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? WHY THE WEATHER ?

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THE HEAVY ATMOSPHERE

It is hard to think of air as having appreciable weight. Nevertheless, its mass, drawn downward by gravity, exerts a very considerable pressure on us, who live virtually on the bottom of an ocean of air. Dr. W. J. Humphreys, of the U. S. Weather Bureau, has estimated the total weight of the whole atmosphere of the earth as over 5 quintillion tons (5,110,000,000,000,000 kilograms). The weight of the water vapor in the air alone is 13,260,000,000,000,000 kilograms, or equivalent to a layer of water an inch deep covering the entire earth. Similarly, the weight of the whole atmosphere may be conceived of as equal to the weight of a layer of water about 33 feet deep everywhere.

Heavy as our water vapor is, it is but five eighths as heavy as the usual mixture of the other atmospheric gases. Thus, the oft heard expression, "the atmosphere is heavy with moisture today", means only that the person speaking feels heavier or less buoyant. The air is actually lighter by virtue of a larger amount of water vapor. We feel heavier when the air is more humid because our bodies, as heat engines, do not work so well when the usual loss of heat by evaporation is cut down by greater humidity. The heaviest atmosphere we ever experience (unless we go below sea level) comes in the brightest and coldest winter weather as a moving mountain of dense air passes over us.

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(Tomorrow: Alleviated Weather)

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