

RATES OF CHRONOMETERS
ON TRIAL
FOR PURCHASE BY THE BOARD OF ADMIRALTY,
AT THE
ROYAL OBSERVATORY, GREENWICH.
1855.

RATES OF CHRONOMETERS ON TRIAL FOR PURCHASE BY THE ADMIRALTY,

NAME OF MAKER.	Num- ber.	Whether Pocket, 1, 2, or 8 Days.	Construction of Escapement and Balance, from the description furnished by the Maker.	(I).—WEEKLY SUMS OF DAILY RATES									
				Jan. 6—13 *	Jan. 13—20 *	Jan. 20—27 *	Jan. 27 to Feb. 3. *	Feb. 3—10	Feb. 10—17	Feb. 17—24	Feb. 24 to March 3	March 3—10	March 10—17 †
Lawson	1163	8	Auxiliary compensation to the balance, acting at low temperatures.	....	— 36·5	— 38·0	— 36·5	— 32·8	— 34·9	— 35·4	— 33·9	— 32·5	— 27·5
Frodsham & Baker	6068	2	Auxiliary compensation to the balance (unpublished).	....	— 11·1	— 9·4	— 7·5	— 1·7	— 4·4	— 4·9	— 1·5	— 1·0	— 9·5
Poole	2116	2	Auxiliary compensation to the balance, as in former years.	....	— 1·5	— 1·7	— 0·3	— 1·0	— 3·3	— 1·4	— 2·8	— 1·0	+ 8·5
Dent	2411	2	Dent's patent balance; see pamphlet, "On the Errors of Chronometers," p. 23.	....	+ 0·4	— 3·0	— 1·4	— 6·4	— 8·4	— 8·2	— 15·5	— 14·2	— 13·8
Lister and Sons ...	539	2	Auxiliary compensation to the balance, as in former years.	....	— 24·4	— 26·5	— 28·5	— 22·5	— 25·3	— 26·7	— 19·0	— 17·1	— 11·9
J. Muirhead.....	2119	2	Poole's auxiliary compensation.	....	— 13·0	— 13·0	— 13·5	— 5·5	— 8·1	— 8·6	— 1·8	+ 0·5	+ 8·3
Poole	2156	2	Auxiliary compensation to the balance, as in former years.	....	....	— 0·5	— 3·0	— 8·5	— 8·3	— 8·3	— 2·0	— 1·4	— 5·1
Lawson	1164	8	Auxiliary compensation to the balance, acting at low temperatures.	....	— 23·4	— 22·9	— 22·1	— 25·9	— 22·9	— 20·8	— 24·4	— 19·8	— 13·7
Reid and Sons.....	1161	2	Auxiliary compensation to the balance.	....	— 24·5	— 27·5	— 24·1	— 13·2	— 11·7	— 13·1	— 10·1	— 7·8	— 6·1
Reid and Sons.....	1589	2	Auxiliary compensation to the balance.	....	....	— 9·0	— 10·7	— 11·5	— 9·6	— 4·6	— 8·6	— 4·3	+ 9·6
Clark and Son.....	1877	2	Poole's auxiliary compensation to the balance.	....	— 6·0	— 14·6	— 8·1	— 8·4	— 8·4	— 8·6	— 6·4	— 8·0	— 21·3
McMaster and Son	4160	2	Ordinary construction.	....	....	....	....	....	— 10·6	— 10·9	+ 1·0	+ 4·5	+ 16·5
Glover.....	290	2	Auxiliary compensation to the balance somewhat differing from Eiffe's.	— 3·4	— 4·6	— 5·5	— 3·3	+ 2·6	— 0·6	+ 0·6	+ 2·6	+ 3·4	— 4·3
Hewitt, jun.	1	2	Eiffe's auxiliary to balance, with a small original alteration.	....	— 12·5	— 15·4	— 14·1	— 16·5	— 10·2	— 12·9	— 19·2	— 13·2	— 30·5
Hewitt and Son ...	1999	2	Eiffe's auxiliary to balance, with a small original alteration.	....	— 43·5	— 41·1	— 40·9	— 37·0	— 38·7	— 40·6	— 36·3	— 34·7	— 15·2
Reid and Sons.....	1158	2	Auxiliary compensation to the balance.	....	— 32·2	— 32·9	— 32·4	— 22·0	— 25·0	— 25·0	— 18·0	— 16·0	— 5·5
J. J. Muirhead.....	686	2	Ordinary construction.	....	— 24·7	— 24·4	— 26·7	— 18·2	— 27·6	— 30·4	— 14·6	— 15·0	+ 7·1
Dixon	420	2	Auxiliary compensation to the balance (unpublished).	....	— 14·5	— 7·0	— 7·5	— 9·0	— 8·5	— 5·0	— 4·6	— 5·9	+ 14·0
Eiffe.....	442	8	A new patent balance differing from any- thing previous.	....	— 15·0	— 18·5	— 16·6	— 3·6	— 8·9	— 7·4	+ 4·8	+ 6·6	+ 26·0
Poole	2252	2	Auxiliary compensation to the balance, as in former years.	....	....	+ 8·5	+ 9·4	+ 10·6	+ 10·8	+ 8·7	+ 7·5	+ 10·0	+ 9·5
Chronometrical Thermometer .....	...	...	.....	+ 1736·5	+ 2716·5	+ 2747·5	.....	+ 2195·7	+ 2464·0	+ 2555·0	+ 1713·0	+ 1629·5	— 800·5
Extremes of Tem- perature as shown by the Self-Re- gistering Ther- mometer .....	...	...	.....	° ° 27—51	° ° 17—40	° ° 20—37	° ° 24—36	° ° 33—41	° ° 27—38	° ° 27—39	° ° 38—50	° ° 40—48	° ° 61—80

* 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 to a moderate temperature.

‡ During these weeks the Chronometers were placed in the chamber of a stove heated by gas to a high temperature.

The rate given by the first five days of trial is in every case omitted; except for McMaster and Son 4160, where the rate for two days only is omitted.

The Chronometrical Thermometer was stopped for a part of the week between January 27 and February 3.

IN THE ORDER OF TIME.

Mar. 17—24 †	Mar. 24—31 †	Mar. 31 to April 7	April 7—14	April 14—21	April 21—28	April 28 to May 5	May 5—12 †	May 12—19 †	May 19—26 †	May 26 to June 2	June 2—9	June 9—16	June 16—23	June 23—30	June 30 to July 7	N A M E O F M A K E R.	Num- ber.
- 30.2	- 34.3	- 38.4	- 34.1	- 36.0	- 36.0	- 38.5	- 44.9	- 42.6	- 42.5	- 38.3	- 35.3	- 40.4	- 39.7	- 38.0	- 37.7	Lawson	1163
- 13.1	- 9.1	- 2.0	+ 1.4	- 0.7	- 0.8	- 7.2	- 14.4	- 15.1	- 15.5	- 4.7	- 7.8	- 10.0	- 5.5	- 7.1	- 5.9	Frodsham and Baker	6068
+ 5.7	+ 4.1	- 2.1	+ 4.0	+ 4.0	+ 2.2	- 2.6	+ 6.9	+ 3.0	+ 4.7	+ 5.3	+ 13.5	+ 11.0	+ 13.0	+ 15.1	+ 16.6	Poole	2116
- 13.8	- 12.7	- 13.1	- 11.4	- 12.4	- 9.1	- 11.0	+ 1.5	- 2.0	- 1.8	- 6.2	- 5.5	- 7.0	- 1.9	- 4.7	- 7.0	Dent	2411
- 12.9	- 12.6	- 14.0	- 10.5	- 9.0	- 7.0	- 10.1	- 6.5	- 11.9	- 10.0	- 11.0	- 7.1	- 6.9	- 4.5	- 1.0	+ 0.5	Lister and Sons	539
+ 7.7	+ 7.0	+ 2.0	+ 4.1	+ 5.0	+ 5.4	+ 2.5	+ 2.0	0.0	+ 2.7	+ 12.2	+ 16.6	+ 14.2	+ 16.5	+ 16.8	+ 17.0	J. Muirhead	2119
+ 2.6	+ 6.1	+ 0.1	+ 10.8	+ 10.0	+ 7.0	+ 6.5	+ 10.4	+ 6.1	+ 9.1	+ 11.0	+ 17.4	+ 17.5	+ 18.9	+ 19.6	+ 19.5	Poole	2156
- 13.5	- 16.0	- 20.2	- 16.8	- 16.1	- 17.4	- 19.8	- 18.7	- 32.7	- 35.8	- 21.3	- 14.8	- 14.9	- 11.0	- 11.9	- 11.6	Lawson	1164
- 9.4	- 9.3	- 8.4	- 2.8	- 3.2	- 1.2	- 1.7	- 0.9	- 4.0	- 0.5	- 2.4	+ 4.9	+ 3.0	+ 5.5	+ 3.5	+ 3.1	Reid and Sons	1161
+ 9.3	+ 11.1	+ 0.7	+ 0.9	+ 2.2	+ 1.0	- 1.2	+ 10.8	+ 9.2	+ 12.0	+ 8.9	+ 11.4	+ 10.7	+ 13.0	+ 15.4	+ 16.8	Reid and Sons	1589
- 18.7	- 19.3	- 18.2	- 7.5	- 13.5	- 12.6	- 13.9	- 30.0	- 29.5	- 28.0	- 22.5	- 20.0	- 19.5	- 18.0	- 16.0	- 17.9	Clark and Son	1877
+ 13.4	+ 14.1	+ 7.5	+ 13.7	+ 17.4	+ 15.6	+ 12.3	+ 10.5	+ 7.0	+ 9.0	+ 17.7	+ 22.7	+ 20.7	+ 23.4	+ 25.4	+ 25.6	M ^c Master and Son	4160
- 0.5	+ 2.2	+ 8.5	+ 14.3	+ 13.5	+ 17.0	+ 18.5	+ 23.5	+ 27.0	+ 33.5	+ 31.0	+ 33.8	+ 31.4	+ 39.8	+ 37.0	+ 39.0	Glover	290
- 28.5	- 23.5	- 13.3	- 21.2	- 27.0	- 17.5	- 24.0	- 22.5	- 19.5	- 17.5	- 28.0	- 32.0	- 35.0	- 30.7	- 38.9	- 41.4	Hewitt, jun.	1
- 14.5	- 13.8	- 23.2	- 23.0	- 22.7	- 26.3	- 31.0	- 17.0	- 20.5	- 19.3	- 25.2	- 22.3	- 22.8	- 20.9	- 18.5	- 16.0	Hewitt and Son	1999
- 10.0	- 9.3	- 10.7	- 4.0	- 3.5	- 1.8	- 4.7	- 9.5	- 12.5	- 9.0	+ 5.5	+ 11.8	+ 9.2	+ 12.6	+ 11.4	+ 11.0	Reid and Sons	1158
+ 7.0	+ 6.0	- 5.5	- 5.0	- 4.0	- 6.0	- 8.0	- 10.0	- 15.5	- 11.5	+ 1.8	+ 8.5	+ 7.7	+ 12.0	+ 14.0	+ 14.0	J. J. Muirhead	686
+ 10.8	+ 5.2	+ 3.2	+ 2.2	+ 0.6	+ 0.5	- 1.4	- 20.0	- 22.2	- 14.4	+ 11.6	+ 14.4	+ 10.0	+ 16.6	+ 10.8	+ 7.6	Dixon	420
+ 27.6	+ 27.4	+ 14.6	+ 14.6	+ 16.3	+ 13.1	+ 12.6	+ 33.4	+ 30.5	+ 34.0	+ 26.5	+ 30.8	+ 30.2	+ 32.6	+ 33.9	+ 32.3	Effe	442
+ 13.5	....	....	....	+ 4.9	+ 9.6	+ 11.4	+ 7.3	....	....	....	....	....	....	....	....	Poole	2252
†	†						†	†	†								
- 1155.0	- 1319.5	+ 606.5	+ 1077.0	+ 753.0	+ 1070.5	+ 1216.5	- 2208.0	- 2075.0	- 2128.5	+ 471.0	+ 280.4	+ 227.1	+ 633.0	- 16.5	- 317.0		
o o 65—84	o o 65—87	o o 42—54	o o 47—55	o o 49½—62	o o 46—64	o o 46—56	o o 75—102	o o 55—102	o o 80—103	o o 52—69	o o 53—71	o o 57—67	o o 53—64	o o 59—73	o o 65—72		

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 M^cMaster and Son 4160 is therefore not necessarily correct.

The Chronometer Poole 2252 was deposited on January 15, but was found stopped on March 28; it was taken away, and returned on April 9, and was again found stopped on May 18; it was then entirely removed from the trial. Its rates are on this account not comparable with those of the other Chronometers; it is omitted in the Abstract.

RATES OF CHRONOMETERS ON TRIAL FOR PURCHASE BY THE ADMIRALTY,

NAME OF MAKER.	Num- ber.	Whether Pocket, 1, 2, or 3 Days.	Construction of Escapement and Balance, from the description furnished by the Maker.	(II.)—WEEKLY SUMS OF DAILY RATES									
				Jan. 20—27 *	Jan. 27 to Feb. 3. *	Jan. 13—20 *	Feb. 17—24	Feb. 10—17	Feb. 3—10	Jan. 6—13 *	Feb. 24 to Mar. 3	March 3—10	April 28 to May 5
Lawson	1163	8	Auxiliary compensation to the balance, acting at low temperatures.	— 38·0	— 36·5	— 36·5	— 35·4	— 34·9	— 32·8	....	— 33·9	— 32·5	— 38·5
Frodsham & Baker	6068	2	Auxiliary compensation to the balance (unpublished).	— 9·4	— 7·5	— 11·1	— 4·9	— 4·4	— 1·7	....	— 1·5	— 1·0	— 7·2
Poole	2116	2	Auxiliary compensation to the balance, as in former years.	— 1·7	— 0·3	— 1·5	— 1·4	— 3·3	— 1·0	....	— 2·8	— 1·0	— 2·6
Dent	2411	2	Dent's patent balance; see pamphlet "On the Errors of Chronometers," p. 23.	— 3·0	— 1·4	+ 0·4	— 8·2	— 8·4	— 6·4	....	— 15·5	— 14·2	— 11·0
Lister and Sons ...	539	2	Auxiliary compensation to the balance, as in former years.	— 26·5	— 28·5	— 24·4	— 26·7	— 25·3	— 22·5	....	— 19·0	— 17·1	— 10·1
J. Muirhead	2119	2	Poole's auxiliary compensation.	— 13·0	— 13·5	— 13·0	— 8·6	— 8·1	— 5·5	....	— 1·8	+ 0·5	+ 2·5
Poole	2156	2	Auxiliary compensation to the balance, as in former years.	— 0·5	— 3·0	....	— 8·3	— 8·3	— 8·5	...	— 2·0	— 1·4	+ 6·5
Lawson	1164	8	Auxiliary compensation to the balance, acting at low temperatures.	— 22·9	— 22·1	— 23·4	— 20·8	— 22·9	— 25·9	....	— 24·4	— 19·8	— 19·8
Reid and Sons ...	1161	2	Auxiliary compensation to the balance.	— 27·5	— 24·1	— 24·5	— 13·1	— 11·7	— 13·2	....	— 10·1	— 7·8	— 1·7
Reid and Sons.....	1589	2	Auxiliary compensation to the balance.	— 9·0	— 10·7	....	— 4·6	— 9·6	— 11·5	....	— 8·6	— 4·3	— 1·2
Clark and Son ...	1877	2	Poole's auxiliary compensation to the balance.	— 14·6	— 8·1	— 6·0	— 8·6	— 8·4	— 8·4	....	— 6·4	— 8·0	— 13·9
McMaster and Son	4160	2	Ordinary construction.	....	....	....	— 10·9	— 10·6	....	....	+ 1·0	+ 4·5	+ 12·3
Glover.....	290	2	Auxiliary compensation to the balance, somewhat differing from Eiffe's.	— 5·5	— 3·3	— 4·6	+ 0·6	— 0·6	+ 2·6	— 3·4	+ 2·6	+ 3·4	+ 18·5
Hewitt, Jan.....	1	2	Eiffe's auxiliary to balance, with a small original alteration.	— 15·4	— 14·1	— 12·5	— 12·9	— 10·2	— 16·5	....	— 19·2	— 13·2	— 24·0
Hewitt and Son ...	1999	2	Eiffe's auxiliary to balance, with a small original alteration.	— 41·1	— 40·9	— 43·5	— 40·6	— 38·7	— 37·0	....	— 36·3	— 34·7	— 31·0
Reid and Sons	1158	2	Auxiliary compensation to the balance.	— 32·9	— 32·4	— 32·2	— 25·0	— 25·0	— 22·0	....	— 18·0	— 16·0	— 4·7
J. J. Muirhead ...	686	2	Ordinary construction.	— 24·4	— 26·7	— 24·7	— 30·4	— 27·6	— 18·2	....	— 14·6	— 15·0	— 8·0
Dixon	420	2	Auxiliary compensation to the balance (unpublished).	— 7·0	— 7·5	— 14·5	— 5·0	— 8·5	— 9·0	....	— 4·6	— 5·9	— 1·4
Eiffe	442	8	A new patent balance, differing from anything previous.	— 18·5	— 16·6	— 15·0	— 7·4	— 8·9	— 3·6	....	+ 4·8	+ 6·6	+ 12·6
Poole	2252	2	Auxiliary compensation to the balance, as in former years.	+ 8·5	+ 9·4	....	+ 8·7	+ 10·8	+ 10·6	....	+ 7·5	+ 10·0	+ 11·4
Chronometrical Thermometer .....	...	...	.....	+ 2747·5	.....	+ 2716·5	+ 2555·0	+ 2464·0	+ 2195·7	+ 1736·5	+ 1713·0	+ 1629·5	+ 1216·5
Extremes of Tem- perature as shown by the Self-Re- gistering Ther- mometer .....	...	...	.....	° ° 20—37	° ° 24—36	° ° 17—40	° ° 27—39	° ° 27—38	° ° 33—41	° ° 27—51	° ° 38—50	° ° 40—48	° ° 46—56

* 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 to a moderate temperature.

‡ During these weeks the Chronometers were placed in the chamber of a stove heated by gas to a high temperature.

The rate given by the first five days of trial is in every case omitted; except for McMaster and Son 4160, where the rate for two days only is omitted.

The Chronometrical Thermometer was stopped for a part of the week between January 27 and February 3.

IN THE ORDER OF TEMPERATURE.

April 7—14	April 21—28	April 14—21	June 16—23	Mar. 31 to April 7	May 26 to June 2	June 2—9	June 9—16	June 23—30	June 30 to July 7	March 10—17 †	March 17—24 †	March 24—31 †	May 12—19 †	May 19—26 †	May 5—12 †	NAME OF MAKER.	Num- ber.
—34.1	—36.0	—36.0	—39.7	—38.4	—38.3	—35.3	—40.4	—38.0	—37.7	—27.5	—30.2	—34.3	—42.6	—42.5	—44.9	Lawson	1163
+ 1.4	— 0.8	— 0.7	— 5.5	— 2.0	— 4.7	— 7.8	—10.0	— 7.1	— 5.9	— 9.5	—13.1	— 9.1	—15.1	—15.5	—14.4	Frodsham and Baker	6968
+ 4.0	+ 2.2	+ 4.0	+13.0	— 2.1	+ 5.3	+13.5	+11.0	+15.1	+16.6	+ 8.5	+ 5.7	+ 4.1	+ 3.0	+ 4.7	+ 6.9	Poole	2116
—11.4	— 9.1	—12.4	— 1.9	—13.1	— 6.2	— 5.5	— 7.0	— 4.7	— 7.0	—13.8	—13.8	—12.7	— 2.0	— 1.8	+ 1.5	Dent	2411
—10.5	— 7.0	— 9.0	— 4.5	—14.0	—11.0	— 7.1	— 6.9	— 1.0	+ 0.5	—11.9	—12.9	—12.6	—11.9	—10.0	— 6.5	Lister and Sons	539
+ 4.1	+ 5.4	+ 5.0	+16.5	+ 2.0	+12.2	+16.6	+14.2	+16.8	+17.0	+ 8.3	+ 7.7	+ 7.0	0.0	+ 2.7	+ 2.0	J. Muirhead	2119
+10.8	+ 7.0	+10.0	+18.9	+ 0.1	+11.0	+17.4	+17.5	+19.6	+19.5	— 5.1	+ 2.6	+ 6.1	+ 6.1	+ 9.1	+10.4	Poole	2156
—16.8	—17.4	—16.1	—11.0	—20.2	—21.3	—14.8	—14.9	—11.9	—11.6	—13.7	—13.5	—16.0	—32.7	—35.8	—18.7	Lawson	1164
— 2.8	— 1.2	— 3.2	+ 5.5	— 8.4	— 2.4	+ 4.9	+ 3.0	+ 3.5	+ 3.1	— 6.1	— 9.4	— 9.3	— 4.0	— 0.5	— 0.9	Reid and Sons	1161
+ 0.9	+ 1.0	+ 2.2	+13.0	+ 0.7	+ 8.9	+11.4	+10.7	+15.4	+16.8	+ 9.6	+ 9.3	+11.1	+ 9.2	+12.0	+10.8	Reid and Sons	1589
— 7.5	—12.6	—13.5	—18.0	—18.2	—22.5	—20.0	—19.5	—16.0	—17.9	—21.3	—18.7	—19.3	—29.5	—28.0	—30.0	Clark and Son	1877
+13.7	+15.6	+17.4	+23.4	+ 7.5	+17.7	+22.7	+20.7	+25.4	+25.6	+16.5	+13.4	+14.1	+ 7.0	+ 9.0	+10.5	McMaster and Son .	4160
+14.3	+17.0	+13.5	+39.8	+ 8.5	+31.0	+33.8	+31.4	+37.0	+39.0	— 4.3	— 0.5	+ 2.2	+27.0	+33.5	+23.5	Glover	290
—21.2	—17.5	—27.0	—30.7	—13.3	—28.0	—32.0	—35.0	—38.9	—41.4	—30.5	—28.5	—23.5	—19.5	—17.5	—22.5	Hewitt, jun.	1
—23.0	—26.3	—22.7	—20.9	—23.2	—25.2	—22.3	—22.8	—18.5	—16.0	—15.2	—14.5	—13.8	—20.5	—19.3	—17.0	Hewitt and Son	1999
— 4.0	— 1.8	— 3.5	+12.6	—10.7	+ 5.5	+11.8	+ 9.2	+11.4	+11.0	— 5.5	—10.0	— 9.3	—12.5	— 9.0	— 9.5	Reid and Sons	1158
— 5.0	— 6.0	— 4.0	+12.0	— 5.5	+ 1.8	+ 8.5	+ 7.7	+14.0	+14.0	+ 7.1	+ 7.0	+ 6.0	—15.5	—11.5	—10.0	J. J. Muirhead.....	686
+ 2.2	+ 0.5	+ 0.6	+16.6	+ 3.2	+11.6	+14.4	+10.0	+10.8	+ 7.6	+14.0	+10.8	+ 5.2	—22.2	—14.4	—20.0	Dixon	420
+14.6	+13.1	+16.3	+32.6	+14.6	+26.5	+30.8	+30.2	+33.9	+32.3	+26.0	+27.6	+27.4	+30.5	+34.0	+33.4	Eiffe	442
....	+ 9.6	+ 4.9	....	....	....	....	....	....	....	+ 9.5	+13.5	....	....	....	+ 7.3	Poole	2252
										†	†	†	†	†	†		
+1077.0	+1070.5	+753.0	+633.0	+606.5	+471.0	+280.4	+227.1	— 16.5	—317.0	— 800.5	—1155.0	—1319.5	—2075.0	—2128.5	—2208.0		
° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °	° °		
47—55	46—64	49½—62	53—64	42—54	52—69	53—71	57—67	59—73	65—72	61—80	65—84	65—87	55—102	80—103	75—102		

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RATES OF CHRONOMETERS ON TRIAL FOR PURCHASE BY THE ADMIRALTY,

NAME OF MAKER.	Number.	Whether Pocket, 1, 2, or 5 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.
Lawson	1163	8	Auxiliary compensation to the balance, acting at low temperatures.	January 13	July 7	25	-44.9	May 5 to 12†
Frodsham and Baker	6068	2	Auxiliary compensation to the balance (unpublished).	January 13	July 7	25	-15.5	May 19 to 26†
Poole	2116	2	Auxiliary compensation to the balance, as in former years.	January 13	July 7	25	-3.3	February 10 to 17
Dent	2411	2	Dent's patent balance; see pamphlet, "On the Errors of Chronometers," p. 23.	January 13	July 7	25	-15.5	February 24 to March 3
Lister and Sons	539	2	Auxiliary compensation to the balance, as in former years.	January 13	July 7	25	-28.5	January 27 to February 3*
J. Muirhead	2119	2	Poole's auxiliary compensation.	January 13	July 7	25	-13.5	January 27 to February 3*
Poole	2156	2	Auxiliary compensation to the balance, as in former years.	January 20	July 7	24	-8.5	February 3 to 10
Lawson	1164	8	Auxiliary compensation to the balance, acting at low temperatures.	January 13	July 7	25	-35.8	May 19 to 26†
Reid and Sons	1161	2	Auxiliary compensation to the balance.	January 13	July 7	25	-27.5	January 20 to 27*
Reid and Sons	1589	2	Auxiliary compensation to the balance.	January 20	July 7	24	-11.5	February 3 to 10
Clark and Son	1877	2	Poole's auxiliary compensation to the balance.	January 13	July 7	25	-30.0	May 5 to 12†
McMaster and Son..	4160	2	Ordinary construction.	February 10	July 7	21	-10.9	February 17 to 24
Glover	290	2	Auxiliary compensation to the balance, somewhat differing from Eiffe's.	January 6	July 7	26	-5.5	January 20 to 27*
Hewitt, jun.	1	2	Eiffe's auxiliary to balance, with a small original alteration.	January 13	July 7	25	-41.4	June 30 to July 7
Hewitt and Son.....	1999	2	Eiffe's auxiliary to balance, with a small original alteration.	January 13	July 7	25	-43.5	January 13 to 20*
Reid and Sons	1158	2	Auxiliary compensation to the balance.	January 13	July 7	25	-32.9	January 20 to 27*
J. J. Muirhead	686	2	Ordinary construction.	January 13	July 7	25	-30.4	February 17 to 24
Dixon	420	2	Auxiliary compensation to the balance (unpublished).	January 13	July 7	25	-22.2	May 12 to 19†
Eiffe	442	8	A new patent balance, differing from anything previous.	January 13	July 7	25	-18.5	January 20 to 27*

* 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 to a moderate temperature.

‡ During these weeks the Chronometers were placed in the chamber of a stove heated by gas to a high temperature.

The rate given by the first five days of trial is in every case omitted; except for McMaster and Son 4160, where the rate for two days 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.
- 27.5	March 10 to 17 †	17.4	6.4	May 5 †	Lawson	1163
+ 1.4	April 7 to 14	16.9	10.8	† May 26	Frodsham and Baker.....	6068
+ 16.6	June 30 to July 7	19.9	9.5	{ March 10 † } { May 5 † }	Poole	2116
+ 1.5	May 5 to 12 †	17.0	12.5	May 5 †	Dent.....	2411
+ 0.5	June 30 to July 7	29.0	7.7	February 24	Lister and Sons	539
+ 17.0	June 30 to July 7	30.5	9.5	† May 26	J. Muirhead.....	2119
+ 19.6	June 23 to 30	28.1	10.7	April 7	Poole.....	2156
- 11.0	June 16 to 23	24.8	14.5	† May 26	Lawson.....	1164
+ 5.5	June 16 to 23	33.0	10.9	* February 3	Reid and Sons.....	1161
+ 16.8	June 30 to July 7	28.3	13.9	March 10 †	Reid and Sons.....	1589
- 6.0	January 13 to 20 *	24.0	16.1	May 5 †	Clark and Son.....	1877
+ 25.6	June 30 to July 7	36.5	12.0	March 10 †	McMaster and Son	4160
+ 39.8	June 16 to 23	45.3	8.4	June 16	Glover.....	290
- 10.2	February 10 to 17	31.2	17.3	March 10 †	Hewitt, jun.....	1
- 13.8	March 24 to 31 †	29.7	19.5	March 10 †	Hewitt and Son	1999
+ 12.6	June 16 to 23	45.5	14.5	† May 26	Reid and Sons	1158
+ 14.0	{ June 23 to 30 } { June 30 to July 7 }	44.4	22.1	March 10 †	J. J. Muirhead	686
+ 16.6	June 16 to 23	38.8	26.0	† May 26	Dixon	420
+ 34.0	May 19 to 26 †	52.5	20.8	May 5 †	Eiffe.....	442

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 McMaster and Son 4160 is therefore not necessarily correct.

The Chronometer Poole 2252 was deposited on January 15, but was found stopped on March 28; it was taken away, and returned on April 9, and was again found stopped on May 18; it was then entirely removed from the trial. Its rates are on this account not comparable with those of the other Chronometers; it is omitted in the Abstract.