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Theodor Wulf

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sary, since the K lines were not in the field of view at the same time as the Li line. The mean values taken for the wave-lengths of the Al lines used for reference were 7042·5 and 7057·9 respectively. Five sets of measurements were made and the wave-lengths obtained as before. They were found to be :—

6828·3	}	with reference to Li 6708·1 and Al 7042·5,
6842·6		
6928·3		
6828·2	}	with reference to Li 6708·1 and Al 7057·9.
6842·5		
6928·2		

The following table gives the mean values for the wave-lengths of the aluminium-lines and their relative intensities approximately, putting the intensity of the lithium-line as it appeared in the same field of view as 10.

Wave-length.	Relative intensity and character.	Oscillation-frequency reduced to vacuo.
6828·2	4 sharp.	14641
6842·6	4 sharp.	14610
6928·2	2 nebulous.	14430
7042·5	6 sharp.	14195
7057·9	5 sharp.	14165

The line 7057·9 is probably double, the two components being very near together, but no accurate measurements were obtained. A large Ruhmkorff-coil by Apps, giving a 10-inch spark, was used in these determinations, also a large leyden jar.

Before concluding I must express my thanks to Professor Schuster for his valuable suggestions and the interest he has taken in the work. My thanks are also due to Mr. A. T. Stanton for the kind assistance he has rendered in working with the grating, and for many useful hints.

The Owens College,
July 15, 1897.

XXXIX. *Intelligence and Miscellaneous Articles.*

OBSERVATIONS ON LATIMER CLARK'S STANDARD CELL WHEN CLOSED. BY THEODOR WULF.

THE Author observes the tension at the terminals of closed normal elements by connecting up a condenser, and then discharging it through a galvanometer. By using Hicke's apparatus these observations can be made for very short intervals after

closing the current. The following are the principal results which he obtains :—

1. The internal resistance of the elements used (cylindrical glass vessels 2 cm. in diameter, distance between the electrodes 3–4 cm.) varied at ordinary temperatures between 40 and 80 ohms according to the distance and magnitude of the electrodes.

2. The resistance varied considerably with the temperature, being trebled when it fell from 30° to 5°.

3. No diminution of the internal resistance with the strength and duration of the current could be ascertained.

4. With stronger currents of 0·005 ampere (external resistance 200 ohms) polarization could be perceived even after 0·01 of a second. It increased but little during the first ten minutes, but afterwards more and more rapidly.

5. On opening the circuit the polarization diminished in a few minutes to a small fraction. Repeated short-circuiting through only 50 ohms' external resistance for more than a minute did not permanently injure the element.

6. When an element was closed for 2 hours through 200 ohms, by which its electromagnetic force was reduced almost to one half, in 2 minutes it attained its original strength to within 0·1 p.c. But after this the polarization set in more rapidly and strongly.—*Wiener Berichte*, July 1897.

SPECIFIC HEAT OF DIFFICULTLY FUSIBLE METALS.

BY H. MACHE.

Since the introduction of Moissan's method of reducing difficultly fusible metals by means of the electrical furnace it is possible to obtain these in a compact solid form, while previously they could only be had in powder. By this it is possible to obtain the specific heats with greater accuracy. By the aid of Bunsen's ice-calorimeter, palladium, chromium, vanadium, and tungsten were determined and the specific heats obtained : Pd=0·0549, Cr=0·1208, V=0·1153, Wo=0·0336.—*Wiener Berichte*, July 1897.

DETERMINATION OF THE COEFFICIENT OF MAGNETIZATION OF LIQUIDS AND THEIR DEPENDENCE ON TEMPERATURE. BY PROF. DR. GUSTAV JÄGER AND DR. STEFAN MEYER.

The method is that of measuring the ascent in narrow tubes in the magnetic field which was produced by the large electromagnet of the Physical Institute. By taking special precautions considerably greater accuracy could be obtained than heretofore ; the position of the meniscus was kept constant by increasing the pressure of a large volume of air. Solutions of magnetic salts in water were principally investigated.—*Wiener Berichte*, July 1897.