

farmers. A man born on that day will become famous, rich, and so forth, but he will have enemies; and so with the woman, she will be active.

Mahealani is the sixteenth night of the Moon. The day is liked by the farmers. It is a day of low tide. A man born on this day will be a striver; so will the woman.

Kulu is the seventeenth night of the Moon. The farmers put their trust in this day. The potato or the melon will swell large if the plant is set out on this day, so say the farmers. The person born on this day will prosper, he will be affectionate and loved by everyone. This is the eleventh of the nights of this group and on this night the sea gathers up and replaces the sand.

Laa-ku-kahi is the eighteenth night of the Moon, a day rejected by the cultivator. The potato vine, bananas, melons, gourds, if planted on that day, become woody and do not form fruit. Some like it, however. . . . The man or woman born on this day will be a person of fine character, eager for knowledge and to hear and know new things. There is sea, indeed, but it is only moderately high.

Laa-ku-lua is the nineteenth night of the Moon. It is a day much esteemed by the farmer. The sea is rough. The birth signs are like those of Laa-ku-kahi. This is the thirteenth night of the group.

Laa-pau is the twentieth night of the Moon. It is a day for planting. A day of boisterous seas.

Ole-ku-kahi is the twenty-first night of the Moon. These are the days for planting potato slips, banana suckers, and gourd seeds. A day of rough seas so that it is said, "Nothing (*ole*) is to be had from the sea." This is the fifteenth day of the group and a person born on that day will be inefficient.

Ole-ku-lua is the twenty-second night of the Moon. The day is good for planting, a day of rough seas. The birth signs for that day are those of a good person, modest and quiet.

Ole-pau is the twenty-third night of the Moon. Its characteristics are like those of Ole-ku-lua. On that day begins the *tapu*.

Kalao-ku-kahi is the twenty-fourth night of the Moon. It is a planting day but the potato vine, melon or banana will run to stem and the fruit will not develop quickly. The weather is bad with a high sea. It is a *tapu* day of the god. The person born on this

day will be a good man. This is the last rough day, the sea now becomes calm.

Kalao-ku-lua is the twenty-fifth night of the Moon. It is a good day for planting crops and a good day for the birth sign of men. On that day the *tapu* of the gods was freed in ancient days.

Kane is the twenty-seventh night of the Moon. It was a day of prayer and on the day following, that of Lono, the prayer was freed. That day and the day of Lono are good days for planting potatoes. It is a day of very low tide but joyous for men who fish with lines and for girls who dive for sea-urchins.

Lono is the twenty-eighth night of the Moon. It is a day for planting crops. The tide is low, the sea calm, the sand is gathered up and returned to its place; in these days the sea begins to wash back the sand that the rough sea has scooped up. This is one account of the night of Lono.

Mauli is the last night that the Moon is visible and the name means the "last breath." It is a very good day for planting, a day of low tide. "A sea that gathers up and returns the sand to its place" is the meaning of this single word. The Moon rises just a little before sunrise and it is the twenty-ninth night of the Moon.

Muku is the night on which the Moon does not rise. The name means "finished" and it refers also to the "dying" of the Moon. It is a day for planting crops, a day of low tide, when the sea gathers up and returns the sand to its place, a day of diving for sea-urchins, small and large, for gathering seaweed, for line-fishing by children, squid-catching, *uluulu* fishing, *pulu* fishing and so forth. Such is the activity of this day.

## V

THIS completes the Hawaiian *Old Farmer's Almanac* as preserved by Kepelino.

The people of Pukapuka hailed with delight the early morning rising of the three bright stars, Alpha, Beta, and Gamma Cassiopeiae on their northern horizon because they heralded the coming of Mataliki, Pleiades, and were the star signs of the season of flying fish and of the roe season of the deep-sea fish.



When the omen was seen in the sky then would the people cry, "Here are all the fish of the Pleiades coming!" The star cluster also foretold that the wind would blow from the south-east. When it was overhead in the evening it signaled the migration of turtles from the ocean to lay their eggs on the beaches. In the Tuamotuan archipelago, on the other hand, it was by the evening rising of the Pleiades that news was flashed from sky to earth of the approach of the turtles shoreward.

The Maori greeted the evening appearance of the Pleiades, Matariki, with singing and posture dancing and lamentations for the friends who had died since the cluster last rose after sunset a year earlier. This custom had evidently been retained by them from earlier times when the evening rising of the cluster heralded the new year. To them, as to the Gilbertese, Matariki was a female, the offspring of Raro, Underworld, and Raumati, Summer. The familiar phrase *te paki o Matariki* denoted "the fine weather of the Pleiades."

"The task of Matariki," an old Maori explained, "is to keep moving in a cluster, to foretell the lean and fat seasons, and to bring food supplies to mankind." One of the epithets applied to these stars was *Ao-kai*, Food-season. The cluster also announced that the time had come for preserving game in vessels of fat against winter's scarcity.

In the traditions of South Island collected by Beattie is reference to the partitioning out of the stars among the various gods. One of the sky divisions was *Tautari-nui o Matariki*, the Big-department-presided-over-by-the-Pleiades. When their ancestors had first reached the shore of the ocean and decided to become seafarers, they sent messengers back to their old home in the sky to obtain instructions from Tokopa, Sky-prop, about navigation, the seasons, the weather, and "to find out about good and bad stars and how they denoted the years of food and the years of famine."

A Maori proverb, *Nga kai o Matariki, nana i ao ake ki runga*,

refers to seasons of scarcity when "the food supplies of Matariki are scooped up by her." Another saying refers to the cluster as the omen of good lamprey fishing; "when Matariki is seen by the eyes of man, then the *korokoro* is caught."

## VI

In the Hawaiian Islands the association of the Pleiades with provender has become curiously merged with the myth of Makalii, the famous pilot of Hawaii-loa or Hawaii-nui, as he is sometimes called. The story apparently originated in the voyages made for the purpose of importing food plants into the islands. As told by Kepelino the tale runs as follows:

Makalii was a famous steersman of the canoes of Hawaii-nui and a great farmer. He it was who gathered up the food from Kahiki, the potatoes, the bananas of various kinds, the yam, seeds of the calabash vine and the water-gourd, the sugar-cane, the starch-plant, the *hoi* berry and other things. A certain star used as a guide to land in the firmament of Hawaii is named Makalii after him. It is a red star. Other stars in the heavens are named after him: for example, *Na Kao Makalii* [Darts of Makalii or Orion's Belt], *Na Huihui a Makalii* [the Cluster of the Pleiades], and the Wife of Makalii, all stars visible in Hawaii. This proves his fame.

It is said that he was a stingy man. He gathered up all plants fast in a net and only because the rat nibbled at the cord, were the plants spread broadcast over the island.

Thus runs the story: he was a great farmer and the land was troubled by drought, and famine came over the group. Then he gathered the growing things of all kinds into many nets and kept them until the proper time for planting. But some of the plants were scattered by mischievous two-legged rats as well as by the real rats. So runs the saying, "But for the rat who spread these things broadcast over the land—"

As indicators of the weather the Pleiades were considered by the Hawaiians to be "changeable stars and deceptive to observers of the sky."



If they stood out clear and distinct, severe rain and wind were to be expected; but if they were hazy, clear weather was sure to follow.

The New Zealanders, on the other hand, placed quite a different interpretation on the appearance of these stars. As a native of the Tuhoe tribe remarked: "If the stars of Matariki appear to stand wide apart, a warm and bountiful season will follow; but if they seem to stand close together, there will follow a season of cold and scarcity. If indistinct and quivering at the time of heliacal rising, the season will be cold; if clear and distinct, there will be warmth and plenty."

Throughout the American continents the Pleiades cluster was associated with the food supply. It was known to the Eskimo as Sharing-out-of-food and to the ancient Peruvians as the Granary. There is a widespread Indonesian legend that rice was first obtained from the Pleiades.

## VII

THE Magellanic Clouds addressed as food-bringing stars in the ritual which accompanied the offering of first fruits and the prayer for abundance had the primary duty of protecting the human race from inclement and destructive winds, and to them the seer looked for indications of wind and weather.

"Those persons [the Clouds], Tioreore and Tikatakata, ward off winds," a Maori sage explained. "When the wind rises one of them goes to obstruct it. Thus their permanent task is to protect the people."

When Tioreore, the Greater Cloud, was in the leading position fine weather was anticipated; but when Tikatakata, the Lesser Cloud, was in advance the reverse was true. From the relative positions of the Clouds, which form an equilateral triangle with the south celestial pole each side of which is about 20°, the directions of approaching winds could be determined. The Clouds are always visible above the southern horizon

at night in New Zealand. Since their position at a given time of the night depended solely on the time of year and since the wind directions were also related to the seasons, the use of the Clouds as weather indicators like that of the Milky Way in the Society Islands described to Captain Cook undoubtedly arose as a statistical inference from centuries of observation and correlation.

## VIII

WHEN the Maori ancestors in that remote western land sent messengers to inquire of Sky-prop, who had control of all the stars, which stars should serve as indicators of the seasons and weather, they were instructed to observe Autahi (Canopus), Takurua (Sirius), and Puaka (Rigel). Canopus is a brilliant object in the sky south of Orion, second only to Sirius and the planets, and was considered to be a very *tapu* star on account of its isolated position, which invested it with majesty in the eyes of the Polynesians. Canopus spends so little of its time beneath the horizon of most of New Zealand that it is surprising to read in native writings that the Maori greeted its appearance with weeping and the usual lamentations with which they welcomed a loved one whom they had not seen for a long time.

Weather prognostications were based on the aspect of Canopus at rising: if its rays extended toward the south snow, rain, and weather generally unfavorable to crops must be awaited; if they pointed toward the north the weather would be mild and clement. If Canopus appeared to stand far out from the Milky Way the summer would prove dry and pleasant; if close to the Milky Way an undesirable season could be anticipated. Obviously this portent depended on the clearness with which the faint outer regions of the Galaxy could be distinguished, since the relative position of Canopus and the Milky Way does not change.

On the east coast of New Zealand the star was regarded