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Wavelengths, Intensities, and Zeeman Patterns in Ytterbium Spectra (Yb I, II, III, IV)

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In 1937, Meggers and Scribner published a paper on arc and spark spectra of ytterbium providing wavelengths, relative intensities, and spectrum numbers of 1668 spectral lines, including about 400 for Yb I, 1250 for Yb II, and 12 for Yb III. That work was handicapped by impure materials and conventional light sources. When pure ytterbium metal and new light sources became available in 1950, Meggers and Corliss decided to make a new description of ytterbium spectra. This new description includes data for 7300 spectral lines with wavelengths between 2000 Å and 12000 Å distributed as follows: 1800 belong to Yb I, 5100 to Yb II, 430 to Yb III, and 5 to Yb IV. The Zeeman effect on 1300 lines has been observed in magnetic field intensities ranging from 3.7 to 9.358 tesla (37000 to 93580 gauss). These data were obtained for chemical identifications and for structural analyses of the first two spectra of ytterbium.

Key Words: Spectra of ytterbium; ytterbium, spectra of; Zeeman effect in ytterbium; wavelengths of ytterbium.

1. Introduction

Although ytterbium was discovered in 1907, Meggers and Scribner [1][1] provided, in 1937, the first useful description of conventional arc and spark spectra of this element. That publication reviewed all earlier work and presented measured wavelengths of 1668 spectral lines ranging from 2073.70 Å to 10321.64 Å and estimated relative intensities from 1 to 2000. On the basis of relative intensities in arc and spark light sources, that description included the first deliberate assignment of lines to three successive spectra (about 400 to Yb I, 1250 to Yb II, and a dozen to Yb III), and for the first two provided the identification of electron configurations, spectral terms and series.

During the first half of this century, the major obstacle in making useful descriptions of the spectra that characterize the so-called rare earths was the difficulty in obtaining pure samples. For example [1] "our first measurements of Yb spectra were made in 1929 when samples of Lu and Yb oxides, prepared by Auer and obtained from Eder in 1919, were available. Although the chemical separation was far from complete, it was possible to make a fairly satisfactory assignment of lines to Lu and Yb by simultaneous comparison of arc and spark. However, both salts contained some Tm as impurity which could not be completely identified without comparable data for Tm spectra. The first sample of Tm salt available for this purpose was generously supplied in 1933 by B. S. Hopkins, University of Illinois, who also supplied three samples of Yb oxide; one of which contained more Lu than Tm, another more Tm than Lu, and the third was entirely free from both Lu and Tm but contained considerable lanthanum."

Through the courtesy of G. R. Harrison, Meggers in 1939 photographed the first Zeeman patterns of ytterbium lines by using the Bitter magnet and the concave gratings at the Massachusetts Institute of Technology. These results were an accidental by-product of the first attempt to observe the magnetic splitting of thulium lines, as the purest sample of thulium then available contained about 15 percent of ytterbium. These Zeeman data, and further observations of spark spectra, enabled Meggers [2] to confirm and greatly extend the earlier quantum interpretation of the Yb II spectrum [1], but it also became obvious that the structural analyses of Yb spectra could not be satisfactorily extended without additional experimental data.

Since 1945, several contributions to the data of ytterbium spectra have been presented by others. Gatterer and Junkes [3] presented wavelengths and relative intensities of 1476 ytterbium lines observed in arc and spark spectra between 2262.25 Å and 7448.33 Å, but most wavelengths were taken from earlier tables, estimated intensities were given on a scale of 1 to 10, and in many cases it was impossible to sort the lines into Yb I and Yb II spectra.

A valuable extension to information concerning ytterbium spectra was made in 1959 by Humphreys and Paul [4] who used electrodeless lamps. They reported the wavelengths and relative intensities of 49 infrared lines dispersed by a grating spectrometer and detected with a lead-sulfide cell. The wavelengths ranged from 10267.05 Å to 24,552.51 Å and the intensities from 3 to 30000; no separation of Yb I and Yb II was attempted.

In 1961, Bryant [5] reported on "the spectra of doubly and triply ionized ytterbium." By using three different electrical discharges (hot spark, mild spark, high-voltage arc), Bryant succeeded in photographing 5900 lines (from 677 Å to 11262 Å); he attempted to assign each line to its proper spectrum, either Yb I, Yb II, Yb III, or Yb IV. His list contains 4550 lines with wavelengths greater than 2000 Å. We have

[1] Figures in brackets indicate the literature references on page 106.

changed some of his assignments, failed to find some of his lines, but increased the total number longer than 2000 Å by 60 percent.

In 1962, Allen [6] reported on "the Zeeman effect of the arc and spark spectra of ytterbium and thulium." Those spectra were excited in a d-c arc between impregnated electrodes mounted in bored poles of an electromagnet with a maximum field intensity of 2.55 tesla (25500 gauss). Although Zeeman patterns are tabulated for 350 ytterbium lines, only 20 are resolved; most of the remainder are listed as pseudo triplets or quartets.

Prior to 1947, individual (lanthanon) rare earths were usually extracted from natural mixtures by fractional crystallization. In order to obtain a comparatively pure sample, it was often necessary to repeat this operation thousands of times. A more efficient technique, ion-exchange chromatography involving the use of absorption columns of organic resins, was developed in 1947. By this method since 1950, large quantities of (99.99%) pure lanthanons have been accumulated as by-products of the purification and concentration of thorium and uranium as nuclear fuels. Thus, the former major handicap to spectroscopic investigation of lanthanon spectra has vanished and high-purity metals are now obtainable from various commercial sources at moderate cost [7]. Furthermore, since 1950, new types of light sources such as electrodeless lamps excited by microwaves, and sliding sparks, have been developed. These emit stronger and cleaner spectra than the d-c arcs and a-c sparks previously used at atmospheric pressure. These recent important improvements in materials and methods of observing persuaded us, in 1958, to undertake another description of ytterbium spectra. The present description contains 7300 lines (2000 to 12000 Å) and 1300 Zeeman patterns; it should be adequate for chemical identifications and for further progress in the structural analyses of ytterbium spectra. In fact, new analyses and quantum interpretations of Yb I and Yb II are now approaching completion and will be reported in separate papers.

2. Experiments

To obtain spectra of rare-earth elements, it was formerly customary to burn chemical compounds (oxides) of them on carbon, copper, or silver electrodes of electrical arcs or sparks at atmospheric pressure. Those sources favored the excitation of ionic spectra, masked many lines near those of the electrode materials, or of atmospheric gases, and caused undue widening of the lines because of high temperature and pressure. During the past decade, all these defects have been removed by the introduction of electrodeless evacuated lamps containing minute samples of metallic halides excited at moderate temperatures and reduced pressures by microwaves, as described by Corliss, Bozman, and Westfall [8] and demonstrated by Corliss and Meggers [9] for hafnium.

Our first ytterbium lamps were made with bromine compounds but the Yb spectra were found to contain, in addition to Br lines, many troublesome diatomic molecular bands due to YbBr. Since Yb has relatively low melting (824 °C) and boiling (1193 °C) points, new lamps were made containing only pure metal and a small pressure of noble gas as described by Meggers and Westfall [10] and by Zelikoff, Wyckoff, Aschenbrand, and Loomis [11]. Excited with microwaves, these lamps produced extremely intense Yb I spectra and most of Yb II but only a trace of Yb III. A slightly different form of lamp, also containing pure Yb metal and noble gas, was operated as a ring-discharge with high frequency in a surrounding solenoid; it greatly enhanced the intensity of Yb II relative to Yb I, and in addition excited Yb III and Yb IV peripherally.

In 1937, Meggers and Scribner [1] observed only 400 lines belonging to neutral ytterbium atoms and remarked that "The Yb I spectrum is surprisingly simple but may not be fully developed in the arc." In 1958, when Corliss and Meggers [9] undertook to make an improved description of hafnium spectra, they found that the number of recorded lines belonging to Hf I was greatly increased by using (instead of d-c arcs) electrodeless lamps containing hafnium halides excited by microwaves. This experience prompted us to apply this type of excitation to ytterbium halides to obtain a more complete development of the first spectrum. Our first ytterbium lamps, accordingly, were charged with $YbBr_3$ prepared by dissolving pure Yb_2O_3 in a mixture of HBr and Br_2 in water solution at about 300 °C. The spectra emitted by these lamps were satisfactory in the ultraviolet, but the visible region was partly obscured by strong bands of YbBr. We then decided to avoid the use of metal halides since ytterbium has relatively low melting and boiling points. A 100-mg portion of pure Yb metal was placed in a 7-mm o.d. quartz tube with a hemispherical window blown at one end. This tube was evacuated, outgassed, and filled with 7 torr of argon gas. With the argon excited in a microwave field of 2450 MHz, a Bunsen flame was applied to the portion of the tube containing the ytterbium metal. A green glow, characteristic of the arc spectrum of ytterbium, appeared and became dazzlingly brilliant as the temperature rose to make the quartz tube a dull red. At that temperature (ca. 600 °C), ytterbium has a vapor pressure of about 0.01 torr. The lifetime of this type of lamp is limited by the diffusion and ultimate condensation of ytterbium vapor onto the window, which then becomes opaque. In our lamps, this generally took place after about 20 hr of operation. Spectral regions where argon lines interfere with ytterbium were reobserved with lamps containing pure Yb metal and helium gas. In that case, a reservoir with a capacity of about 50 to 100 cm^3 was necessary to maintain the gas pressure because helium gradually escapes through hot quartz.

These ytterbium lamps emit an intense and very clean spectrum consisting primarily of Yb I with numerous lines of Yb II present but none of Yb III. Because Yb I and Yb II contain some prominently outstanding lines, our first spectrograms on nonbacked photographic plates were marred by opaque patches of halation extending 1 cm on either side of the strong images; all subsequent exposures were made on black-backed plates.

To distinguish and identify successive spectra of ytterbium, a light source of higher excitation was required for comparison. This we found in the ring-discharge discovered, named, and described by J. J. Thompson [12] in 1891. Although Thompson suggested that his light source might serve spectroscopy, it never became popular. However, in 1923, the Bloch brothers [13] demonstrated that the proper use of a Thompson tube permitted them to record simultaneously four successive spectra of mercury and distinguish them by observing different intensity gradients along the diameter or radius of the tube. Nearly 40 years later, in like manner, we succeeded in recording simultaneously four successive spectra of ytterbium, distinguished by radial intensity gradients in spectral-line images obtained from a single source, the ring-discharge or Thompson tube.

In our experiments, a 100 mg lump of pure ytterbium metal was placed in a Vycor tube (18 mm o.d. and 150 mm long) closed at one end with a plane quartz window. This tube was evacuated, outgassed, and sealed after being filled with helium to a pressure of 6 torr. The tube was then surrounded by a solenoid (25 mm diam by 140 mm long) of 20 turns of platinum wire which was connected into the discharge circuit of a high-voltage spark apparatus with capacitance of 0.001 μF charged to 20,000 V and discharged through a 6-mm gap. Peak current in the solenoid was about 500 A.

The platinum solenoid and the enclosed ytterbium lamp were mounted with their axes on the optical axis of the spectrograph, and the tube was focused on the slit. When excited, the cold tube emitted a dull reddish glow due to the helium present. A Bunsen burner set beneath the solenoid brought the platinum coils to a bright red heat and the discharge in the tube changed to a bright blue-green as ytterbium was vaporized and excited.

Unlike the ordinary spark in air, the Thompson tube produces clean ytterbium spectra of sharp lines. When it is photographed beside the microwave discharge, the spectra of neutral and ionized atoms are easily distinguished. The first spectrum is strongest in the microwave discharge and considerably weaker in the ring discharge where it appears with maximum intensity on the axis of the tube. The second spectrum is generally much stronger and more fully developed in the ring discharge than in the microwave discharge because the latter lacks energy for the excitation of higher states in ions. The third and fourth spectra appear only in the ring discharge where they are observed only near or at the walls of the tube, fading toward the axis.

It appears that the energy for excitation of spectra in the Thompson tube has its minimum value on the axis and maximum at the walls. Consequently, when the tube is viewed end-on, by focusing the diameter of the tube on the slit of a stigmatic spectrograph, the lines characteristic of neutral atoms are stronger at the center and lines belonging to singly ionized atoms are nearly uniform in intensity along the diameter, whereas lines due to doubly or trebly ionized atoms are absent at the center but are observed near the wall with noticeably different intensity gradients.

The spectra of microwave and ring discharges of ytterbium were photographed side-by-side together with short images of superposed standards from iron arcs or from thorium-iodide tubes. To disperse and focus the spectra, four concave gratings of 6.5 m radius, in Wadsworth-type mountings, were used. The short ultraviolet region from 2000 Å to 2500 Å was photographed in the first order of two (30,000 lines per inch) gratings with a plate factor of 2.4 Å/mm. In the range 2500 Å to 4500 Å, the spectra were recorded in the second order of either grating with a plate factor of 0.87 Å/mm, and the same setting served to record the range 5000 Å to 9000 Å in the first order with a plate factor of 1.74 Å/mm. In the latter case, a colored glass filter was placed before the slit to absorb the second and third orders, and special dye-sensitized plates recorded the first order. The spectral range 7000 Å to 10000 Å was photographed with a third grating having 15,000 lines per inch and plate factor of 5 Å/mm, and the infrared observations were extended to 12000 Å with a fourth grating, ruled 7,500 lines per inch, whose plate factor was 10 Å/mm.

The above-mentioned spectrograms yielded wavelengths and estimated relative intensities of about 7000 ytterbium lines and, with few exceptions, they all appeared as sharp emission lines. In particular, there was no detectable absorption or self-reversal in any lines emitted by our sources. After our line list was compiled, Sugar [14] developed a new light source specifically for producing self-reversed lines in both the first and second spectra of rare-earth elements. The first observations with this light source were made in 1962 by Sugar with ytterbium electrodes. Those spectrograms (covering 2400 Å to 7000 Å) were evaluated by Meggers who found that 22 lines of Yb I and 50 of Yb II were absorbed or self-reversed; these are indicated by A and by R or *r* respectively, following the intensity number in our table of ytterbium spectra.

The final contribution to our table of ytterbium lines was made in 1963 by Nissan Spector who was photographing the spectra of erbium emitted by a sliding spark; he kindly substituted ytterbium electrodes for erbium and photographed the spectral range 6600 Å to 11600 A with this source. A description of this source was given by Sugar [15]. These spectrograms were presented to Meggers who found that below 8000 Å they were practically identical with those from the Thompson tube, but beyond 9000 Å they added several hundred lines to our list, many of which have been explained as transitions between previously established Yb II energy levels. Some ytterbium lines appear slightly hazy (h) in the sliding spark.

A major contribution to this description of ytterbium spectra is found in the data on Zeeman effect. As noted in the introduction, the first Zeeman patterns

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of ytterbium lines were obtained accidentally in 1939 when they appeared as impurities in a thulium sample under investigation at MIT. Those Zeeman spectrograms were made with a d-c arc in the Bitter magnet [16] with field intensities at 7.30, 8.50, and 9.358 tesla; both factors favored ionization so that Zeeman patterns were recorded only for strong lines of Yb II or Yb III and none for Yb I. The total number of ytterbium lines with Zeeman patterns on MIT spectrograms was about 400, and in favorable cases the resolution reached 0.05 Lorentz unit, but most of the lines lay between 2200 Å and 4300 Å.

To extend and supplement the Zeeman data for ytterbium obtained at MIT in 1939, we resumed investigations in 1959 at the National Bureau of Standards where a Weiss magnet (with ferro-cobalt pole pieces) was used. When that magnet was animated with 15 kW, it produced a field intensity of 3.70 T in a pole gap of 5 mm. Special electrodeless lamps containing pure ytterbium metal (and argon gas) were made of quartz tubing 4 mm o.d. to be inserted and excited between the pole pieces of the magnet. Care was taken to vaporize the metal only in that portion of the lamp located in the region of uniform magnetic field between the pole pieces. The lamp was viewed end-on and focused on the slit of the spectrograph containing a concave grating with 30,000 groves per inch, the same one used in the first and second orders to describe ytterbium spectra between 2000 Å and 9000 Å. A Wollaston prism was inserted on the optical axis; it produced a vertical separation of polarized components of Zeeman patterns (parallel or normal to the lines of force) and, since the spectrograph was stigmatic, it recorded all components simultaneously without mixing any. Indeed, the Wollaston was placed where it separated the polarized components sufficiently to insert a narrow strip of "no field" exposure to the ytterbium spectra, useful for recognizing asymmetrical or overlapping Zeeman patterns, and for assigning unresolved patterns to their proper spectrum by noting the reduced intensity of the first spectrum relative to the second in the magnetic field. The magnetic field intensity was calibrated with standard splittings of ubiquitous impurity lines, principally of calcium, magnesium, sodium, and silicon. In this series of Zeeman-effect observations, the highest resolution achieved was about 0.10 Lorentz unit. The first results of Zeeman patterns in Yb I were announced by Meggers and Corliss [17] in 1960.

3. Results

These investigations, extending intermittently over a quarter century, resulted in the condensed data displayed in table 1, in which successive columns contain measured wavelengths (in air), estimated relative intensities and other attributes in two or more sources, successive spectra assignments, and types of Zeeman patterns.

In general, the wavelengths are the average of two to four or five measurements, and are regarded reliable to 0.01 Å in most cases. In the range 2500 Å to 4500 Å, photographed with our highest dispersion, most strong lines were accompanied by two or more Rowland ghosts. In such cases, the ghosts contributed to the wavelength determination of the parent line, but were scratched from the final list. When the average deviation from the mean of several values was less than 0.005 Å, the third decimal was retained.

Because of the electronic structures of ytterbium atoms and ions (deduced from their spectra), their spectra are characterized by an extraordinary range of line intensities. In table 1, these are roughly estimated from photographic images of illuminated slits and assigned numerical values from 1 to 100,000. In spite of their crudeness, these estimates of relative intensities in the same and in different light sources provide general criteria for assigning lines to their proper spectrum (Yb I or Yb II) and in the same spectrum they often distinguish lines of different excitation. Yb III and Yb IV lines were not excited in microwave discharges but could be seen in spectra of the Thompson tube where they were distinguished by radial intensity gradients. Literal symbols following intensity numbers have the following meanings:

A = nearly all absorbed in the pulsed arc.
R = wide reversal in the pulsed arc.
r = narrow reversal in the pulsed arc.
d = double but not resolved.
e = enhanced near wall of Thompson tube.
h = hazy as distinguished from sharp.
H = very hazy.
l = shaded or displaced to longer waves.
s = shaded or displaced to shorter waves.

The above-mentioned estimates of spectral-line intensities and supplementary information on line attributes constitute the main criteria for sorting the observed lines in four successive spectra: Yb I from neutral Yb atom, Yb II from Yb^{+} ions, Yb III from Yb^{2+} ions, and Yb IV from Yb^{3+} ions. The assignment of observed lines to their proper spectrum is indicated by Roman numerals in column 4 of table 1; there are about 1800 lines for Yb I, 5100 for Yb II, 430 for Yb III, and 5 for Yb IV.

In the last column of table 1, we list the Zeeman-type numbers for about 1300 lines observed in strong magnetic fields. These numbers correspond to the classification of Back and Landé [18] who showed that only 7 types of Zeeman patterns exist, types 1, 2, 3, for energy levels of odd multiplicity, types 4, 5, 6 for even, and type 7 appearing in either multiplicity as a single undisplaced parallel (p) component and two symmetrically displaced normal (n) components. The Zeeman types in table 1 prove that Yb I and Yb III result from energy levels of odd multiplicity, and Yb II from even. Further details of the Zeeman patterns, including quantum numbers (J and L) and magnetic splitting factors (g) derived from them, will be presented in subsequent papers dealing with atomic energy levels and quantum interpretations of Yb I and Yb II spectra.

TABLE 1.—*Emission spectra of ytterbium*

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
11603.94	20		I		10445.27		4 h	II		9970.44	5		I	
11559.05		5	II		10425.42		2	II		9970.1		200H	II	
11442.70		1	II		10416.16		5	II		9959.25		2	II	
11299.78		5 h	II		10414.15		1	II		9953.32		4	II	
11277.83		1	II		10411.40		10	II		9945.98		4	II	
11262.27	250	10	I		10397.98		3	II		9940.23		3	II	
11060.25		2 h	II		10397.88	4		I		9932.98		1	II	
11051.05		2	II		10391.64		1 h	II		9915.99		6	II	
11035.15		1 h	II		10388.85		2 h	II		9914.02		2	II	
11023.37		1 h	II		10363.89		3	II		9904.5		3	II	
11002.95		4	II		10345.62		1 h	II		9896.50		20	II	
10980.47		3 h	II		10343.99		4 h	II		9894.20	8		I	
10959.94		1 h	II		10343.85	3		I		9893.9		100H	II	
10943.17		1	II		10341.77	7		I		9892.20		4 h	II	
10882.92		1 h	II		10339.49		2 h	II		9888.40	2		I	
10856.25		1	II		10337.35		1 h	II		9885.02		1	II	
10845.53		3 h	II		10328.74		2 h	II		9884.09		3	II	
10830.36		100	II		10327.33		1	II		9882.33	1		I	
10829.11		40	II		10321.68	500	80	I		9881.04		1	II	
10810.82		5 h	II		10293.40		2 h	II		9870.17	200	15	I	
10802.47		4	II		10285.15		2	II		9849.25		2 h	II	
10776.11		1	II		10283.38		2	II		9837.89		2 h	II	
10774.38		1	II		10275.82		1	II		9831.13	7		I	
10770.10	2000	400	I		10267.37	300	100	I		9830.09		2	II	
10754.99		1	II		10259.93		3 h	II		9826.25		2	II	
10745.87		3	II		10257.97		1 h	II		9826.14	1		I	
10731.94		3	II		10251.85		10	II		9823.76	9		I	
10727.72	200	20	I		10242.30		1 h	II		9818.33		6 h	II	
10721.68		3 h	II		10222.98		2 h	II		9817.16	1		I	
10717.07		2	II		10212.34		1 h	II		9816.25		2 h	II	
10717.02	2		I		10212.27	1		I		9800.41		1	II	
10711.60		80 h	II		10198.92		1 h	II		9799.96	400	10	I	
10691.02		1 h	II		10189.53		10 h	II		9797.67		6	II	
10689.20		2 h	II		10186.03		5	II		9775.49	1		I	
10678.64		1	II		10172.39		2	II		9770.61		2 h	II	
10676.73		30	II		10168.71		1 h	II		9760.38	200	1000	II	
10666.30		2 h	II		10167.42		1 h	II		9745.39		7	II	
10651.36		5	II		10157.63		1	II		9735.10		1	II	
10638.35		1	II		10148.91		3	II		9734.62	2		I	
10633.24	5		I		10145.30		4 h	II		9718.81	3		I	
10632.89		400 h	I		10136.34		3 h	II		9717.58		2	II	
10628.11		4	II		10110.87	10		I		9716.88		8	II	
10602.75		2 h	II		10110.60		200	III		9711.44		5	II	
10584.87		1	II		10107.09		1	II		9706.65		10	II	
10580.74		1	II		10103.24		3	II		9705.60		3 h	II	
10574.50		2 h	II		10100.39		1 h	II		9700.26		2 h	II	
10570.51		1	II		10086.67		1	II		9695.71	2		I	
10567.5	1		I		10068.79		2 h	II		9694.33		2	II	
10567.42		3	II		10067.47		1	II		9693.72		50	II	
10565.46		4	II		10066.30		5	II		9688.77	25		I	
10556.48		2 h	II		10063.22		2 h	II		9678.00	1	5	II	
10547.78		4	II		10046.95		2	II		9677.56		1	II	
10546.24		1	II		10039.90		1	II		9671.78		1	II	
10516.65		40	II		10032.55		50	II		9670.80	5		I	
10516.61	60		I		10020.70		1	II		9669.62		1	II	
10502.56		1	II		10016.78		15	II		9669.03		2	II	
10501.08		4	II		10007.96		3	II		9664.23		20	II	
10490.03		1	II		10003.38		4	II		9663.60		1	II	
10485.56		2	II		9994.64		1	II		9663.09		2	II	
10477.15		1 h	II		9992.75		1	II		9661.01		6 h	II	
10456.88		1	II		9990.47		6	II		9659.43	2		I	
10455.88		2	II		9984.66		1	II		9657.25		3	II	
10446.15		1	II		9976.50	2	30	II		9656.05	20		I	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
9648.86		3	II	
9644.92		2 h	II	
9640.78	2		I	
9637.59		3 h	II	
9630.97		5	II	
9629.04		2	II	
9623.60		9 h	II	
9619.82		3 h	II	
9613.49		1	II	
9611.30		2	II	
9610.77		2	II	
9608.81		2	II	
9606.08	3		I	
9602.64		20	II	
9600.55		2 h	II	
9595.60		2 h	II	
9594.26		2 h	II	
9592.23	1		I	
9589.34	1		I	
9589.14		7 h	II	
9580.31	30		I	
9578.21		1	II	
9577.45		3	II	
9572.65	5		I	
9564.64		3	II	
9559.83		5	II	
9555.55		5	II	
9536.43		3	II	
9532.71		8 h	II	
9532.64	1		I	
9531.83		20	II	
9527.91		3 h	II	
9524.36	300	6	I	
9522.68		4 h	II	
9520.19		3	II	
9512.32	2		I	
9511.61		3	II	
9505.71	2		I	
9504.03		1	II	
9498.90		3	II	
9496.63		10	II	
9490.85		2	II	
9482.44		20	II	
9475.35		1	II	
9474.20		2 h	II	
9468.54	2	3	I,II	
9468.20		10 h	II	
9464.03		4 h	II	
9457.07		6 h	II	
9445.45		6 h	II	
9442.75		7	II	
9428.10		30	II	
9423.79		3 d	II	
9417.09		5	II	
9408.11		4	II	
9405.75		3	II	
9404.73		10	II	
9397.79		2 h	II	
9390.61		8 h	II	
9388.32		2	II	
9382.31	2		I	
9380.18		15	II	
9378.29		3	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
9377.90	7		I	
9372.12		3	II	
9367.86		1	II	
9367.21		2	II	
9352.58	8	80	II	
9349.25	80	300	II	
9341.89		4 h	II	
9334.67		3	II	
9328.56		3 h	II	
9325.68		20 h	II	
9324.60		2 h	II	
9321.14		2 h	II	
9320.30		1	II	
9316.58		1	II	
9314.88	2	40	II	
9304.35	1000	80	I	
9302.74		2	II	
9301.33		3	II	
9299.67		1	II	
9298.90	3		I	
9298.74		6	II	
9291.74	2		I	
9289.87	4	100	II	
9287.36		1	II	
9272.68	3	30	II	
9271.84		2	II	
9263.73		4 h	II	
9261.11		4 h	II	
9258.76	1		I	
9257.70		8	II	
9253.57	7	70	II	
9252.27		3	II	
9251.95	1	5	II	
9245.69		2 h	II	
9241.86		2	II	
9230.17	7		I	
9226.17		6 h	II	
9224.21	6		I	
9220.77		7 h	II	
9218.26		1	II	
9217.40		6	II	
9215.28		5	II	
9211.07		2	II	
9207.65		7 h	II	
9196.5		20H	II	
9192.40		3 h	II	
9191.41		3	II	
9190.18		5 h	II	
9188.34	10		I	
9187.53		4	II	
9187.01		1	II	
9182.32		5 h	II	
9178.52		5	II	
9177.47	1		I	
9176.14	1		I	
9175.76		2 h	II	
9172.59		2 h	II	
9170.70		3 h	II	
9168.70		2 h	II	
9167.06	3	40	II	
9163.69		15	II	
9162.85		2	II	
9158.62		15	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
9155.30	40		I	
9152.45		8H	II	
9150.60		1 h	II	
9149.57		2 h	II	
9142.22		7	II	
9141.37		15	II	
9140.64	10		I	
9133.17	3	60	II	
9128.47	20		I	
9127.08		1	II	
9126.00		7 h	II	
9123.62		2	II	
9122.30		15	II	
9121.10	3		I	
9120.52		5 h	II	
9117.68	100	4	I	
9113.24		7 h	II	
9105.95		15 h	II	
9104.10	200	7	I	
9097.69	2		I	
9096.88		20	II	
9094.57		4	II	
9089.55	2 d		I	
9083.98		3 h	II	
9082.61		7	II	
9080.35	1	60	II	
9077.91		4	II	
9076.21		2	II	
9073.18	1		I	
9069.22	20		I	
9066.47		1	II	
9062.06		15	II	
9057.08		3 h	II	
9055.35		2	II	
9045.47	1		I	
9043.95	5		I	
9040.38		3 h	II	
9039.08	1		I	
9035.02	2	20	II	
9029.62		2	II	
9021.00		100 h l	II	
9020.90	10		I	
9017.02		5 h	II	
9016.21	2		I	
9014.27		2	II	
9004.83		3	II	
9004.21	10	150	II	
8997.66	400	10	I	
8985.71	8	60	II	
8982.45		2	II	
8980.79	3		I	
8980.74		20	II	
8978.58		6	II	
8971.65		3 h	II	
8967.71		5	II	
8959.06	2	70	II	
8956.72		9	II	
8952.23		6	II	
8948.02	2		I	
8947.78		6	II	
8946.66		5	II	
8946.38	1		I	
8942.87		3	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
8930.12		1	II	
8927.38		4	II	
8922.56		100 h	II	
8922.50	1000	40	I	
8912.14	4	60	II	
8907.81		2 h	II	
8902.99	2		I	
8902.92		7 h	II	
8898.89	1		I	
8897.61		1	II	
8896.50		4	II	
8890.45	5	50	II	
8888.66	3		I	
8883.16	10		I	
8874.68	2		I	
8874.53		9	II	
8873.33		4	II	
8867.40		1	II	
8865.65		1	II	
8864.18		1	II	
8864.06	2		I	
8863.98		4	II	
8862.12		3	II	
8861.70		1	II	
8855.12	50	300	II	
8851.05		1	II	
8849.52		1	II	
8848.83	4	60	II	
8842.64		2	II	
8839.24		10	II	
8831.38	2		I	
8829.26	30		I	
8827.46	1		I	
8825.52		2	II	
8822.45		7	II	
8815.52		9	II	
8806.80	6		I	
8806.05		2	II	
8800.32		2 h	II	
8797.99	5	100	II	
8794.91	5		I	
8788.45	5		I	
8783.76		2	II	
8783.75	4		I	
8781.96	1	10	II	6
8780.63	10		I	
8762.42		5	II	5
8761.26		2	II	
8750.88		1 h	II	
8749.10		40	II	4
8744.27		1	II	
8742.84		7	II	
8742.45		10	II	7
8740.48		5	II	
8737.78		10	II	7
8736.45	20		I	
8736.03	4		I	
8735.23		1	II	
8731.29	30		I	
8725.19		10	II	
8724.18	4		I	
8723.33		1	II	
8717.80	1		I	
8710.15		4	II	4
8699.84		1	II	
8697.67		1	II	
8691.24		1	II	
8686.28	2		I	
8681.93	3		I	
8679.50	2		I	
8672.34		5	II	7
8671.53		1	II	
8670.82	2		I	
8667.69	50		I	
8663.92	10		I	
8663.39		4 h	III	
8661.59	5		I	
8659.04		15	II	4
8655.52	15 h		I	
8654.91	100		I	
8654.42	20		I	
8650.23	2		I	
8641.86		15	II	
8634.68	9		I	
8633.25		1	II	
8621.62		2	II	6
8620.75		1	II	
8612.57	50		I	
8607.49	200	400	II	6
8603.56	80		I	
8601.25	1		I	
8597.22		2 h	III	
8594.75	2		I	
8594.57		8	II	
8592.85		10	II	5
8592.00	200		I	
8591.26	20		I	
8590.94	20		I	
8590.08	1		I	
8587.89		1	II	
8585.99	20		I	
8585.00		1	II	
8584.20	2		I	
8579.08		7	II	6
8575.25	10		I	
8574.91	2		I	
8566.83		2	II	
8561.74		20	II	6
8558.47	2 h		I	
8556.90		4	II	
8554.92		2	II	6
8548.15		1	II	
8546.26	40		I	
8543.66		5	II	
8535.68	20		I	
8532.59		1	II	
8528.08	10		I	
8527.65		1	II	
8525.66	3		I	
8525.54		1	II	
8524.07	3		I	
8523.93	5 h		I	
8522.92	2		I	
8520.34	50		I	
8520.12	7		I	
8519.66	20		I	
8518.01	20		I	
8517.54		2 h	II	
8516.60	2		I	
8515.78	3		I	
8515.24	2		I	
8508.02	10		I	
8505.96	2		I	
8503.56		1 h	II	
8502.18		3	II	4
8500.55		2	II	
8494.37	50		I	
8493.74	4		I	
8489.90		30 e	III	
8487.84	1		I	
8485.10	30		I	
8483.31		2	II	
8481.03		2	II	
8480.27		2 h	II	
8477.79		2 h	II	
8474.21	3		I	
8473.35		2	II	
8465.75		15	II	6
8463.32	1		I	
8462.25	4		I	
8460.54		2	II	
8458.72		1	II	
8455.87	4	30	II	4
8446.74	5		I	
8446.35	20		I	
8446.32		6	II	
8443.99	5		I	
8438.92		1	II	
8438.42		2	II	
8437.07		3	II	
8435.61		3	II	
8430.76	2		I	
8429.59	3		I	
8428.83		15	II	4
8428.24	10		I	
8427.26		3	II	
8424.89		1	II	
8423.84	1		I	
8418.43	10		I	
8416.53	20		I	
8411.84	1	100	II	4
8408.89		3	II	
8403.58		2	II	
8400.65	20		I	
8400.61		1	II	
8400.35	5		I	
8400.01		20	III	
8396.79		8	II	4
8392.00		4 h	III	
8391.62	3		I	
8383.90	2		I	
8381.26		20	II	
8380.03		3	II	
8379.39		8	II	
8378.93	6		I	
8378.34		3	II	
8376.33	2		I	
8375.94	40		I	
8374.40		15	II	4

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
8371.77		2 h	II		8225.59	1 h		I		8115.46		6	II	
8360.09	2		I		8225.41		5	II	6	8114.26	9		I	
8356.75		5	II		8224.13	10		I		8111.71	90		I	
8352.37		4	II		8221.74	10		I		8111.61		9	II	
8352.03	2		I		8221.35	10		I		8111.19	2	10	II	6
8350.15		9	II		8220.44	2		I		8109.79	100		I	
8349.52	2 h		I		8213.96	9		I		8104.44		5	II	4
8347.14		2 h	II		8213.64		30	II	6	8103.22		1	II	
8346.11	3 h		I		8213.24		10	II	6	8101.64		1	II	
8343.49		2	II		8213.02	30		I		8100.20		3 h	II	
8342.51		8	II		8212.03	5		I		8098.66	2		I	
8341.30		2	II		8210.33	4		I		8097.06		1	II	
8336.34		5	II		8207.98	40		I		8095.74	1		I	
8335.12	1		I		8206.55		3	II		8093.03		8	II	6
8334.43		10	II		8200.20	1		I		8092.95	3		I	
8333.30	10		I		8199.08		1	II		8091.73	1000	10	I	1
8331.71		2 h	II		8197.43	6		I		8089.66	7		I	
8327.88		30 e	III		8194.83		2	II		8086.68	10		I	
8327.71	3		I		8192.40		30	II	4	8085.56	4		I	
8326.86		10 e	III		8190.61		10	II	7	8084.74		9	II	4
8325.18	800	5	I	3	8190.31	5		I		8084.50	1		I	
8320.33	8		I		8189.53		2	II		8079.47		5	II	6
8318.01		1	II		8183.28		1	II		8078.10		2	II	
8317.43	20		I		8180.75	10		I		8076.95		1	II	
8310.61	3		I		8180.64	30		I		8075.92	2	40	II	6
8310.53		2	II	7	8180.34		2 h	II		8074.53		7	II	5
8310.38		2	II		8179.01		4	II		8071.28	10		I	
8309.10	2		I		8178.46		4	II		8070.00	50		I	
8308.40		1	II		8178.14		3	II		8067.21	7		I	
8307.67		2	II		8177.37		2 e	III		8066.72	2	50	II	6
8306.38	2		I		8173.60		3 h	II		8066.43	7		I	
8301.74		15	II	6	8171.82	1	30	II	5	8066.17		9 e	III	
8299.77	2		I		8169.69		1 h	II		8063.02	2	60	II	4
8296.83	4		I		8169.29		2 h	II		8058.91	80		I	
8294.85	150		I		8166.73		4 h	II		8056.20	10		I	
8291.01		20	II		8166.05		1	II		8056.02		20 e	III	
8289.25		3	II		8162.00		2 h	II		8055.12	20		I	
8283.78		15	II	6	8158.49	5	80	II	5	8053.43	50	500	II	6
8282.14		2	II		8157.40		150	II	6	8052.35	20		I	
8280.60		2	II		8155.12		3	II		8051.48	20		I	
8276.29		2 h	II		8149.08		15	II	6	8049.03	5	30	II	6
8267.90		2	II		8148.83		3	II		8042.91	4		I	
8267.87	10		I		8146.64		1	II		8042.63		5	II	
8266.52		7	II		8145.56	20		I		8039.83	200	2	I	1
8266.06	2		I		8145.36	5		I		8038.16		10	II	
8265.64	2		I		8143.81		2 h	II		8035.53		4	II	5
8263.64	4	150	II	4	8142.47		20	II	4	8034.43		1	II	
8262.66		3	III		8140.67		6 e	III		8034.08		2	III	
8261.70		1	II		8140.53	2		I		8023.46	1	20	II	
8260.66		3	III		8139.18		6 e	III		8023.11	3		I	
8259.34	1		I		8137.92		2	II		8022.93		10	II	
8257.79		7 h	III		8136.38	9		I		8021.62	3	150	II	6
8249.18	50		I		8133.01		8	II		8018.74	3		I	
8246.48		1 h	II		8131.92		2	II		8013.17		15	II	6
8242.95	1		I		8124.50		15	II		8009.53	4	50	II	4
8242.03	1		I		8123.85		9	II		8007.83	15	300	II	4
8241.66		5	II		8122.77	1		I		8002.73	1	20	II	4
8240.67	2		I		8122.49		5	II	4	8001.30		2 h	II	
8240.01		1	II		8121.35		3 h	II		7994.90		30	II	4
8237.20		2	II		8121.12		2	II		7990.35	30		I	
8234.61	15		I		8118.80	5	150	II	4	7984.31		4	II	
8230.78		1	II		8117.44		10 e	III		7971.46		100 e	III	
8227.41		1	II		8116.08	10		I		7968.09	1	6	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
7964.12	2	80	II	4
7958.80		3	II	
7958.48	2	40	II	6
7950.35	2	60	II	6
7950.01		2	II	
7947.60	1	40	II	4
7946.26	50		I	
7933.25	2		I	
7930.04		8	II	4
7928.71		7	II	
7924.65	4		I	
7922.40	4000	100	I	1
7918.41		3	III	
7913.30		6	II	
7912.46		10	II	
7910.08	10		I	
7906.25		2 h	II	
7904.82	10	200	II	4
7899.54		5	II	6
7897.90		2	II	
7896.38	100		I	
7895.51		3 h	III	
7895.08	1000	50	I	2
7893.10		20 e	III	
7892.39		80 e	III	
7891.93		1	II	
7889.78		3	III	
7885.17		2	III	
7883.96	2		I	
7877.06	60		I	
7875.15	10		I	
7874.10	1	20	II	5
7865.13		7	II	5
7856.20		4	II	4
7851.06		3 h	III	
7849.85		6	II	
7848.49		15	II	4
7844.11	20	2	I	6
7840.45	1	40	II	4
7839.17		1 h	II	
7834.65	15		I	
7833.02		9	II	4
7825.52	1	50	II	6
7824.64		3	II	
7822.78		8 e	III	
7821.37	2		I	
7820.89	50		I	
7815.52		5	II	5
7811.96	1	8	II	4
7809.48		8 e	III	
7808.64		4	II	6
7806.11		3	II	
7804.57		6	II	
7803.65	20	300	II	6
7802.01		9	II	
7801.17		8	II	
7799.44		3	II	
7799.33	1		I	
7793.72		2 h	III	
7789.80	2		I	
7785.02		3	II	4
7777.96	1	7	II	6
7777.49		6	II	5
7772.78		2	II	
7771.01	4		I	
7767.43		2	II	
7766.02		2	II	
7761.45	2		I	
7760.49	5		I	
7758.04	500	20	I	7
7753.91	2	5	II	
7753.29		6	II	
7749.38		1	II	
7746.98	6 h		I	
7745.93		5	II	5
7744.97	5		I	
7741.94		3	II	
7741.66		2	II	7
7741.15		2	II	
7737.59	1	8	II	4
7734.53	200	2	I	3
7732.46		4 h	II	
7732.35		6	II	6
7719.82		15	II	
7719.23		40	II	6
7717.58	6		I	
7713.74		4 e	III	
7707.28		2 h	III	
7706.29	2 h		I	
7702.72		2 h	III	
7699.48	20000	2000	I	1
7697.62		5	II	
7693.21		6 e	III	
7692.75	5 h		I	
7684.25		4 h	III	
7683.77		9	II	5
7679.91	200	1	I	1
7678.20		1	II	
7676.62		8	II	6
7666.57		1	II	
7664.41		70 e	III	
7664.11		2 h	III	
7662.08	2		I	
7659.90	20		I	
7659.40		3 h	III	
7659.14	50		I	
7657.60	100		I	
7655.71		5	II	4
7650.02	4		I	
7648.88		4	II	6
7645.84		8	II	6
7641.45	3		I	
7640.63		1 h	II	
7639.47		4	II	4
7637.27	15		I	
7636.65		3	II	
7635.53		4 h	III	
7634.62		6	II	
7633.95	6	100	II	4
7631.81		4	II	
7630.87		1	II	
7630.48		9	II	
7630.00		8	II	
7627.45	1	50	II	5
7627.24	1	70	II	7
7623.90	20		I	
7623.44		4 e	III	
7616.50		2	II	
7616.34	3		I	
7611.69		15	II	5
7611.28	3		I	
7607.09		2	II	
7603.42	2		I	
7599.13		20	II	6
7598.01	2		I	
7596.22	200	1	I	
7595.20		2	III	
7588.43	8		I	
7582.93		40	II	4
7582.90	30		I	
7581.32		2 e	III	
7579.97	1	60	II	5
7576.94		4 e	III	
7576.41	2		I	
7572.81		5	II	
7566.65		15	II	4
7561.76		8 e	III	
7561.42	4		I	
7560.18		1	II	
7556.13	1	40	II	6
7555.14	1	60	II	4
7547.08	5		I	
7541.56		2	III	
7541.10	5	80	II	4
7539.25		8 e	III	
7537.40		1	II	
7533.09		3	II	
7530.78		3	II	
7529.61		3	III	
7528.07		8	II	
7527.46	10000	200	I	1
7522.92		7 e	III	
7522.73	200	2	I	
7520.94		4	II	
7520.46		15	II	6
7517.94		2	II	
7516.24		2	II	
7513.50		4 e	III	
7512.86		15	II	
7508.07		8	II	5
7507.59	5		I	
7503.32		1 h	II	
7501.33		1 h	II	
7500.09		3 h	II	
7499.87	30		I	
7496.33	100	2	I	
7496.24		20	II	
7495.15		2	II	
7494.37		3	II	
7492.34	1	6	II	4
7483.19		2	II	
7482.80		1	II	
7481.04		6	II	7
7478.77	4		I	
7477.86	1	5	II	
7477.61	7	200	II	7
7475.24		2	II	
7474.72		4 e	III	
7473.32		5	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
7472.44	2		I	
7469.44	60		I	
7468.09		8	II	
7467.58	40	30	I	
7464.10	5	60	II	4
7462.71		5 e	III	
7458.79	5 h		I	
7456.86		15 e	III	
7456.20		2	II	
7451.21		1	II	
7449.60		1	II	
7448.28	6000	100	I	7
7447.37	1	60	II	7
7444.20		2	II	
7439.84	1	80	II	5
7438.92	25	1	I	
7433.39	4	30	II	5
7429.51	2	40	II	4
7429.10		2	II	
7422.15	40	200	II	5
7421.04		2	II	
7419.60	1	40	II	4
7419.22	10		I	
7419.06		8	II	
7418.49		4	II	
7418.15		3	II	
7416.64	40		I	
7414.13	5		I	
7411.63		4	II	5
7411.17	200	2	I	
7410.94		8 e	III	
7410.01		80 e	III	
7406.00	10	150	II	6
7405.93	6		I	
7404.35	10		I	
7402.70		2	II	
7402.45		1	II	
7400.97		5	II	
7400.67	7		I	
7399.98		10 e	III	
7398.50		3 e	III	
7397.10	1	40	II	4
7396.04		1	II	
7393.34	4	30	II	4
7393.03		1	II	
7389.22	6	150	II	5
7387.69	2		I	
7384.50	7	150	II	7
7383.00		2	II	
7382.17	3		I	
7377.73	20	400	II	
7377.43	10	300	II	
7373.06	3	15	II	4
7367.93		8 e	III	
7367.78		20	II	4
7362.92	2	15	II	5
7362.83		60	II	
7361.90	200	1	I	
7356.90	3		I	
7354.17		4	II	6
7350.42		15	II	
7350.04	6000	100	I	3
7346.60	3		I	

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
7342.30	10	400	II	4
7341.64		4	II	
7339.99	10		I	
7339.80		60	II	7
7334.01	50		I	
7331.31	1	80	II	6
7329.29		2	II	
7328.57	8		I	
7327.87	500	2	I	1
7325.07		2	II	
7323.32	4		I	
7318.77		1	II	
7317.74		30	II	7
7313.18		15	II	
7313.05	3000	50	I	2
7311.02		10 e	III	
7310.70	400	1	I	
7309.19		40	II	5
7306.63	1	100	II	5
7305.92		8	II	
7305.22	2500	50	I	3
7304.54		5 e	III	
7302.15		15	II	4
7298.05	8 h		I	
7294.50		1	II	
7290.56		3	II	
7287.96		2	II	
7285.02		1	II	
7284.70		1	II	
7279.67		5	II	
7278.37		30	II	4
7275.02		1 e	III	
7268.03		4	II	
7266.55		1 e	III	
7266.37		1 e	III	
7265.76		10	II	7
7259.76		6	II	
7259.56		3	II	
7256.62	20		I	
7253.76	40		I	
7251.55	30	200	II	6
7244.41	2000	40	I	3
7238.95	1	80	II	
7238.73	4	80	II	
7235.42	1	40	II	6
7234.00		3 e	III	
7229.70		3 e	III	
7228.98		2	II	5
7227.21	5		I	
7222.72	20	150	II	6
7221.50		10	II	
7221.21	1	60	II	7
7220.38	2	50	II	5
7217.57		60	II	5
7209.65		1	II	
7209.38		2	II	
7209.10		8	II	
7208.29	4	200	II	7
7205.93	4		I	
7202.20	100	1	I	3
7201.09		20	II	7
7198.08	10 h		I	
7196.92	3		I	

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
7191.87		1	II	
7190.33	6		I	
7187.07	200	2	I	1
7182.60		2	II	
7175.48		300	II	6
7175.10	1000	10	I	3
7174.60		8	II	
7173.96	10		I	
7169.25	10		I	
7160.31	2		I	
7157.72		15 e	III	
7156.48	3		I	
7154.52		5	II	6
7153.51	3		I	
7152.40	10		I	
7148.16		2	II	
7147.94		8	II	
7145.13		4	II	7
7142.39	1	120	II	5
7141.28	6		I	
7137.67		2	II	
7136.82	5		I	
7135.61	10		I	
7134.85	5		I	
7134.83		2	II	
7128.94		2	II	
7126.81	2	100	II	5
7124.46		5	II	5
7117.99		10	II	6
7116.96		3	III	
7108.98	200	2	I	
7108.37		6	II	6
7105.34		1	III	
7101.66		10	II	4
7099.70		2	II	
7098.11		6	II	4
7089.40		1	II	
7086.08		20	II	4
7082.61		80	II	4
7081.81		4	II	
7080.77		1	II	
7080.53		40	II	6
7078.11		5	II	7
7077.07		1	II	
7074.60		2	II	
7072.12		4	II	4
7066.20		10	II	
7060.67		60	II	4
7060.41		2	II	
7056.72		4	II	5
7053.80	1	200	II	7
7052.58		10	II	5
7045.75		15	II	
7045.51		20	II	
7043.78	30	700	II	7
7037.04		10 e	III	
7032.91	2		I	
7031.52		30	II	6
7031.21	3		I	
7029.38		3	II	
7029.27		2	II	
7027.84	10	150	II	
7023.97		6	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
7022.27		6	II	
7022.00	2	200	II	4
7020.18	500	4	I	
7019.48	2	20	II	5
7012.75		5	II	6
7003.90		1	II	
7002.14		1	II	
7001.79	3		I	
6999.88	50	800	II	6
6998.98		2	II	
6993.31	5	250	II	4
6990.51	100		I	
6985.15		20 e	III	
6981.99	20	300	II	4
6978.36		5	II	
6977.67	20	150	II	6
6977.30		1	II	
6976.89	3 h		I	
6973.58	10		I	
6970.54		7	II	
6968.73	1	30	II	6
6965.46	1		I	
6964.47		3	II	
6963.47		10	II	
6963.10	5	300	II	6
6959.11	1	10	II	5
6958.11	300	3	I	
6953.29	1		I	
6952.14		4	II	
6951.38	50		I	
6949.50		10	II	4
6944.95		30	II	6
6943.98	4		I	
6934.05	100	600	II	6
6929.57		9	III	
6926.08	1	30	II	5
6923.78		2	II	
6921.30		5	II	5
6916.78		1	II	
6916.10		3	II	
6915.84		4	II	7
6914.84	2		I	
6913.73	50	1	I	
6911.34		1	II	
6911.11	1	20	II	5
6908.92		2	II	
6902.28	2		I	
6901.06		2	II	
6897.78		1	II	
6897.31	1	40	II	5
6892.61	5		I	
6891.94	20		I	
6890.19		3	III	
6889.59	10	100	II	5
6888.76		2	II	
6886.95		8	II	4
6886.77		5	II	
6881.40	1	100	II	5
6877.93	2	250	II	7
6871.51		3	II	
6869.56	200	1	I	
6867.95		2	III	
6864.27	2	300	II	6

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
6862.08	2 h		I	
6857.64		2	II	
6854.67		7 e	III	
6850.64	4		I	
6844.05		1	II	
6843.02		2	II	
6842.87		3	III	
6840.56		3	III	
6833.56	4		I	
6831.17	7		I	
6830.99		2	II	
6829.80	1	70	II	
6828.90	2	200	II	4
6828.35		2	II	
6826.18		5	II	
6826.02		10	II	
6819.41		2	II	
6817.16	100		I	
6816.18		40	II	
6815.88	1	100	II	6
6813.65	5		I	
6812.42		2	II	
6809.30		5	II	4
6806.67	10		I	
6803.91		20	II	
6802.47	2	400	II	5
6799.60	60000R	6000	I	3
6798.29		2 h	II	
6796.80		2 h	II	
6792.58		30	II	
6790.82		20	II	6
6786.32		1	II	
6785.14	1	150	II	4
6784.80		4 e	III	
6782.17	1000	20	I	3
6779.74	2		I	
6777.22	600	10	I	
6776.87		2 e	III	
6775.79		2	II	
6773.47	2		I	
6772.42	1	50	II	6
6772.26	20		I	
6768.70	6000	1000	I	2
6765.67	40	1	I	
6765.24	200	1	I	7
6761.64	3 h		I	
6761.31		4	II	4
6759.10		15	II	4
6757.29	1		I	
6755.44	1	150	II	6
6754.69		3	II	
6753.01	2		I	
6751.45		10	II	
6751.17		2 e	III	
6749.40	1000	20	I	2
6746.64		6	II	
6745.23	30	600	II	7
6740.59		8	II	
6738.24		2	II	
6734.56		1	II	
6732.53		15	II	7
6732.17	2		I	
6731.02	5 h		I	

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
6728.37		1	II	
6727.61	400	2000	II	7
6727.12		20	II	
6724.92	1		I	
6724.36	1	30	II	6
6724.19		1	II	
6723.90		1	II	
6720.85	2		I	
6719.87	6 h		I	
6718.00	1	30	II	
6717.05	30		I	
6715.79	1000	20	I	7
6710.95		1	II	
6710.73		3	II	
6707.91	3		I	
6707.76	5		I	
6707.61		15	II	
6702.48	2		I	
6701.26	15		I	
6699.36	100	1000	II	4
6698.93		5	II	
6698.13		3	II	
6697.64	10 h		I	
6692.42	700	5	I	1
6689.84		15	II	
6689.28	10	150	II	5
6687.82	60		I	
6687.64		1	II	
6685.34		1	II	
6683.41		10	II	
6682.06		15	II	
6680.74		4	II	
6679.30	1	100	II	
6678.17	20000	1000	I	3
6673.08		10	II	4
6670.57		1	II	
6670.18		50	II	
6667.82	50000	2000	I	7
6666.78		20	II	
6666.55		40	II	4
6665.08		1	II	
6661.90	2	200	II	6
6658.43		60	II	6
6657.26		25	II	
6656.70	2		I	
6651.52		4	II	
6647.25		1	II	
6644.94		6	II	
6644.06	2	200	II	4
6643.55	10000	300	I	7
6642.12	10 h		I	
6640.88		15	II	
6640.79	7		I	
6639.62		3	II	
6639.34	150	1	I	
6639.19		5	II	
6636.54		2	II	
6636.42	6 h		I	
6634.28	5		I	
6632.40		2	II	
6630.85	2 h		I	
6626.73	800	2	I	2
6626.39		2 e	III	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
6625.27	4 h		I		6512.23		1 e	III		6417.91	20000	1000	I	2
6619.66		40	II		6509.09	60	1	I		6416.98		7	II	
6617.72		4	II		6508.81	1		I		6412.85		30	II	
6617.06	100	1000	II	6	6507.98	2		I		6411.38		7 e	III	
6616.40	2	40	II		6507.15		1	II		6408.77	4		I	
6615.80	1	80	II		6505.29	1		I		6408.44	4		I	
6611.87		4	II		6503.96	3		I		6404.62	800	20	I	
6611.32		5	II		6503.01	50	500	II	4	6402.64		50	II	
6610.79		1 e	III		6502.28		20	II		6400.35	40000	2000	I	7
6610.31		1	II		6500.70	2	30	II		6397.15		2	II	
6608.68		1	II		6498.79	1	20	II		6396.68		1	II	
6607.07	2000	40	I	1	6493.58		5	II		6396.09		7	II	
6605.82	4	250	II	7	6492.73	10	700	II	4	6393.91		3	II	
6604.45		50	II		6491.18		5	II		6393.74	700	5	I	2
6600.68		7	II		6490.32		20	II		6393.59		8	II	
6600.03		2	II		6489.06	80000R	10000	I	2	6393.23	4	150	II	4
6594.65	3 h		I		6488.47		200	II		6389.69		10	II	
6593.25		50	II		6487.08		10	II		6387.68	100	2	I	
6592.69	2	150	II	7	6486.74		50	II		6386.84		25	II	
6592.47	40		I		6485.55	10	200 h	II		6382.92	20	200	II	7
6592.12		30	II		6477.98	5		I		6381.68	10		I	
6590.72	1	15	II		6477.63		6	II		6380.47		3	II	
6587.26		1	II		6476.36		1	II		6378.33		150 e	III	
6585.41	100	1000	II	6	6475.98	8		I		6377.01	6	400	II	7
6582.79	2	250	II	7	6474.74	30	1500	II	6	6376.74	1	20	II	
6578.10		20	II		6470.17		1	II		6374.81	4	80	II	5
6574.10	2	200	II	6	6468.88	70		I		6372.72	1500	20	I	1
6573.31		10	II		6468.18	1500	5	I		6371.34		2 e	III	
6572.90	300	2	I		6466.79		7	II		6367.91		4	II	
6571.44	10	400	II	4	6466.33		25 e	III		6365.88		10 e	III	
6570.94		9	II		6465.78		3 h	II		6365.05	30		I	
6568.35	60	1	I		6464.66	3		I		6364.92		3	II	
6567.60		9	II		6464.46	1		I		6360.33		4	II	
6565.72	1		I		6463.15	50	2000	II	7	6359.22	2 h		I	
6563.38		2	II		6461.37	3 h		I		6358.49	20		I	
6562.35		5 h	II		6460.89	2		I		6356.67	2	200	II	5
6561.65	3		I		6460.66	1		I		6355.38	20	1000	II	4
6560.94		1 h	II		6456.95	2	150	II		6354.39		20	II	
6559.65		2	II		6456.90	2		I		6348.85	2 h		I	
6557.46		4	II		6456.64	1		I		6348.05		10	II	
6555.15	1500	15	I	7	6456.33	5		I		6347.32		20	II	
6553.35	900	9	I	3	6455.41	1000		I		6347.08		4 e	III	
6552.61		2	II		6455.23		4	II		6345.74	40	400	II	
6550.90	1		I		6453.30	1	150	II		6344.97	3000	100	I	3
6550.14	400	10	I	3	6453.11	10	150	II		6343.54		7	II	
6549.16		6 e	III		6452.73	1		I		6343.01	8		I	
6548.53	2	200	II	6	6452.46	1		I		6342.65		1	II	
6547.82	4 h		I		6452.10		15	II		6341.41		6	II	
6547.77		9	II		6450.88	40		I		6340.93		15	II	7
6547.43	2		I		6450.10		4 e	III		6338.10		7	II	
6546.35		2	II		6449.59	1500	15	I		6336.23	100	1	I	
6541.38	3	400	II	6	6448.41	4 h		I		6335.72	3000	70	I	1
6540.36		1	II		6446.22	20		I		6334.20		5	II	
6539.33		3 e	III		6442.10		9	II		6333.45	1	70	II	
6538.31	20		I		6440.79	5	400	II	6	6328.52		200 e	III	
6531.71		5	II		6437.98	1	150	II		6328.19	4		I	
6531.26		4	II		6435.61	3 h		I		6324.77	40	400	II	5
6531.00	25	1	I		6433.44	15	1	I		6324.43	1	90	II	4
6527.01		25	II		6432.73	1000	3000	II	5	6322.56	400	3	I	2
6526.36		3	II		6427.60	20	400	II	5	6318.91	20	1	I	
6523.19	2	250	II		6423.67		5	II		6317.78		2 e	III	
6521.51		25	II		6421.53	1500	10	I	2	6313.61		1	II	
6513.78	5		I		6421.04	400	20	I		6312.99		20	II	6

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
	Meggers lamp	Thompson lamp		
Å				
6311.10	2		I	
6309.82	20	1	I	
6308.15	400	2000	II	5
6305.37	90	1	I	
6304.79	8		I	
6303.91		5	II	
6303.27	50	400	II	5
6300.94		8	II	
6299.71	2		I	
6297.95	90	1	I	
6297.35	5	400	II	
6292.56		2	II	
6292.17	2	20	II	
6291.06		5	II	
6286.25	2000	20	I	2
6285.72		3	II	
6283.00		1 e	III	
6281.96		4	II	
6280.60		2	II	
6280.39		5 e	III	
6279.21		1 e	III	
6277.08	2	150	II	7
6274.78	2000	10000	II	6
6271.15	6	250	II	4
6270.31	3	100	II	5
6269.95	1	40	II	
6265.45	1	80	II	7
6262.89		15	II	
6262.43	1		I	
6261.50	2		I	
6260.79	30	1500	II	7
6257.03	20		I	
6255.43	200	2	I	
6251.31		2 e	III	
6250.39		1	II	
6249.54		1	II	
6248.29		20	II	
6247.99	1500	15	I	3
6246.97	500	4000	II	4
6245.93		6	II	
6244.69	3		I	
6244.39		1	II	
6242.25	1	30	II	
6239.67		3	II	
6236.82		5 e	III	
6236.55	600	5	I	
6236.13	3	150	II	4
6235.25	200	3	I	
6234.85	3	250	II	6
6234.12	25		I	
6233.37	5	250	II	4
6232.02		2	II	
6229.36		10	II	
6228.53	1		I	
6223.63	15	500	II	7
6219.16	15		I	
6216.14		9	II	
6215.56	6	200	II	6
6214.22		100 e	III	
6213.74		3	II	
6212.28		2	II	
6211.10		1	II	
6210.59	900	1	I	
6209.05	2		I	
6208.89	3	70	II	
6208.10	10	500	II	6
6206.49		3	II	
6204.88		4	II	
6204.20		4	II	
6198.67	20		I	
6196.90	3		I	
6196.01		6	II	
6194.85	900	4	I	2
6192.32	60	1	I	
6191.14		7 h	II	
6190.78	15	1000	II	7
6189.03	1	90	II	
6187.08		20	II	
6185.43		2	II	
6184.05		1	II	
6183.01	2		I	
6182.14	1		I	
6181.78	100	2	I	7
6178.81	1	20	II	
6178.63		3	II	
6176.91	1		I	
6175.62	150	50	I	
6175.58		90	II	4
6175.36		9	II	
6174.70	1	60	II	
6173.76		7	II	
6172.53	5		I	
6171.87	20		I	
6171.63	30	300	II	6
6169.55	100	200	II	
6164.53		2	II	
6161.97	50		I	
6160.74	6		I	
6156.03	2		I	
6152.57	800	4000	II	6
6150.63		70 h	II	
6149.44		1	II	
6148.50	15		I	
6148.24	1		I	
6146.91	10	400	II	7
6146.29		3	II	
6144.20	3 h		I	
6142.83	1	60	II	7
6141.70		1	II	
6141.05		3	II	
6140.72		5 e	III	
6140.56		2	II	
6135.42		2	II	
6134.28	7	200	II	4
6133.56		3	II	
6132.95		25	II	
6131.53	1	80	II	5
6130.67	1		I	
6128.51		5	II	
6128.18	10	300	II	
6127.92		10	II	
6126.89		1	II	
6126.39	3	100	II	
6124.63		3	II	
6123.68	1	30	II	
6122.99	40	250	II	6
6121.91		9	II	
6120.30	5	250	II	
6118.28	3000	100	I	7
6117.54	2	10	II	
6116.67	10	70	II	
6113.42	10		I	
6111.27	4000	60	I	2
6110.14	6	200	II	7
6108.32		2	II	
6106.18	5	200	II	6
6105.58	1	10	II	
6104.79		2 e	III	
6101.83	40		I	
6099.35		3 e	III	
6098.89		7	II	
6098.54	3	250	II	
6096.98	1	30	II	
6096.15	15	2	I	
6095.98		3	II	
6094.49	4		I	
6089.14	20	100	II	
6088.70	3	200	II	7
6087.44	20		I	
6086.48	2		I	
6083.86	1	30	II	
6083.29	5	200	II	5
6082.37	6	500	II	6
6082.21		10	II	
6076.55		2 e	III	
6075.21	3	200	II	7
6074.10		1	II	
6073.17	7		I	
6070.19		20	II	
6068.64	1	60	II	
6066.51	15		I	
6065.72	300	3	I	2
6063.01		4	II	
6059.93		3	II	
6059.22	6000	80	I	
6056.46	10	500	II	4
6055.85		40 e	III	
6054.57	4000	50	I	7
6053.61		3	II	
6052.88	100	900	II	5
6052.66		250	II	
6052.63	150		I	
6050.48	2		I	
6048.87		2	II	
6048.44	4000	50	I	1
6048.18	5	50	II	
6046.91	9		I	
6045.95	6 h		I	
6045.52		6	II	
6044.96	3 h		I	
6043.45		1	II	
6042.22	2	100	II	
6041.79	100	1	I	
6040.77	15	500	II	6
6038.82		9	II	
6035.72	400	4	I	7
6035.37	3		I	
6034.26	1		I	
6031.80	3000	40	I	3

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
6029.76		1	II	
6029.05	7 h		I	
6027.50	1 h		I	
6024.08	40	400	II	7
6023.82	2 h l		I	
6021.92	10	400	II	6
6021.24		5 e	III	
6020.55	40	400	II	
6018.16	5 h		I	
6017.70		2	II	
6016.62	5	50	II	
6014.95	1500	10	I	1
6014.16	10		I	
6012.51		9	II	
6012.16	1	15	II	
6011.55		8	II	
6011.18	1		I	
6009.56	1	10	II	
6008.80	5	50	II	
6008.44	200	1	I	
6007.41	20	1000	II	4
6004.52	2000	20	I	3
6004.015		10	II	
6003.62	400	10	I	1
6003.33	2 h l		I	
6002.52	3	90	II	
6001.05	1	30	II	6
6000.91		8	II	
6000.28	20		I	
5999.95	1	30	II	
5998.71		25	II	
5996.84		1	II	
5993.95		1	II	
5993.704		15	II	
5991.51	2000	6000	II	6
5990.01		10	II	
5989.33	5000	100	I	3
5987.91	15	500	II	
5987.58	20		I	
5986.78	1	40	II	
5985.98		6 e	III	
5985.35	20	300	II	5
5984.98	3 h l		I	
5983.12	2		I	
5980.83	2		I	
5978.35	2		I	
5978.11		10	II	
5976.93		2	II	
5976.21	20		I	
5975.70	2		I	
5975.29	2		I	
5974.63	2		I	
5973.49	2	20	II	
5973.05		20 e	III	
5972.73	150	1	I	
5972.29		1	II	
5972.02		2	II	
5970.26		5	II	
5969.95	3		I	
5969.84	2		I	
5968.23	2 h l		I	
5966.86	2		I	
5966.43	20		I	

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
5965.48	1		I	
5964.12		1	II	
5963.60	2		I	
5962.51		2 e	III	
5961.83	1	60	II	4
5960.20	1		I	
5960.04	10		I	
5959.33	1000	10	I	2
5959.03		7	II	
5958.70	4000	100	I	1
5956.86		7	II	
5955.34	1500	8	I	2
5954.19	2 h		I	
5950.93	5	250	II	6
5950.66	1500	10	I	3
5949.83		20	II	
5949.02		10 d	III	
5948.98		5	II	
5947.71	2		I	
5947.54	1		I	
5947.26	15	500	II	5
5946.79	4 h l		I	
5946.23	1		I	
5946.00	40	2000	II	4
5945.44	8		I	
5945.33	3		I	
5945.27	3		I	
5945.10	4		I	
5944.93	2		I	
5944.73	4		I	
5944.63	1	10	II	
5944.41	3		I	
5944.24	2		I	
5943.63	9		I	
5943.55	5	200	II	
5943.05	20	250	II	
5942.89	3		I	
5942.73	3		I	
5942.02	4		I	
5941.72	2		I	
5941.29		2	II	
5941.04	1		I	
5940.68	20		I	
5940.63		1	II	
5939.35	2	8	II	
5938.15	1	10	II	
5936.68		20	II	
5936.49	900	10	I	1
5935.88	2		I	
5935.56	2		I	
5935.05	20	1000	II	5
5934.27	3		I	
5934.01		1	II	
5933.775	2		I	
5932.98	2		I	
5932.562	4		I	
5931.853	3		I	
5931.73	3 h		I	
5931.33		3 e	III	
5930.722	6		I	
5929.82	4		I	
5929.77		10	II	
5928.761	5		I	

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
5928.63	2		I	
5928.24		2	II	
5927.69	60		I	
5926.958	10		I	
5926.688	5		I	
5925.46	600	5	I	2
5925.00	60		I	
5924.498	15		I	
5924.165	2		I	
5922.991	5		I	
5922.153	15		I	
5920.98		2	II	
5920.48	2		I	
5920.38	5	300	II	6
5919.710	8		I	
5919.585	2		I	
5919.10		7	II	
5917.826	3		I	
5917.130	6		I	
5916.95		2	II	
5916.00	5 h l		I	
5915.052	3		I	
5914.912	2	20	II	
5914.415	5		I	
5912.35	5 h l		I	
5912.15	2		I	
5911.55	5		I	
5911.35	20		I	
5910.10	4		I	
5909.33	2	10	II	
5909.10	2		I	
5908.36	400	1500	II	6
5906.45	2		I	
5906.33		2	II	
5905.85	2		I	
5905.22	3		I	
5903.38	3	90	II	
5902.80		3	II	
5902.71	2		I	
5900.85		20	II	
5899.30	2		I	
5898.77	15	800	II	4
5897.21	50	2500	II	7
5896.63		6 d	II	
5895.16	2		I	
5894.98	5		I	
5892.30		2	II	
5888.02		4	II	
5886.05	5		I	
5883.61		6	III	
5882.80	100	600	II	
5877.68	10		I	
5874.67	2	200	II	7
5873.12		10	II	
5872.90		3	III	
5872.15		1	II	
5868.94		7	II	
5868.34	2	100	II	4
5866.69		6	II	
5866.48		1	II	
5865.63	1	70	II	6
5863.86		3	II	
5863.37		1	II	

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
5862.90	1	15	II	
5861.53		3	III	
5861.11	10		I	
5854.89		3	II	
5854.510	4000	200	I	3
5854.30	5	70	II	
5853.84		3	II	
5852.92		5	II	
5847.18	1	40	II	6
5845.50	6 h		I	
5844.97		9 e	III	
5842.44	80	1	I	
5841.96	20		I	
5839.56		1	II	
5839.25	2 h		I	
5838.91	6 h		I	
5838.62	2	70	II	5
5838.27	70	1	I	
5837.14	600	4000	II	6
5836.18	1	50	II	
5835.53	1	30	II	
5834.58	200	3	I	
5833.99	5 h	200 h	II	
5833.62	20		I	
5832.12		2 e	III	
5831.82	300	3	I	3
5831.58		5	II	
5831.04		15	II	
5830.82	2		I	
5829.63	200	2	I	
5829.11	5 h		I	
5828.49		1	II	
5824.33	2	50	II	7
5823.36		2	II	
5820.17	2		I	
5819.99		3	II	
5819.41	50	1500	II	4
5814.76		2	II	
5813.58	3	40	II	5
5812.64	3 h		I	
5811.90	1	40	II	
5811.13	1	20	II	
5810.67	3000	7	I	1
5808.66	3	120	II	
5807.86		30	II	
5807.51	1	7	II	
5806.58	7		I	
5804.06	80	1	I	
5803.44	5000	80	I	2
5802.36	200	1	I	
5801.50		8	II	
5801.13	1	15	II	
5801.04	1	10	II	
5799.57	1	40	II	
5798.82	2 h		I	
5796.09	80		I	
5792.28	1	10	II	
5789.93	1500	15	I	
5789.63	100		I	
5789.17	2	50	II	
5788.74	1	15	II	
5787.86	500	5	I	
5786.59	20	150	II	5
5786.09	400	3	I	
5784.43	3 h		I	
5784.026	10		I	
5779.92		3 e	III	
5777.95	3	100	II	5
5777.29	1	10	II	
5775.61	1	50	II	
5774.34	500	5	I	
5773.82	1000	10	I	
5772.76		3	II	
5772.39	3 h l		I	
5771.66	500	2000	II	4
5769.44		6	II	
5767.95	3	30	II	
5767.20	20	800	II	6
5765.21	5 h		I	
5764.65	1	40	II	
5760.18	30	6	II	
5759.84	4 h		I	
5758.25	9		I	
5757.84	2	15	II	
5755.89	3000	40	I	3
5754.80	2	70	II	
5753.57	1	25	II	
5753.20	2		I	
5750.62		8	II	
5749.91	1000	400	II	3
5746.703		3	II	
5746.36	1	15	II	
5745.80	2000	30	I	1
5741.99	15		I	
5741.75		2	II	
5740.83		15 e	III	
5738.82		5	II	
5738.53	2		I	
5737.09		20	II	
5735.773	10	600	II	7
5735.50		5	II	
5734.26		3	II	
5733.00	2 h l		I	
5732.60	4 h l		I	
5731.94	6 h l		I	
5731.69		3	II	
5731.26	6 h l		I	
5730.41	7 h l		I	
5730.001	20	1500	II	5
5729.26	5 h l		I	
5728.853	150	5	I	
5728.58	5 h l		I	
5727.47	90		I	
5727.21		5	II	
5726.68	10 h		I	
5726.49		2	II	
5724.58	500	2	I	7
5724.21		3	II	
5723.70	600	7	I	
5722.743		8	II	
5719.99	20000	1000	I	3
5718.86		1	III	
5717.25	10	300	II	7
5716.70		2	II	
5713.73	20	500	II	4
5713.270	4	15	II	
5712.844		15	II	
5711.38	1		I	
5710.733		25	II	
5710.403	1	15	II	
5709.715		2	II	
5706.773	10	100	II	
5704.98	2	70	II	5
5704.14		3	II	
5701.922	250	3	I	3
5699.95	3000	50	I	1
5699.02		15	II	
5698.21	2		I	
5697.65		2	II	
5696.93	2		I	
5696.717		5	II	
5695.22		2	II	
5694.906		15	II	
5694.13		1	II	
5693.694	10	400	II	7
5689.917	1000	30	I	7
5689.67	3	70	II	
5688.48	200	3	I	
5687.14	1 d	20 d	II	
5686.53	80	800	II	6
5685.832	1	9	II	
5684.13	2		I	
5683.56	10	300	II	
5683.09	500	5	I	7
5679.270	1	15	II	
5679.180	2	8	II	
5675.180	2	50	II	
5674.31	10	150	II	7
5672.37		2	II	
5672.16		8	II	
5671.45		2 e	III	
5670.02	500	2	I	
5665.34		1	II	
5663.21	200	2	I	
5660.152		4	II	
5658.86		1 e	III	
5654.27	2	150	II	7
5653.24	3	200	II	7
5651.985	1000	4000	II	4
5642.446	40		I	
5637.812	80	600	II	6
5637.33	1	6	II	
5634.45		1	II	
5633.81		1 e	III	
5631.496	2	90	II	
5628.958	10		I	
5627.89	4	200	II	7
5625.92	20		I	
5624.494		10	II	
5620.88	1	70	II	
5620.19	50	700	II	4
5618.55		1	II	
5616.66	2 h		I	
5614.68	1		I	
5614.116	3		I	
5613.39	5 h		I	
5611.50	1		I	
5610.60	2		I	
5610.281	3		I	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
5609.89		1	II	
5609.44	1		I	
5608.914	1	50	II	
5608.64		2	II	
5608.041	6		I	
5607.91		1	II	
5607.345	10	150	II	
5607.124		4	II	
5606.64		1	II	
5605.847	3		I	
5604.145		9	II	
5602.35	2	20	II	
5602.264	3	40	II	
5600.45	10		I	
5598.14	2		I	
5597.189	800	10	I	7
5595.84	5		I	
5591.19	10		I	
5590.10	10		I	
5588.452	500	4000	II	4
5587.249	200	2	I	
5586.362	2000	100	I	3
5585.426	400	5	I	
5585.248		20	II	
5583.57		1	II	
5582.236		2	II	
5581.778		8	II	
5581.05	2	40	II	
5580.79	20	700	II	4
5578.483		4	II	
5578.232	2000	20	I	7
5576.250	5		I	
5575.705	10	100	II	
5573.64		1	II	
5572.528	30	300	II	
5568.11	10000	100	I	2
5566.04		3	II	
5564.352		3	II	
5562.093	2000	200	I	3
5559.58		1	II	
5558.98	800	8	I	
5556.466	50000 A	10000	I	2
5554.62	500	5	I	
5554.30		4	II	
5552.30		1 e	III	
5551.69		2	II	
5550.37		7	II	
5549.79		20	II	
5549.32		1	II	
5548.918		50	II	
5548.79	100		I	
5547.16	50	500	II	7
5545.814	500	10	I	
5544.17		1 h	II	
5543.96		8	II	
5540.03		10	II	
5539.053	20000	1000	I	1
5538.016	50		I	
5535.47	7		I	
5533.21		7	II	
5533.14		10	II	
5532.111		3	II	
5530.73	1	1	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
5529.92	4	150	II	7
5529.08	5	250	II	5
5528.403	3		I	
5527.81	50		I	
5526.37	5		I	
5524.544	3000	30	I	7
5521.76	10		I	
5521.61		3	II	
5520.22	1	50	II	6
5519.83		2	II	
5518.352	70	1	I	
5516.334		10	II	
5515.38		3	II	
5514.79	1		I	
5512.47	20		I	
5512.19	20		I	
5511.764	1	30	II	7
5511.401	2	70	II	7
5509.198		20	II	
5509.046		3	II	
5508.266		20	II	5
5507.70		1	II	
5506.11	1500	5	I	
5505.49	20000	300	I	2
5504.17	60		I	
5504.026	300	3	I	
5502.802	1	10	II	
5501.37	2	20	II	
5499.65		2	II	
5498.75	5000	500	I	7
5498.390		3	II	
5494.58		1	II	
5494.364	1	10	II	
5493.088	700	5	I	2
5491.285	6		I	
5490.847		3	II	
5489.633	80		I	
5488.883		8	II	
5487.512	1	9	II	
5486.535	7	150	II	6
5483.212		3	II	
5481.925	20000	400	I	2
5479.806	1	50	II	
5479.122		2 d	II	
5478.50	100	1500	II	4
5477.206		9	II	
5476.90	2		I	
5475.706		10	II	
5475.132		4	II	
5474.565	400	5	I	
5474.037	1500	15	I	1
5471.17	30	400	II	5
5469.353	400	5	I	
5468.387	150	2	I	
5468.260		3	II	
5468.099	1		I	
5467.495	1	9	II	
5466.714	1	25	II	
5464.894	6	200	II	7
5463.850		3	II	
5463.24	4		I	
5463.12		10	II	
5460.74		4 e	III	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
5458.088	2	60	II	
5457.427	4	150	II	
5455.046	5	250	II	4
5454.007	2500	25	I	1
5453.47	60	1	I	
5449.84		1	II	
5449.270	500	2500	II	5
5448.565		4	II	
5445.492	1	40	II	
5441.615	2	5	II	
5441.259	200	1	I	
5440.548	10	200	II	
5438.01	2		I	
5435.27		6	II	
5432.89	400	6	I	
5432.71	60	1500	II	4
5431.167	2	80	II	
5429.838		8	II	
5428.162		2 e	III	
5426.867	30	900	II	7
5425.445	100	1	I	
5424.627	30	300	II	5
5422.715		1	II	
5421.361	7		I	
5420.608		7	II	
5417.421		9	II	
5414.258	6	200	II	7
5413.195	15		I	
5411.038	1	40	II	
5410.635		15	II	
5409.473	2	60	II	4
5408.348	100	2	I	
5408.092		4	II	
5405.541	60	1	I	
5404.899	300	5	I	
5403.079	3000	100	I	1
5402.706		3	II	
5402.00	150	2	I	
5399.71	50	500	II	7
5398.084		2 e	III	
5397.23		1	II	
5395.73	20	300	II	7
5394.084		3	II	
5393.757	2500	90	I	1
5393.37	5	150	II	6
5390.845	2500	40	I	3
5390.622	4000	150	I	1
5390.18		6	II	
5389.84	200	800	II	5
5387.99	90	8	I	
5386.72	1	50	II	
5386.07		10	II	
5385.29	200	2	I	
5384.48	5	50	II	5
5383.95	3	60	II	
5382.55	2		I	
5380.94	1		I	
5380.54	500	7	I	2
5380.24	70	2	I	7
5379.15	6		I	
5376.97	5	250	II	7
5371.53		4	II	
5370.47		9	II	

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
5368.28	50	400	II	4	5290.578	150	3	I		5218.792	1		I	
5367.78	10	100	II		5290.08	2	20	II		5217.936	3	70	II	7
5367.35	4	60	II	7	5289.45		2	II		5215.44	4	100	II	
5365.41	1	50	II		5289.178	1	5	II		5214.95	500	5	I	3
5364.78		15	II		5288.51	2000	15	I	7	5212.232		25	II	
5364.12		15	II		5287.45	3000	70	I	1	5211.604	6000	400	I	3
5363.66	10000	200	I	2	5287.285	5	100	II		5209.54		1	II	
5362.43	1	20	II		5286.12	2	100	II		5205.574	4	30	II	
5360.85		1	II		5283.825		3	II		5204.57		1	II	
5360.10	1	30	II		5283.00		1	II		5202.87		1	II	
5359.91	6	200	II		5281.210		20	II		5201.32		1	II	
5358.64	400	2000	II	6	5280.522	1	50	II		5201.21		2	II	
5357.71		3	II		5279.53	1000	5000	II	4	5200.74		4	II	
5357.08	20	200	II		5277.04	30000	3000	I	2	5200.54	50	500	II	4
5356.54	1	2	II		5275.592	1000	10	I	3	5200.10	4		I	
5356.41		10	II		5271.473	400	20	I		5199.14		1	II	
5352.95	1000	6000	II	4	5266.964	15		I		5196.81	40		I	
5351.29	5000	300	I	3	5265.63		8	II		5196.085	5000	200	I	3
5350.474	2	40	II		5265.558	40		I		5195.20	100	1	I	
5349.626		5	II		5264.238	10		I		5194.752	2000	80	I	
5349.10	1	6	II		5263.570	6	200	II	6	5193.850	2000	20	I	1
5348.208	300	3	I		5262.012	1	30	II		5189.89		7	II	
5347.22	1000	3000	II	4	5261.52		1	II		5189.50		8	II	
5345.83	200	900	II		5259.65		1	II		5189.14	200	2	I	
5345.66	400	1500	II		5258.165	800	10	I		5188.89		9	II	
5342.99		7	II		5257.490	800	3000	II	6	5187.33		3	II	
5341.10	2		I		5257.29	90		I		5185.15		1	II	
5339.69		1	II		5256.85		20	II		5184.66		1	II	
5339.312		15	II		5255.680	4	150	II		5184.15	150	1000	II	4
5338.75	10	100	II	7	5255.61	2		I		5182.755	2000	50	I	7
5338.31	60		I		5254.79		2 e	III		5180.641		5 e	III	
5337.11		7	II		5254.60		3	II		5180.355	15	150	II	6
5335.82	10		I		5254.20	1	20	II		5178.73	60		I	
5335.49	50		I		5253.448	1		I		5178.70	90	20	I	
5335.15	2000	7000	II	4	5250.804	100	2	I		5175.45	250	2	I	
5334.02	100	200	II		5250.51	1	8	II		5173.11	2	200	II	
5331.536		20	II		5249.80	5	150	II		5173.064	10	100	II	
5330.92		1	II		5248.99		6	II		5172.40		1	II	
5330.79	1		I		5248.17		1	II		5172.214	50	1	I	
5330.348	6		I		5247.94	15		I		5168.29	90		I	
5328.526	3	50	II		5246.857	400	4	I		5167.660		3	II	
5327.593	4		I		5246.39	4	40	II		5163.862	1		I	
5324.778		7	II		5244.61	100	300	II	5	5160.99		1	II	
5324.486		9	II		5244.11	10000	250	I	2	5160.74		1 e	III	
5323.10	300	3	I	1	5243.56		1	II		5160.47	7		I	
5322.541		8	II		5243.41		4	II		5159.655		3	II	
5321.14	10	250	II		5243.15		2	II		5157.962	3	100	II	
5320.962	5		I		5240.51	300	1000	II	6	5156.285	100	2	I	
5320.774		15	II		5239.25		2	II		5152.34	7	200	II	
5320.324	6		I		5236.66	3	150	II		5151.25		4	II	
5318.79		1	II		5234.28		2	II		5149.04		1	II	
5315.462		6	II		5232.537	6	40	II		5148.75	1		I	
5309.31	30	200	II	4	5230.292	60		I		5147.02	50	700	II	6
5307.74		6	II		5229.963	1	60	II		5146.37		3 e	III	
5306.506		40	II		5228.172	1000	30	I	7	5142.28	3	100	II	
5300.935	100	2000	II	4	5227.271	4000	80	I	1	5141.64		3	II	
5299.852	2000	10	I	3	5227.01	1	70	II		5140.38	120	2	I	
5297.153	150	4	I		5226.18	20	150	II		5140.11	20		I	
5297.02	50	1	I		5224.53	1		I		5139.53	900	10	I	1
5295.755		5	II		5222.68		3	II		5139.35	40		I	
5293.726		3	II		5221.606	50	1	I		5138.01		1	II	
5291.99		10	II		5220.82		5	II		5137.43	2	4	II	
5291.077		5	II		5220.41		10	II		5137.389	6		I	

Table 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air Å	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
5137.23		1	II	
5136.76	2		I	
5136.49		1	II	
5135.98	200	1500	II	7
5133.42		1	II	
5132.71	90	1	I	
5132.40	1	60	II	
5131.01	1	10	II	
5130.711		2	II	
5130.56		1	II	
5130.523	100	2	I	
5130.30		8 e	III	
5130.095	7		I	
5129.688	200	2	I	
5129.56		60	II	
5128.55	3	100	II	
5127.64	2		I	
5126.80	2000	20	I	3
5121.58	30	300	II	6
5119.29	100	1	I	
5117.72	1	25	II	
5116.200		10	II	
5114.606	40	1	I	
5113.34	700	10	I	3
5111.89	2		I	
5111.47	1	60	II	
5107.58		1	II	
5106.95	1		I	
5106.12		1	II	
5105.75	600	30 h l	I	7
5105.028	10	150	II	
5104.85	2000	30	I	1
5104.42	20	400	II	
5103.724	5	1	I	
5103.644	5		I	
5101.810		3	II	
5101.57	3	80	II	
5100.08	100	1	I	
5099.11		3	II	
5097.75		2	II	
5095.99		3	II	
5093.92	2		I	
5090.77	80		I	
5090.628		15	II	
5088.92	1	30	II	
5088.275	15		I	
5087.89	4		I	
5087.61	10	150	II	4
5086.45	15		I	
5085.70	2	80	II	
5085.22		1	II	
5083.938	90	1	I	
5083.52		2	II	
5082.934		7	II	
5082.590	250	9	I	
5080.981	500	9	I	2
5076.957		6	II	
5076.744	5000	150	I	1
5075.813		8	II	
5074.609		80	II	
5074.34	20000	2000	I	1
5073.35		1	II	
5069.144	4000	150	I	7

Wavelength in air Å	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
5067.800	1500	40	I	2
5067.600		10	II	
5067.297	200	800	II	4
5065.74		1	II	
5065.488		4	II	
5063.605	8		I	
5062.938	30	300	II	6
5062.634		15	II	
5061.87		2 e	III	
5061.24		1	II	
5060.722	2		I	
5058.71		8	II	
5058.613	900	5	I	2
5057.275		2	II	
5055.933	15		I	
5055.485	2		I	
5054.94		15 e	III	
5052.90		2 e	III	
5051.096		2	II	
5050.77	15		I	
5049.832	5	250	II	5
5047.08		15 d	II	
5043.708	150	4	I	7
5043.28		1	II	
5042.982	3	20	II	7
5041.756		4	II	
5039.86		2	II	
5038.240		15	II	
5034.262	5	1	I	
5033.289	1	20	II	
5032.899	2		I	
5032.586	1	25	II	
5032.14	2		I	
5029.342		3	II	
5029.03	6		I	
5027.67	2000	80	I	2
5025.356	1	6	II	
5023.925	1	9	II	
5022.32		3 e	III	
5021.860	400	4	I	
5021.13	50	400	II	7
5019.691	1500	15	I	1
5017.80		3	II	
5014.98		2	II	
5014.472	20	250	II	6
5013.76		1	II	
5013.27		2	III	
5010.04		1	II	
5009.525	500	2000	II	7
5009.025		2	II	
5008.876	1	15	II	
5007.76		1	II	
5005.25		1	II	
5004.79	15		I	
5004.63		1	II	
5003.306	2		I	
5002.98	5	70	II	5
5000.452		2	II	
4998.87		3	II	
4998.266	3	15	II	
4996.604		4	II	
4994.74		1	II	
4993.32		1	II	

Wavelength in air Å	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4992.786	2		I	
4992.654		6	II	
4992.520		7	II	
4992.102	2		I	
4989.924	6		I	
4989.794		4	II	
4989.57	100	1	I	
4988.383	1	15	II	
4988.022		1	II	
4987.292	1	15	II	
4986.88	6	3	II	
4985.36	2		I	
4982.82	2		I	
4981.34	1		I	
4978.62	1	9	II	
4976.65		2	II	
4975.86		4 e	III	
4974.16	2000	100	I	2
4973.90		15	II	
4972.42	10	2	I	
4972.26	1	20	II	
4971.20		8	II	
4970.41	40	7	I	
4970.203	3	4	II	
4967.35		2	II	
4966.902	10000R	700	I	3
4965.43	3	15	II	
4964.61		3 e	III	
4963.18		2	II	
4962.28	1		I	
4961.124		3	II	
4960.478		4 e	III	
4960.28	1		I	
4958.895		2	II	
4957.83	8		I	
4957.262		7	II	
4956.512	500	9	I	3
4955.98		1	II	
4954.68	3	50	II	7
4953.72	1		I	
4953.622		3	II	
4952.740		2	II	
4951.88	2		I	
4949.24		2	II	
4946.524		1	II	
4946.19		1	II	
4945.944		3	II	
4944.956	5	150	II	
4944.080	200	600	II	6
4942.742	20	200	II	
4942.254	250	3	I	
4940.53		2	II	
4938.828		4	II	
4937.222	100	2000	II	7
4935.50	20000R	2000	I	1
4932.81	5		I	
4931.953	1000	40	I	2
4931.16	5		I	
4930.78		1	II	
4929.31	1	20	II	7
4928.184		4	II	
4927.154		1	II	
4924.187		2	II	

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
4923.747		1	II	
4919.595	100	2	I	
4918.45		10	II	
4918.118	150	2	I	7
4917.044	20	60	II	4
4915.42		1	II	
4912.365	3000	100	I	3
4909.81		3	II	
4906.335	50		I	
4906.27		9	II	
4905.48		2	II	
4904.93	1		I	
4903.89	1	25	II	
4903.71	3	50	II	7
4900.16		4	II	
4899.980		2	II	
4899.78	500	5	I	3
4898.42		15	II	
4897.90	2	40	II	
4897.08	5		I	
4895.606	150	5	I	
4894.983	50	400	II	5
4894.596	3000	400	I	1
4894.296	50		I	
4893.465	500	5	I	7
4891.992	200	4	I	7
4891.654		3	II	
4891.056	1	8	II	
4890.07		1	II	
4888.99		3	II	
4888.18	25	1	I	
4887.662		2	II	
4885.45	90	3	I	
4884.205		4	II	
4882.15	2		I	
4880.674		8	II	
4880.190		10	II	
4875.852		2	II	
4873.180		2	II	
4871.670	2	40	II	7
4871.150	10	90	II	7
4870.288	30		I	
4868.511	8		I	
4863.87		3	II	
4863.56		1	II	
4863.295	40		I	
4862.802		4 e	III	
4862.524	2		I	
4860.84		2	II	
4859.49		2	II	
4857.542	50	1	I	
4856.50	1		I	
4855.922	15		I	
4854.92	1		I	
4853.826	500	7	I	1
4853.347		7	II	
4851.150	300	600	II	7
4850.848	1	10	II	
4849.265		2	II	
4849.034	100	1	I	
4848.455	50	300	II	
4846.873	1	15	II	
4846.612	4	20	II	

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
4845.612	3		I	
4841.918	50	2	I	
4841.47		2	II	
4841.153	50	150	II	6
4839.462	2		I	
4839.279	1	15	II	
4839.014	1	7	II	
4838.657	7		I	
4838.220	10	20	II	
4837.46	4000	100	I	2
4837.045	500	1000	II	
4836.96	500	1000	II	6
4834.926	1	10	II	
4834.72	10	100	II	4
4834.23	2	3	II	
4833.55		1	II	
4833.24		1	II	
4832.989	200	5	I	
4831.912	400	20	I	
4831.533	2	20	II	
4831.30	600	10	I	3
4830.704	500	10	I	2
4828.29	3		I	
4827.81		2	II	
4826.78		2	II	
4825.655	1		I	
4824.28	1		I	
4823.615		2	II	
4822.47		1	II	
4822.010		3	II	
4821.58		2 e	III	
4820.74		1	II	
4820.242	400	1000	II	4
4819.59	20	1	I	
4818.371	100	600	II	4
4816.43	5000	600	I	1
4815.612		6	II	
4815.28		1	II	
4813.92	2	7	II	
4812.918	400	40	I	3
4811.89	1		I	
4810.51	40	4	I	
4809.451	2	30	II	
4808.502	2	50	II	
4804.571	3		I	
4803.653		10	II	
4801.473		2	II	
4800.535	2		I	
4799.96		1	II	
4798.72		3	II	
4795.829	80	1	I	
4794.96	1		I	
4794.85	1		I	
4794.57	1		I	
4792.63		3	II	
4792.336		2	II	
4790.61	1	15	II	
4788.924		5	II	
4786.61	2000	8000	II	4
4784.54	70	9	I	
4781.867	10000	2000	I	1
4781.17		2 d	II	
4780.32	400	15	I	1

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
4778.982	200	7	I	3
4778.414		1	II	
4778.35		1	II	
4777.946		4	II	
4777.56		1	II	
4774.145	4	8	II	
4773.839		8	II	
4773.13		3	II	
4772.43		2	II	
4772.23		6	II	
4772.000		2	II	
4770.834	150	2	I	
4768.32		6	II	
4768.036		3	II	
4765.51	1		I	
4765.080	3		I	
4762.587	300	5	I	2
4761.55	2		I	
4761.139	2	40	II	
4758.320	80	4	I	7
4757.559	40	1	I	
4757.14		1	II	
4756.36		1	II	
4755.15	4		I	
4754.370	5		I	
4752.91	100	400	II	6
4751.789	400	10	I	1
4751.22	3		I	
4749.948	2	30	II	
4749.55		1	II	
4749.06	1	5	II	
4748.71		2	II	
4748.08		2 d	II	
4746.68	10	150	II	6
4745.483	1	20	II	
4745.27	2		I	
4743.57		3	II	
4743.356	250	7	I	3
4741.574	8		I	
4739.70	1	10	II	
4739.330	1		I	
4738.656	5	7	II	
4736.89	1		I	
4736.69		2	II	
4736.525	15		I	
4732.935	1	25	II	
4732.505	18		I	
4732.14	2		I	
4732.025	30	200	II	6
4731.70		2	II	
4731.04	2		I	
4729.25		3	II	
4728.109		8	II	
4727.901		7	II	
4726.54		1	II	
4726.08	1000	3000	II	4
4725.14		2	II	
4723.85	1		I	
4723.404		4	II	
4722.53	2		I	
4722.148	10		I	
4720.955		2 e	III	
4720.79	2000	50	I	2

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Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
	Meggers lamp	Thompson lamp		
Å				
4720.390		2	II	
4718.56	3000	500	I	3
4718.34	200	2	I	
4717.375	30		I	
4715.672		3	II	
4715.16	6		I	
4714.70	700	40	I	
4712.78	40	200	II	5
4712.73	2		I	
4709.96	15	1	I	
4709.330	40	1	I	
4706.81	2		I	
4706.700	2		I	
4705.40		4	II	
4705.04		7	II	
4704.886	300	20	I	
4704.23		1	II	
4703.012		4	II	
4702.982	10		I	
4702.355	200	10	I	
4700.77		1 e	III	
4699.045		6	II	
4698.62	10	40	II	
4697.688		2	II	
4697.34		3	II	
4696.842	1	15	II	
4696.286	40	2	I	
4695.832	7		I	
4695.70	2		I	
4693.06	1		I	
4692.41		2	II	
4691.982		4	II	
4690.810	20	90	II	
4689.807	1	7	II	
4689.069	15		I	
4688.515	40	100	II	4
4688.38	5	20	II	
4687.593	1000	50	I	1
4685.876		6	II	
4685.28	4		I	
4685.071		3	II	
4684.268	1500	80	I	7
4683.810	200	1000	II	7
4681.666	10	1	I	
4681.514	3		I	
4681.088		3	II	
4680.136	6	1	I	
4679.625	15		I	
4678.171	2	6	II	
4677.432	90	1	I	
4676.67	6		I	
4675.66	2	4	II	
4675.20	1		I	
4674.644		1	II	
4674.493	1	3	II	
4673.62	1		I	
4672.125	1		I	
4671.701	30	1	I	
4671.386		3	II	
4670.586	50	200	II	4
4669.510	2		I	
4669.280		4	II	
4667.05	1	1	II	
4666.735	200	10	I	7
4666.145	2	1	II	
4664.565	30		I	
4663.873	5		I	
4663.44	1		I	
4661.878	5		I	
4660.906		4	II	
4660.68		2 e	III	
4660.057	4		I	
4659.910		5	II	
4659.780	20		I	
4659.60		1	II	
4658.87	4 d		I	
4658.746		3	II	
4658.443	2	2	I,II	
4657.43		1	II	
4656.971	3000	500	I	2
4654.46	4		I	
4654.070	1	5	II	
4653.310	5		I	
4652.667		5	II	
4652.279		2	II	
4651.67	500	20	I	3
4650.99	3		I	
4650.05	1500	100	I	7
4649.756		2	II	
4647.076		2	II	
4646.91	7		I	
4646.532		2 e	III	
4645.05		10	II	
4644.54	3000	100	I	1
4643.14		5	II	
4641.945	6	2	I	
4640.11		15	II	
4639.14		40 e	III	
4639.04		1	II	
4638.81	3		I	
4637.88		1 e	III	
4637.341	3		I	
4637.226		3	II	
4635.01		1	II	
4634.38	4		I	
4634.014	20	200	II	7
4633.406		3 e	III	
4633.196	30	4	I	
4631.09	2		I	
4630.614		3	II	
4630.522	20		I	
4629.833	200	3	I	
4629.75		2	II	
4628.861	2		I	
4628.43	2		I	
4627.556	4		I	
4627.23	5		I	
4626.054	2		I	
4625.47	2		I	
4624.93		2	II	
4624.585		4	III	
4624.41	1200	50	I	2
4623.91		1	II	
4623.060		3	II	
4621.83		2	II	
4621.80	3		I	
4620.51		2	II	
4618.487	15		I	
4617.900	5		I	
4617.46	1		I	
4615.947	300	15	I	1
4615.740		2	II	
4615.427	3		I	
4614.020	1	3	II	
4611.90		1	II	
4610.70		1	II	
4610.172	600	30	I	3
4609.600		1	II	
4608.131		15	II	
4608.061	3		I	
4607.004		3 e	III	
4606.854	1		I	
4602.354	2		I	
4600.300		2	II	
4598.85		2	II	
4598.361	300	800	II	5
4597.980	5	30	II	
4597.279	2	30	II	
4597.087		1	II	
4596.342		7	II	
4595.556		1	II	
4594.033	10		I	
4593.375	30	5	I	
4593.214		4	II	
4592.443		10	II	
4591.780	5		I	
4591.333		4	III	
4590.834	2000	200	I	3
4590.578	10		I	
4589.211	1000	150	I	2
4588.677		1	II	
4587.547		2	III	
4587.075		15	II	
4585.916	40	4	I	7
4585.767		10	II	
4585.634	15		I	
4585.528		2	III	
4582.924	60	6	I	
4582.695	50	6	I	
4582.355	6000R	600	I	3
4581.222	7		I	
4580.724	9	1	I	
4580.649	40	6	I	
4579.536		6	II	
4578.620		3	II	
4578.142		7	II	
4577.722	10		I	
4576.209	10000R	1000	I	1
4574.800		2	II	
4572.740		1	II	
4572.027		1	II	
4571.660		3	II	
4571.064		1	II	
4570.081		1	II	
4569.172		2	III	
4568.853	200	50	I	3
4567.368	700	60	I	2
4563.95	2000	200	I	1
4563.680		3	II	

Table 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4562.440		5	II	
4561.533		2	III	
4560.022		3	II	
4558.906		3	III	
4558.095	2		I	
4557.936	20	150	II	
4555.50		2	II	
4555.47	3		I	
4554.217		5 e	III	
4554.032	1	3	II	
4553.576	500	1500	II	6
4552.619		8	II	
4552.351	6		I	
4552.175		2	II	
4551.792		2 d	II	
4550.601		6	II	
4548.359	40	80	II	
4547.960		3	II	
4547.788	10		I	
4547.032	1	20	II	
4546.866	30	1	I	
4545.770	8	1	I	
4545.383		1	II	
4545.216		2	II	
4544.420	30	1	I	
4543.879	2	40	II	
4543.680	2		I	
4543.452		4	II	
4543.302		3	II	
4542.588	1 h	5	II	
4542.371		1	II	
4541.598		2	II	
4541.452	1		I	
4541.325	20	100	II	5
4540.046	8	2	I	
4539.323	5	20	II	
4538.678	4		I	
4538.027		3	II	
4537.494		2	II	
4536.805		3	II	
4536.313	2		I	
4535.718		2	II	
4534.250		1	II	
4533.506	1000	50	I	3
4533.006	150	8	I	
4532.702	50	2	I	
4531.333	1500	200	I	1
4530.657		3	II	
4530.23		4	III	
4529.87	3000	400	I	1
4528.882		5	II	
4527.526		2	II	
4525.535		1	II	
4525.108		3	II	
4524.810		2	II	
4524.549	1	4	II	
4523.161		2	II	
4521.338		4	III	
4520.918	2		I	
4520.746		8	II	
4520.510	5	2	I	
4520.161	200	2	I	
4517.584		100	III	
4517.218		2	II	
4517.051		1	II	
4516.094	1	2	II	
4515.636		2	II	
4515.161	200	800	II	4
4514.846		10	II	
4513.990	6	20	II	
4513.408	1000	80	I	3
4512.909		1	II	
4511.725		3	II	
4510.744		3	II	
4509.700		3	II	
4508.788	1	9	II	
4506.95		2 d	II	
4506.045	1	4	II	
4505.900		5	II	
4505.345		3	II	
4504.850		2	II	
4504.331	1	9	II	
4504.076		3	III	
4503.636	600	50	I	3
4503.463		5	II	
4503.21	150	5	I	
4500.542		3	II	
4500.304		1	II	
4499.621		3	II	
4499.462		1	II	
4498.098	1		I	
4495.840	1		I	
4495.520		1	II	
4493.965	50	150	II	6
4493.244		1	II	
4492.120	4		I	
4491.422		1	II	
4490.240		1	II	
4490.161	2		I	
4488.282	1000	60	I	1
4487.266	50	200	II	7
4487.03		2 h	II	
4486.794		1	II	
4486.225		1	II	
4485.986		1	II	
4485.326		6	II	
4485.040		2	II	
4484.466	20	60	II	
4484.280	1	5	II	
4483.152	8	1	I	
4482.422	1500	150	I	3
4478.271	30	1	I	
4475.666		2	II	
4474.115		3	II	
4473.884		1	II	
4473.005	20	2	I	
4472.470	1500	300	I	7
4472.146		8	II	
4470.958		1	II	
4469.566		3	II	
4468.520	4		I	
4468.18	10	1	I	
4467.642		1	II	
4467.128	1	10	II	
4466.002		7	II	
4465.663		2	II	
4463.965		2	II	
4463.855	1	8	II	
4463.493	1	9	II	
4461.72	7		I	
4460.923	1	5	II	
4450.405		1	II	
4459.181		1	II	
4457.428		2	II	
4457.311		1	II	
4456.994		4	II	
4455.651	4	1	I	
4452.663		3	II	
4452.153		1	II	
4451.930		20	II	
4451.11		2 d	II	
4450.60		1	II	
4444.860		3	II	
4444.108		2	III	
4442.075		3	II	
4441.484		2	II	
4441.031	9	2	I	
4440.415		3	III	
4440.011	4		I	
4439.19	7000R	500	I	2
4438.142		7	II	
4436.366	4		I	
4435.150		5	II	
4434.795	20	1	I	
4434.178	40	100	II	
4432.041	1		I	
4431.595		1	II	
4430.208	900	150	I	3
4429.689		2	III	
4428.980	30	1	I	
4428.782	700	100	I	
4428.153		3 h	II	
4428.02	3		I	
4427.387	600	200	I	
4423.129		1	II	
4422.150		3	II	
4422.070	1		I	
4419.616	3		I	
4419.495		1	II	
4418.132		3	II	
4417.814		1	II	
4417.080		3	II	
4415.202	1		I	
4414.548		1	II	
4412.075		2	III	
4411.095	500	30	I	3
4410.740		2 h	II	
4410.230	200	8	I	
4409.685		2 h	II	
4409.346	200	300	II	5
4408.220		1	II	
4407.650	1	4	II	
4407.081	5	1	I	
4405.496		1	II	
4404.208		1	II	
4403.037		1	II	
4402.824		5	II	
4402.605	40	2	I	7
4402.300	40	200	II	4

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
4401.824		1	II	
4401.445	1	6	II	
4400.583		1	II	
4400.332	50	2	I	
4399.391		1	II	
4398.96	2000	100	I	3
4396.499	10	40	II	
4396.254	100	5	I	7
4395.52	1		I	
4394.973	70	3	I	
4394.177	25	2	I	
4393.688	2000	400 h	I	7
4392.825	50	100	II	6
4390.49		1	II	
4390.43		1	II	
4389.764	50	200	II	
4389.15		1	III	
4388.528		8	II	
4387.46		1	II	
4387.32	30	2	I	
4387.144	1	10	II	
4386.50	200	5	I	
4385.97	2	20	II	
4385.82		1	III	
4385.66	3	10	II	
4385.14	100	2	I	
4384.72		2	II	
4384.39		4	III	
4384.29	3		I	
4383.93		10	II	
4383.11		1	II	
4383.02		2	II	
4382.16		1	II	
4382.08		2	II	
4381.87	2	1	I	
4381.80		20	II	
4380.30		4	III	
4380.07		10	III	
4379.91		8	III	
4379.50	20	300	II	
4379.452	200	20	I	
4379.268	60	3	I	
4377.80		1	II	
4377.527	3000	300 h l	I	
4376.851	1	40	II	
4376.649		2	II	
4376.456	2000	200	I	3
4375.814		6	II	
4374.861		3	II	
4373.116	20	1	I	
4372.854		1	II	
4372.65		2	II	
4372.560	2	30	II	
4371.083		3	II	
4371.05		1	II	
4370.810	200	2000	II	6
4368.89		1	II	
4368.678	100	5 h	I	
4368.520		1	II	
4368.23	10		I	
4366.284	1000	200 h l	I	
4365.948		2	II	
4364.056		5	II	
4363.71	3		I	
4363.54		1	II	
4363.280	6	90	II	
4362.333		4	II	
4362.156	1	6	II	
4361.868		2	II	
4361.639	100	7 h	I	
4361.468	1	10	II	7
4360.663		4	II	
4360.140	1	2	II	
4359.958		20	II	
4359.528	1000	150 h	I	3
4359.165	3	2	I,II	
4356.676	500	40	I	2
4356.468		5	III	
4356.160		3	II	
4355.58		1	II	
4354.191	3	10	II	
4354.037	2	1	I	
4353.570	500	90 h l	I	
4352.948	2000	400	I	3
4351.67	1		I	
4351.07		4	III	
4350.801		15 e	III	
4350.44		2	III	
4350.006	40	1	I	
4349.952		2	II	
4349.470	2	1	I	
4348.807		8	III	
4348.087	3	15	II	
4347.66	3		I	
4347.358		3	II	
4347.223	10	20	II	
4347.13		1	II	
4347.013		4	III	
4346.00		1	II	
4345.054		3	III	
4344.894	1	20	II	
4344.762	300	20	I	
4344.204	60	300	II	4
4343.845		5	II	
4343.632	3		I	
4343.110	2		I	
4342.753		3	II	
4342.151	6	80	II	5
4341.646		10	II	
4340.673	2	7	II	
4340.269		1	II	
4340.147	1	15	II	
4339.71	4		I	
4339.38	30		I	
4339.082	150	1000	II	4
4337.599	80	20	I	
4337.235		2	II	
4336.430	1000	150 h l	I	
4336.30		1	II	
4335.360	20	1	I	
4334.914	3	4	II	
4333.909	400	40	I	
4332.809		4	II	
4331.942		2	II	
4331.762		3	II	
4331.318		1	II	
4331.032		5	II	
4330.488	20	1	I	
4329.818		15	II	
4329.718	70	4	I	7
4329.654		1	II	
4327.853		9	II	
4327.238		2	II	
4326.637	1	15	II	
4326.556		9	II	
4326.404	2000	200	I	1
4325.240	6	90	II	
4325.033		2	II	
4324.962		1	II	
4324.500		7	II	
4324.160		1	II	
4323.630		8	II	
4323.554	1	5	II	
4322.851		1	II	
4322.56	2	30	II	
4322.53	1	20	II	
4322.230	200	2000	II	6
4320.995		2	III	
4320.723		2	II	
4319.556	1	9	II	
4318.978		1	II	
4318.820		1	II	
4318.750		2	II	
4318.459	2	10	II	
4318.010		3	II	
4317.751	1	15	II	
4316.954	2000	8000	II	4
4315.302		3	II	
4315.15		1	II	
4314.65		1	III	
4314.306		2	III	
4313.567	30	1	I	
4313.156	70	4	I	
4312.991	60	3	I	
4312.356	600	40	I	
4311.86	2		I	
4311.714		5	III	
4310.230	1	10	II	
4310.124		20	II	
4309.886		15	II	
4309.823	3000	300	I	7
4309.308		4	II	
4309.085		3	III	
4308.73		2	III	
4308.586		7	II	
4307.820	300	10	I	
4307.583		4	II	
4307.29		3	II	
4306.494	2	80	II	
4305.966	5000	2000	I	3
4305.484	150	20	I	
4305.369		9	III	
4304.879		5	III	
4304.512		2	II	
4304.458		3	III	
4304.422		2	II	
4304.01		20	III	
4303.675		2	II	
4301.74		3	III	

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
4301.496	5	15	II	
4301.135		40	III	
4300.984	1000	80	I	7
4300.736		4	II	
4298.498		2	III	
4298.075		1	II	
4296.696		3	II	
4296.338		3	II	
4295.88	3		I	
4295.04	300		I	
4295.023	500	50 h s	I	
4294.598		3	III	
4294.473	30	2	I	
4293.421		8	II	
4293.319		3	III	
4292.99	3		I	
4292.946		5	III	
4292.615	10	1	I	
4292.083	70	2	I	
4291.954	3	2	I	
4290.357		7	II	
4289.91		1	II	
4289.64		20	III	
4289.605	1		I	
4288.840	80	7	I	
4288.800		9	II	
4286.839		7	II	
4286.625		4	III	
4285.878		9	II	
4285.816		1	II	
4285.258	1	9	II	
4285.127	2	15	II	
4284.942	7	80	II	
4284.170	2000	500 h	I	7
4283.782		7	III	
4283.453		1	II	
4282.808		10	II	
4282.098	40	2	I	
4281.972	20	50	II	
4281.850	20	1	I	
4281.584		5	II	
4281.384		2	III	
4280.636		2	II	
4280.594		1	II	
4277.738	4000	1000	I	3
4277.326		8	III	
4277.092		2	II	
4276.78		1	II	
4276.21		2	III	
4275.694		4	III	
4275.66	5		I	
4275.63	5		I	
4275.48	2		I	
4273.74	10	1	I	
4273.340	20	150	II	5
4272.647	400	40 h l	I	
4272.103	1000	40	I	
4271.963		2	II	
4271.798	600	70 h l	I	
4270.515	4	60	II	
4268.986		4	III	
4268.882		1	II	
4268.39	1		I	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
4267.590	50	100	II	
4267.132	500	30 h l	I	
4266.983	300	30	I	
4266.952	10	100	II	
4266.70	20	1	I	
4266.156	3		I	
4266.115	2		I	
4265.976		2	II	
4265.498		1	II	
4265.144		1	III	
4264.802	1	30	II	
4264.520		1	II	
4264.282		5	II	
4264.029		6	II	
4262.826	2	5	II	
4262.691		6	II	
4262.273		1	II	
4261.56		8	III	
4261.346	20	1	I	
4260.761		2	III	
4260.678		7	II	
4260.068		3	III	
4259.17		1	II	
4258.98		4	III	
4258.743	200	20 h l	I	
4258.194	2	20	II	
4257.640	200	2000	II	4
4257.550	40	10	I	
4257.36	60	3	I	
4257.198		6	II	
4256.756	1000	100	I	
4255.765	500	2000	II	4
4254.775	200	800	II	6
4254.000		9	II	
4253.790		1	II	
4253.488		7	III	
4253.363	3		I	
4253.292	1		I	
4252.941	20	1	I	
4252.806		3	II	
4252.515	300	3000	II	4
4252.040		15	II	
4251.521	3000	200	I	3
4250.21		5	II	
4249.861		2	II	
4249.81		2	II	
4249.748		4	II	
4248.12		2	II	
4247.885	40	300	II	6
4247.04		2	II	
4246.88	4		I	
4246.835		10	II	
4246.586	4	20	II	
4245.740	3	15	II	
4245.597		2	II	
4245.245	10	1	I	
4244.73		1	II	
4244.51		8	II	
4244.21	6	80	II	5
4244.054	6	15	II	
4243.92	3		I	
4243.494		9	II	
4242.86	4		I	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
4242.425	4	60	II	
4242.299		4	II	
4241.67	2	6	II	
4241.24		2	II	
4241.159	1	15	II	
4241.116		5	II	
4240.95	6		I	
4239.455		1	II	
4238.84		1	II	
4238.63	2	1	I	
4238.345		1	II	
4238.157	2	30	II	
4237.284		3	II	
4237.00	5		I	
4235.69	7		I	
4235.565	1	20	II	
4235.49	2		I	
4235.012	1	20	II	
4234.545	50	800	II	6
4233.777		1	I	
4233.445	150	8	I	
4232.427		1	II	
4231.972	10000	1000	I	3
4231.648		6	II	
4231.073		15	III	
4230.184	100	400	II	4
4229.767		4	III	
4229.681		3	II	
4229.657	4		I	
4229.271	3	30	II	
4227.952	50	700	II	6
4226.85		2	II	
4226.595		4	II	
4226.523		4	III	
4226.273	1	20	II	
4226.152	300	10 h	I	
4225.998		8	II	
4225.548	10	30	II	
4225.303		1	III	
4224.196	20	150	II	4
4224.064		1	II	
4223.621	50	2	I	
4223.466		2	II	
4222.486		10	II	
4222.32	5		I	
4222.057		4	II	
4220.831		10	III	
4220.69		4	III	
4220.507	7	1	I	
4220.260		1	II	
4219.706	500	20 h	I	
4219.646		10	II	
4219.247	1000	200	I	
4218.693	3000	600	I	7
4218.565	1000	5000	II	4
4217.79		2	II	
4217.69		2	II	
4217.110		4	II	
4216.885	6	60	II	
4216.766	20		I	
4216.704	60	300	II	4
4216.569		2	II	
4216.417		8	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air Å	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4216.14		1	III	
4215.519	6	20	II	
4215.485	2		I	
4215.416		2	III	
4215.178		2	III	
4214.942	2	15	II	
4214.29	3		I	
4213.962	50 d	20 h	I	
4213.856		2	II	
4213.641		300	III	
4213.407		3	II	
4213.106	10	1	I	
4212.361		6	II	
4211.957		1	II	
4211.82	2000	300	I	2
4211.502		2	II	
4211.298		4	II	
4210.664	4	40	II	7
4210.48	5		I	
4210.299	200	20	I	7
4210.225	15		I	
4209.870		5	II	
4209.342	8	1	I	
4208.625		4	II	
4208.519		1	II	
4208.138		6	III	
4207.65		1	II	
4207.32	6	1	I	
4206.042		1	III	
4205.907	2		I	
4205.785	80	6 h	I	
4205.608		4	II	
4204.195	300	5	I	
4204.058		5	II	
4203.254		2	II	
4202.907	6	2	I	
4202.666		2	II	
4202.44	15	30 h l	II	
4201.991		1	II	
4201.864	3	1	I	
4201.460	2	20	II	
4201.291	200	8 h	I	
4200.841		5	II	
4200.72	60	1	I	
4199.939		4	II	
4199.713		10	II	
4198.863		1	II	
4198.738		10	III	
4198.18	2		I	
4197.876	400	100 h	I	
4196.632	1	9	II	
4196.54	1		I	
4195.056	2		I	
4194.95		100	III	
4194.39	2		I	
4194.34		30	III	
4194.23	2		I	
4194.19	2		I	
4193.807	2	10	II	6
4193.533		4	II	
4192.725		3	II	
4191.473		2	II	
4191.36	1		I	

Wave-length in air Å	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4190.297	200	2000	II	4
4189.15	3		I	
4188.993	70	5 h	I	
4188.723		7	II	
4188.371		2	II	
4188.130	1	20	II	
4187.73	1		I	
4186.83	15	300	II	7
4186.75	1		I	
4186.027		2	II	
4185.565	2	30	II	5
4184.635	1	20	II	7
4184.289	2	1	I	
4184.164		3	II	
4183.905		1	II	
4183.402		4	III	
4183.129	5		I	
4183.06		3	III	
4182.553		2	II	
4182.353		2	III	
4182.07	9	1	I	
4180.809	10000	20000	II	4
4179.95	20		I	
4179.084	10	80	II	
4178.585	4	6	II	
4178.225		8	II	
4177.81	4	80	II	4
4177.40	2	50	II	
4176.204		3	II	
4175.928	10	90	II	
4175.868	100	10	I	
4175.835		30	II	
4175.602	2	30	II	4
4175.545	1	20	II	
4174.56	3000	300	I	2
4174.399		6	II	
4174.259	80	4 h	I	
4173.134	9	1	I	
4172.95		60	III	
4172.422	200	20	I	
4172.15		20	II	7
4171.222	20	1	I	
4170.106	200	2000	II	5
4169.499	2	8	II	
4169.260	50	5 h	I	
4169.141	50	5	I	
4167.37		1	III	
4166.743	40	3	I	
4165.692		2	II	
4165.143		6	II	
4165.08		1	III	
4164.660	5	50	II	
4164.587		15	II	
4163.770	3		I	
4163.502	10	2	I	
4162.717		100	III	
4162.023		5	II	
4161.572		1	II	
4161.178		7	III	
4160.299		2	II	
4160.243	4		I	
4160.090	3	40	II	
4159.008	6	1	I	

Wave-length in air Å	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4157.755	100	200	II	
4157.292		8	III	
4156.575	1	4	II	
4156.444		1	II	
4155.385	8	1	I	
4155.123	50	2 h	I	
4154.83	4		I	
4154.484		7	III	
4153.88		6	II	
4153.758		4	II	
4153.197		7	II	
4153.11		15	III	
4152.79		3	II	
4152.38		5	III	
4152.290	2		I	
4152.058	3		I	
4151.64		7	III	
4151.19	9	1	I	
4150.04		10	III	
4149.066	20000R	2000	I	7
4148.440		8	II	
4147.774	1	30	II	
4146.984		2	II	
4146.870	80	5	I	
4146.764	1	30	II	
4146.160		3	II	
4144.700	1	20	II	
4144.273	1	15	II	
4143.498	500	30 h	I	
4143.070		4	II	
4142.364	1	30	II	
4141.457	2	60	II	5
4140.307	8	1	I	
4139.397	2		I	
4139.332	10	30	II	
4139.051	500	20	I	
4138.445		4	II	
4138.166		3	II	
4138.13		1	II	
4138.11		1	II	
4137.985		2	II	
4137.378		4	II	
4136.930		7	II	
4136.872		1	II	
4136.35		2	III	
4135.88		3	III	
4135.088	500	5000	II	6
4134.730	20	1	I	
4134.476	20	80	II	6
4132.722		6	III	
4132.465		4	II	
4132.165	15	2	I	
4132.063		2	II	
4131.600	2	20	II	
4131.325		3	II	
4131.255	2		I	
4131.15		4	II	
4131.024	6	40	II	
4130.878	1	4	II	
4130.645	2		I	
4129.413		1	II	
4129.329		2	II	
4129.157	2	30	II	4

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4128.934	100	4 h	I	
4128.815	30	2	I	
4128.115	4		I	
4128.046		3	II	
4127.202		4	II	
4127.170	1		I	
4126.992	20	30	II	
4126.726	1	15	II	
4126.030		2	II	
4125.955	3		I	
4125.538	150	5 h	I	
4125.185	20	1	I	
4124.736	2	30	II	
4124.564		1	II	
4123.75	6	1	I	
4123.180	1	20	II	
4122.853	50	500	II	4
4122.274	4	1	I	
4122.143	8	1	I	
4121.902	200	20	I	
4121.345		3	II	
4121.062		15	III	
4120.071	1	40	II	
4119.812		2	II	
4119.464	200	1500	II	5
4119.25	20	30	II	
4119.087	30	3	I	
4119.046	3	60	II	
4118.395		3	II	
4118.180	8	2	I	
4118.07	10	1	I	
4117.177	1	30	II	
4116.89	1		I	
4116.654		4	II	
4116.000	4		I	
4115.70	1		I	
4115.454		9	II	
4114.694	1		I	
4114.591	2	30	II	
4114.31		1	III	
4113.879	1	20	II	
4113.805	2		I	
4113.707		5	II	
4113.389	40	2 h	I	
4113.046	40	400	II	6
4112.768		3	III	
4111.966		3	III	
4111.381		6	II	
4111.07	8		I	
4110.448		2	II	
4110.168		10	II	
4109.79	40	2	I	
4109.654		400	II	4
4109.574	3000	400	I	2
4109.306	2	40	II	
4108.845	5	15	II	
4108.542	8	1	I	
4108.399		4	III	
4107.222	20	3 h	I	
4106.284		3	II	
4106.070		5	II	
4104.60	2		I	
4104.05	4		I	
4103.416	1	10	II	
4103.113		2	II	
4102.478	20	10	II	
4102.264		5	II	
4101.335	30	3	I	
4100.877		1	II	
4100.160		8	II	
4099.820		2	II	
4099.482		3	II	
4099.338	20	1	I	
4098.920	4		I	
4098.848		2	II	
4098.232		20	III	
4098.096		2	II	
4097.885	100	600	II	5
4097.080	6	2	I	
4096.968		1	II	
4096.785		3	II	
4096.644	2	20	II	
4096.156	1	15	II	
4094.351		2	II	
4093.634	2	20	II	
4092.959		10	II	
4092.052	1	4	II	
4091.53	6	100	II	
4091.466	2	40	II	
4090.666		20	III	
4090.594		3	II	
4089.908	20	4	I	
4089.68	10000R	3000	I	3
4088.633		2	II	
4088.528		1	II	
4087.67	5	1	I	
4087.480	30 d	5 d	I	
4087.343	20	3	I	
4086.61	7	100	II	7
4087.492		8	III	
4085.66	1	8	II	
4085.05		3	II	
4084.845		3	II	
4084.515		1	II	
4084.47	4		I	
4083.870		1	II	
4083.648	15	4 h	I	
4083.346	4		I	
4082.992	500	20	I	
4082.814		4	II	
4082.64		1	II	
4082.586	2		I	
4082.529		1	II	
4081.05		1	II	
4079.991	2	40	II	6
4079.88		6	II	
4079.542		3	II	
4079.164	2	20	II	
4078.36	7	70	II	4
4078.000	10 h		I	
4077.713	10	20	II	
4077.276	200	2000	II	5
4076.82		1	II	
4076.198		3 h	II	
4076.09		3 h	II	
4075.873		3	II	
4074.705	8	60	II	5
4074.528		20	III	
4074.359	3		I	
4074.074		1	II	
4073.846	8		I	
4073.288	1		I	
4072.923	2		I	
4071.442		1	II	
4071.334		3	II	
4071.115	2		I	
4070.527	8	50	II	
4069.013		4	II	
4068.50		2	II	
4068.229		2	II	
4067.461	4		I	
4067.115	30	2	I	
4067.031		2	II	
4067.00	1		I	
4066.809		15	II	
4066.520		2	II	
4065.963	20 h	1	I	
4064.757		15	II	
4063.927	1	30	II	
4063.726	1000	150	I	2
4063.455	3000	500	I	3
4062.35		1	II	
4062.100		2	II	
4061.614		7	II	
4061.382	10	1	I	
4060.180		1	II	
4060.04		1	II	
4059.893		2	II	
4059.470	40	7	I	7
4058.625	60	6	I	
4058.404	150	15	I	
4058.238		1	II	
4058.065	1	6	II	
4056.142	500	2000	II	4
4055.468		3	II	
4055.24	2		I	
4054.588		1	II	
4053.547		2	II	
4053.235		1 h	II	
4053.11		10	II	
4052.860		20	II	
4052.283	5000	1000	I	1
4052.072	1000	60	I	1
4051.935	30	3	I	
4051.339	20	60	II	4
4050.083	20	150	II	4
4049.982		5	II	
4049.335		7	II	
4048.683		5	II	
4048.554		2	II	
4048.21		1	II	
4048.090		2	II	
4047.38	20	200	II	5
4046.998		2	II	
4046.56		1	II	
4046.52		1	II	
4046.37	1		I	
4046.297		4	II	
4045.605		1	II	

Table 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
4045.302	6	80	II	
4044.657		2	II	
4044.464	3	1	I	
4043.426		4	II	
4043.05	20	300	II	5
4042.532	3	40	II	
4042.328		4	II	
4040.563	1	30	II	4
4040.498		8	II	
4040.29		1	II	
4040.08	60	1000	II	5
4039.938	15	1	I	
4039.613		4	II	
4039.140		3	II	
4038.97	2	1	I	
4038.94	2		I	
4038.187		6	II	
4037.916		9	II	
4037.822	20	50	II	7
4036.772	20	15	I,II	
4036.550	1	15	II	
4035.855	5	3	I	
4035.51	5	1	I	
4035.315	9	90	II	6
4034.438		6	II	
4033.695		4	II	
4033.029		10	III	
4032.869	10	100	II	5
4032.756		2 h	II	
4032.441		2	II	
4030.712		1	II	
4029.844	2	60 d	II	
4028.138		2000	III	2
4027.580		10	II	
4027.19		1	II	
4026.922		2	II	
4025.740		2	II	
4024.375		4	II	
4023.987	6	30	II	5
4022.712	3	40	II	
4021.956		1	II	
4021.56	2	1	I	
4020.310		2	II	
4019.852	1	10	II	
4019.35	6	150	II	4
4018.966	30	3	I	
4018.264		2	II	
4018.134		2	II	
4017.94		1	II	
4017.060		3	II	
4016.976		9	II	
4015.296		4	II	
4015.004		1	II	
4013.579	1	15	II	
4013.464		3	II	
4012.704		1	II	
4012.204		1	II	
4010.84		2	II	
4010.825	3		I	
4009.237		20	II	
4008.94	4	1	II	
4008.775		3	II	
4007.962	10	5	I	
4007.518		20	II	
4007.356	2000	500	I	3
4006.962		2	II	
4006.828	15	2	I	
4006.672		1	II	
4006.53		2	II	
4005.65	2 h		I	
4005.619		1	II	
4005.218		1	II	
4003.574		1	II	
4003.224		2	II	
4002.798		2	II	
4002.68		1	II	
4002.326		10	II	
4002.04	3 h		I	
4002.002		1	II	
4000.808	5	150	II	7
4000.46	10		I	
4000.212	4	1	I	
3999.777	2	40	II	
3998.879	2	1	I	
3998.430		7	II	
3998.38		1	II	
3998.133	3		I	
3997.667		10	III	
3997.244		4	II	
3995.859		1	II	
3995.432	1	20	II	7
3994.563		2	II	
3994.300		1	II	
3993.753	100	10	I	3
3992.826		1	II	
3992.09		8	II	
3991.945		4	III	
3991.74		10	III	
3991.09		1	II	
3990.885	10000R	1000	I	3
3990.603		2	II	
3990.473		2	II	
3990.280		1	II	
3989.717		6	II	
3988.666		70	II	
3987.99	50000A	30000	I	7
3986.962		5	II	
3986.830		5	II	
3986.179		10	II	
3985.564		100	III	
3985.125		1	II	
3984.765		3	II	
3983.748		1	II	
3983.314	2	60	II	4
3983.179		1	II	
3982.009	2	20	II	4
3981.574		1	II	
3981.160		5	II	
3980.78		1	II	
3980.318		10	II	
3979.710	10	2	I	
3979.095	60	4	I	
3978.543	2	10	II	
3977.342	2	20	II	
3977.113		1	II	
3976.527		1	II	
3976.148		7	II	
3975.283	2000	100	I	2
3974.91		1	II	
3974.30		2	II	
3973.87	10	3	I	
3972.91		1	II	
3972.848		3	II	
3972.517		4	II	
3972.267		3	II	
3972.18	3		I	
3972.08		1	II	
3972.01	7		I	
3971.739		2	II	
3971.014		2 h	II	
3969.89	4	1	I	
3969.519		1	II	
3969.461		1	II	
3969.082		3	II	
3968.79		20	II	
3968.68		1	II	
3968.024	10	100	II	5
3966.062		2	II	
3965.416		1	III	
3964.584		1	II	
3964.459	1	20	II	4
3964.364		1	III	
3963.301		2	II	
3963.07	5		I	
3962.457		4	II	
3961.98	70	6	I	1
3961.832		4	II	
3961.731	5	1	I	
3961.503	5	1	I	
3961.288		1	II	
3961.104		2	II	
3960.866		2	II	
3960.34		1	II	
3960.27		1	II	
3959.730		1	II	
3959.060	1	9	II	
3958.818		2	II	
3958.376		3	II	
3957.270	6	2	I	
3957.05	5		I	
3954.266		4	II	
3953.546		1	II	
3951.08		10	II	
3949.91	10	100	II	6
3949.58	100	200	II	5
3949.307		2	III	
3948.64		4	II	
3948.18	20	100	II	5
3946.94	20	150	II	4
3945.577		2	II	
3944.55		1	II	
3944.509		1	II	
3943.692		2	II	
3943.29	4	1	I	
3942.72		6	II	
3939.780	10	1	I	
3939.517	1	20	II	
3938.53	40	400	II	
3938.25	40	500	II	6

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3937.984		1	II	
3936.596		2	II	
3936.385		5	II	
3935.086		3	II	
3934.30	4	100	II	
3934.182	3000 R	200	I	
3933.87		2	II	
3933.25		2 h	II	
3931.90	10	100	II	6
3931.634		2	II	
3931.44		1	II	
3931.273	4		I	
3931.227		500	III	
3930.900		1	II	
3930.004		2	II	
3929.885		1	II	
3929.30	1		I	
3929.053		6	II	
3928.068		10	II	
3927.60		1	II	
3926.962		1	II	
3926.724	30	3	I	
3926.651		2	II	
3924.656		2	II	
3924.527	10	2	I	
3923.230		4	II	
3922.443	1	15	II	
3921.201		2	II	
3920.745		4	II	
3920.602		2 h	II	
3919.980	1	15	II	
3918.804		9	II	
3917.685		3	II	
3917.473		5	II	
3916.892		2	II	
3916.783	2	15	II	
3916.702		1	II	
3916.425		10	II	
3916.316		1	II	
3916.268		1	II	
3915.427		10	II	
3914.690		3	II	
3913.923		7	II	
3913.729		7	II	
3913.347	30	200	II	4
3913.234		20	III	
3912.746		15	III	
3911.272	600	60	I	3
3910.911		6	II	
3910.653	20	4	I	
3910.429		2	II	
3910.364		4	II	
3909.98		1	II	
3909.186		1	II	
3908.020		5	II	
3907.355	2	40	II	4
3906.960	4	30	II	6
3906.64		3	II	
3906.196	4	30	II	
3905.832	20	200	II	6
3905.51	5	1	I	
3904.812	100	1500	II	5
3904.537		2	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3904.447		1	II	
3903.74		1 h	II	
3903.397		4	II	
3903.288		3	II	
3902.814		5	II	
3902.43		3 h	II	
3902.386	10 h	4	I	
3902.109		5	II	
3902.042	1	20	II	
3901.44		1	II	
3901.06	10	1	I	
3900.85	4000R	500	I	3
3899.245		3	II	
3899.07	4	80	II	7
3898.450		1	II	
3897.946		8	II	
3897.555	10	2	I	
3897.34		2 d	II	
3897.060		1	II	
3896.966		4	II	
3896.742	20	3	I	
3896.55		150	III	
3895.884		2	II	
3895.758	1	30	II	
3893.740		2	II	
3892.285		1	II	
3891.696		1	II	
3890.850	2	50	II	4
3890.767	20	3	I	
3889.664		2	II	
3887.826		10	II	
3887.50		1	II	
3887.290	20	300	II	4
3887.166		20	III	
3886.63		1	II	
3886.378		4	II	
3885.647		1	II	
3885.470		1	II	
3885.195		4	II	
3884.833		1	II	
3883.638		1	II	
3883.105		1	II	
3882.583		10	III	
3882.068	40	4	I	
3881.738		3	II	
3880.684		1	II	
3880.332		2	II	
3880.197	5	70	II	4
3880.044		1	II	
3879.985		20	III	
3879.140		7	II	
3878.023		4	II	
3877.06	4	60	II	
3876.902		1	II	
3876.776	1	20	II	5
3876.33		2 h	II	
3875.76	1		I	
3874.610		3 h	II	
3874.066		10	II	
3873.497		4	II	
3873.246	5	1	I	
3872.852	5000R	1000	I	7
3872.555		5	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3872.338		8	II	
3871.946		1	II	
3870.447		2	II	
3870.197		2 h	II	
3868.907	4	1	I	
3868.838		4	II	
3868.602	1	9	II	
3868.570	1	20	II	
3867.75		1	II	
3867.675		3	II	
3867.48		5 h	II	
3867.378		1	II	
3866.862		1	II	
3865.95	3 h		I	
3865.43	1		I	
3865.351		1	II	
3865.255		3	II	
3865.14	1		I	
3864.33	20 h		I	
3863.784		2	II	
3863.455	200	800	II	5
3863.046	10	100	II	
3862.59	2		I	
3862.511	1	20	II	5
3862.46	1		I	
3862.18	10	1	I	
3861.792		3	II	
3861.730		2	II	
3861.566		1	II	
3861.467		1	II	
3860.975	2		I	
3860.917		1	II	
3860.815	10		I	
3860.64	3	1	I	
3859.887		2	II	
3859.35		2 h	II	
3858.555	10	100	II	4
3858.434		1	II	
3858.07		9	II	
3857.860		2	II	
3857.586	10	20	II	
3856.514		3	II	
3856.009		2	III	
3856.00	3		I	
3855.883	50	8	I	
3854.91	4	30	II	
3854.806	20	100	II	5
3854.116	2		I	
3854.09	2		I	
3853.731		3	II	
3853.238	1	2	II	
3852.562		10	II	
3852.160	4	40	II	
3851.80		2	II	
3851.65	1		I	
3851.36	5		I	
3851.242		1	II	
3851.090		2	II	
3850.98	7		I	
3850.366		4	II	
3850.32		2	II	
3849.54	1		I	
3848.792	5	1	I	

Table 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
3847.473	30	200	II	4
3846.237		4	II	
3846.186	1	15	II	
3845.79	1		I	
3845.64	3		I	
3845.402		4	II	
3845.35	2		I	
3844.988	2	6	II	
3844.349	1	15	II	
3843.811		6	II	
3843.420	5	80	II	6
3843.30	2		I	
3843.032	1	20	II	
3842.653		1	II	
3841.950	1	9	II	
3841.296	1	10	II	
3840.70		1	II	
3840.341	3	70	II	7
3840.297	2	40	II	
3840.013		2	II	
3839.907	1500	80	I	1
3839.469	30	300	II	5
3839.382	1	20	II	
3838.900	10	100	II	4
3838.67		2	II	
3838.287	80	4	I	2
3838.123		3	II	
3838.02	7	1	I	
3837.57	5	1	I	
3837.411		4	II	
3836.677		2	II	
3836.541		1	II	
3836.46	5	1	I	
3835.952		2	II	
3835.872		1	II	
3835.495		3	II	
3834.35	1		I	
3833.884		9	II	
3832.701		4	II	
3832.664		1	II	
3832.180		3	II	
3832.108		3	II	
3831.610	3	20	II	7
3831.288		1	II	
3831.13		1	II	
3830.905	2		I	
3830.178		2	II	
3829.767		2	II	
3829.736		1	II	
3828.673	20	5	I	
3827.494		4	II	
3827.030		2	II	
3826.768		8	II	
3826.620	5	1	I	
3826.51		1	II	
3824.956	1		I	
3823.241	5	1	I	
3822.216		1	II	
3822.17		1	II	
3821.526		1	II	
3821.224		1	II	
3820.825		8	II	
3820.288		5	II	
3819.916	1	15	II	
3818.365		1	II	
3817.777	3	20	II	5
3817.624		7	II	
3817.09	1		I	
3816.345	15	150	II	6
3816.189	30	300	II	4
3815.640		1	II	
3815.203	200	10	I	
3814.310		10	II	
3814.215	15	200	II	4
3814.084		4	II	
3813.665		3	II	
3811.584		2	II	
3809.04	5	30	II	
3808.809	10	1	I	
3808.544		1	II	
3808.460	1	2	II	
3808.35		2	II	
3808.315		2	II	
3807.574	50	500	II	
3807.545	100	1000	II	4
3806.996		3	II	
3806.869		1	II	
3806.818		2	II	
3806.73	2		I	
3806.188	2	20	II	
3806.011		1	II	
3804.99		1	II	
3804.431	4	40	II	5
3804.35		2	II	
3803.680		1	II	
3802.47		1	II	
3802.28		1	II	
3801.752	1	20	II	
3801.386	2		I	
3801.263	10	1	I	
3801.026		3 h	II	
3800.622	20	80	II	5
3799.054		1	II	
3798.960	4	20	II	
3798.854		1	II	
3798.402	4000	400	I	2
3798.162	3000	300	I	1
3797.915		2	II	
3797.219		2	II	
3797.181		3	II	
3796.950		10	II	4
3796.495	2		I	
3796.157	7	80	II	6
3795.916		4	II	
3795.878		3	II	
3795.785	3	1	I	
3795.061		4	II	
3794.906		3	II	
3793.934		4	II	
3793.104		3	II	
3792.86		4	II	
3792.557		1	II	
3792.39		2	II	
3791.741	7000	600	I	1
3791.336		2	II	
3789.457		6	II	
3789.37		1	II	
3788.267		4	II	
3787.418	1	5	II	
3787.080	1	10	II	
3786.465		1	II	
3785.960		1	II	
3785.666	1	20	II	7
3785.330	6	80	II	4
3784.512		1	II	
3784.384	7	100	II	6
3784.144	1	10	II	
3783.914		1	II	
3782.80	1		I	
3782.736		4	II	
3782.540	70	700	II	5
3781.684		8	II	
3781.415	1		I	
3781.268		1	II	
3781.046		3	II	
3780.605		1	II	
3780.217	2	20	II	
3779.838		1	II	
3779.472		2	II	
3779.286	20	150	II	6
3779.184	1	15	II	
3778.800		2	II	
3778.452		3	II	
3777.906	1	20	II	
3777.534	2	30	II	6
3776.520	3	40	II	5
3776.362		1	II	
3775.906		2	II	
3774.956		2	II	
3774.323	700	40	I	2
3773.625		1	II	
3773.428	200	600	II	6
3772.517	20	100	II	5
3772.294	3	40	II	5
3771.768		3	III	
3771.596		2	II	
3771.350		3	II	
3771.155	1	10	II	
3770.814		1	II	
3770.28		1	II	
3770.195	2	40	II	
3770.095	2000 R	500	I	7
3769.35		1	II	
3769.189		1	II	
3768.966		2	II	
3767.891		10	II	
3767.714	8	2	I	
3767.175		1	II	
3766.925	2	20	II	5
3766.736		8 h	II	
3766.527		4	II	
3766.101	20	200	II	4
3765.080	1	8	II	
3764.59	1		I	
3764.56		3 h	II	
3764.03		1	II	
3763.35		1	II	
3763.27		1	II	
3763.045	1	6	II	

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3762.98		1	II	
3762.93	1		I	
3762.550	40	400	II	4
3762.12		1	II	
3761.31		1	II	
3760.999	10	200	II	6
3760.481	200	6	I	
3760.23		2 d	II	
3757.355		1	II	
3756.888		2	II	
3756.445		6	II	
3755.762		2	II	
3755.32		1	II	
3754.83		2	II	
3754.74		1	II	
3754.606	2	6	II	
3753.897	8	100	II	5
3753.65		1	II	
3753.49		2	II	
3753.053	4	60	II	
3752.730		4	II	
3752.56		1	II	
3751.847	10	40	II	6
3751.62	1		I	
3751.206	1	2	II	
3751.13	1		I	
3751.030		1	II	
3750.045		8	II	
3749.688	40	400	II	5
3749.388	1	6	II	
3748.55	1		I	
3748.345	3	10	II	
3748.204		2	II	
3748.102		1	II	
3747.817	2	20	II	
3747.229		10	II	
3746.67		1	II	
3746.33	3		I	
3744.943	40	5	I	
3744.762		1	II	
3744.166		4	II	
3744.09	2		I	
3743.97		1	II	
3743.390		3	II	
3743.26		6	II	
3743.138		15 h	II	
3742.627		1	II	
3742.358		1	II	
3742.036	4	20	II	
3741.642	3	15	II	
3741.59	8	80	II	4
3741.296	50	6	I	
3740.772		10	II	
3740.59		2	II	
3739.59		1	II	
3739.56		1	II	
3739.411	30	3	I	
3738.009		10	II	
3737.80	2		I	
3737.537	1	40	II	
3737.123		6	II	
3736.901	7	10	II	4
3736.237	400	100	I	3
3735.606		9	II	
3735.352		10	II	
3734.96		1	II	
3734.694	3000R	300	I	1
3734.435	1000	100	I	1
3734.150		8	II	
3734.12		2	II	
3733.989		10	II	
3733.762		5	II	
3733.19		1	II	
3732.458		5	II	
3732.33	1	10	II	
3731.166		7	II	
3731.044		8	II	
3730.409	20	200	II	4
3729.81	10	100	II	4
3728.24		2	II	
3727.073		1	II	
3726.169	1	5	II	
3725.84	5	70	II	
3724.91		3	II	
3724.36	200		I	
3724.213	150	800	II	5
3723.06		2	II	
3722.626		7	II	
3722.296	40	600	II	7
3720.98	6	100	II	5
3720.846		3	II	
3720.584		2	II	
3720.192		3	II	
3719.924		3	II	
3719.148		2	II	
3718.887		1	II	
3718.749		2	II	
3718.482	1	10	II	
3718.139		4	II	
3718.052	3	15	II	
3717.885		2	II	
3717.412		3	II	
3717.28	3		I	
3717.23	1		I	
3717.15		1	II	
3716.596		2	II	
3716.139	10	40	II	
3715.725		4	II	
3715.440		10	II	
3715.409	50	4	I	
3714.186	50	150	II	6
3713.93		1	II	
3713.70		2	II	
3713.298		2	II	
3712.666	10		I	
3712.438	1	10	II	
3712.416		4	II	
3712.06		1	II	
3711.95	1		I	
3711.907	1	400	III	7
3711.245		6	II	
3710.825		3	II	
3710.340	100	1000	II	6
3710.090		2	II	
3708.97		10	II	
3708.663	150	600	II	4
3708.218		3	II	
3707.707		2	II	
3707.486	1	7	II	5
3707.234		1	II	
3707.020		4	II	
3706.833		4	II	
3706.32		1	II	
3706.023	10	5	I	
3705.745	1		I	
3705.64	2	30	II	7
3704.750		20	II	
3704.300		1	II	
3703.92		7	II	
3703.423	10	200	II	7
3702.94		6	II	
3702.42	1	5	II	
3702.07		8	II	
3700.580	1000	40	I	2
3699.800	5	100	II	7
3699.514	3000	100	I	
3698.81	2		I	
3698.596	40	400	II	6
3698.446	2	40	II	
3698.070		2	II	
3698.012		6	II	
3697.688		2	II	
3694.190	100000A	80000	II	6
3692.072		4	II	
3691.67	2	6	II	
3691.472	10	200	II	6
3691.34		1	II	
3691.230	1	10	II	
3690.560	30	300	II	7
3689.99		8	II	
3688.937		4	II	
3688.81	10		I	
3688.490		1	II	
3688.438	10	1	I	
3687.598	20	150	II	6
3687.142	7	80	II	6
3685.973		15	II	
3684.997	500	40	I	3
3684.068		1	II	
3683.352	2	30	II	7
3683.277	1	15	II	
3682.777		2	II	
3682.20		1	II	
3681.29		1	II	
3681.195		15	II	
3680.770		7	II	
3680.667		4	II	
3679.932	200	20	I	
3679.521		2	II	
3678.26		1	II	
3678.15		1	II	
3677.906		6	II	
3677.853	1	15	II	
3677.81	2		I	
3677.25	2		I	
3676.89		1	II	
3676.14		2	II	
3675.782		20	III	
3675.720	20		I	

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
3675.085	300	2000	II	7
3674.065	2	20	II	
3673.900		8	II	
3673.423		8	II	
3673.286		1	II	
3670.69	50	600	II	5
3669.69	2000 r	6000	II	6
3668.992	3	50	II	
3668.16		1	II	
3667.951		8	II	
3666.67	1	30	II	
3666.62	200	4	I	7
3666.522		5	II	
3666.09		10	II	
3664.895	3	40	II	
3664.744	40	200	II	5
3664.560	8	90	II	7
3663.74		30	III	
3663.11		6	II	
3662.545	1	20	II	
3662.297		2	II	
3662.061		7	II	
3662.033		5	II	
3661.656		2	II	
3661.135		2	II	
3661.08		6	II	
3660.99		1	II	
3660.73	1	8	II	
3660.64		1	II	
3660.58	1	15	II	
3660.42		1	II	
3660.137	1	10	II	
3659.835		30	III	
3659.427	4		I	
3658.78	1		I	
3658.605	5	70	II	
3657.665		3	II	
3657.233	3 h		I	
3657.131		1	II	
3657.007		2	II	
3656.81		1	II	
3656.672		2	II	
3656.312	10	2	I	
3655.729	2000R	100	I	1
3655.48	1	20	II	
3654.417	1	5	II	
3654.28	1	20	II	
3653.041	2	20	II	
3652.953	3	40	II	
3652.538	1	15	II	
3651.24	1	10	II	
3651.15		1	II	
3650.80	4	50	II	4
3649.739	10	150	II	5
3649.084		6	II	
3648.827		2	II	
3648.676		1	II	
3648.440	10	100	II	6
3648.38	4	50	II	
3648.29		1	II	
3648.242		2	II	
3648.150	150	15	I	
3647.730	2	40	II	7

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
3647.25	1		I	
3646.277	1	10	II	
3646.24		7	II	
3645.72		7	II	
3644.236	40	400	II	5
3643.28	1	10	II	
3642.63		3	II	
3642.37		7 h	II	
3642.24		4	II	
3640.79		1	II	
3639.97		1	II	
3639.746	1	15	II	
3639.445	20	8	I	
3639.030		2	II	
3637.757	2000R	3000	II	6
3636.899		2	II	
3636.23		2	II	
3635.330		1	II	
3634.86		2	II	
3634.74		1	II	
3634.525	30	20	I,II	
3634.40		10	II	
3634.27		2	II	
3633.858		10	II	
3633.70	1	20	II	7
3632.595	20	150	II	5
3632.415	20	100	II	5
3631.86		8	II	
3631.073	7	80	II	4
3630.975	4		I	
3630.621		4	II	
3630.337		2	II	
3630.301		4	II	
3629.919	30	300	II	6
3629.58	3		I	
3629.233	800	15	I	7
3628.340		6	II	
3627.89	2	30	II	
3627.205	2	30	II	5
3627.078		1	II	
3626.80	1	6	II	
3625.230	2	60	II	
3624.634	15	200	II	6
3624.109	10	1	I	
3623.627	1	10	II	
3622.320	20	80	II	6
3621.873		7	II	
3621.80		2	II	
3621.743	400	10	I	
3621.513	1	15	II	
3621.18		1	II	
3620.988	30	400	II	7
3620.65	2		I	
3620.362		4	II	
3619.803	700 r	3000	II	4
3618.887		1	II	
3618.040	50	200	II	6
3617.045	1	10	II	
3616.395		10	II	
3616.031		3	II	
3615.957		2	II	
3614.994	50	7	I	7
3614.63		1	II	

Wave-length in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
3614.593		6	II	
3614.048	5	100	II	4
3613.894		200	III	
3613.38		3	II	
3613.340		3	II	
3613.295		2	II	
3612.950		4	II	
3611.994	20	1	I	
3611.300	60	800	II	4
3610.233	100	700	II	6
3609.24		1	II	
3608.936		3	II	
3608.488	10	150	II	5
3608.356	3		I	
3607.703	700	70	I	
3607.186		2	II	
3606.478	300	2000	II	5
3605.347	2	20	II	6
3605.208		1	II	
3603.848	20	300	II	5
3602.237		1	II	
3601.917	2	20	II	6
3601.209	2	15	II	
3600.966	10	100	II	
3600.763	20	300	II	
3600.663	2	30	II	
3600.383	10	150	II	6
3598.87		2 h	II	
3598.662	9	1	I	
3598.043	2	20	II	
3597.60		1	II	
3597.078		10	II	
3596.488	1	30	II	
3596.416	3		I	
3596.300		4	II	
3595.844		5	II	
3595.649		2	II	
3595.162		9	II	
3594.93	1		I	
3594.864	1	10	II	
3593.882		1	II	
3593.728		2	II	
3593.060		1	II	
3592.734	1	20	II	
3592.217	1	10	II	
3591.844	150	15	I	
3591.24		1	II	
3591.18		2	II	
3591.141		4	II	
3590.657	5	50	II	7
3589.997		1	II	
3589.186		7	II	
3588.832	1	20	II	
3588.456		2	II	
3587.736		7	II	
3587.569		1	II	
3586.824	30	90	II	6
3586.536		6	II	
3585.878		8	II	
3585.794	1	20	II	
3585.466	2000R	4000	II	5
3583.96		4 h	II	
3583.827	7	70	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3583.532		5	II	
3583.26		7	II	
3583.180		1	II	
3582.841	3	40	II	
3582.20		3	II	
3580.755		10	II	
3580.640	1	15	II	
3580.474		1	II	
3580.404	100	10	I	
3580.125	100	20	I	
3579.511	3	40	II	7
3578.95		1	II	
3578.710	10	2	I	
3578.561	600	60	I	1
3577.985		1	II	
3577.690	1	10	II	
3577.504		3	II	
3577.008	30	300	II	7
3576.288		8	II	
3576.188		1	II	
3575.905	1	20	II	
3575.704		5	II	
3575.573	3	60	II	5
3575.125	20	2	I	
3574.58		30 h	II	
3573.750	1	10	II	7
3573.67		1	II	
3573.458	3	3	I,II	
3573.41		4	II	
3573.247	20	2	I	
3572.498	200	800	II	4
3572.448	50		I	
3572.212	2	15	II	
3570.987	1	8	II	
3570.566	200	1000	II	5
3569.925	2	20	II	
3569.500	2		I	
3569.308		2	II	
3569.094	1	10	II	
3568.430	5	50	II	4
3567.130	50	500	II	6
3566.905	2	1	I	
3566.519		2	II	
3565.891		4	II	
3565.823		1	II	
3565.477		6	II	
3565.404		3	II	
3564.955		1	II	
3563.941	200	800	II	5
3563.712	2	20	II	
3562.706	7	80	II	6
3561.738	1	10	II	
3561.444	2	6	II	
3561.309		2	II	
3560.704	500 r	2000	II	6
3560.327	2000R	3000	II	7
3559.570	10		I	
3559.139		4	II	
3559.032	1000	50	I	7
3557.825		2	II	
3557.466		1	II	
3557.100	2	20	II	7
3556.940		4	II	
3556.435		3	II	
3556.263	200	15	I	
3556.124		1	II	
3556.042		1	II	
3556.013	10		I	
3555.204	5	30	II	4
3555.055		3	II	
3554.347		5	II	
3553.82		1	II	
3553.340		7	II	
3553.192		3	II	
3553.153		3	II	
3552.324	100	1000	II	5
3551.405	1		I	
3550.87		300	III	
3549.822	200	2000	II	6
3548.470		2	II	
3548.18	50	7	I	
3548.096		7	II	
3547.756	5	1	I	
3546.085		1	II	
3545.725	1	40 h	II	
3544.162	10	1	I	
3543.890		1	II	
3543.324	1	10	II	
3543.159	30	200	II	4
3542.385	7	100	II	6
3542.272	1	6	II	
3541.924	8	1	I	
3541.375	7	80	II	5
3540.926		3	II	
3540.61		1	II	
3540.21		2	II	
3540.09		1	II	
3540.02		1	II	
3539.932		3	II	
3539.362	20	200	II	4
3539.33	200		I	
3538.369		2	II	
3537.964		1	II	
3537.127		6	II	
3536.815	3 h		I	
3536.068	1	8	II	
3534.752	4	20	II	
3534.13		2	II	
3534.05	50	100	II	5
3533.80		3	II	
3533.107	20	60	II	6
3531.725	20	1	I	
3531.24	5	100	II	4
3530.58		1	II	
3530.16		3	II	
3530.05		1	II	
3529.715	2	20	II	
3529.458		2	II	
3529.085	8	100	II	6
3528.771		2	II	
3528.075	2		I	
3527.501	1	15	II	7
3527.332	2	20	II	7
3526.477		1	II	
3525.722	5	50	II	6
3525.456		3	II	
3525.171		2	II	
3525.05		1	II	
3524.82		1	II	
3524.044		1	II	
3523.734		3 h	II	
3523.148	3	2	I,II	
3522.826		3	II	
3522.747	1	10	II	
3522.021		1	II	
3521.773	5		I	
3521.727		3	II	
3521.664		2	II	
3521.585	1	7	II	
3521.224		7	II	
3521.007	5	20	II	
3520.917		10	II	
3520.293	600 r	3000	II	6
3519.82	2		I	
3519.690		2	II	
3519.417	5	50	II	7
3519.10		1	II	
3518.89		1	II	
3518.795		3	II	
3518.674		1	II	
3518.457	300	20	I	1
3518.353	1	10	II	
3518.156	20	300	II	7
3517.001	500	60	I	3
3516.60		1	II	
3516.180		2	II	
3515.865	30	300	II	4
3515.610	10	50	II	6
3515.238	20	2	I	
3515.138	1	15	II	
3513.640		4	II	
3513.573	400	30	I	3
3513.412		2	II	
3512.708	2	20	II	
3512.441		6	II	
3511.283		8	II	
3510.942		3	II	
3510.764	600	50	I	1
3510.500	1	15	II	
3509.86	1	10	II	
3509.776		3	II	
3508.95		1	II	
3507.830	200	2000	II	4
3506.125	8	200	II	5
3505.282	50	150	II	4
3504.936	3	15	II	
3504.737	3		I	
3504.542	1	15	II	
3503.988	20	7	I	
3503.690	4	40	II	4
3503.277		2	II	
3503.190		3	II	
3503.011		1	II	
3502.572		4 h	II	
3502.180	10	100	II	4
3500.863		5	II	
3500.813	10	5	I	
3500.131	10	30	II	
3499.886		3	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3499.85		1	II	
3499.791		2	II	
3499.636	1	9	II	
3499.419	5	10	II	
3498.392	2	40	II	
3497.86		2	II	
3496.858	5	20	II	
3495.90		50 h	II	
3495.780		3	II	
3495.623	10	1	I	
3493.154	1	15	II	
3492.807	5	30	II	
3491.624	6	100	II	
3491.133	2		I	
3491.063		3	II	
3490.880		2 h	II	
3490.58		1	II	
3490.213	1	20	II	
3489.746	60	15	I	
3489.399	8	1	I	
3488.855	200	1	I	
3488.786	200	700	II	5
3488.43		10 h	II	
3488.34	6	50	II	
3487.971	20	5	I	
3487.603	2		I	
3487.402		3	II	
3487.233	6	100	II	
3487.041		2	II	
3486.137	1	8	II	
3485.757	200	1500	II	7
3484.656		1	II	
3484.38		2	II	
3484.176	7		I	
3484.143	1	15	II	
3484.09		2	II	
3484.06		2	II	
3483.782	1	10	II	
3482.942	1	10	II	
3482.564	5	30 h	II	
3482.390		1	II	
3481.706		2	II	
3481.68	30		I	
3481.302	1	20	II	
3479.912		2	II	
3478.835	3000 r	10000	II	5
3477.022	20	30	II	
3476.303	10000 A	8000	II	4
3474.82	60	400	II	4
3474.512		3	II	
3473.996		5	II	
3473.75		3	II	
3473.01		2	II	
3472.58		1	II	
3472.324	5	20	II	
3471.891		2	II	
3471.46		1	II	
3470.79	8	80	II	5
3470.106	10	3	I	
3469.975		20	III	
3469.925	5	70	II	4
3469.253	3	5	II	
3468.395	1	20	II	
3468.00		3 h	II	
3467.26	10		I	
3467.066	10	200	II	7
3466.346		10	II	
3465.898	3	40	II	6
3465.792		3	II	
3464.905		1	II	
3464.37	30000 A	2000	I	7
3464.190	100	20	I	
3463.511		150	III	
3463.325	2	30	II	
3463.179	2	20	II	
3462.79		1 h	II	
3462.338	20	15	I	
3461.719	30	300	II	4
3461.327		5	II	
3461.004	100	9	I	
3460.269	3000R	60	I	7
3460.137		4	II	
3460.092		10	II	
3459.902		2	II	
3459.828		4	II	
3459.663	100	10	I	7
3459.183	10	40	II	4
3459.095	60	3	I	
3458.792		2	II	
3458.391	1000	20	I	7
3458.286	200	1500	II	5
3457.333		2	II	
3457.10		2	II	
3457.04		1	II	
3456.953		1	II	
3456.774		6	II	
3456.525	10		I	
3456.231	5	20	II	
3456.181		40	III	
3455.863		5	II	
3454.92		3	II	
3454.75	10		I	
3454.215	50	300	II	
3454.080	2000 r	10000	II	4
3453.524		5	II	
3453.207		2	II	
3452.398	300	30	I	3
3452.264		7	II	
3451.82	2		I	
3451.33	1	20	II	
3451.305		3	II	
3450.929		2	II	
3450.269		5	II	
3449.362		1	II	
3449.15		7 h	II	
3448.906		1	II	
3447.993	4	40	II	7
3447.668	1	20	II	7
3446.887	100	600	II	6
3445.950	7	100	II	5
3445.107		3	II	
3444.544		2	II	
3443.895		2 h	II	
3443.587	30	20	I,II	7
3443.391		6 h	II	
3442.586	10	5	II	
3442.368	3	40	II	6
3442.058	1	10	II	
3441.354		7	II	
3441.30		1	II	
3441.07	3		I	
3440.894		8 h	II	
3440.016		5	II	
3439.648	1	20	II	
3438.848	400 r	2000	II	6
3438.709	200	1500	II	6
3438.516		10	II	
3437.754		3	II	
3437.222		2	II	
3437.17	5	1	I	
3437.114		2	II	
3436.452	100	700	II	5
3435.74		4 h	II	
3435.516		2	II	
3435.429		3	II	
3434.610	200	600	II	5
3434.244	1	10	II	
3433.650		1	II	
3433.167	100	10	I	
3433.160		10	II	
3432.942		80	III	
3432.732	1	3	II	
3432.261	1	30	II	
3432.143	150	15	I	
3431.780		4 h	II	
3431.63		1	II	
3431.512		2	II	
3431.377	5	9	II	
3431.140	700	20	I	7
3431.107	3000R	80	I	7
3430.872		3	II	
3430.65		1	II	
3430.632		2	II	
3429.96		1	II	
3429.80		1	II	
3428.782	700	30	I	7
3428.463	200	2000	II	6
3427.808	1	20	II	
3427.508		3	II	
3426.878	150	30	I	
3426.558		2	II	
3426.43		1	II	
3426.044	3000R	100	I	7
3425.71		1	II	
3424.750		5	II	
3424.610	1		I	
3424.554	3	15	II	
3424.295	1		I	
3424.182		1	II	
3422.454		6	II	
3421.409		1	II	
3420.345	150	20	I	
3419.807	3		I	
3419.742	2	20	II	7
3419.606	20	100	II	4
3418.571		1	II	
3418.390	400	50	I	7
3417.565	3	30	II	5
3417.345	1	10	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
3417.044	250	20	I		3389.439		4	II		3363.645	10	20	II	
3416.894	40	200	II	4	3388.523		7	II		3362.770	1		I	
3416.314		1	II		3387.760		3	II		3362.705	4	6	II	
3415.974	10	100	II	5	3387.505	200 r	50	I	1	3362.438	10	70	II	
3415.853		2	II		3387.370	20	2	I		3362.145	1		I	
3415.610		6	II		3387.293	2	20	II		3361.927	4		I	
3415.062	10	80	II	7	3387.120		2	II		3361.573	15	100	II	4
3414.838	20	200	II	6	3387.073		3	II		3361.467	1	8	II	
3413.357	5	15	II	5	3386.560		1	II		3361.329	3	30	II	
3412.507		5	II		3385.883	20	40	II		3359.49		1	II	
3412.453	80	40	I	7	3385.559	10	100	II	6	3359.193		3 h	II	
3411.750		6	II		3385.329	2		I		3358.612		2	II	
3411.240	10	8	I		3384.682	200	15	I		3358.254		50	III	
3410.880		4	II		3384.560		1	II		3357.802	5	40	II	
3410.689	1	6	II		3384.352		4	II		3356.966	20	200	II	5
3410.566	50	60	II	7	3384.007		2000	III	7	3356.683		1	II	
3410.487	1	10	II		3383.862	3	20	II	6	3356.305	6	40	II	
3409.875	6	70	II		3382.537	20	20	I,II		3355.870	20	200	II	6
3409.568	1	10	II		3381.255		1	II		3355.618	1		I	
3409.022		3	II		3381.060	2	15	II		3354.020		3	II	
3408.95	2		I		3380.820	1	20	II	4	3353.966	2	30	II	
3408.516	10	100	II	4	3380.644		1	II		3353.733	20	150	II	4
3408.20		3	II		3380.340		1	II		3353.607	1		I	
3408.058		7	II		3379.986	40	100	II	5	3353.563	1	6	II	
3407.922	2		I		3379.788	100	700	II	4	3353.200	3	40	II	4
3406.536	1	6	II		3379.517	6	70	II	5	3352.880	60	4	I	
3406.200	200	5	I		3379.386	2	2	I,II		3352.491	10	30	II	
3405.79		1	II		3378.698	50	3	I		3351.382	6		I	
3405.249	5	30	II		3378.404	10	100	II	6	3351.265	20	20	I,II	
3405.093		2	II		3378.286	60	4	I		3351.087	6	60	II	5
3405.03		1	II		3377.792	3	40	II		3350.967	5	40	II	5
3404.103	150	800	II	5	3377.456		3	II		3350.357	1		I	
3402.640		5	II		3376.780		2	II		3350.209	3		I	
3402.273	200	300	II	6	3376.623	3	30	II		3349.942	20	150	II	7
3401.010	200	1000	II	5	3375.483	2000 r	5000	II	6	3349.713	1		I	
3400.603		4 d	II		3375.079	30	70	II		3349.074	10	60	II	4
3400.445		3	II		3374.184		1	II		3347.537	150	1000	II	7
3399.548		3	II		3374.07		1	II		3347.016	2		I	
3398.649	2	10	II		3373.873	2	20	II		3346.504	30	30	I,II	
3397.661		100	III		3373.736		1	II		3346.192		7	II	
3397.446	2	20	II		3373.033	1	10	II		3345.958	2		I	
3397.125	2	20	II		3372.576	500	40	I		3345.921		7	II	
3397.037	50	2	I		3372.00		1	II		3345.575	5		I	
3396.328	40	400	II	5	3371.325	100	10	I		3345.187		9	II	
3395.14		5 h	II		3371.090	2		I		3345.012	20		I	
3394.519	3		I		3369.886	10	80	II	6	3344.715		3	II	
3394.437	60	300	II	5	3369.544	70	200	II	5	3344.507	1		I	
3394.152		1	II		3369.344	20	60	II	5	3344.212	30	3	I	
3393.972	30	3	I		3367.738		6	II		3343.78		1	II	
3393.815		1	II		3367.324	1		I		3343.705		2	II	
3393.636		2	II		3367.077		4	II		3343.566		2	II	
3393.252		1	II		3366.964		3	II		3343.071	80	400	II	6
3392.555		150	III		3366.937	3		I		3342.93	20 h	100 h	II	
3392.390	7	100	II	5	3366.923	10		I		3342.310		1	II	
3392.356	2	20	II		3365.969	80	800	II	6	3341.097	3	40	II	5
3392.276		4	II		3365.658		2	II		3340.791		1	II	
3391.104	100	900	II	4	3365.444		1	II		3339.644	2		I	
3390.817	3	40	II		3365.181	5		I		3339.476		3	II	
3390.63		1	II		3365.059		4	II		3339.305		3	II	
3390.421	1 h	30 h	II		3364.471		4	II		3339.274		1	II	
3390.246	1 h	40 h	II		3364.302		20	III		3339.075	10 h		I	
3389.985		2	II		3364.125		2	II		3339.022		1	II	
3389.904	8 h		I		3363.886		1	II		3338.749	1	8	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3337.581		1	II	
3337.420	5	20	II	5
3337.171	30 r	100	II	7
3337.005		5 h	II	
3336.88		1	II	
3336.718		4	II	
3336.68	20	1	I	
3335.826	1	10	II	
3335.435		2	II	
3335.327		3	II	
3334.321	1	3	II	
3333.800		4	II	
3333.057	200	1000	II	4
3332.774		7	II	
3332.150	9		I	
3331.95	1		I	
3331.220	5	50	II	4
3330.238		1	II	
3329.93	4		I	
3329.50	3	5	II	
3329.382	50	100	II	6
3329.087		4	II	
3329.017	3	10	II	
3328.584		8	II	
3328.51	2		I	
3328.39		1	II	
3327.756	8	80	II	6
3327.485	1	15	II	
3327.195	3	3	I,II	
3326.949	2	20	II	5
3326.745		4	II	
3326.266	40	200	II	5
3325.512	1	2000	III	3
3325.104	9	50	II	4
3324.80		2	II	
3324.470	10	70	II	4
3324.172	40	300	II	5
3324.043	2	12	II	
3323.46		3 h	II	
3322.963	20	250	II	5
3322.87	1	2	II	
3322.58		1	II	
3320.802		1	II	
3320.642		2	II	
3320.314	10	200	II	5
3320.032	5	30	II	
3319.737		2	II	
3319.674	5		I	
3319.412	700 r	50	I	7
3319.180	80	500	II	5
3318.973	50	100	II	5
3318.590		1	II	
3318.283	3	40	II	5
3317.939	2	30	II	
3317.094		3	II	
3316.834	10	200	II	4
3316.496	300	30	I	1
3315.390	20	200	II	5
3315.101	1 h	15 h	II	
3314.720	10	20	II	
3314.533	20	5	I	
3314.52		10	II	
3314.27	1		I	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3313.763	5	40	II	7
3313.039		3	II	
3312.450	1	20	II	
3311.742	2	10	II	
3311.630	3	8	II	
3311.180		2	II	
3311.050	4	30	II	
3310.937	10	80	II	7
3310.815		1	II	
3310.20		1	II	
3309.512	10	70	II	
3309.470	2	20	II	
3309.372	70	300	II	5
3309.185	5	50	II	
3308.461		2	II	
3308.210		1	II	
3306.783	100	400	II	7
3305.733	500 r	2000	II	6
3305.252	20	20	I,II	
3304.770	70	400	II	6
3304.558	80	400	II	5
3304.346		6	II	
3303.926		1	II	
3303.864		2	II	
3303.449		1	II	
3303.203		2	II	
3302.978	3		I	
3302.368	7		I	
3302.202		1	II	
3301.780	1	10	II	
3301.711	10	20	II	6
3301.481	1		I	
3301.328		1	II	
3299.828	200	10	I	7
3299.647	2		I	
3299.447		1	II	
3299.400	1	6	II	
3298.896		8	II	
3298.826	1	10	II	
3298.102		2	II	
3297.851	10	100	II	6
3297.486	8		I	
3296.501		4	II	
3295.825		4	II	
3294.58		2	II	
3294.341	7	100	II	6
3293.836		2	II	
3293.685	7		I	
3293.66		3	II	
3293.25		1	II	
3293.19	10		I	
3292.92		1	II	
3292.26	20		I	
3292.089	5	20	II	
3291.967		10	II	
3291.946	20		I	
3291.028		4	II	
3290.554		8	II	
3290.14		4	II	
3289.370	60000 A	50000	II	4
3287.81		1	II	
3286.960	10	70	II	5
3285.78		1	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
3285.35		1	II	
3285.168		2	II	
3283.494	4	40	II	4
3282.33	3		I	
3282.03		5	II	
3281.715	1	7	II	
3280.850		4	II	
3280.335	1	10	II	
3279.89		4	II	
3279.32		4	II	
3278.99		1	II	
3278.614	50	1	I	
3278.56	5		I	
3278.400	2	20	II	4
3278.057	7	70	II	6
3277.73		4	II	
3277.607	4	15	II	
3277.575		1	II	
3277.07		1	II	
3276.218	15		I	
3275.801	50	200	II	6
3275.19		7	II	
3275.14		1	II	
3275.01	1	8	II	
3274.96		2	II	
3274.770	6		I	
3273.940	7	70	II	
3273.65		1	II	
3272.98		2	II	
3272.644	30		I	
3271.528	20	150	II	
3271.247	2	20	II	
3271.190	10	40	II	
3271.125	3	30	II	
3270.57		2	II	
3269.265	50	200	II	
3268.94		2	II	
3268.84		1	II	
3268.811	2		I	
3267.890	150	2	I	
3267.313	10		I	
3266.915		6	II	
3266.39		4 d	II	
3266.163		4	II	
3265.930	3	30	II	
3265.247	2		I	
3265.068	7	60	II	
3264.889	8	80	II	
3264.114		4	II	
3263.938	1	10	II	
3263.79		1	II	
3262.296	6	60	II	
3261.759	5	50	II	
3261.686	20	200	II	6
3261.508	500	1500	II	5
3261.02		1	II	
3260.82		5	II	
3259.99	1	8	II	
3259.100	100	500	II	6
3258.663	1	10	II	
3258.453		8	II	
3256.86		1	II	
3256.030	5	50	II	

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
3255.24		1	II	
3254.62		2	II	
3254.197	100	300	II	
3253.911	10	100	II	
3253.545	20	1	I	
3253.340	20	120	II	
3253.023	3		I	
3252.106	1	10	II	
3250.505	1	5	II	
3249.80		1	II	
3249.57		1	II	
3249.17		4	II	
3248.446	2	10	II	
3247.932	1	5	II	
3246.85		1	II	
3246.657	1	7	II	
3246.28		1	II	
3246.060		10	II	
3245.70		5	II	
3245.05		6	II	
3244.46	2		I	
3243.46		5	II	
3243.00	4	30	II	
3242.12	1	10	II	
3242.048	4	50	II	
3241.86	30	1	I	
3240.946	20	1	I	
3240.57		3	III	
3239.580	200	5	I	
3239.39	1	8	II	
3239.195	50	200	II	6
3237.888	10		I	
3237.215		5	II	
3236.488	20	60	II	
3236.24	10		I	
3236.160	40	300	II	4
3235.975	3	30	II	
3235.858		6	II	
3235.635	2		I	
3235.61		8	II	
3235.520	4		I	
3234.740	2	10	II	
3233.487	3	40	II	
3233.38		1	II	
3232.29		4	II	
3231.986	50	300	II	6
3231.90	1	10	II	
3231.81		10	II	
3231.376	10	50	II	
3231.228		2	II	
3229.93	2		I	
3229.814	50	150	II	6
3229.475	2	20	II	
3228.575		2000	III	
3228.503	5	40	II	
3227.478	100	2	I	
3226.725	20	80	II	4
3225.885	100	400	II	6
3225.78	20	200	II	7
3224.890		4	II	
3224.752		3	II	
3224.43		4	II	
3224.25		1	II	

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
3223.854	4	20	II	
3223.105	4	40	II	
3222.696	150	3	I	
3222.55		1	II	
3222.11		5	II	
3221.486	10	70	II	5
3221.246	15	150	II	4
3220.96		2	II	
3220.814		8	II	
3219.633		8	II	
3219.408	2	9	II	
3219.325	1	10	II	
3218.913	2	15	II	
3218.323	100	600	II	7
3217.96		1	II	
3217.66		3	II	
3217.45		1	II	
3217.40	5		I	
3217.29	1	7	II	
3217.176	200	1000	II	5
3216.66	2		I	
3216.273		50	III	
3215.927	10	100	II	
3215.68		2	II	
3215.456	10	60	II	
3215.38		2	II	
3214.330	2	20	II	
3214.14		1	II	
3213.172		6	II	
3212.485		5	II	
3210.84		7	II	
3210.112	20	200	II	5
3208.01		3	II	
3207.870	2		I	
3207.702	4	30	II	5
3207.538	2	10	II	
3207.40		1	II	
3207.380	6		I	
3206.148	20	200	II	7
3205.863	20	50	II	
3205.58		1	II	
3204.681	20	200	II	4
3203.989	1	10	II	
3202.76		2	II	
3201.35	5	30	II	
3201.160	800 r	2000	II	5
3200.69		1	II	
3199.785	5	50	II	
3199.24		1	II	
3198.647	400	1000	II	5
3196.354	10	50	II	7
3196.052	2	20	II	
3195.585	20	200	II	5
3195.349	15		I	
3194.765	10	100	II	7
3194.242	8	70	II	6
3192.885	1000 r	3000	II	7
3192.62	4	30	II	
3192.45	1	8	II	
3192.15		5	II	
3191.352		800	III	1
3190.780	8	30	II	
3190.58		5	II	

Wave-length in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
3188.26		1	II	
3187.51		2	II	
3187.01		3	II	
3186.580	10	100	II	4
3185.64		1	II	
3185.03		1	II	
3184.71		1	II	
3183.90	3		I	
3183.498	1	5	II	
3183.46	1	5	II	
3183.07	2		I	
3182.86		4	II	
3182.52	1	8	II	
3182.165	2	10	II	
3182.09	1		I	
3181.64		1	II	
3181.27	1	4	II	
3181.03	1	9	II	
3180.919	200	800	II	5
3180.48		1	II	
3179.94	1	10	II	
3179.344	30	70	II	
3178.85		1	II	
3177.815		1	II	
3177.78		2	II	
3176.26		3	II	
3176.06		1	II	
3175.759	25	150	II	6
3174.22		2	II	
3173.797	20	150	II	7
3171.176	100	300	II	6
3169.558	10		I	
3169.056	200	1200	II	5
3168.985	3	10	II	
3168.405	8	60	II	5
3167.72		1	II	
3167.044	1	8	II	
3166.727	2	20	II	
3166.644	10		I	
3166.407	10		I	
3165.981	1	5	II	
3165.875		7	II	
3165.206	60	500	II	4
3164.973	6	15	II	
3163.985	4		I	
3163.796	100	600	II	7
3162.737	4		I	
3162.293	50	5	I	
3161.80		2	II	
3161.55	2		I	
3160.894	1	8	II	
3160.12		1	II	
3160.01		3	II	
3159.79		2	II	
3159.59		1	II	
3159.49		2	II	
3159.34		1	II	
3159.04		2	II	
3158.869	5	10	II	
3158.43	1	7	II	
3158.300	40	300	II	5
3158.145	1		I	
3157.043		7	II	

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Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
3156.365		4	II		3126.012	5	4000	III	7	3092.496	5	3000	III	3
3155.798	30	40	II		3125.885	1	10	II		3092.10	1	8	II	
3155.52		2	II		3125.700	5	20	II		3091.10	1	6	II	
3155.284	5	50	II		3125.443	50	100	II		3090.924	6	15	II	
3155.183	40	200	II	6	3124.25		2	II		3090.747	1	10	II	
3154.194	5	40	II		3123.870		6	II		3089.61	3	20	II	
3153.880	100	700	II	7	3123.510	8	60	II		3089.102	150 r	500	II	4
3153.616	20	100	II		3122.74		1	II		3089.04	10		I	
3153.180	40	300	II	5	3122.48		3	II		3088.823	3	30	II	
3152.880	2		I		3122.185	2	20	II		3088.78	1	9	II	
3152.44	4	40	II		3121.38		2	II		3088.66		3	II	
3151.90		1	II		3119.73		1	II		3087.998	1	15	II	
3151.436	15	100	II		3119.37		2	II		3087.720		6	II	
3151.255	3	8	II		3119.10		1	II		3087.46		2	II	
3150.46	3	30	II		3117.806	1000 r	3000	II	6	3086.971	10	100	II	4
3150.19		6	II		3117.318	2		I		3086.508	8	40	II	
3150.12		2	II		3116.702	60	300	II	5	3085.817	10	70	II	6
3148.998	30	200	II		3116.487	10	70	II		3085.434	9	60	II	
3148.43		2	II		3116.342	10	40	II		3085.21	8		I	
3148.08		1	II		3116.070	15	70	II	6	3084.347	7	70	II	6
3147.450	1		I		3115.340	100	400	II	7	3083.809		3	II	
3146.134	8	60	II		3115.25	1	8	II		3083.44		1	II	
3145.540	150	500	II		3114.905	3	20	II		3082.34		1	II	
3145.063	80	600	II	6	3114.69		1	II		3082.264		6	II	
3142.813	1	7	II		3114.505		4	II		3082.05		1	II	
3142.74		2	II		3112.980	1	10	II		3081.625		8	II	
3141.733	60	400	II	4	3112.91		4	II		3081.18		1	II	
3141.17		3	II		3112.742	5		I		3081.142	2		I	
3140.936	1000 r	2000	II	6	3111.047	1	6	II		3080.552	3	30	II	6
3140.28		2	II		3109.786	5	40	II		3080.49		3	II	
3139.75	1	6	II		3109.52		2	II		3080.17	3	20	II	
3139.27		2	II		3109.10	1	5	II		3079.593		7	II	
3138.577	1	1000	III		3107.902	1000 r	3000	II	4	3079.264	7	1	I	
3138.276		5	II		3107.760	100	500	II	5	3078.450	1	10	II	
3138.07		2	II		3106.97		2	II		3078.31	1	10	II	
3137.622		10	II		3106.94	1	6	II		3077.82		2	II	
3137.51		1	II		3106.740	2	10	II		3077.34		7	II	
3136.760	80	400	II	6	3106.133		3	II		3077.18		8	II	
3136.67	1	10	II		3106.007		4	II		3077.14		6	II	
3136.18		2	II		3105.37		1	II		3076.50		1	II	
3135.989		4	II		3103.81		4	II		3076.013	30	150	II	6
3135.93		1	II		3103.36		1	II		3075.10		2	II	
3135.43		1	II		3102.71		2	II		3074.92		2	II	
3135.316	1	10	II		3102.18		20	III		3074.84		3	II	
3135.12	4	30	II		3102.074	30	150	II	5	3074.63	3		I	
3133.96		1	II		3101.688		5	II		3074.60	2		I	
3133.845		3	II		3101.361	50	250	II	4	3074.50	1	10	II	
3133.778		3	II		3101.004	15	100	II		3073.89		3	II	
3132.628	15	150	II	6	3100.745	5		I		3073.680	20	100	II	
3132.478	2	15	II		3100.25		4	II		3073.19		3	II	
3132.294	1	8	II		3100.03		2	II		3072.486	6	60	II	
3131.397		1	II		3099.114	1	10	II		3072.41		4	II	
3131.38		3	II		3098.850	4	10	II		3071.583	5	50	II	
3130.862	2		I		3098.384		3	II		3071.26		1	II	
3129.145	8	80	II	5	3097.331	1	8	II		3070.98	1		I	
3128.60		1	II		3096.278		4	II		3070.28	2	7	II	
3127.866	20	120	II	6	3096.10		1	II		3069.34		2	II	
3127.64		2	II		3095.415	30	60	II		3068.69	1	10	II	
3127.49		2	II		3095.221	10	60	II	6	3068.284	7	60	II	
3127.31		2 h	II		3094.894	100	200	II		3067.986	2	10	II	
3127.138	4	40	II		3093.870	200 r	1000	II	5	3067.365	10	70	II	6
3126.25	1	5	II		3093.423	3	30	II	6	3066.54		2	II	
3126.192	4	20	II		3093.40	1	10	II		3066.487	2	6	II	

Table 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air Å	Intensity Meggers lamp	Intensity Thompson lamp	Spectrum	Zeeman type
3065.74		7	II	
3065.52		2	II	
3065.48		1	II	
3065.040	300 r	1000	II	4
3064.868	30	150	II	
3064.75		2	II	
3063.80		4	II	
3063.671	20	100	II	
3063.350	2	10	II	
3063.125	40	200	II	5
3062.524		4	II	
3062.06		1	II	
3061.646		6	II	
3060.440	5		I	
3060.394		7	II	
3059.568		7	II	
3059.362		4	II	
3058.71		2	II	
3058.66		5	II	
3058.288		4	II	
3058.20		1	II	
3057.29		1	II	
3056.01		2	II	
3055.60		1	II	
3055.46		2	II	
3055.350	5	15	II	
3055.157	10	60	II	4
3054.649	1	10	II	
3053.928	2	20	II	
3053.452		8	II	
3053.084	1	10	II	
3052.20		2	II	
3052.021	1	7	II	
3051.98		2	II	
3051.11		2	II	
3050.64		1	II	
3050.50		6	II	
3049.84		2	II	
3049.14		7	II	
3048.82		2	II	
3048.41		6	II	
3048.15		2	II	
3047.052	20	100	II	6
3046.482	30	200	II	4
3046.27		3	II	
3045.91		2	II	
3045.84		1	II	
3045.46		4	II	
3045.044	1	7	II	
3044.83	10	60	II	6
3044.004	20	100	II	4
3043.93		4	II	
3043.07		1	II	
3042.78		3	II	
3042.650	50	300	II	4
3042.34		2	II	
3041.180	7		I	
3040.83		2	II	
3040.652		30	III	
3040.504	5	30	II	
3040.444	2	15	II	
3040.235	5	15	II	
3039.665	40	300	II	4
3039.276		6	II	
3038.81		2	II	
3038.75	2	10	II	
3038.531	5	30	II	
3037.992	15	90	II	6
3036.820	10	60	II	
3036.13		1	II	
3035.945	1	7	II	
3034.99	1	5	II	
3034.642	40	200	II	4
3034.52		2	II	
3034.32		1	II	
3033.860	30	100	II	
3033.664	2	10	II	
3033.40		2	II	
3033.28		1	II	
3033.14		1	II	
3031.625		100	III	
3031.110	5000A	3000	II	4
3029.486	2	2000	III	3
3028.38	2	20	II	
3027.476	7		I	
3026.669	100	700	II	4
3025.76		2	II	
3025.38		6	II	
3024.935	2	15	II	
3023.614	5	30	II	6
3022.58		1	II	
3022.454	10	60	II	7
3021.27		1	II	
3020.99		4	II	
3020.703	20	100	II	5
3020.345	2	10	II	
3020.211		5	II	
3019.440	2	15	II	
3019.17		2	II	
3019.058	8	40	II	
3017.560	100	800	II	5
3016.95		6	II	
3016.40		1	II	
3014.97		2	II	
3014.526	10	60	II	7
3014.427	40	200	II	5
3014.02		8	II	
3013.08		2	II	
3012.80		3	II	
3012.28		1	II	
3011.842		4	II	
3011.218	7		I	
3011.00		1	II	
3010.735	2		I	
3010.625	50	300	II	4
3009.392	100	500	II	4
3009.21	2		I	
3007.923	5	30	II	
3007.56		3	II	
3006.863	10	70	II	5
3006.30		3	II	
3006.14	5	40	II	
3005.766	800 r	3000	II	4
3005.118	5		I	
3004.642	1	15	II	
3004.46	3	10 h	II	
3004.097	1	5	II	
3003.60		2	II	
3002.608	30	200	II	
3002.47		2	II	
3002.035	5	30	II	5
3001.864	2	10	II	
3001.283	4	40	II	4
3000.987	2	15	II	
3000.865	2		I	
3000.465	100	300	II	4
3000.13		2	II	
2999.642	5	10	II	
2999.43		8	III	
2998.377	4	30	II	
2998.000	1	800	III	
2996.75		2	II	
2996.373		5	II	
2995.862	20	100	II	5
2995.03	6	30	II	
2994.94	2	20	II	
2994.805	150 r	600	II	6
2994.53	2	20	II	
2994.48	1	10	II	
2993.939	10	70	II	6
2992.28		5	II	
2991.872	40	200	II	5
2991.70	5	9	II	
2991.33		1	II	
2991.240	1	6	II	
2990.366	30	200	II	5
2989.768	2	15	II	
2989.376	6	10	II	
2989.20	2	20	II	6
2988.95		5	II	
2988.56		1	II	
2988.30		2	II	
2987.862	1	10	II	
2987.25	1	6	II	
2986.64		2	II	
2986.47		1	II	
2985.876	10	70	II	4
2985.078	50	300	II	5
2984.84	7	60	II	
2984.44		1	II	
2983.990	200 r	1000	II	6
2983.702	15	100	II	
2983.369	4	8	II	
2982.659	10	70	II	4
2982.494	20	150	II	4
2982.055	2	8	II	
2982.01		5	II	
2981.519	3	20	II	
2980.482		5	II	
2979.859	10	60	II	4
2979.658	3	20	II	4
2979.44		1	II	
2978.906	6	40	II	4
2977.835		50	III	
2977.76		1	II	
2977.695		4	II	
2977.525	10	60	II	6
2977.270	1	9	II	
2976.53		1	II	

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TABLE 1.—*Emission spectra of ytterbium*—Continued

Wavelength in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
2975.567	3	20	II	
2975.238		6	II	
2973.36		1	II	
2972.94		6	II	
2972.47	3	30	II	7
2970.84	20	200	II	6
2970.564	4000A	3000	II	6
2969.70	1	7	II	
2967.72		4	II	
2966.763	20	100	II	7
2965.168	8	60	II	
2964.82		4	II	
2964.755	100 r	500	II	5
2964.39	15	100	II	6
2963.96		4	II	
2963.46	40	300	II	6
2963.255	10	70	II	
2963.17	8	50	II	
2962.522	40	250	II	6
2961.801	4	30	II	
2961.150	1	6	II	
2960.850	10	60	II	4
2958.425		3	II	
2957.632	40	150	II	
2957.05		3	II	
2955.61		2	II	
2955.318	40	200	II	5
2955.09	1	4	II	
2954.45		1	II	
2953.016	5	40	II	4
2952.55	4		I	
2952.475		4	II	
2952.253	1	10	II	
2951.716	1	8	II	
2951.406	5	40	II	
2951.022	8	50	II	
2950.80	2	8	II	
2950.64		1	II	
2950.52	2	20	II	
2950.326	20	150	II	4
2949.840		5	II	
2948.65		2	II	
2947.76		3	II	
2947.131	4	30	II	
2946.95		5	II	
2946.852	2	20	II	
2946.765	10	70	II	5
2946.305	30	200	II	6
2945.907	100 r	600	II	5
2945.22		3	II	
2944.465	5	30	II	
2944.336	5		I	
2944.19		2	II	
2943.20		2	II	
2943.15		1	II	
2942.823	10	50	II	4
2942.60		2	II	
2942.038	15	80	II	6
2941.77	1	4	II	
2941.11		1	II	
2940.517	25	150	II	5
2940.25		2	II	
2939.534	20	100	II	5

Wavelength in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
2938.84	1	4	II	
2938.51	3	20	II	
2938.188	7	50	II	6
2937.186	15	100	II	5
2935.52		4	II	
2935.245	1	7	II	
2935.108	30	200	II	5
2934.360	60	3	I	
2933.82		6	III	
2932.90		1	II	
2932.21		1	II	
2932.08		2	II	
2931.27		1	II	
2929.70		5	II	
2929.48		3	II	
2929.44		1	II	
2928.973		300	III	
2928.62	3		I	
2927.850	10	70	II	5
2927.48	3		I	
2927.42		1	II	
2927.116	1	10	II	
2926.65	2	15	II	
2926.28		1	II	
2924.65	2	9	II	
2924.560		4	II	
2924.235	20	100	II	4
2922.35	2	7	II	
2922.235	4		I	
2921.85		1	II	
2921.64		2	II	
2921.119	40	200	II	6
2920.16	1	10	II	
2919.346	400 r	1000	II	6
2919.08		4	III	
2918.89		2	II	
2918.53		1	II	
2916.83	2	10	II	
2916.61	7	30	II	
2916.431	10	70	II	4
2915.99		4	II	
2915.275	150 r	300	II	4
2915.14		4	II	
2914.84	1	8	II	
2914.48	7	40	II	6
2914.210	100 r	600	II	4
2913.75		3	II	
2913.12	1	10	II	
2912.865	10	50	II	4
2912.51		5	II	
2912.25		2	II	
2911.61		3	II	
2911.523	40	200	II	6
2910.43		2	II	
2909.88		4	II	
2909.48	30	150	II	5
2909.19	20	100	II	7
2908.55	1	9	II	
2908.33	10	50	II	4
2908.15		4	II	
2908.09	5	40	II	
2906.88	7	60	II	6
2906.313	1	1000	III	3

Wavelength in air (Å)	Intensity: Meggers lamp	Intensity: Thompson lamp	Spectrum	Zeeman type
2905.61		3	II	
2904.97		3	II	
2904.79	1	7	II	
2904.20		1	II	
2902.924	8	80	II	5
2902.41	6	40	II	6
2901.86		1	II	
2901.60		1	II	
2900.39		2	II	
2899.705	40	200	II	4
2899.236	5	40	II	5
2898.30		600	III	7
2897.98		2	II	
2897.31		4	II	
2896.902	10	100	II	4
2895.06	2	15	II	
2894.95	3	30	II	5
2893.620	10	100	II	4
2891.384	3000A	2000	II	4
2891.16	4	40	II	
2890.28	1	8	II	
2888.24	15		I	
2888.04	100 r	300	II	6
2887.74	2	7	II	
2886.263	30	200	II	5
2885.97	10	70	II	4
2885.594		7	II	
2885.02	1	8	II	
2884.51		2	II	
2883.87	1	10	II	6
2883.686	10	1	I	
2883.01		6	II	
2882.155	7	50	II	7
2882.01		1	II	
2881.93	7	60	II	5
2881.10		6	II	
2879.83		1	II	
2879.159	10	70	II	5
2876.45		1	II	
2875.86		400	III	7
2874.83		1	II	
2874.11		6	II	
2873.490	15	1	I	
2873.14		3	II	
2872.82		1	II	
2872.11	2	10	II	
2871.712	2	10	II	
2870.57		3	II	
2870.51		3	II	
2870.061	20	100	II	5
2869.61		1	II	
2869.546	1	15	II	
2868.536		5	II	
2867.90		7	II	
2867.58	5	15	II	
2867.20	1	7	II	
2867.065	100 r	500	II	4
2866.179	4	30	II	6
2865.96	1	6	II	
2865.74		1	II	
2865.60	1	7	II	
2865.328	5	30	II	6
2864.725	4	40	II	4

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
	Meggers lamp	Thompson lamp				Meggers lamp	Thompson lamp				Meggers lamp	Thompson lamp		
Å					Å					Å				
2864.62	1	10	II		2835.95		1	II		2800.006	8	50	II	
2864.19		1	II		2835.48		2	II		2799.376	30	40	II	5
2863.13	5	30	II		2835.13		1	II		2798.211	20	100	II	6
2862.97	2	5	II		2834.972	10	70	II	6	2797.796	10	80	II	5
2862.85	1	8	II		2834.63		4	II		2797.28		2	II	
2861.34	20	200	II	6	2833.68		1	II		2796.764		2	II	
2861.212	40	300	II	5	2832.201	4	20	II	4	2795.60	5	600	III	1
2861.11	5	30	II		2830.989	30 r	200	II	5	2795.292	6	20	II	6
2860.70	3	15	II		2830.88	4	30	II	7	2795.074	8	40	II	4
2860.393	20	100	II	7	2830.639	1	8	II		2794.774	7	40	II	7
2859.94	4	20	II		2828.48	1	10	II		2794.441	10	70	II	5
2859.805	1000R	1000	II	4	2827.921	3	20	II	7	2794.08	2	10	II	
2859.392	30	200	II	6	2827.81	1	5	II		2793.280	10	60	II	4
2858.460	8	40	II	4	2826.735		3	II		2792.54		3	II	
2858.332	15	60	II	6	2826.522		2	II		2790.47		3	III	
2857.75		2	II		2826.013		15	III		2789.665	3		I	
2857.29	4	20	II	5	2824.974	20	100	II	5	2789.431	3	15	II	
2857.13		3	II		2824.86	1	4	II		2788.245		300	III	
2855.85	1	7	II		2824.54	2	9	II		2787.965	7	30	II	5
2854.490	10	50	II	4	2824.20	2	10	II		2787.010	1	7	II	
2854.144	10	60	II	4	2823.95		1	III		2786.025	1	5	II	
2854.04	4	40	II		2823.585	7	50	II	7	2785.903	2		I	
2853.68	3	30	II	4	2823.320		4	II		2785.750	8	30	II	5
2853.409	5	60	II	6	2821.52		3	II		2785.066		2	II	
2852.63		1	II		2821.152	30 r	200	II	4	2784.966	4		I	
2851.92		4	II		2820.12		3	II		2784.656	30	150	II	6
2851.86	10	70	II	5	2819.75		2	II		2783.16		2	II	
2851.126	500R	1000	II	4	2819.49	2	10	II	6	2782.58		3	II	
2850.64		3	II		2819.24	2		I		2782.54	1	5	II	
2850.13		1	II		2818.722	6	1000	III	1	2782.203	1	5	II	
2849.90		3	II		2817.66		2	II		2782.102	1	2	II	
2849.84		1	II		2816.915		600	III	7	2781.493		2	II	
2849.71		1	III		2816.368	2	8	II		2780.820	1	3	II	
2849.336	6	40	II	6	2816.317	4	20	II		2780.125		3	II	
2848.88	1	7	II		2815.20		1	II		2780.032	2	15	II	
2848.445	20	100	II	4	2814.87	2	10	II		2779.412		3	III	
2847.97		3	II		2814.528	20	100	II	6	2776.688	1	5	II	
2847.75		2	II		2814.241	2	10	II		2776.280	60 r	200	II	6
2847.64		2	II		2814.14	2		I		2775.440	2	10	II	6
2847.28		4	II		2813.00		1	II		2774.304	5	20	II	7
2847.175	400 r	1000	II	5	2812.612	2	6	II		2773.91		2	II	
2847.03		1	II		2811.133	3	8	II		2771.86		2	II	
2846.324		5	II		2810.723	5	20	II	4	2771.324	20	100	II	4
2846.183	1	5	II		2810.109	4	15	II		2770.405		2	II	
2845.355		4	II		2809.326	2	9	II		2769.412		2	II	
2844.685	4	20	II		2808.75		2	II		2768.281	2	20	II	
2844.067	4	10	II		2808.514	2	50	III		2766.624	2	7	II	
2843.83	3	15	II		2808.305	4	20	II	5	2766.167	1	3	II	
2843.702	1	7	II		2807.83	2	10	II		2765.495		100	III	
2842.955		300	III	7	2807.744	2	6	II		2765.046	2	8	II	
2842.586	6	30	II	6	2807.32	1	4	II		2764.414	10	50	II	6
2842.51	2	8	II		2807.22		10	III		2762.716	1	3	II	
2842.291	1	7	II		2807.180	2	8	II		2761.70		4	II	
2842.140	3	15	II	7	2806.43		1	II		2761.373	10	70	II	7
2841.308	2	20	II	6	2806.057	1	4	II		2760.780	10	70	II	5
2841.26		1	II		2804.807	1	3	II		2759.532	3	20	II	
2841.02		2	II		2804.260	5	30	II	4	2759.257		3	II	
2839.91		2	II		2803.427	2	1000	III	7	2759.003	7	40	II	4
2839.85		1	II		2803.319		400	III	7	2758.263		1	II	
2839.17		1	II		2801.598	1	5	II		2758.065		1	II	
2838.64	3	15	II		2801.272		1	II		2757.542		3	II	
2837.92		2	II		2800.109	2	10	II		2756.76		200	III	
2837.09		1	II		2800.060	6	30	II		2755.94		200	III	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
2754.943	3	20	II	6	2719.005	3	15	II	7	2681.180		2	II	
2754.105		2	II		2718.349	40 r	200	II	7	2680.993		2	III	
2753.584	5	20	II		2717.76		2	II		2680.404	6	40	II	6
2751.452	20	80	II	4	2717.661	3	10	II		2678.847	1	3	II	
2750.477	600R	500	II	4	2717.617	1	4	II		2677.394	1	500	III	3
2749.907	3	500	III	7	2717.106	4	20	II	7	2676.131	3	6	II	
2749.624	3	20	II		2716.463		2	III		2674.866	3	10	II	4
2748.664	50 r	150	II	5	2716.354	3	5	II		2673.331		30	III	
2748.56	3	10	II		2716.177		3	II		2672.656	200R	200	II	4
2748.036	5	30	II	4	2715.94	3	15	II	7	2672.028		2	II	
2747.641	3	10	II		2715.640	1	4	II		2671.958	1000A	10	I	7
2747.580	20	80	II	5	2715.383	4	7	II		2671.554		2	II	
2746.83		1	II		2715.17		1	II		2670.605		1	II	
2745.712	5	30	II	5	2714.408	4	30	II	6	2669.305		1	II	
2745.115	2	8	II		2714.18		2	II		2669.131	1	3	II	
2744.782	1	3	II		2714.052		1	III		2668.94		2	II	
2744.372		1	II		2713.718		2	II		2668.752	8	40	II	
2742.741		2	II		2712.658	15	80	II	4	2668.707	4	20	II	7
2742.651	1	5	II		2712.321	2	400	III	3	2668.587	1	3	II	
2741.779	4	15	II		2711.785	20	30	II	5	2668.092		2	III	
2741.714	8	40	II	5	2711.09		1	II		2667.965		2	II	
2741.150	2	8	II		2710.674	6	30	II	6	2666.994	20	2000	III	7
2740.79	3	9	II		2710.544	20	80	II	5	2666.132	20	2000	III	7
2740.551	3	6	II		2710.046	2	5	II		2665.038	60	100	II	6
2740.397	1	4	II		2709.715	4	20	II	4	2664.894		70	III	
2740.215	2	6	II		2708.842	5	30	II	6	2664.39		2	II	
2739.475	1	2	II		2708.46		2	II		2663.900	2	5	II	
2738.818	2	8	II	7	2708.035		30	III		2661.888		3	II	
2738.31		1	II		2705.108		3	II		2660.861	1	4	II	
2737.61	3	15	II	5	2704.75		2	II		2660.73		2	II	
2736.553	4	20	II		2704.53	3	15	II		2659.983		100	III	
2736.050		2	II		2702.133	1	4	II		2659.635		2	II	
2735.673	2	6	II		2701.733	1	4	II		2659.267	4	20	II	4
2734.928		2	II		2701.130	3	5	II		2657.46		1	II	
2734.413		1	II		2700.797	6	40	II	5	2657.20		2	II	
2734.087	5	30	II	7	2698.617	2	8	II		2656.838	2	15	II	5
2733.724		4	II		2698.447		1	II		2656.125	10	40	II	4
2733.65		2	II		2696.625	4	20	II	7	2653.75	1000R	1000	II	7
2733.112	5	10	II	5	2696.150		2	II		2652.28	2		I	
2732.942	1	4	II		2695.556		2	II		2652.25	2	700	III	2
2732.742	30 r	150	II	4	2695.427	8	60	II	6	2651.74	3	1000	III	2
2732.50		1	II		2694.99		1	III		2651.68	2		I	
2732.033		1	II		2694.622	1	4	II		2650.795	2	10	II	
2731.83		1	II		2692.703	2	10	II		2650.728	9	30	II	4
2731.573		3	II		2692.408	3	15	II	6	2649.787	10	40	II	6
2731.517		3	II		2691.996	5	30	II	6	2649.165		3	II	
2730.62		1	II		2691.49		3	II		2648.803	6	30	II	4
2729.50	2	8	II	5	2691.44		2	II		2647.455	8	40	II	5
2729.093	1	5	II		2691.012	2	500	III	3	2647.233	2	10	II	
2728.47		1	II		2690.669	2	2	II		2646.442	6	30	II	5
2728.420	6	20	II	4	2690.298	1	3	II		2645.691		2	II	
2727.66		1	II		2689.85		1	III		2644.306	20	80	II	6
2727.22		1	II		2689.338		2	III		2643.62		100	III	
2724.65	1	3	II		2688.22		1	II		2643.237		3	II	
2724.41		2	II		2687.980	4	30	II	6	2642.815		5	II	
2723.338		3	II		2687.900	1	5	II		2642.558	10	1000	II	6
2722.759		2	II		2687.08		1	II		2641.97	2	10	II	
2722.475	1	5	II		2685.990	2	10	II		2641.886	50	50	II	5
2722.205	8	40	II	7	2685.30		2	III		2641.485		2	II	
2721.895		3	II		2685.022		2	III		2640.482		300	III	
2721.183		3	II		2684.747	10	70	II	6	2639.448	10	40	II	4
2720.522	1	5	II		2683.895		2	II		2638.596	4	5	II	
2719.996		2	II		2683.416	4	30	II	6	2638.055	1	500	III	3

Table 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type	Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp			Å	Meggers lamp	Thompson lamp		
2637.637		2	II		2592.694		20	III		2542.318	4	10	II	
2637.378	2	2	II		2591.026	3	10	II	6	2541.82		1	II	
2636.519	1	6	II	6	2590.711	2	5	II		2541.16	2	6	II	
2636.399		3	II		2590.328		2	III		2540.60		1	II	
2636.275	2	8	II		2588.617		100	III		2539.64		4	II	
2635.37		30	III		2586.30	3	10	II	7	2538.79	2	20	II	
2635.197	1	4	II		2585.67		2	III		2538.67	300A	200	II	6
2634.50		2	III		2584.76		2	III		2538.203	4	30	II	
2634.306	30	40	II	6	2583.748	1	4	II		2537.65	10	70	II	7
2634.183		3	II		2582.489		2	II		2537.240	1	5	II	
2632.69	2	8	II		2582.38		7	III		2537.08		1	II	
2631.73	3	15	II	4	2582.068		3	II		2536.962	2	10	II	6
2630.36		1	III		2581.41	1	4	II		2536.027	4	20	II	5
2628.80	2	7	II		2581.092		3	II		2534.05		2	II	
2628.605	1	4	II		2580.36	3		I		2532.55	2	6	II	
2628.424		2	II		2579.57	4	1000	III	1	2532.19	2	3	II	
2628.07	3	20	II	6	2577.74	3	10	II		2531.00		1	II	
2627.07		300	III		2577.605	5	20	II		2529.98	1	3	II	
2624.949	3	5	II		2576.09		2	II		2529.50	3	9	II	
2624.52		2	II		2574.78	2	10	II		2529.14		20	III	
2623.22	2	9	II	4	2573.147	6	30	II	7	2528.836	1	1	II	
2621.67	4	20	II		2572.15	1	4	II		2528.339	3	25	II	7
2621.11	1	600	III	3	2571.69	1	2	II		2527.954		3	II	
2619.93	3	15	II		2571.36	7	50	II	4	2527.864	4	30	II	5
2619.074	4	20	II	5	2569.61	1	2	II		2527.49		2	II	
2618.948		2	II		2568.60		2	II		2527.165		2	III	
2618.800	40	1	I		2568.17	3	10	II		2526.31	2	5	II	
2617.01	100 r	100	II	6	2567.607	7	2000	III	7	2526.189		3	II	
2615.35	1	5	II		2566.78		100	III		2524.990	2	10	II	
2615.262	6	30	II	4	2565.573	10	40	II		2524.573	4	8	II	
2614.55	1	3	II		2564.439		5	III		2524.30		3	III	
2614.45	2	3	II		2564.32		3	III		2522.438	15	50	II	6
2612.63	2	10	II		2563.92	2	2	II		2522.07		15	III	
2612.041	4	20	II		2561.66		10	III		2521.04	3	15	II	
2611.645	2	2	II		2560.56		100	III		2520.329		8	III	
2610.860	5	30	II	7	2559.972	2	5	II		2519.39		2	II	
2610.531	1	4	II		2559.094		3	III		2518.59		2	II	
2609.14		30	III		2558.40	3	2	II		2518.47		1	II	
2608.498	1	4	II		2557.804	4	5	II		2518.01	3	10	II	6
2607.864	5	30	II	4	2557.703	1	5	II		2516.82	50	300	II	7
2607.22		2	III		2557.259	4	20	II	7	2516.35	6	30	II	6
2605.43	2	3	II		2556.30		3	II		2516.118	1		I	
2604.69		2	II		2555.29	1	300	III	3	2516.031	3	15	II	
2604.58		4	III		2554.641		2	II		2515.600	2	7	II	7
2604.053	5	30	II	5	2552.88	2	2	II		2515.460	2	3	II	
2602.40		2	II		2552.70	10	60	II	7	2515.165		2	II	
2601.87	20	1	I		2552.147	15	80	II	7	2514.69		1	II	
2600.850	2	9	II		2550.786		1	II		2514.248	7	20	II	7
2600.508	1	2	II		2550.68	3	10	II		2513.64		1	II	
2600.21	3	15	II		2550.39		40	III		2512.87		2	II	
2599.75	1	2	II		2550.060	10	20	II		2512.524	5	20	II	5
2599.144	1	800	III	1	2550.023		3	II		2512.061	50 r	100	II	4
2598.43	2	6	II		2548.756	3	15	II	7	2511.868	4	20	II	
2598.11		2	II		2548.00		3	II		2510.50	2	7	II	
2597.69	1	3	II		2547.498	2	8	II		2510.29	1	2	II	
2597.619	2	2	II		2547.23	2	5	II		2510.18		1	III	
2597.495	1	5	II		2547.20		2	II		2510.03	1	1	II	
2597.23	1	500	III	2	2546.886	1	2	II		2509.86	2	5	II	
2596.735	3	30	II		2546.28	2	5	II		2508.073	10	20	II	
2596.320	6	80	II	6	2545.871	2	4	II		2506.69		1	III	
2596.16	6	80	II	6	2545.545		3	II		2506.52		4	III	
2594.493	3	20	II		2544.72		2	II		2506.25		40	III	
2594.20	3	15	II	6	2542.76	3	10	II		2505.477	6	30	II	6

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
2503.46		1	II	
2502.02	30	70	II	4
2501.21	1	3	II	
2500.568	2	6	II	
2498.73		2	II	
2498.36	2	5	II	
2496.85		2	II	
2495.63	5	20	II	
2495.05	4	3	II	
2493.64	3	10	II	
2493.50		2	III	
2491.69		20	III	
2491.15	3	5	II	
2490.42		200	III	7
2488.92		3	II	
2487.08	1	3	II	
2484.89	5	20	II	6
2484.29		5	III	
2481.42	1	3	II	
2481.35		2	II	
2481.03	1	2	II	
2479.29		2	II	
2479.15	1	5	II	
2477.76		1	II	
2476.62		2	II	
2475.92		2	II	
2474.52	2	1	II	
2474.27	1	3	II	
2473.95		1	II	
2473.16		2	II	
2471.06	2	3	II	
2470.85		2	II	
2469.89	1	2	II	
2469.52		1	II	
2467.24		2	II	
2466.63	5	20	II	6
2465.13		2	II	
2464.59	1	10	II	
2464.50	1000A	10	I	7
2463.79		1	II	
2463.35	2	4	II	
2463.04		1	II	
2462.71		1	II	
2461.98		2	II	
2461.83		1	II	
2461.40	3	10	II	
2460.25	10	40	II	7
2460.00	1	1	II	
2459.93	1	4	II	
2458.637		10	III	
2458.22		2	II	
2457.73		2	II	
2456.74		1	II	
2456.35		1	II	
2456.08		6	II	
2455.97		3	II	
2454.75	1	10	II	
2454.52	3	20	II	
2453.51		2	II	
2451.94	2	3	II	
2451.15		1	II	
2450.26	3	5	II	
2449.71	1	3	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
2449.45		2	II	
2447.26	3	10	II	
2446.41		1	II	
2445.92	1	2	II	
2444.64		2	II	
2443.74		2	II	
2442.64	1	3	II	
2440.43		20	III	
2440.01		1	II	
2439.72		2	II	
2439.59	3	5	II	
2439.31		20	III	
2438.27		100	III	
2437.24	4	7	II	
2436.87	1	2	II	
2436.06		5	II	
2434.71	1	9	III	
2434.02		2	II	
2433.74		1	II	
2433.62	1	3	II	
2433.43		20	III	
2433.16	1	2	II	
2433.05		1	II	
2432.62	2	3	II	
2432.01		2	II	
2431.69		1	II	
2429.18		10	III	
2429.01	1	10	II	
2428.74		1	II	
2428.30		1	II	
2428.12		6	II	
2427.66		1	II	
2427.20		1	II	
2426.19		1	II	
2425.68		1	II	
2424.61	4	6	II	
2423.96		1	II	
2422.84	10	20	II	
2421.35	10	50	II	4
2420.03	1	4	II	
2419.41		1	II	
2419.20		2	II	
2418.38		2	II	
2417.01		3	II	
2415.39		2	II	
2414.33	2	6	II	
2413.77		2	II	
2413.66	1	5	II	
2412.33		60	III	
2411.53		9	III	
2410.77		8	III	
2410.04		20	III	
2409.44		1	II	
2409.06		5	II	
2407.98		1	II	
2407.76		1	II	
2406.79		1	II	
2406.09	1	10	II	
2404.62		2	III	
2403.95		50	III	
2403.41		4	II	
2402.71		2	II	
2399.93		1	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
2398.02	40	20	II	
2397.87		3	II	
2397.73		3	II	
2397.34		1	II	
2390.74	20R	70	II	4
2390.57	2	8	II	
2389.18		3	II	
2388.40	2	7	II	
2386.75		2	II	
2385.94		1	II	
2385.01	1	5	II	
2383.44		1	II	
2382.98		2	II	
2382.57	1	10	II	
2380.39	2	15	II	
2377.22		20	III	
2375.18		3	II	
2374.74		1	II	
2374.52	1	5	II	
2374.32		3	II	
2373.89	2	20	II	7
2373.06		7	II	
2371.64		1	II	
2369.99		30	III	
2369.59		2	II	
2369.42		50	II	
2367.46		50	III	
2366.97		2	II	
2365.68		2	III	
2365.43		200	III	
2364.10		2	II	
2363.49	1	9	II	
2362.89	10	60	II	
2362.30		1	II	
2361.08		40	III	
2358.67		2	II	
2358.53		6	III	
2357.84	1	7	II	
2355.03		1	II	
2350.06		2	II	
2349.39		7	II	
2347.41		1	II	
2345.63		3	III	
2344.66	4	20	II	
2344.09	4	7	II	
2340.78		1	II	
2340.40	1	6	II	
2339.61		1	II	
2337.97		200	III	
2336.83		1	II	
2335.44	2	10	II	
2335.11		1	II	
2333.28		7	III	
2332.28		1	II	
2331.56		1	II	
2330.39		1	II	
2328.06		1	II	
2327.74		3	II	
2327.38		1	II	
2326.92	1	10	II	
2324.44	30	9	I	
2323.18		4	II	
2323.02		1	II	

TABLE 1.—*Emission spectra of ytterbium*—Continued

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
2322.63		1	II	
2321.38		1	II	
2320.81	200A	150	II	4
2318.65		2	II	
2315.20	3	10	II	
2314.81		8	III	
2314.49	1	200	III	7
2312.59	1	3	II	
2311.18		1	II	
2309.54	2	5	II	
2309.27		100	III	
2307.39	1	6	II	
2306.30		2	II	
2305.32	2	300	III	1
2303.28		2	II	
2303.16		1	II	
2298.67		2	II	
2297.91		4	II	
2296.63		2	II	
2292.83		4	II	
2292.19		3	II	
2291.61		1	II	
2289.76	4		I	
2288.96	2	10	II	
2288.14		1	II	
2288.04	1		I	
2285.79		4	II	
2284.99		30	II	
2283.40	3	9	II	
2282.99	1	150	III	
2279.44		1	II	
2276.11		1	II	
2275.07		3	II	
2271.31		1	II	
2271.11	40	2	I	
2269.57		1	II	
2268.57		4	II	
2268.31		3	II	
2267.16		3	II	
2265.67		200	III	
2263.89		1	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
2263.12		3	II	
2262.26		100	III	
2257.03		200	III	
2255.48		3	II	
2253.97		1	II	
2253.27		2	II	
2251.93		1	II	
2244.28		100	III	
2243.18		1	II	
2240.11		300	III	
2237.51		2	II	
2231.56		5	III	
2227.71		5	III	
2224.89		1	II	
2224.46	100	80	II	4
2222.25		1	II	
2216.20		1	II	
2214.68		3	II	
2213.06		1	II	
2212.60	3		I	
2211.91		1	II	
2203.11		2	II	
2202.27		80	III	
2201.20		3	II	
2198.14		20	III	
2189.45		6	II	
2185.71	100	80	II	5
2178.70		4	II	
2174.28	1	3	II	
2169.79		2	II	
2165.21		3	II	
2163.89		4 e	IV	
2161.60	10	40	II	
2160.20		6	II	
2159.89		1	II	
2155.88	3		I	
2155.50		30	II	
2155.20		3	II	
2154.19		20 e	IV	
2152.32		3	II	
2148.94		2	II	

Wave-length in air	Intensity		Spectrum	Zeeman type
Å	Meggers lamp	Thompson lamp		
2148.60		5	III	
2144.77		15 e	IV	
2142.21		2	II	
2139.98		10 e	IV	
2138.35		4 e	IV	
2137.71		4	II	
2135.27		3	II	
2131.40	6	5	II	
2126.74	100	80	II	
2125.57		4	II	
2120.36		3	II	
2119.18		20	III	
2117.62		6	II	
2116.67	100	80	II	
2114.56		3	III	
2113.39		1	III	
2110.20		4	III	
2109.54		50	III	
2106.71		10	III	
2102.73	5	20	II	
2102.10		4	III	
2098.36		30	III	
2096.79		15	III	
2095.31		80	III	
2094.77		10	III	
2093.13		6	III	
2092.26		20	III	
2091.23		20	III	
2087.98		50	III	
2087.37		10	III	
2086.53		4	III	
2078.05		30	III	
2073.64		10	III	
2067.52		4	III	
2066.49		10	III	
2054.80		20	III	
2029.54		6	III	
2022.03		2	II	
2021.36		2	II	
2018.08		2	II	
1998.17		40	III	

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