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? WHY THE WEATHER ? Mailed January 11, 1930.

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SEEING AROUND THE GLOBE

The refraction or bending of light rays by the atmosphere makes objects near the horizon seem to be elevated above their real positions. The elevation amounts, on an average, to about half a degree, which is approximately the angular diameter of the sun and the moon. Hence when either of these bodies appears to be just above the horizon it is actually below it and would be invisible if there were no atmosphere to bend the rays of light. Thus refraction advances the time of sunrise and retards that of sunset by three or four minutes in middle latitudes, while in the polar regions, where sunrise and sunset occur more gradually on account of the sun's nearly horizontal path in the sky, the sunlight period is lengthened a day or two by this process.

Atmospheric refraction, by curving the rays of light that come to us from distant objects, enables us to see them for a certain distance around the "bulge" of the earth. If the earth were a larger sphere than it is and the curvature of its surface were consequently less, the same amount of refraction would give a greater range of visibility. Dr. W.J. Humphreys, in his "Physics of the Air," has called attention to the remarkable fact that on a planet about six times as big as ours, and having a similar atmosphere, people could see all the way round.

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