

No. 119

A Science Service Feature

Sept. 27

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
Secretary, American Meteorological Society,
tells of:

SUN SEEN BELOW HORIZON.

Refraction is the cause of strange atmospheric phenomena. The mirage, "towering" or looming which makes objects far or near seem unnaturally tall, or which enables the human eye actually to see objects which normally are out of sight below the horizon or behind some other object, and various other similar effects, occur when light rays are refracted, which means they are bent, for example, as an oar pushed beneath the water's surface seems to bend sharply. When light rays pass through a homogeneous atmosphere they come almost straight to the eye. But sometimes conditions are created in the air which causes light rays to bend materially. In nature there is always a certain amount of this refraction, but usually it does not affect vision in a marked degree.

Normal ray-bending is such that at dawn the eye actually sees the sun while its entire orb is below the horizon. Similarly, at evening after the sun has dropped completely below the horizon it is still fully visible. The reason is that the greater density of the layers of air next the earth as compared with those above causes the sun's rays to pass from its concealed position in a long curving path instead of a straight line toward the observer. The eye, of course, does not distinguish the change in the path of the ray, which appears as in a straight line from a point above the horizon, as if the sun were really in that position.

(Tomorrow: Kites and Sounding Balloons)

All rights reserved by Science Service.

Science Service,
1115 Conn. Ave.,
Washington, D.C.