A Science Service Feature

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? WHY THE WEATHER ? Mailed July 13, 1928.

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SUNRISE AND SUNSET ODDITIES

One of the well-known effects of atmospheric refraction (the bending that light rays undergo in passing through the air) is to elevate the apparent positions of celestial bodies when near the horizon. The amount of such elevation is about equal to the apparent diameter of the sun's disk. Hence the paradox that, with a clear horizon, we can see the sun before it rises and after it sets. The refraction is, moreover, greater on the lower side of the disk than on the upper, so that normally the sun assumes an oval form, much flattened below, at its rising and setting.

Apart from these ordinary phenomena, the solar image seen close to the horizon is sometimes distorted into various strange forms by a mirage effect, due to the passage of the light through layers of air of different densities. It may then assume the shape of a boy's top, a soldier's trench helmet, a mushroom, etc., or even divide into two separate much flattened suns. Many descriptions and drawings of these curious solar images have been published, from the sixteenth century onward, and a remarkable collection of photographs of the phenomenon, taken from the summit of Mount Hamilton, California, has been published by the Lick Observatory.

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