

Moon Will Hide Sun's Face May Ninth

sun which warms the earth, quickens the life in the planted seed, and ripens the harvest, therefore a beneficent god, will engage in a struggle and death struggle with celestial demons during the afternoon of May 9. Such is a long-held belief among remote and primitive peoples of the Philippines, who know nothing of eclipses and have not heard of the one that will occur on May 9, when these peoples, according to man's ways with things he does not understand, must ascribe the phenomenon to natural causes and do all in their power to drive the devouring demons away from the earth—as on similar occasions their forefathers have done. They must beat upon gongs and drums, rally their warriors, and menace the enemy with their weapons. They must make their allegiance to the sun manifest, that he and his cohorts may take heart and escape the danger ere the moon swallows him up; and so it will come to pass, and the moon, frustrated, will retire from the combat ignominiously. Joy will reign in mountain villages, where the medicine will have been made, and the sacrificial feast will be spread and the wine jar patronized. There will be ceremonial dancing, and thanksgiving to ancestral spirits who will obviously have aided in the triumphant rout of evil spirits. Hymns will be chanted, sagas exalting the sun's mighty power, fecundity and procreation. There will be a grand holiday and tribal rejoicing. Such is rural credulity, which will be surprised by the activity at 3:30 p. m. May 9, mid-eclipse as Father C. E. Deppermann, S. J., writing in *Cultura Social*, quotes from Father Miguel Argueta's manual on the subject. But science weighs differently, thanks the moon for getting in the sun's way for a few minutes, and proceeds to make the most of its opportunity to discover new secrets of the universe and verify its theories. We quote:

The darkness of night approaches in early afternoon, the sky and landscape are garbed in strange colors, even the animals are uneasy, and the chickens go to roost. It is getting cooler; the air is quivering, ripple-like shadows are seen to flit in bands across surfaces that are white. A monster shadow, like that cast by a thunderstorm, comes rushing on with awful speed, a thousand miles per hour. . . . No, we are not describing the end of the world, only the coming of a total eclipse of the sun. Behold, the last vestige of sun is now disappearing, with its so-called Bailey Beads, the effect of light seen through the irregularities of the moon's limb; now only a narrow circle of red fringes of the dark moon, it is the sun's chromosphere;

and outside this, in startling contrast, is the pearly whiteness of the corona, glowing with about half the brightness of the full moon, while first and second magnitude stars with the planets become plainly visible. It is an inspiring sight. If your vantage point be elevated, you may even see the brightness still hovering around the horizon, from place where the sun still reigns. Scarcely have you time to realize the wondrous event, when again come

the records of the ancient Chaldeans, who knew that eclipses were natural phenomena, occurring in cycles of eighteen years and some eleven days; i. e., they knew that if an eclipse occurred at any time, they could expect another at the end of this period, the so-called Saros. The usual number of eclipses in a complete Saros is about seventy-one, and several series of these are going on at the same time, so that eclipses are fairly frequent at some place or other on the earth.

"The exact calculation, however, of the time and place of totality for a given eclipse is quite

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the tantalizing shadow bands, then the first fleck of the sun, looking for all the world like a gleaming diamond of which the ring setting is formed by the sun's brilliant atmosphere. But the brightness soon dazzles, you withdraw your eyes, and the eclipse is over, while the attendant astronomers already begin to think about packing their instruments and to dream about home in distant lands!

"It is indeed a spectacle to fill the mind of man with awe, for 'the heavens and earth are filled with God's glory,' but yet on the other hand it may beget some confidence in the powers of mind and its triumph over mere matter. For it should be remembered that even in the

intricate, but with our present day knowledge of the orbits of the earth and moon relative to the sun, what is to the layman a surprising degree of accuracy can be attained. * * *

"So sure are astronomers of the correctness of their calculations that they will travel half way around the world to a little out of the way corner of the earth, set up their instruments in a very definite position, and have all their preparations made for a very definite minute on a very definite day, with physical certitude that the eclipse will be observed as planned, provided that: Oh humiliating reflection, the fly in the ointment of the proud calculations of man! provided only that the weather be propitious! So many variables control the elements of the sky that a little cloud, hardly 'bigger than a man's hand' can unexpectedly spoil a half year's patient preparations. Sunny California frowned at the wrong time and ruined one eclipse; stormy, wintry New England smiled at a propitious moment, and blessed another.

"But why do astronomers take all these chances? Not surely for aesthetic, but for scientific reasons. Eclipses afford opportunities for still further refining and defining the orbits of the moon and of the earth. They permit the photography of stars whose light on its way to us just shaves the sun's disc; the bending or non-bending of this light from its straight line course is a test of Einstein's general relativity theory. They allow the solar corona to be seen and studied for its exact nature is even yet full of tempting mysteries. Then there are spectroscopic measures to be taken of the light from various layers of the sun's outer shell, observations of the curious shadow bands that flit across the earth's surface at beginning and end of totality, meteorological changes during the progress of the eclipse, effects upon atmospheric electricity, upon the transmission of radio signals, etc., etc. It is interesting to note, however, that, though the problems are still very numerous that seem to require the actual eclipse time, still one after another of the phenomena at first thought capable of being studied only then, have by man's ingenuity yielded to daily scrutiny. Excellent examples in point are the daily examination of solar prominences, those gigantic

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...gues of its face, and just lately the photography of the corona in broad daylight by means of infra-red light.

"What of the present eclipse? It is really going to be a good one, with a long duration of totality, the maximum being about five minutes, seven seconds; but in the Philippines it will range from about three minutes fifty-four seconds around Palawan, to three minutes twenty-eight seconds near Siargo Island. San José de Buenavista and Iloilo in Panay, Catmon and Sogod in Cebu lie near the center of the path of totality. At Cebu, Cebu, and Tacloban, Leyte, the eclipse will also be total but the duration shorter, since these places are nearer the southern and northern limits respectively. Capiz, Panay, is just north of the northern limit, while Surigao, Mindanao, is just south of the southern limit. At Manila and Zamboanga about ninety per cent of the sun's disc will be obscured, at Aparri only seventy-seven per cent. Mideclipse will occur about 3:30 p. m. (Philip. Standard Time), but the moon starts to obscure the sun one and a half hours earlier, and finally leaves it near forty-five minutes past five o'clock.

"Where are the various eclipse parties from different countries going to be stationed, and what do they expect to do? It is still a little early to state exactly, but the following will give some idea of present plans. In Sumatra, a Dutch expedition expects to take spectrograms of the chromosphere and corona, and to study the solar radiation near and through totality; a German expedition will study the Einstein shift already mentioned; an Australian party will consider the outer coronal spectrum. Two British expeditions will go to Kedah and Siam, both to study the Einstein effect and the coronal spectrum. Two German expeditions favor Siam for spectral and photometric work.

"One American expedition is heading towards Sumatra, while Italian, French and even Russian expeditions are planned, with sites not yet definite.

"Who are coming to the Philippines? * * * The Naval Observatory, Washington, which intends to go to Iloilo. * * * Their program will be astronomical. In connection with them, the local naval wireless experts intend to study wireless signal fading across and in the totality zone. A German expedition from the Hamburg Observatory will station themselves around Catmon or Sogod in Cebu to take direct photographs of the inner and outer corona, and to study the spectrum of the sun's outer atmosphere. * * *

"What of the Manila Observatory itself? At present it is planned that Father Selga go to Iloilo to study meteorological changes during the eclipse and also the changes in the solar radiation. The writer hopes to go with the German expedition to Catmon, Cebu, to take comparative photographs of the corona in the red and green light of the corona, and also spectrograms of different parts of the corona. In addition, a recording electrometer will be used to study any variations there may be in atmospherical electricity during the eclipse. It may be added that the observatory was also instrumental in suggesting the plan of studying wireless fading to the local navy men and amateur radio fans. The observatory's master clocks will be connected to the Cavite wireless to broadcast accurate time signals to help the astronomical parties. * * *

Over in America scientists have taken advantage of the proximity of Mars and Venus, to study them. Surmises concerning both are now better defined, and Mars, more than ever before, encourages the conjecture that it is inhabited. It is found that the atmosphere will support life such as exists on earth; changes in the surface appearance are ascribed by one authority to new vegetation. In this wonderful age of progress in the sciences grouped loosely under the head of physics, it is a pleasure to note the esteem in which the Jesuit scholars who conduct the Philippine weather bureau (at the observatory which pioneers of their order founded) are held by their colleagues in

science throughout the world. As this article has delved into legend, it may as well add a word of history: Jesuit mathematicians gained imperial Chinese support for their missions and the Christian doctrine when they confounded the soothsayers at Peking in the 16th century and

accurately forecast an eclipse. The emperor thereupon gave them the places which Arab scholars had been occupying at his court, and they founded the Peking meteorological station which is still functioning. They themselves have a station at Shanghai.

Ucudo!

By H. G. HORNPOSTEL

Ucudo! in the Chamorro language of Rota, an island of the Mariana group, means, in its not-too-liberal English translation, *Tell it to the Marines!* In other words, *You don't mean it; you are only trying to fool us.* The word was particularly interesting to me, hearing it often, as I did, in conversations between the natives during my recent exploration of Rota. Then, quite naturally, when I finally came across the legend concerning the word, an even greater interest developed, that of its association with the prehistoric burials at the foot of the giant latte stones on the island and its connection with the habits and customs of a long-departed race.

As is the case with most antiquities of the Mariana group, the legend quite palpably antedates the period of habitation of the present native peoples.

"On a stormy night many years ago," the story runs in Chamorro, "long, long before Magellan made his voyage, the principal chief of the island of Satpana (Rota) lay dying. Around the finely woven pandanus mat upon which he lay were gathered the minor chiefs and the wise men of the tribe, for the great one had ruled justly and they were anxious to have him live.

"Long they pondered upon what should be done to save their beloved

master's life. All known medicines and mystic ceremonies had failed, and each succeeding sunset saw a greater decline. The great chief was indeed so ill that the native high priest had ordered that he be so placed upon his mat that his feet might face the east—a last desperate attempt to save him. One must face the rising sun in order to gain strength, it was believed.

"Secretly, the ill one's wife had gathered together his many ornaments of pearl shell, his polished stone weapons and his implements in order that they might be ready to be placed beside him in his grave beneath the colossal latte stone. His pottery was also carefully collected, ready to be broken into fragments and to be scattered over his body when it should be lowered into the grave.

"Then, as was the habit of those bold seafaring men, one of the minor chiefs left his place among the watchers and, at the first blush of dawn, strode toward the beach. He looked upon the sky with a mariner's critical eyes. As he glanced in a southeasterly direction, he discerned a large, oil-polished canoe approaching the island from the direction of Guhan (Guam). A strong southwest gale was howling over a stormy sea, and in such weather, he noted,

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