

No. 56

A Science Service Feature

July 16

? WHY THE WEATHER ?

Dr. Charles F. Brooks  
Secretary, American Meteorological Society

says:

KEEP COOL

On a warm summer day our bodily heat production, particularly if we are active may be far more than that required to maintain a normal temperature. But we do not have a fever, as we are constantly being cooled by radiation, conduction, and especially by evaporation of moisture from the skin and lungs. Evaporation takes place most rapidly when the air is dry and circulates freely.

The cooling power of air, then, depends upon three things, its temperature, its motion, or velocity, and the moisture in it. These are the factors which determine the sensible temperature, or how hot it feels. It will be readily seen that this is not the same as the actual air temperature. After an electric fan is turned on in a room it may feel much cooler, though the air temperature remains the same.

Electric fans may more than double the cooling power of the air.

If the air is warm and saturated, or nearly saturated, with moisture and there is no breeze, we can evaporate but little perspiration and find a temperature of 75, or with slightly lower relative humidity 80 or 85, quite oppressive. Such conditions are frequent in the Gulf States. In Calcutta, India, electric fans are employed outdoors to give relief to Europeans. On the other hand, on a dry day with a good breeze, one can remain relatively comfortable even though the thermometer registers 90 degrees.

The importance of cooling power in relation to comfort is illustrated by experiments with air-tight cabinets, like a telephone booth. A man shut up in such a cabinet can remain comfortable if he is kept cool by an electric fan, even though the air becomes so depleted of oxygen that his cigarette will not burn. Turn off the fan and allow the man to become too warm and he will soon show symptoms of distress even though he is allowed to breathe fresh air through tubes connecting with the outside. Deaths attributed to suffocation are really more often due to heat prostration.

(Tomorrow: Gaging Speed of Wind.)  
All rights reserved by Science Service  
Science Service,  
1115 Conn. Ave., Washington, D. C.