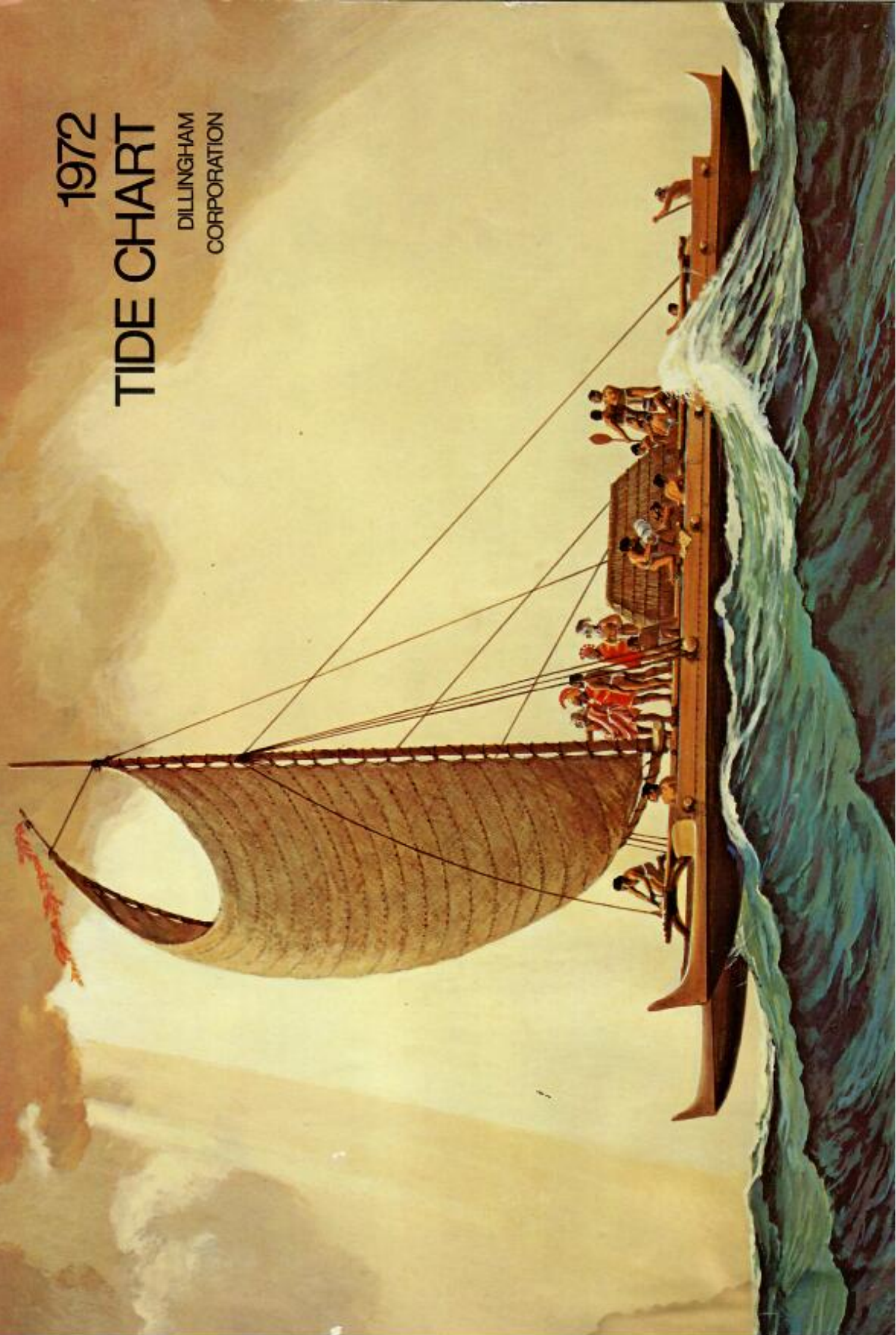


1972

# TIDE CHART

DILLINGHAM  
CORPORATION





# CANOOES OF POLYNESIA

Polynesia began with the canoe.

Had not the seaworthy sailing canoe, the premier attainment of the canoe builder's art, been achieved, neither Polynesia nor Polynesians as we know them would ever have existed. Without the canoe, the ancestral discoverers of Polynesia could not have emigrated from the shores of Asia, as they did more than 3,500 years ago.

From Hawaii to New Zealand, all persons living in Polynesia today — regardless of their origins — trail the leading edge of a history etched by courageous bands of mariners whose sailing canoes first touched the shores of these "many islands."

When we consider the awesome immensity of the Pacific, the achievements of the Polynesians seem beyond comprehension. Thousands of years before other men would venture forth, they tested the staggering proposal that man could sail away from familiar shores, survive on the open ocean, and find new lands in the center of the world's largest ocean.

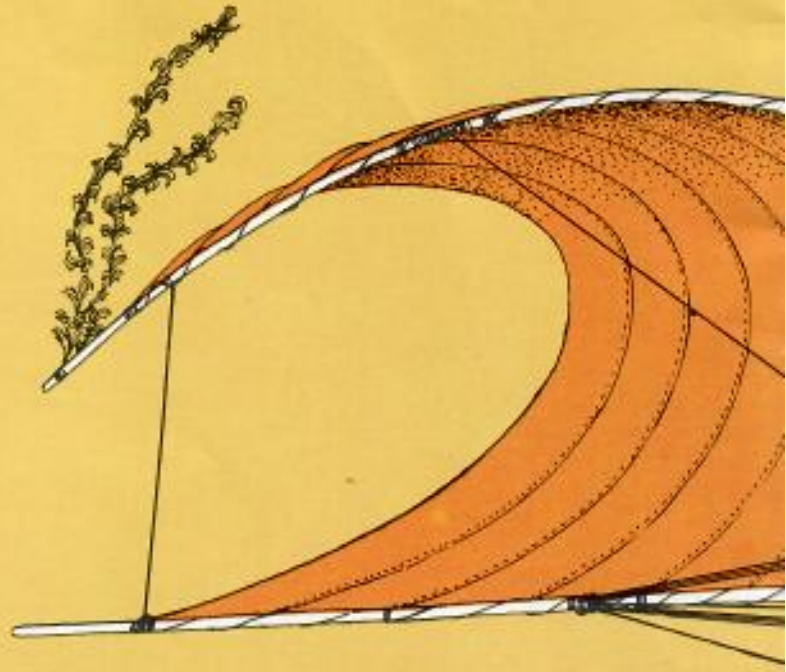
What men they must have been!

Courageous and adventuresome, yes. But they were master builders, peerless navigators, accomplished sailors and indefatigable explorers, as well. Whether driven by desperation (famine, war, pestilence?) or the pure spirit of adventure we know not. But driven they were, to chart routes to the farthest islands — and plumb the depths of their abilities.

First came the dream of a better land, a more benevolent clime, an hospitable place. Then came the desire to reach for it. And as the ancestors of present-day Polynesians stretched forth their thoughts to fabled islands, they searched within themselves for a means to the journey. To build canoes, they used only wood, coconut fibers and pandanus leaves; the raw materials at hand. Their tools are today's museum pieces: the adze of stone, the knives of shell and bone, and coral, the rasp of a mantia ray's skin.

Today, the world knows what vessels they wrought.

Swift, strong, seaworthy craft, some double-hulled, were contrived. In the Tuamotu Archipelago, skilled craftsmen with little wood for hulls, joined small carved planks edge-to-edge, and held them together with pegs and sennit cord lashing. In Tahiti and elsewhere, pitch for watertight construction was drawn from the gum of the breadfruit tree. The gum was wrapped around candle nuts, skewered on coconut leaf ribs, then put to the torch. The hot drippings fell into trays of water and





were gathered as globules of pitch. The juice of flowers was used in Hawaii to polish boat bottoms. The Tahitian tipairua, 70-foot-long in some cases, had sails bordered with wood, according to Captain James Cook, which "makes them stand better than any bow-lines could possibly do," he wrote. European seamen marveled at them.

"Better could not have been made in Castille," wrote the Spanish explorer De Quiros in 1606.

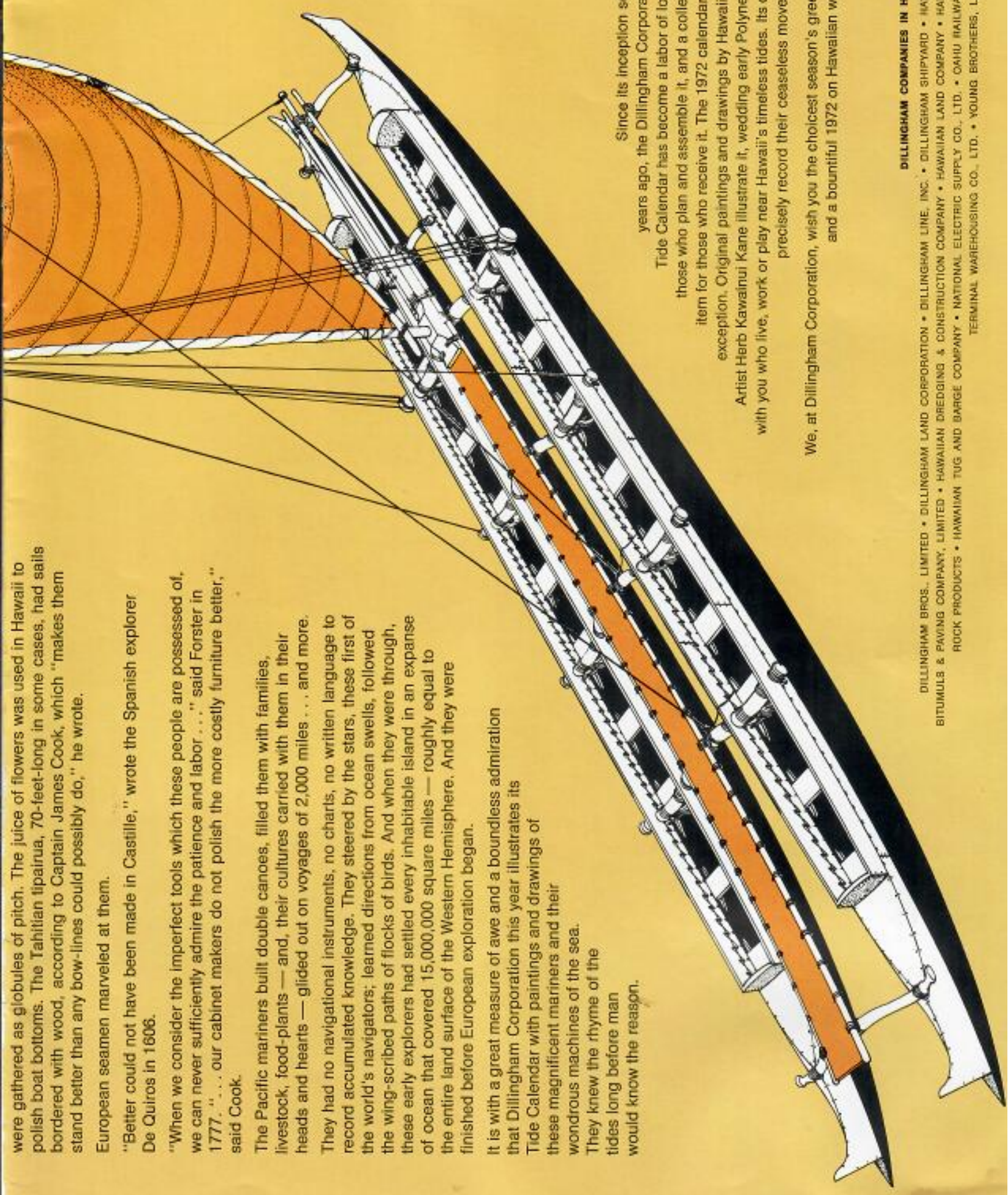
"When we consider the imperfect tools which these people are possessed of, we can never sufficiently admire the patience and labor . . ." said Forster in 1777. ". . . our cabinet makers do not polish the more costly furniture better," said Cook.

The Pacific mariners built double canoes, filled them with families, livestock, food-plants — and, their cultures carried with them in their heads and hearts — glided out on voyages of 2,000 miles . . . and more. They had no navigational instruments, no charts, no written language to record accumulated knowledge. They steered by the stars, these first of the world's navigators; learned directions from ocean swells, followed the wing-scribed paths of flocks of birds. And when they were through, these early explorers had settled every inhabitable island in an expanse of ocean that covered 15,000,000 square miles — roughly equal to the entire land surface of the Western Hemisphere. And they were finished before European exploration began.

It is with a great measure of awe and a boundless admiration that Dillingham Corporation this year illustrates its Tide Calendar with paintings and drawings of these magnificent mariners and their wondrous machines of the sea. They knew the rhyme of the tides long before man would know the reason.

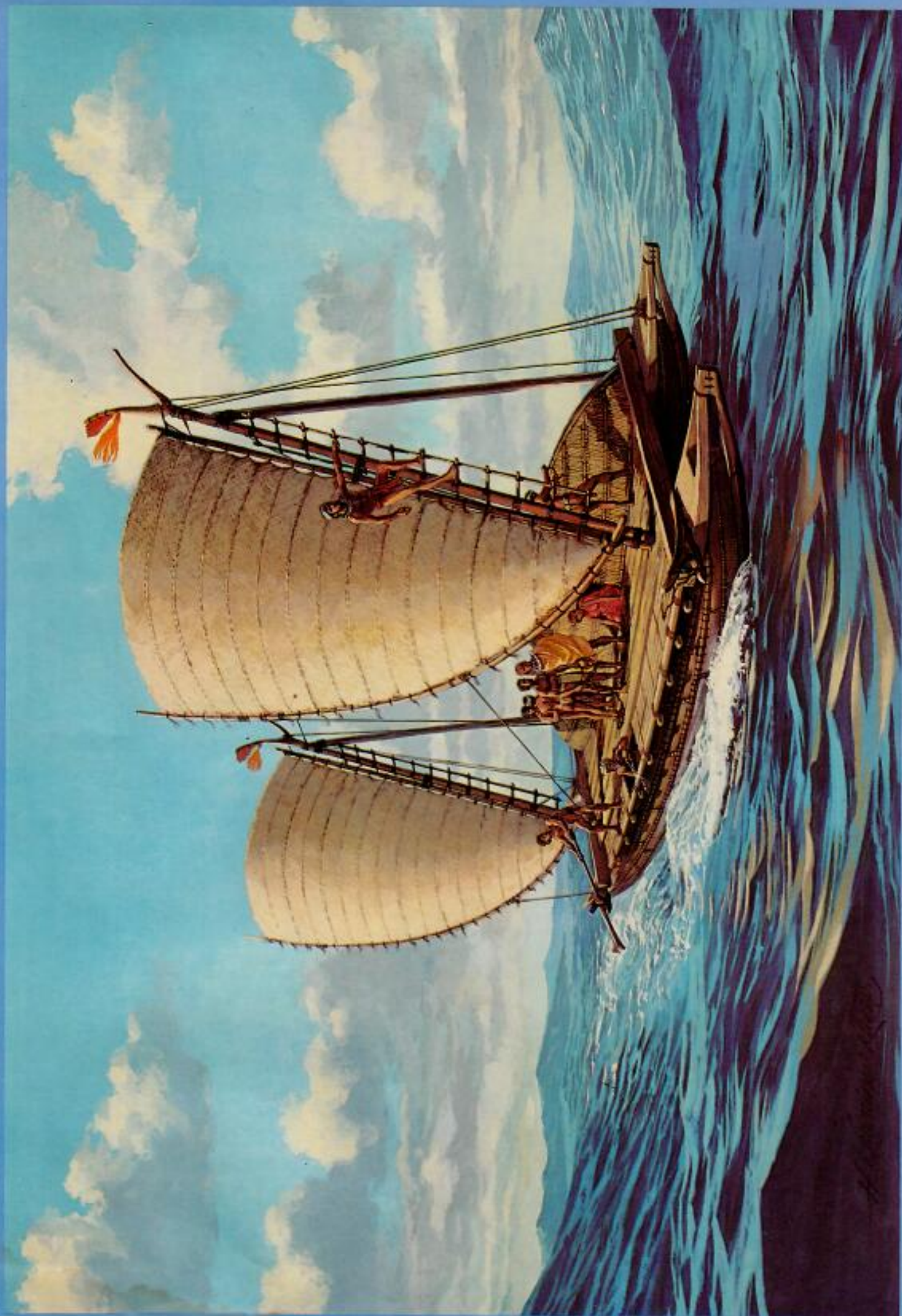
Since its inception several years ago, the Dillingham Corporation's Tide Calendar has become a labor of love for those who plan and assemble it, and a collector's item for those who receive it. The 1972 calendar is no exception. Original paintings and drawings by Hawaii-born Artist Herb Kawaiui Kane illustrate it, wedding early Polynesians with you who live, work or play near Hawaii's timeless tides. Its charts precisely record their ceaseless movement.

We, at Dillingham Corporation, wish you the choicest season's greetings and a bountiful 1972 on Hawaiian waters.



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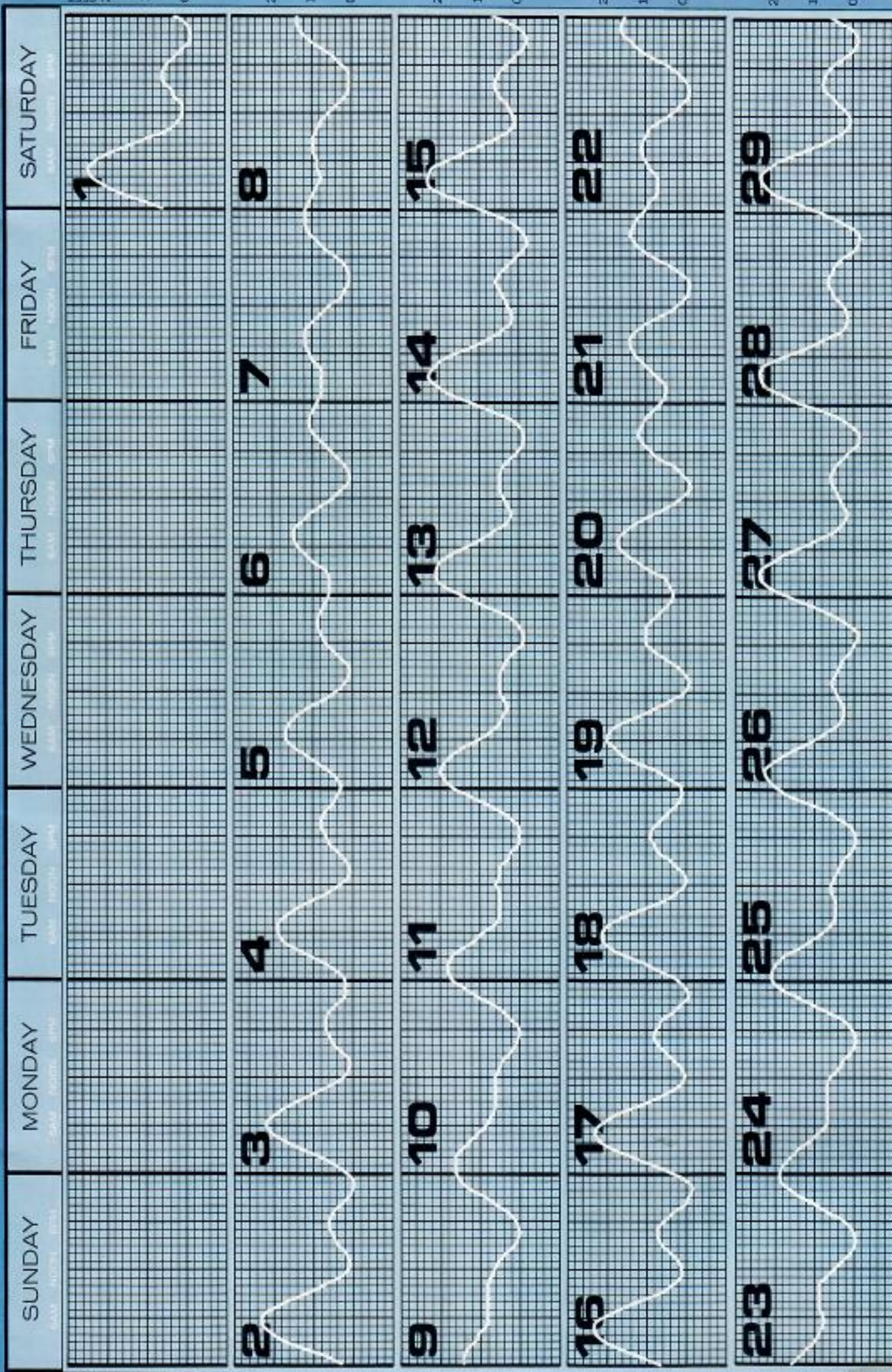




A PAHI FROM THE TUAMOTU ARCHIPELAGO

January 1972 Tide Chart





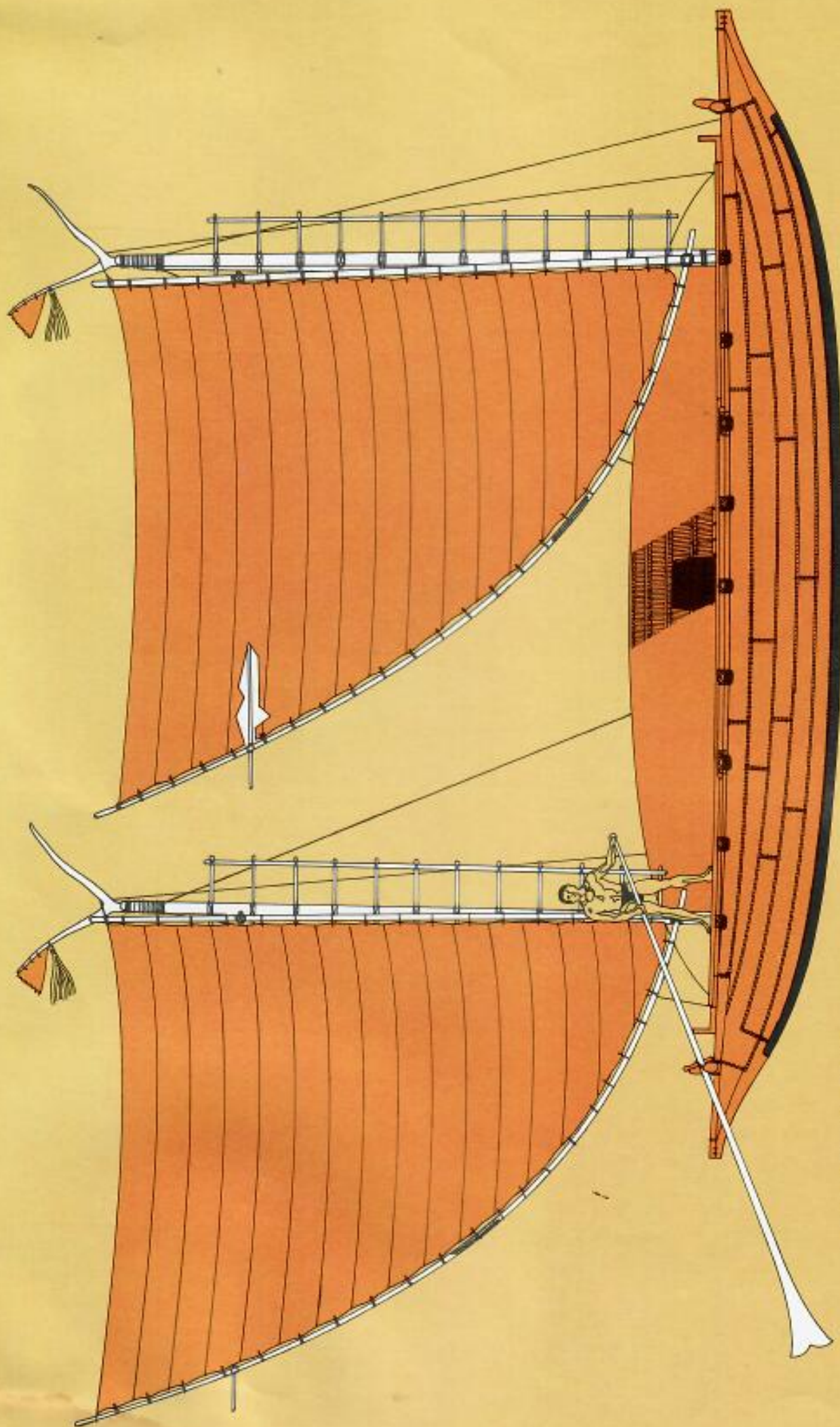
For tide time at following places, add or subtract from Honolulu time.

POINTS	Hrs. Min.	POINTS	Hrs. Min.
HAWAII BAY, KAUAI	-1 40	KALANANAKA, MOLOKAI	-0 00
MAWILIWI BAY, KAUAI	-0 30	KAHALU, MAUI	-1 48
PORT ALLEN, MAUI	-0 30	KIHEI, MAUI	-0 14
HALEIWA, OAHU	-0 55	MAUI	-0 14
HANAJIMA BAY, OAHU	-0 55	HILLO, HAWAII	-0 30
KAKOKE BAY, OAHU	-1 25	HONOLULU, HAWAII	-0 24
LAIE, OAHU	-1 48	MAHUKONA, HAWAII	-0 24
WAIHANA, OAHU	-0 15	KEANUKU BAY, HAWAII	-0 15
WAINANA, OAHU	-1 25		



Dillingham





## A PAHI FROM THE TUAMOTU ARCHIPELAGO

**The Painting** A crewman rides high in this double-sailed pahi, a masterpiece of ship-building art. Among the most sophisticated sailing machines in Polynesia,

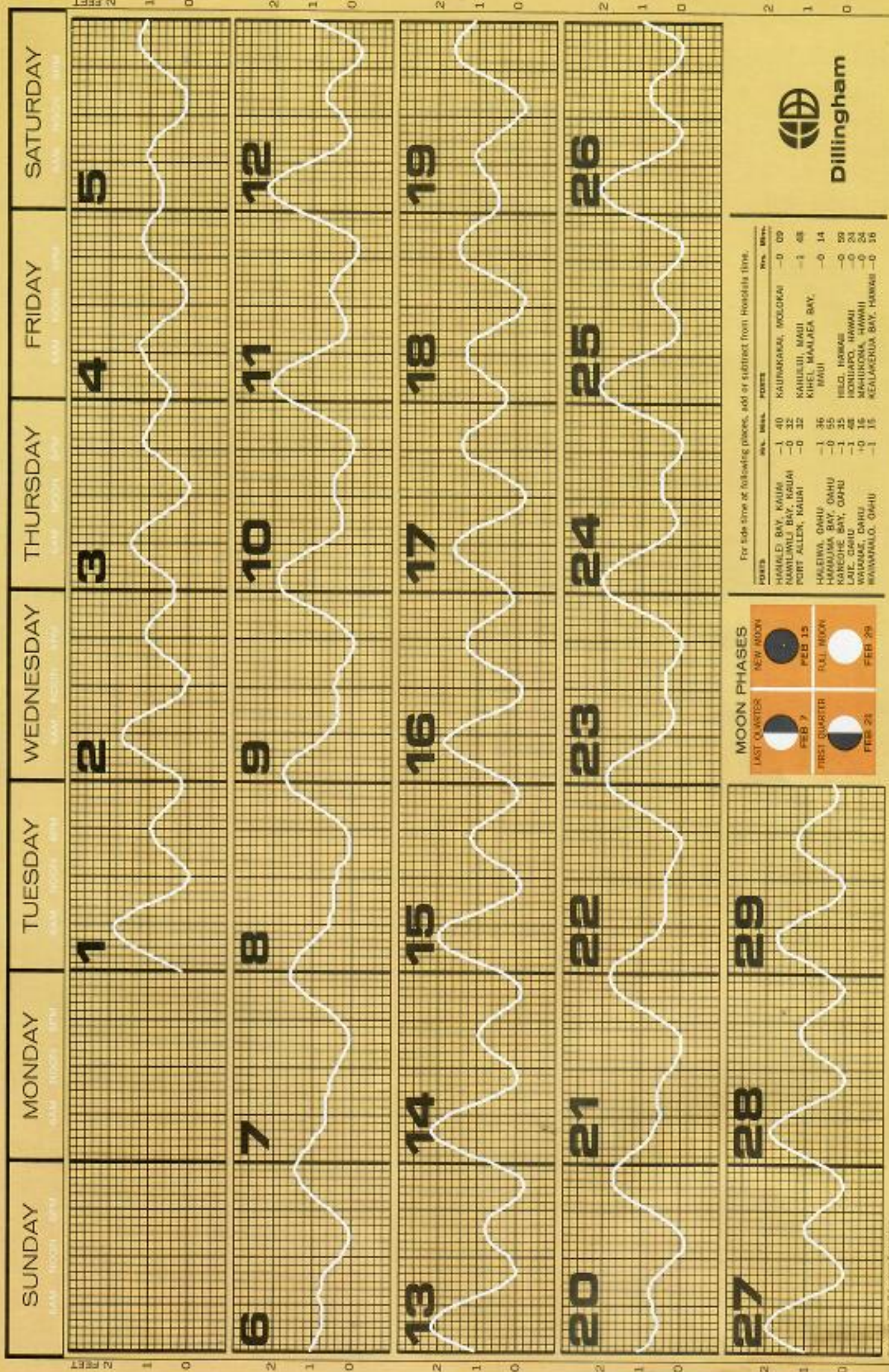
the pahi of the Tuamotu Archipelago sailed to Tahiti and linked Tuamotu's many atolls into a string of coral pearls.

**The Drawing** With pandanus leaves, husks

of coconuts, and skimpy trees others from more forested islands would have disdained, Tuamotuans built this boat, a wide, deep V-hulled vessel which was a great sailer.



# February 1972 Tide Chart



For tide time at following places, add or subtract from Honolulu time.

PLACES	MO. HRS.	PORTS	MO. HRS.
HAWAII: BAY, KAUAI	-1 40	KAUNAKAHI, MOLOKAI	-0 00
MAUI: MAUI BAY, KAUAI	-0 32	MAHULU, MAUI	-1 00
PORT ALLEN, KAUAI	-0 32	KIHEI, MAUI	-1 00
		MAUI	-0 14
HAWAII, OAHU	-1 36	HELO, HAWAII	-0 00
HONOLULU BAY, OAHU	-0 55	HONOLULU, HAWAII	-0 00
KANEOHE BAY, OAHU	-1 35	KAHOLAONA, HAWAII	-0 24
LAIE, OAHU	-1 00	KAHALAUNA BAY, HAWAII	-0 36
WAIKOLE, OAHU	-1 15		
WAIANAILO, OAHU	-1 15		



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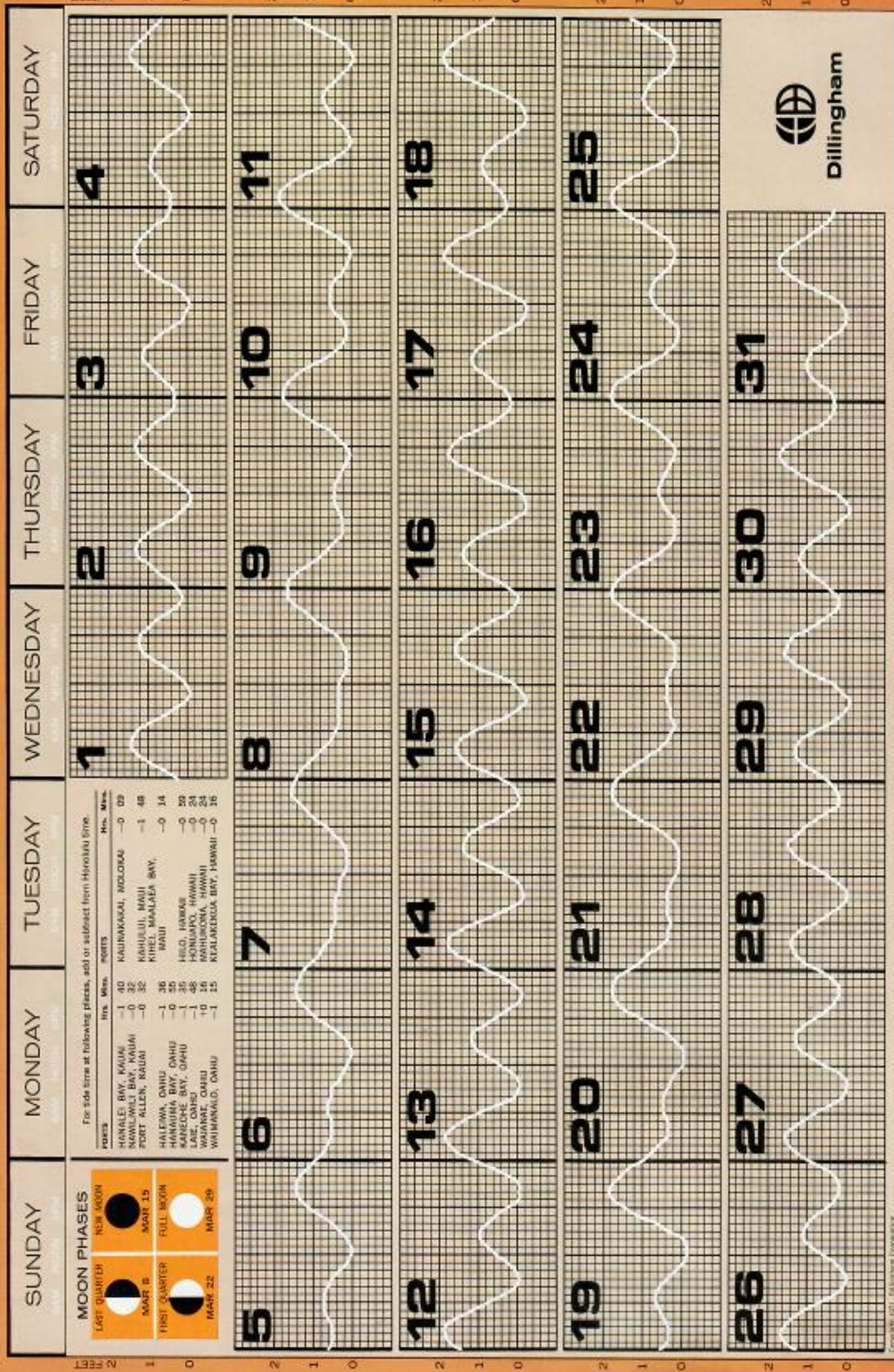




AN AMATASI OF SAMOA



# March 1972 Tide Chart



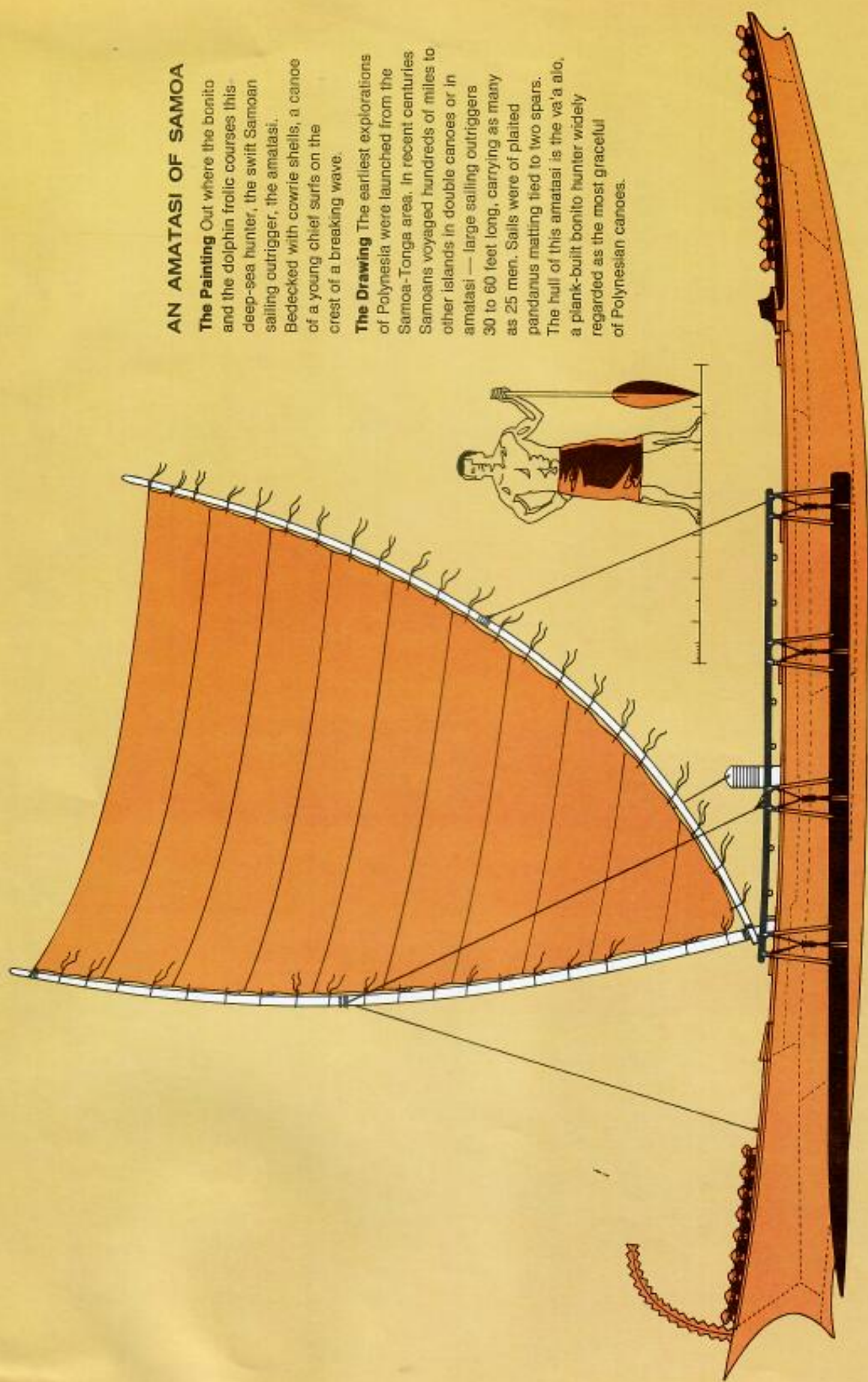


## AN AMATAASI OF SAMOA

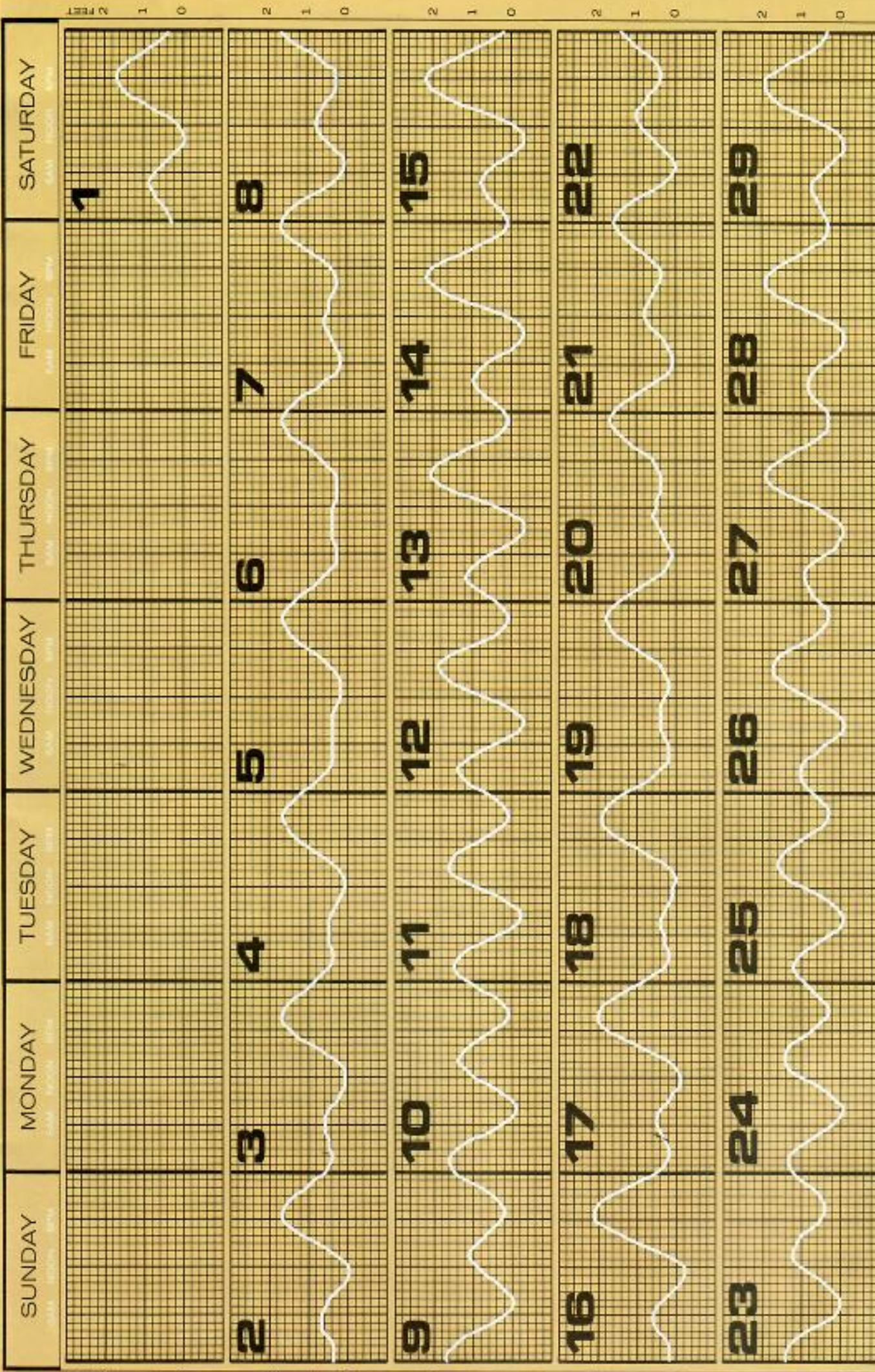
**The Painting** Out where the bonito and the dolphin frolic courses this deep-sea hunter, the swift Samoan sailing outrigger, the amatasi.

Bedecked with cowrie shells, a canoe of a young chief surfs on the crest of a breaking wave.

**The Drawing** The earliest explorations of Polynesia were launched from the Samoa-Tonga area. In recent centuries Samoans voyaged hundreds of miles to other islands in double canoes or in amatasi — large sailing outriggers 30 to 60 feet long, carrying as many as 25 men. Sails were of plaited pandanus matting tied to two spars. The hull of this amatasi is the va'a alo, a plank-built bonito hunter widely regarded as the most graceful of Polynesian canoes.







**MOON PHASES**

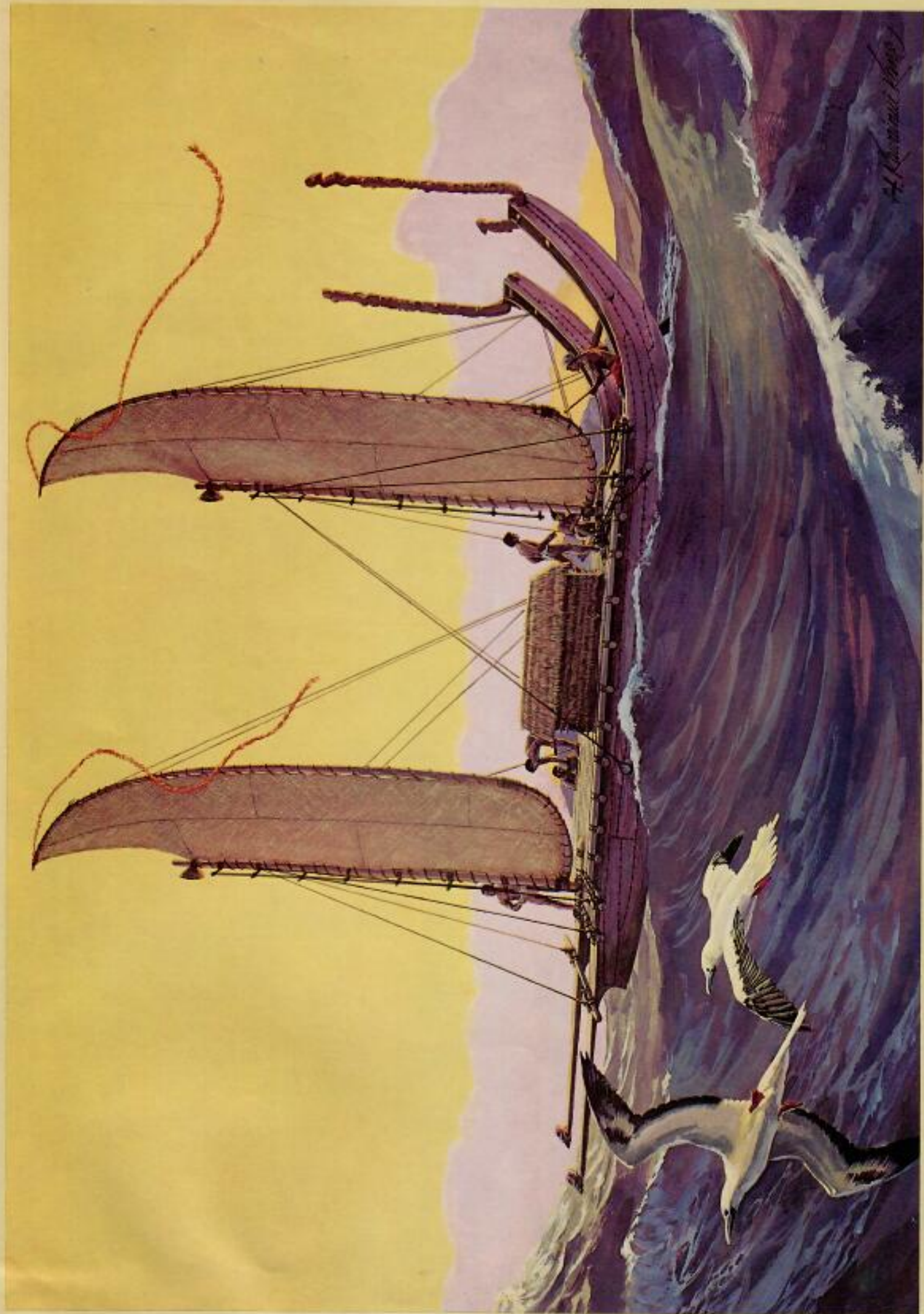
 LAST QUARTER APR 6	 NEW MOON APR 13
 FIRST QUARTER APR 20	 FULL MOON APR 28

For tide time at following places, add or subtract from Honolulu time.

PORTS	hrs.	Mins.	PORTS	hrs.	Mins.
HAWAII BAY, KAUAI	-1	40	KAINAKAKI, MOLOKAI	-0	03
MAWILIILI BAY, KAUAI	-0	32	KAHULUI, MAUI	-1	48
PORT ALLEN, KAUAI	-0	32	KIPIE, MAALAE BAY, MAUI	-0	34
HALEIWA, OAHU	-1	36	HAWAIIA BAY, OAHU	-0	55
HANALEI BAY, OAHU	-1	35	KANEOHE BAY, OAHU	-1	48
LAIE, OAHU	-1	48	MAHUKONA, HAWAII	-0	24
WAIKANE, OAHU	-1	16	KAUNAKAHOA BAY, HAWAII	-0	16
KAUNAKAHOA, OAHU	-1	15			



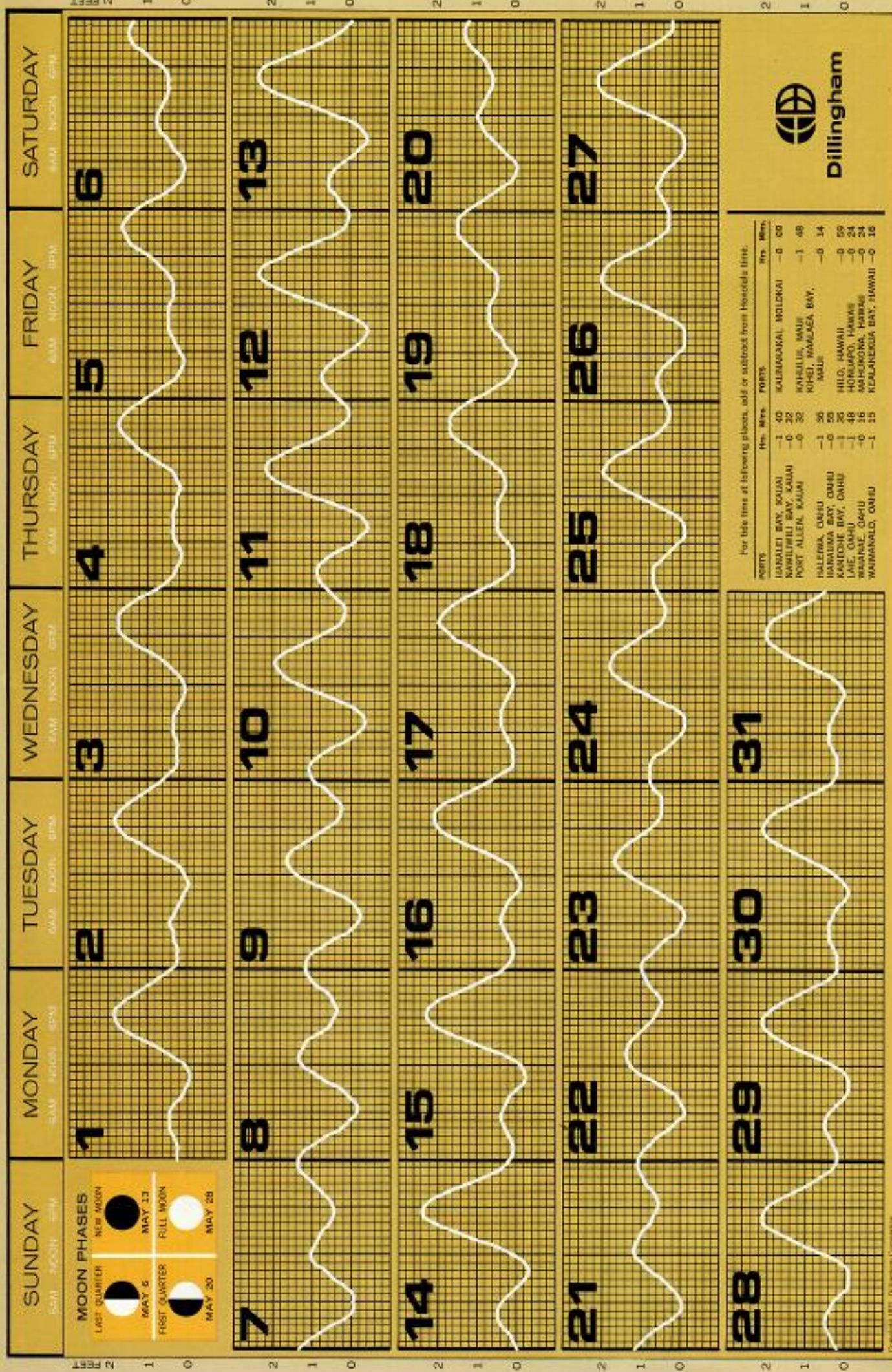




A TIPAIRUA OF TAHITI



# May 1972 Tide Chart



For tide times at following places, add or subtract from Honolulu time.

PORTS	Hrs. Mins.	PORTS	Hrs. Mins.
HARAUPT BAY, KAUAI	-1 40	KALANANAKAL, MOLOKAI	-0 00
NAWILIWILI BAY, KAUAI	-0 32	KAHALUI, MAUI	-1 48
PORT ALLEN, KAUAI	-0 32	KIHEI, MAUI	-0 14
		MAUI	-0 14
HALEIWA, OAHU	-0 55	HILO, HAWAII	-0 59
HARAUPT BAY, OAHU	-1 26	HONOLULU, HAWAII	-0 24
KANEHOE BAY, OAHU	-1 48	MAHUKONA, HAWAII	-0 24
LAIE, OAHU	-0 36	KEANAKUA BAY, HAWAII	-0 16
WAIKANE, OAHU	-1 15		
WAIMANALO, OAHU	-1 15		



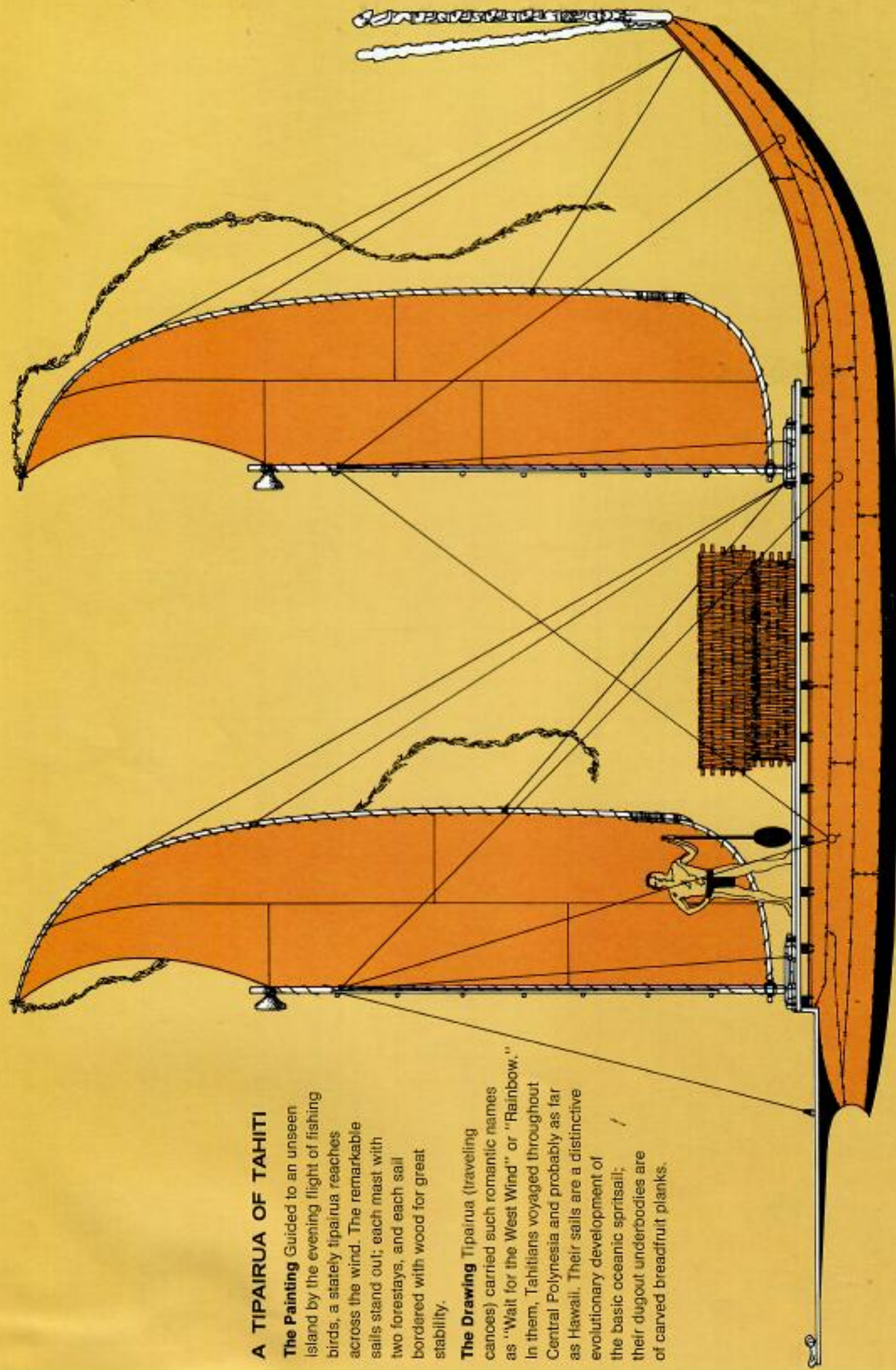
**Dillingham**



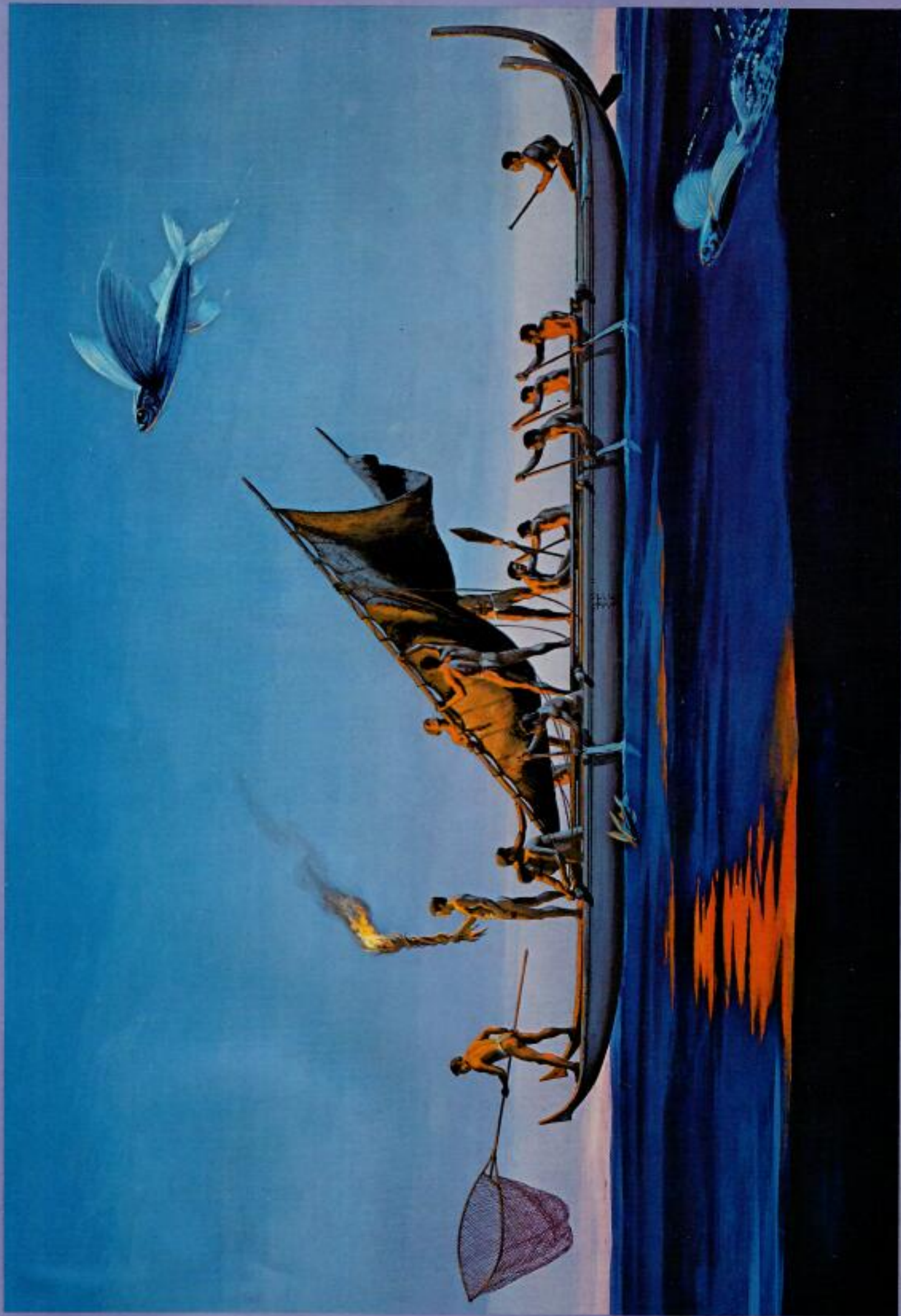
## A TIPAIRUA OF TAHITI

**The Painting** Guided to an unseen island by the evening flight of fishing birds, a stately tipairua reaches across the wind. The remarkable sails stand out; each mast with two forestays, and each sail bordered with wood for great stability.

**The Drawing** Tipairua (traveling canoes) carried such romantic names as "Wait for the West Wind" or "Rainbow." In them, Tahitians voyaged throughout Central Polynesia and probably as far as Hawaii. Their sails are a distinctive evolutionary development of the basic oceanic spritsail; their dugout underbodies are of carved breadfruit planks.



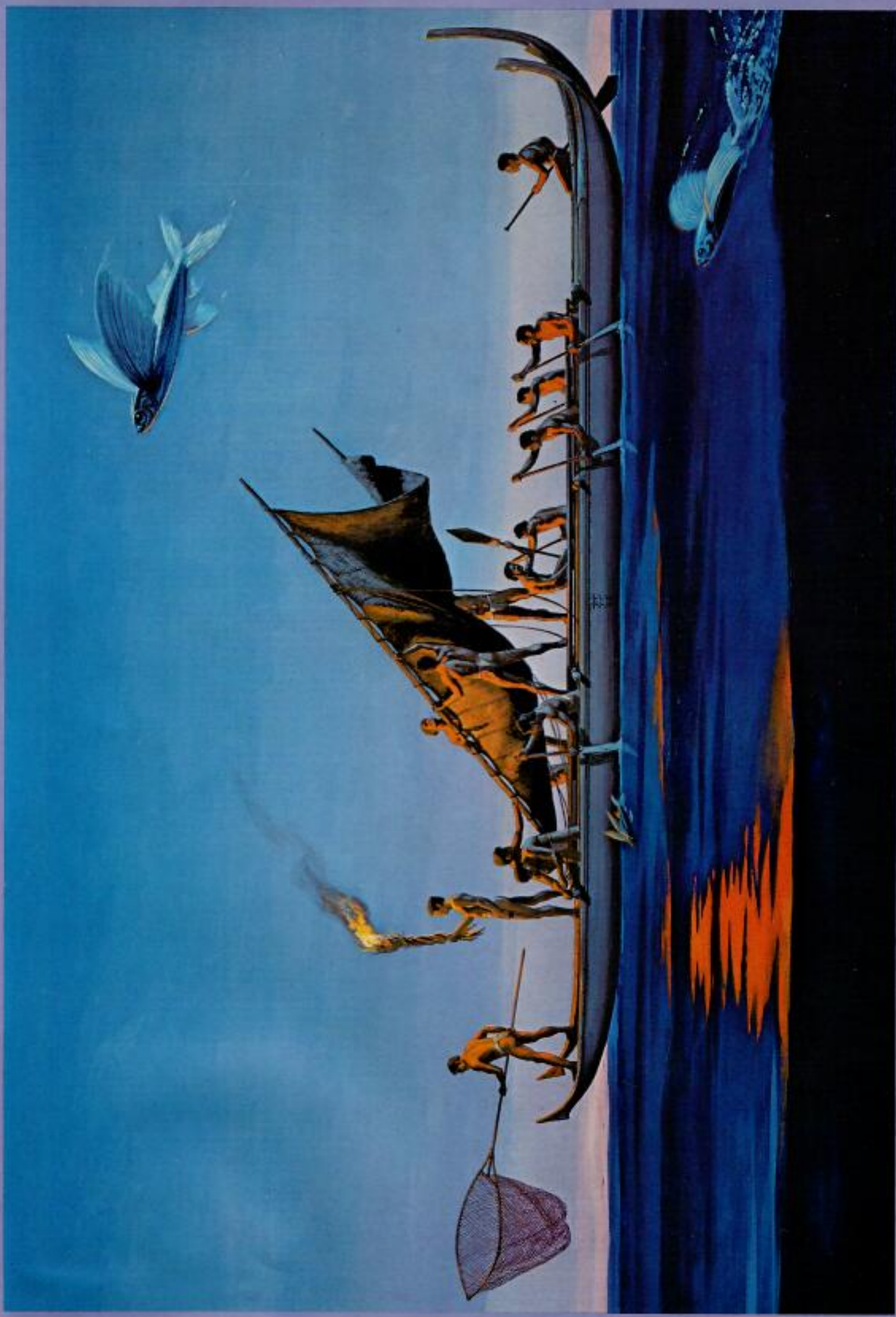




A VAKA OF ATIU, NIGHT FISHING FOR FLYING FISH

July 1972 Tide Chart

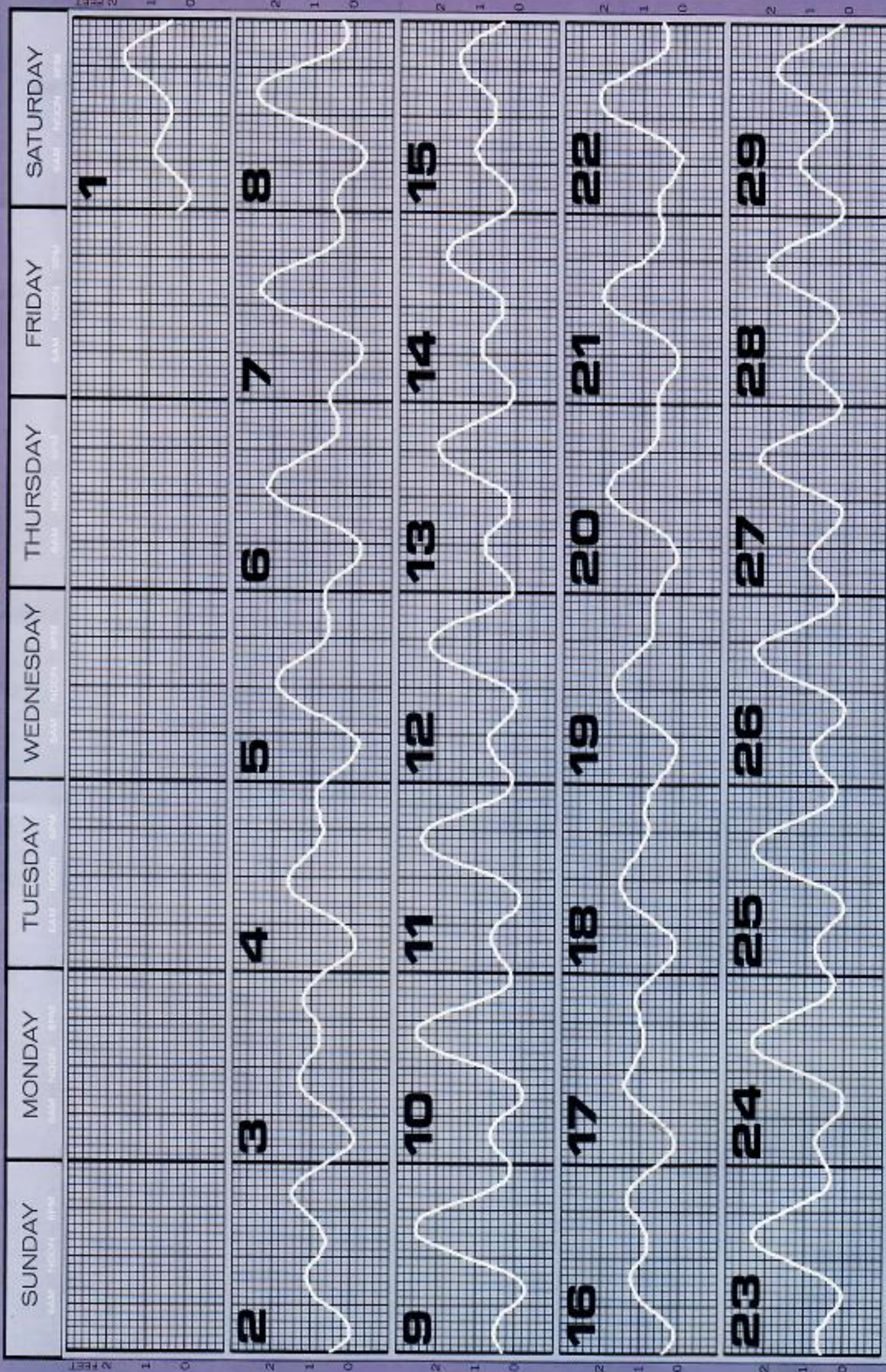




A VAKA OF ATIU, NIGHT FISHING FOR FLYING FISH

July 1972 Tide Chart





For tide time at following places, add or subtract from Honolulu time.

PORTS	Hrs. Min.	Ports	Hrs. Min.
HAWAII BAY, KAUAI	-1 50	KAUAIKAKAI, MOLOKAI	-0 02
MAUIWILI BAY, MAUI	-0 52	KAPILI, MAUI	-1 48
PORT ALLEN, MAUI	-0 52	KOHE, MAUI	-0 34
HALEIWA, OAHU	-1 26	MAUI	-0 34
HAWAIIA BAY, OAHU	-0 53		
KANEIHE BAY, OAHU	-1 55	HILD, HAWAII	-0 59
LAI, OAHU	-1 48	HONOLULU, HAWAII	-0 24
WAIKANE, OAHU	-1 36	MAHUKONA, HAWAII	-0 24
WAIMANUO, OAHU	-1 35	MAHUKONA, HAWAII	-0 24

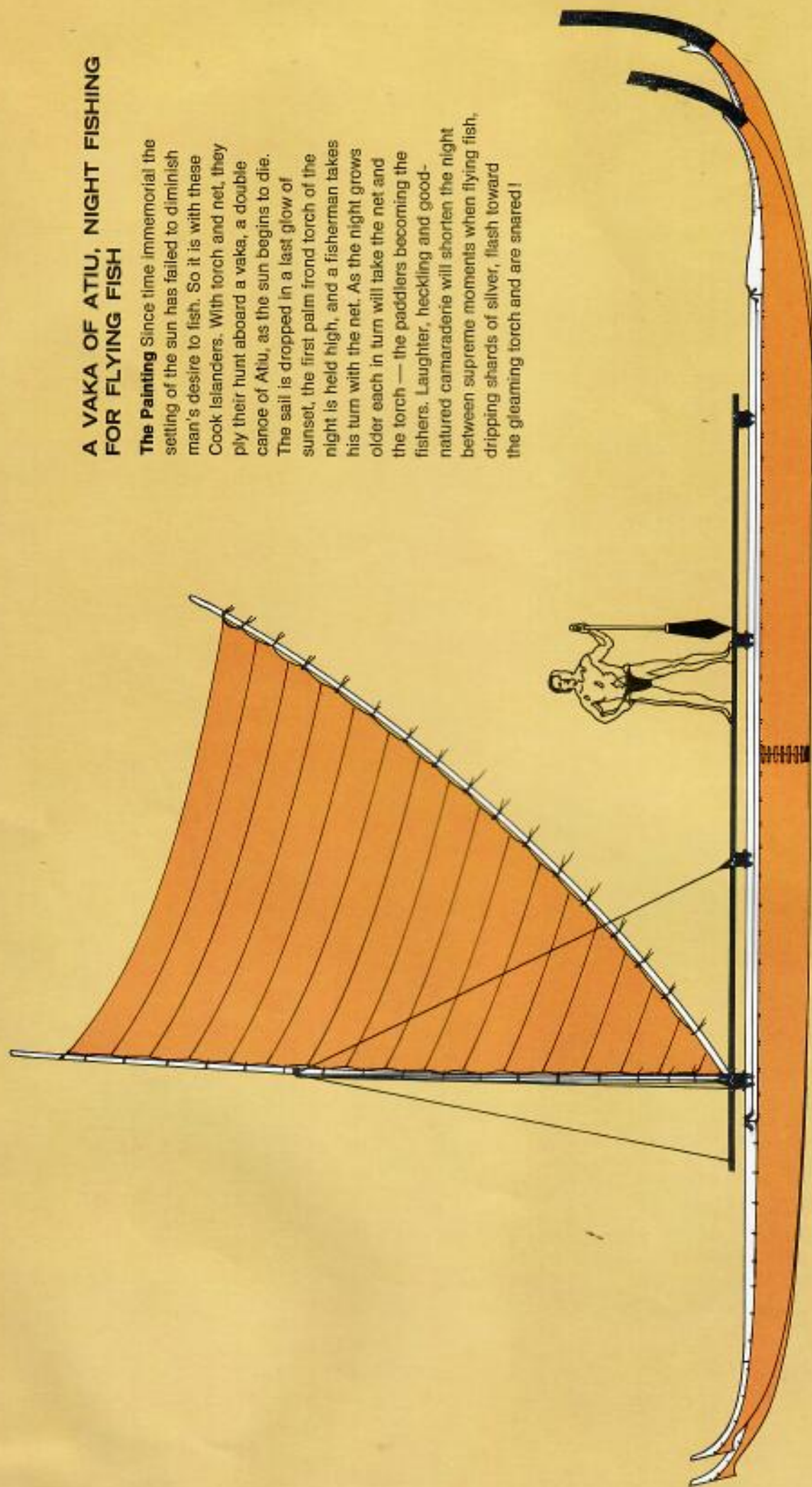


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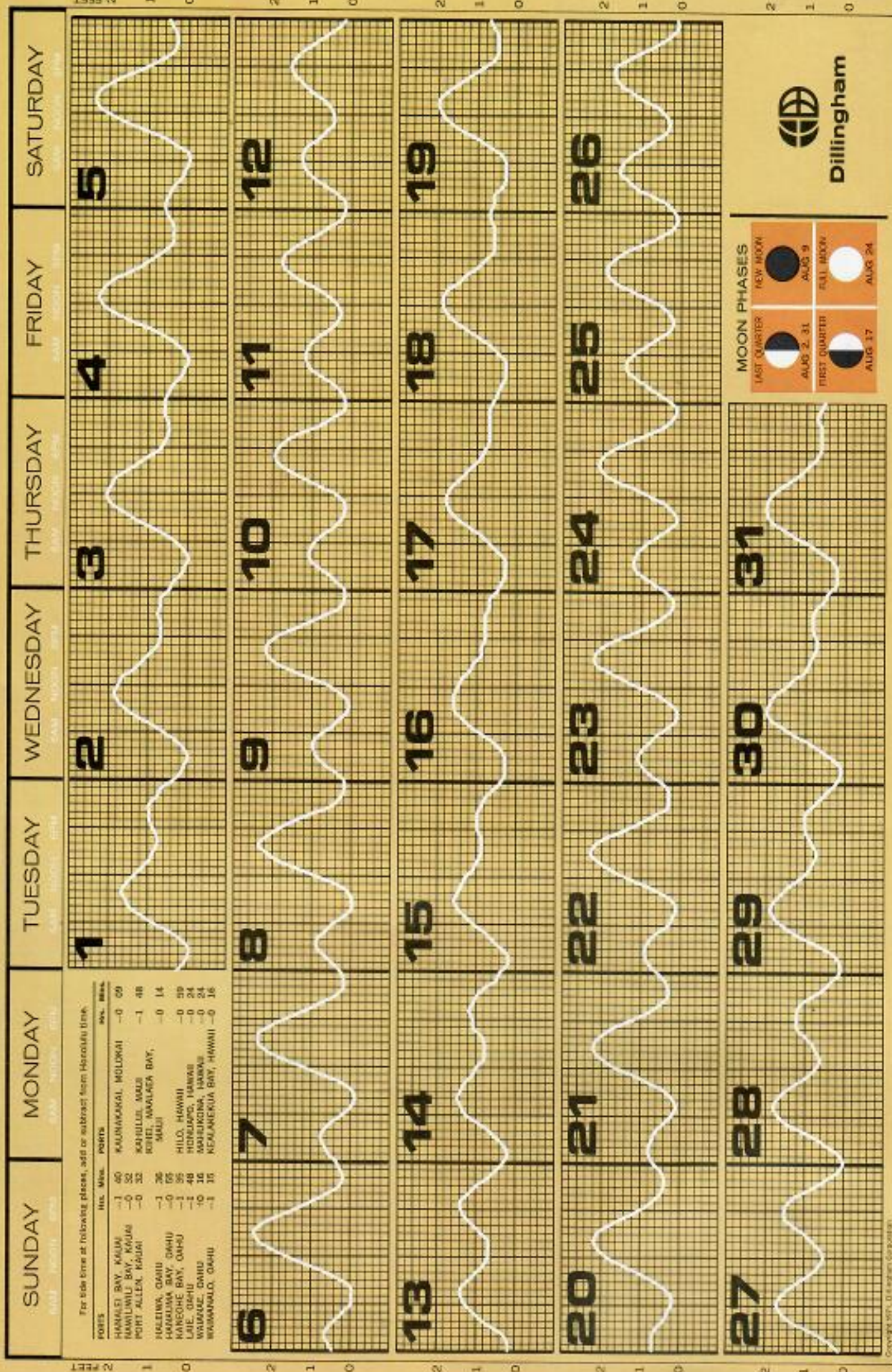
## A VAKA OF ATIU, NIGHT FISHING FOR FLYING FISH

**The Painting** Since time immemorial the setting of the sun has failed to diminish man's desire to fish. So it is with these Cook Islanders. With torch and net, they ply their hunt aboard a vaka, a double canoe of Atiu, as the sun begins to die. The sail is dropped in a last glow of sunset, the first palm frond torch of the night is held high, and a fisherman takes his turn with the net. As the night grows older each in turn will take the net and the torch — the paddlers becoming the fishers. Laughter, heckling and good-natured camaraderie will shorten the night between supreme moments when flying fish, dripping shards of silver, flash toward the gleaming torch and are snared!





# August 1972 Tide Chart



PORTS	REL. MEAN	POINTS	REL. MEAN
HANAIE BAY, MAUI	-1 40	KAUNAKAKAI, MOLOKAI	-0 00
HAWAII BAY, MAUI	-0 52	KOHOLA, MAUI	-1 48
PORT ALLEN, MAUI	-0 32	KOHEA, MAUI	-0 14
HOLEIWA, OAHU	-1 26	HILO, HAWAII	-0 39
HAKALUWA BAY, OAHU	-0 05	HONOLULU, HAWAII	-0 24
KAIKOEHE BAY, OAHU	-1 35	MAHEKONA, HAWAII	-0 24
LAIE, OAHU	-1 48	KEALEKUA BAY, HAWAII	-0 16
WAIMANU, OAHU	-0 16		
WAIMANALO, OAHU	-1 15		

For the time of following places, add or subtract from Honolulu time

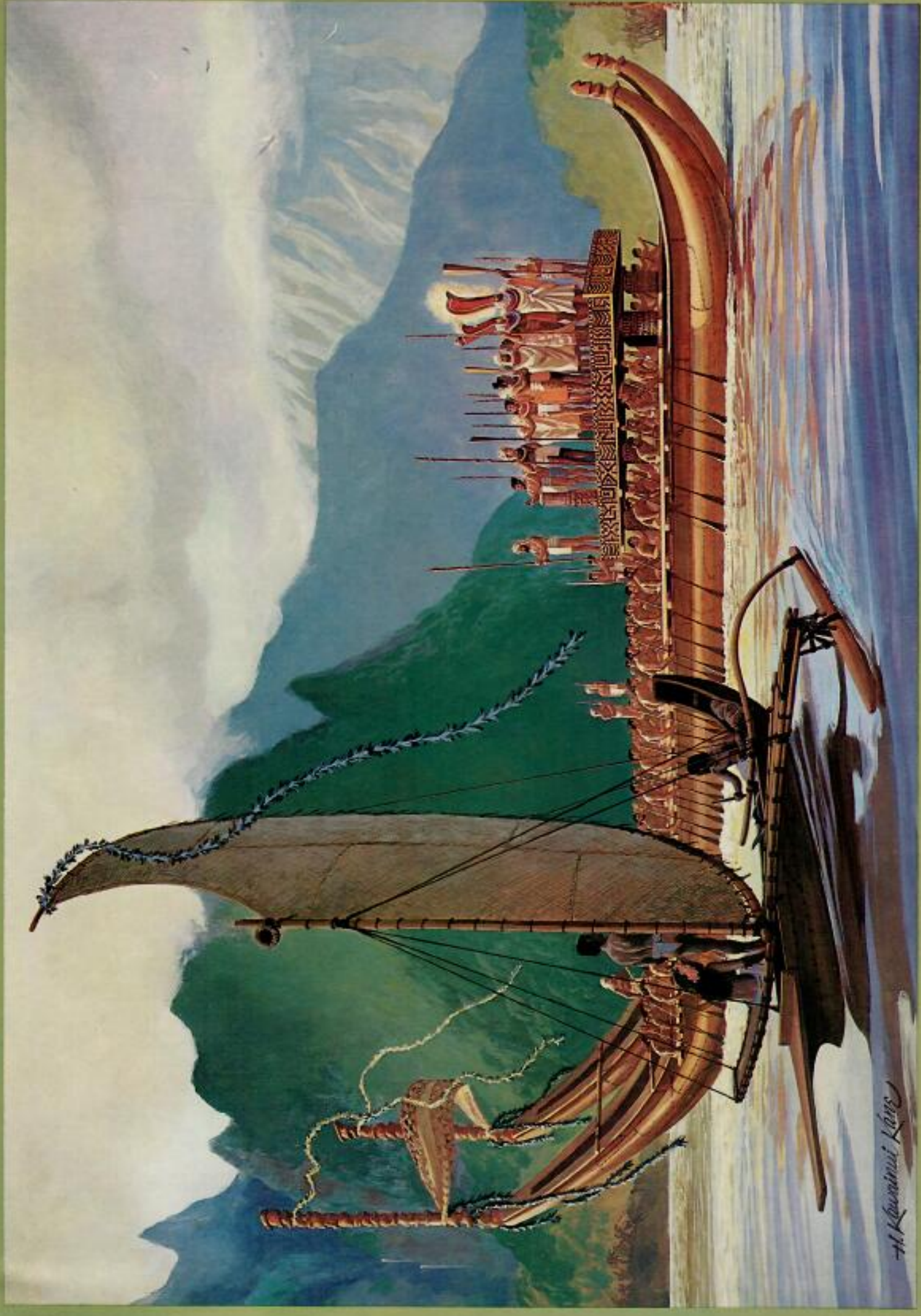
**MOON PHASES**

LAST QUARTER AUG 23 1	NEW MOON AUG 9
FIRST QUARTER AUG 17	FULL MOON AUG 24



**Dillingham**

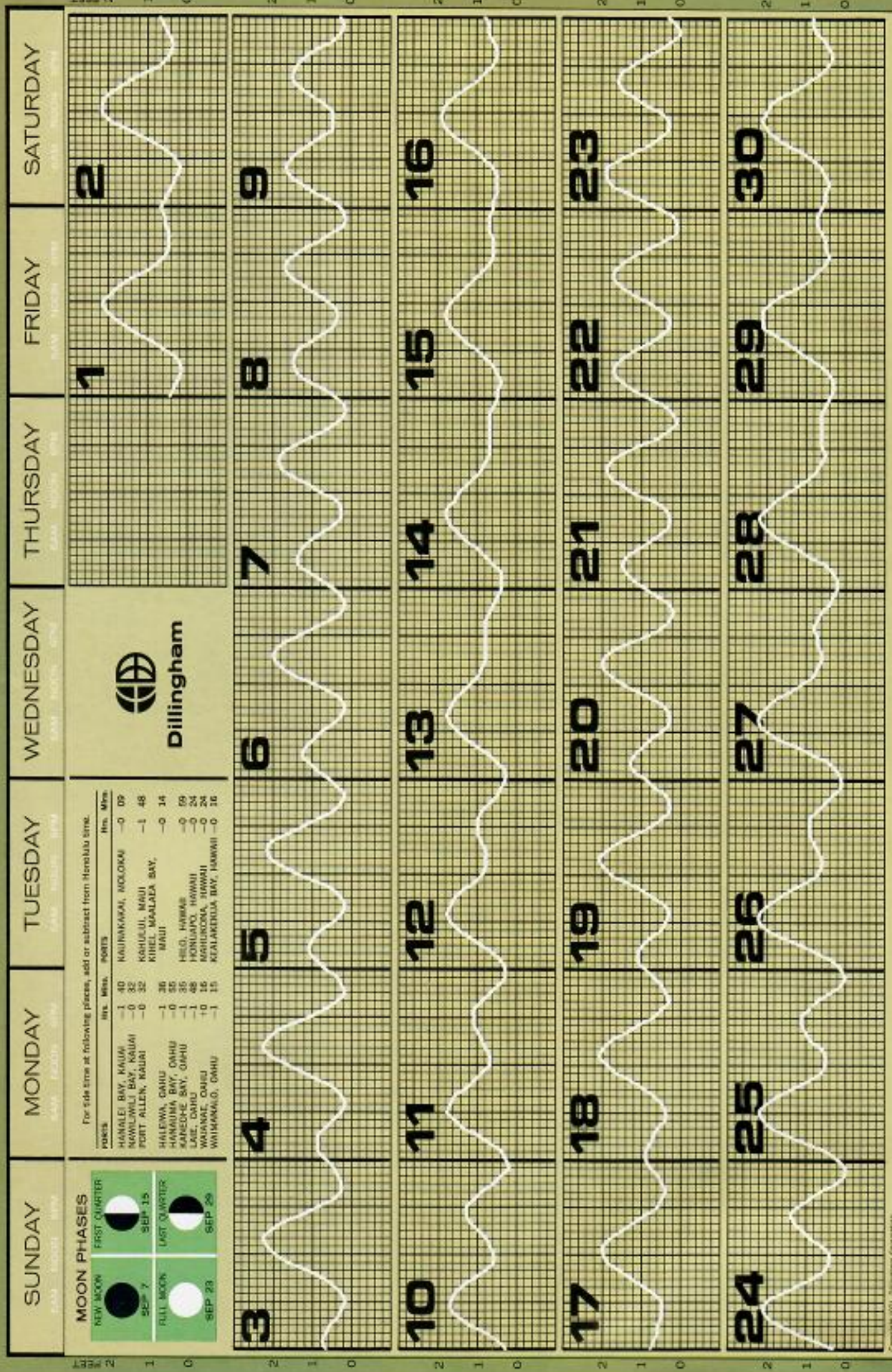




A WAR CANOE, OR PAHI, OF KING POMARE I OF TAHITI



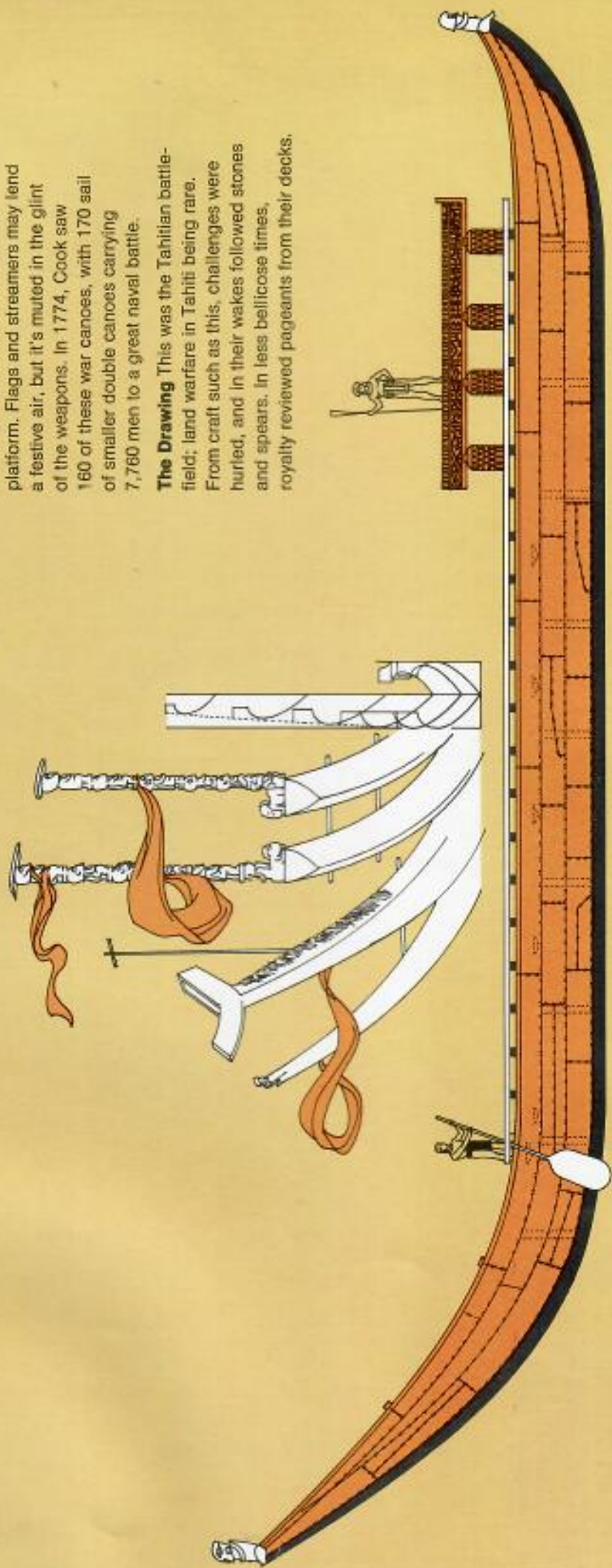
# September 1972 Tide Chart





**The Painting** One can imagine the awe of the fisherman in the small canoe in the foreground as the massive war canoe of Tahitian King Pomare I hove by, laden with the king's champions, tall and imperious atop the craft's fighting platform. Flags and streamers may lend a festive air, but it's muted in the glint of the weapons. In 1774, Cook saw 160 of these war canoes, with 170 sail of smaller double canoes carrying 7,760 men to a great naval battle.

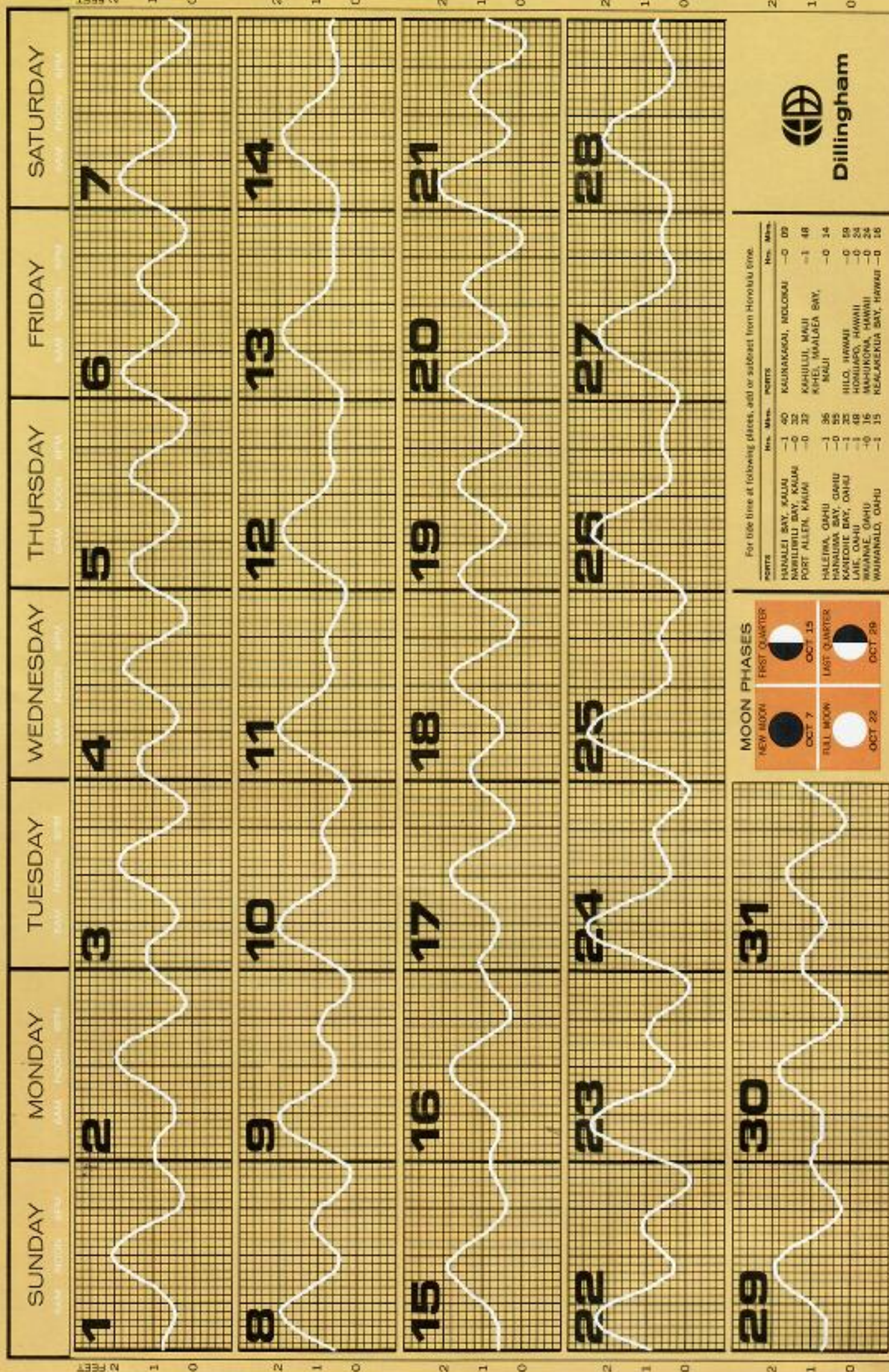
**The Drawing** This was the Tahitian battlefield; land warfare in Tahiti being rare. From craft such as this, challenges were hurled, and in their wakes followed stones and spears. In less bellicose times, royalty reviewed pageants from their decks.



A WAR CANOE, OR PAHI,  
OF KING POMARE I OF TAHITI



# October 1972 Tide Chart



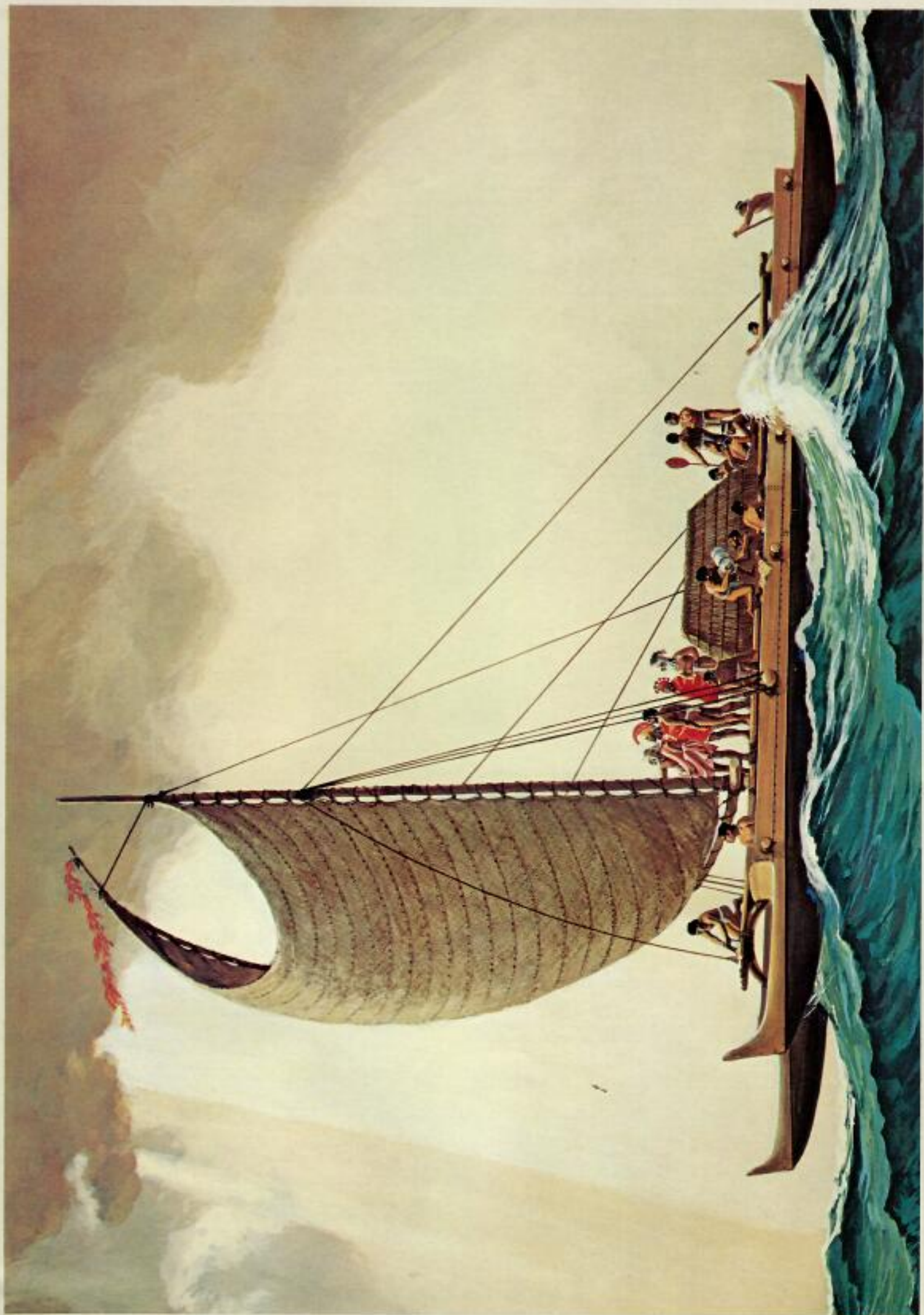
For tide time at following places, add or subtract from Honolulu time.

PLACES	Hrs. Min.	POINTS	Hrs. Min.
HAWAII BAY, KAUAI	-1 40	KALANAKOHA, MOLOKAI	-0 09
NAHAIWILI BAY, KAUAI	-0 32	KAHULUI, MAUI	-1 48
PORT ALLEN, KAUAI	-0 32	KIHEI, MAHALAIA BAY, MAUI	-0 14
HALEIWA, OAHU	-1 36	HILO, HAWAII	-0 59
HANALEIUA BAY, OAHU	-0 55	HONOLULU, HAWAII	-0 24
KANEHOE BAY, OAHU	-1 48	MAHUKONA, HAWAII	-0 24
LAIE, OAHU	-1 48	KEALEKUA BAY, HAWAII	-0 16
WAIANAE, OAHU	-0 16		
WAIMANALO, OAHU	-1 15		



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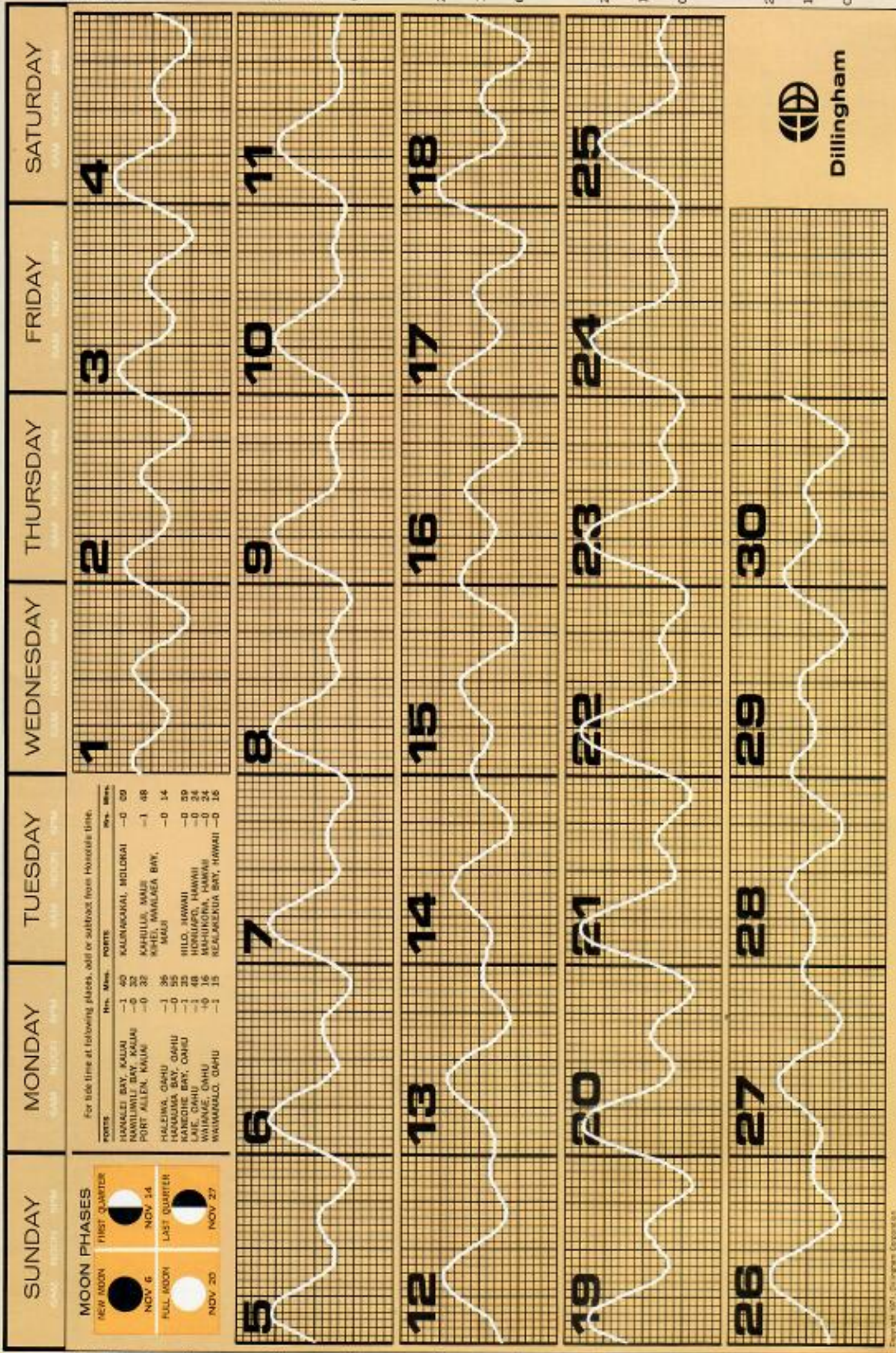




A WA'A KAULUA OF HAWAII



# November 1972 Tide Chart



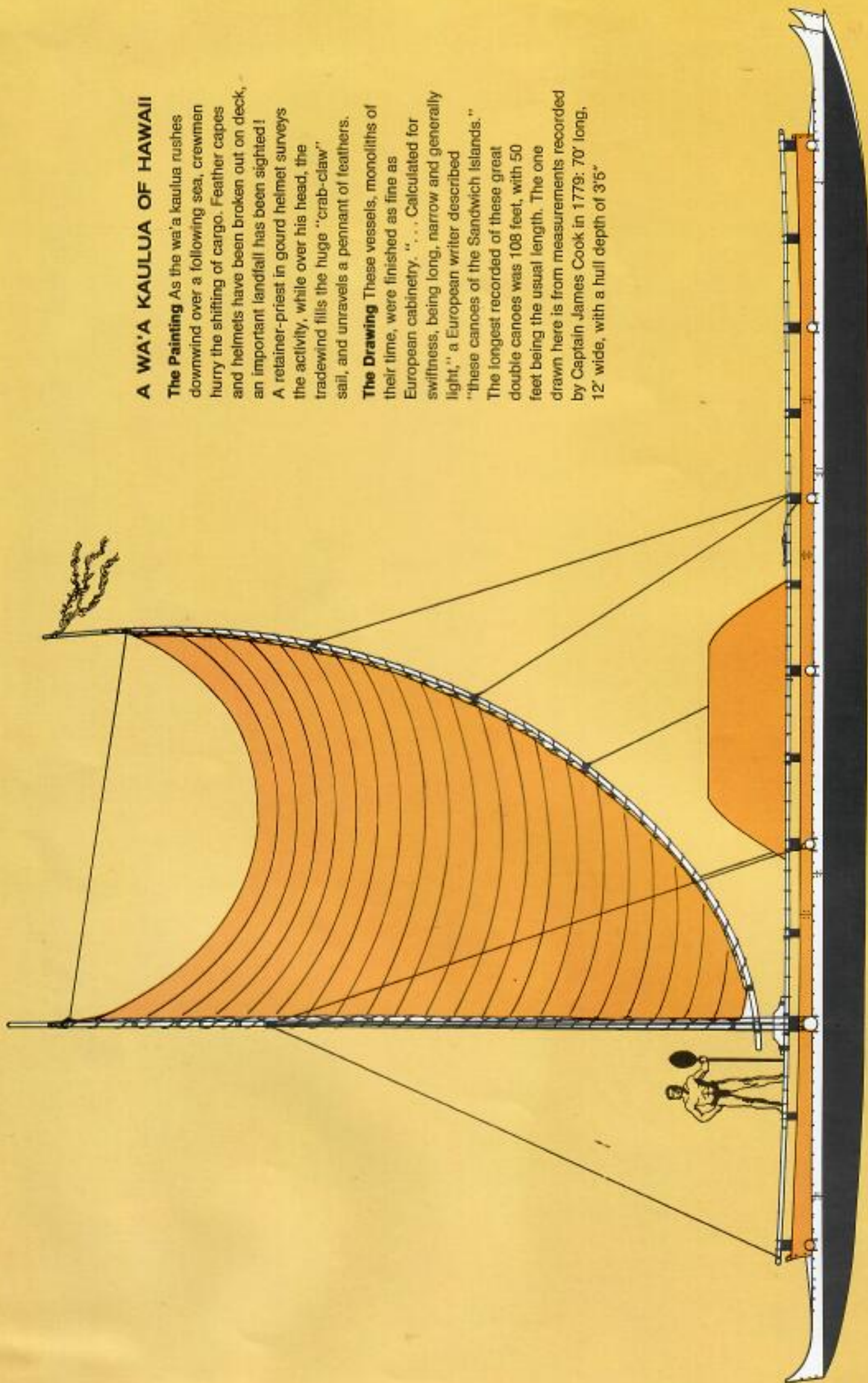
Copyright 1971, Dillingham Corporation



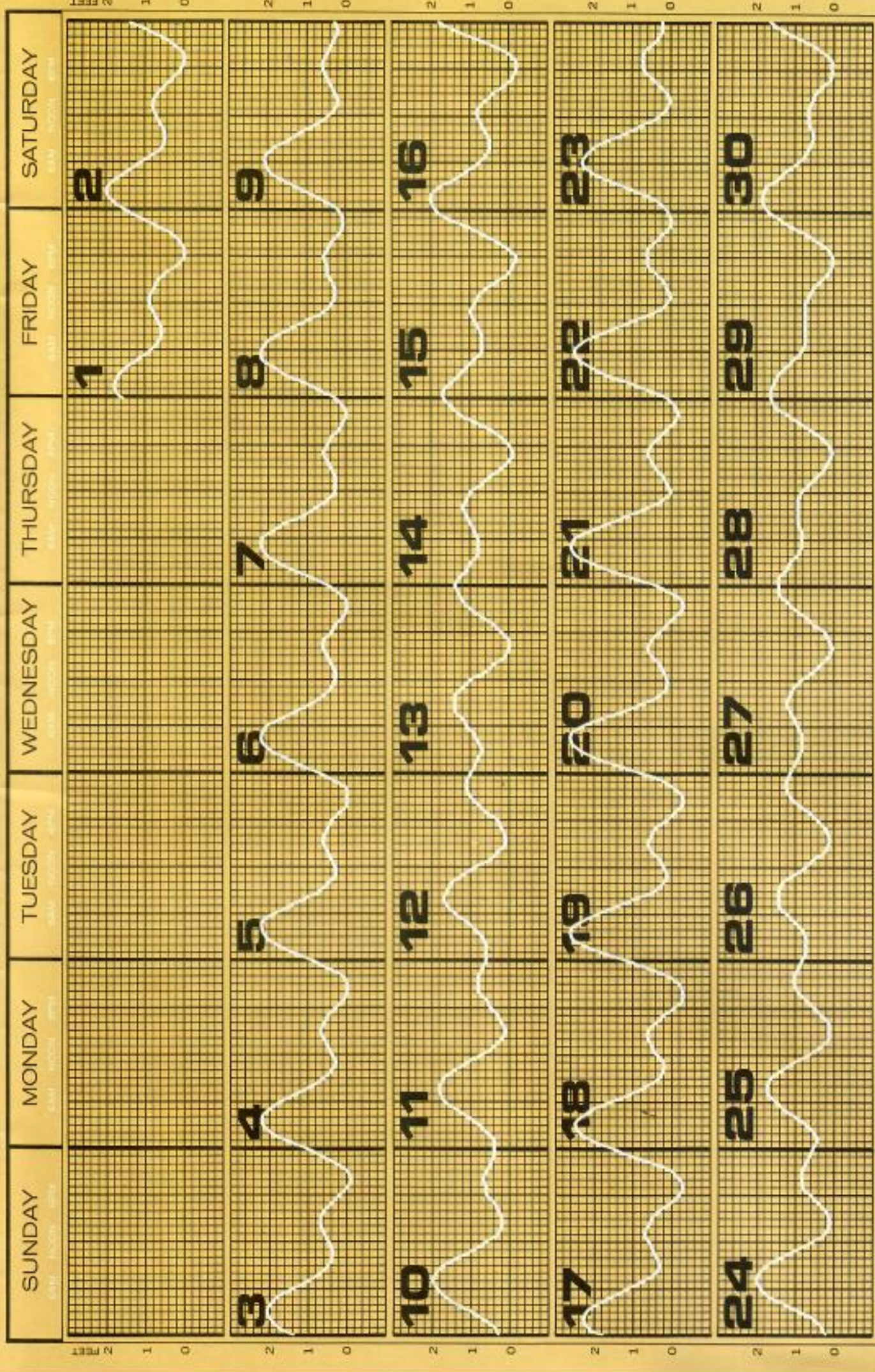
## A WA'A KAULUA OF HAWAII

**The Painting** As the wa'a kaulua rushes downwind over a following sea, crewmen hurry the shifting of cargo. Feather capes and helmets have been broken out on deck, an important landfall has been sighted! A retainer-priest in gourd helmet surveys the activity, while over his head, the tradewind fills the huge "crab-claw" sail, and unravels a pennant of feathers.

**The Drawing** These vessels, monoliths of their time, were finished as fine as European cabinetry. "... Calculated for swiftness, being long, narrow and generally light," a European writer described "these canoes of the Sandwich Islands." The longest recorded of these great double canoes was 108 feet, with 50 feet being the usual length. The one drawn here is from measurements recorded by Captain James Cook in 1779: 70' long, 12' wide, with a hull depth of 3'5"







For tide time at following places, add or subtract from Honolulu time.

PLACES	Hrs. Min.	POINTS	Hrs. Min.
HAWALEI BAY, KAUAI	-1 40	KAUNIAKAKA, MOLOKAI	-0 09
HAUWILI BAY, KAUAI	-0 52	KAHULUI, MAUI	-1 48
POINT ALLEN, KAUAI	-0 52	KIHEI, MAUI	-1 48
		KIHEI, MAUI	-1 48
HALEIWA, OAHU	-1 26	MAUI	-0 14
HANAUWA BAY, OAHU	-0 55		
KANEHOE BAY, OAHU	-1 56	HILO, HAWAII	-0 59
LAIE, OAHU	-1 48	HOLEIUAPOA, HAWAII	-0 24
WAIANAI, OAHU	-0 16	MAHUKONA, HAWAII	-0 24
WAIKAWALO, OAHU	-1 15	NEAHEKUA BAY, HAWAII	-0 16

**MOON PHASES**

NEW MOON DEC 5	FIRST QUARTER DEC 13
FULL MOON DEC 20	LAST QUARTER DEC 27





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This year Dillingham Corporation "welcomes back" Artist Herb Kawainui Kane whose paintings documented the history of Dillingham Corporation in our 1970 Tide Calendar. Mr. Kane, born in the Waipio Valley on the island of Hawaii, now resides in Glencoe, Illinois. Here he has provided us with six of a series of paintings he's executing to create a pictorial survey of the canoes of ancient Polynesia. The complete series, with text, will be published by Island Heritage, Ltd. in 1972.

To accomplish the work, Mr. Kane has explored the files of the Bishop Museum in Honolulu and researched sketches, drawings and gleanings of information recorded by early European explorers.

Information has been provided him by The Dominion Museum of Wellington, New Zealand; the Musée de la Marine of Paris, The Fiji Museum, The Field Museum of Chicago, the University of Hawaii, the Hawaii State Foundation on Culture and the Arts, and numerous private persons.

Explaining his labors, Mr. Kane says, "Although these vessels are now extinct, they should not be forgotten, for they were the key artifacts in Polynesian history. The state of the art of canoe design and construction as developed by the Polynesians exemplifies the highest level of material achievement reached by any people without metals. Functionally they were seaworthy vessels of imaginative design which enabled their owners to conduct astounding voyages. Aesthetically, they were functional sculpture which must stand with the finest art forms created by any archaic culture. I have tried to research them thoroughly and render them faithfully, and in so doing I've discovered that the truths about these vessels are more beautiful than any fanciful interpretations could be."

If you wish to receive the Dillingham Corporation 1973 Tide Calendar, please fill in your name and address on the attached portion of this sheet and mail to:

DILLINGHAM CORPORATION  
P. O. Box 3468, Honolulu, Hawaii 96801

CAUTION: Enclose the label in an envelope. This label will be used to mail you the 1973 Calendar.

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George H. Balazs  
Jr. Marine Biologist  
University of Hawaii  
Honolulu, HI 96822



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