

No. 271

A Science Service Feature

March 25

? WHY THE WEATHER ?

Dr. Charles F. Brooks,
of Clark University,
tells:

WHY WE NEED BAROMETERS

We, personally, are much better equipped to act as thermometers than as barometers. We can quite readily recognize even a moderate change in temperature without consulting a thermometer. Yet when it comes to perceiving ordinary weather pressure changes, we must call the barometer to our assistance. The ear drum, it is true, proves quite a delicate mechanism for detecting sudden pressure change. But while the drum of an aneroid barometer has a partial vacuum behind it and is increasingly bent in by increasing pressure, our ear drum has air on both sides. Air reaches the outside of the drum membrane directly through the outer ear, but is supplied to the inner side of the drum less directly through a small tube leading from the throat. If the pressure changes slowly there is time for the change to be transmitted to the inner side, equalizing the pressure so that the drum is not bent.

If, however, the air in the outer ear is suddenly compressed, as when we enter a tunnel in a subway train, the drum membrane is pushed inwards sharply and the increased pressure is very plainly felt. Quick pressure changes in a train passing through a tunnel may amount to that of eight hundredths of an inch of mercury. Similarly the decrease in pressure experienced when rising rapidly in an elevator will sometimes cause enough bulging of the ear drums to be felt. Going up 20 feet, or about two stories, will mean a decrease of two hundredths of an inch. Though with the approach of a vigorous storm the mercury barometer may fall a whole inch or more in 24 hours, we fail to perceive it. For in this case a half hour instead of a few seconds is required for a decrease in pressure of two hundredths of an inch.

(Tomorrow: Heating of Land Surfaces)
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