

No. 738

A Science Service Feature

Sept. 22

? WHY THE WEATHER ?

By Dr. Charles F. Brooks  
of Clark University.

MUGGY AIR IS LIGHT AIR

It is puzzling why air to which water vapor has been added is lighter than dry air. When you have evaporated a small amount of water you have made the atmosphere heavier by that amount, but you have not made the air denser by this injection of water vapor, because the air has been free to expand. If the air were in a tight box and a little steam were injected the pressure would be increased. If then you opened a stopcock some of the mixed air and steam would rush out and you would have less air in the box. This humid mixture remaining would not be so heavy as the original dry air, because part of it is the light gas, water vapor. Water vapor is but five-eighths as heavy as dry air. So if the air becomes muggy to the extent that the vapor pressure is 3 per cent of the total atmospheric pressure, the air will weigh five-eighths of 3 per cent., or about 2 per cent., less per cubic foot than dry air. The air, therefore, does not really get "heavy" with moisture, though we have a heavier feeling on muggy days, induced mostly by the reduced evaporation from our lungs and skin.

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(Tomorrow: Equinoctial Storms)

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