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A Science Service Feature

? WHY THE WEATHER ?

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HOW TO MAKE A HYGROMETER

A hygrometer is an instrument for measuring the changes in the water vapor in the air. Hygrometers are not very commonly seen except at Weather Bureau stations yet it is possible to construct a rough one rather simply. For action it depends on the behavior of human hair, which lengthens in damp weather and shortens slightly in dry.

To make a hygrometer select some child's long hairs, about twenty are required. The hairs must be soaked over night in alcohol to remove the oil, and are then tied together at both ends and held with a clasp that will not cut them. One end may be fastened to a stationary support, for example, a hook projecting from a wall. The other end is passed once or twice over a small spool which may be held against the wall by a large nail on which it is free to rotate. A weight just heavy enough to keep the hairs taut is hung on the loose end of the bundle of hairs. An indicator attached to the spool points to a scale at the side. When the air becomes dry the hair shortens and tightens, lifts the weight slightly and turns the spool and indicator. The scale can be graduated from other simultaneous determinations of humidity made from dewpoint experiments or sling psychrometer observations.

Another way of fastening the hairs is to make both ends fast to a horizontal bar and to attach something movable to the middle of the bundle of hairs in such a way as to indicate the changes in length. It is very convenient to have such a readily available hygrometric substance that varies in length directly in proportion to the relative humidity no matter how high or low the temperature.

(Tomorrow: Frequency of Dew)

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