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A Science Service Feature

? WHY THE WEATHER ?

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WEATHER AND SOUND

Perhaps you have noticed how hard it is to shout to someone when your voice must carry against a strong wind, or you may have observed the unusual distinctness with which trains can be heard on calm evenings. As sound waves are generally air waves, it is not surprising that their transmission is affected by weather conditions.

The general influence of any wind is to reduce the audibility of sounds. The usual greater range of a sound with the wind than against it, is ascribed to the increase of wind velocity with altitude. This bends the sound waves traveling against the wind upward, over the observer's head, and bends downward those going with the wind. If there is a sharp transition between an upper and lower wind the boundary may act as would a reflecting surface, causing rising sound waves to be bent back to earth again. This may account for the peculiar regions of silence and sound often observed in easterly surface winds.

In the daytime the normal decrease in temperature with altitude also leads to the refraction of sound waves upward, and irregularities in the heating of the surface air tend to disperse sounds. At night, or in cloudy weather, when the temperature is more uniform, sounds are more easily heard.

(Tomorrow: Sunny Haze and Silence)

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