

Letters to the Editor.

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Atomic Energy States of Tellurium—Te III.

It was previously reported in *Nature*,* that the structure of the spectrum of doubly-ionised Tellurium atom had been elucidated with the help of Vacuum data kindly supplied by Dr. K. R. Rao. Further investigation of the quartz and fluorite regions with a quartz Littrow spectrograph and a Vacuum Grating Spectrograph of the branched-arm type, enabled the extension of the classification to include the higher members of the series such as the 6d, 7s, etc. More than 210 of the observed spectral lines belonging to Te III have been classified. Though there is to be observed in general, a great similarity between the term structure of Tellurium and Selenium yet the considerable complexity of Tellurium spectrum is clear in the magnitudes of the intervals of the corresponding terms. The sp³ ³P term-intervals in Te III, 506.7 and 1549.8 cm.⁻¹ for instance, are relatively very large compared to the 109

Term	Term value	Term	Term value
sp ³ ³ D ₁	164069.3	6d ³ F ₂	84217.2
³ D ₂	153248.7	³ F ₃	83228.6
³ D ₃	146308.0	³ F ₄	78411.3
¹ D ₂	146491.0	¹ F ₃	78883.1
³ P ₀	150887.3	³ D ₁	83630.1

Term	Term value	Term	Term value
³ P ₁	150380.6	³ D ₂	74992.6
³ P ₂	151930.4	³ D ₃	75893.1
7s ³ P ₀	77058.0	¹ D ₂	80343.6
³ P ₁	76371.6	³ P ₀	84607.6
³ P ₂	68544.1	³ P ₁	85762.4
¹ P ₁	72457.5	³ P ₂	76942.8
a	145806.0	¹ P ₁	73385.2
b	154654.1	a	74066.2
c	124833.8		
d	137948.9	5d ³ D ₁	131215.6
5p ³ P ₀	246955	³ D ₂	124444.9
³ P ₁	242204	³ D ₃	126058.3
³ P ₂	238790	³ P ₀	132668.6
¹ D ₂	229596	³ P ₁	129165.6
¹ S ₀	215186	³ P ₂	130243.1
6s ³ P ₀	139492.9	¹ P ₁	119771.4
³ P ₁	139237.3	6p ³ D ₁	114838.3
³ P ₂	131539.0	³ D ₂	114625.9
¹ P ₁	132745.1	³ D ₃	107005.3
5d ³ F ₂	142246.2	³ P ₀	114692.6
³ F ₃	140649.4	³ P ₁	105152.0
³ F ₄	138403.9	³ P ₂	107290.5
¹ F ₃	119713.2	¹ P ₁	118337.1
¹ D ₂	122171.7	³ S ₁	108665.3
		¹ D ₂	103973.1

and -76 cm.⁻¹ of Selenium. The above is a provisional list of the terms discovered.

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* *Nature*, August 18, 1934, 134, 255.