

1880G0AMM...40I...1A

RATES OF CHRONOMETERS

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

1879.

NAME OF MAKER.	No.	Whichever of the two. Construction of Escapement and Balance, from the Description furnished by the Maker.	(I.) WEEKLY SUMS OF DAILY RATES											
			Jan. 11-18	Jan. 18-25	Jan. 25 to Feb. 1	Feb. 1-8	Feb. 8-15	Feb. 15-22	Feb. 22 to Mar. 1	Mar. 1-8	Mar. 8-15	Mar. 15-22	Mar. 22-29	Mar. 29-31
Keys	282	2	Ordinary balance, with slight alteration. Airy's Compensation.	+ 30 + 40	+ 47 + 61	+ 86 + 76	+ 59 + 81	+ 73 + 75	+ 82					
Isaac	6144	2	Improved balance. Airy's Compensation.	- 22 - 10	- 17 - 06	- 04 - 15	- 32 - 58	- 83 - 82	- 15					
Edward and Sons	2028	2	Improved ordinary balance.	- 42 - 34	- 41 - 42	- 62 - 39	- 25 - 24	- 48 - 49	+ 12					
Russell and Son	7052	2	Auxiliary to balance. Airy's Compensation.	- 24 - 13	- 10 - 03	- 09 + 05	- 10 + 25	+ 27 + 38	+ 77					
Cornell	5658	2	Airy's Compensation.	- 20 - 16	- 09 - 09	- 48 - 35	- 37 - 52	- 74 - 51	+ 12					
Langford	1828	2	No information.	- 104 - 80	- 80 - 68	- 64 - 35	- 34 - 85	- 62 - 45	- 24					
Edward and Sons	3720	2	Improved ordinary balance.	- 90 - 85	- 83 - 91	- 100 - 101	- 112 - 41	- 77 - 89	- 41					
Aitchison	377	2	Auxiliary. Airy's Compensation.	- 55 - 33	- 62 - 61	- 53 - 54	- 45 - 86	- 114 - 119	- 47					
Sewill	4249	2	Auxiliary to balance. Airy's Compensation.	- 98 - 80	- 100 - 61	- 22 - 62	- 87 - 00	- 33 - 40	- 04					
Williams	1497	2	Auxiliary to balance. Airy's Compensation.	- 323 - 312	- 360 - 320	- 273 - 337	- 390 - 385	- 379 - 367	- 298					
Webster	15083	2	No information.	- 52 - 27	- 21 - 14	- 06 + 30	+ 65 - 45	- 64 - 76	- 04					
Hennessy	4844	2	Auxiliary to balance. Airy's Compensation.	+ 45 + 55	+ 53 + 72	+ 63 + 82	+ 66 - 32	- 83 - 71	+ 12					
Aitchison	377	2	Auxiliary. Airy's Compensation.	+ 06 + 29	+ 41 + 14	+ 09 + 21	+ 23 - 83	- 111 - 104	- 09					
Moore	1817	2	Ordinary balance. Airy's Compensation.	- 43 - 37	- 40 - 03	+ 58 + 37	- 10 + 89	+ 84 + 92	- 08					
Usher and Cole	1517	2	Auxiliary to balance. Airy's Compensation.	+ 27 + 38	+ 26 + 14	- 03 - 45	- 15 - 44	- 67 - 41	+ 93					
Moore	1810	2	Ordinary balance. Airy's Compensation.	- 42 - 35	- 35 - 20	+ 01 - 14	- 40 + 70	+ 87 + 132	+ 116					
Glover	322	2	Ordinary balance, with slight alteration. Airy's Compensation.	+ 17 + 25	+ 26 + 03	- 50 - 10	- 00 + 46	+ 04 + 31	+ 74					
Reid and Sons	4559	2	Auxiliary for heat. Airy's Compensation.	- 92 - 47	- 50 - 01	+ 01 - 10	- 08 - 89	- 38 - 48	+ 00					
Crisp	3463	2	Auxiliary to balance. Airy's Compensation.	- 103 - 107	- 129 - 144	- 147 - 139	- 129 + 26	+ 04 + 18	- 02					
Usher and Cole	1507	2	Auxiliary to balance. Airy's Compensation.	+ 98 + 112	+ 126 + 109	+ 97 + 131	+ 102 - 45	- 92 - 20	- 78					
Skellern	3033	2	Auxiliary to balance. Airy's Compensation.	- 153 - 137	- 122 - 136	- 159 - 111	- 155 - 184	- 201 - 208	- 67					
Nelson	2836	2	Auxiliary to balance. Airy's Compensation.	- 33 - 27	- 27 + 13	+ 89 + 63	+ 40 - 06	+ 11 + 42	+ 149					
Williams	1498	2	Auxiliary to balance. Airy's Compensation.	+ 35 + 36	+ 19 + 20	- 30 - 100	- 85 + 72	+ 113 + 102	+ 145					
Shepherd and Son	1833	2	Auxiliary to balance. Airy's Compensation.	- 15 - 02	- 11 + 23	+ 35 + 30	- 10 - 161	- 236 - 245	- 134					
Shepherd and Son	1830	2	Airy's Compensation.	- 45 - 35	- 62 + 21	+ 82 + 30	- 21 + 155	+ 136 + 156	+ 209					
Johnson	2109	2	Double auxiliary to balance.	- 233 - 210	- 218 - 164	- 98 - 163	- 197 - 30	- 42 - 24	+ 41					
Russell and Son	7052	2	Auxiliary to balance. Airy's Compensation.	- 95 - 69	- 76 - 35	- 09 - 28	- 72 - 114	+ 120 + 140	+ 160					
Johnson	2109	2	Double auxiliary to balance.	- 62 - 34	- 33 + 03	+ 27 + 07	- 36 + 127	+ 135 + 95	+ 175					
Sewill	4244	2	Auxiliary to balance. Airy's Compensation.	- 162 - 178	- 180 - 97	- 18 - 180	- 170 + 35	- 20 + 23	+ 55					
Chronometrical Thermometer				- 190 - 130	- 113 - 73	- 73 - 124	- 95 - 21	- 14 - 32	+ 93					
Extremes of Temperature as shown by the Self-Registering Thermometers				+17080 +16919 +17186 +14500 +9620 +13695 +16120 -23290 -26260 -31005 -21479										
				38-48 38-56 40-35 42-56 48-55 43-51 40-56 75-95 85-100 87-108 76-100										

The sign + indicates that the rate is gaining.

† During these weeks the Chronometers were placed in the chamber of a stove heated by jets of gas. The gas flames are exterior to the chamber, into which some of the injurious products of combustion can enter.

The Chronometrical Thermometer differs from an ordinary Chronometer only in the construction of the balance, the positions of the metals forming the compensating ring being reversed. By this arrangement the effect of temperature is much magnified.

The gas stove was extinguished on the morning of May 30, and lighted again on the afternoon of May 31.

IN THE ORDER OF TIME.

Mar. 29 to Apr. 5	April 5-12	April 12-19	April 19-26	April 26 to May 3	May 3-10	May 10-17	May 17-24	May 24-31	May 31 to June 7	June 7-14	June 14-21	June 21-28	June 28 to July 5	July 5-12	July 12-19	July 19-26
+ 81 + 74	+ 76 + 72	+ 70 + 78	+ 78 + 79	+ 50 + 65	+ 83 + 82	+ 85 + 90	+ 85 + 88	+ 88 + 90	+ 88 + 90	+ 88 + 90	+ 88 + 90	+ 88 + 90	+ 88 + 90	+ 88 + 90	+ 88 + 90	+ 88 + 90
- 19 + 09	+ 05 - 05	- 15 - 10	- 20 - 28	- 28 - 27	- 24 - 21	- 19 - 09	+ 10 - 04	+ 06 + 03	+ 08 + 10	+ 14 + 03	+ 03 + 08	+ 08 + 10	+ 14 + 03	+ 03 + 08	+ 08 + 10	+ 14 + 03
+ 39 + 39	+ 74 + 68	+ 50 + 66	+ 14 + 23	+ 28 + 04	+ 06 + 03	+ 08 + 10	+ 14 + 03	+ 03 + 08	+ 08 + 10	+ 14 + 03	+ 03 + 08	+ 08 + 10	+ 14 + 03	+ 03 + 08	+ 08 + 10	+ 14 + 03
+ 09 + 21	+ 85 + 15	+ 15 + 30	+ 35 + 61	+ 110 + 89	+ 91 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109	+ 87 + 109
- 31 - 39	- 01 + 10	00 - 16	+ 14 + 22	+ 29 + 56	+ 40 + 75	+ 31 + 30	+ 36 + 23	- 05								
+ 29 + 65	+ 44 + 30	- 14 - 29	- 25 - 26	- 24 - 06	- 15 + 05	- 55 - 41	- 23 - 35	- 64								
- 147 - 143	- 124 - 131	- 140 - 138	- 137 - 75	- 78 - 60	- 85 - 80	- 94 - 69	- 77 - 65	- 65								
- 88 - 90	- 67 - 60	- 45 - 55	- 40 - 85	- 20 - 30	- 71 - 21	- 20 - 39	- 02 - 26	- 33								
+ 01 + 14	+ 09 + 35	+ 40 + 41	+ 44 + 33	+ 55 + 20	+ 15 + 55	+ 52 + 55	+ 43 + 42	+ 33								
- 312 - 298	- 331 - 340	- 300 - 308	- 308 - 347	- 385 - 315	- 375 - 275	- 295 - 272	- 203 - 217									
- 21 - 10	+ 28 + 43	+ 60 + 80	+ 88 - 18	- 04 - 06	- 13 - 02	+ 06 + 14	+ 10 + 23	+ 27								
+ 02 - 01	- 03 - 10	+ 25 + 30	+ 90 + 55	+ 65 + 63	+ 55 + 52	+ 82 + 77	+ 76 + 97									
+ 18 + 26	+ 46 + 39	+ 45 + 40	+ 33 + 15	+ 60 + 45	+ 10 + 55	+ 52 + 52	+ 77 + 76	+ 97								
+ 100 + 100	+ 75 + 120	+ 130 + 125	+ 128 + 137	+ 157 + 128	+ 130 + 140	+ 116 + 119	+ 110 + 110	+ 120								
- 41 - 65	- 20 - 40	- 40 - 35	- 44 - 16	+ 10 - 00	+ 10 + 34	+ 21 + 20	+ 19 + 36	+ 94								
+ 56 + 78	+ 53 + 57	+ 65 + 70	+ 61 + 124	+ 123 + 103	+ 172 + 83	+ 97 + 70	+ 68 + 75	+ 89								
- 59 - 47	- 26 - 56	- 60 - 71	- 67 + 98	+ 97 + 158	+ 111 + 84	+ 20 + 14	+ 38 + 10									
+ 75 + 104	+ 145 + 151	+ 150 + 135	+ 175 + 173	+ 170 + 195	+ 150 + 175	+ 229 + 258	+ 258 + 260									
+ 12 + 15	+ 33 + 12	- 09 - 16	- 23 - 35	- 35 - 45	- 60 - 85	- 95 - 125	- 126 - 150									
+ 18 + 38	+ 61 + 49	+ 19 + 07	+ 19 - 106	- 105 - 95	- 65 - 70	- 13 - 36	- 31 - 40	- 49								
- 32 - 11	+ 03 + 25	+ 10 + 13	+ 14 - 55	+ 13 - 00	- 45 + 45	+ 30 + 56	+ 47 + 79	+ 53								
+ 178 + 211	+ 175 + 215	+ 230 + 235	+ 240 + 249	+ 287 + 278	+ 292 + 323	+ 315 + 311	+ 314 + 320	+ 346								
+ 145 + 145	+ 175 + 175	+ 150 + 155	+ 168 + 197	+ 170 + 160	+ 175 + 175	+ 190 + 195	+ 188 + 166									
- 12 - 12	+ 27 + 21	+ 25 + 15	+ 10 - 180	- 100 - 90	- 137 - 28	- 39 - 36	- 56 - 54	- 60								
+ 47 + 91	+ 16 + 80	+ 110 + 115	+ 117 + 189	+ 200 + 210	+ 179 + 201	+ 177 + 209	+ 194 + 220	+ 219								
- 95 - 50	- 112 - 58	- 40 - 39	- 81 + 10	+ 59 - 61	+ 25 + 56	+ 44 + 57	+ 44 + 60	+ 66								
+ 45 + 70	+ 35 + 85	+ 75 + 100	+ 125 + 125	+ 180 + 180	+ 180 + 180	+ 180 + 180	+ 180 + 180									
+ 55 + 66	+ 94 + 105	+ 95 + 105	+ 104 + 184	+ 245 + 160	+ 160 + 240	+ 280 + 245	+ 245 + 280									
+ 59 + 96	+ 93 + 105	+ 85 + 70	+ 110 + 60	+ 90 + 85	+ 112 + 283	+ 251 + 264	+ 280 + 273	+ 283								
+ 75 - 11	- 67 - 53	- 175 - 183	- 251 + 14	- 113 + 106	+ 96 - 39	- 171 - 204	- 216 - 171	- 148								
+ 8829 + 7640	+ 11970 + 9065	+ 7400 + 7800	+ 6973 + 24290	+ 12653 + 12920	+ 26510 + 2835	- 204 - 1171	+ 470 - 496	- 384								
60-64	47-57	39-50	47-55	48-58	49-58	49-58	78-102	57-82	65-95	88-100	62-71	58-66	59-72	59-69	60-67	59-67

The Chronometers are placed in order of merit, their respective positions being determined by consideration of the irregularity of rate exhibited in Table III.

(Extremes of Temperature as shown by the Self-Registering Thermometers.)

RATES OF CHRONOMETERS ON TRIAL FOR PURCHASE BY THE ADMIRALTY.

NAME of MAKER.	No.	Construction of Escapement and Balance. from the Description furnished by the Maker.	(II.) WEEKLY SUMS OF DAILY RATES											
			March 18-22 ↑	June 7-14 ↑	March 8-15 ↑	March 1-8 ↑	May 17-24 ↑	March 22-29 ↑	May 31 ↑	May 24-31 ↑	June 14-21 ↑	June 28-29 ↑	July 12-19 ↑	
Keys	282	2 Ordinary balance, with slight alteration. Airy's Com- pensation.	+ 75	+ 83	+ 75	+ 81	+ 79	+ 82	+ 85	+ 80	+ 82	+ 90	+ 88	
Inaac	6144	2 Improved balance. Airy's Compensation.	- 82	- 24	- 83	- 28	- 25	- 15	- 27	- 23	- 21	- 05	+ 13	
Edward & Sons	2028	2 Improved ordinary balance.	- 49	+ 04	- 44	- 24	+ 14	+ 12	+ 28	+ 22	+ 06	+ 08	+ 14	
Russell & Son	7053	2 Auxiliary to balance. Airy's Compensation.	+ 38	+ 81	+ 27	+ 25	+ 31	+ 77	+ 89	+ 110	+ 109	+ 103	+ 101	
Cornell	5658	2 Airy's Compensation.	- 51	+ 40	- 74	- 52	+ 22	+ 12	+ 56	+ 29	+ 75	+ 30	+ 23	
Langford	1828	2 No information.	- 45	- 15	- 62	- 85	- 26	- 24	- 06	- 24	+ 05	- 41	- 35	
Edward & Sons	3730	2 Improved ordinary balance.	- 89	- 89	- 77	- 41	- 75	- 41	- 60	- 75	- 80	- 69	- 65	
Aitchison	4144	2 Auxiliary. Airy's Compensation.	- 119	- 71	- 114	- 86	- 85	- 47	- 30	- 20	+ 21	- 20	- 02	
Sevill	4249	2 Auxiliary to balance. Airy's Compensation.	- 40	+ 15	- 35	00	+ 35	+ 04	+ 20	+ 55	+ 55	+ 55	+ 42	
Williams	1497	2 Auxiliary to balance. Airy's Compensation.	- 367	- 375	- 379	- 385	- 347	- 298	- 315	- 285	- 275	- 272	- 283	
Webster	15083	2 No information.	- 76	- 13	- 104	- 45	- 18	- 04	- 06	- 04	- 02	+ 14	+ 23	
Hennessy	4844	2 Auxiliary to balance. Airy's Compensation.	- 71	+ 65	- 83	- 32	+ 55	+ 12	+ 65	+ 65	+ 55	+ 86	+ 108	
Aitchison	4144	2 Auxiliary. Airy's Compensation.	- 104	+ 10	- 111	- 83	+ 15	- 09	+ 45	+ 60	+ 55	+ 82	+ 79	
Moore	1810	2 Ordinary balance. Airy's Compensation.	+ 92	+ 130	+ 84	+ 89	+ 137	+ 98	+ 128	+ 157	+ 140	+ 119	+ 110	
Usher and Cole	1517	2 Auxiliary to balance. Airy's Compensation.	- 41	+ 10	- 67	- 44	- 16	+ 93	00	+ 10	+ 34	+ 20	+ 36	
Moore	1810	2 Ordinary balance. Airy's Compensation.	+ 133	+ 172	+ 87	+ 70	+ 124	+ 116	+ 153	+ 122	+ 83	+ 70	+ 75	
Keys	257	2 Ordinary balance, with slight alteration. Airy's Com- pensation.	+ 31	+ 111	+ 04	+ 46	+ 91	+ 74	+ 108	+ 97	+ 54	+ 30	+ 36	
Glover	332	2 Auxiliary for heat. Airy's Compensation.	- 38	+ 100	- 62	- 86	+ 115	+ 48	+ 193	+ 170	+ 153	+ 229	+ 253	
Reid and Sons	4559	2 Airy's Compensation.	+ 18	+ 45	+ 04	+ 26	+ 55	- 02	- 50	- 38	- 60	- 95	- 126	
Crisp	3463	2 Auxiliary for heat. Airy's Compensation.	- 20	- 65	- 52	- 45	- 106	- 78	- 95	- 103	- 70	- 36	- 40	
Usher and Cole	1507	2 Auxiliary to balance. Airy's Compensation.	- 208	- 45	- 201	- 154	- 55	- 67	00	+ 13	+ 45	+ 56	+ 79	
Skellern	3033	2 Auxiliary to balance. Airy's Compensation.	+ 42	+ 292	+ 11	- 06	+ 249	+ 149	+ 278	+ 287	+ 323	+ 311	+ 380	
Nelson	2386	2 Airy's Compensation.	+ 170	+ 175	+ 113	+ 72	+ 197	+ 145	+ 160	+ 170	+ 155	+ 190	+ 185	
Williams	1498	2 Auxiliary to balance. Airy's Compensation.	- 245	- 137	- 223	- 161	- 150	- 134	- 90	- 100	- 26	- 36	- 54	
Shepherd & Son	1833	2 Airy's Compensation.	+ 156	+ 179	+ 136	+ 155	+ 183	+ 209	+ 210	+ 200	+ 201	+ 209	+ 220	
Shepherd & Son	1830	2 Airy's Compensation.	- 24	+ 25	- 42	- 30	+ 10	+ 41	+ 61	+ 59	+ 55	+ 57	+ 60	
Johnson	2107	2 Double auxiliary to balance.	+ 140	+ 200	+ 120	+ 114	+ 190	+ 160	+ 168	+ 157	+ 125	+ 125	+ 125	
Russell & Son	2109	2 Auxiliary to balance. Airy's Compensation.	+ 95	+ 160	+ 125	+ 127	+ 184	+ 175	+ 160	+ 245	+ 245	+ 250	+ 254	
Johnson	2107	2 Double auxiliary to balance.	+ 23	+ 112	- 20	+ 33	+ 60	+ 55	+ 85	+ 90	+ 223	+ 264	+ 273	
Sevill	4244	2 Auxiliary to balance. Airy's Compensation.	- 32	+ 96	- 14	- 21	+ 14	+ 33	+ 106	- 113	- 39	- 204	- 171	
Chronometrical Thermometer.			- 8100.0	- 2635.0	- 2626.0	- 2529.0	- 2450.0	- 2147.0	- 1920.0	- 1363.5	- 283.5	- 117.1	- 49.0	
Extremes of Temperature as shown by the Self-Registering Thermometers			87-108	88-100	85-100	75-95	78-102	76-100	66-95	57-92	62-71	59-72	50-67	

The sign + indicates that the rate is gaining.

† During these weeks the Chronometers were placed in the chamber of a stove heated by jets of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter.

The Chronometrical Thermometer differs from an ordinary Chronometer only in the construction of the balance, the positions of the metals forming the compensating rim being reversed. By this arrangement the effect of temperature is much magnified.

The gas stove was extinguished on the morning of May 30, and lighted again on the afternoon of May 31.

AT THE ROYAL OBSERVATORY, GREENWICH, 1879.

IN THE ORDER OF TEMPERATURE, AS DETERMINED GENERALLY BY THE CHRONOMETRICAL THERMOMETER.

NAME or MAKER.	No.	July 19-26	June 21-28	July 3-12	May 10-17	April 26 to May 3	April 5-12	May 3-10	Mar. 29 to April 5	April 19-26	Feb. 8-15	April 12-19	Feb. 15-22	Feb. 1-8	Feb. 22 to Mar. 1	Jan. 18-25	Jan. 11-18	Jan. 25 to Feb. 1
Keys	282	+ 78	+ 85	+ 85	+ 78	+ 70	+ 74	+ 78	+ 81	+ 72	+ 86	+ 76	+ 76	+ 61	+ 59	+ 40	+ 30	+ 47
Inaac	6144	+ 20	- 13	+ 10	- 20	- 15	+ 09	- 10	- 19	- 05	- 04	+ 05	- 15	- 06	- 32	- 10	- 22	- 17
Edward & Sons	2028	+ 03	+ 03	+ 10	+ 06	+ 50	+ 39	+ 05	+ 29	+ 63	- 63	- 74	- 39	- 42	- 25	- 34	- 42	- 41
Russell & Son	7053	+ 100	+ 87	+ 89	+ 35	+ 15	+ 21	+ 30	+ 09	+ 15	- 03	+ 28	- 05	- 03	- 10	- 13	- 24	- 10
Cornell	5658	- 05	+ 31	+ 35	+ 14	00	- 39	- 16	- 21	+ 10	- 48	- 01	- 35	- 09	- 27	- 16	- 20	- 09
Langford	1828	- 64	- 55	- 93	- 25	- 14	+ 65	- 29	+ 29	+ 20	- 04	+ 44	- 35	- 65	- 34	- 80	- 104	- 80
Edward & Sons	2720	- 93	- 94	- 77	- 137	- 140	- 143	- 138	- 147	- 131	- 100	- 124	- 101	- 91	- 112	- 85	- 90	- 93
Aitchison	4144	- 26	- 10	- 39	- 40	- 45	- 90	- 55	- 58	- 60	- 51	- 67	- 54	- 31	- 45	- 33	- 55	- 62
Sevill	4249	+ 23	+ 52	+ 43	+ 44	+ 40	+ 14	+ 41	+ 01	+ 35	- 22	+ 09	- 62	- 61	- 87	- 80	- 98	- 100
Williams	1497	- 217	- 295	- 203	- 308	- 300	- 298	- 300	- 312	- 340	- 273	- 331	- 337	- 320	- 312	- 333	- 360	- 360
Webster	15083	+ 27	+ 06	+ 10	+ 88	+ 60	- 10	+ 80	- 21	+ 42	- 06	+ 38	+ 30	- 14	+ 65	- 27	- 52	- 21
Hennessy	4844	+ 100	+ 60	+ 86	+ 90	+ 25	- 01	+ 30	+ 02	- 10	+ 63	- 03	+ 82	+ 75	+ 66	+ 55	+ 55	+ 58
Aitchison	4144	+ 57	+ 52	+ 77	+ 35	+ 46	+ 36	+ 40	+ 18	+ 39	+ 09	+ 46	+ 21	+ 14	+ 23	+ 29	+ 04	+ 41
Moore	1810	+ 120	+ 116	+ 110	+ 128	+ 130	+ 100	+ 155	+ 100	+ 120	+ 58	+ 75	+ 27	- 03	- 10	- 37	- 43	- 50
Usher and Cole	1517	+ 54	+ 21	+ 15	- 44	- 40	- 65	- 55	- 41	- 49	- 05	- 20	- 45	+ 14	- 15	+ 38	+ 27	+ 28
Moore	1810	+ 80	+ 57	+ 68	+ 61	+ 63	+ 78	+ 70	+ 56	+ 57	- 01	+ 33	- 16	- 20	- 40	- 35	- 42	- 35
Keys	257	+ 10	+ 10	+ 14	- 67	- 60	- 47	- 71	- 59	- 58	- 30	- 10	+ 02	00	+ 25	+ 17	+ 26	+ 27
Glover	332	+ 280	+ 175	+ 258	+ 175	+ 150	+ 140	+ 135	+ 75	+ 151	- 01	+ 145	+ 10	- 01	- 10	- 47	- 88	- 50
Reid and Sons	4559	- 159	- 95	- 125	- 25	- 09	+ 15	- 16	+ 12	+ 12	- 147	- 33	- 139	- 144	- 139	- 107	- 103	- 139
Crisp	3463	- 49	- 19	- 21	+ 19	+ 19	+ 38	+ 07	+ 18	+ 49	+ 97	+ 61	+ 131	+ 109	+ 102	+ 112	+ 98	+ 126
Usher and Cole	1507	+ 55	+ 30	+ 47	+ 14	+ 10	- 11	+ 13	- 32	+ 25	- 159	+ 03	- 111	- 136	- 135	- 137	- 155	- 122
Skellern	3033	+ 346	+ 315	+ 314	+ 246	+ 230	+ 211	+ 225	+ 178	+ 215	+ 89	+ 175	+ 63	+ 15	+ 40	- 27	- 33	- 27
Nelson	2386	+ 166	+ 175	+ 195	+ 168	+ 150	+ 145	+ 155	+ 145	+ 175	- 30	+ 155	- 100	- 20	- 85	+ 36	+ 26	+ 19
Williams	1498	- 60	- 39	- 56	+ 10	+ 25	- 12	+ 15	- 12	+ 21	+ 35	+ 37	+ 30	+ 23	+ 10	+ 02	- 18	- 11
Shepherd & Son	1833	- 215	+ 177	+ 194	+ 117	+ 110	+ 11	+ 113	+ 47	+ 80	+ 82	+ 16	+ 30	+ 21	- 21	- 35	- 45	- 52
Shepherd & Son	1830	+ 66	+ 44	+ 44	- 31	- 40	- 50	- 39	- 95	- 58	- 98	- 119	- 163	- 164	- 197	- 210	- 223	- 218
Johnson	2107	+ 101	+ 95	+ 105	+ 135	+ 75	+ 70	+ 100	+ 45	+ 8	- 09	+ 35	- 28	- 35	- 72	- 69	- 95	- 76
Russell & Son	2109	+ 266	+ 249	+ 246	+ 102	+ 105	+ 86	+ 99	+ 55	+ 105	+ 27	+ 64	+ 07	+ 03	- 26	- 34	- 62	- 33
Johnson	2107	+ 282	+ 281	+ 280	+ 110	+ 65	+ 06	+ 70	+ 59	+ 105	- 13	+ 83	- 130	- 97	- 170	- 178	- 143	- 180
Sevill	4244	- 148	- 171	- 216	- 231	- 175	- 11	- 183	+ 75	- 83	- 83	- 67	- 124	- 90	- 95	- 130	- 100	- 113
Chronometrical Thermometer		- 38.4	- 30.4	+ 47.0	+ 697.5	+ 740.0	+ 764.0	+ 780.0	+ 882.9	+ 906.5	+ 962.0	+ 1197.0	+ 1366.5	+ 1450.0	+ 1612.0	+ 1891.0	+ 1708.0	+ 1718.0
Extremes of Temperature as shown by the Self-Registering Thermometers		59-67	58-66	59-69	49-58	49-58	47-57	49-58	46-54	47-55	48-55	39-50	42-51	42-56	40-55	38-56	35-48	40-55

The Chronometers are placed in order of merit, their respective positions being determined by consideration of the irregularities of rate exhibited in Table III.

NAME OF MAKER.	No.	Whether on 8 Days.	ADDRESS OF MAKER.	Construction of Escapement and Balance, from the Description furnished by the Maker.	(III).—ABSTRACT OF THE				
					First Day of Rating.	Last Day of Rating.	Number of Days.	Least Weekly Sum.	
Keys	282	2	15, Craven Street, Strand, W.C.	Ordinary balance, with slight alteration. Airy's Compensation.	January 11	July 26	26	+ 3.0	
Jane	6144	2	16, Spencer Street, Clerkenwell, E.C.	Improved balance. Airy's Compensation.	January 11	July 26	26	- 8.3	
Edward and Sons	2029	2	92, Buchanan Street, Glasgow.	Improved ordinary balance.	January 11	July 26	26	- 6.2	
Russell and Son	7052	2	Church Street, Liverpool.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 2.4	
Cornell	5658	2	74, Bank Street, Maidstone.	Airy's Compensation.	January 11	July 26	26	- 7.4	
Langford	1828	2	33, Quay, Bristol.	No information.	January 11	July 26	26	- 10.4	
Edward and Sons	3730	2	92, Buchanan Street, Glasgow.	Improved ordinary balance.	January 11	July 26	26	- 14.7	
Atchison	278	2	15, Bank Street, Edinburgh.	Auxiliary. Airy's Compensation.	January 11	July 26	26	- 11.9	
Sewill	4249	2	61, South Castle Street, Liverpool.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 10.0	
Williams	1497	2	2, Bute Docks, Cardiff.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 39.0	
Webster	15083	2	5, Queen Victoria Street, E.C.	No information.	January 11	July 26	26	- 7.6	
Hennsey	4944	2	5, Wind Street, Swansea.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 8.3	
Atchison	278	2	15, Bank Street, Edinburgh.	Auxiliary. Airy's Compensation.	January 11	July 26	26	- 11.1	
Moore	1817	2	114, High Street, Belfast.	Ordinary balance. Airy's Compensation.	January 11	July 26	26	- 8.0	
Usher and Cole	1517	2	165, St. John's Street Road, Clerkenwell, E.C.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 6.7	
Moore	1810	2	114, High Street, Belfast.	Ordinary balance. Airy's Compensation.	January 11	July 26	26	- 4.2	
Keys	257	2	15, Craven Street, Strand, W.C.	Ordinary balance, with slight alteration. Airy's Com pen. (Latin).	January 11	July 26	26	- 7.1	
Glover	332	2	8, Froham Road, Camden New Town, N.W.	Auxiliary for heat. Airy's Compensation.	January 11	July 26	26	- 8.8	
Bald and Sons	4559	2	41, Grey Street, Newcastle-on-Tyne.	Airy's Compensation.	January 11	July 26	26	- 6.9	
Crisp	3463	2	174, St. John's Street Road, E.C.	Auxiliary for heat. Airy's Compensation.	January 11	July 26	26	- 10.6	
Usher and Cole	1507	2	165, St. John's Street Road, E.C.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 20.8	
Stellern	3033	2	27, St. John Street, Liverpool.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 3.3	
Nelson	2836	2	31, Halton Road, Canonbury, N.	Airy's Compensation.	January 11	July 26	26	- 10.0	
Williams	1498	2	2, Bute Docks, Cardiff.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 24.5	
Shepherd and Son	1833	2	53, Leadenhall Street, E.C.	Airy's Compensation.	January 11	July 26	26	- 5.2	
Shepherd and Son	1830	2	53, Leadenhall Street, E.C.	Airy's Compensation.	January 11	July 26	26	- 23.3	
Johnson	2109	2	9, Wilmington Square, Spa Fields, W.C.	Double auxiliary to balance.	January 11	July 26	26	- 9.5	
Russell and Son	2109	2	9, Church Street, Liverpool.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 6.3	
Johnson	2109	2	9, Wilmington Square, Spa Fields, W.C.	Double auxiliary to balance.	January 11	July 26	26	- 18.0	
Sewill	4244	2	61, South Castle Street, Liverpool.	Auxiliary to balance. Airy's Compensation.	January 11	July 26	26	- 25.1	

The sign + indicates that the rate is gaining.

† During these weeks the Chronometers were placed in the chamber of a stove heated by jets of gas. The gas flames are exterior to the chamber, into which none of the injurious products of combustion can enter. In the column "Before and after what Day" the positions of the symbol (†), before or after the date, indicate respectively exposure to heat in the week immediately preceding, or in the week immediately following.

PRINCIPAL CHANGES OF RATE.							NAME or MAKER.	No.
In what Week.		Greatest Weekly Sum.	In what Week.		Difference between the Greatest and Least.	Greatest Difference between one Week and the next.	Before and after what Day.	
January 11 to 18	+ 9.0	June 28 to July 5	6.0	2.9	† May 24†	Keys	292	
March 8 to 15†	+ 2.0	July 19 to 26	10.3	6.7	† March 22†	Edward and Sons	6144	
February 8 to 15	+ 7.4	April 12 to 19	13.6	6.1	† March 22†	Edward and Sons	2029	
January 11 to 18	+ 11.0	May 24 to 31†	13.4	6.8	† March 29	Russell and Son	7052	
March 8 to 15†	+ 7.5	June 14 to 21	14.9	6.3	† March 22†	Cornell	5658	
January 11 to 18	+ 6.5	April 5 to 12	16.9	6.0	June 21	Langford	1828	
March 29 to April 5	- 4.1	March 23 to 29†	10.6	10.6	† March 29	Edward and Sons	3730	
March 15 to 22†	+ 2.6	July 19 to 26	14.5	9.2	† June 14	Atchison	278	
January 25 to Feb. 1	+ 5.5	May 24 to 31†	15.5	8.7	March 1†	Sewill	4249	
February 22 to Mar. 1	- 21.7	June 28 to July 5	17.3	10.0	† June 14	Williams	1497	
March 15 to 22†	+ 8.8	May 10 to 17	16.4	11.0	March 1†	Webster	15083	
March 8 to 15†	+ 10.8	July 12 to 19	19.1	9.8	March 1†	Hennsey	4944	
March 8 to 15†	+ 8.2	June 28 to July 5	19.3	10.6	March 1†	Atchison	278	
January 25 to Feb. 1	+ 15.7	May 24 to 31†	20.7	9.9	March 1†	Moore	1817	
March 8 to 15†	+ 9.3	March 22 to 29†	16.0	13.4	† March 22† † March 29	Usher and Cole	1517	
January 11 to 18	+ 17.2	June 7 to 14†	21.4	11.0	March 1†	Moore	1810	
May 3 to 10	+ 11.1	June 7 to 14†	18.2	16.5	May 17†	Keys	257	
January 11 to 18	+ 26.0	July 19 to 26	34.8	8.6	† March 22†	Glover	332	
March 1 to 8†	+ 3.3	April 12 to 19	19.2	16.5	March 1†	Bald and Sons	4559	
July 19 to 26	+ 13.1	February 15 to 22	23.7	14.7	March 1†	Crisp	3463	
March 15 to 22†	+ 7.9	July 12 to 19	28.7	14.1	† March 22†	Usher and Cole	1507	
January 11 to 18	+ 34.6	July 19 to 26	37.9	10.7	† March 22†	Stellern	3033	
February 15 to 22	+ 19.7	May 17 to 24†	29.7	15.7	† March 1†	Nelson	2836	
March 15 to 22†	+ 3.7	April 12 to 19	28.2	17.1	March 1†	Williams	1498	
January 25 to Feb. 1	+ 22.0	July 12 to 19	27.2	17.6	March 1†	Shepherd and Son	1833	
January 11 to 18	+ 6.6	July 19 to 26	29.9	16.7	March 1†	Shepherd and Son	1830	
January 11 to 18	+ 30.0	June 7 to 14†	29.5	18.6	March 1†	Johnson	2109	
January 11 to 18	+ 28.0	June 28 to July 5	34.2	16.3	March 1†	Russell and Son	2109	
January 25 to Feb. 1	+ 28.2	July 19 to 26	49.2	20.5	March 1†	Johnson	2109	
May 10 to 17	+ 10.6	May 31 to June 7†	35.7	26.5	May 17†	Sewill	4249	

The Chronometers are placed in order of merit, their respective positions being determined by consideration of irregularities of rate exhibited in the Table above.