

The First Spark Spectrum of Platinum

A. G. Shenstone

Phil. Trans. R. Soc. Lond. A 1938 **237**, 453-470

doi: 10.1098/rsta.1938.0013

Email alerting service

Receive free email alerts when new articles cite this article - sign up in the box at the top right-hand corner of the article or click [here](#)

To subscribe to *Phil. Trans. R. Soc. Lond. A* go to: <http://rsta.royalsocietypublishing.org/subscriptions>

THE FIRST SPARK SPECTRUM OF PLATINUM

By A. G. SHENSTONE, *Princeton University**(Communicated by R. H. Fowler, F.R.S.—Received 25 March 1938)*

[Plate 6]

In 1929, Dr J. J. Livingood and myself attempted unsuccessfully to analyse the first spark spectrum of platinum. That failure was chiefly due to the lack of adequate observations in the Schumann region. The spectrum should, of course, be similar to Ni II and Pd II, both of which were previously analysed in the laboratory, but in the third long period the excitation energies have increased to such a point that the chief lines of the transition $5d^{86s}-5d^{86p}$ are mainly below $\lambda 2000$. Their observation requires a vacuum spectrograph, which we did not have at that time.

OBSERVATIONS

Down to the limit of transmission of air, the spectra of the arc and spark were photographed with the 21 ft. grating, and the wave-lengths were measured against iron standards. It was found necessary to use graphite electrodes for the arc, because of the fact that it is very difficult, if not impossible, to run an arc between pure platinum rods. One is much more apt to get a glow discharge in which the cathode is hot, the anode cold and the spectrum that of air. In the Schumann region also, arc-spark observations were the chief source of the data. A modification of the method described by Selwyn (1929) was used, and excellent spectra were obtained down to the fluorite limit at $\lambda 1240$. The modification ensures an image of the source at the slit and makes the elimination of oxygen from the flowing nitrogen much more complete. The arc in pure nitrogen runs at 10–15 V higher potential than it does in air, and produces the second spark spectrum of some elements with considerable intensity. A diagram of the attachment is shown in fig. 1. The spectrograph is of conventional type employing a glass grating of 2 m. radius and 30,000 lines per inch. The spectrum can be photographed from $\lambda 500$ to $\lambda 2250$. Hilger Schumann plates and Ilford Q plates were used, the latter being practically perfect for the longer wave-lengths.

In order further to extend the observations, photographs of the hollow-cathode (Schuler tube) discharge were also taken. This proved to be relatively simple to do because we had already developed the technique for iron, one of the most difficult materials to excite in such a manner. The cathode was a thin-walled tube of graphite suspended by tungsten wires in a 2 l. pyrex flask. The platinum melted and gave a brilliant spectrum at about 1.5 kVA on the tube, the currents being from 1.5 to 2 amp.

and the voltage from 1000 to 750 depending on the gas pressure used. The production of a stable discharge at such powers was made possible by the use of a 6 kVA rectifier excited by constant current instead of by constant potential. This eliminates the

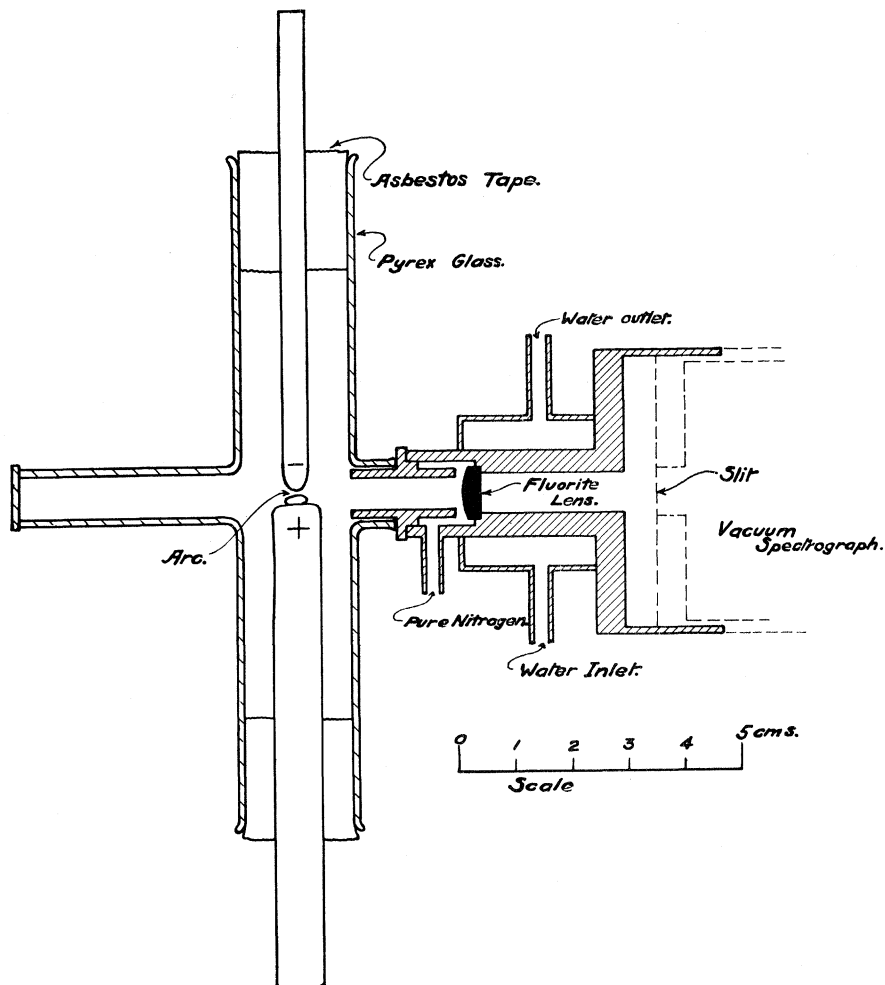


FIG. 1. Attachment for photographing spectra to $\lambda 1240$.

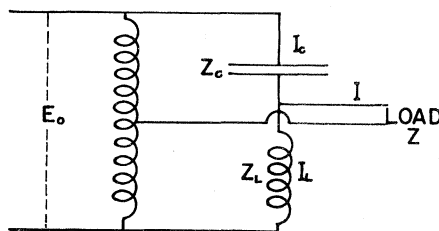


FIG. 2. Constant current circuit.

necessity for ballast resistances and allows the use of the full voltage of the rectifier on the tube itself. The constant-current circuit is quite simple and has been known for many years (Steinmetz). The principle is shown in fig. 2, and the theory is as follows. Our particular adaptation of the circuit will be described in detail elsewhere.

E_0 = supply voltage.

I_C, I_L, I = currents through condenser, inductance and load.

Z_C, Z_L, Z = reactances of the condenser, inductance and load.

$$\frac{E_0}{2} = Z_C I_C + ZI,$$

$$\frac{E_0}{2} = Z_L I_L - ZI,$$

$$I_C = I + I_L.$$

Solving for I

$$I = \frac{E_0}{2} \frac{(Z_L - Z_C)}{Z_C Z_L + Z(Z_C + Z_L)}.$$

If the capacitive and inductive reactors are made so that $Z_C = -Z_L$, this expression reduces to

$$I = \frac{E_0}{Z_C},$$

or taking the absolute value

$$|I| = \frac{E_0}{X},$$

where

$$X = |Z_C| = |Z_L| = \frac{1}{2\pi\nu C} = 2\pi\nu L,$$

i.e. the current I is, in the ideal case, completely independent of the load. Any required variation of the current is produced by varying the applied voltage E_0 .

The constant-current circuit is an odd arrangement with which to work because one must reverse all one's usual actions. For instance, it is dangerous to open the circuit and perfectly safe to short-circuit it. This is of great advantage if the tube arcs, since the power then falls to nearly zero instead of rising. Although the rectifier is built to deliver 1500 V, an ordinary arc requiring 20–30 V with no ballast resistance can be run from it with perfect safety and extreme stability.

The lines in the Schumann region were measured initially against nitrogen and carbon lines (Boyce and Robinson 1936) and were afterwards corrected by the use of a number of platinum lines whose wave numbers could be calculated by use of the combination principle. The Schuler tube plates were standardized from copper lines produced by the introduction of a small quantity of copper into the cathode.

ANALYSIS

The arc spectrum of platinum is a ten-electron spectrum with low terms corresponding to the structures $5d^9 6s$, $5d^8 6s^2$, $5d^{10}$. From the relative positions of those three, it can be predicted that the lowest term of the first spark spectrum should be $5d^9 2D$, followed by $5d^8 6s^4 F$ and higher still by $5d^7 6s^2 4F$. The lowest odd terms should be $5d^8 6p^4$ and $2D, F, G$.

The spectra of the elements of the third long period exhibit such large term differences that ordinary methods of breaking into the spectra are of little value, but there is an unusual method, which proved successful in this case. It is well known that a transition in the first spark spectrum of a metal from a middle level to a low level produces a line which is sharp and strong in the arc and only slightly broader in the spark, whereas a transition from a high to a middle level produces a line which appears in both arc and spark but is very broad in the spark and displaced about 2.5 wave numbers to longer wave-lengths. In the present case the strongest lines of those two classes should be $5d^96s^4F_{4\frac{1}{2}}-5d^96p^4G_{5\frac{1}{2}}^\circ$ and $5d^96p^4G_{5\frac{1}{2}}^\circ-5d^97s^4F_{4\frac{1}{2}}$. Since one can find from the analysed spectrum Au II the regions in which those two lines should occur, it was a very simple matter to pick them out, and so from their sum to obtain the important difference $5d^96s^4F_{4\frac{1}{2}}-5d^97s^4F_{4\frac{1}{2}}$. The analysis then proceeded by the usual tedious method of building a square array by searching for known differences.

Identification of levels is usually accomplished by a comparison of the intensities of the combinations and their Zeeman effects with the theoretical intensities and Zeeman effects for Russell-Saunders coupling. In the spectra of the heavy metals, these criteria normally break down because the coupling is more nearly $j-j$ than L-S. Pt II is no exception to this rule, so that the great majority of the levels can be given numbers only.

There is, however, sufficient evidence to assign Russell-Saunders names to a number of the low even levels. An examination of fig. 3 shows that the correlation of levels in Ni II, Pd II and Pt II is of the type to be expected. The separations of the components of $5d^96s^4F$ and 2F increase rapidly with the atomic number, although the spread of the configuration shows only a small and irregular change. The parallelism of many of the connecting lines in fig. 3 is striking, and it has been used as evidence in identifying levels. Obvious exceptions are the two levels corresponding to $^4P_{2\frac{1}{2}}$ and $^2D_{2\frac{1}{2}}$. They have been pushed far down and up by the presence of $^2F_{2\frac{1}{2}}$ between them, which in turn is due to the rapid increase of the term separations with atomic number. The selection of 20093.0 as $6s^2^4F_{4\frac{1}{2}}$ and 24475.7 as $6s^2G_{4\frac{1}{2}}$ is based partly on the comparison with Ni II and Pd II and partly on the fact that that choice is more consistent with the observed intensities.

The relative positions of the structures nd^9 and $nd^8(n+1)s$ are very different in the three long periods. It might be expected that their difference would decrease as the value of n increases. This is not the case, the difference being in fact about 8000 in Ni II, 25,000 in Pd II and 5000 in Pt II. The $4d$ and $5s$ electrons in the second long period thus show much greater differences in binding energy than do the $3d$ and $4s$ of the first period or the $5d$ and $6s$ of the third period. No theoretical explanation of this fact has been given.

In Pt II the structure d^7s^2 appears. Its position in Ni II can be estimated from Zn II and Cu II to be about 35,000–40,000 wave numbers above d^8s . In Pd II it should be about 6000 wave numbers higher still.

ON THE FIRST SPARK SPECTRUM OF PLATINUM

457

In Tables I and II are given all the even and odd levels which have been fixed with reasonable certainty. Many more of doubtful reality were found, chiefly from the Schuler tube data. In agreement with the known characteristics of the Schuler tube discharge, the levels from about 93,000 to 99,000 are excited very strongly by neon and

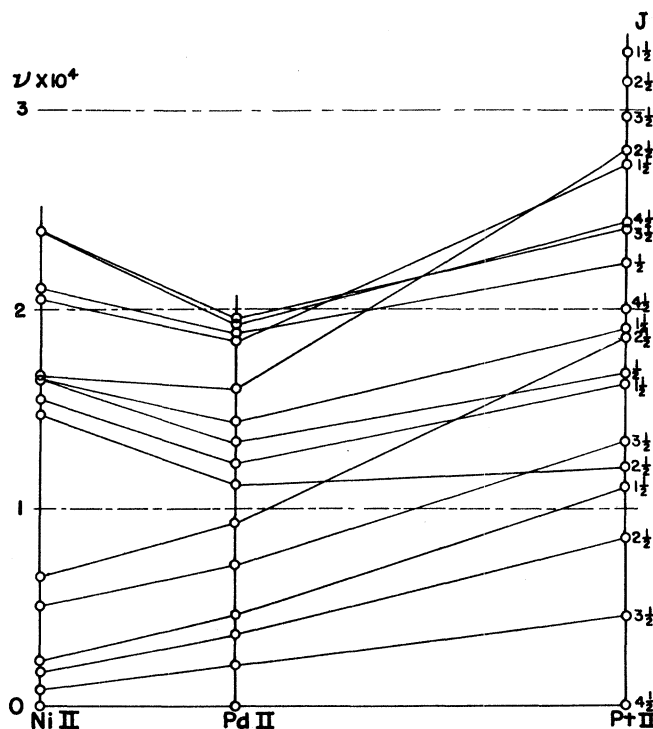


FIG. 3. Comparison of low-levels of Ni II, Pd II, Pt II.

TABLE I. EVEN LEVELS

1*	2	3	Intervals	1*	2	3	
$5d^9 2D$	$5d^2 2D_{2\frac{1}{2}}$	-4786.6		$5d^8 6s^2 P$	$6_{1\frac{1}{2}}$	27451.0	
$5d^8 6s^4 F$	$6s^4 F_{4\frac{1}{2}}$	0.0		$5d^8 6s^2 D$	$7_{2\frac{1}{2}}$	28132.6	
$5d^9 2D$	$5d^2 2D_{1\frac{1}{2}}$	3633.3	$5d^2 D$	$5d^7 6s^2 4F$	$6s^2 4F_{3\frac{1}{2}}$	29860.8	
$5d^8 6s^4 F$	$6s^4 F_{3\frac{1}{2}}$	4569.6	$6s^4 F$	$5d^7 6s^2 4F$	$6s^2 4F_{2\frac{1}{2}}$	31697.6	
$5d^8 6s^4 F$	$6s^4 F_{2\frac{1}{2}}$	8542.7		3973.1	$5d^7 6s^2 4F$	$6s^2 4F_{1\frac{1}{2}}$	33091.6
$5d^8 6s^4 F$	$6s^4 F_{1\frac{1}{2}}$	11004.8	2462.1	$5d^8 7s^4 F$	$7s^4 F_{4\frac{1}{2}}$	91016.9†	
$5d^8 6s^4 P$	$1_{2\frac{1}{2}}$	12034.4	5363.8	$5d^8 7s^4 F$	$7s^4 F_{3\frac{1}{2}}$	91828.0	
$5d^8 6s^2 F$	$6s^2 F_{3\frac{1}{2}}$	13311.3	$6s^4 P$	$5d^8 7s$	$8_{2\frac{1}{2}}$	96412.7	
$5d^8 6s^4 P$	$2_{1\frac{1}{2}}$	16382.4		448.5	$5d^8 6d^4 H$	$9_{5\frac{1}{2}}$	99850.5
$5d^8 6s^4 P$	$3_{\frac{1}{2}}$	16930.9	$6s^2 D$	$5d^8 6d^4 H$	$6d^4 H_{6\frac{1}{2}}$	99977.3	
$5d^8 6s^2 F$	$6s^2 F_{2\frac{1}{2}}$	18675.1	$6s^2 P$	$5d^8 6d^4 G$	$11_{5\frac{1}{2}}$	100279.8	
$5d^8 6s^2 D$	$4_{1\frac{1}{2}}$	19089.3	$6s^2 G$	$5d^8 6d^4 G$	$12_{4\frac{1}{2}}$	100600.9	
$5d^7 6s^2 4F$	$6s^2 4F_{4\frac{1}{2}}$	20093.0		$5d^8 6d^4 F$	$13_{4\frac{1}{2}}$	101510.5	
$5d^8 6s^2 P$	$5_{\frac{1}{2}}$	22469.5	$6s^2 4F$	$5d^8 6d^4 F$	$14_{3\frac{1}{2}}$	101646.8	
$5d^8 6s^2 G$	$6s^2 G_{3\frac{1}{2}}$	24244.1		9767.8	$5d^8 8s^4 F$	$8s^4 F_{4\frac{1}{2}}$	115840.0?
$5d^8 6s^2 G$	$6s^2 G_{4\frac{1}{2}}$	24475.7		1836.8	$5d^8 7d$	$15_{4\frac{1}{2}}$	119260.4
			1394.0	$5d^8 7d$	$16_{4\frac{1}{2}}$	119700.8	

* Columns: (1) electron configuration and possible type; (2) name; (3) level.

† High even levels are calculated from arc or Schuler tube wave numbers which are approximately 2.5 greater than the spark wave numbers given in the table.

TABLE II. ODD LEVELS

I*	2	3	4	I*	2	3	4
$5d^86p^4D$	$6p^4D_{3\frac{1}{2}}^{\circ}$	46621.7	11	$53_{2\frac{1}{2}}^{\circ}$	73257.4	5	
$5d^86p^4G$	$20_{4\frac{1}{2}}^{\circ}$	49088.9	9	$54_{4\frac{1}{2}}^{\circ}$	74120.2	5	
$5d^86p^4D$	$21_{1\frac{1}{2}}^{\circ}$	51801.6	11	$55_{2\frac{1}{2}}^{\circ}$	74821.5	6	
$5d^86p^4G$	$22_{2\frac{1}{2}}^{\circ}$	52231.7	14	$91_{2\frac{1}{2}}^{\circ}$	76072.1	4	
$5d^86p^4F$	$23_{4\frac{1}{2}}^{\circ}$	56121.2	12	$56_{3\frac{1}{2}}^{\circ}$	77111.3	6	
$5d^86p^4G$	$6p^4G_{5\frac{1}{2}}^{\circ}$	56272.0	9	57°	77749.9	4	
$5d^86p^4D$	$24_{2\frac{1}{2}}^{\circ}$	56403.7	15	$89_{1\frac{1}{2}}^{\circ}$	78037.9	5	
$5d^86p^4F$	$25_{3\frac{1}{2}}^{\circ}$	56879.0	17	$58_{2\frac{1}{2}}^{\circ}$	78186.7	6	
$5d^86p^4D$	26°	57995.6	7	$59_{3\frac{1}{2}}^{\circ}$	78566.1	4	
	$27_{4\frac{1}{2}}^{\circ}$	58034.0	10	$60_{3\frac{1}{2}}^{\circ}$	79396.7	5	
	28°	58952.6	16	$61_{3\frac{1}{2}}^{\circ}$	80914.5	4	
	$29_{1\frac{1}{2}}^{\circ}$	59602.4	9	$62_{2\frac{1}{2}}^{\circ}$	84821.6	4	
	$30_{2\frac{1}{2}}^{\circ}$	59971.0	12	$63_{3\frac{1}{2}}^{\circ}$	85077.3	5	
	$31_{2\frac{1}{2}}^{\circ}$	60564.8	12	$90_{2\frac{1}{2}}^{\circ}$	87635.4	5	
	32°	60800.8	5	$64_{3\frac{1}{2}}^{\circ}$	88449.5	6	
	$33_{1\frac{1}{2}}^{\circ}$	61241.7	11	$65_{3\frac{1}{2}}^{\circ}$	88696.0	4	
	34°	61648.0	12	$66_{4\frac{1}{2}}^{\circ}$	89236.3	4	
	$35_{2\frac{1}{2}}^{\circ}$	63871.8	5	$67_{2\frac{1}{2}}^{\circ}$	90968.3	5	
	$36_{1\frac{1}{2}}^{\circ}$	64449.5	6	$68_{3\frac{1}{2}}^{\circ}$	92844.3	6	
	$37_{2\frac{1}{2}}^{\circ}$	65167.1	11	$69_{2\frac{1}{2}}^{\circ}$	93400.9	5	
	38°	65394.7	4	$70_{3\frac{1}{2}}^{\circ}$	94031.3	7	
	$39_{2\frac{1}{2}}^{\circ}$	65592.6	11	$71_{2\frac{1}{2}}^{\circ}$	94423.0	9	
	$40_{2\frac{1}{2}}^{\circ}$	66528.4	10	$72_{2\frac{1}{2}}^{\circ}$	95011.1	4	
	$41_{2\frac{1}{2}}^{\circ}$	67162.3	8	$73_{2\frac{1}{2}}^{\circ}$	95453.1	9	
	$42_{2\frac{1}{2}}^{\circ}$	68204.9?	3	$74_{1\frac{1}{2}}^{\circ}$	95825.4	4	
	$43_{1\frac{1}{2}}^{\circ}$	68240.1	9	$75_{1\frac{1}{2}}^{\circ}$	96009.3	7	
	$44_{4\frac{1}{2}}^{\circ}$	68644.7	3	$76_{3\frac{1}{2}}^{\circ}$	96117.2	5	
	$45_{2\frac{1}{2}}^{\circ}$	68975.6	7	$77_{2\frac{1}{2}}^{\circ}$	96555.6	6	
	$92_{1\frac{1}{2}}^{\circ}$	69213.5	5	$78_{2\frac{1}{2}}^{\circ}$	96616.9	11	
	$46_{1\frac{1}{2}}^{\circ}$	69455.2	6	$79_{3\frac{1}{2}}^{\circ}$	96729.3?	4	
	$47_{2\frac{1}{2}}^{\circ}$	69833.0	7	$80_{3\frac{1}{2}}^{\circ}$	96762.8	5	
	$48_{3\frac{1}{2}}^{\circ}$	69959.7	6	$81_{5\frac{1}{2}}^{\circ}$	96832.2	3	
	88°	69968.6	4	$82_{2\frac{1}{2}}^{\circ}$	97081.1	4	
	$49_{3\frac{1}{2}}^{\circ}$	70398.7	9	$83_{2\frac{1}{2}}^{\circ}$	97130.7	5	
	$50_{1\frac{1}{2}}^{\circ}$	70795.6	7	$84_{4\frac{1}{2}}^{\circ}$	97300.0	5	
	$51_{2\frac{1}{2}}^{\circ}$	71675.5	10	$85_{2\frac{1}{2}}^{\circ}$	97628.6	9	
	$93_{1\frac{1}{2}}^{\circ}$	71824.1	8	$86_{2\frac{1}{2}}^{\circ}$	98677.3	8	
	$52_{4\frac{1}{2}}^{\circ}$	72733.3	5	$87_{3\frac{1}{2}}^{\circ}$	98730.8	7	

* Columns: (1) electron configuration and possible type; (2) name; (3) level; (4) number of combinations.

quite weakly by helium. The energy of the neon ion (173,930 wave numbers) is capable of exciting the platinum atom to 95,376 wave numbers in the first ion starting from the lowest level of the atom (J. J. Livingood 1929). The presence of many metastable arc levels accounts for the additional energy observed. The levels between 80,000 and 90,000 are excited more strongly by helium than by neon, probably because of the helium resonance which falls about 81,300 in Pt II. The levels above 110,000 are excited by helium only.

The ionization limit can be calculated roughly from the levels $6s^4F_{4\frac{1}{2}}$ and $7s^4F_{4\frac{1}{2}}$. If the reasonably certain $8s^4F_{4\frac{1}{2}}$ level is accepted, a more accurate value can be calculated by means of a Ritz formula. This calculation gives 144,936 wave numbers for the difference $5d^86s^4F_{4\frac{1}{2}} - 5d^8^3F_4$, making the Rydberg series value 4.2% too high. The

ON THE FIRST SPARK SPECTRUM OF PLATINUM

459

similar calculation in Hg II gives 4%, an agreement which lends support to the identification of $8s^4F_{4\frac{1}{2}}$ (H. N. Russell 1927). The ionization potential is 18.47 V from $5d^9^2D_{2\frac{1}{2}}$ to $5d^8^3F_4$.

The line list (Table III) includes the following:

- (1) $\lambda 976$ – 1242 , identified lines only.
- (2) $\lambda 1242$ – 4514 , all certain low transition lines and all identified high transition lines.

There have been omitted 136 unidentified diffuse lines and about 1000 other lines most of which are weak and observed only in the Schuler tube.

In fig. 4, Plate 6 are shown enlargements of typical platinum arc and spark spectra in the region $\lambda 1300$ – 2100 .

TABLE III. Pt II

All important lines to $\lambda 1242$. Identified lines only, shorter than $\lambda 1242$

Intensity				5	6	Classification
1*	2	3	4			
		2	10	4514.17	22146.3	$6s^2G_{4\frac{1}{2}}-6p^4D_{3\frac{1}{2}}^{\circ}$
		1	5	4288.40	23312.2	$6s^2^4F_{1\frac{1}{2}}-24_{2\frac{1}{2}}^{\circ}$
			3	4223.69	23669.3	$7_{2\frac{1}{2}}-21_{1\frac{1}{2}}^{\circ}$
			5	4148.30	24099.5	$7_{2\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
			0	4105.45	24351.0	$6_{1\frac{1}{2}}-21_{1\frac{1}{2}}^{\circ}$
			10	4061.66	24613.6	$6s^2G_{4\frac{1}{2}}-20_{4\frac{1}{2}}^{\circ}$
			20	4046.45	24706.1	$6s^2^4F_{2\frac{1}{2}}-24_{2\frac{1}{2}}^{\circ}$
			5	4034.17	24781.3	$6_{1\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
			3	4023.81	24845.1	$6s^2G_{3\frac{1}{2}}-20_{4\frac{1}{2}}^{\circ}$
			2	4014.31	24903.9	$6s^2^4F_{1\frac{1}{2}}-26_{\frac{1}{2}}^{\circ}$
	3	15	3	3970.06	25181.4	$6s^2^4F_{2\frac{1}{2}}-25_{3\frac{1}{2}}^{\circ}$
			5	3806.91	26260.6	$6s^2^4F_{3\frac{1}{2}}-23_{4\frac{1}{2}}^{\circ}$
			2	3770.96	26510.9	$6s^2^4F_{1\frac{1}{2}}-29_{1\frac{1}{2}}^{\circ}$
			10	3768.39	26529.0	$6s^2^4F_{4\frac{1}{2}}-6p^4D_{3\frac{1}{2}}^{\circ}$
			10	3766.40	26543.0	$6s^2^4F_{3\frac{1}{2}}-24_{2\frac{1}{2}}^{\circ}$
			5	3700.14	27018.3	$6s^2^4F_{3\frac{1}{2}}-25_{3\frac{1}{2}}^{\circ}$
			2	3668.03	27254.9	$6s^2^4F_{2\frac{1}{2}}-28_{3\frac{1}{2}}^{\circ}$
			3	3607.89	27709.2	$6s^2^4F_{1\frac{1}{2}}-32_{\frac{1}{2}}^{\circ}$
			10	3577.20	27946.9	$6s^2F_{2\frac{1}{2}}-6p^4D_{3\frac{1}{2}}^{\circ}$
			10	3571.99	27987.6	$6s^2G_{3\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
			15	3551.37	28150.1	$6s^2^4F_{1\frac{1}{2}}-33_{1\frac{1}{2}}^{\circ}$
			5	3548.47	28173.1	$6s^2^4F_{3\frac{1}{2}}-27_{4\frac{1}{2}}^{\circ}$
			10	3535.89	28273.4	$6s^2^4F_{2\frac{1}{2}}-30_{2\frac{1}{2}}^{\circ}$
			3	3477.67	28746.7	$7_{2\frac{1}{2}}-25_{3\frac{1}{2}}^{\circ}$
		0	5	3453.86	28944.9	
		1	10	3447.78	28995.9	$6s^2^4F_{4\frac{1}{2}}-20_{4\frac{1}{2}}^{\circ}$
		1	5	3383.84	29543.8	
		1	10	3340.08	29930.8	
			3	3273.05	30543.8	$6_{1\frac{1}{2}}-26^{\circ}$
		3	15	3243.71	30820.0	$7_{2\frac{1}{2}}-28_{3\frac{1}{2}}^{\circ}$
		3	15u	3197.956	31260.9	$31_{2\frac{1}{2}}^{\circ}-7s^4F_{3\frac{1}{2}}$

* Columns: (1) intensity in neon Schuler tube; (2) intensity in helium Schuler tube; (3) intensity in arc; (4) intensity in spark; (5) wave-length in air to $\lambda 2049.159$, then wave-length *in vacuo*; (6) wave number.

TABLE III (*continued*)

Intensity				5	6	Classification 7
1	2	3	4			
		0	3	3188.078	31357.8	$6s^2 4F_{1\frac{1}{2}}-36_{\frac{3}{2}}^{\circ}$
		0	5	3179.002	31438.5	
		0	2	3174.526	31491.7	
		2	10	3159.080	31645.7	$6s^2 2G_{4\frac{1}{2}}-23_{\frac{3}{2}}^{\circ}$
		1	5	3145.030	31787.0	$6s^2 4F_{3\frac{1}{2}}-34_{\frac{3}{2}}^{\circ}$
		3	10	3144.097	31796.5	$6s^2 2G_{4\frac{1}{2}}-6p^4 G_{5\frac{1}{2}}$
		0	5	3126.925	31971.1	
		1	10 <i>u</i>	3118.012	32062.5	$28_{\frac{3}{2}}^{\circ}-7s^4 F_{4\frac{1}{2}}$
			2	3082.453	32432.3	$7_{\frac{2}{2}}-31_{\frac{2}{2}}^{\circ}$
		0	5	3076.724	32492.7	
			3	3075.935	32501.2	$6s^2 4F_{1\frac{1}{2}}-39_{\frac{2}{2}}^{\circ}$
			3	3074.146	32519.9	$6_{\frac{1}{2}}-30_{\frac{2}{2}}^{\circ}$
			1	3063.446	32633.5	$6s^2 2G_{3\frac{1}{2}}-25_{\frac{3}{2}}^{\circ}$
		0	3	3056.071	32712.3	$4_{\frac{1}{2}}-21_{\frac{1}{2}}^{\circ}$
		3	15 <i>u</i>	3041.079	32893.5	$28_{\frac{3}{2}}^{\circ}-7s^4 F_{3\frac{1}{2}}$
		8	30 <i>u</i>	3031.216	32980.6	$27_{\frac{4}{2}}^{\circ}-7s^4 F_{4\frac{1}{2}}$
		1	5	3017.246	33133.2	
		0	3	3012.526	33185.1	
		15	35	3001.169	33310.7	$6s^2 2F_{3\frac{1}{2}}-6p^4 D_{3\frac{1}{2}}^{\circ}$
			0	2986.952	33469.2	$6s^2 4F_{2\frac{1}{2}}-37_{\frac{2}{2}}^{\circ}$
			1	2982.828	33515.5	$7_{\frac{2}{2}}-34_{\frac{3}{2}}^{\circ}$
		0	5	2979.806	33549.5	
		0	2	2979.181	33556.5	$6s^2 2F_{2\frac{1}{2}}-22_{\frac{2}{2}}^{\circ}$
			0	2979.032	33558.2	$6s^2 2G_{4\frac{1}{2}}-27_{\frac{4}{2}}^{\circ}$
		1	10 <i>du</i>	2958.491	33791.2	$6_{\frac{1}{2}}-33_{\frac{1}{2}}^{\circ}$
		0	3 <i>u</i>	2928.648	34135.5	$27_{\frac{4}{2}}^{\circ}-7s^4 F_{3\frac{1}{2}}$
		1	5	2914.123	34305.6	$25_{\frac{3}{2}}^{\circ}-7s^4 F_{4\frac{1}{2}}$
		3	15	2899.635	34477.0	$6s^2 2G_{4\frac{1}{2}}-28_{\frac{3}{2}}^{\circ}$
		5	15	2890.369	34587.5	$1_{\frac{2}{2}}-6p^4 D_{3\frac{1}{2}}^{\circ}$
			0	2880.346	34707.9	$6s^2 2G_{3\frac{1}{2}}-28_{\frac{3}{2}}^{\circ}$
		20	100 <i>u</i>	2877.520	34742.0	$6p^4 G_{5\frac{1}{2}}-7s^4 F_{4\frac{1}{2}}$
		10	40 <i>u</i>	2875.849	34762.2	$34_{\frac{3}{2}}^{\circ}-8_{\frac{2}{2}}^{\circ}$
			2	2870.224	34830.3	$6s^2 4F_{2\frac{1}{2}}-40_{\frac{2}{2}}^{\circ}$
		3	10	2866.893	34870.7	$3_{\frac{1}{2}}-21_{\frac{1}{2}}^{\circ}$
		1	5	2866.076	34880.7	
		10	40 <i>u</i>	2865.051	34893.2	$23_{\frac{4}{2}}^{\circ}-7s^4 F_{4\frac{1}{2}}$
		15	80 <i>u</i>	2860.678	34946.5	$25_{\frac{3}{2}}^{\circ}-7s^4 F_{3\frac{1}{2}}$
			2	2844.243	35148.5	$6s^2 4F_{1\frac{1}{2}}-43_{\frac{1}{2}}^{\circ}$
			1 <i>u</i>	2842.61	35168.6	$33_{\frac{1}{2}}^{\circ}-8_2$
		0	5	2842.027	35175.8	
			3	2831.552	35306.0	$6s^2 4F_{3\frac{1}{2}}-37_{\frac{2}{2}}^{\circ}$
		5	15	2822.492	35419.3	$2_{\frac{1}{2}}-21_{\frac{1}{2}}^{\circ}$
		5	30 <i>u</i>	2822.270	35422.1	$24_{\frac{4}{2}}^{\circ}-7s^4 F_{3\frac{1}{2}}$
		0	5	2818.876	35464.7	$6s^2 4F_{2\frac{1}{2}}-41_{\frac{2}{2}}^{\circ}$
		2	10	2814.001	35526.2	$5_{\frac{1}{2}}-26_{\frac{1}{2}}^{\circ}$
		0	8	2808.835	35591.5	
		10	40 <i>u</i>	2799.981	35704.0	$23_{\frac{4}{2}}^{\circ}-7s^4 F_{3\frac{1}{2}}$
		1	10	2797.807	35731.8	$6s^2 4F_{3\frac{1}{2}}-39_{\frac{2}{2}}^{\circ}$
		20	100	2794.213	35777.7	$6s^2 2F_{3\frac{1}{2}}-20_{\frac{4}{2}}^{\circ}$
		3	10	2788.625	35849.5	$2_{\frac{1}{2}}-22_{\frac{2}{2}}^{\circ}$
		15	50	2774.772	36028.1	$6s^2 4F_{4\frac{1}{2}}-23_{\frac{4}{2}}^{\circ}$
		0	3	2768.955	36104.1	
		3	15	2763.227	36178.9	$6s^2 4F_{4\frac{1}{2}}-6p^4 G_{5\frac{1}{2}}$
		3	20 <i>u</i>	2743.489	36439.2	$30_{\frac{5}{2}}^{\circ}-8_{\frac{2}{2}}^{\circ}$
			2 <i>u</i>	2740.39	36480.4	$37_{\frac{2}{2}}^{\circ}-14_{\frac{3}{2}}^{\circ}?$
		0	5	2735.758	36542.1	$6s^2 4F_{2\frac{1}{2}}-43_{\frac{1}{2}}^{\circ}$

ON THE FIRST SPARK SPECTRUM OF PLATINUM

461

TABLE III (continued)

Intensity							Classification
1	2	3	4	5	6	7	
		2	10	2726.414	36667.4		$6s^2 4F_{3\frac{1}{2}}-40_{2\frac{1}{2}}^{\circ}$
		0	5	2721.843	36729.0		
		5	20	2717.624	36786.0		$6s^2 4F_{4\frac{1}{2}}-25_{3\frac{1}{2}}^{\circ}$
		0	10	2710.928	36876.8		$6s^2 4F_{1\frac{1}{2}}-88_{\frac{1}{2}}^{\circ}$
			3	2699.393	37034.2		$7_{2\frac{1}{2}}-37_{2\frac{1}{2}}^{\circ}$
		2	10	2692.237	37132.8		$5_{\frac{1}{2}}-29_{1\frac{1}{2}}^{\circ}$
		0	5	2689.397	37172.0		$6s^2 G_{4\frac{1}{2}}-34_{3\frac{1}{2}}^{\circ}$
		0	5	2681.796	37275.4		
			3	2680.059	37301.5		$6s^2 4F_{3\frac{1}{2}}-41_{2\frac{1}{2}}^{\circ}$
		3	15	2679.129	37314.8		$4_{1\frac{1}{2}}-24_{2\frac{1}{2}}^{\circ}$
			0	2672.765	37403.3		$6s^2 G_{3\frac{1}{2}}-34_{3\frac{1}{2}}^{\circ}$
			0	2664.748	37515.9		$6s^2 4F_{2\frac{1}{2}}-92_{1\frac{1}{2}}^{\circ}$
			2	2651.503	37703.2		$6s^2 4F_{1\frac{1}{2}}-50_{1\frac{1}{2}}^{\circ}$
		2	10	2634.893	37940.9		$6s^2 4F_{4\frac{1}{2}}-27_{4\frac{1}{2}}^{\circ}$
		10	30	2625.338	38079.0		$6s^2 4F_{2\frac{1}{2}}-6p^2 D_{3\frac{1}{2}}^{\circ}$
		0	5	2621.503	38133.9		
		0	5	2621.032	38141.5		$6_{1\frac{1}{2}}-39_{2\frac{1}{2}}^{\circ}$
		8	30	2616.759	38203.8		$6s^2 F_{2\frac{1}{2}}-25_{3\frac{1}{2}}^{\circ}$
			2	2608.068	38331.1		$5_{\frac{1}{2}}-32_{\frac{1}{2}}^{\circ}$
			2	2603.685	38395.6		$7_{2\frac{1}{2}}-40_{2\frac{1}{2}}^{\circ}$
			3	2591.013	37583.4		$6s^2 4F_{1\frac{1}{2}}-51_{2\frac{1}{2}}^{\circ}$
			3	2583.160	37700.7		$6s^2 4F_{2\frac{1}{2}}-49_{3\frac{1}{2}}^{\circ}$
			3	2581.084	37731.8		$6s^2 4F_{1\frac{1}{2}}-93_{1\frac{1}{2}}^{\circ}$
		1	8	2578.404	37772.1		$5_{\frac{1}{2}}-33_{1\frac{1}{2}}^{\circ}$
		5	25	2572.618	37859.3		$6s^2 4F_{4\frac{1}{2}}-28_{3\frac{1}{2}}^{\circ}$
		0	3	2568.595	37920.1		$6s^2 F_{4\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
			1	2555.828	39114.5		$6s^2 4F_{3\frac{1}{2}}-45_{3\frac{1}{2}}^{\circ}$
			5u	2524.852	39594.4		$22_{2\frac{1}{2}}-7s^2 F_{3\frac{1}{2}}^{\circ}$
		5	25	2513.881	39767.2		$1_{2\frac{1}{2}}-21_{1\frac{1}{2}}^{\circ}$
		0	3	2497.928	40021.1		$2_{1\frac{1}{2}}-24_{2\frac{1}{2}}^{\circ}$
			3	2492.529	40107.8		$7_{2\frac{1}{2}}-43_{1\frac{1}{2}}^{\circ}$
			2	2491.413	40125.8		$6s^2 4F_{2\frac{1}{2}}-93_{1\frac{1}{2}}^{\circ}$
		3	10	2488.769	40168.4		
		3	10	2486.980	40197.3		$1_{2\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
		1	5	2482.027	40277.5		$6s^2 F_{2\frac{1}{2}}-28_{3\frac{1}{2}}^{\circ}$
		2	10	2467.593	40513.1		$4_{1\frac{1}{2}}-29_{1\frac{1}{2}}^{\circ}$
							$6s^2 4F_{3\frac{1}{2}}-44_{4\frac{1}{2}}^{\circ}$
		0	3	2455.144	40718.5		
		10	20	2450.432	40796.8		$6s^2 4F_{1\frac{1}{2}}-21_{1\frac{1}{2}}^{\circ}$
		0	2	2445.348	40881.7		$4_{1\frac{1}{2}}-30_{2\frac{1}{2}}^{\circ}$
		0	3	2443.100	40919.2		$6s^2 G_{4\frac{1}{2}}-38_{4\frac{1}{2}}^{\circ}$
		10	20	2442.617	40927.4		$6s^2 F_{2\frac{1}{2}}-29_{1\frac{1}{2}}^{\circ}$
		10	20	2434.452	41064.6		$3_{\frac{1}{2}}-26_{\frac{1}{2}}^{\circ}$
		0	5u	2433.495	41080.6		$31_{2\frac{1}{2}}^{\circ}-14_{3\frac{1}{2}}^{\circ}$
		2	5	2429.352	41150.7		$6s^2 G_{3\frac{1}{2}}-38_{4\frac{1}{2}}^{\circ}$
		20	50	2424.871	41226.8		$6s^2 4F_{1\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
		5	10	2420.811	41295.9		$6s^2 F_{2\frac{1}{2}}-30_{2\frac{1}{2}}^{\circ}$
			2	2419.270	41322.6		$7_{2\frac{1}{2}}-46_{1\frac{1}{2}}^{\circ}$
		1	5	2417.735	41348.5		$6s^2 G_{3\frac{1}{2}}-39_{2\frac{1}{2}}^{\circ}$
		2	5	2410.331	41475.5		$4_{1\frac{1}{2}}-31_{2\frac{1}{2}}^{\circ}$
		5	10	2405.722	41554.9		$6s^2 4F_{4\frac{1}{2}}-34_{3\frac{1}{2}}^{\circ}$
		0	2	2402.380	41612.7		$2_{1\frac{1}{2}}-26_{\frac{1}{2}}^{\circ}$
			10u	2400.577	41645.8		$28_{3\frac{1}{2}}^{\circ}-12_{4\frac{1}{2}}^{\circ}$
		10	20	2396.685	41711.6		$4_{1\frac{1}{2}}-32_{\frac{1}{2}}^{\circ}$
		0	3	2390.800	41814.3		$6s^2 4F_{3\frac{1}{2}}-51_{2\frac{1}{2}}^{\circ}$
			2	2390.067	41827.1		$7_{2\frac{1}{2}}-48_{3\frac{1}{2}}^{\circ}$
		5	10	2386.500	41889.6		$6s^2 F_{2\frac{1}{2}}-31_{2\frac{1}{2}}^{\circ}$

TABLE III (continued)

Intensity				5	6	Classification 7
1	2	3	4			
		1	20 <i>u</i>	2384·457	41925·4	$20_{4\frac{1}{2}}-7s\ 4F_{4\frac{1}{2}}$
		1	3	2378·065	42038·2	
		15	50	2377·276	42052·1	$6s\ 4F_{3\frac{1}{2}}-6p\ 4D_{3\frac{1}{2}}^{\circ}$
		2	8	2371·620	42152·4	$4_{1\frac{1}{2}}-33_{1\frac{1}{2}}^{\circ}$
			20 <i>u</i>	2366·499	42243·6	$27_{4\frac{1}{2}}-11_{5\frac{1}{2}}$
			2	2365·247	42265·9	$7_{2\frac{1}{2}}-49_{3\frac{1}{2}}^{\circ}$
			0	2364·254	42283·7	$6s\ 2G_{3\frac{1}{2}}-40_{2\frac{1}{2}}^{\circ}$
			0	2358·792	42381·6	$6_{1\frac{1}{2}}-47_{2\frac{1}{2}}$
		3	15	2348·544	42566·5	$6s\ 2F_{2\frac{1}{2}}-33_{1\frac{1}{2}}^{\circ}$
		1	5	2343·248	42662·7	$7_{2\frac{1}{2}}-50_{1\frac{1}{2}}^{\circ}$
		2	5	2342·773	42671·4	$3_{\frac{1}{2}}-29_{1\frac{1}{2}}$
			3 <i>u</i>	2341·536	42693·8	$28_{3\frac{1}{2}}-14_{3\frac{1}{2}}$
		1	25 <i>u</i>	2339·186	42736·5	$20_{4\frac{1}{2}}-7s\ 4F_{3\frac{1}{2}}$
		10	20	2335·190	42809·9	$6s\ 2F_{3\frac{1}{2}}-23_{4\frac{1}{2}}$
			1	2331·783	42872·5	$6s\ 2\ 4F_{3\frac{1}{2}}-52_{4\frac{1}{2}}^{\circ}$
		3	8	2326·331	42972·9	$6s\ 2F_{2\frac{1}{2}}-34_{3\frac{1}{2}}^{\circ}$
		10	20	2319·882	43092·4	$6s\ 2F_{3\frac{1}{2}}-24_{2\frac{1}{2}}$
		0	2	2317·908	43129·1	
		3	10	2313·029	43220·0	$2_{1\frac{1}{2}}-29_{1\frac{1}{2}}^{\circ}$
		15	50	2310·957	43258·8	$6s\ 4F_{2\frac{1}{2}}-21_{1\frac{1}{2}}^{\circ}$
			5 <i>u</i>	2299·515	43474·0	$27_{4\frac{1}{2}}-13_{4\frac{1}{2}}$
		0	5	2298·143	43500·0	
		2	5	2295·864	43543·1	$7_{2\frac{1}{2}}-51_{2\frac{1}{2}}^{\circ}$
			2	2294·570	43567·7	$6s\ 2F_{3\frac{1}{2}}-25_{3\frac{1}{2}}^{\circ}$
			3 <i>u</i>	2294·140	43575·9	$6p\ 4G_{5\frac{1}{2}}-9_{5\frac{1}{2}}$
			2	2293·471	43588·6	$2_{1\frac{1}{2}}-30_{2\frac{1}{2}}$
		10	30	2288·197	43689·0	$6s\ 4F_{2\frac{1}{2}}-22_{2\frac{1}{2}}^{\circ}$
		1	50 <i>u</i>	2287·499	43702·4	$6p\ 4G_{5\frac{1}{2}}-6d\ 4H_{6\frac{1}{2}}$
			15 <i>u</i>	2286·572	43719·9	$25_{3\frac{1}{2}}-12_{4\frac{1}{2}}$
			1 <i>u</i>	2286·190	43727·3	$23_{4\frac{1}{2}}-9_{5\frac{1}{2}}$
		1	3	2278·760	43869·9	$3_{\frac{1}{2}}-32_{2\frac{1}{2}}^{\circ}$
		1	30 <i>u</i>	2271·718	44005·9	$6p\ 4G_{5\frac{1}{2}}-11_{5\frac{1}{2}}$
		3	8	2267·245	44092·7	
		3	8	2266·417	44108·8	
			20 <i>u</i>	2263·987	44156·2	$23_{4\frac{1}{2}}-11_{5\frac{1}{2}}$
		3	15	2263·323	44169·1	$6s\ 2G_{4\frac{1}{2}}-44_{4\frac{1}{2}}^{\circ}$
			5 <i>u</i>	2262·900	44177·4	$22_{2\frac{1}{2}}-8_{5\frac{1}{2}}$
		5	15	2262·662	44182·0	$2_{1\frac{1}{2}}-31_{2\frac{1}{2}}$
		2	8	2260·500	44224·3	$6_{1\frac{1}{2}}-51_{2\frac{1}{2}}^{\circ}$
		1	3	2258·717	44259·2	$6s\ 2\ 4F_{3\frac{1}{2}}-54_{4\frac{1}{2}}^{\circ}$
		3	8	2256·104	44310·4	$3_{\frac{1}{2}}-33_{1\frac{1}{2}}$
			0 <i>u</i>	2255·250	44327·3	$6p\ 4G_{5\frac{1}{2}}-12_{4\frac{1}{2}}$
		3	8	2253·135	44368·8	$1_{2\frac{1}{2}}-24_{2\frac{1}{2}}$
		1	30 <i>u</i>	2251·918	44392·8	$6p\ 4D_{3\frac{1}{2}}-7s\ 4F_{4\frac{1}{2}}$
		10	30	2251·523	44400·6	$6s\ 2\ G_{3\frac{1}{2}}-44_{4\frac{1}{2}}^{\circ}$
		5	10	2250·627	44418·3	$2_{1\frac{1}{2}}-32_{3\frac{1}{2}}^{\circ}$
			15 <i>u</i>	2247·593	44478·2	$23_{4\frac{1}{2}}-12_{4\frac{1}{2}}$
		0	3	2246·505	44499·8	$6s\ 2G_{4\frac{1}{2}}-45_{3\frac{1}{2}}^{\circ}$
		30	100	2245·518	44519·3	$6s\ 4F_{3\frac{1}{2}}-20_{4\frac{1}{2}}^{\circ}$
			30 <i>u</i>	2240·993	44609·2	$21_{1\frac{1}{2}}-8_{2\frac{1}{2}}$
			5 <i>u</i>	2239·880	44631·4	$25_{3\frac{1}{2}}-13_{4\frac{1}{2}}$
		3	8	2235·303	44722·7	$6s\ 2F_{3\frac{1}{2}}-27_{4\frac{1}{2}}^{\circ}$
			50 <i>u</i>	2233·110	44766·7	$25_{3\frac{1}{2}}-14_{3\frac{1}{2}}$
			1	2232·320	44782·4	$4_{1\frac{1}{2}}-35_{2\frac{1}{2}}^{\circ}$
		3	8	2229·223	44844·7	$1_{2\frac{1}{2}}-25_{3\frac{1}{2}}$
		0	3	2228·493	44859·4	$2_{1\frac{1}{2}}-33_{1\frac{1}{2}}^{\circ}$
			2	2224·177	44946·4	$6s\ 2\ 4F_{1\frac{1}{2}}-89_{1\frac{1}{2}}^{\circ}$

ON THE FIRST SPARK SPECTRUM OF PLATINUM

463

TABLE III (continued)

Intensity				5	6	Classification
1	2	3	4			
		0	3	2223·481	44960·5	$6s^2\ ^4F_{3\frac{1}{2}}-55^{\circ}_{2\frac{1}{2}}$
		1	3	2222·215	44986·1	
			2	2215·383	45124·8	$7_{2\frac{1}{2}}-53^{\circ}_{2\frac{1}{2}}$
			$5u$	2211·510	45203·8	$6p\ ^4D_{3\frac{1}{2}}-7s\ ^4F_{3\frac{1}{2}}$
			$3u$	2209·848	45237·8	$6p\ ^4G_{5\frac{1}{2}}-13_{4\frac{1}{2}}$
			$20u$	2209·570	45243·5	$24^{\circ}_{2\frac{1}{2}}-14_{3\frac{1}{2}}$
		1	3	2206·726	45301·8	$6s^2\ ^4F_{4\frac{1}{2}}-38^{\circ}_{4\frac{1}{2}}$
		2	10	2205·041	45336·4	
		1	3	2203·881	45360·3	$4_{1\frac{1}{2}}-36^{\circ}$
			$50u$	2202·577	45387·2	$23^{\circ}_{4\frac{1}{2}}-13_{4\frac{1}{2}}$
		3	10	2202·008	45398·9	$6s\ ^4F_{1\frac{1}{2}}-24^{\circ}_{2\frac{1}{2}}$
			2	2201·289	45413·7	$6s^2\ ^4F_{2\frac{1}{2}}-56^{\circ}_{3\frac{1}{2}}$
		1	5	2197·890	45483·9	$6s^2\ G_{4\frac{1}{2}}-48^{\circ}_{3\frac{1}{2}}$
		0	3	2195·840	45526·4	
		0	2	2192·843	45588·6	$6s\ ^2G_{3\frac{1}{2}}-47^{\circ}_{2\frac{1}{2}}$
		10	30	2190·315	45641·2	$6s\ ^2F_{3\frac{1}{2}}-28^{\circ}_{3\frac{1}{2}}$
			3	2184·140	45770·3	$5_{\frac{1}{2}}-43_{1\frac{1}{2}}$
		3	10	2176·872	45923·0	$6s\ ^2G_{4\frac{1}{2}}-49^{\circ}_{3\frac{1}{2}}$
		2	5	2172·388	46017·8	
		0	3	2169·558	46077·8	$4_{1\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
		2	8	2165·949	46154·6	$6s\ ^2G_{3\frac{1}{2}}-49^{\circ}_{3\frac{1}{2}}$
			1	2157·280	46340·0	$6s\ ^4F_{2\frac{1}{2}}-89^{\circ}_{1\frac{1}{2}}$
		3	10	2150·230	46492·0	$6s\ ^2F_{2\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
		1	3	2149·698	46503·5	$4_{1\frac{1}{2}}-39^{\circ}_{2\frac{1}{2}}$
		20	100	2144·244	46621·7	$6s\ ^4F_{4\frac{1}{2}}-6p\ ^4D_{3\frac{1}{2}}$
		1	3	2142·499	46659·7	$6s\ ^2F_{3\frac{1}{2}}-30^{\circ}_{2\frac{1}{2}}$
		0	3	2141·156	46689·0	$7_{2\frac{1}{2}}-55^{\circ}_{2\frac{1}{2}}$
		10	30	2130·689	46918·3	$1_{2\frac{1}{2}}-28^{\circ}_{3\frac{1}{2}}$
		5	15	2127·402	46990·8	$6s\ ^4F_{1\frac{1}{2}}-26^{\circ}_{\frac{1}{2}}$
		10	30	2115·569	47253·6	$6s\ ^2F_{3\frac{1}{2}}-31^{\circ}_{2\frac{1}{2}}$
		0	3	2110·355	47370·3	$6_{1\frac{1}{2}}-53^{\circ}_{2\frac{1}{2}}$
			1	2107·651	47431·1	$6s\ ^2G_{3\frac{1}{2}}-51^{\circ}_{2\frac{1}{2}}$
		1	5	2105·062	47489·4	$2_{1\frac{1}{2}}-35^{\circ}_{2\frac{1}{2}}$
		3	10	2103·768	47518·6	$3_{\frac{1}{2}}-36^{\circ}_{\frac{1}{2}}$
		5	15	2101·585	47568·0	$1_{2\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
		10	20	2097·435	47662·1	$6s\ ^4F_{3\frac{1}{2}}-22^{\circ}_{2\frac{1}{2}}$
		1	5	2089·048	47853·4	$6s\ ^2F_{2\frac{1}{2}}-40^{\circ}_{2\frac{1}{2}}$
		5	10	2088·712	47861·1	$6s\ ^4F_{2\frac{1}{2}}-24^{\circ}_{2\frac{1}{2}}$
		1	3	2086·862	47903·5	
		2	5	2085·418	47936·7	$1_{2\frac{1}{2}}-30^{\circ}_{2\frac{1}{2}}$
		0	3	2079·767	48066·9	$2_{1\frac{1}{2}}-36^{\circ}_{\frac{1}{2}}$
		0	3	2079·492	48073·3	$4_{1\frac{1}{2}}-41^{\circ}_{2\frac{1}{2}}$
		5	10	2075·388	48168·3	$5d\ ^2D_{1\frac{1}{2}}-21^{\circ}_{1\frac{1}{2}}$
		0	5	2071·547	48257·6	$6s\ ^2G_{4\frac{1}{2}}-52^{\circ}_{4\frac{1}{2}}$
			1	2068·629	48325·7	$5_{\frac{1}{2}}-50^{\circ}_{1\frac{1}{2}}$
		5	10	2068·162	48336·6	$6s\ ^4F_{2\frac{1}{2}}-25^{\circ}_{3\frac{1}{2}}$
			2	2061·715	48487·8	$6s\ ^2F_{3\frac{1}{2}}-34^{\circ}_{3\frac{1}{2}}$
		2	5	2061·639	48489·5	$6s\ ^2F_{2\frac{1}{2}}-41^{\circ}_{2\frac{1}{2}}$
		3	10	2059·894	48530·6	$6s\ ^2G_{3\frac{1}{2}}-52^{\circ}_{4\frac{1}{2}}$
		1	5	2058·973	48552·3	$1_{2\frac{1}{2}}-31^{\circ}_{2\frac{1}{2}}$
		5	15	2057·003	48598·8	$6s^2\ ^4F_{4\frac{1}{2}}-44^{\circ}_{4\frac{1}{2}}$
			1	2056·057	48621·1	$5d\ ^2D_{1\frac{1}{2}}-22^{\circ}_{2\frac{1}{2}}$
		$10d$	$10d$	2049·367	48779·8	$6_{1\frac{1}{2}}-91^{\circ}_{2\frac{1}{2}}$
		5	15	2049·159	48784·8	$2_{1\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
15	15	30	40	2042·227*	48966·2	$6s\ ^4F_{1\frac{1}{2}}-30^{\circ}_{2\frac{1}{2}}$

* Wave-lengths *in vacuo* from here.

TABLE III (continued)

Intensity							Classification
1	2	3	4	5	6	7	
50	50	50	100	2037·119	49088·9	$6s^4F_{4\frac{3}{2}}-20_{4\frac{3}{2}}^\circ$	
1	1	3	8	2032·103	49210·1	$2_{1\frac{1}{2}}-39_{2\frac{1}{2}}^\circ$	
1	1	2	10	2026·159	49354·5	$5_{\frac{1}{2}}-93_{1\frac{1}{2}}^\circ$	
0	3	5	10	2018·985	49529·8	$6s^2F_{2\frac{1}{2}}-42_{2\frac{1}{2}}^\circ$	
8	15	5	10	2017·545	49565·2	$3_{\frac{1}{2}}-43_{1\frac{1}{2}}^\circ$	
10	5	30	40	2015·579	49613·5	$1_{2\frac{1}{2}}-34_{3\frac{1}{2}}^\circ$	
2	10	3	10	2004·983	49875·7	$6s^2G_{3\frac{1}{2}}-54_{4\frac{1}{2}}^\circ$	
1	2	5	15	2003·798	49905·2	$7_{2\frac{1}{2}}-89_{1\frac{1}{2}}^\circ$	
1	0	20?	5?	1997·831	50054·3	$7_{2\frac{1}{2}}-58_{2\frac{1}{2}}^\circ$	
10	15	15	20	1990·567	50237·0	$6s^4F_{1\frac{1}{2}}-33_{1\frac{1}{2}}^\circ$	
3	10	5	20	1988·054	50300·5	$6s^2F_{2\frac{1}{2}}-45_{3\frac{1}{2}}^\circ$	
3	5	5	20	1987·846	50305·7	$6s^2^4F_{4\frac{1}{2}}-49_{3\frac{1}{2}}^\circ$	
15	15	20	30	1983·737	50409·9	$6s^4F_{2\frac{1}{2}}-28_{3\frac{1}{2}}^\circ$	
3	?	5	10	1979·872	50508·3		
2	5	1	5	1978·690	50538·5	$6s^2F_{2\frac{1}{2}}-92_{1\frac{1}{2}}^\circ$	
0	1	2	10	1976·776	50587·4	$6_{1\frac{1}{2}}-89_{1\frac{1}{2}}^\circ$	
5	10			1969·994	50761·6	$20_{4\frac{1}{2}}-9_{5\frac{1}{2}}^\circ$	
2	5	5	15	1969·266	50780·3	$2_{1\frac{1}{2}}-41_{2\frac{1}{2}}^\circ$	
2	3	3	10	1965·426	50879·6	$4_{1\frac{1}{2}}-88_{\frac{1}{2}}^\circ$	
5	10	10	10	1958·492	51059·7	$6s^4F_{2\frac{1}{2}}-29_{\frac{1}{2}}^\circ$	
8	15	15	20	1954·734	51157·9	$6s^2F_{2\frac{1}{2}}-47_{2\frac{1}{2}}^\circ$	
5	8	5	5	1951·764	51235·8		
8	20	20	30	1949·901	51284·7	$6s^2F_{2\frac{1}{2}}-48_{3\frac{1}{2}}^\circ$	
3	8	5	10	1948·959	51309·5	$3_{\frac{1}{2}}-43_{1\frac{1}{2}}^\circ$	
		2	1	1945·216	51408·2	$5d^2D_{2\frac{1}{2}}-6p^4D_{3\frac{1}{2}}^\circ$	
10	15	20	20	1944·455	51428·3	$6s^4F_{2\frac{1}{2}}-30_{2\frac{1}{2}}^\circ$	
5	15	5	15	1942·098	51490·7		
15	20	40	30	1939·800	51551·7	$6s^4F_{3\frac{1}{2}}-23_{4\frac{1}{2}}^\circ$	
2	1	2	10	1934·008	51706·1	$4_{1\frac{1}{2}}-50_{1\frac{1}{2}}^\circ$	
2	2	3	10	1933·345	51723·8	$6s^2F_{2\frac{1}{2}}-49_{3\frac{1}{2}}^\circ$	
8	20	15	30	1929·677	51822·2	$2_{1\frac{1}{2}}-42_{2\frac{1}{2}}^\circ$	
2	2	5	10	1929·457	51828·1	$6s^2G_{3\frac{1}{2}}-91_{2\frac{1}{2}}^\circ$	
15	20	30	30	1929·250	51833·6	$6s^4F_{3\frac{1}{2}}-24_{2\frac{1}{2}}^\circ$	
5	10	10	10	1929·140	51836·6	$1_{2\frac{1}{2}}-35_{2\frac{1}{2}}^\circ$	
5	10	15	20	1928·426	51855·8	$6s^2F_{3\frac{1}{2}}-37_{2\frac{1}{2}}^\circ$	
1		1	5	1928·367	51857·4	$2_{1\frac{1}{2}}-43_{1\frac{1}{2}}^\circ$	
3	8	5	20	1926·153	51917·0		
		0	3	1922·253	52022·3	$6s^4F_{2\frac{1}{2}}-31_{\frac{1}{2}}^\circ$	
3	10	0	3	1919·954	52084·6	$6s^2F_{3\frac{1}{2}}-38_{4\frac{1}{2}}^\circ$	
		1	5	1918·632	52120·5	$6s^2F_{2\frac{1}{2}}-50_{1\frac{1}{2}}^\circ$	
3	3	10	10	1912·730	52281·3	$6s^2F_{3\frac{1}{2}}-39_{2\frac{1}{2}}^\circ$	
30	30	50	50	1911·702	52309·4	$6s^4F_{3\frac{1}{2}}-25_{3\frac{1}{2}}^\circ$	
5	15	10	15	1909·336	52374·2		
3	5	10	8	1903·877	52524·5	$3_{\frac{1}{2}}-46_{\frac{1}{2}}^\circ$	
2	5	5	10	1901·636	52586·3	$4_{1\frac{1}{2}}-51_{2\frac{1}{2}}^\circ$	
3	2	10	5	1897·569	52699·0	$6s^4F_{2\frac{1}{2}}-33_{1\frac{1}{2}}^\circ$	
2	2	10	8	1896·283	52734·8	$4_{1\frac{1}{2}}-93_{1\frac{1}{2}}^\circ$	
5	5	20	10	1894·995	52770·6	$5d^2D_{1\frac{1}{2}}-24_{2\frac{1}{2}}^\circ$	
1	3	5	8	1894·538	52783·3	$7_{2\frac{1}{2}}-61_{3\frac{1}{2}}^\circ$	
5	?	10	10	1891·526	52867·4	$6s^4F_{1\frac{1}{2}}-35_{\frac{1}{2}}^\circ$	
						$6s^2G_{3\frac{1}{2}}-56_{3\frac{1}{2}}^\circ$	
2	3	2	8	1890·059	52908·4		
15	20	50	50	1889·516	52923·6		
2	2	5	5	1884·196	53073·0	$2_{1\frac{1}{2}}-46_{1\frac{1}{2}}^\circ$	
30	30	40	40	1883·051	53105·3	$6s^4F_{2\frac{1}{2}}-34_{\frac{1}{2}}^\circ$	
		3	5	1881·505	53149·0	$6s^2F_{2\frac{1}{2}}-93_{1\frac{1}{2}}^\circ$	
20	20	30	30	1879·094	53217·1	$6s^2F_{3\frac{1}{2}}-40_{2\frac{1}{2}}^\circ$	

ON THE FIRST SPARK SPECTRUM OF PLATINUM

465

TABLE III (continued)

Intensity				5	6	Classification
1	2	3	4			
8	15	5	5	1871.590	53430.6	
5	3	8	5	1871.093	53444.7	$6s^4F_{1\frac{1}{2}}-36^\circ$
8	10	10	10	1870.885	53450.6	$2_{1\frac{1}{2}}-47^\circ_{2\frac{1}{2}}$
20	30	30	20	1870.404	53464.4	$6s^4F_{3\frac{1}{2}}-27^\circ_{4\frac{1}{2}}$
3	10	10	10	1868.968	53505.5	
20	20	30	20	1867.122	53558.4	$1_{2\frac{1}{2}}-39^\circ_{2\frac{1}{2}}$
2	2	3	5	1866.150	53586.3	$2_{1\frac{1}{2}}-88^\circ_{\frac{1}{2}}$
3	8	8	10	1856.959	53851.4	$6s^2F_{3\frac{1}{2}}-41^\circ_{2\frac{1}{2}}$
		1	3	1850.913	54027.4	$6s^2F_{4\frac{1}{2}}-54^\circ_{4\frac{1}{2}}$
		1	3	1848.749	54090.6	$6s^2G_{4\frac{1}{2}}-59^\circ_{2\frac{1}{2}}$
		2	3	1846.301	54162.4	$6s^4F_{1\frac{1}{2}}-37^\circ_{2\frac{1}{2}}$
3	15	5	10	1840.877	54321.9	$6s^2G_{3\frac{1}{2}}-59^\circ_{3\frac{1}{2}}$
5	8	10	10	1839.517	54362.1	$5d^2D_{1\frac{1}{2}}-26^\circ_{\frac{1}{2}}$
5	10	10	10	1838.930	54379.4	
5	10	15	10	1838.810	54383.0	$6s^4F_{3\frac{1}{2}}-28^\circ_{3\frac{1}{2}}$
5	8	5	10	1837.793	54413.1	$2_{1\frac{1}{2}}-50^\circ_{1\frac{1}{2}}$
8	20	5	3	1836.497	54451.5	
5	10	15	20	1835.063	54494.1	$1_{2\frac{1}{2}}-40^\circ_{2\frac{1}{2}}$
5	5	10	15	1833.375	54544.2	$6s^2F_{1\frac{1}{2}}-90^\circ_{2\frac{1}{2}}$
1	1	5	8	1821.720	54893.2	$6s^2F_{3\frac{1}{2}}-42^\circ_{2\frac{1}{2}}$
						$3_{\frac{1}{2}}-93^\circ_{1\frac{1}{2}}$
5	10	8	15	1820.799	54921.0	$6s^2G_{4\frac{1}{2}}-60^\circ_{4\frac{1}{2}}$
5	5	5	10	1813.153	55152.6	$6s^2G_{3\frac{1}{2}}-60^\circ_{4\frac{1}{2}}$
1	1	2	3	1811.038	55217.0	$6s^2F_{3\frac{1}{2}}-63^\circ_{4\frac{1}{2}}$
1	1	2	5	1808.535	55293.4	$2_{1\frac{1}{2}}-51^\circ_{2\frac{1}{2}}$
1		2	2	1805.013	55401.2	$6s^4F_{3\frac{1}{2}}-30^\circ_{2\frac{1}{2}}$
3	8	3	3	1796.481	55664.4	$6s^2F_{3\frac{1}{2}}-45^\circ_{3\frac{1}{2}}$
5	10	5	4	1794.287	55732.4	$4_{1\frac{1}{2}}-55^\circ_{2\frac{1}{2}}$
5	10	5	5	1794.059	55739.5	
10	15	10	15	1785.867	55995.2	$6s^4F_{3\frac{1}{2}}-31^\circ_{2\frac{1}{2}}$
30	50	20	30	1781.858	56121.2	$6s^4F_{4\frac{1}{2}}-23^\circ_{4\frac{1}{2}}$
10	20	8	20	1779.200	56205.0	$1_{2\frac{1}{2}}-43^\circ_{1\frac{1}{2}}$
20	30	10	5	1777.270	56266.1	
50	50	50	50R	1777.086	56271.9	$6s^4F_{4\frac{1}{2}}-6p^4G_{5\frac{1}{2}}$
25	15	15	20	1775.012	56337.7	$5d^2D_{1\frac{1}{2}}-30^\circ_{2\frac{1}{2}}$
10	15	1	3	1769.486	56513.6	
20	15	15	8	1767.151	56588.3	$5d^2D_{2\frac{1}{2}}-21^\circ_{1\frac{1}{2}}$
10	10	10	10	1766.023	56624.4	$6s^4F_{2\frac{1}{2}}-37^\circ_{2\frac{1}{2}}$
50	30	10	3	1764.595	56670.2	
10	10	15	10	1758.118	56879.0	$6s^4F_{4\frac{1}{2}}-25^\circ_{3\frac{1}{2}}$
2	2	5	3	1756.500	56931.4	$5d^2D_{1\frac{1}{2}}-31^\circ_{2\frac{1}{2}}$
2	3	1	3	1756.204	56941.0	$1_{2\frac{1}{2}}-45^\circ_{3\frac{1}{2}}$
1		0	3	1754.910	56983.0	$4_{1\frac{1}{2}}-91^\circ_{2\frac{1}{2}}$
20	20	3	5	1753.823	57018.3	$5d^2D_{2\frac{1}{2}}-22^\circ_{2\frac{1}{2}}$
						$6s^2F_{4\frac{1}{2}}-56^\circ_{3\frac{1}{2}}$
3		3	5	1752.864	57049.5	$6s^4F_{2\frac{1}{2}}-39^\circ_{2\frac{1}{2}}$
?	?	5	30	1751.703	57087.3	$6s^2F_{3\frac{1}{2}}-49^\circ_{3\frac{1}{2}}$
5	8	5	8	1747.180	57235.1	$6s^4F_{1\frac{1}{2}}-43^\circ_{1\frac{1}{2}}$
15	3	3	10	1740.354	57459.6	
20	15	30	15	1735.858	57608.4	$5d^2D_{1\frac{1}{2}}-33^\circ_{1\frac{1}{2}}$
2	5	10	10	1731.413	57756.3	
3	5	15	10	1726.366	57925.1	$1_{2\frac{1}{2}}-48^\circ_{3\frac{1}{2}}$
5	5	15	10	1724.563	57985.7	$6s^4F_{2\frac{1}{2}}-40^\circ_{2\frac{1}{2}}$
50	30	50	30	1723.128	58034.0	$6s^4F_{4\frac{1}{2}}-27^\circ_{4\frac{1}{2}}$
3				1717.96	58208.5	$6s^4F_{1\frac{1}{2}}-92^\circ_{1\frac{1}{2}}$
2	15	1	0	1713.380	58364.2	$6s^2F_{3\frac{1}{2}}-51^\circ_{2\frac{1}{2}}$
						$1_{2\frac{1}{2}}-49^\circ_{3\frac{1}{2}}$

TABLE III (continued)

Intensity						Classification
1	2	3	4	5	6	7
2		5	3	1710·852	58450·4	$6s\ ^4F_{1\frac{1}{2}}-46^\circ_{1\frac{1}{2}}$
5	0	5	10	1708·736	58522·8	
5	5	10	5	1705·914	58619·6	$6s\ ^4F_{2\frac{1}{2}}-41^\circ_{2\frac{1}{2}}$
10	30	20	15	1704·765	58659·1	$4_{1\frac{1}{2}}-57^\circ_{\frac{1}{2}}$
	3			1703·852	58690·5	$6s^2\ ^4F_{3\frac{1}{2}}-64^\circ_{3\frac{1}{2}}$
8	8	20	8	1696·278	58952·6	$6s\ ^4F_{4\frac{1}{2}}-28^\circ_{3\frac{1}{2}}$
5	15	15	10	1686·246	59303·2	$6s\ ^4F_{3\frac{1}{2}}-35^\circ_{2\frac{1}{2}}$
						$6s^2\ ^4F_{4\frac{1}{2}}-60^\circ_{4\frac{1}{2}}$
			1	1680·596	59502·7	$7_{2\frac{1}{2}}-90^\circ_{2\frac{1}{2}}$
			1	1680·339	59511·8	$6s\ ^2F_{2\frac{1}{2}}-58^\circ_{2\frac{1}{2}}$
5	5	5	5	1679·193	59552·4	
	5			1678·752	59568·1	$6p\ ^4G^\circ_{5\frac{1}{2}}-8s\ ^4F_{4\frac{1}{2}}$
		0	1	1676·688	59641·4	$1_{2\frac{1}{2}}-51^\circ_{2\frac{1}{2}}$
	1			1674·51	59719·1	$23^\circ_{4\frac{1}{2}}-8s\ ^4F_{4\frac{1}{2}}$
10	10	10	5	1668·987	59916·6	
10	15	10	20	1659·484	60259·7	
		8	3	1654·724	60433·0	$6s\ ^4F_{2\frac{1}{2}}-45^\circ_{3\frac{1}{2}}$
2		10	5	1650·233	60597·5	$6s\ ^4F_{3\frac{1}{2}}-37^\circ_{2\frac{1}{2}}$
5		5	2	1648·256	60670·2	$6s\ ^4F_{1\frac{1}{2}}-51^\circ_{2\frac{1}{2}}$
						$6s\ ^4F_{2\frac{1}{2}}-92^\circ_{1\frac{1}{2}}$
3	5	3	5	1644·317	60815·6	$5d\ ^2D_{1\frac{1}{2}}-36^\circ_{\frac{1}{2}}$
2	5	3	3	1644·186	60820·4	$3_{\frac{1}{2}}-57^\circ_{\frac{1}{2}}$
						$6s\ ^4F_{1\frac{1}{2}}-93^\circ_{1\frac{1}{2}}$
1	1	2	3	1641·745	60910·8	$6s\ ^4F_{2\frac{1}{2}}-46^\circ_{1\frac{1}{2}}$
10	15	3	3	1634·265	61189·6	$5d\ ^2D_{2\frac{1}{2}}-24^\circ_{2\frac{1}{2}}$
	15			1633·330	61224·6	$27^\circ_{4\frac{1}{2}}-15^\circ_{4\frac{1}{2}}$
		2	1	1631·584	61290·1	$6s\ ^4F_{2\frac{1}{2}}-47^\circ_{2\frac{1}{2}}$
3	3	10	3	1622·183	61645·4	$6s\ ^4F_{4\frac{1}{2}}-34^\circ_{3\frac{1}{2}}$
30	30	50	30	1621·658	61665·3	$5d\ ^2D_{2\frac{1}{2}}-25^\circ_{3\frac{1}{2}}$
0		2	2	1618·037	61803·3	$2_{1\frac{1}{2}}-56^\circ_{2\frac{1}{2}}$
5	5	20	10	1613·976	61958·8	$5d\ ^2D_{1\frac{1}{2}}-39^\circ_{2\frac{1}{2}}$
						$6s\ ^4F_{3\frac{1}{2}}-40^\circ_{2\frac{1}{2}}$
5				1594·05	62733·3	$6s^2\ ^4F_{2\frac{1}{2}}-71^\circ_{2\frac{1}{2}}$
0				1591·778	62822·8	$6s^2\ ^4F_{1\frac{1}{2}}-74^\circ_{1\frac{1}{2}}$
3	2	8	5	1588·679	62945·4	$25^\circ_{3\frac{1}{2}}-16^\circ_{4\frac{1}{2}}$
	1			1587·674	62985·2	$6p\ ^4G^\circ_{5\frac{1}{2}}-15^\circ_{4\frac{1}{2}}$
	20			1583·850	63137·3	$23^\circ_{4\frac{1}{2}}-15^\circ_{4\frac{1}{2}}$
5		1	3	1579·45	63313·2	$6s^2\ ^4F_{2\frac{1}{2}}-72^\circ_{2\frac{1}{2}}$
2				1574·39	63516·7	$6_{\frac{1}{2}}-67^\circ_{2\frac{1}{2}}$
3		0	0	1573·83	63539·3	$6_{\frac{1}{2}}-67^\circ_{2\frac{1}{2}}$
	10			1572·800	63580·9	$6s^2\ ^4F_{3\frac{1}{2}}-69^\circ_{2\frac{1}{2}}$
10	10	20	10	1568·893	63739·2	$23^\circ_{4\frac{1}{2}}-16^\circ_{4\frac{1}{2}}$
1			0	1568·53	63754·0	$5d\ ^2D_{2\frac{1}{2}}-28^\circ_{3\frac{1}{2}}$
15		1	1	1554·94	64311·2	$6s^2\ ^4F_{2\frac{1}{2}}-73^\circ_{2\frac{1}{2}}$
8		10	10	1553·055	64389·2	$6s^2\ ^4F_{2\frac{1}{2}}-75^\circ_{1\frac{1}{2}}$
10		3	3	1552·33	64419·3	$5d\ ^2D_{2\frac{1}{2}}-29^\circ_{1\frac{1}{2}}$
3		0	0	1549·50	64537·0	$6s^2\ ^4F_{2\frac{1}{2}}-76^\circ_{3\frac{1}{2}}$
2		0	0	1548·900	64562·0	$6s^2\ ^4F_{1\frac{1}{2}}-85^\circ_{2\frac{1}{2}}$
15	5	10	10	1546·814	64649·1	$6s^2\ ^4F_{3\frac{1}{2}}-71^\circ_{2\frac{1}{2}}$
3	3	1		1545·241	64714·8	$6s\ ^4F_{2\frac{1}{2}}-53^\circ_{2\frac{1}{2}}$
2	1	5	5	1544·130	64761·4	$6s\ ^2G_{4\frac{1}{2}}-66^\circ_{4\frac{1}{2}}$
5		0	0	1541·830	64858·0	$6s^2\ ^4F_{1\frac{1}{2}}-77^\circ_{2\frac{1}{2}}$
3	2	0	2?	1536·640	65077·1	$1_{2\frac{1}{2}}-56^\circ_{3\frac{1}{2}}$
10		1	1	1534·90	65150·9	$6s^2\ ^4F_{3\frac{1}{2}}-72^\circ_{2\frac{1}{2}}$
1	1	1	2	1532·446	65255·2	$6s\ ^4F_{3\frac{1}{2}}-59^\circ_{3\frac{1}{2}}$
1		4	2	1532·260	65263·1	$6s\ ^4F_{3\frac{1}{2}}-47^\circ_{2\frac{1}{2}}$

ON THE FIRST SPARK SPECTRUM OF PLATINUM

467

TABLE III (continued)

Intensity				5	6	Classification
1	2	3	4			
10	10	20	15	1531.524	65294.4	
20	30	50	20	1530.190	65351.4	$5d^2D_{2\frac{1}{2}}-31^{\circ}_{2\frac{1}{2}}$
10	3	1		1529.460	65382.6	$6s^2^4F_{2\frac{1}{2}}-82^{\circ}_{2\frac{1}{2}}$
1	0	2	1	1529.288	65390.0	$6s^4F_{3\frac{1}{2}}-48^{\circ}_{3\frac{1}{2}}$
10		1	2	1528.29	65432.7	$6s^2^4F_{2\frac{1}{2}}-83^{\circ}_{2\frac{1}{2}}$
30	5	15	10	1524.725	65585.6	$6s^2^4F_{1\frac{1}{2}}-86^{\circ}_{2\frac{1}{2}}$
10		1	2	1524.57	65592.3	$6s^2^4F_{3\frac{1}{2}}-73^{\circ}_{2\frac{1}{2}}$
10	10	10	15	1520.010	65789.1	
2				1517.46	65899.6	$7_{2\frac{1}{2}}-70^{\circ}_{3\frac{1}{2}}$
2		0	1	1516.74	65930.9	$6s^2^4F_{2\frac{1}{2}}-85^{\circ}_{2\frac{1}{2}}$
5	20?	5	3	1514.492	66028.8	$5d^2D_{2\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
50	2	10	10	1509.288	66256.4	$6s^2^4F_{3\frac{1}{2}}-76^{\circ}_{3\frac{1}{2}}$
2	3	5	5	1508.790	66278.3	$6s^4F_{2\frac{1}{2}}-55^{\circ}_{2\frac{1}{2}}$
1	1	2	2	1507.509	66334.6	$5d^2D_{1\frac{1}{2}}-88^{\circ}_{\frac{1}{2}}$
30	2	10	10	1506.279	66388.8	
30	30	50	20	1505.240	66434.6	$5d^2D_{2\frac{1}{2}}-34^{\circ}_{3\frac{1}{2}}$
30		3	5	1499.380	66694.3	$6s^2^4F_{3\frac{1}{2}}-77^{\circ}_{2\frac{1}{2}}$
3	5	10	8	1498.242	66744.9	$6s^4F_{1\frac{1}{2}}-57^{\circ}_{\frac{1}{2}}$
20	5	5	5	1498.104	66751.1	$6s^2^4F_{3\frac{1}{2}}-78^{\circ}_{2\frac{1}{2}}$
2			2	1495.47	66868.7	$6s^2^4F_{3\frac{1}{2}}-79^{\circ}_{3\frac{1}{2}}$
30	1			1494.724	66902.0	$6s^2^4F_{3\frac{1}{2}}-80^{\circ}_{3\frac{1}{2}}$
5				1493.00	66979.2	$6s^2^4F_{2\frac{1}{2}}-86^{\circ}_{2\frac{1}{2}}$
2		1	1	1491.80	67033.2	$6s^2^4F_{2\frac{1}{2}}-87^{\circ}_{3\frac{1}{2}}$
100	2	5	5	1482.823	67439.0	$6s^2^4F_{3\frac{1}{2}}-84^{\circ}_{4\frac{1}{2}}$
	1			1479.214	67603.5	$6s^2F_{3\frac{1}{2}}-61^{\circ}_{3\frac{1}{2}}$
3	10	10	10	1478.027	67657.8	
1				1477.257	67693.0	$7_{2\frac{1}{2}}-74^{\circ}_{1\frac{1}{2}}$
5		5	5	1475.632	67767.6	$6s^2^4F_{3\frac{1}{2}}-85^{\circ}_{2\frac{1}{2}}$
1	2	2	1	1467.056	68163.7	$6s^4F_{3\frac{1}{2}}-52^{\circ}_{4\frac{1}{2}}$
3		1	2	1462.664	68368.4	$6s^2G_{4\frac{1}{2}}-68^{\circ}_{3\frac{1}{2}}$
0				1461.492	68423.2	$7_{2\frac{1}{2}}-77^{\circ}_{3\frac{1}{2}}$
0		0	3	1460.303	68478.9	$7_{2\frac{1}{2}}-78^{\circ}_{2\frac{1}{2}}$
0				1458.619	68558.0	$6_{1\frac{1}{2}}-75^{\circ}_{1\frac{1}{2}}$
0	3	3	2	1458.387	68568.9	$6s^4F_{2\frac{1}{2}}-56^{\circ}_{3\frac{1}{2}}$
5	15	15	10	1457.668	68602.7	
5	20	10	8	1455.879	68687.0	$6s^4F_{3\frac{1}{2}}-53^{\circ}_{\frac{1}{2}}$
1		0		1452.011	68870.0	$6s^2^4F_{3\frac{1}{2}}-87^{\circ}_{3\frac{1}{2}}$
1		1	2	1449.802	68974.9	$6s^4F_{4\frac{1}{2}}-45^{\circ}_{3\frac{1}{2}}$
10	2	3	5	1447.797	69070.5	
5	8	10	8	1446.278	69143.0	
	8			1444.707	69218.2	$6p^4D_{3\frac{1}{2}}-8s^4F_{4\frac{1}{2}}$
5	20	5u	20d	1439.162	69484.9	
3	10	5	5	1437.813	69550.1	$6s^4F_{3\frac{1}{2}}-54^{\circ}_{2\frac{1}{2}}$
3				1437.694	69555.8	$6s^2G_{4\frac{1}{2}}-70^{\circ}_{3\frac{1}{2}}$
15	50	15	10	1436.309	69622.9	$5d^2D_{1\frac{1}{2}}-53^{\circ}_{2\frac{1}{2}}$
0		5	3	1435.888	69643.3	$6s^4F_{2\frac{1}{2}}-58^{\circ}_{2\frac{1}{2}}$
3		2u		1435.126	69680.3	$6_{1\frac{1}{2}}-83^{\circ}_{2\frac{1}{2}}$
1		0	2	1432.905	69788.3	$6s^2G_{3\frac{1}{2}}-70^{\circ}_{3\frac{1}{2}}$
3	3		0	1431.158	69873.5	$6s^2F_{2\frac{1}{2}}-64^{\circ}_{3\frac{1}{2}}$
15	50	50	30	1429.524	69953.4	$5d^2D_{2\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
0		10u	20?	1417.534	70545.0	$7_{2\frac{1}{2}}-86^{\circ}_{2\frac{1}{2}}$
	10			1416.191	70611.9	$20^{\circ}_{4\frac{1}{2}}-16^{\circ}_{4\frac{1}{2}}$
10	5	10d	10d	1410.127	70915.6	
3	10	5	2	1404.736	71187.8	$5d^2D_{1\frac{1}{2}}-55^{\circ}_{2\frac{1}{2}}$
15	20	20	10	1403.896	71230.4	
3	10	3	1	1403.480	71251.5	$2_{1\frac{1}{2}}-90^{\circ}_{2\frac{1}{2}}$
3	10	50	50	1402.236	71314.7	$5d^2D_{2\frac{1}{2}}-40^{\circ}_{2\frac{1}{2}}$

TABLE III (continued)

Intensity				Classification		
1	2	3	4	5	6	7
1	5	3	3	1398·555	71502·4	$6s^4F_{3\frac{1}{2}}-91_{2\frac{1}{2}}^{\circ}$
0	1	3	3	1398·407	71510·1	$6s^2F_{3\frac{1}{2}}-62_{2\frac{1}{2}}^{\circ}$
$2u$	$3u$	$8u$	$5u$	1393·386	71767·6	$6s^2F_{3\frac{1}{2}}-63_{4\frac{1}{2}}^{\circ}$
8	30	15	8	1389·875	71948·9	$5d^2D_{2\frac{1}{2}}-41_{2\frac{1}{2}}^{\circ}$
3	1	5	3	1383·266	72292·7	$6s^2F_{2\frac{1}{2}}-67_{2\frac{1}{2}}^{\circ}$
15	1	1	0	1382·040	72356·8	$6s^2G_{4\frac{1}{2}}-81_{5\frac{1}{2}}^{\circ}$
1		0		1381·841	72367·2	$6s^2G_{3\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
5	30	20	10	1380·475	72438·8	$5d^2D_{1\frac{1}{2}}-91_{2\frac{1}{2}}^{\circ}$
15	?	5	3	1378·947	72519·1	$6s^2G_{3\frac{1}{2}}-80_{3\frac{1}{2}}^{\circ}$
1	3	3	2	1378·524	72541·4	$6s^4F_{3\frac{1}{2}}-56_{3\frac{1}{2}}^{\circ}$
	15			1376·735	72635·6	$6p^4D_{3\frac{1}{2}}-13_{4\frac{1}{2}}^{\circ}$
10	50	20	10	1374·878	72733·7	$6s^4F_{4\frac{1}{2}}-52_{4\frac{1}{2}}^{\circ}$
5		1	1	1373·164	72824·5	$6s^2G_{4\frac{1}{2}}-84_{4\frac{1}{2}}^{\circ}$
8	30	20	10	1369·362	73026·7	$5d^2D_{2\frac{1}{2}}-43_{1\frac{1}{2}}^{\circ}$
1				1368·815	73055·9	$6s^2G_{3\frac{1}{2}}-84_{4\frac{1}{2}}^{\circ}$
	10			1368·372	73079·6	$6p^4D_{3\frac{1}{2}}-16_{4\frac{1}{2}}^{\circ}$
		0	0	1362·672	73385·2	$6s^2G_{3\frac{1}{2}}-85_{2\frac{1}{2}}^{\circ}$
		3	1	1354·707	73816·7	$6s^4F_{1\frac{1}{2}}-62_{2\frac{1}{2}}^{\circ}$
5	15	3	3	1351·349	74000·1	$5d^2D_{2\frac{1}{2}}-92_{2\frac{1}{2}}^{\circ}$
5	15	10	5	1349·226	74116·6	$5d^2D_{1\frac{1}{2}}-57_{1\frac{1}{2}}^{\circ}$
10	30	8	3	1349·161	74120·2	$6s^4F_{4\frac{1}{2}}-54_{4\frac{1}{2}}^{\circ}$
2		1	0	1348·265	74169·4	$6s^2F_{2\frac{1}{2}}-68_{3\frac{1}{2}}^{\circ}$
10	20	10	5	1346·950	74241·9	$5d^2D_{2\frac{1}{2}}-40_{1\frac{1}{2}}^{\circ}$
1		3		1345·435	74325·4	$6s^2F_{3\frac{1}{2}}-90_{2\frac{1}{2}}^{\circ}$
10	20	15	8	1344·012	74404·1	$5d^2D_{1\frac{1}{2}}-89_{1\frac{1}{2}}^{\circ}$
3		1	0	1342·517	74487·0	$6s^2G_{3\frac{1}{2}}-87_{3\frac{1}{2}}^{\circ}$
3	10	8	3	1341·333	74552·7	$5d^2D_{1\frac{1}{2}}-58_{2\frac{1}{2}}^{\circ}$
5	15	10	3	1340·132	74619·5	$5d^2D_{2\frac{1}{2}}-47_{2\frac{1}{2}}^{\circ}$
10	20	10	5	1337·856	74746·5	$5d^2D_{2\frac{1}{2}}-40_{3\frac{1}{2}}^{\circ}$
10	?	10	5	1330·051	75185·1	$5d^2D_{2\frac{1}{2}}-49_{3\frac{1}{2}}^{\circ}$
10	0	3	1	1327·421	75334·1	$4_{1\frac{1}{2}}-71_{2\frac{1}{2}}^{\circ}$
10	5	10	15	1323·276	75570·0	
2	3	5	5	1323·065	75582·1	$5d^2D_{2\frac{1}{2}}-50_{1\frac{1}{2}}^{\circ}$
1				1320·158	75748·5	$6s^2F_{2\frac{1}{2}}-71_{2\frac{1}{2}}^{\circ}$
1	2			1310·973	76279·2	$6s^4F_{2\frac{1}{2}}-62_{2\frac{1}{2}}^{\circ}$
0	2	5	3	1309·843	76345·1	$6s^4F_{3\frac{1}{2}}-61_{3\frac{1}{2}}^{\circ}$
3				1309·517	76364·0	$4_{1\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
10	30	30	30	1305·305	76610·4	$5d^2D_{2\frac{1}{2}}-93_{1\frac{1}{2}}^{\circ}$
0	1	5	5	1304·421	76662·4	$1_{2\frac{1}{2}}-65_{3\frac{1}{2}}^{\circ}$
10	0			1303·118	76739·0	$6s^2^4F_{4\frac{1}{2}}-81_{5\frac{1}{2}}^{\circ}$
10	1	2	1	1302·446	76778·6	$6s^2F_{2\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
5	20	20	15	1296·821	77111·6	$6s^4F_{4\frac{1}{2}}-56_{3\frac{1}{2}}^{\circ}$
3	15	20	15	1293·953	77252·6	
10				1293·082	77334·6	$6s^2F_{2\frac{1}{2}}-75_{1\frac{1}{2}}^{\circ}$
3	10	10	10	1291·695	77417·7	
3	3	10	10	1291·137	77451·1	
15	$2u$	5	$3u$	1289·940	77523·0	$4_{1\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
8	5	3	5	1286·442	77733·8	
8	20	15	20	1281·340	78043·3	$5d^2D_{2\frac{1}{2}}-53_{2\frac{1}{2}}^{\circ}$
10	1	0	2	1271·784	78629·7	$2_{1\frac{1}{2}}-72_{2\frac{1}{2}}^{\circ}$
3	15	5	5	1269·801	78752·5	
5	20	10	10	1268·752	78817·6	
5				1264·688	79070·9	$2_{1\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
8				1264·561	79078·8	$3_{1\frac{1}{2}}-75_{1\frac{1}{2}}^{\circ}$
5	20	15	10	1264·337	79092·8	$6s^4F_{2\frac{1}{2}}-90_{2\frac{1}{2}}^{\circ}$
10		2	1	1259·494	79397·0	$6s^4F_{4\frac{1}{2}}-60_{4\frac{1}{2}}^{\circ}$
2				1249·951	80003·1	$6s^2F_{2\frac{1}{2}}-86_{2\frac{1}{2}}^{\circ}$

ON THE FIRST SPARK SPECTRUM OF PLATINUM

469

TABLE III (continued)

Intensity				5	6	Classification
1	2	3	4			
1	2			1249·881	80007·2	$6s^4F_{2\frac{1}{2}}-64_{3\frac{3}{2}}^{\circ}$
2				1249·122	80056·2	$6s^2F_{2\frac{1}{2}}-87_{3\frac{3}{2}}^{\circ}$
40	5	5	5	1248·600	80089·8	$6s^2F_{3\frac{3}{2}}-69_{2\frac{1}{2}}^{\circ}$
2	3	2	2	1247·611	80153·2	$6s^4F_{2\frac{1}{2}}-65_{3\frac{3}{2}}^{\circ}$
2				1246·420	80229·8	$2_{1\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
3	15	1	1	1246·073	80252·1	$6s^4F_{3\frac{3}{2}}-62_{2\frac{1}{2}}^{\circ}$
3	15	0	0	1242·124	80507·3	$6s^4F_{3\frac{3}{2}}-63_{4\frac{1}{2}}^{\circ}$
3				1239·181	80698·5	$2_{1\frac{1}{2}}-82_{2\frac{1}{2}}^{\circ}$
15	3			1238·847	80720·2	$6s^2F_{3\frac{3}{2}}-70_{3\frac{3}{2}}^{\circ}$
5				1237·455	80811·0	$1_{2\frac{1}{2}}-68_{3\frac{3}{2}}^{\circ}$
10	30			1235·878	80914·1	$6s^4F_{4\frac{1}{2}}-61_{3\frac{3}{2}}^{\circ}$
10	1			1232·867	81111·8	$6s^2F_{3\frac{3}{2}}-71_{2\frac{1}{2}}^{\circ}$
15	1			1229·007	81366·5	$1_{2\frac{1}{2}}-69_{2\frac{1}{2}}^{\circ}$
1	5			1221·033	81897·9	$5d^2D_{2\frac{1}{2}}-56_{3\frac{3}{2}}^{\circ}$
3	3			1213·215	81425·6	$6s^4F_{2\frac{1}{2}}-67_{2\frac{1}{2}}^{\circ}$
5				1207·633	81806·6	$6s^2F_{3\frac{3}{2}}-76_{3\frac{3}{2}}^{\circ}$
2	5			1207·367	81824·9	$5d^2D_{2\frac{1}{2}}-89_{3\frac{3}{2}}^{\circ}$
	3			1205·211	81973·1	$5d^2D_{2\frac{1}{2}}-58_{2\frac{1}{2}}^{\circ}$
5				1201·279	83244·6	$6s^2F_{3\frac{3}{2}}-77_{3\frac{3}{2}}^{\circ}$
1				1200·454	83301·8	$6s^2F_{3\frac{3}{2}}-78_{2\frac{1}{2}}^{\circ}$
3	10			1199·724	83352·5	$5d^2D_{2\frac{1}{2}}-59_{3\frac{3}{2}}^{\circ}$
15	2			1198·781	83418·1	$6s^4F_{1\frac{1}{2}}-71_{2\frac{1}{2}}^{\circ}$
						$1_{2\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
5	10			1190·751	83980·7	$6s^2F_{3\frac{3}{2}}-79_{3\frac{3}{2}}^{\circ}$
5	0			1190·634	83988·7	$6s^4F_{3\frac{3}{2}}-64_{3\frac{3}{2}}^{\circ}$
5	15			1188·689	84126·3	$6s^2F_{3\frac{3}{2}}-84_{4\frac{1}{2}}^{\circ}$
30	5			1186·216	84301·7	$6s^4F_{3\frac{3}{2}}-65_{3\frac{3}{2}}^{\circ}$
2				1185·992	84317·6	$6s^4F_{2\frac{1}{2}}-68_{3\frac{3}{2}}^{\circ}$
2	0			1184·025	84450·5	$6s^2F_{3\frac{3}{2}}-85_{2\frac{1}{2}}^{\circ}$
10	2			1182·343	84577·8	$6s^4F_{1\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
10	25			1181·104	84666·5	$1_{2\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
8	0			1180·711	84694·7	$6s^4F_{3\frac{3}{2}}-66_{4\frac{1}{2}}^{\circ}$
8	1			1180·242	84728·4	$1_{2\frac{1}{2}}-79_{3\frac{3}{2}}^{\circ}$
25	3			1178·957	84820·7	$1_{2\frac{1}{2}}-80_{3\frac{3}{2}}^{\circ}$
10 ^d	5			1178·412	84860·0	$6s^4F_{1\frac{1}{2}}-74_{1\frac{1}{2}}^{\circ}$
5				1176·403	85004·9	$6s^4F_{2\frac{1}{2}}-69_{2\frac{1}{2}}^{\circ}$
5	20			1175·405	85077·1	$6s^4F_{1\frac{1}{2}}-75_{1\frac{1}{2}}^{\circ}$
10				1175·131	85096·9	$6s^4F_{4\frac{1}{2}}-63_{4\frac{1}{2}}^{\circ}$
5				1171·413	85367·0	$1_{2\frac{1}{2}}-83_{2\frac{1}{2}}^{\circ}$
40				1169·741	85489·0	$6s^2F_{3\frac{3}{2}}-86_{2\frac{1}{2}}^{\circ}$
40				1168·282	85595·8	$6s^4F_{2\frac{1}{2}}-70_{3\frac{3}{2}}^{\circ}$
8				1168·148	85605·6	$1_{2\frac{1}{2}}-85_{2\frac{1}{2}}^{\circ}$
20	3			1164·406	85880·7	$6s^4F_{1\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
1	1 ^u			1157·427	86398·5	$6s^4F_{2\frac{1}{2}}-71_{2\frac{1}{2}}^{\circ}$
0				1154·426	86623·1	$6s^4F_{3\frac{3}{2}}-67_{2\frac{1}{2}}^{\circ}$
10	2			1153·444	86696·9	$6s^4F_{1\frac{1}{2}}-85_{2\frac{1}{2}}^{\circ}$
8	2			1150·614	86910·1	$1_{2\frac{1}{2}}-87_{3\frac{3}{2}}^{\circ}$
2				1145·702	87282·7	$6s^4F_{2\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
0	0			1144·978	87337·9	$6s^4F_{2\frac{1}{2}}-74_{1\frac{1}{2}}^{\circ}$
20				1143·293	87466·6	$5d^2D_{1\frac{1}{2}}-67_{2\frac{1}{2}}^{\circ}$
8				1141·885	87574·5	$6s^4F_{2\frac{1}{2}}-75_{1\frac{1}{2}}^{\circ}$
3				1140·61	87672·4	$6s^4F_{2\frac{1}{2}}-76_{3\frac{3}{2}}^{\circ}$
15				1135·48	88068·5	$6s^4F_{1\frac{1}{2}}-86_{2\frac{1}{2}}^{\circ}$
15	0			1132·821	88275·2	$6s^4F_{2\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
0				1129·444	88539·2	$6s^4F_{3\frac{3}{2}}-68_{3\frac{3}{2}}^{\circ}$
1	3			1129·304	88550·2	$6s^4F_{2\frac{1}{2}}-82_{2\frac{1}{2}}^{\circ}$
						$6s^4F_{4\frac{1}{2}}-64_{3\frac{3}{2}}^{\circ}$

TABLE III (continued)

Intensity				Classification		
1	2	3	4	5	6	7
20	1			1128·839	88586·6	$6s^4F_{2\frac{1}{2}}-83_{2\frac{1}{2}}^{\circ}$
0	1			1127·453	88695·5	$6s^4F_{4\frac{1}{2}}-65_{3\frac{1}{2}}^{\circ}$
1				1125·738	88830·7	$6s^4F_{3\frac{1}{2}}-69_{2\frac{1}{2}}^{\circ}$
1				1122·510	89086·1	$6s^4F_{2\frac{1}{2}}-85_{2\frac{1}{2}}^{\circ}$
3	10			1120·622	89236·2	$6s^4F_{4\frac{1}{2}}-66_{4\frac{1}{2}}^{\circ}$
3				1117·828	89459·2	$6s^4F_{3\frac{1}{2}}-70_{3\frac{1}{2}}^{\circ}$
15	1			1112·925	89853·4	$6s^4F_{3\frac{1}{2}}-71_{2\frac{1}{2}}^{\circ}$
3				1109·460	90133·9	$6s^4F_{2\frac{1}{2}}-86_{2\frac{1}{2}}^{\circ}$
10	3			1105·702	90440·3	$6s^4F_{3\frac{1}{2}}-77_{2\frac{1}{2}}^{\circ}$
2				1100·319	90882·7	$6s^4F_{3\frac{1}{2}}-73_{2\frac{1}{2}}^{\circ}$
20	2			1087·126	91985·7	$6s^4F_{3\frac{1}{2}}-77_{3\frac{1}{2}}^{\circ}$
10				1086·459	92042·1	$6s^4F_{3\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
20	1			1084·688	92192·5	$5d^2D_{1\frac{1}{2}}-74_{1\frac{1}{2}}^{\circ}$
						$6s^4F_{3\frac{1}{2}}-80_{3\frac{1}{2}}^{\circ}$
5				1082·537	92375·6	$5d^2D_{1\frac{1}{2}}-75_{1\frac{1}{2}}^{\circ}$
0				1080·944	92511·7	$6s^4F_{3\frac{1}{2}}-82_{2\frac{1}{2}}^{\circ}$
30	3			1080·366	92561·3	$6s^4F_{3\frac{1}{2}}-83_{2\frac{1}{2}}^{\circ}$
10				1078·405	92729·5	$6s^4F_{3\frac{1}{2}}-84_{4\frac{1}{2}}^{\circ}$
30	5			1077·078	92843·8	$6s^4F_{4\frac{1}{2}}-68_{3\frac{1}{2}}^{\circ}$
0				1075·502	92979·8	$5d^2D_{1\frac{1}{2}}-78_{2\frac{1}{2}}^{\circ}$
5				1063·479	94031·0	$6s^4F_{4\frac{1}{2}}-70_{3\frac{1}{2}}^{\circ}$
5				1062·626	94106·5	$6s^4F_{3\frac{1}{2}}-86_{2\frac{1}{2}}^{\circ}$
3				1062·018	94160·4	$6s^4F_{3\frac{1}{2}}-87_{3\frac{1}{2}}^{\circ}$
10				1040·400	96116·9	$6s^4F_{4\frac{1}{2}}-76_{3\frac{1}{2}}^{\circ}$
2				1035·685	96554·5	$6s^4F_{4\frac{1}{2}}-77_{3\frac{1}{2}}^{\circ}$
0				1033·450	96763·3	$6s^4F_{4\frac{1}{2}}-80_{3\frac{1}{2}}^{\circ}$
10	1			1032·714	96832·2	$6s^4F_{4\frac{1}{2}}-81_{5\frac{1}{2}}^{\circ}$
2	1			1012·862	98730·2	$6s^4F_{4\frac{1}{2}}-87_{3\frac{1}{2}}^{\circ}$
1				1007·964	99209·9	$5d^2D_{2\frac{1}{2}}-71_{2\frac{1}{2}}^{\circ}$
1				976·419	102415·0	$5d^2D_{2\frac{1}{2}}-85_{2\frac{1}{2}}^{\circ}$

SUMMARY

The paper reports observations on the spectrum Pt II and classifies a large number of levels. A list of lines is also given including:

- (i) All identified lines between $\lambda 976$ and 1242 .
- (ii) All certain low-transition lines and all identified high-transition lines between $\lambda 1242$ and 4514 .

REFERENCES

- Boyce, J. C. and Robinson, H. A. 1936 *J. opt. Soc. Amer.* **26**, 133.
 Livingood, J. J. 1929 *Phys. Rev.* **34**, 185.
 Russell, H. N. 1927 *Astrophys. J.* **66**, 233.
 Selwyn, E. W. H. 1929 *Proc. Phys. Soc.* **41**, 392.
 Shenstone, A. G. and Russell, H. N. 1932 *Phys. Rev.* **39**, 415.
 Steimetz, C. P. 1900 "Alternating Current Phenomena", 4th ed., pp. 96, 111, omitted in later editions.

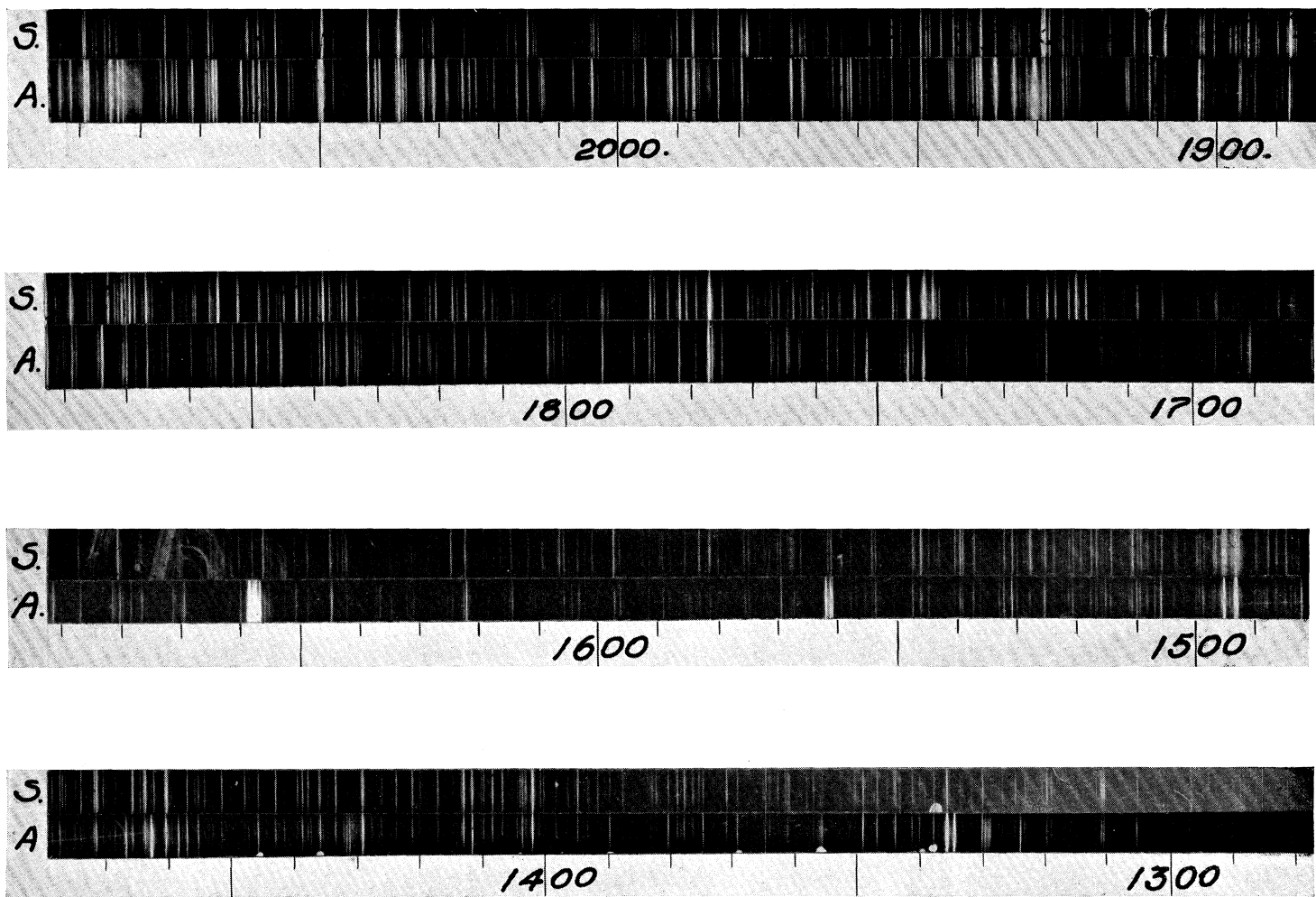


FIG. 4. Arc (*A*) and Spark (*S*) spectra of Platinum.

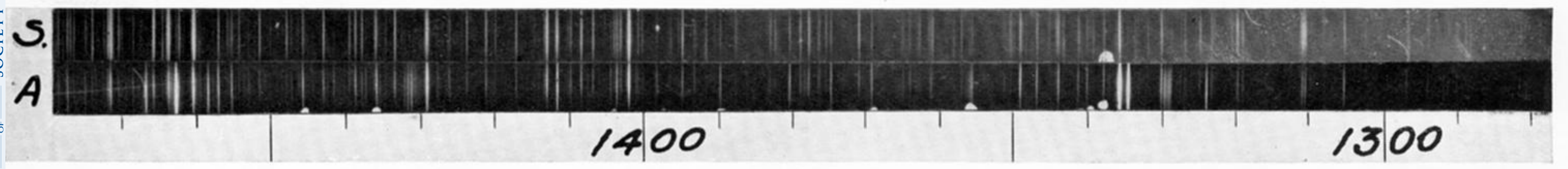
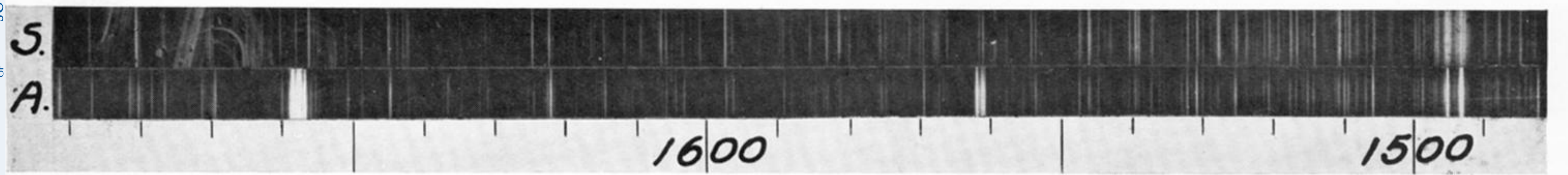
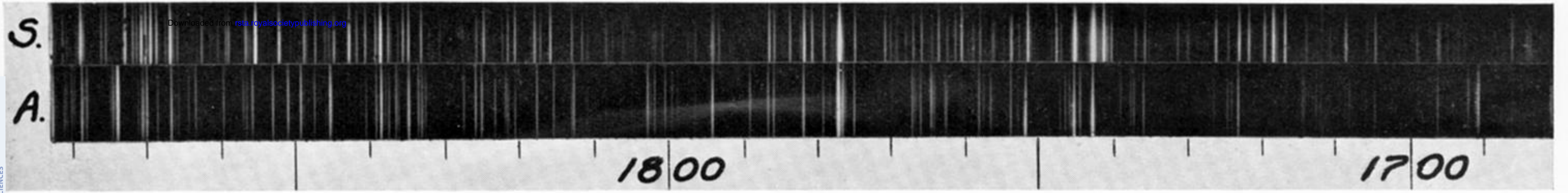
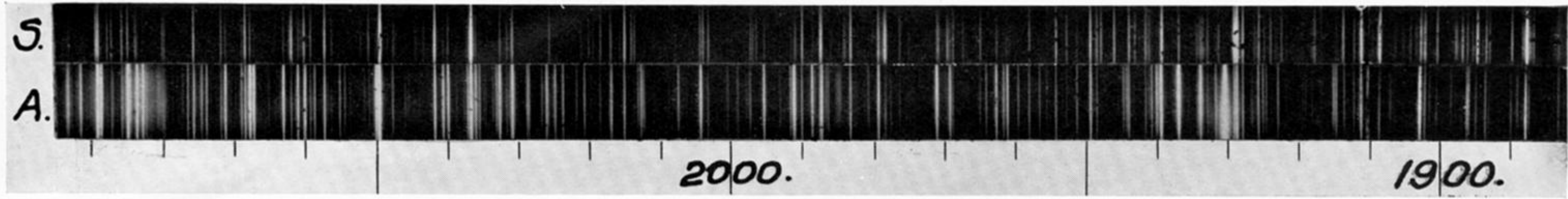


FIG. 4. Arc (A) and Spark (S) spectra of Platinum.