

A Science Service Feature

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? WHY THE WEATHER ?

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LOOMING

Under normal conditions an object near the horizon seems to be lifted above its real position in consequence of atmospheric refraction. For this reason the sun, in our latitude, ordinarily rises some minutes earlier and sets some minutes later than it would if there were no atmosphere, while in the polar regions the sunlight period is lengthened a day or more by this process.

Under exceptional conditions the amount of apparent lifting of distant objects is much greater than usual. The objects are then said to "loom". The process of looming brings into view objects that are ordinarily below the horizon and thus increases one's range of vision, in clear weather, from any given height.

Some remarkable reports of looming have been published; not all of them true. It is, for example, a fairy tale that the Alleghany Mountains are occasionally seen from the Peak of Teneriffe, three thousand miles away. The visibility of a mountain at this distance would, however, be possible on a planet larger than ours, if the degree of bending of the light-rays were about the same as it is on the earth. In fact it is conceivable, as Dr. W.J. Humphreys has pointed out in his "Physics of the Air", that the size of a planet and the vertical density gradient of its atmosphere might be such that a person on it could look all the way round and see (with a telescope more powerful than any yet made) the back of his own head. This would follow if the curvature of light rays under the effects of atmospheric refraction were the same as the curvature of the planet's surface.

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