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? WHY THE WEATHER ?

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WEATHER COMPLICATED TO OBSERVE

Weather is the physical condition of the atmosphere at any time. This means that weather is the condition of the air with respect to composition, temperature, pressure, and motion, not only at the bottom of the atmosphere, where we live, but also at all heights. It is simple enough to state this, but how difficult it is to determine and record adequately! A good deal may be said in such simple terms as "a cold, clear and quiet day," "a cold, snowy, windy day" or "a hot, sunny, muggy day." But these are incomplete.

In what terms is the physical condition of the atmosphere noted? The composition of the air is never stated in the weather reports, for except for one element, water, the composition is essentially constant. Thus the composition aspect is confined to data concerning humidity, clouds, rain or snow, and these are measured by various ingenious devices.

The temperature of the air is obtained readily enough at the ground level, though on most occasions certain precautions of keeping the thermometer dry, and of not exposing it to the direct sunshine, or to one's breath, are necessary. But how about the temperatures at various heights? These are readily and immediately obtainable by airplane with ^{the} thermometer carefully kept away from the engine exhausts. If we do not use an airplane, we still may roughly surmise temperatures by cloud forms and motions, the nature of precipitation, or by certain aspects of bent sound or light waves. For example, the occurrence of abnormal audibility usually indicates warmer air above. Pressures are shown readily by barometers.

Air motions are determined by instruments, or by use of smoke, clouds, or balloons.

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