

RATES OF CHRONOMETERS

ON TRIAL

FOR PURCHASE BY THE BOARD OF ADMIRALTY,

AT THE

ROYAL OBSERVATORY, GREENWICH.

1850.

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.	(I).—WEEKLY SUMS OF DAILY RATES									
				Jan. 12—19 *	Jan. 19—26 *	Jan. 26 to Feb. 2 *	Feb. 2—9 *	Feb. 9—16 §	Feb. 16—23 §	Feb. 23 to Mar. 2	March 2—9	March 9—16 †	March 16—23 *
Loseby.....	123	2	Loseby's mercurial-compensation balance.	....	-13.9	-15.0	-11.8	-16.0	-13.0	-8.3	-10.4	-12.0	-9.9
Eiffe.....	364	8	A new improved balance, unpublished.	....	+10.9	+5.1	+4.9	+5.8	+4.2	+7.7	+4.0	+3.1	+4.0
Dent.....	2173	2	Dent's patent balance: see pamphlet "On the Errors of Chronometers," p. 23.	-11.5	-9.7	-13.3	-11.3	-12.2	-12.3	-3.1	-4.8	-10.6	-6.9
Birchall.....	440	8	Auxiliary compensation to the balance.	+4.9	+6.0	-2.0	-4.7	-5.3	-4.2	-10.3	-7.0	-8.0	-6.0
Lawson.....	1022	2	Ordinary construction.	+5.3	+6.5	+8.4	+10.0	+15.5	+14.8	+7.9	+5.1	+16.0	+11.0
Lister and Son.....	508	2	Poole's auxiliary compensation to the balance.	....	-15.3	-16.8	-14.4	-13.4	-12.0	-0.8	-3.6	-3.5	-4.0
C. Frodsham.....	2081	2	Ordinary escapement: double balance (one the ordinary compensation, the other Arnold's bar.)	-5.9	-4.9	-4.6	-0.3	+11.5	+14.3	+6.4	+2.1	+9.5	+3.5
Muirhead.....	1319	2	Poole's auxiliary compensation to the balance.	....	+4.6	+6.2	+9.5	-2.0	-6.9	+2.2	+4.0	+6.8	+6.2
Reid and Son.....	1092	2	Ordinary construction.	....	+2.9	-1.0	+1.6	-2.4	-5.7	+3.8	+3.0	+5.3	+6.3
Hutton.....	212	2	Hutton's auxiliary compensation to the balance.	....	-1.8	+2.8	+5.8	-5.0	-5.1	+2.5	+4.2	+4.4	+2.5
Norris and Campbell...	667	2	An auxiliary spring acting on the balance in low temperatures.	-13.7	-2.3	-3.4	-4.3	-12.2	-13.4	-4.4	-6.8	-0.5	-7.0
Cotterell and Co.....	799 1708	2	Ordinary construction.	....	-19.3	-14.8	-8.9	-13.1	-15.9	-1.9	-6.7	-2.2	-12.0
Poole.....	1297	2	Poole's auxiliary compensation to the balance.	....	-10.8	-7.4	+7.0	-3.9	-0.4	+6.6	+19.1	+10.8	+10.2
Parkinson and Frodsham	2685	2	Ordinary construction.	-9.1	-2.5	+2.5	+7.0	-5.0	-10.2	-0.9	-1.1	+5.6	-3.4
Dixon.....	366	2	An unpublished auxiliary compensation to the balance.	....	-33.6	-30.1	-25.7	-18.2	-16.4	-5.4	-12.8	-0.5	-12.1
Timewell.....	1037	2	Ordinary construction.	-7.8	+11.3	+14.1	+17.4	+21.5	+19.2	+13.1	+14.1	+27.5	+16.2
Clark and Son.....	1348	2	Poole's auxiliary compensation to the balance.	....	-8.7	-7.0	-0.9	+15.1	+9.5	+8.8	+3.2	+15.4	-3.8
Phillips.....	1019	2	Ordinary construction.	....	+13.2	-0.9	-5.8	-22.5	-24.0	-7.1	-9.7	-10.6	+3.6
Scrymgeour.....	1	2	Ordinary construction, with slight modification of form of escape-wheel teeth.	-20.1	-17.9	-24.7	-26.0	-29.2	-27.9	-22.8	-19.9	-7.0	-27.5
E. J. Massey.....	142	2	E. J. Massey's patent escapement, with unpublished modification of balance.	-42.3	-33.0	-39.8	-74.8	-78.7	-82.2	-84.8	-84.2	-75.5	-82.0
Carter.....	530	2	Ordinary construction.	....	-52.3	-44.8	-38.3	-24.2	-11.4	-25.4	-31.9	-36.2	-28.8
Stoddart.....	956	8	Ordinary construction.	-45.9	-39.5	-33.8	-20.4	-5.2	-6.3	-13.4	-15.8	+4.4	-26.1
M'Gregor.....	1609	2	Ordinary construction.	....	+29.2	+10.8	-0.5	+7.4	+9.6	-4.9	+4.2	+6.0	+17.2
Roskell.....	1121 53905	2	Eiffe's balance.	-54.3	-43.5	-33.7	-35.1	-54.9	-63.7	-24.8	-33.1	-49.9	-48.1
Baker, jun.....	1270	P	An auxiliary action on the pendulum-spring.	-14.2	-3.6	+7.2	+13.2	+48.2	+57.1	+55.3	+57.6	+67.7	+17.5
Baker.....	674	1	Ordinary construction.	-20.6	-29.4	-29.3	-26.3	-23.6	-29.2	-89.7	-58.4	-25.4	-74.1
				*	*	*	*	§	§			†	*
Chronometrical Ther- mometer.....	}...	..	.....	+2549.5	+2129.2	+1677.6	+1442.8	-1884.2	-2286.4	+976.1	+1230.6	-996.5	+1362.0
Extremes of Tempera- ture as shown by the Self-Registering Ther- mometer.....	}...	..	.....	o o 25—45	o o 27—51	o o 27—54	o o 34—55	o o 70—104	o o 80—105	o o 44—53	o o 42—51	o o 69—87	o o 24—49

* During these weeks the Chronometers were exposed to the open air at a North window.

† During this week the Chronometer-room was heated by a stove, and the Chronometers were dispersed in the room.

§ During these weeks the Chronometers were placed in a tray above the stove.

The rate given by the first five days of trial is in every case omitted.

IN THE ORDER OF TIME.

March 23—30 *	Mar. 30 to April 6	April 6—13	April 13—20	April 20—27	April 27 to May 4	May 4—11	May 11—18	May 18—25	May 25 to June 1	June 1—8	June 8—15 §	June 15—22 §	June 22—29	June 29 to July 6	N A M E OF M A K E R.	Num- ber.
- 9.4	- 8.4	- 8.3	- 8.5	- 6.2	- 3.3	- 4.0	- 4.5	- 5.1	- 6.2	- 4.5	- 6.6	- 8.4	- 6.1	- 6.8	Loseby.....	123
+ 2.5	- 3.4	- 3.6	- 2.4	- 1.0	+ 1.2	+ 1.8	+ 1.4	- 1.7	- 4.0	- 3.2	- 2.8	- 3.2	+ 1.7	- 1.1	Eiffe.....	364
- 8.5	- 6.7	- 8.9	- 8.4	- 9.1	- 7.5	- 7.0	- 7.8	- 8.0	- 8.3	- 9.6	- 8.3	- 8.7	- 2.1	0 0	Dent.....	2173
- 1.4	- 0.9	- 1.2	- 2.5	- 4.9	- 3.8	- 2.9	- 0.3	- 0.8	+ 0.4	- 1.0	0 0	- 6.1	- 13.8	- 6.6	Birchall.....	440
+ 13.0	+ 8.8	+ 10.7	+ 8.5	+ 10.5	+ 11.4	+ 12.0	+ 16.2	+ 16.3	+ 14.9	+ 18.7	+ 16.2	+ 15.2	+ 20.8	+ 21.5	Lawson.....	1022
- 3.1	- 4.1	- 3.3	- 4.5	- 2.8	- 1.0	- 4.8	- 4.8	- 5.7	- 6.6	- 6.2	- 14.0	- 16.0	- 6.0	- 1.7	Lister and Son.....	508
+ 0.8	+ 4.5	+ 4.6	+ 5.9	+ 5.3	+ 6.7	+ 7.8	+ 6.9	+ 4.7	+ 5.1	+ 7.1	+ 10.0	+ 10.9	+ 10.2	+ 5.8	C. Frodsham.....	2081
+ 3.5	+ 7.9	+ 7.5	+ 7.1	+ 8.6	+ 8.8	+ 10.9	+ 11.9	+ 14.1	+ 11.9	+ 13.5	+ 4.1	+ 0.4	+ 10.4	+ 11.0	Muirhead.....	1319
+ 9.0	+ 2.2	+ 0.6	+ 0.2	+ 0.6	+ 5.3	+ 3.5	+ 2.4	+ 1.5	+ 1.1	+ 2.7	- 2.9	- 8.4	+ 9.4	+ 9.5	Reid and Son.....	1092
- 4.0	+ 13.3	+ 11.6	+ 11.6	+ 10.7	+ 8.7	+ 11.0	+ 11.4	+ 15.1	+ 12.4	+ 10.4	+ 1.0	+ 0.9	+ 13.5	+ 15.1	Hutton.....	212
- 1.5	+ 3.3	+ 1.2	0 0	- 1.4	- 3.3	- 1.5	+ 0.8	+ 6.1	+ 5.5	+ 7.9	- 8.7	- 7.4	+ 3.2	+ 6.6	Norris and Campbell....	667
- 18.9	- 4.1	- 1.9	- 1.9	- 6.2	- 6.7	- 6.4	- 5.3	- 1.1	- 2.2	- 0.5	- 18.3	- 17.4	- 0.5	+ 0.4	Cotterell and Co.....	$\frac{799}{1768}$
+ 0.5	+ 15.8	+ 14.6	+ 16.9	+ 14.7	+ 4.7	+ 11.7	+ 12.1	+ 12.9	+ 12.8	+ 9.5	+ 7.6	+ 10.3	+ 15.7	+ 15.5	Poole.....	1297
- 9.4	+ 6.6	+ 5.8	+ 5.0	+ 6.6	+ 5.1	+ 4.7	+ 9.6	+ 12.7	+ 11.3	+ 12.2	- 6.9	- 11.2	+ 6.1	+ 12.2	Parkinson and Frodsham.	2685
- 21.3	- 12.5	- 13.2	- 10.7	- 12.3	- 5.4	- 8.2	- 6.6	- 6.7	- 7.8	- 3.7	- 9.3	- 7.3	+ 5.2	+ 1.6	Dixon.....	366
+ 21.1	+ 25.5	+ 26.2	+ 25.7	+ 21.0	+ 26.8	+ 26.9	+ 30.6	+ 36.1	+ 36.7	+ 39.4	+ 28.6	+ 27.8	+ 28.2	+ 38.0	Timewell.....	1037
- 16.3	+ 7.1	+ 10.0	+ 16.6	+ 14.8	+ 9.7	+ 14.5	+ 17.8	+ 24.7	+ 25.3	+ 26.0	+ 1.6	- 3.2	+ 13.2	+ 23.0	Clark and Son.....	1348
+ 21.2	- 6.2	- 8.6	- 7.9	- 6.4	- 3.6	- 3.1	- 3.3	- 5.7	- 7.2	- 6.7	- 20.2	- 17.7	- 6.4	- 1.6	Phillips.....	1019
- 52.6	- 41.2	- 40.6	- 48.5	- 53.4	- 50.8	- 57.1	- 53.3	- 50.7	- 52.1	- 55.5	- 65.3	- 65.7	- 61.8	- 70.5	Scrymgeour.....	1
- 86.0	- 72.8	- 71.2	- 68.5	- 65.9	- 70.2	- 74.1	- 70.4	- 69.1	- 69.0	- 67.5	- 76.5	- 79.8	- 72.5	- 68.6	E. J. Massey.....	142
- 25.3	- 27.1	- 28.6	- 28.6	- 27.3	- 24.3	- 24.4	- 26.2	- 27.1	- 28.5	- 29.0	- 1.8	+ 4.7	- 30.2	- 28.5	Carter.....	530
- 43.9	- 3.5	- 3.0	- 3.5	- 6.5	- 6.2	- 3.4	- 2.4	+ 2.7	+ 3.0	+ 4.1	- 5.0	- 6.4	+ 3.9	+ 4.1	Stoddart.....	956
+ 40.3	- 7.1	- 14.9	- 9.6	- 14.4	- 6.7	- 1.4	- 8.2	- 5.3	- 4.6	+ 3.4	+ 7.6	+ 9.6	+ 13.8	+ 9.5	M'Gregor.....	1609
- 53.6	- 49.9	- 50.0	- 47.0	- 40.5	- 29.3	- 30.4	- 36.5	- 43.9	- 51.2	- 40.6	- 85.2	- 88.6	- 56.1	- 48.2	Roskell.....	$\frac{1121}{53105}$
+ 8.7	+ 20.6	+ 32.8	+ 36.6	+ 31.1	+ 14.3	+ 8.8	+ 15.6	+ 26.9	+ 38.2	+ 35.3	+ 56.8	+ 59.9	+ 44.0	+ 26.5	Baker, jun.....	1270
- 20.8	††	...	...	...	- 21.1	- 28.2	- 18.0	- 18.3	- 16.6	- 19.3	- 82.3	- 79.1	- 52.6	- 26.3	Baker.....	674
*											§	§				
+ 2308.0	+ 918.3	+ 699.2	+ 768.0	+ 811.4	+ 1097.9	+ 1067.6	+ 761.2	+ 257.1	+ 84.6	- 257.1	- 2141.4	- 2501.7	- 1037.3	- 216.0		
° ° 22—45	° ° 42—56	° ° 50—56	° ° 50—55	° ° 48—55	° ° 46—54	° ° 47—52	° ° 48—57	° ° 53—63	° ° 56—66	° ° 59—69	° ° 84—104	° ° 84—101	° ° 66—76½	° ° 60—69		

* During this week the Chronometers were exposed to the open air at a North window.

§ During these weeks the Chronometers were placed in a tray above the stove.

** During a part of the week, March 23—30, Dent 2173 was brought into the chronometer-room.

†† Baker 674 was withdrawn on April 1 for examination by its maker, and was returned on April 22.

The rate given by the first five days of trial is in every case omitted.

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.	(II.)—WEEKLY SUMS OF DAILY RATES									
				Jan. 12—19 *	March 23—30 *	Jan. 19—26 *	Jan. 26 to Feb. 2 *	Feb. 2—9 *	March 16—23 *	March 2—9	April 27 to May 4	May 4—11	Feb. 23 to March 2
Loseby.....	123	2	Loseby's mercurial-compensation balance.	....	- 9.4	-13.9	-15.0	-11.8	- 9.9	-10.4	- 3.3	- 4.0	- 8.3
Eiffe	364	8	A new improved balance, unpublished.	....	+ 2.5	+10.9	+ 5.1	+ 4.9	+ 4.0	+ 4.0	+ 1.2	+ 1.8	+ 7.7
Dent	2173	2	Dent's patent balance: see pamphlet "On the Errors of Chronometers," p. 23.	-11.5	- 8.5	- 9.7	-13.3	-11.3	- 6.9	- 4.8	- 7.5	- 7.0	- 3.1
Birchall.....	440	8	Auxiliary compensation to the balance.	+ 4.9	- 1.4	+ 6.0	- 2.0	- 4.7	- 6.0	- 7.0	- 3.8	- 2.9	-10.3
Lawson.....	1022	2	Ordinary construction.	+ 5.3	+13.0	+ 6.5	+ 8.4	+10.0	+11.0	+ 5.1	+11.4	+12.0	+ 7.9
Lister and Son.....	508	2	Poole's auxiliary compensation to the balance.	....	- 3.1	-15.3	-16.8	-14.4	- 4.0	- 3.6	- 1.0	- 4.8	- 0.8
C. Frodsham.....	2081	2	Ordinary escapement: double balance (one the ordinary compensation, the other Arnold's bar).	- 5.9	+ 0.8	- 4.9	- 4.6	- 0.3	+ 3.5	+ 2.1	+ 6.7	+ 7.8	+ 6.4
Muirhead	1319	2	Poole's auxiliary compensation to the balance.	....	+ 3.5	+ 4.6	+ 6.2	+ 9.5	+ 6.2	+ 4.0	+ 8.8	+10.9	+ 2.2
Reid and Son	1092	2	Ordinary construction.	....	+ 9.0	+ 2.9	- 1.0	+ 1.6	+ 6.3	+ 3.0	+ 5.3	+ 3.5	+ 3.8
Hutton.....	212	2	Hutton's auxiliary compensation to the balance.	....	- 4.0	- 1.8	+ 2.8	+ 5.8	+ 2.5	+ 4.2	+ 8.7	+11.0	+ 2.5
Norris and Campbell...	667	2	An auxiliary spring acting on the balance in low temperatures.	-13.7	- 1.5	- 2.3	- 3.4	- 4.3	- 7.0	- 6.8	- 3.3	- 1.5	- 4.4
Cotterell and Co.....	799 1768	2	Ordinary construction.	....	-18.9	-19.3	-14.8	- 8.9	-12.0	- 6.7	- 6.7	- 6.4	- 1.9
Poole.....	1297	2	Poole's auxiliary compensation to the balance.	....	+ 0.5	-10.8	- 7.4	+ 7.0	+10.2	+19.1	+ 4.7	+11.7	+ 6.6
Parkinson and Frodsham	2685	2	Ordinary construction.	- 9.1	- 9.4	- 2.5	+ 2.5	+ 7.0	- 3.4	- 1.1	+ 5.1	+ 4.7	- 0.9
Dixon	366	2	An unpublished auxiliary compensation to the balance.	....	-21.3	-33.6	-30.1	-25.7	-12.1	-12.8	- 5.4	- 8.2	- 5.4
Timewell.....	1037	2	Ordinary construction.	- 7.8	+21.1	+11.3	+14.1	+17.4	+16.2	+14.1	+26.8	+26.9	+13.1
Clark and Son.....	1348	2	Poole's auxiliary compensation to the balance.	....	-16.3	- 8.7	- 7.0	- 0.9	- 3.8	+ 3.2	+ 9.7	+14.5	+ 8.8
Phillips	1019	2	Ordinary construction.	....	+21.2	+13.2	- 0.9	- 5.8	+ 3.6	- 9.7	- 3.6	- 3.1	- 7.1
Scryngeour	1	2	Ordinary construction, with slight modification of form of escape-wheel teeth.	-20.1	-52.6	-17.9	-24.7	-26.0	-27.5	-19.9	-50.8	-57.1	-22.8
E. J. Massey.....	142	2	E. J. Massey's patent escapement, with unpublished modification of balance.	-42.3	-86.0	-33.0	-39.8	-74.8	-82.0	-84.2	-70.2	-74.1	-84.8
Carter	530	2	Ordinary construction.	....	-25.3	-52.3	-44.8	-38.3	-28.8	-31.9	-24.3	-24.4	-25.4
Stoddart	956	8	Ordinary construction.	-45.9	-43.9	-39.5	-33.8	-20.4	-26.1	-15.8	- 6.2	- 3.4	-13.4
M'Gregor	1609	2	Ordinary construction.	....	+40.3	+29.2	+10.8	- 0.5	+17.2	+ 4.2	- 6.7	- 1.4	- 4.9
Roskell	1121 53905	2	Eiffe's balance.	-54.3	-53.6	-43.5	-33.7	-35.1	-48.1	-33.1	-29.3	-30.4	-24.8
Baker, jun.....	1270	P	An auxiliary action on the pendulum-spring.	-14.2	+ 8.7	- 3.6	+ 7.2	+13.2	+17.5	+57.6	+14.3	+ 8.8	+55.3
Baker.....	674	1	Ordinary construction.	-20.6	-20.8	-29.4	-29.3	-26.3	-74.1	-58.4	-21.1	-28.2	-89.7
Chronometrical Ther- mometer.....	}...	..	.....	+2549.5	+2308.0	+2129.2	+1677.6	+1442.8	+1362.0	+1230.6	+1097.9	+1067.6	+976.1
Extremes of Tempera- ture as shewn by the Self-Registering Ther- mometer.	}...	..	.....	° ° 25-45	° ° 22-45	° ° 27-51	° ° 27-51	° ° 34-55	° ° 24-49	° ° 42-51	° ° 46-54	° ° 47-52	° ° 44-53

* During these weeks the Chronometers were exposed to the open air at a North window.

** During a part of the week, March 23-30, Dent 2173 was brought into the Chronometer-room.

The rate given by the first five days of trial is in every case omitted.

1850G0AMM...11E...1A

IN THE ORDER OF TEMPERATURE.

Mar. 30 to April 6	April 20—27	April 13—20	May 11—18	April 6—13	May 18—25	May 25 to June 1	June 29 to July 6	June 1—8	March 9—16 †	June 22—29	Feb. 9—16 §	June 8—15 §	Feb. 16—23 §	June 15—22 §	NAME OF MAKER.	Num- ber.
- 8.4	- 6.2	- 8.5	- 4.5	- 8.3	- 5.1	- 6.2	- 6.8	- 4.5	-12.0	- 6.1	-16.0	- 6.6	-13.0	- 8.4	Loseby.....	123
- 3.4	- 1.0	- 2.4	+ 1.4	- 3.6	- 1.7	- 4.0	- 1.1	- 3.2	+ 3.1	+ 1.7	+ 5.8	- 2.8	+ 4.2	- 3.2	Eiffe.....	364
- 6.7	- 9.1	- 8.4	- 7.8	- 8.9	- 8.0	- 8.3	0.0	- 9.6	-10.6	- 2.1	-12.2	- 8.3	-12.3	- 8.7	Dent.....	2173
- 0.9	- 4.9	- 2.5	- 0.3	- 1.2	- 0.8	+ 0.4	- 6.6	- 1.0	- 8.0	-13.8	- 5.3	0.0	- 4.2	- 6.1	Birchall.....	440
+ 8.8	+10.5	+ 8.5	+16.2	+10.7	+16.3	+14.9	+21.5	+18.7	+16.0	+20.8	+15.5	+16.2	+14.8	+15.2	Lawson.....	1022
- 4.1	- 2.8	- 4.5	- 4.8	- 3.3	- 5.7	- 6.6	- 1.7	- 6.2	- 3.5	- 6.0	-13.4	-14.0	-12.0	-16.0	Lister and Son.....	508
+ 4.5	+ 5.3	+ 5.9	+ 6.9	+ 4.6	+ 4.7	+ 5.1	+ 5.8	+ 7.1	+ 9.5	+10.2	+11.5	+10.0	+14.3	+10.9	C. Frodsham.....	2081
+ 7.9	+ 8.6	+ 7.1	+11.9	+ 7.5	+14.1	+11.9	+11.0	+13.5	+ 6.8	+10.4	- 2.0	+ 4.1	- 6.9	+ 0.4	Muirhead.....	1319
+ 2.2	+ 0.6	+ 0.2	+ 2.4	+ 0.6	+ 1.5	+ 1.1	+ 9.5	+ 2.7	+ 5.3	+ 9.4	- 2.4	- 2.9	- 5.7	- 8.4	Reid and Son.....	1092
+13.3	+10.7	+11.6	+11.4	+11.6	+15.1	+12.4	+15.1	+10.4	+ 4.4	+13.5	- 5.0	+ 1.0	- 5.1	+ 0.9	Hutton.....	212
+ 3.3	- 1.4	0.0	+ 0.8	+ 1.2	+ 6.1	+ 5.5	+ 6.6	+ 7.9	- 0.5	+ 3.2	-12.2	- 8.7	-13.4	- 7.4	Norris and Campbell....	667
- 4.1	- 6.2	- 1.9	- 5.3	- 1.9	- 1.1	- 2.2	+ 0.4	- 0.5	- 2.2	- 0.5	-13.1	-18.3	-15.9	-17.4	Cotterell and Co.....	⁷⁹⁹ 1768
+15.8	+14.7	+16.9	+12.1	+14.6	+12.9	+12.8	+15.5	+ 9.5	+10.8	+15.7	- 3.9	+ 7.6	- 0.4	+10.3	Poole.....	1297
+ 6.6	+ 6.6	+ 5.0	+ 9.6	+ 5.8	+12.7	+11.3	+12.2	+12.2	+ 5.6	+ 6.1	- 5.0	- 6.9	-10.2	-11.2	Parkinson and Frodsham.	2685
-12.5	-12.3	-10.7	- 6.6	-13.2	- 6.7	- 7.8	+ 1.6	- 3.7	- 0.5	+ 5.2	-18.2	- 9.3	-16.4	- 7.3	Dixon.....	366
+25.5	+21.0	+25.7	+30.6	+26.2	+36.1	+36.7	+38.0	+39.4	+27.5	+28.2	+21.5	+28.6	+19.2	+27.8	Timewell.....	1037
+ 7.1	+14.8	+16.6	+17.8	+10.0	+24.7	+25.3	+23.0	+26.0	+15.4	+13.2	+15.1	+ 1.6	+ 9.5	- 3.2	Clark and Son.....	1348
- 6.2	- 6.4	- 7.9	- 3.3	- 8.6	- 5.7	- 7.2	- 1.6	- 6.7	-10.6	- 6.4	-22.5	-20.2	-24.0	-17.7	Phillips.....	1019
-41.2	-53.4	-48.5	-53.3	-40.6	-50.7	-52.1	-70.5	-55.5	- 7.0	-61.8	-29.2	-65.3	-27.9	-65.7	Scryngeour.....	1
-72.8	-65.9	-68.5	-70.4	-71.2	-69.1	-69.0	-68.6	-67.5	-75.5	-72.5	-78.7	-76.5	-82.2	-79.8	E. J. Massey.....	142
-27.1	-27.3	-28.6	-26.2	-28.6	-27.1	-28.5	-28.5	-29.0	-36.2	-30.2	-24.2	- 1.8	-11.4	+ 4.7	Carter.....	530
- 3.5	- 6.5	- 3.5	- 2.4	- 3.0	+ 2.7	+ 3.0	+ 4.1	+ 4.1	+ 4.4	+ 3.9	- 5.2	- 5.0	- 6.3	- 6.4	Stoddart.....	956
- 7.1	-14.4	- 9.6	- 8.2	-14.9	- 5.3	- 4.6	+ 9.5	+ 3.4	+ 6.0	+13.8	+ 7.4	+ 7.6	+ 9.6	+ 9.6	M'Gregor.....	1609
-49.9	-40.5	-47.0	-36.5	-50.0	-43.9	-51.2	-48.2	-40.6	-49.9	-56.1	-54.9	-85.2	-63.7	-88.6	Roskell.....	¹¹²¹ 53000
+20.6	+31.1	+36.6	+15.6	+32.8	+26.9	+38.2	+26.5	+35.3	+67.7	+44.0	+48.2	+56.8	+57.1	+59.9	Baker, jun.....	1270
††	....	....	-18.0	....	-18.3	-16.6	-26.3	-19.3	-25.4	-52.6	-23.6	-82.3	-29.2	-79.1	Baker.....	674
									†		§	§	§	§		
+918.3	+811.4	+768.0	+761.2	+699.2	+257.1	+84.6	-216.0	-257.1	-996.5	-1037.3	-1884.2	-2141.4	-2286.4	-2501.7		
° ° 42—56	° ° 48—55	° ° 50—55	° ° 48—57	° ° 50—56	° ° 53—63	° ° 56—66	° ° 60—69	° ° 59—69	° ° 69—87	° ° 66—76½	° ° 70—104	° ° 84—104	° ° 80—105	° ° 84—101		

† During this week the Chronometer-room was heated by a stove, and the Chronometers were dispersed in the room.

§ During these weeks the Chronometers were placed in a tray above the stove.

†† Baker 674 was in the maker's hands from April 1 to April 22.

The rate given by the first five days of trial is in every case omitted.

RATES OF CHRONOMETERS ON TRIAL FOR PURCHASE BY THE ADMIRALTY,

NAME OF MAKER.	Number.	Whether Pocket, 1, 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.
Loseby	123	2	Loseby's mercurial-compensation balance.	January 19	July 6	24	- 16.0	February 19 to 26
Eiffe.....	364	8	A new improved balance, unpublished.	January 19	July 6	24	- 4.0	May 25 to June 1
Dent	2173	2	Dent's patent balance: see pamphlet "On the Errors of Chronometers," p. 23.	January 12	July 6	25	- 13.3	January 26 to February 2 *
Birchall.....	440	8	Auxiliary compensation to the balance.	January 12	July 6	25	- 13.8	June 22 to 29
Lawson	1022	2	Ordinary construction.	January 12	July 6	25	+ 5.1	May 2 to 9
Lister and Son	508	2	Poole's auxiliary compensation to the balance.	January 19	July 6	24	- 16.8	January 26 to February 2 *
C. Frodsham.....	2081	2	Ordinary escapement: double balance (one the ordinary compensation, the other Arnold's bar.)	January 12	July 6	25	- 5.9	January 12 to 19 *
Muirhead	1319	2	Poole's auxiliary compensation to the balance.	January 19	July 6	24	- 6.9	February 16 to 23 §
Reid and Son	1092	2	Ordinary construction.	January 19	July 6	24	- 8.4	June 15 to 22
Hutton	212	2	Hutton's auxiliary compensation to the balance.	January 19	July 6	24	- 5.1	February 16 to 23 §
Norris and Campbell.....	667	2	An auxiliary spring acting on the balance in low temperatures.	January 12	July 6	25	- 13.7	January 12 to 19 *
Cotterell and Co.	$\frac{799}{1708}$	2	Ordinary construction.	January 19	July 6	24	- 19.3	January 19 to 26 *
Poole	1297	2	Poole's auxiliary compensation to the balance.	January 19	July 6	24	- 10.8	January 19 to 26 *
Parkinson and Frodsham ..	2685	2	Ordinary construction.	January 12	July 6	25	- 11.2	June 15 to 22
Dixon	366	2	An unpublished auxiliary compensation to the balance.	January 19	July 6	24	- 33.6	January 19 to 26 *
Timewell.....	1037	2	Ordinary construction.	January 12	July 6	25	- 7.8	January 12 to 19 *
Clark and Son	1348	2	Poole's auxiliary compensation to the balance.	January 19	July 6	24	- 16.3	March 23 to 30 *
Phillips	1019	2	Ordinary construction.	January 19	July 6	24	- 24.0	February 16 to 23 §
Scrymgeour	1	2	Ordinary construction, with slight modification of form of escape-wheel teeth.	January 12	July 6	25	- 70.5	June 29 to July 6
E. J. Massey	142	2	E. J. Massey's patent escapement, with unpublished modification of balance.	January 12	July 6	25	- 86.0	March 23 to 30 *
Carter	530	2	Ordinary construction.	January 19	July 6	24	- 52.3	January 19 to 26 *
Stoddart	956	8	Ordinary construction.	January 12	July 6	25	- 45.9	January 12 to 19 *
M'Gregor.....	1609	2	Ordinary construction.	January 19	July 6	24	- 14.9	April 6 to 13
Roskell	$\frac{1121}{53905}$	2	Eiffe's balance.	January 12	July 6	25	- 88.6	January 15 to 22 *
Baker, jun.	1270	P	An auxiliary action on the pendulum-spring.	January 12	July 6	25	- 14.2	January 12 to 19 *
Baker	674	1	Ordinary construction.	{ January 12 } { April 27 }	{ March 30 } { July 6 }	21	{ - 89.7 } { - 82.3 }	{ February 23 to March 2 } { June 8 to 15 }

* During these weeks the Chronometers were exposed to the open air at a North window.

§ During these weeks the Chronometers were placed in a tray above the stove.

During a part of the week, March 23—30, Dent 2173 was brought into the Chronometer-room.

Baker 674 was in the hands of the maker from April 1 to April 22.

The rate given by the first five days of trial is in every case omitted.

The order of arrangement of the Chronometers in these Tables is determined solely by considerations 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."

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.
- 3.3	April 27 to May 4	12.7	4.7	§ February 23	Loseby	123
+ 10.9	January 19 to 26 *	14.9	5.9	* March 30	Eiffe.....	364
0.0	June 29 to July 6	13.3	9.2	§ February 23	Dent	2173
+ 6.0	January 19 to 26 *	19.8	8.0	* January 26 *	Birchall.....	440
+ 21.5	June 29 to July 6	16.4	10.9	March 9 †	Lawson.....	1022
- 0.8	February 23 to March 2	16.0	11.2	§ February 23	Lister and Son	508
+ 14.3	February 16 to 23 §	20.2	11.8	* February 9 §	C. Frodsham.....	2081
+ 14.1	May 18 to 25	21.0	11.5	* February 9 §	Muirhead	1319
+ 9.5	June 29 to July 6	17.9	17.8	§ June 22	Reid and Son	1092
+ 15.1	{ May 18 to 25 } June 29 to July 6	20.2	17.3	* March 30	Hutton	212
+ 7.9	June 1 to 8	21.6	16.6	June 8 §	Norris and Campbell.....	667
+ 0.4	June 29 to July 6	19.7	17.8	June 8 §	Cotterell and Co.....	$\frac{799}{1708}$
+ 19.1	March 2 to 9	29.9	15.3	* March 30	Poole.....	1297
+ 12.7	May 18 to 25	23.9	19.1	June 8 §	Parkinson and Frodsham	2685
+ 5.2	June 22 to 29	38.8	12.5	§ June 22	Dixon	366
+ 39.4	June 1 to 8	47.2	19.1	* January 19 *	Timewell.....	1037
+ 26.0	June 1 to 8	42.3	24.4	June 8 §	Clark and Son.....	1348
+ 21.2	March 23 to 30 *	45.2	27.4	* March 30	Phillips	1019
- 7.0	March 9 to 16	63.5	25.1	* March 23 *	Scrymgeour	1
- 33.0	January 19 to 26 *	53.0	35.0	* February 2 *	E. J. Massey.....	142
+ 4.7	June 15 to 22	57.0	34.9	§ June 22	Carter	530
+ 4.4	March 9 to 16	50.3	40.4	* March 30	Stoddart	956
+ 40.3	March 23 to 30 *	55.2	47.4	* March 30	M'Gregor.....	1609
- 24.8	February 23 to March 2	63.8	44.6	June 8 §	Roskell	$\frac{1121}{53905}$
+ 67.7	March 9 to 16	81.9	50.2	† March 16 *	Baker, jun.	1270
{ - 20.6 } - 16.6	{ March 23 to 30 * } May 25 to June 1	{ 69.1 } 65.7	{ 60.5 } 63.0	{ March 2 } June 8 § }	Baker	674

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† During these weeks the Chronometer-room was heated by a stove, and the Chronometers were dispersed in the room.

§ During these weeks the Chronometers were placed in a tray above the stove.

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