

RATES OF CHRONOMETERS

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

1858.

NAME or MAKER.	Num- ber.	Whether set by Days.	Construction of Escapement and Balance, from the description furnished by the Maker.	(I).—WEEKLY SUMS OF DAILY RATES											
				Jan. 9-16	Jan. 16-23	Jan. 23-30	Jan. 30-6	Feb. 6-13	Feb. 13-20	Feb. 20-27	Feb. 27 to Mar. 6	Mar. 6-13	Mar. 13-20	Mar. 20-27	Mar. 27-†
				†	†	†	†	†	†	†	†	†	†	†	†
Blackie	497	2	New auxiliary compensation to the balance (unpublished).	...	- 85	- 86	- 103	- 105	- 90	- 77	- 63	- 58	- 96	- 99	...
Clark and Son	2667	2	Pendulum auxiliary compensation.	...	- 139	- 174	- 152	- 95	- 83	- 78	- 85	- 65	- 109	- 109	...
Litter and Son	582	2	Pendulum auxiliary compensation.	...	- 118	- 100	- 101	- 139	- 107	- 111	- 95	- 78	- 80	- 192	- 76
Edif.	482	2	A new construction of balance (unpublished).	...	+ 210	+ 206	+ 211	+ 170	+ 221	+ 231	+ 191	+ 237	+ 190	+ 217	...
Edif.	482	2	Auxiliary compensation to the balance (unpublished).	...	- 01	- 25	- 18	- 26	- 12	+ 12	+ 45	+ 66	+ 74	+ 09	- 37
Edif.	482	2	Pendulum auxiliary compensation.	...	- 130	- 164	- 189	- 154	- 118	- 116	- 146	- 123	- 145	- 111	- 87
Gowland	2832	2	Auxiliary compensation to the balance, acting at low temperatures.	...	- 220	- 206	- 209	- 181	- 170	- 146	- 123	- 105	- 110	- 59	...
Gowland and Son	1190	2	Ordinary construction of balance, with a slight alteration.	...	+ 15	+ 04	+ 23	+ 33	+ 23	+ 26	+ 08	+ 07	+ 10	+ 34	- 02
Campbell	771	2	Auxiliary compensation, with two distinct balances.	...	- 47	- 54	- 61	- 73	- 47	- 45	- 29	- 24	- 14	- 41	- 117
Henningham	127	2	May's centripetal balance (unpublished).	...	- 176	- 204	- 219	- 190	- 150	- 123	- 133	- 126	- 107	- 76	- 100
May	54	2	Hartung's balance.	...	- 135	- 125	- 97	- 87	- 78	- 91	- 75	- 64	- 50	- 83	...
Roskel	559	2	Auxiliary compensation to the balance, as in former years.	...	- 130	- 87	- 97	- 61	- 96	- 71	+ 13	- 07	- 07	- 19	...
Edif.	482	2	Edif's auxiliary to balance.	...	- 129	- 111	- 103	- 100	- 94	- 77	- 73	- 67	- 85	- 185	...
Fletcher	2650	2	Hartung's griffin balance.	...	- 85	- 73	- 103	- 111	- 81	- 62	- 49	- 84	- 128	- 144	...
Parkinson and Son	1088	2	Ordinary construction.	...	- 311	- 312	- 363	- 326	- 264	- 259	- 273	- 287	- 259	- 211	- 188
Webb	2646	2	Auxiliary compensation to the balance, as in former years.	...	- 230	- 230	- 237	- 237	- 237	- 237	- 237	- 237	- 237	- 237	- 237
Parkinson & Bost	1087	2	Ordinary construction.	...	- 425	- 419	- 411	- 340	- 298	- 279	- 310	- 286	- 201	- 205	...
Glover	1890	2	A spring acting on auxiliary to the balance, in cold.	...	- 153	- 172	- 144	- 68	- 36	- 32	- 37	- 10	- 10	- 145	...
Lawson	2504	8	Lawson's auxiliary compensation to the balance.	...	- 173	- 137	- 191	- 218	- 239	- 252	- 263	- 211	- 173	- 43	...
Crip	130	2	Edif's auxiliary to balance.	...	+ 125	+ 154	+ 176	+ 237	+ 362	+ 281	+ 394	+ 301	+ 275	+ 278	...
Lowry	676	2	A new compound balance of three metals.	...	- 240	- 284	- 255	- 242	- 229	- 239	- 233	- 231	- 86	+ 31	...
Hart	926	2	Griffin balance of Mr. Hartung's construction.	...	- 119	- 113	- 130	- 111	- 96	- 74	- 58	- 40	- 47	- 54	...
Marten & Bishop	9247	2	May's centripetal balance (unpublished).	...	- 148	- 150	- 179	- 160	- 136	- 124	- 108	- 115	- 114	- 90	- 106
Williamson	2287	2	Auxiliary compensation with double adjustment, acting on the pendulum spring.	...	- 68	- 78	- 88	- 102	- 77	- 85	- 69	- 70	- 71	- 61	- 155
J. Muirhead	2310	2	Lawson's auxiliary compensation to the balance.	...	- 44	- 64	- 77	- 64	- 27	+ 02	+ 06	+ 10	+ 30	+ 75	+ 09
Daniels	189	2	Lawson's auxiliary compensation to the balance.	...	+ 25	+ 120	+ 78	- 08	- 191	- 71	- 63	- 95	- 224	- 120	- 109
Sevill	1057	2	Lawson's auxiliary compensation to the balance.	...	- 224	- 481	- 506	- 499	- 466	- 468	- 457	- 442	- 362	- 214	...
J. French	7003	2	Improved patent compensation for extreme ranges of temperature.	...	- 272	- 209	- 974	- 213	- 187	- 176	- 600	- 182	- 86	+ 96	...
Dent	2731	2	Dent's patent balance, see pamphlet, "On the Errors of Chronometers," p. 23.	...	+ 40	+ 46	+ 19	- 18	- 23	- 05	+ 14	- 04	- 115	- 248	...
Reid and Son	1200	2	Auxiliary compensation to the balance, acting at low temperatures.	...	- 160	- 150	- 151	- 113	- 91	- 60	- 57	- 33	- 55	- 135	...
Hewitt and Son	2469	2	A new auxiliary compensation (unpublished).	...	- 386	- 245	- 386	- 295	- 334	- 321	- 394	- 322	- 367	- 197	...
Abbott	357	2	Edif's auxiliary to balance.	...	+ 243	+ 328	+ 383	+ 464	+ 530	+ 587	+ 636	+ 675	+ 623	+ 545	...
Hewitt and Son	2389	8	A new auxiliary compensation (unpublished).	...	- 452	- 576	- 583	- 529	- 555	- 507	- 603	- 598	- 425	- 102	...
J. French	7003	2	Improved patent compensation for extreme ranges of temperature, influenced by magnetism.	...	- 801	- 834	- 864	- 891	- 949	- 983	- 897	- 392	- 987	- 1397	...
Holl	101	2	Holl's patent balance.	...	...	...	...	...	...	...	...	...	...	...	...
Holl	103	2	Holl's patent balance.	...	...	...	...	...	...	...	...	...	...	...	...
Chronometrical Thermometer	...	...	...	+ 17134	+ 21470	+ 23310	+ 20716	+ 16914	+ 14242	+ 15403	+ 17845	+ 16672	+ 9588	- 12454	...
Barometrical Thermometer	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barometrical Thermometer	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

* During these weeks the Chronometers were exposed to the external air outside a North window.

† During these weeks the Chronometers were placed in the chamber of a stove heated by gas.

The rate given by the first five days of trial is in every case omitted, excepting for Lawson 1304, where the rate for two days only is omitted; and J. Muirhead 2310, where the rate for four days only is omitted; and Holl 101 and 103, for both of which the rate for one day only is omitted.

IN THE ORDER OF TIME.																								NAME OF MAKER.		Num- ber.
Mar. 27 to Apr. 3	3-10	10-17	April 17-24	April 24 to May 1	May 1-8	May 8-15	May 15-22	May 22-29	May 29 to June 5	June 5-12	June 12-19	June 19-25	June 26 to July 3	3-10	10-17	17-24	24-31	July 31 to Aug. 7								
- 26	- 49	- 72	- 118	- 86	- 64	- 71	- 60	- 55	- 03	- 12	- 45	- 38	- 12	- 37	+ 25	+ 16	+ 09	+ 10	Blackie	497						
- 95	- 117	- 174	- 123	- 94	- 92	- 48	- 74	- 61	- 83	- 89	- 111	- 115	- 109	- 145	- 79	- 113	- 104	- 99	Clark and Son	2667						
- 17	+ 09	- 42	- 90	- 26	- 10	- 05	- 40	- 30	- 66	- 70	- 119	- 105	- 76	- 69	- 96	- 65	- 79	- 70	Litter and Son	582						
+ 308	+ 237	+ 199	+ 157	+ 242	+ 253	+ 252	+ 220	+ 225	+ 186	+ 204	+ 240	+ 263	+ 290	+ 250	+ 204	+ 239	+ 270	+ 280	Edif.	482						
- 37	- 33	- 34	- 100	- 82	- 35	- 35	- 45	- 39	- 55	- 21	+ 05	- 17	- 10	- 44	- 94	- 75	- 60	...	Frohmam & Baker	1463						
- 67	- 63	- 88	- 104	- 80	- 80	- 66	- 82	- 127	- 79	- 56	- 19	+ 05	+ 15	- 10	+ 20	+ 10	+ 05	+ 11	Gowland	2832						
- 53	- 54	- 65	- 55	- 70	- 29	- 15	- 36	- 06	+ 07	- 06	- 30	- 42	- 33	- 02	- 37	+ 04	+ 11	+ 20	Gowland and Son	1190						
- 16	- 42	- 45	- 30	+ 64	+ 53	+ 55	+ 67	+ 60	+ 37	- 40	- 52	- 70	- 64	+ 39	+ 48	+ 47	+ 65	+ 60	Campbell	771						
- 88	- 23	- 08	- 21	+ 32	+ 65	+ 61	+ 29	+ 40	+ 05	+ 23	+ 45	+ 50	+ 74	+ 24	+ 09	+ 10	+ 11	+ 12	Henningham	127						
- 104	- 116	- 120	- 76	- 33	- 17	- 13	- 00	- 03	- 07	- 05	- 10	+ 23	+ 23	+ 20	+ 35	+ 25	+ 50	+ 50	May	54						
- 77	- 108	- 122	- 59	- 01	+ 41	+ 34	+ 69	+ 91	+ 52	+ 05	- 11	- 04	- 23	+ 48	+ 52	+ 65	+ 90	+ 93	Roskel	559						
+ 15	+ 43	+ 38	+ 38	+ 56	+ 43	+ 66	+ 61	+ 72	+ 56	+ 78	+ 102	+ 84	+ 60	+ 93	+ 21	+ 103	+ 111	+ 119	Edif.	482						
- 177	- 110	- 68	- 65	- 30	- 95	- 00	- 17	- 13	- 09	- 65	- 30	- 39	- 09	+ 23	- 19	- 03	- 19	+ 11	Fletcher	2650						
- 81	- 66	- 23	- 02	+ 38	+ 54	+ 86	+ 70	+ 53	+ 32	+ 30	+ 31	+ 49	+ 90	+ 123	+ 120	+ 142	+ 135	...	Fletcher	2650						
- 202	- 253	- 308	- 213	- 193	- 206	- 171	- 169	- 175	- 173	- 288	- 296	- 270	- 259	- 129	- 152	- 168	- 141	- 140	Parkinson & Bost	1088						
+ 33	+ 56	+ 61	+ 72	+ 113	+ 125	+ 168	+ 149	+ 163	+ 178	+ 187	+ 181	+ 170	+ 188	+ 177	+ 217	+ 233	+ 230	+ 260	Webb	2646						
- 183	- 206	- 229	- 163	- 134	- 163	- 150	- 160	- 119	- 96	- 124	- 174	- 153	- 135	- 123	- 111	- 84	- 106	- 66	Parkinson & Bost	1087						
- 148	- 130	- 133	- 39	+ 15	+ 45	+ 70	+ 55	+ 66	- 08	- 53	- 49	- 23	- 09	+ 87	+ 85	+ 120	+ 125	...	Glover	1890						
- 22	- 74	- 107	- 104	- 100	- 108	- 92	- 85	- 72	- 13	- 15	- 39	- 15	+ 15	+ 20	+ 00	+ 11	+ 24	+ 44	Lawson	2504						
+ 307	+ 328	+ 356	+ 387	+ 419	+ 441	+ 434	+ 440	+ 442	+ 419	+ 464	+ 481	+ 532	+ 565	+ 564	+ 561	+ 576	+ 593	+ 602	Crip	130						
+ 24	+ 36	+ 94	- 124	- 71	- 103	- 86	- 62	- 50	- 29	- 10	- 35	+ 33	+ 14	- 33	+ 03	+ 19	+ 36	+ 31	Lowry	676						
- 64	- 02	+ 36	+ 71	+ 103	+ 138	+ 137	+ 150	+ 172	+ 186	+ 162	+ 194	+ 331	+ 314	+ 291	+ 223	+ 273	+ 287	+ 287	Hart	926						
- 89	- 169	- 192	+ 01	+ 45	+ 43	+ 42	+ 33	+ 12	- 40	- 190	- 160	- 115	- 110	- 24	+ 16	+ 49	+ 34	+ 44	Marten & Bishop	9247						
- 103	+ 63	+ 51	- 117	- 94	- 80	- 69	- 110	- 105	- 153	+ 73	+ 70	+ 65	+ 99	- 103	- 110	- 140	- 104	- 116	Daniel	2287						
+ 43	- 50	- 111	- 120	+ 155	+ 125	+ 141	+ 106	+ 125	+ 75	- 25	- 23	- 05	- 29	+ 83	+ 91	+ 106	+ 119	+ 107	J. Muirhead	2310						
+ 156	- 209	- 274	- 92	- 58	- 27	+ 29	+ 29	- 38	- 117	- 130	- 163	- 93	- 60	- 10	- 44	- 36	- 29	- 46	Daniels	189						
- 222	- 247	- 256	- 212	- 189	- 218	- 205	- 184	- 176	- 141	- 163	- 154	- 168	- 89	- 89	- 71	- 70	- 65	...	Sevill	1057						
+ 104	+ 106	+ 61	- 32	- 11	- 60	...	...	...	...	...	...	...	...	...	...	...	...	...	J. French	7005						
- 306	- 219	- 170	+ 33	+ 45	+ 61	+ 29	+ 00	+ 05	- 54	- 111	- 71	- 29	+ 15	+ 123	+ 77	+ 100	+ 116	+ 109	Dent	7531						
- 134	- 281	- 328	- 137	- 99	- 95	- 81	- 105	- 93	- 87	- 209	- 230	- 209	- 201	- 70	- 106	- 8	- 76	- 59	Dent and Son	1000						
- 196	- 196	- 196	- 63	- 31	- 49	- 31	- 00	+ 04	- 33	- 52	- 52	- 10	+ 33	+ 147	- 183	- 189	+ 296	+ 215	Hewitt and Son	2469						
+ 594	+ 609	+ 636	+ 737	+ 783	+ 843	+ 851	+ 829	+ 842	+ 848	+ 829	+ 848	+ 899	+ 938	+ 969	+ 1021	+ 1037	+ 1049	+ 1084	Abbot	3357						
- 93	+ 3	+ 14	- 149	- 180	- 261	- 254	- 219	- 176	- 47	+ 65	+ 113	+ 153	+ 194	+ 106	+ 58	+ 87	+ 75	+ 80	Thewlis and Son	338						
- 146	- 182	- 197	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	J. French	338						
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Holl	101						
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Holl	103						
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	...	...						
- 1381	- 2475	- 2840	+ 2309	+ 5265	+ 9880	+ 7915	+ 5356	+ 4314	- 3150	- 2886	- 2559	- 2417	- 2369	+ 227	- 3912	- 2724	- 636	- 839	...	...						
59-84	68-90	61-95	54-67	51-65	49-57	51-59	55-65	50-65	61-78	74-95	78-98	82-96	82-94	59-66	60-81	63-74	58-71	63-73	...	...						

(II)—WEEKLY SUMS OF DAILY RATES IN THE ORDER OF TEMPERATURE.

NAME or MAKER.	Num- ber.	Construction of Receptment and Balance, from the description furnished by the Maker.	Weather 2 & 3 Days	Jan. 30 to Feb. 27												NAME or MAKER.	Num- ber.
				Jan. 30-31	Jan. 31-Feb. 1	Feb. 1-2	Feb. 2-3	Feb. 3-4	Feb. 4-5	Feb. 5-6	Feb. 6-7	Feb. 7-8	Feb. 8-9	Feb. 9-10	Feb. 10-11		
Blackie	497	2 New auxiliary compensation to the balance (unpublished).	...	- 8.6	- 8.5	- 10.3	- 6.5	...	- 10.5	- 5.8	- 7.7	- 9.0	- 6.4	- 9.6	...	Blackie	497
Clark and Son	2667	2 Poole's auxiliary compensation.	...	- 17.4	- 15.0	- 15.2	- 8.2	- 11.8	- 9.5	- 6.5	- 7.9	- 8.5	- 5.2	- 10.8	...	Clark and Son	2667
Lane and Sons	268	2 Poole's auxiliary compensation.	...	- 15.1	- 10.0	- 13.9	- 7.8	- 5.1	- 10.7	- 8.0	- 9.3	- 11.1	- 1.0	- 13.2	...	Lane and Sons	268
Edie	482	2 A new construction of balance (unpublished).	...	+ 20.6	+ 21.0	+ 21.1	+ 19.1	...	+ 17.0	+ 23.7	+ 23.1	+ 22.1	+ 23.5	+ 19.0	...	Edie	482
Frothingham & Baker	7163	2 Auxiliary compensation to the balance (unpublished).	...	+ 1.8	+ 2.5	+ 2.8	+ 6.6	- 0.1	- 1.2	+ 7.4	+ 4.5	+ 1.2	+ 3.5	+ 0.9	...	Frothingham & Baker	7163
Gowland	2832	2 Poole's auxiliary compensation.	...	- 18.9	- 18.4	- 15.4	- 13.5	- 13.0	- 11.8	- 14.5	- 14.6	- 11.8	- 8.0	- 11.1	...	Gowland	2832
Reid and Sons	1190	2 Auxiliary compensation to the balance, setting at low temperatures.	...	- 20.6	- 23.0	- 20.9	- 12.3	...	- 18.1	- 10.5	- 14.6	- 17.0	- 2.9	- 10.0	...	Reid and Sons	1190
Campbell	171	2 Ordinary construction of balance with a slight alteration.	...	+ 2.3	+ 0.4	+ 3.3	+ 0.7	+ 1.5	+ 2.3	+ 1.0	+ 8.2	+ 2.6	+ 5.3	+ 5.4	...	Campbell	171
Hemingham	727	2 Auxiliary compensation, with two distinct balances.	...	- 6.1	- 5.4	- 7.3	- 2.4	- 4.7	- 4.7	- 1.4	- 2.9	+ 4.5	+ 6.5	+ 4.1	...	Hemingham	727
May	2599	2 May's centrifugal balance (unpublished).	...	- 21.9	- 20.4	- 19.0	- 12.6	- 17.6	- 15.0	- 10.7	- 13.3	- 12.5	- 1.7	- 7.6	...	May	2599
Rosell	4172	2 Hartung's balance.	...	- 12.5	- 13.5	- 9.7	- 7.5	...	- 8.7	- 6.4	- 9.1	- 7.5	+ 4.1	- 5.0	...	Rosell	4172
Poole	2659	2 Auxiliary compensation to the balance as in former years.	...	- 8.7	- 11.0	- 5.7	- 7.5	...	+ 4.1	+ 0.7	- 7.1	- 5.6	+ 4.5	+ 0.7	...	Poole	2659
Fletcher	2650	2 Edie's auxiliary to balance.	...	- 11.1	- 12.0	- 10.3	- 7.3	...	- 10.0	- 6.7	- 7.7	- 9.4	- 0.5	- 8.5	...	Fletcher	2650
Parkinson & Bouts	1088	2 Hartung's golden balance.	...	- 25.4	- 7.3	- 8.5	- 10.3	- 8.0	- 11.1	- 8.4	- 6.2	- 8.1	- 5.4	- 12.6	...	Parkinson & Bouts	1088
Webb	5346	2 Ordinary construction.	...	- 36.3	- 31.2	- 32.6	- 38.7	- 31.1	- 36.4	- 25.9	- 27.3	- 25.9	- 36.0	- 21.1	...	Webb	5346
Parkinson & Bouts	1087	2 Auxiliary compensation to the balance, as in former years.	...	- 3.7	- 2.9	+ 5.7	+ 4.2	...	+ 6.0	+ 3.0	+ 8.6	+ 7.1	+ 12.9	+ 9.0	...	Parkinson & Bouts	1087
Glover	290	2 Ordinary construction.	...	- 41.0	- 42.5	- 41.1	- 31.0	- 36.9	- 34.0	- 28.6	- 27.0	- 29.8	- 16.2	- 17.5	...	Glover	290
Lawson	1304	2 A spring acting on auxiliary to the balance, in cold.	...	- 17.2	- 15.3	- 14.4	- 3.7	...	- 6.8	- 1.0	- 3.2	- 3.6	+ 4.5	+ 1.9	...	Lawson	1304
Crisp	1360	2 Lawson's auxiliary compensation to the balance.	...	- 13.7	- 17.3	- 19.1	- 26.1	...	- 21.8	- 21.1	- 25.3	- 23.0	- 10.8	- 19.1	...	Crisp	1360
Lowry	576	2 Edie's auxiliary to balance.	...	+ 15.4	+ 12.5	+ 17.6	+ 39.4	...	+ 23.7	+ 30.1	+ 28.1	+ 26.2	+ 4.1	+ 27.5	...	Lowry	576
Hiatt	896	2 A new compound balance of three metals.	...	- 28.4	- 34.0	- 32.5	- 33.0	...	- 34.2	- 33.1	- 33.0	- 32.9	- 10.1	- 8.6	...	Hiatt	896
Marten & Bishop	9247	2 Gridiron balance of Mr. Hartung's construction.	...	- 11.3	- 11.9	- 13.0	- 5.8	- 9.8	- 11.1	- 4.0	- 7.4	- 9.6	+ 15.8	+ 4.7	...	Marten & Bishop	9247
Williamson	2387	2 May's centrifugal balance (unpublished).	...	- 17.9	- 15.0	- 16.0	- 11.5	- 14.8	- 13.6	- 11.4	- 10.8	- 12.1	+ 4.3	- 9.0	...	Williamson	2387
J. Muirhead	2310	2 Auxiliary compensation with the double spring, acting on the pendulum.	...	- 8.6	- 7.8	- 10.2	- 7.0	- 6.9	- 7.7	- 7.1	- 6.3	- 8.5	- 6.0	- 6.1	...	J. Muirhead	2310
Daniel	1057	2 Lawson's auxiliary compensation.	...	- 7.7	- 6.4	- 6.4	+ 1.0	- 4.1	- 2.7	+ 3.0	+ 0.5	+ 0.2	+ 12.5	+ 7.5	...	Daniel	1057
Sewill	1057	2 Lawson's auxiliary compensation to the balance.	...	+ 12.0	+ 2.5	+ 7.8	- 6.3	...	- 0.8	- 9.5	- 7.1	- 15.1	- 2.7	- 22.4	...	Sewill	1057
J. French	7005	2 Lawson's auxiliary compensation to the balance.	...	- 48.1	- 52.4	- 50.5	- 45.7	...	- 49.9	- 44.2	- 46.8	- 46.6	- 31.8	- 36.2	...	J. French	7005
Dent	2701	2 Improved patent compensation for extreme ranges of temperature.	...	- 29.9	- 27.2	- 27.4	- 30.0	- 23.6	- 21.3	- 18.2	- 17.6	- 18.7	- 6.0	- 8.6	...	Dent	2701
Reid and Sons	1300	2 Dent's patent balance, see pamphlet "On the Errors of Chronometers," p. 25.	...	+ 4.6	+ 4.0	+ 1.9	+ 1.4	...	- 1.8	- 0.4	- 0.5	- 2.3	+ 6.1	- 11.5	...	Reid and Sons	1300
Hewitt and Son	2469	2 Auxiliary compensation to the balance, setting at low temperatures.	...	- 15.0	- 16.0	- 15.1	- 5.7	...	- 11.3	- 2.3	- 6.0	- 9.1	- 9.5	- 5.5	...	Hewitt and Son	2469
Abbott	353	2 A new auxiliary compensation (unpublished).	...	- 24.5	- 28.6	- 28.6	- 29.4	...	- 20.9	- 32.2	- 32.1	- 33.4	- 4.9	- 26.7	...	Abbott	353
Hewitt and Son	2389	2 Edie's auxiliary to balance.	...	+ 32.8	+ 41.1	+ 38.3	+ 63.6	...	+ 46.4	+ 67.5	+ 58.7	+ 53.0	+ 84.3	+ 63.2	...	Hewitt and Son	2389
J. French	7005	2 A new auxiliary compensation (unpublished).	...	- 58.3	- 57.6	- 52.9	- 60.3	- 45.2	- 55.5	- 59.8	- 59.7	- 55.7	- 26.1	- 42.5	...	J. French	7005
Holl	101	2 Improved patent compensation for extreme ranges of temperature undisturbed by magnetism.	...	- 83.4	- 80.1	- 86.4	- 89.7	...	- 89.1	- 93.2	- 98.3	- 94.9	...	- 89.7	...	Holl	101
Holl	103	2 Holl's patent balance.	...	...	...	...	...	...	...	...	...	...	...	...	...	Holl	103
Chronometrical Thermometer	...	...	...	+ 2331.0	+ 2147.0	+ 2071.6	+ 1784.5	+ 1713.4	+ 1691.4	+ 1667.2	+ 1540.3	+ 1424.2	+ 983.5	+ 958.8	...	Chronometrical Thermometer	...
Extremes of Temperature as shown by the Self-Registering Thermometer.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Extremes of Temperature as shown by the Self-Registering Thermometer.	...

* During these weeks the Chronometers were exposed to the external air outside a North window.

† During these weeks the Chronometers were placed in the chamber of a stove heated by gas.

The rate given by the first five days of trial is in every case omitted, excepting for Lawson 1304, where the rate for two days only is omitted; J. Muirhead 2310, where the rate for four days only is omitted; and Holl 101 and 103, for both of which the rate for one day only is omitted.

AS DETERMINED BY THE CHRONOMETRICAL THERMOMETER.

NAME or MAKER.	Num- ber.	Jan. 30 to Feb. 27												NAME or MAKER.	Num- ber.					
		Jan. 30-31	Jan. 31-Feb. 1	Feb. 1-2	Feb. 2-3	Feb. 3-4	Feb. 4-5	Feb. 5-6	Feb. 6-7	Feb. 7-8	Feb. 8-9	Feb. 9-10	Feb. 10-11							
Blackie	497	- 7.1	- 6.0	- 8.6	- 5.5	- 11.8	- 3.7	+ 0.9	+ 1.0	+ 1.6	+ 2.5	- 0.3	- 4.9	- 2.6	- 1.2	- 1.2	- 5.6	- 4.9	- 4.5	- 7.2
Clark and Son	2667	- 4.8	- 7.4	- 9.4	- 6.1	- 12.3	- 14.5	- 10.4	- 9.9	- 11.3	- 7.0	- 8.5	- 10.9	- 9.3	- 8.9	- 10.0	- 11.5	- 11.7	- 11.1	- 17.4
Lane and Sons	268	- 0.5	- 4.0	- 3.5	- 3.0	- 9.0	- 5.9	- 7.8	- 7.0	- 6.5	- 9.6	- 6.5	- 7.6	- 1.7	- 7.0	- 7.6	- 10.3	- 0.9	- 11.3	- 4.2
Edie	482	+ 25.2	+ 22.0	+ 24.2	+ 22.5	+ 15.7	+ 25.0	+ 37.0	+ 28.0	+ 32.6	+ 20.4	+ 18.6	+ 17.1	+ 20.4	+ 25.4	+ 29.0	+ 26.5	+ 23.7	+ 24.0	+ 19.9
Frothingham & Baker	7163	+ 0.5	+ 4.5	- 8.2	- 3.9	- 10.0	- 4.4	- 6.0	- 4.8	- 7.5	- 9.4	- 5.3	- 3.8	- 3.7	- 2.1	- 1.0	- 1.7	- 3.3	- 0.5	- 5.4
Gowland	2832	- 6.6	- 8.2	- 8.0	- 12.7	- 10.4	- 1.0	+ 0.5	+ 1.1	+ 1.9	+ 2.0	- 7.9	- 8.7	- 6.7	- 5.6	+ 1.5	+ 0.5	- 6.3	- 1.0	- 8.8
Reid and Sons	1190	- 1.5	- 2.6	- 2.0	- 0.6	- 5.5	+ 0.2	+ 1.1	+ 2.0	+ 0.4	- 3.7	+ 0.7	- 5.9	- 5.2	- 0.6	- 3.5	- 4.2	- 5.4	- 3.0	- 6.5
Campbell	171	+ 5.5	+ 6.7	+ 4.6	+ 6.0	+ 3.0	+ 3.9	+ 6.5	+ 6.0	+ 4.7	+ 4.8	+ 3.7	- 0.2	- 1.6	- 4.0	- 6.4	- 7.0	- 4.2	- 5.9	- 4.5
Hemingham	727	+ 0.1	+ 2.9	+ 3.2	+ 4.0	- 2.1	- 2.4	+ 1.1	+ 1.2	+ 1.0	+ 0.2	- 0.5	- 11.7	- 8.6	+ 2.5	+ 7.4	+ 5.0	- 2.3	+ 4.5	- 0.8
May	2599	- 1.3	- 0.0	- 3.3	- 0.3	- 7.6	+ 2.0	+ 5.0	+ 2.0	+ 3.5	+ 0.7	- 10.0	- 10.4	- 0.5	+ 2.5	+ 2.5	- 1.4	- 1.0	- 12.0	- 15.2
Rosell	4172	+ 6.1	+ 6.9	- 0.1	+ 9.1	- 5.9	+ 4.8	+ 9.0	+ 9.3	+ 6.5	+ 5.2	+ 5.3	- 8.5	- 7.7	+ 0.3	- 2.3	- 0.4	- 10.8	- 1.1	- 12.2
Poole	2659	+ 6.6	+ 6.1	+ 5.6	+ 7.9	+ 3.8	+ 9.5	+ 11.1	+ 11.0	+ 10.3	+ 9.4	+ 5.6	+ 1.9	+ 1.8	+ 7.8	+ 6.0	+ 8.4	+ 4.3	+ 10.2	+ 3.8
Fletcher	2650	- 0.0	- 1.7	- 3.0	- 1.3	- 6.5	+ 2.2	+ 1.9	+ 1.1	- 0.5	- 1.3	- 0.9	- 18.9	- 17.7	- 0.5	- 0.9	- 3.0	- 11.0	- 3.0	- 6.8
Parkinson & Bouts	1088	+ 8.6	+ 7.0	+ 3.8	+ 5.3	- 0.2	+ 12.8	+ 14.2	+ 13.6	+ 12.9	+ 12.7	+ 7.2	+ 14.8	- 8.1	+ 2.0	+ 9.0	+ 4.9	- 6.6	+ 3.1	- 2.4
Webb	5346	- 17.1	- 16.9	- 19.3	- 17.3	- 21.3	- 13.8	- 14.1	- 14.0	- 16.4	- 15.2	- 17.3	- 18.9	- 20.2	- 28.0	- 27.0	- 25.3	- 29.6	- 30.8	- 26.8
Parkinson & Bouts	1087	+ 16.9	+ 14.9	+ 11.3	+ 16.3	+ 7.2	+ 17.7	+ 32.0	+ 30.0	+ 23.5	+ 21.1	+ 17.6	+ 6.3	+ 3.3	+ 18.7	+ 18.6	+ 17.0	+ 5.6	+ 18.1	+ 6.1
Glover	290	- 15.0	- 16.0	- 15.4	- 11.9	- 16.3	- 18.5	- 16.6	- 6.4	- 8.4	- 11.1	- 9.6	- 30.9	- 18.9	- 12.4	- 13.5	- 15.2	- 20.6	- 17.4	- 22.8
Lawson	1304	+ 7.0	+ 5.3	+ 1.5	+ 6.6	- 3.9	+ 9.5	+ 13.0	+ 12.5	+ 8.5	+ 8.7	- 0.9	- 14.3	- 14.4	- 5.5	+ 0.9	- 2.2	- 13.0	- 4.9	- 12.3
Crisp	1360	- 0.2	- 8.5	- 10.0	- 7.2	- 10.4	- 3.0	+ 2.4	+ 4.4	+ 1.1	- 0.0	- 1.3	- 4.3	- 2.2	- 1.5	- 1.5	- 7.4	- 3.0	- 10.7	- 15.4
Lowry	576	+ 4.3	+ 4.0	+ 4.9	+ 4.2	+ 3.7	+ 5.6	+ 3.9	+ 0.9	+ 0.6	+ 5.6	+ 4.1	+ 2.4	+ 3.7	+ 4.6	+ 5.6	+ 3.2	+ 3.8	+ 4.9	+ 3.5
Hiatt	896	+ 3.6	+ 6.2	+ 7.1	+ 5.0	+ 12.4	- 0.5	+ 1.8	+ 3.1	+ 1.9	+ 0.3	+ 2.5	+ 3.1	+ 2.4	- 1.0	- 1.4	- 3.2	- 3.6	- 2.5	- 9.4
Marten & Bishop	9247	+ 13.7	+ 15.0	+ 10.5	+ 17.2	+ 7.1	+ 29.1	+ 28.7	+ 28.7	+ 27.3	+ 23.5	+ 18.6	- 5.4	- 6.4	+ 16.2	+ 31.4	+ 23.1	- 6.2	+ 19.4	+ 3.6
Williamson	2387	+ 4.2	+ 3.3	+ 4.5	+ 1.2	+ 0.1	+ 2.4	+ 5.1	+ 5.4	+ 4.0	+ 1.6	+ 4.0	- 10.6	- 8.9	- 10.0	- 11.0	- 11.5	- 16.9	- 19.2	- 19.2
J. Muirhead	2310	+ 6.9	+ 11.0	- 9.4	- 10.5	- 11.7	- 10.4	- 11.6	- 14.0	- 11.0	- 11.5	- 15.3	- 10.3	- 10.7	+ 9.5	+ 6.3	+ 6.3	+ 7.0	+ 5.1	- 28.7
Daniel	1057	+ 14.1	+ 10.6	+ 12.5	+ 12.5	+ 13.0	+ 8.3	+ 11.9	+ 10.7	+ 9.1	+ 7.5	+ 0.9	+ 4.5	- 3.5	- 2.0	- 0.3	- 5.0</			

RATES OF CHRONOMETERS ON TRIAL FOR PURCHASE BY THE ADMIRALTY,

NAME OF MAKER.	Number.	Whether 2 or 8 Days.	Construction of Escapement and Balance, from the description furnished by the Maker.	(III).—ABSTRACT OF THE PRINCIPAL				
				First Day of First Week of Rating.	Last Day of Last Week of Rating.	Number of Weeks.	Least Weekly Sum.	In what Week.
Blackie	497	2	New auxiliary compensation to the balance (unpublished).	January 16	August 7	29	-11.8	April 17 to 24
Clark and Son	2667	2	Poole's auxiliary compensation.	January 9	August 7	30	-17.4	{ January 23 to 30* April 10 to 17† }
Lister and Sons	582	2	Poole's auxiliary compensation.	January 9	August 7	30	-15.1	January 23 to 30*
Eiffe	482	2	A new construction of balance (unpublished).	January 16	August 7	29	+15.7	April 17 to 24
Frodsham and Baker	7163	2	Auxiliary compensation to the balance (unpublished).	January 9	August 7	30	-10.0	April 17 to 24
Gowland	2832	2	Poole's auxiliary compensation.	January 9	August 7	30	-18.9	January 23 to 30*
Reid and Sons	1190	2	{ Auxiliary compensation to the balance, acting at low temperatures.	January 16	August 7	29	-22.0	January 16 to 23*
Campbell	771	2	Ordinary construction of balance, with a slight alteration.	January 9	August 7	30	-7.0	June 19 to 26†
Henningham	127	2	Auxiliary compensation, with two distinct balances.	January 9	August 7	30	-11.7	March 20 to 27†
May	$\frac{4}{933}$	2	May's centripetal balance (unpublished).	January 9	August 7	30	-21.9	January 23 to 30*
Roskell	$\frac{1607}{81999}$	2	Hartnup's balance.	January 16	August 7	29	-13.5	January 16 to 23*
Poole	2059	2	Auxiliary compensation to the balance, as in former years.	January 16	August 7	29	-11.0	January 16 to 23*
Fletcher.....	2690	2	Eiffe's auxiliary to balance.	January 16	August 7	29	-18.5	March 20 to 27†
Fletcher.....	2634	2	Hartnup's gridiron balance.	January 16	August 7	29	-14.4	March 20 to 27†
Parkinson and Bouts	1088	2	Ordinary construction.	January 9	August 7	30	-36.3	January 23 to 30*
Webb.....	5346	2	Auxiliary compensation to the balance, as in former years.	January 16	August 7	29	-3.7	January 23 to 30*
Parkinson and Bouts	1087	2	Ordinary construction.	January 9	August 7	30	-42.5	January 16 to 23*
Glover	290	2	A spring acting on auxiliary to the balance, in cold.	January 16	August 7	29	-17.2	January 23 to 30*
Lawson	1304	8	Lawson's auxiliary compensation to the balance.	January 16	August 7	29	-26.1	February 27 to March 6
Crisp	130	2	Eiffe's auxiliary to balance.	January 16	August 7	29	+12.5	January 16 to 23*
Lowry	676	2	A new compound balance of three metals.	January 16	August 7	29	-28.4	January 23 to 30*
Hiatt	896	2	Gridiron balance of Mr. Hartnup's construction.	January 9	August 7	30	-13.0	January 30 to February 6*
Marten and Bishopp	9247	2	May's centripetal balance (unpublished).	January 9	August 7	30	-19.2	April 10 to 17†
Williamson.....	2287	2	{ Auxiliary compensation with double adjustment, acting on the pendulum spring.	January 9	August 7	30	-15.5	{ March 20 to 27† May 29 to June 5 }
J. Muirhead	2310	2	Poole's auxiliary compensation.	January 9	August 7	30	-11.1	April 10 to 17†
Daniels	$\frac{5}{899}$	2	Lawson's auxiliary compensation to the balance.	January 16	August 7	29	-27.4	April 10 to 17†
Sewill.....	1057	8	Lawson's auxiliary compensation to the balance.	January 16	August 7	29	-52.4	January 16 to 23*
J. French	7005	2	Improved patent compensation for extreme ranges of temperature.	January 9	May 8	17	-29.9	January 23 to 30*
Dent	2731	2	Dent's patent balance; see pamphlet, "On the Errors of Chronometers," p. 23.	January 16	August 7	29	-24.8	March 20 to 27†
Reid and Sons	1200	2	Auxiliary compensation to the balance, acting at low temperatures.	January 16	August 7	29	-35.8	April 10 to 17†
Hewitt and Son.....	2469	2	A new auxiliary compensation (unpublished).	January 16	August 7	29	-33.4	February 13 to 20
Abbott	357	2	Eiffe's auxiliary to balance.	January 16	August 7	29	+24.1	January 16 to 23*
Hewitt and Son.....	2389	8	A new auxiliary compensation (unpublished).	January 9	August 7	30	-60.3	February 27 to March 6
J. French	$\frac{2}{883}$	2	Improved patent compensation for extreme ranges of temperature, uninfluenced by magnetism.	January 16	April 17	13	-197.3	April 10 to 17†
Holl	101	2	Holl's patent balance.	May 22	August 7	11	+6.4	May 22 to 29
Holl	103	2	Holl's patent balance.	May 22	August 7	11	-9.1	May 22 to 29

* During these weeks the Chronometers were exposed to the external air outside a North window.

† During these weeks the Chronometers were placed in the chamber of a stove heated by gas.

The rate given by the first five days of trial is in every case omitted, excepting for Lawson, 1304, where the rate for two days only is omitted; J. Muirhead 2310, where the rate for four days only is omitted; and Holl 101 and 103, for both of which the rate for one day only is omitted.

CHANGES OF RATE.

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.	NAME OF MAKER.	Number.
+ 2.5	July 10 to 17	14.3	6.2	July 10	Blackie	497
- 4.8	May 8 to 15	12.6	7.5	July 10	Clark and Son.....	2667
+ 0.9	April 3 to 10 †	16.0	6.4	April 24	Lister and Sons	582
+ 29.0	June 26 to July 3 †	13.3	8.5	April 24	Eiffe.....	482
+ 7.4	March 6 to 13	17.4	6.5	March 13	Frodsham and Baker.....	7163
+ 2.0	July 10 to 17	20.9	4.8	May 29	Gowland	2832
+ 2.0	July 31 to Aug. 7	24.0	4.1	{ March 20 † July 17 }	Reid and Sons.....	1190
+ 6.7	May 15 to 22	13.7	10.3	† July 3	Campbell.....	771
+ 7.4	June 26 to July 3 †	19.1	7.6	March 20 †	Henningham	127
+ 5.0	{ July 24 to 31 July 31 to Aug. 7 }	26.9	4.4	† April 17	May.....	$\frac{1}{558}$
+ 9.3	July 31 to Aug. 7	22.8	7.1	† July 3	Roskell	$\frac{1607}{81989}$
+ 11.1	July 24 to 31	22.1	8.6	February 27	Poole	2059
+ 2.2	July 3 to 10	20.7	10.0	March 20 †	Fletcher	2690
+ 14.2	July 24 to 31	28.6	6.3	† March 27 †	Fletcher	2634
- 12.8	July 3 to 10	23.5	11.5	June 5 †	Parkinson and Bouts	1088
+ 26.0	July 31 to Aug. 7	29.7	9.4	* January 30 *	Webb	5346
- 6.6	July 31 to Aug. 7	35.9	8.5	March 13	Parkinson and Bouts	1087
+ 12.5	July 31 to Aug. 7	29.7	13.5	March 20 †	Glover.....	290
+ 4.4	July 31 to Aug. 7	30.5	13.2	March 20 †	Lawson	1304
+ 60.2	July 31 to Aug. 7	47.7	6.1	* February 6	Crisp.....	130
+ 3.1	{ March 20 to 27 † July 31 to Aug. 7 }	31.5	14.5	March 13	Lowry.....	676
+ 31.4	June 26 to July 3 †	44.4	8.3	† June 26 †	Hiatt	896
+ 5.4	July 31 to Aug. 7	24.6	19.3	† April 17	Marten and Bishopp	9247
+ 9.5	June 26 to July 3 †	25.0	23.4	June 5 †	Williamson	2287
+ 15.5	April 24 to May 1	26.6	23.1	† April 17	J. Muirhead	2310
+ 12.0	January 23 to 30 *	39.4	18.2	† April 17	Daniels	$\frac{5}{555}$
- 6.0	July 31 to Aug. 7	46.4	14.8	March 20 †	Sewill	1057
+ 10.6	April 3 to 10 †	40.5	18.2	March 20 †	J. French	7005
+ 12.3	July 3 to 10	37.1	20.3	† April 17	Dent.....	2731
- 2.3	March 6 to 13	33.5	22.1	† April 17	Reid and Sons.....	1200
+ 21.8	July 31 to Aug. 7	55.2	13.3	† April 17	Hewitt and Son	2469
+ 108.4	July 31 to Aug. 7	84.3	8.7	* January 23 *	Abbott.....	337
+ 19.4	June 26 to July 3 †	79.7	32.3	March 20 †	Hewitt and Son	2389
- 83.4	January 23 to 30 *	113.9	41.0	March 20 †	J. French	$\frac{3}{555}$
+ 85.7	June 26 to July 3 †	79.3	58.9	† July 3	Holl.....	101
+ 126.6	June 26 to July 3 †	135.7	80.2	† July 3	Holl.....	103

The order of arrangement of the Chronometers in these Tables is determined solely by consideration of their irregularities of rate, as expressed in the columns "Difference between the Greatest and Least" and "Greatest Difference between one Week and the next," without reference to the duration of the trial; the position of J. French 7005 is not therefore necessarily correct.

The Chronometers J. French 7005 and J. French $\frac{3}{555}$ were withdrawn by the maker on account of their unsatisfactory performance, the former on May 10, and the latter on April 19.

The Chronometers Holl 101 and Holl 103 were deposited for trial on May 21.