

A Science Service Feature

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? WHY THE WEATHER ?

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SUNSHINE RECORDERS

Sunshine recorders are of two sorts: for measuring duration of bright sunshine and for measuring the intensity of the sun's rays. The latter, called a pyrheliometer, is a delicate instrument used only at special stations. Recorders of duration of bright sunshine work electrically, by burning, or photographically. The electrical recorders, used by the U.S. Weather Bureau, are black bulb air thermometers in a vacuum. A large blackened bulb of air is protected from atmospheric temperatures by being encased in a glass sheath from which virtually all air has been removed. Only when heating rays reach the bulb does the air in it expand. In the tube is a short plug of mercury which is moved upward to an extent required by the expansion of the air. If the rays are strong enough to be called "bright sunshine", the mercury reaches two wires set in the glass and connects them. Once a minute, a recorder closes the wires at the other end. When the sun is shining brightly an electric current is allowed to pass and to move a pen on the recording drum.

The burning variety of sunshine recorder is used by the Canadian Meteorological Service. A glass ball focuses the sun's rays on a thick strip of wardboard ruled in hours and fractions. When the sun is barely shining the paper is discolored only. When it is bright a fairly wide groove may be charred. Photographic recorders allow only a pin-hole beam of sunlight to enter a dark space in which blue-print or other sensitized paper is exposed.

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