

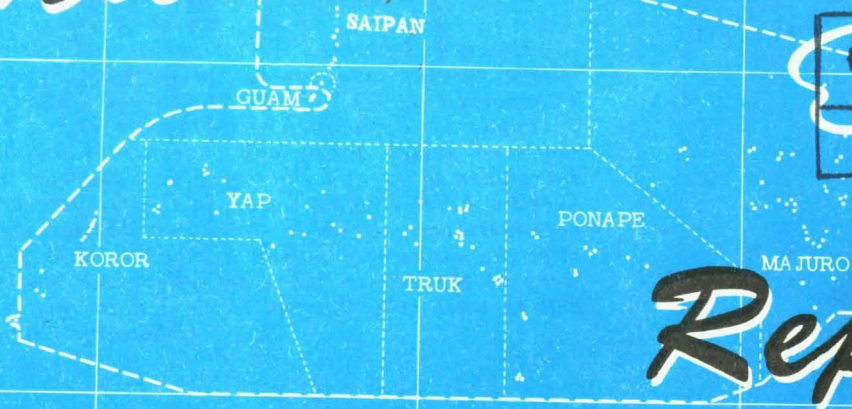
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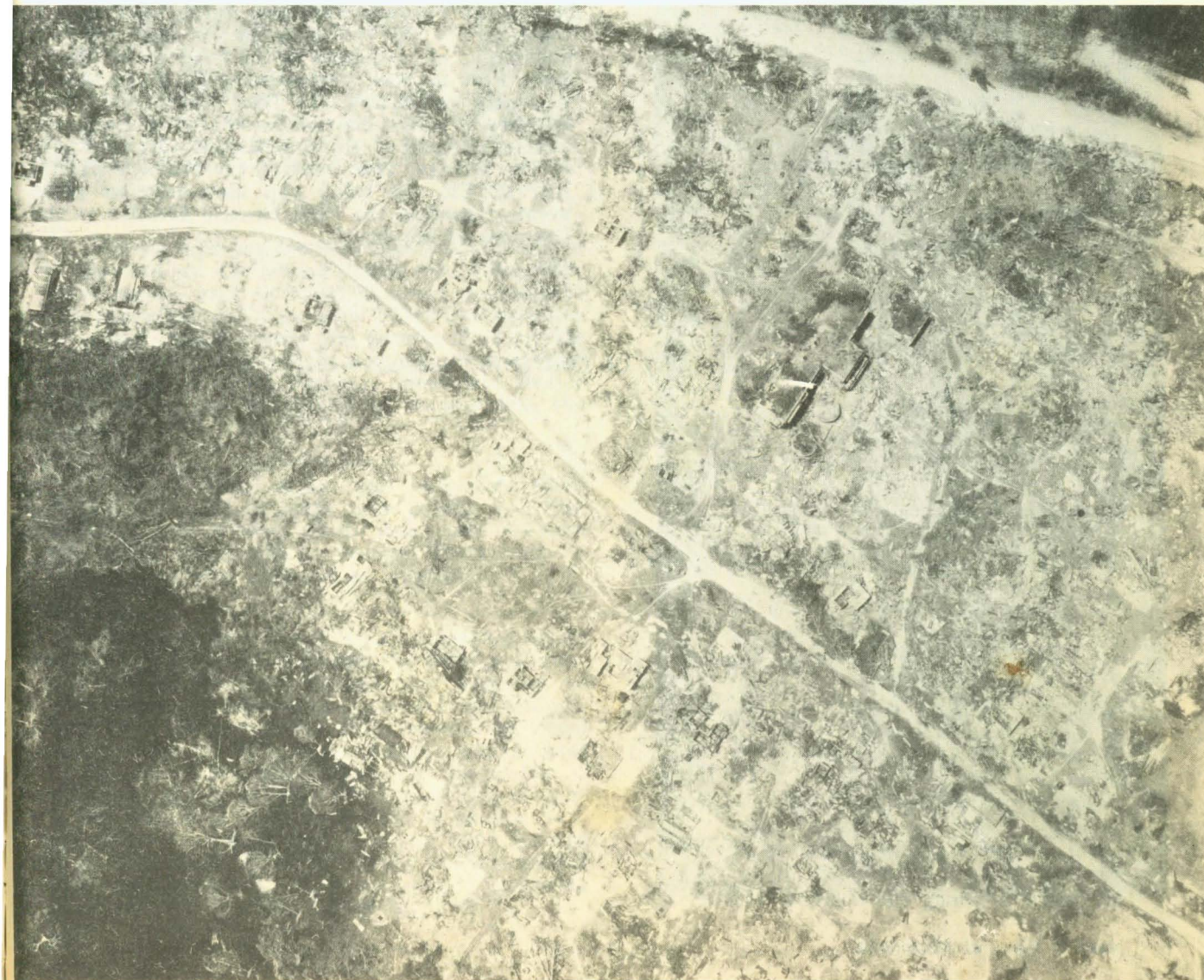
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COVER PHOTO

Downed buildings, felled trees and stripped foliage provide evidence of the ravaging winds of Typhoon Louise in Peleliu. Anguar too was ripped by winds of Typhoon Louise leaving in its wake shattered homes, farms and government buildings. Jet planes of Heavy Photographic Squadron 61, a Seventh Fleet element based in Guam, flew aerial reconnaissance flights in the Palau district shortly after the winds of Typhoon Louise subsided. A full story of the actions taken to relieve the suffering and to start rehabilitation is carried in this issue.

(Photo by VAF-61)

THIS ISSUE

Typhoon Louise was the number one concern of all Micronesia early on November 17 and that story is carried in this issue. Political Affairs Offices in all Districts were busy throughout the six weeks covered by this issue as the final days for nomination of candidates to the Congress of Micronesia were marked. Campaigning by Delegate and Assembly candidates also filled the period. Registration of voters, distribution of election materials, and appointment of election officials were all a part of the activity. This issue of the MICRONESIAN REPORTER will bring you up-to-date on those events regarding the First General Election to the Congress of Micronesia.

TYPHOON LOUISE RIPS THROUGH PALAU DISTRICT

**\$500,000 DAMAGES
REPORTED**

About 6:30 on the morning of November 17th the center of Typhoon Louise passed Anguar Island in the Palau District. An hour and 15 minutes later the LORAN Station was still recording winds from the south southeast at 100 knots with gusts to 120 knots. Another hour later the winds had dropped to 50 to 60 knots with gusts to 80 knots. Heavy rains and winds were being felt in Koror, Peleliu and Anguar.

For the following few hours the winds continued to diminish, but Anguar and Peleliu were a shambles. Later reports said all Trust Territory government and municipal facilities were either destroyed or severely damaged. Ninety-five percent of all private dwellings were destroyed in Anguar. Food supplies were critically short. The only immediate shelter available for the 347 people of Anguar was the church.

A Coast Guard report said immediate radio contact could not be made with Peleliu, but that an early aerial survey revealed that conditions were even worse there than in Anguar. There were no deaths or injuries reported in Anguar.

On Wednesday, November 18, a detailed report of damage sustained in Koror, the District Center, was received in Saipan. Damage percentage figures were reported as follows: government facilities 15%, water and power facilities 35%, hospital 10% and private dwellings 30%. Heavy damage was reported by the agriculture department after its survey of the island. Winds or heavy rain caused 75% damage to bananas, 80% to papaya, 25% to casava, 10% damage to fruit trees and relatively light damage to coconut trees. Privately owned stores suffered about 5% damage to stocks on hand. There were no injuries or deaths reported in Koror.





High Commissioner Goding and members of his staff went to the Palau District on the first available aircraft and landed in Koror. His early messages to the Department of the Interior Office of Territories urged that the Palau District be declared a disaster area.

Immediately after the message was received announcing the Anguar airstrip ready to receive aircraft, a 3,000 pound shipment of food was airlifted to meet the immediate needs of the Anguar residents. The American Red Cross paid for that shipment of food.

Early Thursday morning, the 19th, full damage reports were still not available from Peleliu because heavy sea conditions prevented the landings of small boats. Aerial survey revealed even greater damage in Peleliu than in other parts of the Palau District. Pilots reported 97 percent of Peleliu buildings destroyed. Possible casualty figures among the island's 738 residents still were not known.

By the afternoon of the 19th practically all of Guam's civilian and military agencies had swung into high gear to provide emergency relief supplies for the Palauans.

A message from Koror late on the 19th reported landings had been made on Peleliu. Sixty-five-year-old Mengiraroeh Smul of Peleliu was reported dead. No further deaths or injuries were reported in Peleliu.

Typhoon Louise winds had left 125 families homeless in Peleliu and 53 families homeless in Anguar. Damage estimates were placed in excess of a half million dollars in the Palau District.

On the 20th the M/V GUNNER'S KNOT was in Guam loading emergency supplies at the Commercial Port for use in the typhoon shattered areas of the Western Carolines. Rear Admiral Horace V. Bird, Commander Naval Forces Marianas, issued a message to all Naval activities in the Marianas urging relief assistance in the form of clothing and canned or concentrated food requiring little or no preparation for use in Anguar and Peleliu. Father Mel McCormack of the Guam Red Cross Office was also gathering materials for emergency shipment.

Seventy-five vials of cholera vaccine were loaded aboard a Trust Territory seaplane for precautionary use in the typhoon area.

Representatives of the Navy Officer-in-Charge of Construction, Marianas, serving as direct representatives of the Office of Emergency Planning (OEP), were already in the Palaus conducting preliminary damage surveys for possible OEP assistance. Mr. M. J. Whitton of the Naval Air Station, Agana, Guam, American Red Cross was also in Palau.

President Johnson declared the Palau District a disaster area early in December. Shortly thereafter a Typhoon Louise Rehabilitation Committee was established to coordinate reconstruction work.

Assistant Commissioner for Community Services, Mr. James E. Hawkins, was named chairman of the Committee with Senior Assistant Attorney General Charles B. Hughes serving as executive secretary. Other members of the Committee are Palau District Administrator Manuel Godinez as site coordinator of rehabilitation work, Acting Chief Accountant Robert Honda, Community Development Officer Dr. Robert K. McKnight, Director of Public Works Horace J. Leavitt, and Coordinator of Adult Education Dr. William V. Viteralli.

The Committee has been charged with the responsibility of ensuring that all typhoon rehabilitation efforts are consistent with government policies and regulations and to provide necessary and appropriate community planning for the reconstruction of Anguar and Peleliu municipalities.

Plans for the reconstruction of Peleliu and Anguar villages call for the development of a permanent settlement including provisions for streets, utilities and other public facilities.

The High Commissioner's project request to the Office of Emergency Planning seeks \$394,666 in direct assistance for the rehabilitation of the typhoon shattered areas within the Palau District.

Typhoon Louise was the first serious typhoon to hit the Palaus in nearly 50 years. Elders of Palau recall a disastrous typhoon sweeping the islands there about 1916.

Though disaster rehabilitation efforts are underway in Peleliu and Anguar, officials expect that a full year will pass before complete typhoon recovery is made in the two islands.

Even before President Johnson declared the Palau District a disaster area, a second typhoon, this one called Opal, churned her way westward between Yap and Palau Districts packing center winds in excess of 100 knots.

Fleet Weather Central/Joint Typhoon Warning Center, Guam radioed its advisory of the probable track of Opal expecting the eye to be 90 miles south southwest of Yap at 12:30 p.m. on December 11 and 45 miles north northeast of Koror, Palau at 10 p.m. the same day. Winds in gusts to 100 knots were expected in Koror and winds in gusts to 90 knots in Colonia, Yap.

Though Opal's track carried her through the middle of the two Districts her winds were not as high as expected. Damage in the District Centers was light, but outlying areas of both Districts sustained some heavy damage. Crops were downed in Kayangel and two homes were destroyed. No deaths or injuries were reported as a direct result of Typhoon Opal.



Candidates for Congress of Micronesia Announced

Radio messages from Yap and the Marshalls in the first few days of January announced the closing of nomination of candidates for the first general election to the Congress of Micronesia to be held January 19, 1965.

With the receipt of the Yap and Marshalls listings all Districts have now reported their candidates for the coming election.

A breakdown of candidates by District for the House of Delegates follows:

PALAU DISTRICT

Baules Sehelong, David Ramarui, Francisco Morei, John Olbedabel, Minoru Ueki and Roman Tmetuchl.

YAP DISTRICT

Joseph Tamag of Nimar, Weloy; Francis Nuuan of Keng, Weloy; Steven Peachem of Mogmog, Ulithi Atoll; and Carlos Fong of Asor, Ulithi Atoll.

MARSHALLS DISTRICT

Amata Kabua, Ekpap Silk, Isaac Lanwi and Johnny Silk.

MARIANAS DISTRICT

Olympio T. Borja, Jose R. Cruz, Francisco T. Palacios and Vicente N. Santos.

PONAPE DISTRICT

Bailey Olter, Burton Jano, Eliuel Pretrick, Heinrich Iriarte, Joab Sighra and Rewel Tara.

TRUK DISTRICT

Andon Amarich, Enis Nedlec, Fujita Peter and Tosiwo Nakayama.

Two delegates will be elected from each District for a total of 12 to sit in the House of Delegates.

Twenty-one members will sit in the General Assembly of the Congress of Micronesia. Representation in the Assembly is based upon population with three Assemblymen to be elected from the Marianas District, three from Palau, four from the Marshalls, four from Ponape, five from Truk and two from Yap.

Each of the six administrative Districts of the Trust Territory has been subdivided into single member election districts of nearly equal population.

Each of these election districts will elect an Assemblyman on January 19, 1965.

Candidates to the General Assembly from each District by election district is as follows:

PALAU

District A: Haruo Remeliik and Lazarus Salii.

District B: Benjamin Mersai, Polycarp Basilus, and Sadang Ngirahehang.

District C: Jacob Sawaichi, Jonathan O. Emul and Santos Olikong.

YAP

District A: John A. Mangefel and Luke M. Tman.

District B: Philip Yatch, George Fongol and John Rugulmar.

MARSHALLS

District A: Namu Hermios and Oscar DeBrum

District B: Henry Samuel and Izikiel Laukon.

District C: Andrew Hisaiah, Dwight Heine and Robert Reimers.

District D: Alfred Capelle, Atlan Anien, Jalle Bokheim, Jetron Anjain, Jude Samson and Lino Korab.

MARIANAS

District A: Benjamin T. Manglona and Daniel T. Muna.

District B: Francisco C. Ada and Manuel D. Muna.

District C: Juan S. N. Pangelinan and Juan A. Sablan.

PONAPE

District A: Alex Palsis, Benjamin Ben, Elias Robert, Florian Nena, Salik Cone and Marcus Nedlic.

District B: Bethwel Henry.

District C: Carl Dannis, Martin Christian, Max Iriarte, Santiago Soap and Tadasy Yamaguchi.

District D: Daro Weital, Herman Semes, Johnny Hadley, Olter Poll and Samson Alpet.

TRUK

District A: Ermes Siales, Fermin Likiche, Raymond Setik, Sachuo Euliche, Smart Lampson and Valentine Harper.

District B: Nick Bossy, Petrus Mailo, Sasauo Haruo and Sochiky Stephen.

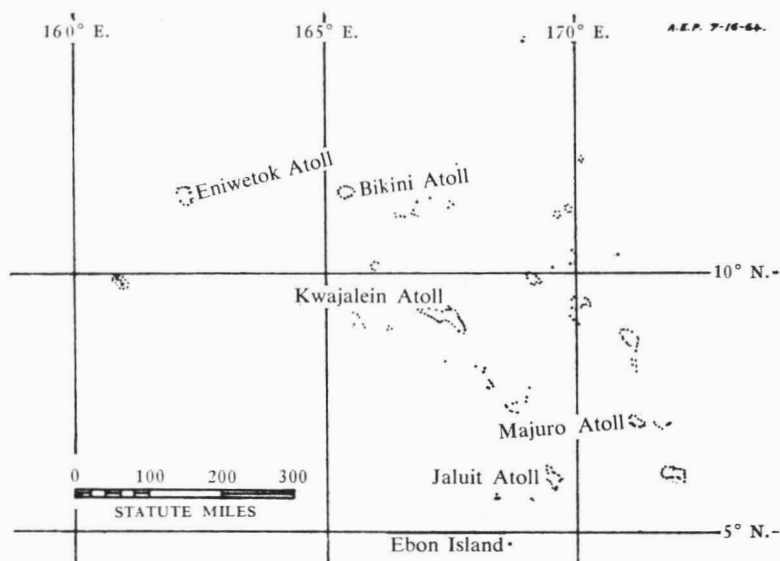
District C: Albert Hartman, Nory Oneitam, Sikaret Lorin and Soukichi Fritz.

(Continued on page 16)

MARSHALL ISLANDS

by William Davenport

CARTOGRAPHY



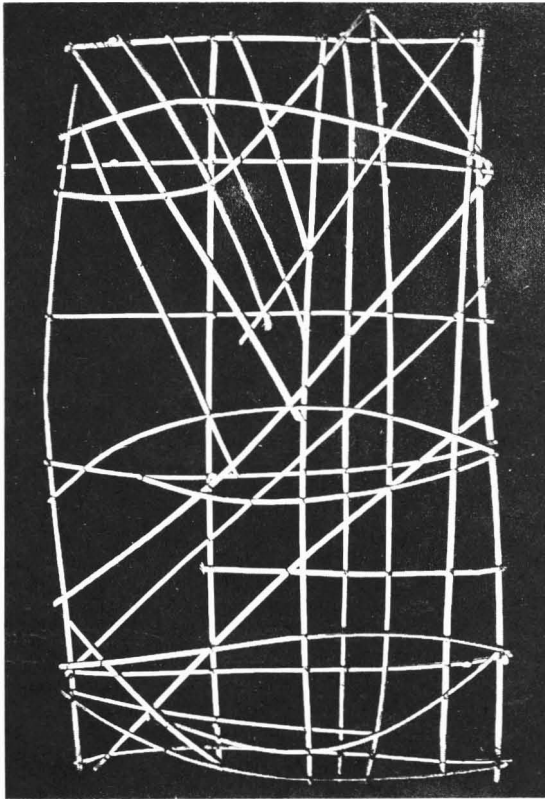
Dr. William Davenport, Professor in the Anthropology Department of the University of Pennsylvania, recently granted permission for the MICRO-NESEAN REPORTER to reprint his article MARSHALL ISLANDS CARTOGRAPHY which appeared in the Summer 1964 edition of EXPEDITION. Dr. Davenport spent several months in the Marshalls in 1955 and 1956.

Cartography is an invention that is seldom encountered among primitive, that is non-literate, peoples, for it seems to be a development closely allied with writing systems. One of the rare occurrences of map making in a primitive culture—and certainly the most sophisticated of them—is in the Marshall Islands of eastern Micronesia, Pacific Ocean. Before their first contact with European civilization in the 16th century the Marshallese had perfected both ocean-going canoes that were maneuverable and swift as any small craft ever devised, even by an industrialized society, and a unique system of piloting that was graphically represented on a kind of chart.

The hulls of their canoes, constructed of handhewn planks that were tightly fitted and stitched together with coconut fiber cord, were knife-thin and kept stable in the water by a cantelevered outrigger float on one side. Driven by a lateen sail, the canoe could be easily tacked and sailed up very close to the wind, without making undue leeway, as well as sailed down wind with minimum drag in the water. With such seaworthy and manageable craft as these, regular communication among the 34 coral atolls of the Marshall Islands was possible, even though the tiny islands of this group are widely scattered and all are so

low that none can be seen from more than a few miles at sea.

By acute observation of the sea, the Marshallese had accumulated a rich fund of accurate knowledge about the action of ocean swells, what happens to them as they approach and pass by land, and the characteristics of two or more swell patterns interacting with each other in the presence of an island. Much of this empirical knowledge was not so well known by scientific oceanographers of our society as it was by Marshallese seafarers until aerial photographs were available for studying wave and swell action. When oceanographers began to study ocean swells it was found that their action conformed to the laws of wave theory in the same ways as do light and sound. For example, when an ocean swell strikes a shore, part of it—its energy, that is, is reflected at an angle equal to the angle of its incidence. And when a swell approaches, strikes, and part of it moves past a small island, such as one of the Marshall Island atolls, its line of movement is changed according to the angle of shoreline toward which it is advancing. The crest line of a swell approaching the shore of an island is bent and curved toward conformity with the shoreline. This occurs because the inshore portion of the wave is slowed down as it encounters shallow



The University Museum's meddo chart, collected by Robert Louis Stevenson. The straight sticks represent systems of swells rolling into the Marshall Islands. Shells tied to the framework represent islands of the group. The curved sticks depict refracted swells. Most of these kinds of charts represent only a few islands and their characteristic swell patterns, but this one covers nearly the entire Marshall group. 29 by 49 inches.

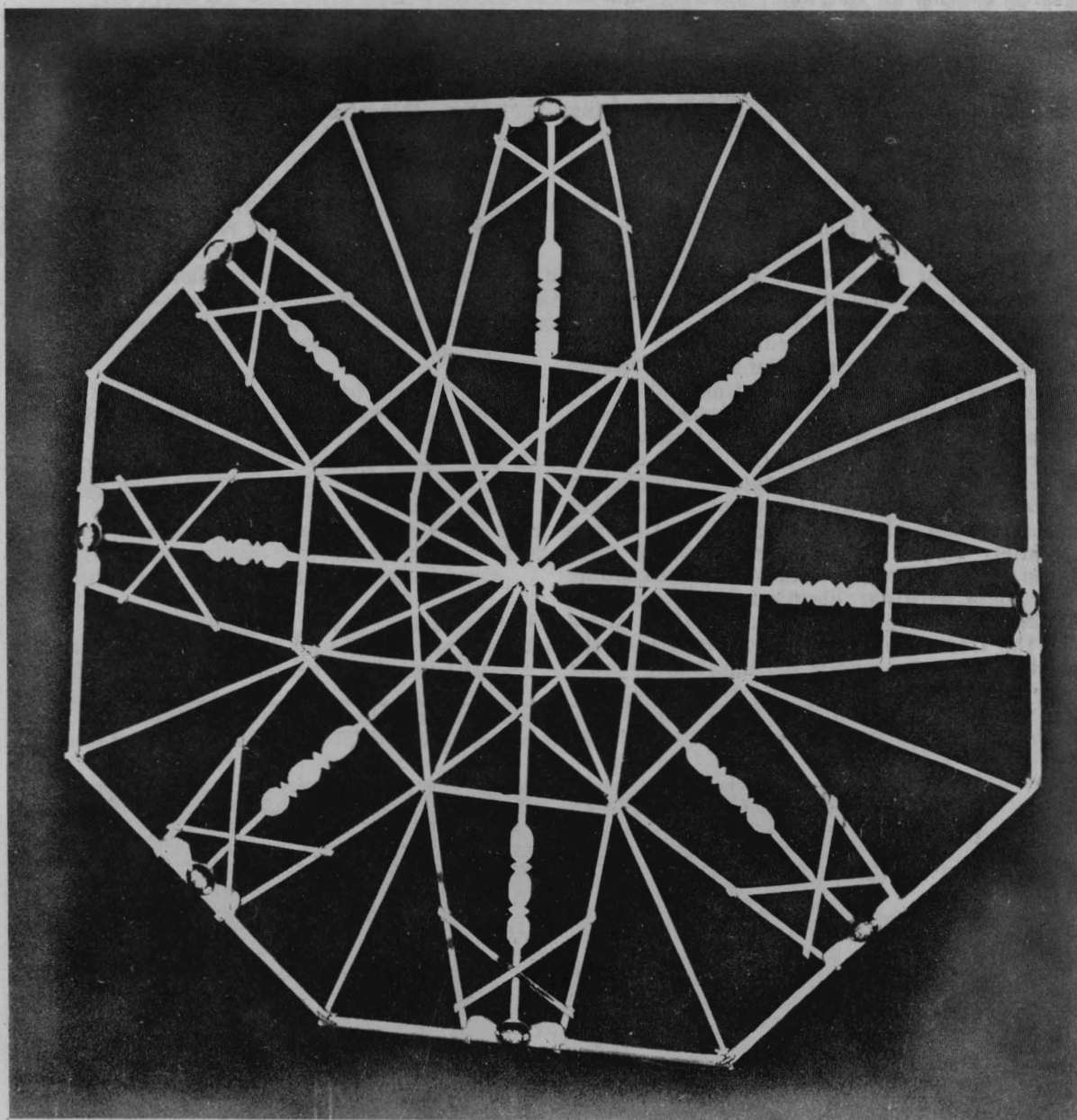
water, its energy is expended by breaking or peaking up the wave, thus slowing down the forward motion while the offshore portion in deep water continues advancing at a constant rate of speed. This is swell refraction. Finally, a turbulent shadow of a special kind, resembling a penumbra, is to be found extending out from the lee side of an island for several miles.

Reflection, refraction, the shadow phenomenon, and several ancillary wave actions were well understood by the Marshallese who studied them, not from the vantage point of aerial photographs where they can be observed with ease, but from the surface of the sea in their canoes and from the shores of their atolls which offer elevations never more than a few feet above sea level. They not only recognized these complex swell and wave patterns, they put this empirical science to practical use by developing a system of piloting and navigation from it. It is these oceanographic phenomena that are depicted on their charts. The charts are used by sailing masters to teach the principles of wave action and the use of them in fixing a canoe's position when it is near to but out of sight of land.

Marshallese charts are not drawn on flat sheets; they are models constructed of sticks. There are two types: the **mattang**, constructions that illustrate the abstract general concepts of swell movements and interactions in the vicinity of one or more small islands; and the **meddo** ("sea") constructions depicting particular islands in the Marshall group and their distinguishing wave characteristics. The former are, in effect, science models; the latter, piloting instructions. Neither kind was carried on board a voyaging canoe, for all the oceanographic erudition was stored inside the Marshallese navigator's head. And these navigators, even today, guard this information carefully and pass it on only to others who have been specifically selected for the training. Only when the information is to be conveyed to an apprentice are the best charts—that is, those with complete information constructed. One of the finest **meddo** type charts in any museum collection is the model collected by Robert Louis Stevenson and his wife when they were in the Marshall Islands in 1890. It is displayed in the Oceania Hall of the University Museum.

Another fine example of the **mattang** type was given to the writer by James Milne, a fully trained Marshallese navigator, from Ebon Island in 1958. It is remarkable for on it are represented four (two is the usual number) different swell patterns, their reflections and refractions, as well as a number of possible interactions these may have with each other, depending upon the condition of the sea and the way in which the model is read. Each swell pattern is represented by a pair of opposed curved sticks, between which is laid a straight stick with a notched figure near each end. One straight stick has a third notched figure at the center. At all ends but one of the swell representations is a pair of shorter crossed sticks that represent the interaction of the two adjacent swell patterns on the one represented by that to which the short pair is lashed. The odd end that has two uncrossed sticks represent the direction of sunrise, the cardinal direction for the Marshallese, from which come the tradewind and the dominant swell. All elements of the model are arranged into an octagonal composition. The eight marginal sticks forming the side of the octagon and the undecorated straight sticks that connect the corners constitute the supporting frame only and represent nothing.

In reading this training model, the center can represent an island, and the bent sticks illustrate refractions of waves approaching it from many directions. The cowrie (*Cypraea* sp.) shells tied at the center point of each side can also represent islands, and the crossed sticks by them illustrate either interactions of other refracted waves or the turbulence that is found in the lee of an island as a swell is bent around it. In other words, some elements of the construction can be used to represent more than one principle of wave action. Combinations of island representations, either center and side or side and side, can be selected by the instructor to represent almost any pair of islands in the Marshalls in a variety of wave conditions.



A mattang-type chart on which the principle of piloting by ocean swells are illustrated. The cardinal point is the side on which the two small sticks are not crossed. It is the sunrise or easterly quarter out of which the northeast tradewinds blow, bringing the dominant system of swells.

The other swell systems depicted are those that are generated by winds in other parts of the Pacific Ocean and reach the Marshall Islands in different times of the year after traveling across thousands of miles of sea. The chart measures 34 x 35 inches.

The problem for the Marshallese pilot is to be able to sail up and down the whole chain out of sight of land and to know his position relative to the nearest islands all the time; knowing this he can correct his headings as needed in order to make accurate landfalls when currents, which cannot be observed, affect his traversed course. To do this he must know the relative geographic positions of all the islands in the group, the expected sailing distances between them under varying conditions of wind, and must be able to read the configurations of swells that identify each unseen island as he passes it. By lying on his back in the bilge of his canoe and sensing the motion of the canoe, the skilled pilot can "fix" his position at night even without looking at the sea, for the movement of canoe alone will tell him what kinds of swells are acting on it.

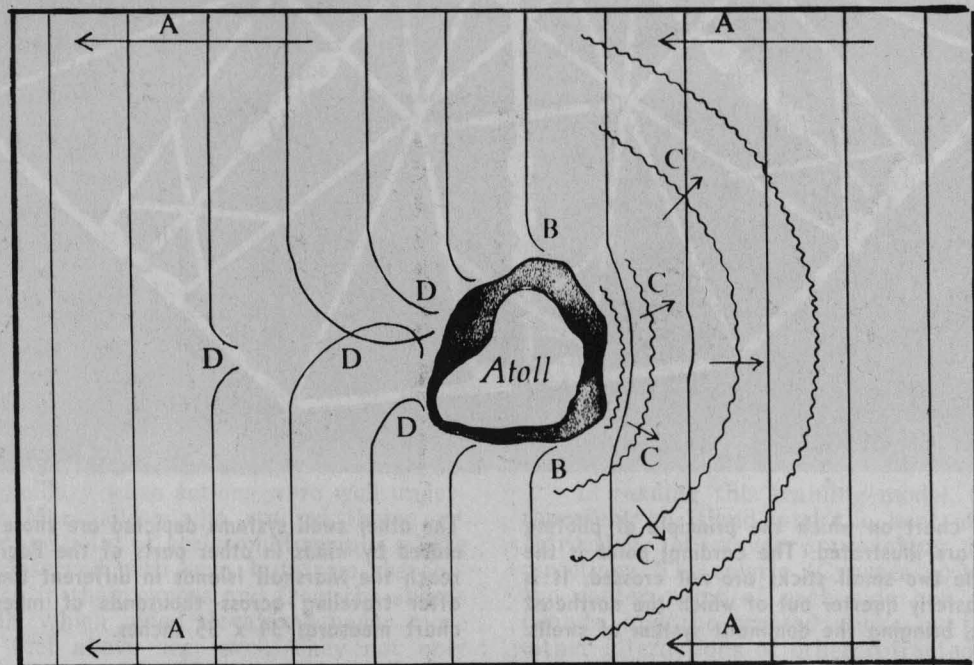
Obviously, a certain amount of aesthetic license is to be found on some charts, and an instance of this can be seen on the *mattang* described here. Wave patterns rarely, if ever, occur in such perfectly symmetrical relationships as shown on this chart. And an added bit of appropriate symbolism is contained in the notched figures of the straight sticks laid between the curved pairs, for they are appropriately shaped in the same form as were masthead decorations on the old Marshallese sailing canoes. These creative liberties hardly can be attributed to the scientific naivete' of a tribal people; the trained technicians who construct the colored ball and wire models of the atom in order

to illustrate principles of nuclear physics also seem to sacrifice some scientific accuracy for visual appeal.

the author William Davenport, Associate Curator of the Oceania Section of the University Museum and Associate Professor in the Anthropology Department of the University of Pennsylvania, has had a lifelong interest in boats, sailing and navigation. During 1955 and 1956 he learned the Marshall Islands system of navigation from a Marshall Islander. Dr. Davenport is currently engaged in ethnographic research among the Melanesian peoples of two islands, Owa Raha and Owa Riki, in the Eastern Solomons.

— CONTRIBUTIONS WELCOMED —

Send your contributions for publication to the Editor, Micronesian Reporter, Trust Territory Headquarters, Saipan, Mariana Islands, 96950.



Reflection and refraction of ocean swells as they strike a small atoll. (A) Straight line of advance of a system of ocean swells. (B) Crestlines of the swell are bent or refracted as they strike land and conform to the contour

of the shore. (C) Part of each swell is reflected back after striking the island. (D) Shadow of turbulence created by refracted portions of swells that curve around the island.

AIR FORCE 'DROPS' CHRISTMAS PACKAGES OVER LAMOTREK, SATAWAL, PULUSUK, PULUWAT

The Andersen Air Force Base 79th Air Rescue Squadron again this year made parachute drops of Christmas packages over the remote outlying islands of Lamotrek and Satawal in the Yap District and Pulusuk and Puluwat in the Truk District thus continuing an annual operation begun in 1957.

Material for the 1964 annual drop was donated by Andersen Air Force Base, Guam's school children, the Marianas Divers of Guam, and the Guam Service Center.

Gifts enclosed in the drop packages contained small toys for children, fishing equipment such as hooks and line and other items difficult to obtain by the outlying islanders.

Several Air Force squadrons have taken part in the annual program through the years. In 1957 the 54th Weather Reconnaissance Squadron made drops over Sonsorol, Tobi, Peleliu, and Anguar. Christmas of 1958 saw drops over Pulusuk, Puluwat, and Namoluk in the Truk District; Falalop, Lamotrek, Satawal and Elato in the Yap District; and Tobi in the Palaus. The 54th Weather Squadron again provided the material and aircraft.

In 1959 the 54th made drops over Falalop, Elato, Lamotrek and Satawal in the Yap District and Sonsorol and Tobi in the Palau District.

The 58th Weather Reconnaissance Squadron, based in Japan, was scheduled to make the drops

to Uulusuk, Puluwat, Lamotrek, Satawal, Sonsorol and Tobi in 1960, but a last minute committment required that drops be made by the Guam based detachment. Materials were dropped December 29. An additional run was made over Ulithi, Fais and Ngulu by the 79th Air Rescue Squadron that year. Small drops were made in 1961.

Residents of Sonsorol, Tobi, Lamotrek, Satawal, Puluwat and Pulusuk received air-dropped packages by the 54th Weather Squadron in 1962.

Christmas week of 1963 saw packages delivered by parachute from a 54th plane over Sonsorol, Tobi, Lamotrek, Satawal, Puluwat and Pulusuk.

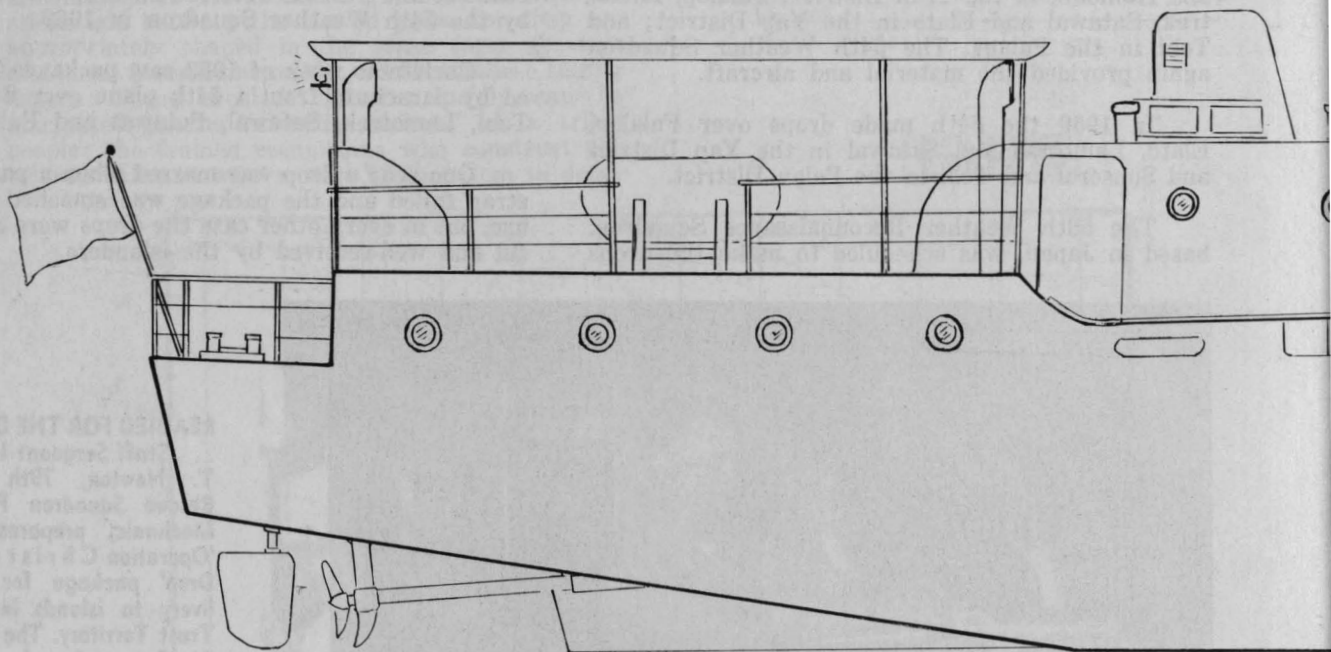
One year a drop was marred when a parachute strap failed and the package was smashed beyond use, but in every other case the drops were successful and well-received by the islanders.



READIED FOR THE DROP
... Staff Sergeant Loren T. Newton, 79th Air Rescue Squadron Flight Mechanic, prepares an 'Operation Christmas Drop' package for delivery to islands in the Trust Territory. The 79th Air Rescue Squadron, of Andersen Air Force Base, Guam, dropped Christmas gifts donated by Air Force personnel and other donors to islanders on Lamotrek, Satawal, Pulusuk and Puluwat.

(AF Photo)

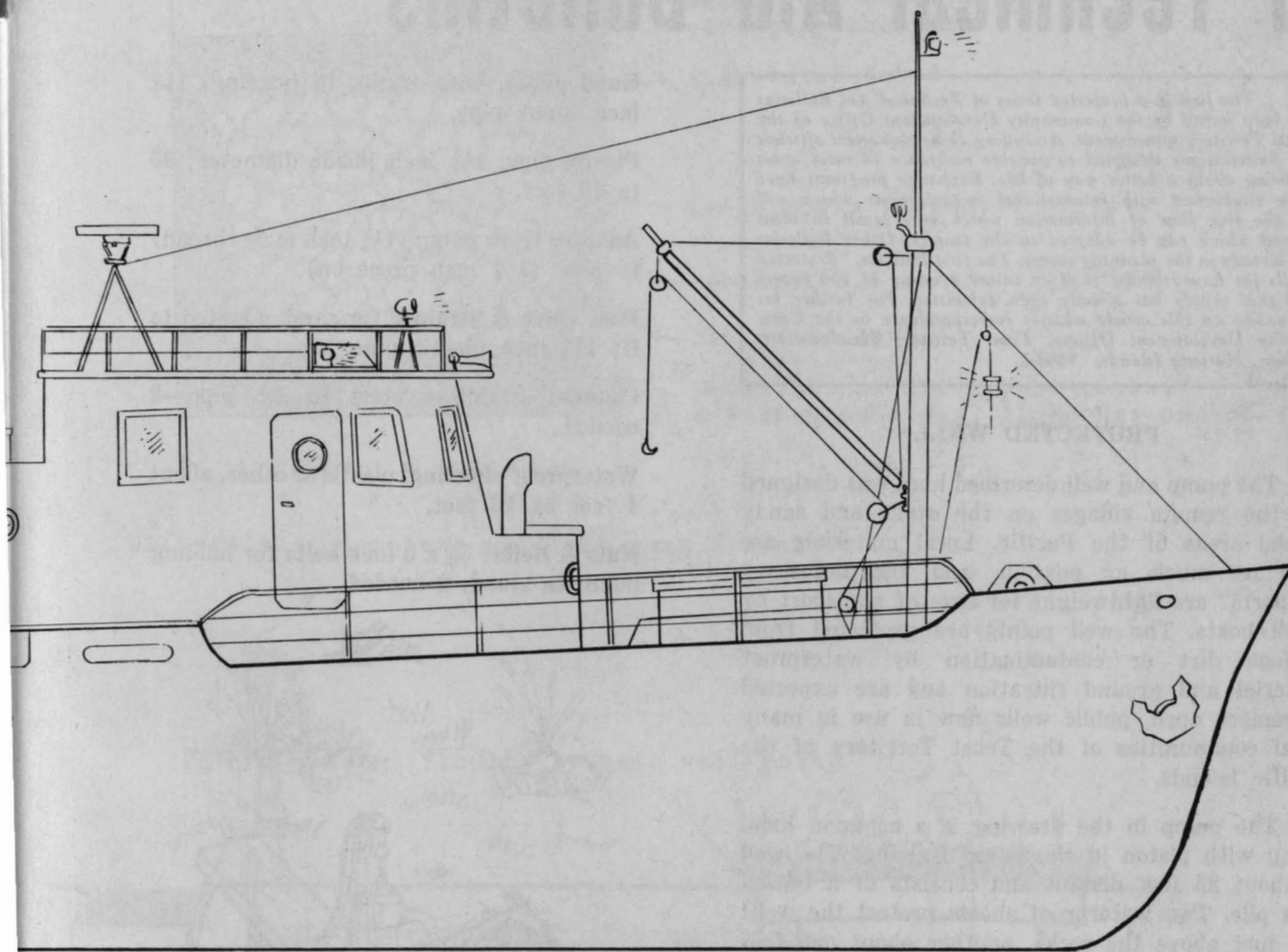
NEW 65-FOOT TRUK LAGOON



The 65 foot Truk Lagoon boat M/V FEIOCH was launched at the Yokohama Shipyard December 19. The FEIOCH is the first in a scheduled series of three new ships now under construction which will be joining the Trust Territory fleet before the end of 1965.

Designed to carry a passenger load of 40 persons and manned by a crew of five the FEIOCH is expected to cruise at 12 knots driven by two

GOON BOAT LAUNCHED



diesel engines.

Trust Territory Transportation Officer James Cook said the FEIOCH will have full pilot house control and will be radar equipped.

A firm date of arrival in the Territory has not as yet been established for the FEIOCH as she is still undergoing fitting out in Yokohama and acceptance trials have not been scheduled as yet.

Community Development Office Announces New Series of Technical Aid Bulletins

The first in a projected series of Technical Aid Bulletins has been issued by the Community Development Office of the Trust Territory government. According to headquarters officials the Bulletins are designed to provide assistance to rural areas to bring about a better way of life. Exchange programs have been established with international organizations which will see the free flow of information which may result in ideas gained which can be adapted to the tropics. Other Bulletins are already in the planning stages. The first Bulletin, "Protected Wells for Low Islands," had an initial printing of 250 copies and that supply has already been exhausted. For further information on this article address correspondence to the Community Development Officer, Trust Territory Headquarters, Saipan, Mariana Islands, 96950.

PROTECTED WELL

The pump and well described here was designed for the remote villages on the atolls and sandy strand areas of the Pacific. Local materials are used as much as possible and the necessary "imports" are lightweight for ease of transport by small boats. The well points are protected from surface dirt or contamination by waterproof material and ground filtration and are expected to replace open, public wells now in use in many rural communities of the Trust Territory of the Pacific Islands.

The pump in the drawing is a common hand pump with piston in the pump housing. The well is about 25 feet distant and consists of a buried rock pile. Two waterproof sheets protect the well: one just above the rocks, another about one foot below the ground surface. The well is intended for sandy soils with a high water table.

TOOLS AND MATERIAL

Shovels and picks for digging well pit.

Rocks, or coral boulders, about 5 to 8 inches in size, one cubic yard.

Stone rubble, may be beach rubble, about 1/2 to 1 inch in size, one cubic yard.

Wood—some heavy planks (2 x 6 inches) or shaped logs for the pump base.

Hand pump, with piston in housing, 1 1/4 inch input pipe.

Plastic pipe, 1 1/4 inch inside diameter; 35 to 40 feet.

Adaptor from pump (1 1/4 inch male thread) to pipe (1 1/4 inch press on).

Foot valve & Strainer for sand, adapted to fit 1 1/4 inch plastic pipe.

Clamps: Stainless steel to fit pipe—2 needed.

Waterproof sheeting, plastic or other, about 4 feet by 16 feet.

Nuts & Bolts: 3/8 x 3 inch bolts for holding pump to stand, 2 needed.

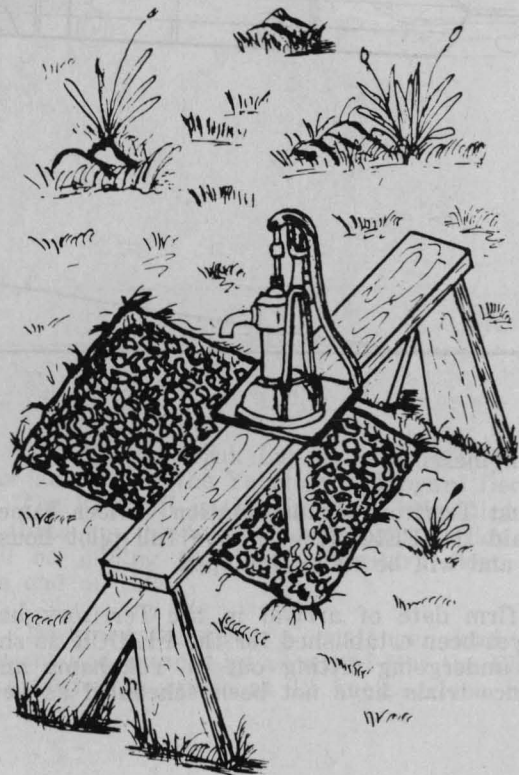


DIAGRAM #1: Showing construction of well-point pit

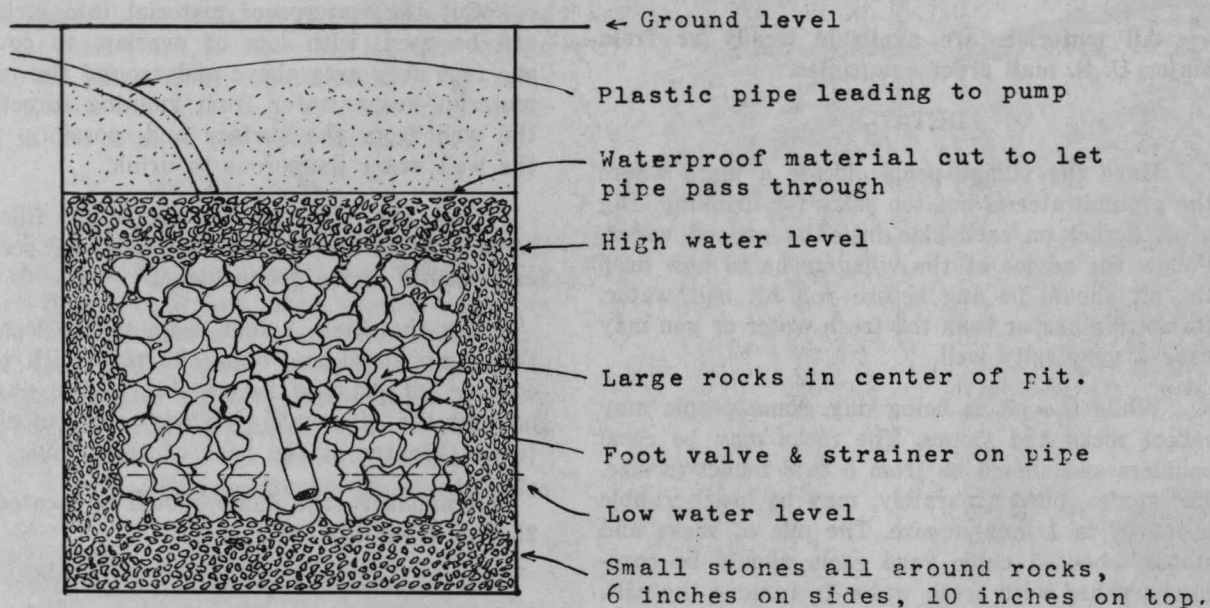
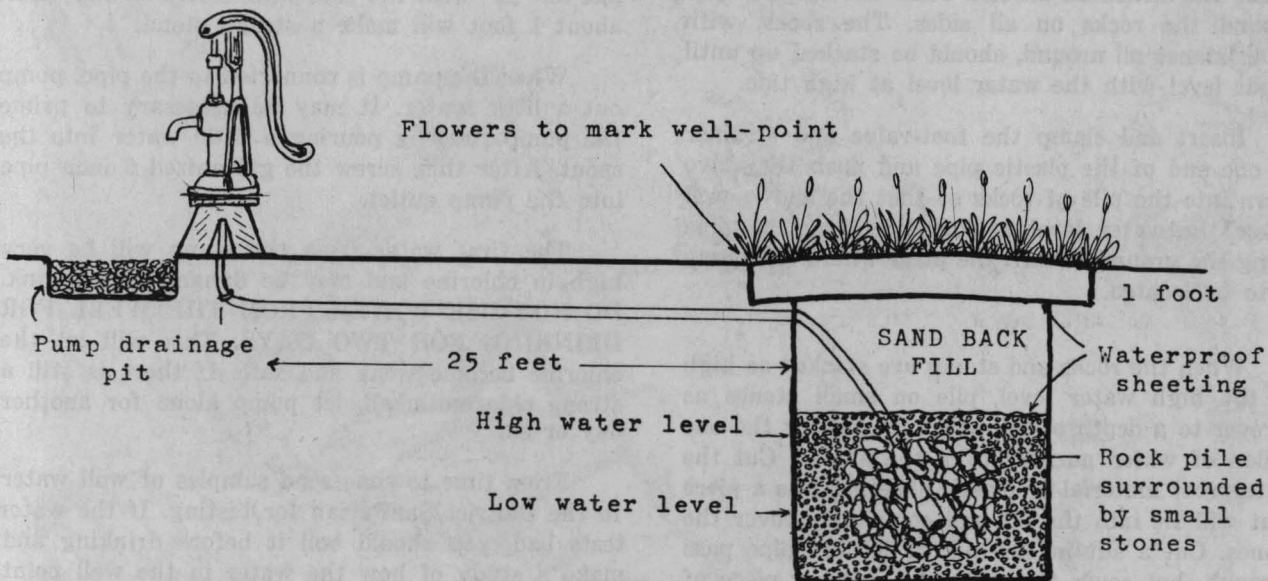


DIAGRAM #2: Complete well and pump installed



(Continued from page 12)

Water purifier, bleach or other chlorine type washing bleach—1 gallon.

Galvanized pipe: 1 inch inside diameter, threaded one end, 6-7 inches.

All materials are available locally or from major U. S. mail order companies.

DETAILS

Have the village people locate a place where the groundwater is not too salty for drinking. Dig a pit 3 feet on each side into the ground water. Follow the advice of the villagers as to how deep the pit should be dug before you hit salt water. Do not dig deeper than the fresh water or you may have a very salty well.

While the pit is being dug, some people may collect rocks and stones. The rocks may be coral boulders and should be from 5 to 8 inches in size. The stones, piled separately, may be beach rubble about $\frac{1}{2}$ to 1 inch in size. The pile of rocks and stones, about 1 cubic yard each, should be carefully washed with fresh water to remove the salt.

When the pit is dug, line the bottom with six inches of small stones. Try to keep leaves and bits of wood out of the pit.

On the small stones lining the bottom, stack the large rocks in the middle of the pit, leaving about six inches all around. Pack the small stones around the rocks on all sides. The rocks, with small stones all around, should be stacked up until about level with the water level at high tide.

Insert and clamp the foot-valve and strainer on one end of the plastic pipe and push the valve down into the pile of rocks so that the end is well below the water level at low tide. Lay the pipe along the ground toward the place where the pump is to be located.

When the rocks and stones are stacked as high as the high water level, pile on small stones as a cover to a depth of 10 inches. Now pour the one gallon of water purifier over the stones. Cut the waterproof material or plastic sheeting into a piece that will fit into the pit and completely cover the stones. Cut a slit in one side to let the pipe pass through, but cover this slit with another piece of material so that sand will not fall into the well point.

The pit can now be filled with sand to a level 1 foot below ground surface. Now dig away from

the pit at the 1 foot depth about 2 feet in all directions. Level the area with a slight mound in the center. Also dig a ditch about 1 foot deep in the direction of the pump in which to place the pipe.

Cut the waterproof material into strips that can be used, with lots of overlap, to cover the one foot deep area above and around the pit. This material keeps water from running directly into the well from the surface and, possibly, making the well water dangerous to drink.

Now the pit may be completely filled. The center should be slightly mounded up, perhaps 3 or 4 inches above ground level.

Dig the ditch, 1 foot deep, to the location of the pump stand and bury the pipe with the end coming out as near as possible to the pump. Do not cut the pipe until you are ready to clamp it to the adapter at the base of the pump.

Remember—the pump should be located about 25 feet from the well.

In front of the pump dig a pit 3 feet by 3 feet by 1 foot deep. Line the bottom of this pit with large rocks and fill with small stones. This will provide clean drainage for water spilled from the pump.

The pump stand should be about $1\frac{1}{2}$ feet high and may be of any strong design. A frame shaped like an "A" with the four legs buried in the earth about 1 foot will make a strong stand.

When the pump is connected to the pipe, pump out a little water. It may be necessary to prime the pump first by pouring a little water into the spout. After this, screw the galvanized 6 inch pipe into the pump outlet.

The first water from the pump will be very high in chlorine and may be dangerous to drink. **DO NOT USE WATER FROM THE WELL FOR DRINKING FOR TWO DAYS.** This will let the chlorine become weak and safe. If there is still a strong chlorine smell, let pump alone for another day or so.

From time to time send samples of well water to the District Sanitarian for testing. If the water tests bad, you should boil it before drinking and make a study of how the water in the well point is being made bad. It may be necessary to change the location of the well point.

Diagram #2 shows the layout of the well point and pump location, ready for use. If several families

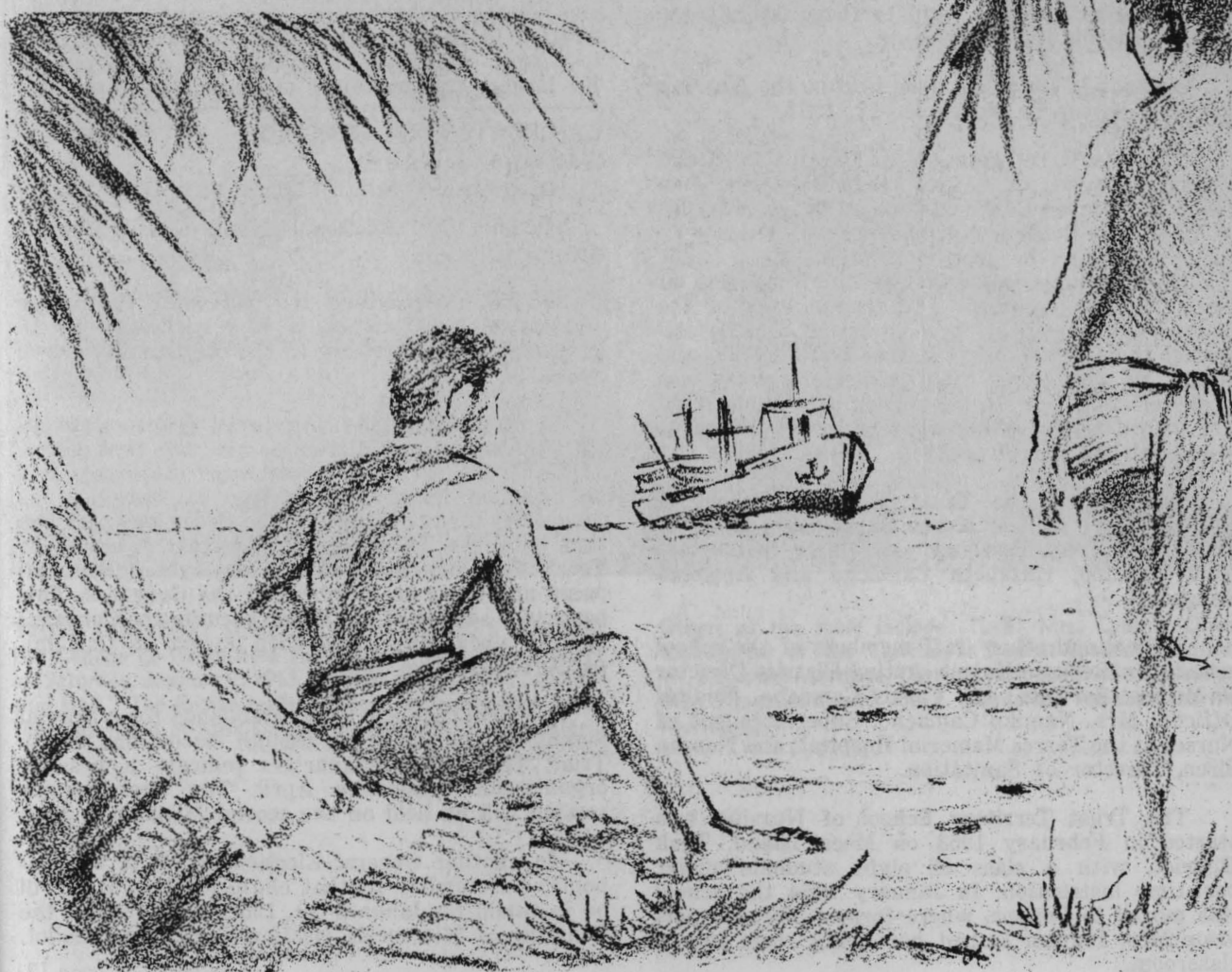
are to use the water from the pump, it may be well to dig several well points and connect them with T-joints to the pipe leading to the pump. This will allow more water to be drawn from the system without getting too much salt.

On some islands, villagers plant a special flower above the well point to show its location and to protect the place from contamination. The roots of the plants will also help to filter rain water falling in the area of the well point.

EVALUATION

This well point was designed for atoll islands where the water table is formed in a 'lens' usually no more than 5 or 6 feet below ground level. Six of these wells have been in use in the Trust Territory of the Pacific Islands on sandy, low islands for several months. Tested samples of water from this type well point, compared with nearby open wells, show a much lower bacterial count.

—Community Development Office



Seven Complete Nurse Training



Seven Micronesians young men and women completed two years of Nursing School training in Saipan in mid-November and were awaiting transportation to carry them to their assignments throughout the Trust Territory.

Graduation exercises were held at the Nursing School in Saipan on November 17, 1964.

Diplomas were presented to Daniel Castro and Guadalupe Reyes of Saipan, John Edwards, Isao Frank and Brenda Lonno of Ponape, Bungka Maypas of Truk, and Roberta Ngringetrang of Palau.

High Commissioner Goding in his address at the graduation ceremony called upon each of the graduates to do all in their power to educate and protect their fellow Micronesians from disease and injury. He added that their chosen profession was most certainly not an easy one, but is one that will afford them an opportunity to serve and to grow with their work.

Members of the Trust Territory School of Nursing staff include Nurse Supervisors Ruth Y. Martin and Irene Rowland, and Nurse Instructors Aline Taitano, Elizabeth Camacho and Apolonia Rengechel.

Medical and other staff members of the school include Dr. Benusto Kaipat, Acting District Director of Medical Services; Dr. Carlos Camacho, Medical Officer; Mrs. Namiko Camacho, Superintendent of Nurses at the Torres Memorial Hospital; and Nascha Siren, Director of Sanitation.

The Trust Territory School of Nursing was started in February 1953 on Moen Island, Truk District, with a class of eight students under part-time instruction. In January 1954 the school was moved to Ponape, where former Nurse Supervisor Miss Ingram turned her living room into a classroom.

During the final months of 1955 school facilities were completed in Koror, Palau, and the Nursing School and staff again moved. July of 1963 saw another move of the Nursing School to its present location in Saipan. The move was made primarily to permit expansion of facilities so as to provide for larger enrollments of students.

CANDIDATES FOR CONGRESS

(Continued from page 4)

District D: Mitaro Danis and John Sandy.

District E: Chutomu Nimues and Hermes Katsra.

Heavy campaigning by individual candidates and by political parties is well underway in all Districts of the Territory as the election day draws closer.

A provision of the Secretarial Order establishing the Congress of Micronesia provides that Micronesian Trust Territory government employees will be provided leave without pay to campaign as candidates for the Congress. The Order also provides that until the Third General Election Micronesian Trust Territory government employees can campaign and serve as members of the Congress. This particular section of the Order permits the Congress to draw upon experienced men during its first important formative years.

No firm date has been established for a Special Session of the Congress, though discussions in the Trust Territory headquarters indicate a possible organization session in April. The first regular session will be held on the second Monday in July.

In another General Election action it was announced December 18 that eligible voters who will be in Guam on January 19, 1965, may vote in the Congress of Micronesia election by absentee ballot.

(Continued on page 19)

Student Christmas Party Held in Guam



TRUST TERRITORY SCHOLARSHIP STUDENTS attending the College of Guam held their annual New Year's party on Saturday, January 2, 1965, at their dormitory—"Scholarship Hall." The festive table and food were prepared under the supervision of Miss Carmen Pangelinan (right center).

Others at the table include: (L-R) Mrs. Cynthia Olson, Coordinator of the Territory's Student-Sponsor Program; Mr. Raymond Marriage, Dormitory Manager and Counselor; Miss Pangelinan, and Joe E. Ilengelkei, Assistant to Mr. Marriage.



Kennedy Memorial Dedicated in Saipan

The formal unveiling and dedication of the Saipan John F. Kennedy memorial was held on the first anniversary of the late President's death November 22, 1964 on the grounds of Our Lady of Mount Carmel Church in Chalan Kanoa.

Funds for the construction of the memorial were donated through a variety of means by the people of Saipan. Design of the memorial includes a white plaster bust of President Kennedy atop a steel-grey marble pedestal.

Shortly after the ceremony began heavy rains thundered down on the large gathering, but few people left their places for shelter.

Several addresses were made at the ceremony which included remarks delivered by Deputy High Commissioner Richard F. Taitano, Speaker of the Saipan Legislature Jesus Sablan, District Administrator Roy T. Gallemore, and Dr. Francisco Palacios. Mr. Frank Ada served as Master of Ceremonies.



RESEARCHER BEGINS TWO-YEAR STUDY OF WOLEAI

Mr. William H. Alkire, Bishop Museum Research Associate, arrived in the Trust Territory in early December to begin a two year study of contemporary cultural change in the Woleai Atoll of the Yap District.

This study, conducted by the Bishop Museum, is supported from a grant received from the National Science Foundation.

Alkire, presently completing his Ph.D. at the University of Illinois, was engaged in field work on Lamotrek Atoll in 1962-63.

Woleai Atoll, which lies in the Western Carolines, was last visited by an anthropologist when Augustin Kramer of the German South Seas Expedition was there briefly in 1909. The atoll, which consists of seven inhabited islands, was once an area of primary importance within the political sphere of the aboriginal Yapese "empire" and was selected for this study of its cultural change as an important link in any understanding of change throughout the whole of the Western Carolines from Ulithi to Puluwat. Although culturally distinct from Yap itself, these outlying islands in traditional times were brought under control by Yap and tribute exacted. Control was exercised through economic, political, and religious factors and directives were relayed downward through the status hierarchy according to which the various islands were ranked. Ulithi had the highest status next to Yap and even exacted tribute from its own; Woleai, Ifaluk, and Lamotrek were lower; and other islands were assigned a still lower rank.

The project is expected to reveal invaluable data on this traditional "interisland empire" of Yap and ecological conditions which were involved in the methods of control.

Mr. Alkire will spend 15 months living on Woleai and nine months at the Bishop Museum in Honolulu where the collected information will be analyzed.

The Trust Territory administration is giving its full cooperation to this project since it will provide valuable information for use in the administration's program of expansion in education, public health and community development now underway in the outer islands.

CANDIDATES FOR CONGRESS

(Continued from page 16)

Assistant Commissioner for Public Affairs John E. De Young announced that citizens of the Trust Territory of the Pacific Islands who are 18-years-old or over and who are residents of the Trust Territory are eligible to vote in the January 19 election to the Congress of Micronesia.

Any citizen of the Trust Territory now living in Guam who wishes to vote in the election should write immediately to the District Administrator where he is a resident. District Administrators will forward registration forms and absentee ballots to eligible voters who request them from their respective District.

Trust Territory citizens who wish to vote should act immediately since deadlines for registration vary among the Districts. The registration deadline is January 4 in the Marianas District and December 31 in the Palau District.

High Commissioner Goding has appointed each District Administrator the Election Commissioner of his District.

Aid Sought in Solving Bird Migration Puzzle

Hundreds of thousands of far-traveling ocean birds of many kinds are being captured, marked and released on mid-Pacific islands in a wide-spread study of seabird migration by the Smithsonian Institution, Washington, D. C. Although it is known that some kinds of birds perform remarkable annual migrations of 10,000 miles or more over the North and South Pacific Oceans, the regular travels of most species are unknown or poorly understood.

To learn more about the migrations of seabirds, Smithsonian ornithologists have captured and marked over 300,000 birds of 28 different kinds in the Central Pacific with standard, numbered, United States Fish and Wildlife Service aluminum legbands. Of these, over 60,000 have been marked with a four inch colored plastic leg-streamers.

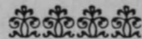
Anyone coming into the possession of a banded dead bird in the Pacific Ocean Area is asked to cooperate by returning the band, together with time and place of recovery, as instructed on the band. For live birds, only the band number together with time and place of capture need be sent to the directed address, after which the bird should be liberated so that its further travel may be traced.

Anyone sighting a bird with a colored leg-streamer anywhere in the Pacific Ocean Area is asked to cooperate by recording the name and description of the kind of bird wearing the streamer, the color of the streamer, the date seen, and the latitude and longitude or approximate location of sighting. All information on birds with colored leg-streamers should be sent as soon as possible to:

Division of Birds
Smithsonian Institution
Washington, D. C. 20560

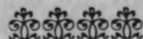
Each cooperator will be advised where the banded or color-marked bird was tagged.

NEWS & VIEWS OF MICRONESIA



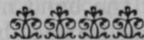
MAJURO HOTEL OPERATION NOW IN MARSHALLESE HANDS

Operation of the Trust Territory hotel facilities in Majuro, Marshall Islands, was passed to Marshallese hands in early November as the Marshall Islands Import-Export Company (MIECO) signed a lease marking the start of a new commercial venture. Operation of the hotel was formerly carried out by the District Administration's staff in Majuro. Construction of the new MIECO hotel in Majuro has been underway for the past several months. A second story of the MIECO building will ultimately provide additional rooms for transients plus kitchen and dining facilities. The new hotel was expected to be open by the end of December with the former hotel to be abandoned.



SECOND COMMERCIAL FISHING SITE EXAMINED

Van Camp Sea Food Company engineers are expected to begin engineering studies soon on Moen Island in the Truk District to determine the possibility of establishing a second fish freezer/storage facility in the Trust Territory. High Commissioner Goding and Van Camp officials Howard Morgan and Herb Schuch signed a six month lease on the land November 16. Morgan and Schuch went to Truk early this month to confer with District Administrator Boyd McKenzie regarding the possibility of a second site in that area. The six month lease taken by Van Camp provides for test borings and other engineering studies necessary before actual construction work can be considered.

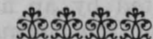


SAIPAN'S KAGMAN TRANSMITTER BUILDING CONTRACT AWARDED

A \$36,320 contract for the construction of the Kagman Radio Transmitter Control Station building in Saipan was awarded to the Micronesian Construction Company (MCC) December 3. Trust Territory Contract Officer John Spivey said the contract calls for the completion of the 48 by 60 concrete block building within 240 days from the date of notice to proceed. John Welch, Director of Communications, said the Radio Control Station now in Truk will be transferred to Saipan when the new station is ready. The Receiver Control Station has already been completed by the Trust Territory Public Works Department.

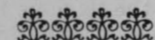
SAISHIP AWARDED SHIP AGENCY AGREEMENT

A three-party Ship Agency Agreement was signed in December at the Headquarters in Saipan making the Saipan Shipping Company (Saiship) the sole agent of the Pacific Micronesian Line at Saipan and Tinian ports in handling PML ships. Transportation Officer Jim Cook, who signed the agreement for the High Commissioner, said the agreement provides for Saipan Shipping Company to provide general shipping agency functions which include soliciting freight for the PML vessels and arranging for such services as berthing, moorage, wharfage, pilotage, stevedoring, terminal operations and vessel husbanding. Saipan Shipping Company is the first local firm in the Territory to be awarded a commercial shipping agency agreement for handling vessels. The M/V PACIFIC ISLANDER, which arrived in Saipan December 11, was the first vessel to be so handled by Saiship.



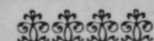
SPC URBANIZATION CHIEF TO VISIT TERRITORY

The South Pacific Commission's Officer-in-Charge of the Urbanization Research Information Center, Dr. J. V. de Bruijn, arrived in the Trust Territory December 23 to begin a five-week visit to gather informational material and to discuss urban development in Micronesia. He is particularly interested in the practical urbanization problems in the Territory. He made a visit to Saipan and then continued on to Ponape.



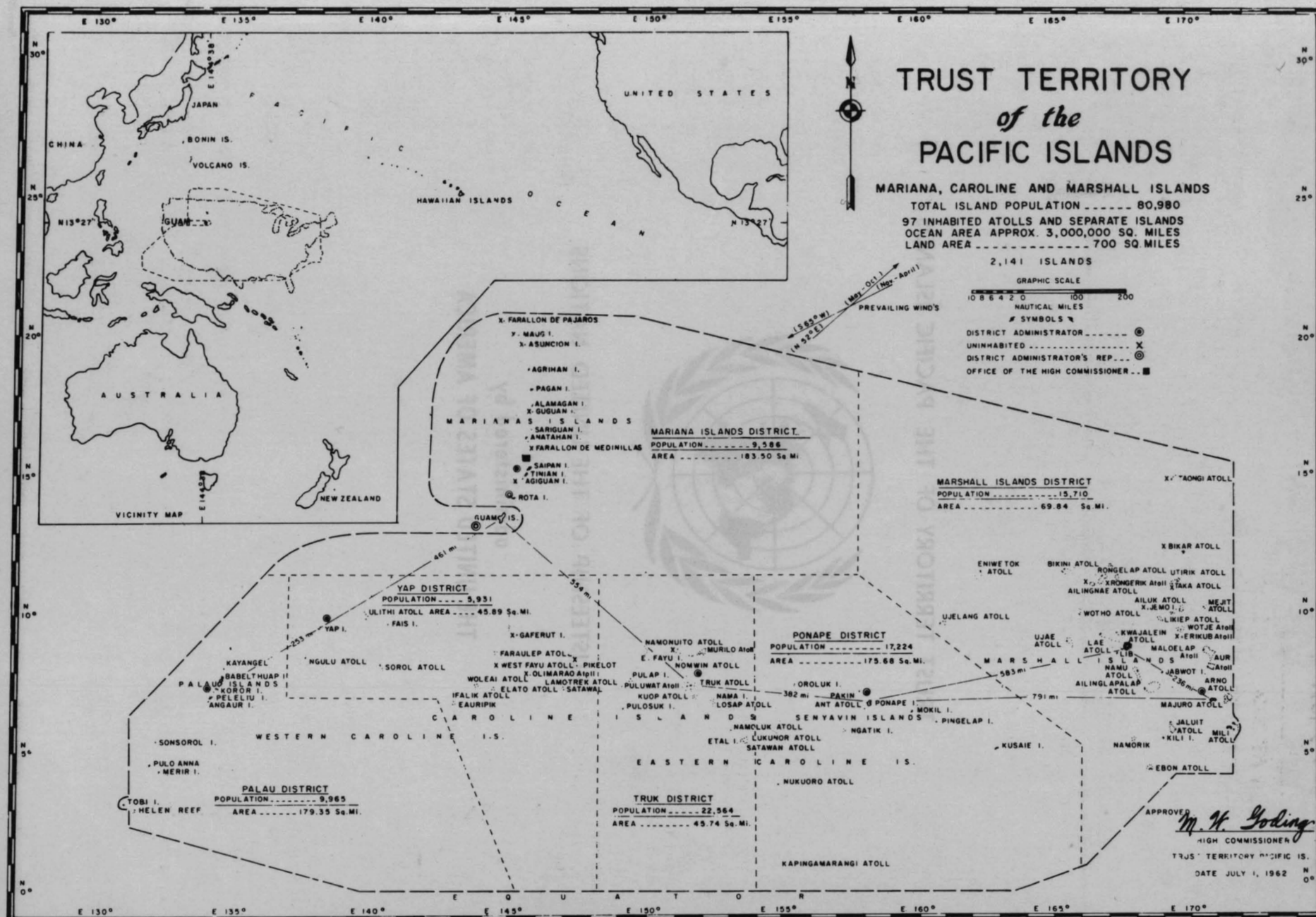
MICRONESIANS GRADUATE FROM FIJI MEDICAL SCHOOL

Four Micronesian medical students successfully graduated in mid-December from the Suva Medical School in Fiji. A congratulatory message was sent to Anthony Polloi and Rufino Xavier of Palau and Hiroshi Ismael and Simeron Jim of Ponape by the High Commissioner. A headquarters official said the graduates will be assigned to their respective District hospitals as medical internes upon their return to the Trust Territory. Yukio Sumang of Palau also completed his sanitation training at the Suva Medical School and was expected to return to Micronesia with the other graduates. Mr. Sumang is to be assigned duties in the Palau District Sanitation Department.



MEDICAL RECORDS TRAINING ANNOUNCED

Twelve District medical records clerk are expected to arrive in Saipan February 1, 1965 to begin a three week training course according to Director of Medical Services Dr. James Sampson. Dr. Sampson added that a course for vital registration clerks will be announced later.



TRUST TERRITORY OF THE PACIFIC ISLANDS



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