be identical in every respect with Schöpf's true thebainone. A sample of the latter, generously supplied by Professor Schöpf, showed no depression in melting point with the "sulfur-free ketone." Schöpf's base shows $[\alpha]_D^{26}$ −45.7°, while Pschorr's shows $[\alpha]_D^{28}$ −46.4°, −46.9° in 95% alcohol. Schöpf bases his statement that the two ketones are different upon discrepancies in the melting points of the methiodide and hydriodide, and the fact that Pschorr's hydriodide is hydrated. The methiodide which we obtain from Schöpf's thebainone sample melts at 250–251°, that from the "sulfur-free ketone" at 251°. When the hydriodide of Schöpf's thebainone is crystallized from a large amount of water, it separates hydrated, and shows two melting points, 163–165° and 257–260°, like the "sulfur-free ketone" hydriodide, whose melting point it does not depress.

The structure of Pschorr's "sulfur-free ketone" is thus settled, and another case of supposed isomerism in the thebainone series eliminated. The true thebainone is obtained in nearly quantitative yield by the hydrolysis of β-ethylthiocodide, which constitutes a very convenient preparative method.

COBB CHEMICAL LABORATORY
UNIVERSITY OF VIRGINIA
UNIVERSITY, VIRGINIA
LYNDON F. SMALL
DAVID E. MORRIS
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## THE HEAT OF DISSOCIATION OF THE SODIUM MOLECULE

*Sir:*

The original determination of the heat of dissociation of $Na_2$ from the band spectrum indicated a value of about 1 volt (= 23,000 cal.). If this were the case saturated sodium vapor should show an abnormal density at all pressures. Rodebush and Walters [THIS JOURNAL, **52**, 2654 (1930)] found this to be true but the abnormality is small and the value of the heat of dissociation calculated from their best results is 0.79 volt (= 18,200 cal.).

Lewis [*Z. Physik*, **69**, 786 (1931)] calculated the heat of dissociation from a vapor density determination by a molecular ray method and obtained the value 0.73 volt (= 16,900 cal.). Recently Nusbaum and Loomis [*Phys. Rev.*, **39**, 179 (1932)] have carried out an accurate analysis of the vibrational bands and find the heat of dissociation to be 0.76 volt (= 17,500 cal.) with an uncertainty of 0.02 volt. It seems quite certain that 0.76 volt is the lower limit and that the true value is in the interval of 0.76–0.78 volt.

CHEMISTRY DEPARTMENT
UNIVERSITY OF ILLINOIS
URBANA, ILLINOIS
W. H. RODEBUSH
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