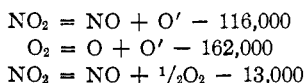


THE HEAT OF DISSOCIATION OF OXYGEN

Sir:

Mecke¹ and Henri² have noted two regions of predissociation in the absorption spectrum of NO₂, the first becoming prominent around 3700 Å., corresponding to dissociation into NO and O, and the second beginning at 2447 Å. with NO and O' (excited O) as the products of dissociation. The value 3700 Å. (77,000 cal. per einstein) combined with the heat of reaction NO₂ = NO + 1/2O₂ - 13,000 cal. yields them a heat of dissociation of oxygen of 128,000 cal. Kondvat'ev,³ with the scheme



obtains 118,000 cal. as the heat of dissociation.

I find that excess CO₂ does not lower the quantum yield in the photochemical decomposition of NO₂ into NO and O₂ by λ4047 Å., which thus indicates a non-collisional mechanism for this reaction. This is further proved by photochemical experiments at low pressures; the quantum yield shows no falling off down to 0.01 mm. It must be concluded that absorption of λ4047 will lead to dissociation into NO and O. Therefore the heat of dissociation of oxygen appears to be as low as 115,000 cal., in satisfactory agreement with the value 118,000 cal. found by Kondvat'ev. The implication of a quantum yield lower than unity, actually found with 4047, in the interpretation of diffuse spectra will be examined in the extended report now in preparation.

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WARREN P. BAXTER⁴

 CATALYSIS OF THE THERMAL DECOMPOSITION OF SILVER OXALATE BY SILVER SULFIDE

Sir:

It has been shown by one of us [S. E. Sheppard, "Colloid Symposium Monograph," 1925, Vol. III, p. 76] that minute traces of silver sulfide formed on the silver halide grain of photographic emulsions have a powerful sensitizing effect for the formation of the latent photographic image. This sensitizing action is manifested in two ways. The more important is a general sensitizing for all wave lengths to which the silver halide is itself sensitive, or for which it has been optically sensitized by dyes.

¹ Mecke, *Naturwissenschaften*, **51**, 996 (1929); *Z. physik. Chem.*, **7B**, 108 (1930).

² Henri, *Nature*, **125**, 202 (1930).

³ Kondvat'ev, *Z. physik. Chem.*, **7B**, 70 (1930).

⁴ National Research Fellow in Chemistry.