

RATES OF CHRONOMETER WATCHES
ON TRIAL
FOR PURCHASE BY THE BOARD OF ADMIRALTY,
AT THE
ROYAL OBSERVATORY, GREENWICH,
FROM 1911 AUGUST 5 TO 1911 NOVEMBER 25.

Order of Merit.	NAME OF MAKER.	No.	ADDRESS OF MAKER.	(1) WEEKLY RATES IN																Watch Horizontal. Dial up.	Watch Vertical. Pendant up.	Watch Vertical. Pendant right.	Watch Vertical. Pendant left.	Watch Vertical. Pendant up.	Oct. 3-7.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
				Aug. 5-12.	Aug. 12-19.	Aug. 19-26.	Aug. 26 to Sept. 2.	Sept. 2-9.	Sept. 9-16.	Sept. 16-23.	Sept. 23-27.	Sept. 27-30.	Sept. 30 to Oct. 3.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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* The Weekly Rates have been computed from the rates for three days.
 During the period Sept. 16 to Oct. 13, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kullberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

† The Weekly Rates have been computed from the rates for four days.
 During the period Sept. 16 to Oct. 13, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kullberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

ORDER OF TIME.							(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATES.										NAME OF MAKER.	No.	Order of Merit.
Oct. 7-14.	Oct. 14-21.	Oct. 21-28.	Oct. 28 to Nov. 4.	Nov. 4-11.	Nov. 11-18.	Nov. 18-25.	Difference between greatest and least Weekly Rates. Dial up. a.	Greatest difference between one week and the next. Dial up. b.	Difference of Weekly Rates.				Trial Number. a + 2 b + $\frac{1}{2}(c + \frac{d+e}{2})$						
Watch Horizontal. Dial up.									Pendant up -Dial up. c.	Pendant right -Dial up. d.	Pendant left -Dial up. e.	a+b							
+ 14.9	+ 21.0	+ 18.0	+ 15.5	+ 16.1	+ 16.7	+ 13.9	11.3	6.1	+ 1.3	- 9.0	- 10.7	23.5	27.5	Gouge and Co.	1911	1			
+ 7.0	+ 13.6	+ 9.9	+ 4.9	+ 5.8	+ 3.7	+ 4.9	9.9	6.6	- 4.9	- 20.1	- 21.7	28.1	32.6	Lilley & Sons.	1724	2			
+ 2.1	+ 4.6	+ 6.9	+ 2.1	+ 4.8	+ 1.6	+ 2.3	10.8	8.9	- 3.5	+ 4.9	+ 4.6	28.6	33.7	Kunzier.	51889	3			
- 13.7	- 14.4	- 16.1	- 19.2	- 18.9	- 20.9	- 18.0	12.9	3.7	- 17.9	- 19.7	- 11.3	20.3	34.5	Kunzier.	51909	4			
- 5.6	- 7.2	- 8.6	- 13.1	- 13.1	- 14.9	- 15.2	14.3	4.5	+ 4.0	+ 28.9	- 42.5	23.3	37.2	H. White & Co.	1894	5			
+ 6.9	+ 5.9	+ 2.7	- 1.9	- 4.5	- 2.8	- 1.7	22.5	4.6	- 2.9	- 16.5	- 13.7	31.7	38.2	Kunzier.	51928	6			
- 10.6	- 8.3	- 6.1	- 8.6	- 8.1	- 11.7	- 12.3	11.7	6.4	+ 22.9	- 3.9	+ 20.1	24.6	40.0	Lilley & Sons	1735	7			
+ 6.4	+ 13.9	+ 11.4	+ 7.5	+ 9.6	+ 11.8	+ 12.7	14.9	7.5	- 14.1	- 10.6	- 9.9	29.9	40.4	Carley & Clemence.	51782	8			
- 16.2	- 21.1	- 21.0	- 24.6	- 22.7	- 26.1	- 25.8	15.6	4.9	- 6.3	- 40.7	- 35.6	24.4	41.3	Matthews.	2138	9			
+ 12.2	+ 21.8	+ 20.9	+ 20.3	+ 22.1	+ 19.7	+ 21.7	9.9	9.6	+ 20.7	- 6.7	+ 6.8	29.1	41.8	Kullberg.	8344	10			
+ 5.4	+ 16.0	+ 10.3	+ 6.0	+ 1.9	+ 1.4	- 2.8	18.8	10.6	- 1.7	- 4.6	- 1.1	40.0	41.9	Usher & Cole	30810	11			
- 20.2	- 21.3	- 24.0	- 25.2	- 28.2	- 27.6	- 34.3	26.1	6.7	+ 2.7	+ 5.7	+ 4.3	39.5	42.6	Usher & Cole.	36556	12			
- 13.0	- 20.1	- 24.5	- 27.8	- 25.8	- 27.8	- 30.1	28.4	6.0	- 4.0	- 3.4	+ 0.3	40.4	43.0	Le Cheminant.	18722	13			
- 2.1	+ 6.0	+ 6.0	+ 4.3	+ 4.8	+ 4.9	+ 2.2	8.7	8.1	- 23.4	- 39.2	- 2.6	24.9	43.6	Poile & Smith.	1910	14			
+ 20.3	+ 15.9	+ 18.1	+ 18.7	+ 21.4	+ 19.2	+ 22.6	22.1	9.4	+ 0.8	- 9.4	- 6.8	40.9	44.0	Austin & Williams.	1906	15			
+ 14.1	+ 38.9	+ 37.5	+ 37.8	+ 40.4	+ 48.0	+ 41.4	15.1	9.3	+ 18.6	+ 5.9	+ 3.5	39.7	44.6	Kunzier.	51916	16			
- 5.9	- 11.2	- 12.2	- 13.9	- 12.5	- 12.5	- 6.0	19.4	7.7	- 4.3	+ 24.0	+ 2.3	33.8	44.6	Kullberg.	8230	17			
+ 19.9	+ 15.0	+ 13.0	+ 14.6	+ 12.8	+ 12.3	+ 13.6	18.9	4.9	+ 14.1	- 24.4	- 21.4	38.7	45.1	E. White.	2315	18			
+ 17.5	+ 10.7	+ 3.7	+ 0.2	- 0.5	- 10.9	- 4.9	22.4	7.0	- 11.7	- 15.0	- 3.9	46.7	45.3	Kunzier.	51910	19			
+ 7.7	+ 3.2	- 3.8	- 4.4	- 5.6	- 6.0	- 11.4	19.8	7.2	- 5.2	- 27.7	- 24.2	34.2	45.5	Matthews.	42514	20			
- 18.6	- 21.4	- 24.9	- 28.4	- 28.9	- 32.4	- 32.9	31.1	3.5	+ 11.3	+ 3.4	+ 9.0	38.1	45.9	Goldard & Co.	1878	21			
- 8.0	+ 2.4	- 6.7	- 5.4	- 1.4	- 5.0	- 8.6	19.0	11.1	+ 6.1	+ 7.2	+ 3.9	41.2	45.9	Chandler.	57415	22			
+ 4.2	- 7.5	- 7.7	- 9.1	- 7.1	- 10.6	- 6.9	14.8	11.7	+ 8.6	- 15.6	+ 7.0	38.2	46.3	Usher & Cole	31771	23			
+ 3.2	- 1.1	- 5.2	- 11.1	- 9.3	- 12.5	- 10.2	18.5	5.9	+ 29.6	- 6.4	- 2.4	30.3	46.6	Johannsen.	6626	24			
- 7.2	- 15.9	- 18.7	- 22.7	- 22.6	- 25.9	- 29.8	22.6	8.7	+ 6.3	- 14.3	+ 6.4	40.0	46.7	H. White & Co.	1904	25			
88.4	61.5	60.2	57.0	66.8	66.4	68.1	Mean Weekly Temperature.												
85.9	59.6	54.1	54.9	53.3	53.7	49.5	Difference of Temperature as shown by the Self-Registering Thermometer.												
90.2	68.3	64.1	62.1	69.8	57.7	58.5													

Order of Merit.	NAME OF MAKER.	No.	ADDRESS OF MAKER.	(1) WEEKLY RATES IN											
				Aug. 5-12.	Aug. 12-19.	Aug. 19-26.	Aug. 26 to Sept. 2.	Sept. 2-9.	Sept. 9-16.	Sept. 16-23.	Sept. 23-27.	Sept. 27-30.	Sept. 30 to Oct. 5.	Oct. 5-7.	
				Watch Horizontal. Dial up.						Watch Vertical. Pendant up.	Watch Vertical. Pendant right.	Watch Vertical. Pendant left.	Watch Vertical. Pendant up.		
26	H. White & Co.	1848	63 Cheapside, London, E.C.	- 2.9	- 3.1	- 3.8	- 2.5	0.0	- 3.9	- 5.0	- 19.6	- 18.1	- 32.9	- 19.6	
27	Watkins	1876	59 Carey Street, Chancery Lane, W.C.	+ 5.1	+ 10.0	+ 12.0	+ 11.7	+ 18.8	+ 16.5	+ 5.8	+ 6.8	- 9.6	- 20.8	+ 1.9	
28	Matthews	42003	Elmcroft, 52 Holy Head Road, Coventry.	+ 8.2	+ 4.5	+ 10.4	+ 5.6	+ 3.6	- 1.8	- 5.4	- 8.3	- 10.5	- 25.2	- 8.7	
29	Kunzler	51938	31 St. George's Place, Birmingham.	- 2.2	- 8.2	- 3.4	- 5.2	- 5.7	- 10.1	- 15.0	- 9.9	- 20.3	- 13.7	+ 10.3	
30	Yeomans	93429	48 Spon Street, Coventry.	+ 35.4	+ 34.8	+ 35.4	+ 32.4	+ 32.7	+ 30.4	+ 19.5	+ 29.9	+ 30.6	+ 24.7	+ 25.6	
31	Mumford	1872	1 Fen Court, Fenchurch Street, E.C.	+ 1.2	+ 0.9	+ 0.9	+ 2.1	+ 4.1	+ 0.8	- 11.2	- 1.1	- 21.7	- 28.5	- 6.0	
32	Kunzler	51919	31 St. George's Place, Birmingham	+ 6.3	+ 5.7	+ 6.9	+ 6.4	+ 6.6	+ 3.5	+ 6.1	- 7.0	+ 9.1	+ 1.2	- 3.8	
33	Kunzler	51908	31 St. George's Place, Birmingham	+ 28.2	+ 31.1	+ 37.7	+ 37.9	+ 34.8	+ 32.6	+ 34.3	+ 41.1	+ 41.8	- 50.7	+ 46.7	
34	Reid	9613	Gem Buildings, Blackett Street, Newcastle	- 19.5	- 18.4	- 20.8	- 19.1	- 14.5	- 21.8	- 14.7	- 18.6	- 18.9	- 13.7	- 22.6	
35	Mears & Co.	1828	73-75 High Street, Camden Town.	- 6.3	- 4.9	- 5.0	- 2.1	- 1.3	+ 2.1	- 13.8	- 12.8	- 15.9	- 29.9	- 11.4	
36	Kunzler	51895	31 St. George's Place, Birmingham	+ 11.6	+ 13.2	+ 10.5	+ 11.8	+ 14.0	+ 13.0	+ 22.2	- 11.4	+ 2.6	+ 22.9	+ 11.4	
37	Kunzler	1881	31 St. George's Place, Birmingham	- 12.0	- 12.9	- 12.7	- 13.2	- 11.4	- 14.1	- 13.0	+ 2.1	+ 7.5	+ 5.6	+ 15.1	
38	Reid	9614	Gem Buildings, Blackett Street, Newcastle	- 7.9	- 9.6	- 6.8	- 8.4	- 9.4	- 4.2	- 15.2	+ 1.1	+ 0.9	- 1.6	- 1.4	
39	Sims	00354	2 Green Ter., Rosebery Ave., Clerkenwell.	- 9.7	- 13.8	- 14.7	- 16.4	- 19.0	- 18.6	- 28.9	- 5.1	+ 2.3	- 23.6	+ 0.7	
40	Lilley & Sons	1736	10 London Street, Fenchurch Street, E.C.	- 6.6	+ 5.3	+ 2.3	+ 2.4	+ 2.8	+ 1.9	- 4.9	+ 22.8	- 15.4	- 14.2	+ 21.4	
41	Newsome	152973	14-15 The Butts, Coventry	- 13.2	- 8.9	+ 0.7	+ 3.6	- 8.5	- 14.2	- 7.7	+ 17.5	- 11.0	- 6.1	+ 9.3	
42	Kunzler	51924	31 St. George's Place, Birmingham	- 1.2	- 2.9	- 3.4	- 6.6	- 3.7	- 6.9	+ 0.3	+ 16.1	+ 23.9	+ 4.2	+ 20.7	
43	Kunzler	51931	31 St. George's Place, Birmingham	+ 12.9	+ 16.0	+ 10.1	+ 7.1	+ 8.7	+ 2.9	+ 3.4	+ 8.8	+ 8.9	- 1.9	+ 11.9	
44	Reid	37664	Gem Buildings, Blackett Street, Newcastle	- 27.1	- 27.1	- 22.5	- 20.1	- 15.4	- 21.5	- 29.2	+ 1.9	+ 7.5	- 12.6	+ 2.6	
45	Kunzler	51921	31 St. George's Place, Birmingham	- 4.7	- 0.2	- 1.4	+ 6.3	+ 7.7	+ 5.1	- 3.0	- 15.2	+ 30.6	+ 25.2	+ 24.2	
46	Kunzler	51929	31 St. George's Place, Birmingham	+ 16.9	+ 16.2	+ 18.0	+ 11.0	+ 13.9	+ 10.2	+ 10.9	+ 6.6	+ 45.6	+ 22.9	+ 0.5	+ 38.2
47	Collingwood	51779	65 Linthorpe Road, Middlesbrough	+ 20.5	+ 13.9	+ 19.5	+ 13.2	+ 10.9	+ 7.6	+ 6.6	- 25.6	- 19.8	- 23.6	- 24.5	
48	Gold ¹²⁴ & Silver ¹²⁴ Stores	1306	33 Motyn Street, Llandulno, N. Wales.	- 10.0	+ 9.0	+ 10.1	+ 9.6	+ 9.9	+ 7.8	+ 1.3	- 8.9	- 23.6	- 45.7	- 8.9	
49	Chandler	56886	4 Victoria Terrace, Leamington.	- 6.0	- 8.1	- 9.8	- 12.5	- 10.2	- 13.6	- 8.8	- 21.0	- 25.4	- 26.1	- 26.6	
50	Alexander & Sons	57682	12-14 Norfolk Street, Coventry	+ 16.8	+ 27.2	+ 21.3	+ 17.5	+ 29.0	+ 27.2	+ 28.9	+ 38.0	+ 38.5	+ 40.4	+ 39.7	
The sign + indicates a gaining rate.				74.7	76.4	71.3	69.4	73.7	70.6	85.6	87.7	80.8			
The quantities a, b, c, d, e, in the formula a + 2 b + 2 c + 2 d + 2 e, are taken numerically, without regard to sign.				71.0	72.7	67.8	67.1	70.8	62.8	84.6	84.8	83.2			
				79.1	79.0	75.0	71.1	84.0	84.2	86.7	95.7	88.0			

* The Weekly Rates have been computed from the rates for three days.
During the period Sept. 15 to Oct. 14, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kullberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

* The Weekly Rates have been computed from the rates for four days.
During the period Sept. 15 to Oct. 14, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kullberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

ORDER OF TIME.							(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATES.												NAME OF MAKER.	No.	Order of Merit.	
Oct. 7-14.	Oct. 14-21.	Oct. 21-28.	Oct. 28 to Nov. 4.	Nov. 4-11.	Nov. 11-18.	Nov. 18-25.	Difference between greatest and least Weekly Rates.						Difference of Weekly Rates.									Trial Number, a + 2 b + $\frac{1}{2} (c + \frac{d+e}{2})$
Watch Horizontal. Dial up.							Dial up. a.	Dial up. b.	Dial up. c.	Dial up. d.	Dial up. e.	Pendant up f.	Pendant right Dial up. g.	Pendant left Dial up. h.	Pendant up i.							
- 5.1	-10.1	-12.4	-17.0	-15.6	-21.9	-20.5	21.9	6.3	-14.5	-8.0	-27.8	34.5	47.8	H. White & Co.	1848	26						
+ 1.6	+13.8	+17.4	+14.7	+21.2	+15.3	+18.6	19.6	11.7	+0.7	-13.3	-24.0	43.0	49.6	Watkins	1876	27						
-12.0	-5.6	-12.4	-15.7	-15.2	-19.1	-20.2	30.6	6.8	+5.2	-1.8	-16.5	44.2	49.9	Matthews	42008	28						
-11.0	-11.1	-17.3	+17.7	-21.8	-24.8	-30.3	28.3	6.2	+10.7	-7.3	-0.7	40.7	50.9	Kunzler	51938	29						
+15.7	+17.1	+16.9	+14.6	+19.2	+19.6	+16.6	20.8	10.9	+10.2	+13.0	+7.1	42.6	51.1	Yeomans	93429	30						
-14.4	-2.9	-4.1	-6.4	-6.2	-8.0	-8.9	18.5	11.5	+9.2	-18.9	-15.7	41.5	51.9	Mumford	1872	31						
+8.9	+16.3	+7.7	-0.9	-4.0	-6.0	-10.3	27.1	8.6	-12.7	+1.6	-6.3	44.3	52.0	Kunzler	51919	32						
+39.1	+40.8	+33.9	+23.1	+22.9	+17.8	+21.3	23.0	10.8	+7.2	+5.1	-23.0	44.6	52.9	Kunzler	51908	33						
-15.4	-31.7	-24.7	-27.9	-29.8	-28.4	-23.2	17.2	16.3	-5.5	-3.8	-3.6	49.8	53.8	Reid	9613	34						
-15.9	-2.1	+0.1	-1.6	-0.1	-5.7	-1.1	18.0	15.9	+2.8	-1.0	-15.0	49.8	53.9	Mears & Co.	1828	35						
+20.5	+8.6	+8.3	+6.3	+8.1	+7.7	+10.3	15.9	11.9	-21.4	-18.8	+1.5	39.7	54.0	Kunzler	51895	36						
-8.4	-6.9	-17.3	-14.8	-3.0	-0.8	-0.6	15.7	11.8	-19.8	-18.2	+16.3	43.0	55.8	Kunzler	1881	37						
+4.3	+0.0	+12.6	+12.1	+8.2	+4.7	+6.5	27.8	12.6	+5.3	+6.2	+3.9	58.0	57.4	Reid	9614	38						
-17.4	-6.6	-6.9	-5.5	-5.2	-6.1	-7.2	21.7	10.8	+20.0	+24.5	+1.4	43.3	57.6	Sims	00354	39						
-8.0	-2.0	-1.7	-2.1	-0.2	+0.7	+11.5	19.5	10.8	+28.6	-8.9	-7.7	41.1	58.2	Lilley & Sons	1736	40						
-6.2	-8.2	-19.0	-17.4	-8.0	-0.7	-13.0	22.6	12.3	+20.4	-4.0	+0.9	47.2	58.2	Newsome	152973	41						
-0.4	-13.6	-17.9	-16.8	-15.6	-15.3	-17.5	18.2	13.2	+18.5	+23.0	+4.3	44.6	58.5	Kunzler	51924	42						
-0.9	-1.5	-1.3	-3.9	-5.5	-16.1	-11.4	82.1	10.6	+9.1	+7.6	-3.2	58.3	59.7	Kunzler	51931	43						
-33.9	-26.9	-23.4	-28.2	-30.7	-31.5	-31.8	18.5	7.7	+33.9	+39.1	+19.0	33.9	60.5	Reid	37664	44						
+8.4	-8.3	-2.7	+3.3	-1.3	-9.4	-3.5	17.8	16.7	+1.8	+27.9	+22.5	51.2	60.5	Kunzler	51921	45						
+11.8	+7.0	+9.5	-0.4	-1.8	-4.3	+2.3	22.3	9.9	+30.4	+11.5	-10.9	42.1	61.0	Kunzler	51929	46						
-2.1	+5.1	-1.3	-3.1	-0.8	-1.2	-5.5	26.0	7.2	-27.4	-22.1	-25.9	40.4	62.1	Collingwood	51779	47						
-10.1	-12.1	-10.3	-10.2	-8.5	-6.0	-17.7	27.8	11.7	-4.5	-19.2	-41.3	51.2	63.6	Gold ¹²⁴ & Silver ¹²⁴ Stores	1306	48						
-10.9	-20.1	-24.3	-25.7	-23.9	-35.3	-31.6	29.3	11.4	-13.9	-15.5	-16.2	52.1	64.4	Chandler	56886	49						
+31.0	+18.6	+11.1	+5.4	+2.2	+9.4	-1.1	32.1	12.4	+8.9	+8.5	+10.4	56.9	64.6	Alexander & Sons	57682	50						
88.4	61.5	59.2	57.0	56.8	55.4	53.1	Mean Weekly Temperature.															
85.9	59.6	54.1	54.9	53.8	53.7	49.5																
90.2	63.3	64.1	62.1	59.8	57.7	56.5											Extremes of Temperature as shown by the Self-Registering Thermometer.					

Only those watches have been included in this list for which "b" did not exceed 18 seconds or for which a + 2 b did not exceed 80.

RATES OF CHRONOMETER WATCHES ON TRIAL FOR PURCHASE BY THE ADMIRALTY AT THE

Order of Merit.	NAME OF MAKER.	No.	ADDRESS OF MAKER.	(1) WEEKLY RATES IN															
				Aug. 5-12.	Aug. 12-19.	Aug. 19-26.	Aug. 26 to Sept. 2.	Sept. 2-9.	Sept. 9-16.	Sept. 16-23.	Sept. 23-27.	Sept. 27-30.	Sept. 30 to Oct. 3.	Oct. 3-7.	Watch Horizontal. Dial up.				
														Watch Vertical. Pendant up.	Watch Vertical. Pendant right.	Watch Vertical. Pendant left.	Watch Vertical. Pendant up.		
51	Hill.....	150061	Russel House, Chapel Fields, Coventry.....	+ 17.6	+ 13.5	+ 15.9	+ 18.0	+ 18.7	+ 14.5	+ 9.7	- 8.8	- 7.0	- 7.9	- 8.4					
52	Yeomans.....	96609	48 Spon Street, Coventry.....	+ 18.8	+ 29.1	+ 15.0	+ 17.1	+ 26.2	+ 21.8	+ 20.9	+ 58.3	+ 59.7	+ 65.3	+ 64.6					
53	Aldred & Sons.....	12868	56 George Street, Great Yarmouth.....	+ 8.7	+ 11.2	+ 11.6	+ 12.2	+ 18.9	+ 19.7	+ 10.5	- 8.6	- 6.8	- 14.7	- 7.9					
54	Halford & Sons.....	5202	129 Fenchurch Street, London, E.C.....	+ 23.7	+ 26.9	+ 21.1	+ 21.6	+ 26.4	+ 25.8	+ 28.2	- 17.9	- 18.9	+ 74.7	- 6.6					
55	Johannes & Co.....	6881	149 Minories, London, E.....	+ 14.4	+ 14.3	+ 20.2	+ 22.0	+ 21.6	+ 24.5	+ 21.7	+ 54.3	+ 17.0	+ 34.1	+ 54.4					
56	Harral.....	1829	The Ring Shop, Eldon Street, Barnsley.....	+ 16.7	+ 12.9	+ 18.2	+ 17.3	+ 13.8	+ 8.2	+ 8.7	+ 10.7	- 22.6	- 20.1	+ 30.1					
57	Bryer & Sons.....	1855	53-54 Barbican, London, E.C.....	+ 2.8	+ 2.0	+ 8.7	+ 10.1	+ 5.8	+ 2.2	+ 8.2	- 29.2	- 13.1	- 67.2	- 24.3					
58	Phillips.....	1963	4 Fishbury Pavement, London, E.C.....	- 4.1	+ 3.6	+ 1.9	+ 5.5	+ 12.8	+ 17.0	+ 13.0	+ 45.3	+ 24.3	+ 8.4	+ 4.3					
59	Usher & Cole.....	31710	339 St. John Street, London, E.C.....	+ 15.4	+ 20.1	+ 15.6	+ 15.7	+ 21.5	+ 15.1	+ 23.8	- 9.1	+ 0.5	- 7.2	+ 9.6					
60	Johannes & Co.....	6696	149 Minories, London, E.....	+ 12.3	+ 14.3	+ 10.1	+ 10.0	+ 2.2	+ 11.9	+ 24.9	+ 1.6	- 11.7	0.0	+ 7.0					
61	Matthews.....	40912	Elmfort, 52 Holy Head Road, Coventry.....	+ 1.3	+ 11.7	- 1.5	- 3.3	+ 5.4	- 1.2	- 10.8	+ 11.4	+ 18.9	- 49.0	+ 7.5					
62	Usher & Cole.....	31734	339 St. John Street, London, E.C.....	+ 26.8	+ 25.9	+ 20.2	+ 22.6	+ 23.8	+ 13.8	+ 58.5	- 19.6	+ 39.9	+ 48.8						
63	Kausler.....	51912	31 St. George's Place, Birmingham.....	+ 25.4	+ 26.8	+ 32.2	+ 43.9	+ 40.5	+ 39.6	+ 27.8	+ 58.5	+ 46.7	+ 61.8	+ 62.7					
64	Newsome & Co.....	145701	14-15 The Butts, Coventry.....	- 13.9	- 13.2	- 13.6	- 23.2	- 18.0	- 15.1	+ 0.9	- 38.2	+ 1.9	+ 2.3	- 48.0					
65	Watkins.....	1877	59 Carey Street, Chancery Lane, W.C.....	- 7.8	+ 2.2	+ 11.9	+ 8.7	+ 6.6	+ 8.2	- 6.1	0.0	+ 20.1	+ 27.3	+ 24.0					
66	Matthews.....	41029	Elmfort, 52 Holy Head Road, Coventry.....	- 24.7	- 23.9	- 23.8	- 25.6	- 23.4	- 21.5	- 6.7	- 39.6	+ 2.8	- 48.1	- 34.3					
67	Gaydon & Sons.....	51781	20 Whitefriargate, Hull.....	+ 15.1	+ 21.5	+ 15.6	+ 11.9	+ 20.4	+ 17.4	+ 24.2	- 19.6	- 13.1	- 14.2	- 10.9					
68	Garrard.....	11502	64 Eastgate, Louth, Lincolnshire.....	- 1.7	- 7.3	- 2.7	- 10.8	- 12.0	- 15.2	- 11.2	+ 34.8	+ 32.4	+ 32.9	+ 30.1					
69	Elrhardt.....	190867	17 Hatton Garden, London, W.C.....	- 12.6	- 17.2	- 5.3	- 3.1	- 5.9	- 7.4	- 5.4	- 91.9	- 46.9	- 11.7	- 69.3					
70	Kendal & Dent.....	10606	106 Chapside, London, E.C.....	+ 19.8	+ 24.3	+ 25.0	+ 30.9	+ 33.5	+ 32.1	+ 22.9	+ 68.3	+ 75.4	+ 64.2	+ 61.1					
71	Usher & Cole.....	28668	339 St. John Street, London, E.C.....	+ 25.9	+ 38.1	+ 45.0	+ 43.9	+ 47.2	+ 45.8	+ 38.8	- 30.1	- 32.7	- 45.5	- 25.6					
†	Outhbert.....	36978	90 Norse Road, Scotstown, Glasgow.....	- 19.9	- 22.5	- 16.5	- 11.5	- 14.8	- 15.0	- 14.7	- 8.9	- 0.9	- 7.9	- 4.7					
The sign + indicates a gaining rate.				74.5	76.4	71.8	69.4	72.5	70.6	85.6	87.7	80.8							
The quantities a, b, c, d, e, in the formula $a + 2b + \frac{1}{2}(c + \frac{d+e}{2})$, are taken numerically, without regard to sign.				71.0	72.7	67.3	67.1	70.8	62.8	84.6	84.8	83.2							
				79.1	79.0	75.0	71.1	84.0	84.2	86.7	95.7	88.0							
* The Weekly Rates have been computed from the rates for three days.																			
† The Weekly Rates have been computed from the rates for four days.																			
During the period Sept. 16 to Oct. 1, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kullberg's automatic governor, which controls the supply of gas. The gas flames are anterior to the chamber, into which none of the injurious products of combustion can enter.																			

* The Weekly Rates have been computed from the rates for three days.

During the period Sept. 16 to Oct. 15, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kailberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which some of the injurious products of combustion can enter.

† The Weekly Rates have been computed from the rates for four days.

During the period Sept. 16 to Oct. 15, the watches were placed in an oven heated by jets of gas, the temperature being regulated by Kailberg's automatic governor, which controls the supply of gas. The gas flames are exterior to the chamber, into which some of the injurious products of combustion can enter.

ROYAL OBSERVATORY, GREENWICH, FROM AUGUST 5 TO NOVEMBER 25, 1911.

ORDER OF TIME.							(2) ABSTRACT OF THE PRINCIPAL CHANGES OF RATES.										NAME OF MAKER.		No.	Order of Merit.
Oct. 7-14.	Oct. 14-21.	Oct. 21-28.	Oct. 28 to Nov. 4.	Nov. 4-11.	Nov. 11-18.	Nov. 18-25.	Difference between greatest and least Weekly Rates.	Greatest difference between the start and end of week.	Difference of Weekly Rates.			a + 2b	Trial Number. $a + 2b + \frac{1}{2}(c + \frac{d+e}{2})$							
Watch Horizontal. Dial up.							Dial up. a.	Dial up. b.	Pendant up Dial up. c.	Pendant right Dial up. d.	Pendant left Dial up. e.									
+ 1.9	- 0.5	- 5.7	- 11.2	- 13.3	- 18.7	- 23.1	41.8	5.7	- 14.4	- 12.8	- 13.7	53.2	64.8	Hill.....	150061	51				
+ 27.1	+ 18.6	+ 19.3	+ 13.9	+ 10.0	+ 17.9	+ 12.1	19.1	14.1	+ 37.5	+ 35.7	+ 41.3	47.3	66.1	Yeomans.....	96609	52				
+ 16.8	+ 11.9	+ 5.4	- 2.6	- 4.1	- 11.9	- 14.3	34.0	8.0	- 24.5	- 9.9	- 30.9	50.0	69.1	Aldred & Sons.....	12868	53				
+ 20.9	+ 9.6	+ 13.2	+ 12.6	+ 18.1	+ 13.3	+ 16.4	17.3	11.3	- 27.8	- 34.4	+ 59.2	39.9	69.2	Halford & Sons.....	5202	54				
+ 28.3	+ 27.7	+ 13.7	+ 12.6	+ 13.0	+ 6.7	+ 4.2	24.1	14.0	+ 29.4	- 8.0	+ 9.1	52.1	69.7	Johannes & Co.....	6881	55				
- 4.7	+ 4.7	- 2.3	- 8.8	- 6.4	- 14.2	- 15.6	33.8	9.4	+ 30.9	- 22.1	- 19.6	52.6	70.1	Harral.....	1829	56				
+ 6.7	- 2.6	- 8.4	- 10.5	- 10.2	- 11.3	- 12.7	22.8	9.3	- 34.3	+ 5.6	- 64.7	41.4	70.8	Bryer & Sons.....	1855	57				
+ 29.2	+ 20.8	+ 23.9	+ 22.8	+ 27.2	+ 21.2	+ 31.9	36.0	10.7	+ 25.2	+ 3.2	- 12.5	57.4	72.6	Phillips.....	1963	58				
+ 32.3	+ 16.3	+ 15.8	+ 15.4	+ 17.5	+ 18.8	+ 20.6	17.2	16.0	- 27.5	- 27.3	- 35.0	49.2	73.4	Usher & Cole.....	31710	59				
+ 28.8	+ 17.4	+ 14.2	+ 6.4	+ 8.3	+ 4.1	+ 0.6	28.2	13.0	- 22.6	- 38.6	- 26.9	54.2	76.4	Johannes & Co.....	6696	60				
- 16.0	- 2.3	+ 1.1	- 13.1	- 5.8	- 11.1	- 9.2	27.7	14.2	+ 19.4	+ 32.3	- 35.6	56.1	77.1	Matthews.....	40912	61				
+ 17.0	+ 19.7	+ 21.6	+ 16.8	+ 14.2	+ 16.1	+ 3.3	23.5	12.8	- 33.5	- 34.8	+ 24.5	49.1	78.3	Usher & Cole.....	31734	62				
+ 21.3	+ 36.0	+ 33.5	+ 35.1	+ 33.2	+ 32.8	+ 26.9	22.6	14.7	- 36.0	+ 22.1	+ 37.2	52.0	79.9	Kausler.....	51912	63				
- 17.9	- 10.0	- 21.0	- 23.6	- 23.9	- 21.9	- 27.1	28.0	16.0	- 34.6	+ 10.4	+ 6.2	48.0	80.1	Newsome & Co.....	145701	64				
- 17.2	- 6.2	- 0.6	- 3.3	- 1.6	- 9.3	- 8.4	29.1	14.3	+ 23.7	+ 31.8	+ 39.0	57.7	81.4	Watkins.....	1877	65				
+ 1.4	- 12.2	- 15.3	- 15.3	- 12.2	- 11.0	- 9.2	27.0	14.8	- 34.3	+ 5.5	- 45.4	56.6	82.3	Matthews.....	41029	66				
+ 27.1	+ 10.1	+ 17.3	+ 14.4	+ 14.2	+ 8.2	+ 10.0	18.9	17.0	- 41.0	- 38.8	- 39.9	52.9	86.5	Gaydon & Sons.....	51781	67				
+ 4.0	+ 3.6	- 13.1	- 13.8	- 17.0	- 21.1	- 17.0	25.1	16.7	+ 36.1	+ 36.0	+ 36.5	58.5	88.7	Garrard.....	11502	68				
- 4.2	+ 1.8	+ 5.0	+ 3.2	+ 1.9	+ 2.8	- 2.9	22.2	11.9	- 75.8	- 42.1	- 6.9	46.0	92.1	Elrhardt.....	190867	69				
+ 8.6	+ 3.8	+ 5.6	+ 1.7	+ 7.1	+ 0.7	+ 6.0	32.8	9.2	+ 45.9	+ 59.6	+ 48.4	51.2	98.4	Kendal & Dent.....	10606	70				
+ 37.9	+ 41.6	+ 49.7	+ 43.8	+ 47.5	+ 38.8	+ 40.4	13.8	10.8	- 65.3	- 71.1	- 83.9	35.4	94.4	Usher & Cole.....	28668	71				
- 12.5	- 15.8	- 6.4	- 5.2	- 0.5	- 6.7		22.0	9.4	+ 9.3	+ 12.7	+ 5.7	40.8	48.6	Outhbert.....	86978	72				
88.4	61.5	59.2	57.0	56.3	56.4	56.1	Mean Weekly Temperature.													
85.9	59.6	54.1	54.9	58.3	58.7	58.5	Extremes of Temperature as shown by the Self-Registering Thermometer.													
90.2	63.8	64.1	62.1	59.8	57.7	58.6														
Only those watches have been included in this list for which "a" did not exceed 18 seconds or for which a + 2b did not exceed 60, †† This watch, not having been rated throughout the entire trial, is not classified.																				