

A Science Service Feature

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? WHY THE WEATHER ?

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MEASURING CLOUD MOVEMENTS

Watching the clouds drift by, a traditional pastime of idle people, is part of the professional work of the meteorologist. The latter does not pursue this occupation stretched out on a daisied hillside, with his hands clasped under his head. He makes his cloud observations with the aid of an instrument known as a nephoscope, of which there are several kinds.

The instrument generally used for this purpose in America consists of a black mirror mounted in a circular metal frame, which is graduated in degrees. The image of a cloud reflected in the mirror is sighted by means of a movable eyepiece, which is set in such a position that the cloud's image is first seen at the center of the mirror. As the image drifts to the margin, the observer notes the point on the marginal scale where it leaves the mirror. This gives the azimuth of the cloud's movement.

The same instrument can be used to measure the speed of the cloud's movement. In this case the observer notes the time in seconds the image takes to travel a measured number of millimeters across the mirror. This gives the "nephoscopic" speed of movement. If the height of the cloud above the ground is known, it is a simple problem in trigonometry to convert nephoscopic speed into actual speed. In many cases the cloud's height is known accurately from observations made with pilot-balloons, or otherwise. In other cases it is estimated; usually on the assumption that certain types of cloud occur at certain average altitudes.

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