

Physics. — “A yellow green discharge in potassium vapour.” By T. L. DE BRUIN. (Communicated by Prof. P. ZEEMAN).

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Working with the electrodeless arrangement for investigation of the spectrum of ionised potassium ¹⁾, it was found that two distinct types of discharges could be obtained. If the bulb a long time was heated and then the spark gap was diminished in length, the appearance of the bright blue ring with the spectrum of K. II changed abruptly to a faint diffuse discharge with an yellow green colour, filling almost the whole bulb. Photograph VI in the accompanying plate, made with a HILGER glass spectrograph, is a photograph of the “blue violet” discharge (exposure 3 minutes) and the “yellow green” discharge (exposure 3 hours). The “green” spectrum is very simple and showed the following lines of the first and second subordinate series of the arc spectrum.

II. Subordinate series.	I. Subordinate series.
6939.5 $2p_1-3s$	5832.2 $2p_1-5d$
6911.8 $2p_2-3s$	5812.5 $2p_2-5d$
5802.0 $2p_1-4s$	5339.9 $2p_1-6d$
5782.7 $2p_2-4s$	5343.3 $2p_2-6d$
5340.1 $2p_1-5s$	5112.7 $2p_1-7d$
5323.5 $2p_2-5s$	5097.7 $2p_2-7d$
5099.6 $2p_1-6s$	4965.5 $2p_1-8d$
5084.5 $2p_2-6s$	4952.2 $2p_2-8d$
4956.8 $2p_1-7s$	
4943.1 $2p_2-7s$	

The “forbidden” line $1s-d_{12}$, 4642 Å was faintly visible. The *D* lines of sodium were also present. It was at first thought, from the plates, that these lines here have an abnormal ratio in intensity, but the photograph showed the ratio 1:2 ²⁾.

It is interesting to note that in this type of discharge the strong lines of the arcspectrum λ 4047 and 4044, members of the chief series, very faintly made their appearance. It is probably not only due to the glassabsorption. It seems that LOCKYER ³⁾ and FREDENHAGEN ⁴⁾ have observed,

¹⁾ Following communication in these Proceedings: “The spectrum of ionised potassium.

²⁾ The wavelenghts in the photogram must be changed.

³⁾ N. LOCKYER: Proc. R. S. 29. 140. 1879.

⁴⁾ FREDENHAGEN: Phys. Z.S. 1907. pg. 734.

though under other conditions, such an appearance, that mainly subordinate series are present.

