

RATES OF CHRONOMETERS

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

1885.

NAME or MAKER.	No.	Construction of Escapement and Balance, from the Description furnished by the Maker.	(1.)—WEEKLY SUMS OF DAILY RATES											
			Jan. 10-17	Jan. 17-24	Jan. 24-31	Jan. 31 to Feb. 7	Feb. 7-14	Feb. 14-21	Feb. 21-28	Feb. 28 to Mar. 7	Mar. 7-14	Mar. 14-21	Mar. 21-28	
Kullberg	4139	Reversed descent, with short spring.	- 80	- 15	- 17	- 06	03	04	01	47	59	40	44	
Pennington	2240	Auxiliary compensation.	- 10	- 08	- 08	- 08	66	- 70	- 74	- 139	- 119	- 127	- 106	
Uhrig	455	Ordinary balance, with continually acting auxiliary.	+ 19	+ 16	+ 15	- 14	22	- 12	- 16	- 88	- 80	- 70	00	
C. Frodham	3597	C. Frodham's three-leaf composition balance.	02	- 110	- 102	- 62	82	- 89	- 84	- 61	- 3	- 21	- 18	
David Reid	1787	Balance to suit Palladium spring.	- 01	00	04	00	01	15	17	09	56	83	89	
Keys	450	Ordinary balance with auxiliary compensation.	+ 63	+ 95	+ 63	74	74	81	79	81	136	139	155	
Glover	267	Auxiliary for cold. Airy's composition arm.	- 37	- 37	- 25	34	- 43	- 55	- 130	- 130	- 144	- 149	267	
P. Birchal	1381	Auxiliary compensation for extremes of tempera-	- 72	- 45	- 32	- 07	06	03	- 23	- 01	- 24	- 03	01	
Reid and Sons	825	Poole's auxiliary.	- 08	- 08	- 08	- 08	- 08	- 08	- 08	- 08	- 08	- 08	- 08	
Weichert	3574	Kullberg's three-leaf balance.	+ 89	+ 107	+ 88	+ 75	+ 62	+ 73	+ 80	+ 71	+ 12	+ 106	+ 103	
Edward and Sons	3688	Improved ordinary balance.	- 22	- 22	- 45	- 40	- 46	- 43	- 44	+ 09	+ 30	- 37	+ 54	
Jane	1670	Balance without auxiliary.	+ 13	+ 23	+ 28	+ 92	+ 54	+ 46	+ 43	+ 25	+ 99	+ 127	+ 106	
C. Frodham	3597	Trochile escapement. Ordinary balance with	+ 17	+ 29	+ 44	+ 77	+ 61	+ 53	+ 47	+ 77	+ 72	+ 71	+ 69	
M. F. Dent	29561	Auxiliary compensation. [auxiliary compensation.	+ 154	+ 159	+ 159	+ 106	+ 110	+ 110	+ 153	+ 112	+ 231	+ 233	+ 232	
Nugent, Wells & Son	3574	Auxiliary compensation for heat.	+ 03	+ 09	+ 84	+ 100	+ 70	+ 40	+ 49	+ 10	+ 45	+ 23	+ 23	
Cole	3779	Auxiliary compensation for extremes of tempera-	- 176	- 161	- 171	- 182	- 176	- 193	- 163	- 161	- 131	- 133	- 110	
Moore	5754	Airy's composition arm. Poole's auxiliary.	- 159	- 162	- 165	- 166	- 126	- 93	- 117	- 200	- 216	- 214	- 207	
Reid and Sons	1829	Auxiliary for cold. Airy's composition arm.	- 159	- 162	- 165	- 166	- 126	- 93	- 117	- 200	- 216	- 214	- 207	
Kullberg	4073	Reversed descent, with short spring.	- 169	- 161	- 163	- 169	- 161	- 160	- 169	- 72	- 16	- 20	- 04	
J. Poole & Co.	5796	Poole's auxiliary.	- 95	- 94	- 77	- 19	- 12	+ 01	- 13	- 93	- 35	- 66	- 57	
Sevill	4363	Auxiliary compensation. Palladium spring.	- 106	- 103	- 101	- 63	- 74	- 64	- 75	- 02	+ 12	+ 26	+ 44	
David Reid	1788	Auxiliary compensation.	- 06	- 15	- 23	- 04	- 04	- 09	- 00	- 00	- 05	- 57	+ 113	
Pyott	818	Ordinary balance, with slight alterations.	+ 49	+ 97	+ 63	- 24	- 61	+ 26	+ 92	+ 112	+ 167	+ 128	+ 128	
Glover	365	Ordinary balance. Auxiliary for heat.	- 26	- 48	- 36	- 05	- 11	- 24	- 40	- 66	- 47	- 16	- 28	
Isaac	76	Direct descent. Broad spring.	- 14	- 15	- 15	- 20	- 32	- 84	- 52	- 64	- 89	- 91	+ 94	
Heap	7591	Auxiliary for cold. Airy's composition arm.	+ 48	+ 112	+ 92	+ 79	+ 75	+ 83	+ 127	+ 12	+ 38	+ 23	+ 53	
Reid and Sons	824	Airy's composition. Poole's auxiliary.	- 73	- 83	- 83	- 62	- 34	- 57	- 53	- 151	- 138	- 197	- 197	
Hemmesy	3769	Auxiliary compensation to balance.	- 152	- 205	- 194	- 215	- 250	- 251	- 229	- 334	- 347	- 323	- 317	
Shepherd and Son	1821	Ordinary balance.	- 202	- 190	- 207	- 228	- 213	- 208	- 224	- 203	- 174	- 182	- 174	
Sevill	4465	Auxiliary compensation to balance.	- 60	+ 61	+ 97	+ 111	+ 118	+ 107	+ 95	- 202	- 194	- 182	- 174	
Reid and Sons	1829	Ordinary balance. Palladium spring.	- 53	- 51	- 86	- 106	- 124	- 186	- 96	- 196	- 69	- 91	- 69	
Cole	3780	Auxiliary compensation for extremes of tempera-	+ 130	- 106	- 147	- 172	- 183	- 204	- 186	- 65	- 48	- 64	- 41	
Reid and Sons	1829	Auxiliary compensation for heat.	- 109	- 109	- 20	- 40	- 33	- 10	- 11	- 17	- 37	- 98	- 110	
Hemmesy	3769	Auxiliary compensation to balance.	- 239	- 241	- 233	- 214	- 233	- 216	- 249	- 35	- 34	- 47	- 70	
McInnes	5791	Poole's auxiliary.	- 64	- 89	- 41	+ 106	+ 111	- 51	+ 02	- 110	- 104	- 119	- 139	
Williams	1699	Auxiliary compensation for heat.	+ 49	+ 17	+ 23	+ 11	+ 03	+ 09	+ 47	+ 09	+ 31	+ 22	+ 27	
Schoof	6044	Schoof's improved resilient lever escapement.	+ 186	+ 121	+ 121	+ 203	+ 180	+ 208	+ 186	+ 204	+ 247	+ 348	+ 327	
Keys	880	Ordinary balance, with auxiliary compensation.	- 07	+ 25	+ 43	+ 47	+ 67	+ 68	+ 13	+ 131	+ 251	+ 231	+ 233	
Schoof	6040	Schoof's improved resilient lever escapement.	- 08	- 40	- 03	- 06	- 28	- 29	- 21	- 152	- 157	- 138	- 149	
Moore	5754	Airy's composition. Poole's auxiliary.	- 30	- 31	- 46	- 58	- 70	- 69	- 65	- 86	- 48	- 90	- 67	
J. Poole & Co.	5713	Poole's auxiliary.	- 139	+ 133	+ 38	- 29	- 43	- 06	- 29	- 110	- 90	- 191	- 191	
Reid and Sons	1829	Poole's auxiliary. Palladium spring.	- 67	- 53	- 64	- 58	- 49	- 03	- 60	- 33	- 66	- 63	...	
Shepherd and Son	1821	Auxiliary compensation to balance.	- 11	- 28	- 25	- 25	- 25	- 25	- 25	- 25	- 25	- 25	- 25	
Williams	1699	Ordinary balance with auxiliary compensation.	+ 15	+ 21	+ 24	+ 50	+ 38	+ 43	+ 29	+ 152	+ 159	+ 132	+ 128	
Chronometrical Thermometer.	.....	.....	+ 1454.2	+ 1556.8	+ 1242.3	+ 1159.2	+ 1015.2	+ 1044.3	+ 1132.6	+ 2702.8	+ 2571.3	+ 2646.8	+ 2667.9	
Mean Weekly Temperature.....	.....	.....	46.1	45.8	48.6	50.1	51.1	51.4	40.9	92.3	90.2	90.9	94.5	
Extremes of Temperature as shown by the Self-Regulating Thermometers	.....	.....	42-53	41-51	41-55	47-53	48-54	40-55	40-53	85-101	84-96	80-88	88-100	

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 influence penetrates.

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.

IN THE ORDER OF THE TIME.

NAME																			No.
or																			
MAKER.																			
Mar. 28 to Apr. 4	April 4-11	April 11-18	April 18-25	Apr. 25 to May 2	Apr. 25 to May 2	May 2-9	May 9-16	May 16-23	May 23-30	May 30 to June 6	June 6-13	June 13-20	June 20-27	June 27 to July 4	July 4-11	July 11-18	July 18-25		
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+ 59	+ 33	+ 18	+ 41	+ 49	+ 50	+ 39	+ 41	+ 41	+ 54	+ 63	+ 73	61	+ 70	+ 68	+ 70	+ 67	Kullberg	4139	
- 01	- 09	+ 15	+ 23	+ 39	+ 28	+ 33	+ 67	+ 65	+ 78	+ 61	+ 36	+ 41	+ 42	+ 78	+ 62	+ 68	Pennington	2240	
- 81	- 82	- 90	- 63	- 58	- 63	- 71	- 39	- 22	- 04	- 14	- 20	- 18	- 09	- 03	- 03	- 08	C. Frodham	3597	
+ 123	+ 108	+ 96															David Reid	1787	
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+ 140	+ 154	+ 185	+ 141	+ 143	+ 175	+ 175	+ 186	+ 185	+ 191	+ 208	+ 174	+ 146	+ 165	+ 191	+ 210	+ 164	Keys	450	
- 123	- 98	- 71	- 71	- 81	- 84	- 77	- 78	- 108	- 142	- 135	- 81	- 60	- 64	- 58	- 56	- 68	Glover	267	
- 40	- 90	+ 13	+ 40	+ 63	+ 44	+ 15	+ 78	+ 69	+ 82	+ 49	+ 66	.....	.....	.....	.....	.....	P. Birchal	1381	
- 53	- 19	- 26	- 15	- 01	+ 09	+ 14	+ 80	+ 45	+ 44	+ 47	+ 16	- 02	- 06	+ 11	+ 15	+ 05	Reid and Sons	825	
+ 261	+ 103	+ 96	+ 78	+ 96	+ 114	+ 118	+ 90		+ 101	+ 102	+ 92	92	85	+ 68	- 87	- 62	Weichert	3574	
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+ 136	+ 24	+ 30	- 33	- 42	- 52	- 77	- 16	- 64	- 88	- 77	- 93	- 102	- 119	- 99	- 110	- 124	Edward and Sons	3688	
+ 136	+ 120	+ 83	+ 83	+ 113	+ 105	+ 86	+ 106	+ 135	+ 171	+ 116	+ 131	+ 107	+ 93	+ 111	+ 112	+ 79	Isaac	760	
+ 34	+ 36	+ 31	+ 15	+ 09	+ 44	+ 15	+ 78	+ 69	+ 82	+ 49	+ 66	.....	.....	.....	.....	.....	C. Frodham	3597	
+ 136	+ 120	+ 83	+ 83	+ 113	+ 105	+ 86	+ 106	+ 135	+ 171	+ 116	+ 131	+ 107	+ 93	+ 111	+ 112	+ 79	M. F. Dent	29561	
+ 85	+ 116	+ 110	+ 108	+ 121	+ 116	+ 119	+ 35										Nugent, Wells & Son	3574	
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- 104	- 78	- 68	- 41	- 16	- 27	- 30	- 56	- 72	- 109	- 63	- 14	- 19	+ 40	+ 57	+ 77	+ 60		3779	
- 206	- 232	- 206	- 156	- 118	- 119	- 136	- 201	- 201	- 188	- 143	- 52	- 54	- 48	- 52	- 39	- 38	Moore	5754	
+ 07	+ 14	+ 69	+ 51	+ 61	+ 68	+ 10	+ 31	+ 39	+ 23	+ 26	- 34	- 34	- 43	- 19	- 31	- 28	Reid and Sons	1829	
+ 39	+ 82	+ 63	+ 07	+ 01	+ 33	+ 25	+ 54	+ 73	- 131	- 69	- 20	+ 08	+ 03	- 30	- 20	- 05	J. Poole & Co.	5796	
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- 18	- 03	- 01	- 39	- 61	+ 50	+ 40	- 63	- 81	- 95	- 98	+ 9	+ 51	+ 122	+ 138	+ 160	+ 157	Sevill	4363	
+ 73	+ 87	+ 91	+ 56	+ 69	+ 89	+ 108	+ 113	+ 146	+ 212	+ 142	+ 53	87	+ 93	+ 79	+ 89	+ 89	David Reid	1788	
+ 14	+ 66	+ 90	+ 100	+ 94	+ 74	+ 69	+ 178	+ 164	+ 150	+ 120	+ 170	+ 161	+ 169	+ 210	+ 213	+ 216	Pyott	818	
+ 85	+ 106	+ 94	+ 97	+ 111	+ 102	+ 96	+ 126	+ 105	+ 21	+ 90	+ 117	+ 140	+ 158	+ 183	+ 189	+ 180	Isaac	76	
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+ 135	+ 127	+ 153	+ 136	+ 144	+ 187	+ 193	+ 99	+ 78	+ 34	+ 44	+ 131	+ 140	+ 117	+ 79	+ 80	+ 134	Heap	7591	
- 53	- 128	- 78	- 100	- 84	- 124	- 101	- 183	- 231	- 327	- 174	- 85	- 34	- 34	- 34	- 34	- 34	Reid and Sons	824	
- 135	- 160	- 178	- 232	- 216	- 175	- 119	- 318	- 307	- 264	- 304	- 304	- 285	- 304	- 281	- 301	- 287	Hemmesy	3769	
- 195	- 179	- 183	- 119	- 75	- 107	- 103	- 129	- 241	- 287	- 177	- 64	- 40	- 68	- 31	- 23	- 10	Pennington	2241	
+ 73	+ 94	+ 123	+ 241	+ 248	+ 226	+ 233	+ 269	+ 251	+ 180	+ 280	+ 273	- 60	+ 34	+ 97	+ 138	+ 377	Shepherd and Son	1821	
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- 00	- 46	- 198	- 149	- 81	- 90	- 137	- 111	- 108	- 98	- 71	- 08	- 81	- 806	- 175	- 138	- 232	Sevill	4465	
+ 59	+ 79	+ 109	+ 109	+ 109	+ 109	+ 130	+ 181	+ 180	+ 199	+ 108	+ 148	+ 07	+ 116	+ 80	+ 215	+ 206	Reid and Sons	1829	
- 57	- 40	- 45	- 36	- 36	- 18	- 19	- 19	- 19	- 19	- 19	- 19	- 19	- 19	- 19	- 19	- 19	Cole	3779	
+ 121	+ 82	+ 11	- 19	- 15	+ 10	+ 19	+ 130	+ 260	+ 100	+ 145	+ 29	+ 21	- 34	- 96	- 79	- 67	Johannes & Co.	2805	
- 134	- 138	- 129	- 47	- 33	- 60	- 80	- 30	- 30	- 153	- 66	- 31	- 19	- 10	- 14	- 15	- 20	Hemmesy	4864	
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- 69	- 46	- 39	- 08	+ 17	+ 01	+ 11	- 62	- 91	- 120	- 69	+ 09	+ 03	- 21	- 13	- 01	- 06	McInnes	5791	
+ 210	+ 228	+ 179	+ 133	+ 137	+ 145	+ 175	- 59	- 07	- 58	- 56	- 135	+ 64	+ 97	+ 43	+ 75	+ 01	Williams	1669	
- 268	- 317	- 313	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	- 398	Reid and Sons	825	
- 00	- 29	- 36	- 26	- 14	- 33	- 33	- 160	- 179	- 337	+ 180	+ 86	+ 54	+ 64	+ 107	+ 114	+ 125	Keys	450	
+ 167	+ 217	+ 217	+ 203	+ 192	+ 201	+ 220	- 90	- 69	- 169	- 05	- 53	- 265	- 278	+ 217	+ 198	+ 187	School	6850	
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NAME or MAKER.		Construction of Equipment and Balance, from the Description furnished by the Maker.	(II).—WEEKLY SUMS OF DAILY RATES											
			Jan. 17-24	Jan. 24-31	Jan. 31-Feb.	Feb. 1-7	Feb. 7-14	Feb. 14-21	Feb. 21-28	Mar. 28-April	Mar. 28-April	Apr. 4-11	Apr. 11-18	Apr. 18-25
Keys	430	2	Ordinary balance, with auxiliary compensation.	+ 95	+ 63	+ 69	+ 79	+ 74	+ 154	+ 81	+ 195	+ 74	+ 140	+ 175
Glover	387	2	Auxiliary for cold. Airy's compensation arm.	+ 83	+ 90	+ 97	+ 95	+ 88	+ 70	+ 68	+ 82	+ 92	+ 92	+ 92
Ulrich	435	2	Ordinary balance, with continually acting	+ 15	+ 19	+ 15	+ 16	+ 14	+ 99	+ 15	+ 15	+ 22	+ 21	+ 33
C. Frodham	3597	8	Auxiliary compensation for extremes of tempera-	+ 110	+ 98	+ 102	+ 88	+ 82	+ 99	+ 90	+ 92	+ 81	+ 71	+ 71
David Reid	1787	2	Balance to suit Palladium spring.	00	01	+ 04	09	00	+ 110	+ 17	+ 96	+ 15	+ 123	+ 71
Keys	450	2	Ordinary balance, with auxiliary compensation.	+ 95	+ 63	+ 69	+ 79	+ 74	+ 154	+ 81	+ 195	+ 74	+ 140	+ 175
Glover	387	2	Auxiliary for cold. Airy's compensation arm.	+ 83	+ 90	+ 97	+ 95	+ 88	+ 70	+ 68	+ 82	+ 92	+ 92	+ 92
P. Bichal	1881	2	Auxiliary compensation for extremes of tempera-	+ 48	+ 72	+ 23	+ 23	+ 07	+ 30	+ 02	+ 13	+ 06	+ 40	+ 13
Lister and Sons	825	2	Poole's auxiliary.	+ 68	+ 48	+ 58	+ 55	+ 50	+ 103	+ 20	+ 26	+ 64	+ 52	+ 114
Weichert	2365	2	Kulberg's flat rim balance.	+ 107	+ 89	+ 86	+ 80	+ 75	+ 138	+ 72	+ 96	+ 62	+ 121	+ 116
Edward and Sons	2685	2	Improved ordinary balance.	+ 22	+ 22	+ 45	+ 54	+ 40	+ 24	+ 43	+ 30	+ 46	+ 26	+ 77
Isaac	1670	2	Balance without auxiliary.	+ 22	+ 13	+ 38	+ 43	+ 52	+ 120	+ 46	+ 83	+ 128	+ 86	+ 77
C. Frodham	3597	2	Trochile equipment. Ordinary balance, with	+ 29	+ 17	+ 44	+ 44	+ 77	+ 32	+ 33	+ 31	+ 61	+ 04	+ 114
M. F. Dent	25961	2	Auxiliary compensation. [auxiliary compensation.	+ 139	+ 134	+ 129	+ 123	+ 106	+ 144	+ 110	+ 114	+ 101	+ 141	+ 103
Nugent, Wells & Son	3774	2	Auxiliary compensation for heat.	+ 129	+ 98	+ 84	+ 49	+ 100	+ 116	+ 40	+ 110	+ 70	+ 85	+ 119
Cole	3778	2	Auxiliary compensation for extremes of tempera-	+ 161	+ 176	+ 171	+ 163	+ 182	+ 78	+ 193	+ 68	+ 176	+ 104	+ 30
Moore	5754	2	Airy's compensation. Poole's auxiliary.	+ 162	+ 180	+ 199	+ 117	+ 190	+ 283	+ 98	+ 200	+ 126	+ 206	+ 138
Nelson	3876	2	Ordinary equipment. Auxiliary gaining in cold.	+ 15	+ 16	+ 16	+ 16	+ 16	+ 16	+ 16	+ 16	+ 16	+ 16	+ 16
Kulberg	4073	2	Reversed intent, with short spring.	+ 84	+ 95	+ 77	+ 13	+ 19	+ 82	+ 01	+ 63	+ 12	+ 39	+ 25
J. Poole & Co.	5760	2	Poole's auxiliary.	+ 84	+ 95	+ 77	+ 13	+ 19	+ 82	+ 01	+ 63	+ 12	+ 39	+ 25
Seiwell	4363	6	Auxiliary compensation. Palladium spring.	+ 103	+ 106	+ 101	+ 75	+ 63	+ 03	+ 64	+ 01	+ 74	+ 18	+ 46
David Reid	1788	2	Auxiliary compensation.	+ 103	+ 106	+ 101	+ 75	+ 63	+ 03	+ 64	+ 01	+ 74	+ 18	+ 46
Pyatt	818	2	Ordinary balance, with slight alterations.	+ 97	+ 49	+ 63	+ 62	+ 24	+ 66	+ 26	+ 90	+ 41	+ 14	+ 69
Glover	366	2	Ordinary balance.	+ 49	+ 20	+ 38	+ 40	+ 30	+ 106	+ 34	+ 94	+ 22	+ 85	+ 96
Isaac	76	2	Direct intent. Iron spring.	+ 15	+ 14	+ 15	+ 52	+ 20	+ 106	+ 34	+ 94	+ 22	+ 85	+ 96
Heap	7591	2	Auxiliary for cold. Airy's compensation arm.	+ 112	+ 48	+ 92	+ 127	+ 79	+ 137	+ 82	+ 153	+ 75	+ 125	+ 193
Cole	3780	2	Keys's compensation.	+ 128	+ 78	+ 167	+ 168	+ 178	+ 40	+ 09	+ 98	+ 138	+ 87	+ 31
Hennsey	4716	2	Auxiliary compensation to balance.	+ 205	+ 185	+ 194	+ 229	+ 215	+ 160	+ 251	+ 178	+ 230	+ 195	+ 102
Pennington	2766	2	Ordinary balance.	+ 205	+ 185	+ 194	+ 229	+ 215	+ 160	+ 251	+ 178	+ 230	+ 195	+ 102
Shepherd and Son	1821	2	Auxiliary compensation to balance.	+ 61	+ 60	+ 97	+ 95	+ 111	+ 124	+ 107	+ 123	+ 114	+ 73	+ 223
Seiwell	4465	2	Ordinary balance. Palladium spring.	+ 81	+ 55	+ 86	+ 96	+ 106	+ 48	+ 126	+ 195	+ 124	+ 90	+ 71
Reid and Sons	5785	2	Poole's auxiliary.	+ 87	+ 44	+ 98	+ 47	+ 11	+ 40	+ 09	+ 98	+ 93	+ 56	+ 150
Cole	3780	2	Auxiliary compensation for extremes of tempera-	+ 108	+ 78	+ 167	+ 168	+ 178	+ 40	+ 09	+ 98	+ 138	+ 87	+ 31
Johnston & Co.	2895	2	Auxiliary compensation for heat.	+ 99	+ 120	+ 20	+ 11	+ 40	+ 82	+ 10	+ 11	+ 33	+ 121	+ 19
Hennsey	4664	2	Auxiliary compensation to balance.	+ 241	+ 229	+ 239	+ 249	+ 214	+ 136	+ 216	+ 139	+ 239	+ 134	+ 86
McInnes	5791	2	Poole's auxiliary.	+ 81	+ 55	+ 86	+ 96	+ 106	+ 48	+ 126	+ 195	+ 124	+ 90	+ 71
Williams	1669	2	School's improved resilient lever escapement.	+ 69	+ 90	+ 17	+ 02	+ 09	+ 225	+ 02	+ 170	+ 08	+ 210	+ 175
Keys	880	2	Ordinary balance, with auxiliary compensation.	+ 121	+ 184	+ 121	+ 125	+ 05	+ 287	+ 206	+ 311	+ 180	+ 268	+ 221
School	6050	2	School's improved resilient lever escapement.	+ 35	+ 07	+ 45	+ 11	+ 47	+ 29	+ 68	+ 36	+ 67	+ 90	+ 33
Moore	5756	2	Airy's compensation. Poole's auxiliary.	+ 40	+ 49	+ 03	+ 31	+ 06	+ 217	+ 20	+ 217	+ 05	+ 167	+ 229
J. Poole & Co.	5761	2	Poole's auxiliary.	+ 81	+ 30	+ 46	+ 65	+ 58	+ 01	+ 69	+ 01	+ 70	+ 01	+ 01
Reid and Sons	5781	2	Poole's auxiliary. Palladium spring.	+ 125	+ 191	+ 38	+ 69	+ 36	+ 06	+ 06	+ 06	+ 43	+ 03	+ 03
Shepherd and Son	1820	2	Auxiliary compensation to balance.	+ 38	+ 11	+ 05	+ 33	+ 36	+ 46	+ 46	+ 46	+ 52	+ 02	+ 02
Williams	1669	2	Ordinary balance, with auxiliary compensation.	+ 21	+ 15	+ 24	+ 29	+ 30	+ 43	+ 01	+ 01	+ 28	+ 01	+ 01
Chronometrical Thermometer.	.....	.....	+ 1556.8	+ 1454.2	+ 1342.6	+ 1133.8	+ 1199.3	+ 1121.2	+ 1044.9	+ 1043.0	+ 1015.5	+ 970.8	+ 746.8	.....
Mean Weekly Temperature.	.....	.....	45.9	46.1	48.6	49.9	50.1	49.9	51.4	50.4	51.1	51.9	54.4	.....
Excess of Temperature as shown by the Self-Regulating Thermometers.	.....	.....	41-51	42-53	41-55	45-53	47-53	48-52	46-55	48-53	48-54	49-55	53-59	.....

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 time being reversed. By this arrangement the effect of temperature is quite nullified.

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

		NAME														No.					
		of																			
		MAKER.																			
Year	April	April	May	June	June	July	July	July	August	August	August	September	September	September	October	October	October	November	November	December	
2-9	18-25	25 to May 2	27 to July 4	10-17	23-30	1-8	11-18	4-11	13-14	16-23	24-31	1-8	11-18	19-26	27-30	1-8	11-18	19-26	27-30	1-8	
+ 80	+ 43	+ 70	+ 61	+ 73	+ 77	+ 70	+ 88	+ 59	+ 41	+ 47	+ 47	+ 64	+ 41	+ 54	Kulberg	4129					
+ 78	+ 69	+ 73	+ 64	+ 73	+ 76	+ 68	+ 62	+ 78	+ 114	+ 119	+ 156	+ 127	+ 139	+ 105	+ 123	+ 157	Pennington	2240			
+ 28	+ 23	+ 39	+ 42	+ 41	+ 36	+ 63	+ 64	+ 61	+ 80	+ 67	+ 70	+ 88	+ 66	+ 65	+ 78	Ulrich	4455				
+ 63	+ 63	+ 09	+ 18	+ 20	+ 08	+ 03	+ 14	+ 24	+ 33	+ 39	+ 21	+ 61	+ 18	+ 23	+ 04	C. Frodham	3597				
+ 88	+ 94	+ 103	+ 125	+ 130	+ 156	+ 134	+ 135	+ 130	+ 83	+ 117	+ 89	+ 68	+ 56	+ 118	+ 135	+ 125	David Reid	1787			
+ 175	+ 141	+ 142	+ 185	+ 146	+ 174	+ 164	+ 191	+ 205	+ 159	+ 186	+ 193	+ 81	+ 155	+ 185	+ 191	Keys	450				
+ 84	+ 71	+ 81	+ 64	+ 60	+ 81	+ 68	+ 56	+ 58	+ 138	+ 130	+ 78	+ 144	+ 130	+ 146	+ 108	+ 142	Glover	387			
+ 44	+ 40	+ 65	+ 33	+ 26	+ 09	+ 61	+ 41	+ 44	+ 49	+ 24	+ 74	+ 03	+ 01	+ 01	+ 85	+ 188	P. Bichal	1881			
+ 06	+ 13	+ 01	+ 06	+ 02	+ 16	+ 03	+ 18	+ 11	+ 47	+ 24	+ 90	+ 58	+ 06	+ 18	+ 23	+ 04	Lister and Sons	825			
+ 114	+ 78	+ 96	+ 83	+ 92	+ 92	+ 62	+ 67	+ 68	+ 106	+ 120	+ 106	+ 108	+ 71	+ 103	+ 94	+ 101	Weichert	2365			
+ 55	+ 33	+ 42	+ 119	+ 102	+ 93	+ 124	+ 110	+ 99	+ 77	+ 30	+ 16	+ 37	+ 09	+ 84	+ 84	+ 88	Edward and Sons	2685			
+ 103	+ 89	+ 113	+ 92	+ 107	+ 131	+ 79	+ 112	+ 111	+ 114	+ 99	+ 106	+ 127	+ 21	+ 139	+ 129	+ 139	Isaac	1670			
+ 117	+ 75	+ 119	+ 39	+ 04	+ 54	+ 64	+ 63	+ 59	+ 18	+ 72	+ 55	+ 171	+ 97	+ 69	+ 07	+ 44	C. Frodham	3598			
+ 174	+ 90	+ 210	+ 280	+ 220	+ 233	+ 249	+ 225	+ 224	+ 220	+ 231	+ 258	+ 228	+ 231	+ 258	+ 228	+ 231	J. Poole & Co.	5756			
+ 116	+ 108	+ 121	+ 72	+ 65	+ 25	+ 63	+ 77	+ 77	+ 09	+ 45	+ 35	+ 42	+ 10	+ 83	+ 01	+ 61	Nugent, Wells & Son	3774			
+ 27	+ 41	+ 16	+ 40	+ 19	+ 14	+ 71	+ 60	+ 81	+ 65	+ 131	+ 66	+ 123	+ 161	+ 110	+ 72	+ 109	Cole	3779			
+ 119	+ 156	+ 118	+ 48	+ 54	+ 53	+ 39	+ 59	+ 58	+ 143	+ 216	+ 201	+ 214	+ 200	+ 207	+ 211	+ 211	Nelson	3876			
+ 74	+ 100	+ 04	+ 169	+ 161	+ 170	+ 318	+ 315	+ 310	+ 310	+ 161	+ 178	+ 167	+ 151	+ 163	+ 164	+ 161	Kulberg	4073			
+ 29	+ 16	+ 04	+ 24	+ 34	+ 51	+ 15	+ 14	+ 27	+ 04	+ 16	+ 30	+ 70	+ 04	+ 20	+ 73	+ 03	J. Poole & Co.	5757			
+ 23	+ 07	+ 01	+ 03	+ 06	+ 20	+ 09	+ 20	+ 30	+ 69	+ 35	+ 54	+ 66	+ 39	+ 57	+ 73	+ 131	Cole	3876			
+ 59	+ 39	+ 61	+ 128	+ 123	+ 91	+ 167	+ 157	+ 160	+ 99	+ 12	+ 63	+ 26	+ 02	+ 44	+ 81	+ 92	Seiwell	4363			
+ 89	+ 56	+ 69	+ 103	+ 87	+ 53	+ 99	+ 86	+ 75	+ 149	+ 05	+ 115	+ 57	+ 09	+ 113	+ 146	+ 119	David Reid	1788			
+ 74	+ 100	+ 04	+ 169	+ 161	+ 170	+ 318	+ 315	+ 310	+ 310	+ 161	+ 178	+ 167	+ 151	+ 163	+ 164	+ 161	Pyatt	818			
+ 08	+ 123	+ 92	+ 80	+ 82	+ 31	+ 140	+ 144	+ 141	+ 83	+ 47	+ 04	+ 18	+ 66	+ 28	+ 63	+ 20	Glover	366			
+ 102	+ 97	+ 111	+ 159	+ 140	+ 117	+ 180	+ 189	+ 183	+ 90	+ 89	+ 126	+ 91	+ 64	+ 94	+ 105	+ 21	Isaac	76			
+ 187	+ 136	+ 144	+ 117	+ 140	+ 131	+ 124	+ 80	+ 78	+ 44	+ 38	+ 99	+ 23	+ 12	+ 55	+ 78	+ 84	Heap	7591			
+ 124	+ 100	+ 84	+ 26	+ 42	+ 65	+ 96	+ 126	+ 47	+ 174	+ 138	+ 192	+ 189	+ 151	+ 197	+ 231	+ 237	Liter and Sons	824			
+ 175	+ 232	+ 216	+ 364	+ 368	+ 304	+ 277	+ 387	+ 324	+ 304	+ 337	+ 315	+ 315	+ 315	+ 315	+ 315	+ 315	Shepherd and Son	1821			
+ 107	+ 110	+ 75	+ 68	+ 40	+ 64	+ 10	+ 23	+ 31	+ 177	+ 164	+ 197	+ 172	+ 203	+ 147	+ 231	+ 297	Pennington	2240			
+ 226	+ 221	+ 248	+ 342	+ 320	+ 273	+ 377	+ 380	+ 371	+ 250	+ 194	+ 269	+ 185	+ 302	+ 174	+ 241	+ 260	Shepherd and Son	1821			
+ 90	+ 149	+ 81	+ 208	+ 81	+ 08	+ 252	+ 128	+ 175	+ 71	+ 80	+ 111	+ 99	+ 126	+ 69	+ 108	+ 08	Seiwell	4463			
+ 140	+ 107	+ 109	+ 120	+ 107	+ 148	+ 200	+ 108	+ 30	+ 139	+ 21	+ 09	+ 37	+ 180	+ 109	+ 137	+ 109	Reid and Sons	5785			
+ 19	+ 55	+ 06	+ 03	+ 09	+ 13	+ 15	+ 09	+ 75	+ 43	+ 48	+ 19	+ 64	+ 65	+ 31	+ 31	+ 31	Johnston & Co.	2895			
+ 10	+ 19	+ 31	+ 20	+ 15	+ 14	+ 66	+ 34	+ 20	+ 15	+ 14	+ 66	+ 34	+ 20	+ 47	+ 35	+ 70	Moore	5756			
+ 06	+ 47	+ 23	+ 10	+ 19	+ 31	+ 20	+ 15	+ 14	+ 66	+ 34	+ 20	+ 47	+ 35	+ 70	+ 61	+ 133	Hennesy	4894			
+ 91	+ 08	+ 17	+ 21	+ 03	+ 09	+ 06	+ 01	+ 13	+ 69	+ 104	+ 62	+ 119	+ 110	+ 139	+ 91	+ 120	McInnes	5791			
+ 145	+ 133	+ 137	+ 97	+ 64	+ 125	+ 01	+ 75	+ 43	+ 58	+ 141	+ 59	+ 103	+ 76	+ 104	+ 07	+ 88	Williams	1669			
+ 352	+ 389	+ 386	+ 490	+ 489	+ 452	+ 440	+ 475	+ 465	+ 297	+ 347	+ 357	+ 348	+ 304	+ 327	+ 359	+ 123	School	6044			
+ 203	+ 203	+ 203	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	+ 278	Chronometrical Thermometer	.....			
+ 201	+ 203	+ 182	+ 278	+ 265	+ 53	+ 137	+ 118	+ 217	+ 05	+ 137	+ 0	+ 158	+ 155	+ 149	+ 63	+ 168	School	6050			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Moore	5756			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	J. Poole & Co.	5713			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Reid and Sons	5781			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Shepherd and Son	1822			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Williams	1669			
+ 5882	+ 2476	+ 2394	+ 1889	+ 1844	+ 2780	+ 3819	+ 4074	+ 5579	+ 23587	+ 25713	+ 26412	+ 26468	+ 27028	+ 28679	+ 30187	+ 33053	Chronometrical Thermometer				
+ 56	+ 60	+ 60	+ 64	+ 64	+ 65	+ 66	+ 66	+ 69	+ 69	+ 68	+ 84	+ 90	+ 92	+ 93	+ 94	+ 95	+ 100	Moore	5756		
.....																		Williams	1669		
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NAME OF MAKER.	No.	Whether or in Ship.	ADDRESS OF MAKER.	Construction of Escapement and Balance, from the Description furnished by the Maker.	(II.)—ABSTRACT OF THE			
					First Day of Rating.	Last Day of Rating.	Number of Days.	Least Weekly Sum.
Kullberg	4139	2	103, Liverpool Road, N.	Reversed detent, with short spring.	January 10	July 25	28	- 2.0
Pennington	2340	2	2 and 3, St. George's Crescent, Liverpool.	Auxiliary compensation.	January 10	July 25	28	-12.7
Chrig	455	2	8, Quadrant Road, Essex Road, N.	Auxiliary balance, with continually acting auxiliary.	January 10	July 25	28	- 0.1
C. Frodham	3097	2	84, Strand, W.C.	C. Frodham's three-arch compensation balance.	January 10	July 25	28	-11.0
David Reid	1787	2	39, Grey Street, Newcastle-on-Tyne.	Balance to suit Palladium spring.	January 10	July 25	28	- 0.1
Keys	450	2	15, Craven Street, Strand, W.C.	Ordinary balance, with auxiliary compensation.	January 10	July 25	28	+ 6.3
Glover	367	2	8, Wrentham Road, Camden New Town, N.W.	Auxiliary for cold. Aisy's compensation arm.	January 10	July 25	28	-14.6
P. Birchall	1381	2	12, Stowfield Street, Edgware, N. W.	Troublesome escapement. Ordinary balance, with Pole's auxiliary.	January 10	July 25	28	- 7.2
Lester and Sons	820	2	12, Mosley Street, Newcastle-on-Tyne.	Pole's auxiliary.	January 10	July 25	28	- 6.9
Weichert	2365	2	2 Vienna Chambers, 119, Bute Docks, Cardiff.	Kullberg's flat rim balance.	January 10	July 25	28	+ 1.2
Edward and Sons	3688	2	1, Poultry, E.C.	Improved ordinary balance.	January 10	July 25	28	-15.4
Isaac	1670	2	10, Spencer Street, Clerkenwell, E.C.	Balance without auxiliary.	January 10	July 25	28	+ 1.3
P. Birchall	3532	2	84, Strand, W.C.	Troublesome escapement. Ordinary balance, with Auxiliary compensation. Auxiliary compensation.	January 10	July 25	28	- 3.4
C. Frodham	2091	2	23, Colopier Street, S.W.	Auxiliary compensation for heat.	January 10	July 25	28	-10.6
M. F. Dent	3374	2	22, High Street, Newport.	Auxiliary compensation for heat.	January 10	July 25	28	- 6.1
Cole	3779	2	81, Thornhill Road, London.	Auxiliary compensation for extremes of temperature.	January 10	July 25	28	-19.2
Moore	5754	2	103, High Street, Belfast.	Aisy's compensation. Pole's auxiliary.	January 10	July 25	28	-22.3
Nelson	2876	2	405, New Cross Road, S.E.	Ordinary escapement. Auxiliary gaining in cold.	January 10	July 25	28	- 6.1
Kullberg	4073	2	103, Liverpool Road, N.	Reversed detent, with short spring.	January 10	July 25	28	-16.9
J. Poole & Co.	5796	2	35, Spencer Street, Clerkenwell, E.C.	Pole's auxiliary.	January 10	July 25	28	-13.1
Sewill	4383	2	61, South Castle Street, Liverpool.	Auxiliary compensation. Palladium spring.	January 10	July 25	28	-10.6
David Reid	1788	2	39, Grey Street, Newcastle-on-Tyne.	Auxiliary compensation.	January 10	July 25	28	- 2.3
Eyett	818	2	74, West India Dock Road, E. N.W.	Ordinary balance, with slight alterations.	January 10	July 25	28	- 4.4
Glover	366	2	8, Wrentham Road, Camden New Town, N.W.	Ordinary balance. Auxiliary for heat.	January 10	July 25	28	-12.3
Isaac	76	2	10, Spencer Street, Clerkenwell, E.C.	Direct detent. Broad spring.	January 10	July 25	28	- 5.2
Heap	7591	2	124, New North Road, London.	Auxiliary for cold. Aisy's compensation arm.	January 10	July 25	28	- 1.2
Lester and Sons	824	2	41, Grey Street, Newcastle-on-Tyne.	Aisy's compensation. Pole's auxiliary.	January 10	July 25	28	-22.7
Hennessy	3769	2	5, Wind Street, Swansea.	Auxiliary compensation to balance.	January 10	July 25	28	- 3.7
Pennington	2314	2	2 and 3, St. George's Crescent, Liverpool.	Ordinary balance.	January 10	July 25	28	-20.7
Shepherd and Son	1821	2	14, Talbot Court, Gracechurch Street, E.C.	Auxiliary compensation to balance.	January 10	July 25	28	- 6.0
Sewill	4465	2	61, South Castle Street, Liverpool.	Ordinary balance. Palladium spring.	January 10	July 25	28	-23.2
Reid and Sons	5780	2	41, Grey Street, Newcastle-on-Tyne.	Pole's auxiliary.	January 10	July 25	28	- 1.1
Cole	3780	2	21, Thornhill Road, London.	Auxiliary compensation for extremes of temperature.	January 10	July 25	28	-20.4
Johannes & Co.	2865	2	145, Maurice, E.C.	Auxiliary compensation for heat.	January 10	July 25	28	- 4.6
Hennessy	4864	2	5, Wind Street, Swansea.	Auxiliary compensation to balance.	January 10	July 25	28	-24.9
McInnes	5791	2	34, Granger Street West, Newcastle-on-Tyne.	Pole's auxiliary.	January 10	July 25	28	-13.9
Williams	1669	2	3, Bute Docks, Cardiff.	Pole's auxiliary.	January 10	July 25	28	- 5.8
Schoof	6044	2	99, St. John Street Road, E.C.	Schoof's improved resilient lever escapement.	January 10	July 25	28	- 1.1
Keys	880	2	15, Craven Street, Strand, W.C.	Ordinary balance with auxiliary compensation.	January 10	July 25	28	- 3.6
Schoof	6050	2	99, St. John Street Road, E.C.	Schoof's improved resilient lever escapement.	January 10	July 25	28	-16.8

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	
In what Week.		Greatest Weekly Sum.	In what Week.		Difference between the Greatest and Least.	Greatest Difference between the Greatest Week and the next.	Before and after what Day.	OF MAKER.	No.
January 10 to 17	+ 7.3		June 13 to 20	10.3	4.0		February 28†	Kullberg	4139
January 30 to June 6†	- 6.2		July 11 to 18	9.9	6.5		February 28	Pennington	2340
March 28 to April 4	+ 8.8		February 28 to March 7†	11.6	7.3		February 28†	Chrig	455
January 17 to 24	+ 0.3		July 4 to 11	11.3	6.3		† March 28	C. Frodham	3097
January 10 to 17	+ 15.7		June 13 to 20	15.7	4.7		February 28†	David Reid	1787
{ January 10 to 17 January 24 to 31 March 21 to 28† January 10 to 17	+ 21.0		July 11 to 18	14.7	5.5		† March 7†	Keys	450
	- 3.0		January 10 to 17	11.6	7.5		February 28†	Glover	367
	+ 8.8		May 30 to June 6†	10.0	5.8		May 16†	P. Birchall	1381
	+ 12.1		March 28 to April 4	14.9	0.6		May 16†	Lester and Sons	820
January 17 to 24	+ 8.0		May 16 to 23†	14.9	0.6		May 16†	Weichert	2365
March 7 to 14†	+ 12.1		March 28 to April 4	10.0	9.4		† March 14†		
July 18 to 25	+ 5.4		March 21 to 28†	17.8	6.3		February 28†	Edward and Sons	3688
January 10 to 17	+ 17.1		May 30 to June 6†	15.8	7.4		† March 7†	Isaac	1670
June 12 to 20	+ 11.9		April 25 to May 2	17.3	7.3		† March 28	C. Frodham	3532
January 31 to Feb. 7	+ 22.1		July 4 to 11	14.5	9.1		† March 28	M. F. Dent	3374
May 30 to June 6†	+ 12.1		April 25 to May 2	18.2	8.4		May 16†	Nugent, Wells, and Son	3374
February 14 to 21	+ 7.1		July 18 to 25	26.3	5.1		† June 13	Cole	3779
April 4 to 11	- 3.9		{ July 11 to 18 July 11 to 18	18.4	9.1		† June 13	Moore	5754
April 25 to May 2	+ 6.9		April 11 to 18	13.0	12.0		April 18	Nelson	2876
January 31 to Feb. 7	+ 5.1		June 13 to 20	22.0	9.0		February 28†	Kullberg	4073
May 30 to June 6†	+ 8.2		April 4 to 11	21.3	9.6		† March 28	J. Poole and Co.	5796
January 10 to 17	+ 15.7		July 18 to 25	27.3	7.3		February 28†	Sewill	4383
January 24 to 31	+ 21.9		May 30 to June 6†	24.2	8.9		† June 13	David Reid	1788
March 28 to April 4	+ 21.8		July 11 to 18	20.4	12.1		† March 28	Eyett	818
April 18 to 25	+ 14.4		July 11 to 18	26.7	9.6		May 9	Glover	366
February 21 to 28	+ 18.9		July 11 to 18	24.1	11.6		† June 6	Isaac	76
February 28 to March 7†	+ 19.3		May 9 to 16	20.5	13.9		February 28†	Heap	7591
May 30 to June 6†	- 2.6		June 27 to July 4	21.1	14.9		† March 28	Lester and Sons	824
March 7 to 14†	- 15.2		January 10 to 17	18.1	15.9		May 16†	Hennessy	4864
May 30 to June 6†	+ 3.0		July 18 to 25	28.7	12.0		† June 6†	Pennington	2314
January 10 to 17	+ 18.0		July 11 to 18	32.0	10.7		February 28†	Shepherd and Son	1821
July 18 to 25	+ 0.8		June 13 to 20	24.0	14.9		April 11	Sewill	4465
January 31 to Feb. 7	+ 26.0		July 4 to 11	27.1	18.4		July 4	Reid and Sons	5780
February 14 to 21	+ 9.0		July 11 to 18	29.4	12.3		February 28†	Cole	3780
July 4 to 11	+ 2.0		May 23 to 30†	29.2	12.1		May 16†	Johannes & Co.	2865
February 21 to 28	+ 20.6		July 18 to 25	26.9	21.4		February 28†	Hennessy	4864
March 21 to 28†	+ 16.6		January 31 to Feb. 7	30.5	20.7		January 31	McInnes	5791
May 30 to June 6†	+ 31.0		March 28 to April 4	36.8	20.6		† March 28	Williams	1669
June 6 to 13†	+ 40.9		June 20 to 27	37.8	20.6		† May 30†	Schoof	6044
January 17 to 24	+ 26.8		March 21 to 28†	28.9	23.3		† March 28	Keys	880
January 24 to 31	+ 27.8		July 27 to July 4	44.6	31.6		† March 28	Schoof	6050

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