating from the 18. or (probably) the 19. Century. Both the other shards are the remains of European earthenware, from the middle of the last century. They are decorated in blue print. On the shard of a plate we can recognize a Spanish landscape, on the left of a hexagonal container a Chinese painting. Maybe both of them are of French origin.¹ From the rubble of the collapsed cooking and house for foreigners we took a big fishing hook (illustr. 114). It consists of mother of pearl and is 7 cm long and 5½ cm wide. Next to the Kava stones there were two big, egg-shaped grinding stones made of basalt (illustr. 145), of which one measures 16 X 14 X 11 cm and the other 18 X 10 X 8 cm.

**Finding in the sarō of Innoll.** The most important findings of the excavation were made in the sarō of Innoll (compare p. 286 and illustr. 139). From the grave in which a man had been buried, we unearthed a calvarium, a piece of the right lower orbita, the lower part of the left temple, and the lower jaw which had broken into two pieces. According to the diagnosis the man must have been around fifty years old. The sutura coronalis is completely and the sutura sagittalis is partly covered, the sutura parietalis is still relatively open. The parietalia

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¹ According to the expertise of the Museum für Kunst und Gewerbe in Hamburg.
are deeply sunken in the area of sutura sagittalis. The lower jaw, especially the chin is strongly developed and built. The teeth are fallen out mostly post mortem. As far as they are here, the molars are well preserved, nor colored, and not at all worn. Other

animals were buried with the dead, because next to numerous bird bones, we found parts of the lower jaw of a rather young dog, a few of the long hollow bones of his skeleton and further on a single caninus of a grown dog.

The dead were accompanied by a number of money pieces and jewelry that could be recovered more or less entirely though partially broken and ripped apart. Money was considered to be several halves of spondylus shells, besa (illustr. 146), two blinker made of mother-of-pearl (illustr. 147) and a ring made of a young, delicate conus snail. called luo (illustr. 148). The money shells are the raw material for the spondylus breast ornaments (illustr. 149) and for the pieces in-between the necklaces (illustr. 150), as well as part of the discs of the necklaces (illustr. 152). All three pieces have been worked on. At 366c, 9:5\(\frac{1}{2}\) cm big, they started to smoothen the part of the hinge. At 366b, 11:8 cm big, the same was done and also at 366a, 11:9 cm big, where the hinge has been ground down completely. All three pieces are strongly bleached and covered with crustations of limestone. The blinkers consist of the hinge- and the middle part made of real mother–of-pearl. 369a is 11\(\frac{1}{2}\) cm long and 1\(\frac{1}{2}\) cm wide
Illustr. 147. Blinker with hook made of mother-of-pearl 2/3 of its original size. (sarō Innoll).

Illustr. 149. Breast jewelry made of spondylus shell, 1/2 of its original size (sarō Innoll).

Illustr. 150. In-between piece of a necklace made of spondylus, 1/1 of its original size (sarō Innoll).

Illustr. In-between piece of a necklace made of cassis, 1/1 of its original size (sarō Innoll).

Spondylus

Mother-of-pearl

Illustr. 152. Small disc of a necklace, 1/1 of its original size. (sarō Innoll).
368 b is 8 cm long and 1 cm wide, the edge of the shell served for fastening the line there. In order to give it more support on each side 4 mm long uvulars were left standing, which for instance broke off at 369b. The hinge forms the lower end of the blinker, here too, just as at 369 b for instance they have broken off. The hinge forms the lower end of the blinker and here as well two uvulars have been left out, around which the string for the actual holder were bound and fastened. No hole is drilled into the hinge to attach the fishing string as it is commonly done with the blinkers of the Caroline and Marshall Islands. Thus, the parts of the hinge and the edge of the pearls shell were used the other way round as it was common. A hook, 369 f, belongs also to the blinker, It also consists of mother-of-pearl and has been cut from the middle part of a shell. The hook measures 3 1/2 cm, the part to attach the blinker is 1 cm long. The third kind of money is represented by a delicately worked conus’ ring, 369 g (illustr. 148). The ring has a diameter of 21/2 cm and is 9 mm high. On the interior side it is smooth, on the outer side it is slightly convex, and on the edges slightly deepened and drawn inwards. The edges are slightly notched by strokes of the file. 

Of all these ornamentations the pendants made of spondylus halves, 366d are interesting at the moment. The part of the hinge has been filed off completely, the edges on the sides are smoothened and in the upper part the pieces have been drilled twice from both sides. A string was passed through and the piece was worn around the neck with its more glowing side on the breast (illustr. 149). 366d is 8 cm long and 6 cm wide; 366d is 8 cm long and 6 cm wide; 366e is 11 cm long and 81/2 cm wide. Among the findings there were also six worked on pieces in the form of a lancet, 369 h-n, which have been declared for the pieces in-between the necklaces. Three of them (illustr. 150) consisted of spondylus and three of cassis (illustr. 151). The first ones are dyed very red and are inclined, the other three are white and straight. They originally are all 6—7 cm long and 1/2 cm wide. The upper half has been drilled trice from both sides. The connection strings of the round discs of the necklace lead through the holes. These discs of which we found several hundred, consist of spondylus and mother-of-pearl shells, they are perfectly circular and 1/2 —2 mm thick they have a diameter of 0,7—1,7 cm, and the ring of the disc is 1—5 mm wide (illustr. 152 a-b). These small discs were strung on strings, for instance this may have looked like the āt-necklace (see illustr. 9), for instance in a form as it has been illustrated in DUPERREY (illustr. 153, compare illustr. 10). At least jewelry as worn today in the Caroline and the Marshall Island testify for this, besides the smallest discs could hardly have been used in the big necklace with its pieces in-between (illustr. 154).

The findings of the excavation of Innoll are completely identical with the ones of

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1 A ring, a little bit bigger, is currently missing, due to the many reorganizations of the collection during the war.
V. HOUSE, COMPOUND, AND VILLAGE.

Illustr. 157. fafa-pounder made of basalt.
1/2 of its original size (Käfal).
HAMBRUCH’s pieces found in the investigation of the ruins of Matolenim (see HAMBRUCH, Ponape) and do not differ from them in any way.

In the area of the old residence of Innoll the broken piece of a massive, badly damaged fafa-pounder (illustr. 155) was found. It is made of basalt and seems unfinished. The piece is 17 cm high, its head has a diameter of 10 cm and on top there is a low pyramid as an upper part. The bottom part of the pounder is flat and smoothened.

Finding in Isra. On the landing place for canoes on the side of the main channel there was a badly broken basalt piece. It was about 40 cm high and represented a human head, because of its weight we could not take the piece with us.

Finding in Fenfukar. In this place we found a $21\frac{1}{2}$ cm long, $6\frac{1}{2}$ cm wide triangular splitter of a basalt column (illustr. 156). All sides are smoothed. This piece was used to open coconuts and to work on wooden instruments.

Finding in Käfal. In this place we found the excellently carved, all over smooth, nearly polished fafa-pounder made of basalt (illustr. 157).

Findings in the sarö of Kärense. The excavation of the badly crumbled grave brought only two broken pieces of a shell bangle, 8 mm wide and $7\frac{1}{2}$ cm in diameter, the piece of one vertebra and different small broken pieces of human hollow bones.
VI. Wars and Weapons.

Praising the peaceful and gentle disposition of the population, most of the reporters of the expeditions of DUPERREY and LÜTKE reached the opinion that the natives would not even know the gruesome craft of war and therefore, also would not possess any weapons. According to LÜTKE they would not even know sticks for hitting.¹

It is true that the Europeans were met without any external sign of peace.² FINSCH already corrected the error concerning the missing war and weapons.³ War from pre-European times are still remembered, one only a few years before the arrival of those expeditions.

Concerning weapons, we have to admit, that they were technically not as developed as on some other islands and that often supplementary means were used instead. The following weapons existed:

1. The spear = muosa. Made of coconut wood, usually made in once piece, sometimes also made in two pieces, which when bound together, reputedly with carved barbs and painted red. According to FINSCH it was a throwing spear, though it was described to us as a thrusting spear, of about one fathom length. The last is definitely not correct, because according to DUPERREY it was about 10—12 feet long.⁴ And, LESSON saw »de longues javelins effileés, soigneusement travaillées« in the houses that were called »quessa«.⁵ Both of them saw the spears used for fishing. LESSON also depicted one in the »Journal des voyages« (Illustr. 158). As the natives did not have a specific word for fishing spear and as they used their spear for fighting and fishing at the same time, the depiction may be considered authoritative.⁶

² LÜTKE 1835/36, I, p. 386.
³ FINSCH 1893, pp. [453] and pp. [464].
⁴ DUPERREY loc. cit.
⁵ LESSON 1839, II p. 505, [»long pointed javelins, carefully worked« R.+R. 1982, p. 68].
⁶ LÜTKE 1835/36, I, p. 381, also mentions the fishing spear; FINSCH 1893, p. [465] also cites next to the fishing spear a fighting spear. The first one he calls »mocha«, while he does not give a name for the last one.
2. Throwing stones = eot in tatnal (»stone for throwing«). They were the main weapon next to the spear. People also used coral stones = eot fasfas (= »white stone«) or eot iān (= »female stone«) as well as basalt stones = eot salsal (»black stone«) or eot muān (= male stone«).

3. Dagger with blades made of rays’ stings. I did not learn anything about those, but LÜTKE mentions it as a fishing tool and also depicts it in his historical atlas (illustr. 159). He says the following about it » … ils sont aussi pour cela un petit instrument composé de trios dents de poisson, qu’ils lient fortement au bout d’un manche«.\(^1\)

   The following surrogates were also mentioned to me as weapons:

4. The breadfruit knife = ta. It was used as a cutting club.

5. The stick for husking coconuts = ko. It was used as a club by holding it at the pointed end.\(^2\)

6. The dancing stick, which as a weapon was called muot in ko.

   The following supposedly was only a children’s toy:

7. The slingshot = foat. It consisted of a strip of hibiscus bark, which gradually grew wider in the middle. According to FINSCH, in the old times it was the main weapon next to the spear.\(^3\)

8. Bow and arrow = pös, arrow = sekan pös = »stick for the bow«.

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\(^1\) LÜTKE 1835/36, I, p. 381.  \(^2\) FINSCH 1893, p. [464].  \(^3\) loc cit.
Remarks to the Map of Kusae (Map III).

Besides its use as a map offering an overview, map III serves primarily to explain the geographical circumstances of settlement and to support the explanation of it (pp. 30). Most of the executed completions and changes, in comparison to existing maps, serve this purpose: The names of the regions and their settlements have been inserted. Due to the special meaning of the reef as the only means of transport, the lagoon channel was complemented and more prominently emphasized. The land-ring, which is outside on the reef, for great distances (pp. 13 and pp. 20) and which causes the channel like character of the reef, has been complemented and further on those parts of the reef, which are dry at low tide have been indicated by a blue land color. The regions with a sandy beach have been more carefully indicated, as well.

By the way, judging the pure geographical image of the map, especially concerning the details, we always have to keep in mind the backwardness of the cartographical basics (p. 12). In this respect the few additions, mentioned earlier, cannot accomplish the desired changes, especially as they are based on statements and observations, and not on a systematic survey. A real, clear, geographic improvement is the new survey of Lölö (map 1) and the introduction of the native names. The character of the island’s landscape has been well captured in plates 2—4 and illustration 1.

Printing Mistakes. ¹

[Printing mistakes concern the German language. They have been considered while translating the relevant passages and therefore are not translated here.]

¹ Partially caused because the work, as it had been at the beginning of the war, was printed during the war, without that any proof reading would have been possible. Compare also page 257, footnote 2.

1. Dwelling house of the King in the year 1880.  
   According to Hernsheim.

2. Modern dwelling house in Matante (Ualang).
1. Modern dwelling house.


Publishing house: Friederichsen & Co., Hamburg

Printing by Knackstedt & Co. Hamburg
1. Cooking house in Melak (Utua).

2. In the village Mäläm (Ualang)