

Single Cloud May Ruin Plans Carefully Laid By Astronomers

Hopes Are Pinned on Having Favorable Weather Conditions For History Shows Generally Clear Skies on Eclipse Date

THOUGH the astronomer can predict a total eclipse of the sun, like that to be seen in eastern Canada and New England on Wednesday afternoon, August 31, years in advance, the science of meteorology has not yet reached the same degree of accuracy. Not until a few hours before the eclipse happens will it be possible to tell with certainty whether the weather will be clear, or whether clouds will render the elaborate preparations of no avail. Rain is not necessary to spoil an eclipse expedition. A single cloud, properly placed before the sun in an otherwise clear sky, will do just as much to ruin eclipse observations as a heavy storm.

Weather Records Studied

The best that can be done is to choose a place from which to see the eclipse where the weather records of some years back show the most generally clear weather on the day and hour of the eclipse. Sometimes there is not much choice. In October, 1930, there was an eclipse in the South Pacific Ocean, and a small tropical island was the only accessible land along its whole course. But this year the path extends through a long stretch of populated country. Studies have been made and they show that in past years it has been clear at

the eclipse date for about 60 per cent of the time from the St. Lawrence River south to the Atlantic Coast, so that it all seems pretty good. A few spots are not quite so favorable. On the mountain peaks, like Mt. Washington, there is more danger of clouds, and there may be fog along the coast.

Weather probabilities, however, cannot always be trusted. In September, 1923, there was an eclipse visible in California, and the chances for clear weather seemed almost perfect. But alas, the famous California climate failed to materialize, and none of the astronomical parties there were successful, though in a few spots the eclipse was seen through light clouds, and farther south, in Mexico, good results were obtained. Next was an eclipse in January, 1925, visible in the early morning along the New England coast. The chances seemed almost hopeless, but elaborate preparations were made, in the hope that it might be clear after all. These hopes were fully justified, and practically all the observing parties were successful. So the astronomers this summer will make their preparations and hope for the best. If clouds prevail, they will know that they have done all that is humanly possible. The greatest danger is from local thunder showers, but with

the expeditions so widely scattered, it is almost certain that somebody will get something.

This may break a tie that now exists between three of the leading eclipse specialists of the United States, each of whom has observed seven in the past. They are Dr. W. W. Campbell, director emeritus of the Lick Observatory; Dr. John A. Miller, of the Sproul Observatory of Swarthmore College, and Dr. S. A. Mitchell, of the McCormick Observatory of the University of Virginia. Only Dr. Miller, however, has a perfect "batting average," as he has had clear weather at every eclipse he has attended, the first being in 1900. Dr. Mitchell has been to eight, but had clouds once, while Dr. Campbell has attempted nine, but has been foiled twice. Even more unlucky is the record of Dr. Heber D. Curtis, of the University of Michigan observatory, who has attended ten, but has observed only six.

Worst Luck

Probably the worst luck has followed Dr. David P. Todd, director emeritus of the Amherst College Observatory. He began his studies of eclipses more than half a century ago, with the eclipse seen in the western United States in 1878, and has made eleven attempts. But only four have been successful, as it was cloudy at seven of them. Another astronomer with a record almost as good as Dr. Miller's is Prof. George H. Peters, of the U. S. Naval Observatory, who had clear weather on all six of his expeditions.

All these astronomers will probably be in the path of totality on August 31. Perhaps, after that, the record may be different.

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THIS IS THE WAY THE ECLIPSE WILL APPEAR TO MANY

Most of the great centers of population in the East will get this view of the August 31 eclipse, which will be total in a narrow path across New England and Canada. The phases of a large partial eclipse, about 90 per cent. or more of total, are shown above. In most of the United States the crescent will narrow as the moon covers the solar disc, then, at the maximum, it will slip around underneath and enlarge as it appears on the other side. North of the path of totality, in northern Maine and eastern Quebec, the crescent will slip around above the sun.