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? WHY THE WEATHER ?

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By Dr. Charles F. Brooks
of Clark University

ASPHALT MIRAGES AND FOGS

Mirages and fogs are not considered closely related; nevertheless, the heat of a paved surface can produce both within half an hour. When the dry dark pavement is superheated by the sun the thin layer of air in contact with it is heated to such a point that its expansion makes it less dense than the air at a greater height. Light waves entering this air at a small angle to the horizontal find the portions of their wave fronts in the heated air accelerated and the direction of wave travel, therefore, diverted upward slightly, the whole effect being like reflection from water. On a long straight road or the crest of a hill, diverted light from the sky makes optical pools of water appear on the heated roadway. But we find these puddles are really only hot air.

Great local heating of the air occurs when there is little wind and, therefore, under circumstances favoring local showers. When a shower wets a hot road rapid evaporation is in order. But since the shower cools the air and generally raises the relative humidity, this discharge of vapor from the road is in excess of what the air can receive in the vapor state, and therefore, some condenses at once into a fog a few inches to a few feet in depth. This fog rises in little columns drifting across the highway.

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