

Astronomers Prepare for Total Eclipse

Astronomy

U. S. Naval Observatory Will Send Party to Niuafou

WHILE one of its offices is making last minute calculations of the path of total eclipse of the sun visible in California on April 28, other astronomers at the U. S. Naval Observatory in Washington, are preparing for an expedition to a remote island in the South Pacific to observe another total eclipse on October 21.

Niuafou Island, a tiny bit of land in the Tonga group, which lies in the triangle between Fiji, Tonga Samoa, is the only accessible location from which the October eclipse can be seen. It is not much frequented by travelers, for the ordinary contact with the outside world for its few hundred inhabitants is a tin can full of mail thrown overboard by the monthly inter-island steamer. A native swims out and gets the can, which has given Niuafou the local name of "Tin Can Island."

Despite its inaccessibility, the Naval Observatory has decided to sponsor an expedition there to observe the eclipse, Capt. C. S. Freeman, superintendent of the observatory, told Science Service. This will not be strictly a Naval Observatory expedition, however, for astronomers from various American observatories will participate. Dr. S. A. Mitchell, director of the Leander McCormick Observatory of the University of Vir-

ginia and veteran of seven previous eclipses, will lead the party.

The remainder of the personnel is yet to be selected, said Capt. Freeman, but he especially desires some astronomers who can make photometric observations of the brightness of the eclipse. If some one can be found who is willing and able to make such observations, he will be given a place, it was stated.

Starting in the summer from San Francisco, the party will proceed to Pago Pago in American Samoa by naval transport, whence a smaller naval vessel will transport the party to Niuafou, several hundred miles distant.

Niuafou Island has recently been the scene of volcanic eruptions and earthquakes. Should they continue during the next few months, they will add considerably to the difficulties of observing the eclipse in this remote isle.

According to reports that have just reached Dr. T. A. Jaggar, director of the Hawaiian Volcano Observatory in Honolulu, an eruption last summer wrecked the village of Futu.

"Three craters burst open without warning to the south of Futu," said Dr. Jaggar. "The populace hurried to Agaha, the larger village at the northwest, and took refuge on the high ground back of it. Their discomfort was increased by rain and wind."

According to Dr. Jaggar's informant, a chain of craters formed along the coast, each belching molten rock and deep red flames. Streams of lava swept to the sea, scorching vegetation to cinders. After the smoke cleared the next day it was found that 40 acres of new ground had formed, altering the contour of the coast line. The site of the village of Futu was a field of smoking lava, while the native houses had been battered to the ground by the blasts of hot wind. Fortunately no lives were lost.

"Niuafou is reported to have many earthquake shocks, 'almost of daily occurrence,'" said Dr. Jaggar. "These are attributed by the natives to their god Maui, rocking the island by his troubled subterranean sleep. It is

hard to imagine a better place for the study of silt and volcanic earthquakes, and this island is strategically placed for very interesting geophysical and oceanographic observations. There ought to be a seismograph station there with a permanent staff in close touch with the observatory at Apia, in British Samoa."

April 28 will bring the year's first total eclipse, and this is also occupying the attention of the Nautical Almanac Office at the Naval Observatory. This eclipse crosses California, Nevada and Idaho, but is of very short duration, and not nearly as favorable astronomically as the one in October. It will only last about a second and a half at most, and the path over which it will be total, where the dark disc of the moon hides the sun, will only be about half a mile wide, as compared to a width of perhaps a hundred miles for a really good eclipse.

Eclipse predictions are always a bit uncertain, owing to incomplete knowledge of the moon's motion, and the skill of the astronomers will be taxed in locating the exact path in advance. Calculations now being made are taking into consideration observations of the moon made as recently as last month, and it is hoped that no astronomer who is guided by their predictions will find himself outside the path of totality.

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Under natural conditions probably not more than five per cent. of the fish eggs that are laid are fertilized, while in fish hatcheries 80 to 90 per cent. of the eggs are fertilized and the resulting young reared to suitable size for planting.

Carloads of scrap films from Hollywood are shipped to refineries so that the silver in them may be recovered.

Until 1892, the largest telephone cable contained only 50 pairs of wires; whereas a cable has now been perfected which contains 3,636 wires, packed within a diameter of only two and five-eighths inches.

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