



On the spectrum of gallium

Lecoq De Boisbaudran

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blendes; I hope it will not be long ere I possess more ample information on this point.

The gallium which I extracted from the blendes came really from those minerals, and not from the metallic zinc (Vieille-Montagne) employed for the precipitations; for I have obtained no traces of gallium with quantities of this zinc greater than what would have been necessary of blende to get a very pure spectral reaction of gallium.

My last investigations have confirmed the scarcity of gallium in blende. The extreme delicacy of the spectral reaction had even caused me to estimate too high the quantities obtained. I do not think I exaggerate in saying that, at the time of my first observation, I possessed at most $\frac{1}{100}$ of a milligramme of the new substance dissolved in a very little drop of liquid. I may remark that spectral examination of so minute a quantity would have been impossible before the considerable reduction which I made in the dimensions of the apparatus for obtaining electrical spectra, and without the employment (which I adopted) of very small sparks.

If, as I suppose, there is no error concerning the nature of my gallium-alum, the existence of this salt fixes the atomicity of the new element, and assigns to its oxide the same chemical function as that of alumina. The oxide of gallium will therefore be written Ga_2O_3 .—*Comptes Rendus de l'Académie des Sciences*, Dec. 6, 1875, pp. 1100–1104.

ON THE SPECTRUM OF GALLIUM. BY LECOQ DE BOISBAUDRAN.

I have again measured the wave-lengths of the lines of gallium under conditions of accuracy which the feeble brightness of the spectrum obtained did not permit me to realize at the time of my first determination*; and I have found precisely the same number for the principal line, while the less brilliant one is a little less refrangible than I at first estimated it.

With the chloride of gallium, considerably more concentrated†, which I have recently submitted to the action of the electric spark, I have observed no other lines than the two following; if, then, others should be found with highly concentrated solutions, they can only be faint.

Position on micrometer.	λ .	
α 193.72	417.0	{ Narrow, <i>strong</i> . Notably brighter in a spark of medium length than in a very short spark. Narrow, well marked, but much fainter than α 193.72. Notably brighter with a medium spark than with a very short one.
β 208.90‡	403.1	

The line α 417.0 is characteristic of gallium; this is a very delicate reaction.—*Comptes Rendus de l'Acad. des Sci.* Jan. 10, 1876, p. 168.

* *Comptes Rendus*, vol. lxxxvi. p. 494, Sept. 20, 1875; *Phil. Mag.* [IV.] vol. 1. p. 415.

† The relative intensities indicated in the description of the lines refer to the mean state of concentration of the solution now employed.

‡ The line $\text{Ga}\beta$ is much more difficult to measure than $\text{Ga}\alpha$; I nevertheless do not think that the error of λ much exceeds 0.1.