A Science Service Feature

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? WHY THE WEATHER ?

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Authority on Meteorology.

THE LIGHT OF LIGHTNING

Many of the older textbooks and reference books state that lightning owes its luminosity to the intense heating of the air along the path of the electrical discharge; this heating, in turn, being due to the resistance of the air to the passage of the current. Balfour Stewart, an able Scottish physicist of the last century, is sometimes cited as the authority for this statement, but it is not accepted by the science of today. Dr. W. J. Humphreys writes on the subject in his "Physics of the Air":

"Just how a lightning discharge renders the atmosphere through which it passes luminous is not definitely known. It must and does make the air path very hot, but probably not enough so to produce the light observed. Hence it seems likely that the luminosity of lightning flashing is owing, in part at least, to something other than high temperature; probably atomic disturbances induced by the discharge."

The atomic disturbances referred to consist of the separation of ions from the atoms of atmospheric gases of their displacement within the atoms and their subsequent recombination or readjustment; these processes being capable of stimulating the sensation of light, regardless of the temperature of the gases concerned.

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