

A Science Service Feature

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? WHY THE WEATHER ?

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BLACK LIGHTNING

Black flashes of lightning and black borders of bright flashes are often seen in photographs but they do not exist in nature. They result from a phenomenon known as the "Clayden effect," and appear in photographs of artificial electric sparks as well as of lightning.

If a spark of moderate intensity is photographed and the plate is subsequently exposed to a very feeble general illumination, the picture will show an ordinary white flash. If the after-illumination is somewhat brighter the spark will not appear on the print at all. Lastly, if the after-illumination is still brighter the spark will print black. In order, therefore, to get black flashes the plate must be exposed at least twice to light.

Suppose, now, a lightning flash has registered its impression on the plate and before the shutter is closed a second flash occurs in the same field. If the latter is bright enough, the clouds will be lighted up and the light reflected from them will cause the diffuse illumination of the field necessary to produce "reversal" of the original image. That often only the border of a bright flash is reversed is explained by the fact that this is less bright than the core of the discharge, and is more easily affected by the subsequent illumination of the field.

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