IV. *Experiments to determine the difference in the length of the seconds pendulum in London and in Paris. By Captain* Edward Sabine, *of the Royal Artillery, Secretary of the Royal Society. Communicated by* Thomas Young, M.D., *Foreign Secretary to the Royal Society, and Secretary to the Board of Longitude.*

Read November 15, 1827.

THE length of the pendulum vibrating seconds having been measured in London by the method and apparatus of Kater, and in Paris by those of Borda and Biot, and the standards of linear measure of the two countries having been referred respectively to those measurements for future verification, an endeavour was made by M. Arago in 1817 and 1818, at the instance of the Bureau des Longitudes, to bring the lengths so measured into direct comparison with each other, by ascertaining, by means of invariable pendulums conveyed intermediately between Paris and London, the difference of length that actually exists between the pendulums at those places; which difference ought also to be that between the absolute measurements.

From a summary account of the proceedings on that occasion, published at the close of the 3rd volume of the Base du Systême Métrique, we learn that from certain accidental causes therein noticed, the rates of the pendulums employed were not obtained with sufficient precision to make the result conclusive.

By the indulgence of the Duke of Wellington, Master General of the Ordnance, the leave of absence from my regiment, under which I had completed my former pendulum experiments, was continued whilst I should have the means of employing myself usefully. No better mode of doing so presented itself, with such means as were within my command, than to carry into effect a purpose which had been deemed of sufficient importance to have been recommended by the Bureau des Longitudes, and undertaken by M. Arago.

M. Schumacher had requested me to procure for him an invariable pendulum similar to those I had employed in my own experiments, and to ascer-

tain its rate at Mr. BROWNE's house in London, before it should be sent to him at Altona. Having communicated to M. SCHUMACHER my wish to use this pendulum in the comparison between London and Paris, I received his most ready consent; although it would occasion a delay of some months in the period of the pendulum's reaching him. My intention being also known to the Board of Longitude, I obtained permission to employ a pendulum belonging to the Board, which had been made at the same time as M. SCHUMACHER'S, to replace the one formerly lent to Captain HALL, and since supplied at the request of the Russian Government, to Captain LÜTKE of the Russian Navy, on a scientific voyage to the Pacific. The Board's pendulum was marked No. 7, and M. SCHUMACHER'S No. 8. Each was accompanied by an iron tripod stand, and the usual apparatus of agate planes, thermometers, &c.: and with M. SCHUMACHER'S was a tripod stand of oak, designed to support the clock used in the observation of coincidences. The tripod stands of the clock and pendulums were in all respects similar to those I had used in my former experiments, which renders a particular description of them here unnecessary. The instruments were forwarded to me at Paris by Mr. JONES their maker, early in the year, so as to be in readiness to commence the experiments when the spring should be sufficiently advanced; and by the good offices of M. ARAGO they passed the Custom-house at Calais with no other inconvenience than a short delay.

From the moment that my intention was known at Paris, the utmost desire was shown by the gentlemen of the Royal Observatory to afford me every possible facility and accommodation. The Salle de la Méridienne, in which M. BIOT'S experiments had been made, was placed at my disposal; and one of the pendulum stands was established, as near as its shape would permit, to the very spot in which his measurement had been made. A clock which had been previously used in pendulum experiments was supplied for the observation of coincidences; and its daily rate was ascertained with the necessary exactness by M. MATHIEU, by comparing it at intervals of twelve hours with the transit clock of the Observatory. Having assured myself by trial on the 27th of April that all parts of the apparatus were in order to commence, the dispositions being in every particular the same as those I had adopted in my former experiments, and the weather having apparently set in mild and steady, the observations were begun on the following day.

No. I. of the Tables forming an Appendix to this Paper, contains an account of the daily rate of the clock used in observing coincidences, from the 27th of April to the 10th of May inclusive, and is given precisely as I received it from M. MATHIEU. In Table II. are contained the particulars of thirteen distinct determinations of the rate of pendulum No. 8 obtained by the method of coincidences. In twelve of these the knife edge of the pendulum rested on its own agate planes, and in the thirteenth experiment on those belonging to No. 7. The planes were numbered according to the pendulums to which they belonged. Of the thirteen determinations, four were obtained by M. MATHIEU, four by M. NICOLLET, three by myself, one conjointly by M. NICOLLET and M. SAVARY, and one conjointly by M. SAVARY and myself. Corrected for the arcs of vibration and for the buoyancy of the air, and reduced to a common temperature of 58° FAHR., being the mean of all the temperatures at which they were made, the results were as follows:

Experiment 1.	M. MATHIEU	85922,12 Vibrations.
Experiment 2.	Captain SABINE	85922,40 Vibrations.
Experiment 3.	M. NICOLLET	85922,33 Vibrations.
Experiment 4.	M. MATHIEU	85922,28 Vibrations.
Experiment 5.	M. NICOLLET	85922,56 Vibrations.
Experiment 6.	Captain SABINE	85922,54 Vibrations.
Experiment 7.	M. MATHIEU	85921,51 Vibrations.
Experiment 8.	M. NICOLLET	85921,81 Vibrations.
Experiment 9.	Captain SABINE	85921,95 Vibrations.
Experiment 10.	M. MATHIEU	85921,88 Vibrations.
Experiment 11.	MM. NICOLLET and SAVARY .	85921,90 Vibrations.
Experiment 12.	M. SAVARY and Captain SABINE	85921,91 Vibrations.
Experiment 13.	M. NICOLLET	85922,65 Vibrations.

Table III. contains the particulars of thirteen determinations of the rate of pendulum No. 7, obtained also by the method of coincidences. In eleven of these the knife edge rested on the planes of No. 8, and in the two others on its own planes. In addition to the gentlemen who favoured me with their co-operation in the experiments with the pendulum No. 8, I had the pleasure of being joined in those with this pendulum by Captains FREYCINET and

DUPERREY; whose voyages round the world, specially devoted to the sciences, have done so much honour to their country and to themselves, and have contributed so largely to the extension of pendulum experiments in particular. Of the thirteen determinations,—six were obtained by M. MATHIEU, three by M. NICOLLET, one by M. SAVARY, one by Captain FREYCINET, one by Captain DUPERREY, and one by myself. Corrected for the arcs and for the buoyancy of the air, and reduced to a common temperature of 60° FAHR., being the mean temperature at which they were made, the results are as follows:

Experiment 1.	M. MATHIEU	85933,81 Vibrations.
Experiment 2.	M. NICOLLET	85934,15 Vibrations.
Experiment 3.	Captain SABINE	85934,09 Vibrations.
Experiment 4.	M. MATHIEU	85933,93 Vibrations.
Experiment 5.	M. MATHIEU	85934,14 Vibrations.
Experiment 6.	Captain DUPERREY . . .	85934,40 Vibrations.
Experiment 7.	M. MATHIEU	85933,92 Vibrations.
Experiment 8.	M. NICOLLET	85934,19 Vibrations.
Experiment 9.	Captain FREYCINET . . .	85934,21 Vibrations.
Experiment 10.	M. MATHIEU	85933,96 Vibrations.
Experiment 11.	M. NICOLLET	85934,30 Vibrations.
Experiment 12.	M. MATHIEU	85934,77 Vibrations.
Experiment 13.	M. SAVARY	85934,83 Vibrations.

Whilst each of the pendulums was thus in its turn employed in the observation of coincidences, a series of experiments was at the same time carrying on with the other to ascertain its rate by means of a journeyman clock or counter; the second tripod stand being placed for that purpose on the opposite side of the room. This method was employed by Captains FREYCINET and DUPERREY in the pendulum experiments made during their voyages; and though inferior to that of coincidences in the approximation and accordance of individual results, there appears no reason to doubt that by sufficiently multiplying the observations it would conduct to the same mean determination. In the present case five results only were obtained with No. 8, and a like number with No. 7. Those with No. 8, although exhibiting discordances with each other exceeding two seconds in amount, afford a mean approaching within three

tenths of a second of that furnished by the coincidences. The particulars of these are given in Table V, and of those with pendulum No. 7 in Table IV. The whole of these experiments were conducted by M. MATHIEU, assisted either by M. NICOLLET, M. SAVARY, or myself, as two observers are requisite in this method. The planes of No. 7 were used throughout, except in the last experiment with pendulum No. 8. The thermometer, and the arc by which the amplitude of vibration was registered, were carefully compared, and found to agree with those used in the experiments by the other method. Each comparison of the clock and counter entered in the Tables is a mean of eleven observations. The several results with each pendulum corrected for the arc and for the buoyancy of the atmosphere, and reduced to the same common temperature respectively as those obtained by the coincidences, are as follows:

Pendulum No. 8.	*Pendulum No. 7.*
Experiment 1. 85920,87 Vibrations.	Experiment 1. 85933,49 Vibrations.
Experiment 2. 85921,15 Vibrations.	Experiment 2. 85932,86 Vibrations.
Experiment 3. 85921,34 Vibrations.	Experiment 3. 85931,88 Vibrations.
Experiment 4. 85922,73 Vibrations.	Experiment 4. 85933,01 Vibrations.
Experiment 5. 85923,18 Vibrations.	Experiment 5. 85932,92 Vibrations.

It appears then as the mean result of eighteen distinct experiments with each pendulum,—thirteen obtained by the method of coincidences, and five by the counter,—that the pendulum No. 8 would perform 85922,06 vibrations at 58° FAHR., and pendulum No. 7, 85933,83 vibrations at 60° FAHR., in twenty-four hours of mean solar time, in a vacuum, at the spot in which M. BIOT measured the length of the seconds pendulum at Paris.

Early in September, the pendulums and stands having been conveyed from Paris to London by water, as the least expensive mode of transport and that in which the pendulums were least likely to be injured, and the summer temperature having lowered to nearly the same average as during the period of observation at Paris, the comparative experiments in Portland Place were commenced. Mr. BROWNE's absence from London at that season of the year having deprived me of the valuable assistance I have been accustomed to re-

ceive from him on similar occasions, in his very exact determination of the daily rate of his clocks, I employed for that purpose a small transit instrument of my own, placed in a temporary observatory which Mr. BROWNE has built on the top of his house. With this instrument the rate of Mr. BROWNE's clock by MOLYNEUX was determined between the 12th and 23rd of September as is shown in Tables VI, VII, and VIII; and the rate of his clock by CUMMING, with which the coincidences were observed, was obtained by the morning and evening comparisons with MOLYNEUX entered in Table IX. It will be seen by this table that the difference in the time shown by the two clocks between the 12th and 21st of September never exceeded $29^s,9$ or fell short of $29^s,7$: an additional instance of the steady going of those clocks, of which so many former proofs are on record. The comparisons in this Table afford also a very satisfactory presumption that a detached pendulum vibrating in front of the pendulum of a clock, as in the observation of coincidences, has no perceptible influence on the going of the clock: the detached pendulum in this case was kept in almost continual vibration, as may be seen by Tables X. and XI. between the morning and evening comparisons, and was always at rest between the evening and the morning: the effect of its motion on the clock, if indeed there was any effect at all, was perfectly insensible. The transit observations give reason to conclude that the trifling gain of CUMMING on MOLYNEUX on the 21st, 22nd, and 23rd of September, by which their difference was gradually increased to $30^s,6$ at 10 P.M. on the 23rd September, was an increase in the rate of CUMMING rather than a diminution in that of MOLYNEUX; and it is accordingly so considered in the daily rate of CUMMING deduced in Table IX. from the comparisons with MOLYNEUX.

In Tables X. and XI. are contained the particulars of twelve results obtained with pendulum No. 7, and of ten with pendulum No. 8, all by the method of coincidences; the pendulums being used at the same spot in which Captain KATER's measurement of the length of the seconds pendulum was made. The agate planes of No. 8 were employed as at Paris in the greater part of the experiments; the two last with each pendulum being the only experiments in which the planes of No. 7 were used. The thermometer was the same as at Paris, and suspended precisely at the same distance below the knife edge. The arc for noting the amplitude of vibration was also the same. Of the

twelve experiments with pendulum No. 7, two were made by M. QUETELET of Brussels (who has since undertaken a series of pendulum experiments at the principal cities of the Netherlands), and the remainder by myself. Of the ten with pendulum No. 8, two were made by M. QUETELET, one by Captain CHAPMAN of the Royal Artillery, and the others by myself. I had greatly to regret the absence from London of Mr. BAILY, and of Captain BEAUFORT, R.N., Fellows of the Royal Society, who had otherwise promised me their co-operation. The results corrected for the arcs of vibration and for the buoyancy of the atmosphere, and reduced to a common temperature of 63° FAHR., being the mean at which they were made, are as follows:

Pendulum No. 7.	Experiment 1. . .	Captain SABINE. . .	85944,61 vibrations.
	Experiment 2. . .	Captain SABINE. . .	85944,48 vibrations.
	Experiment 3. . .	Captain SABINE. . .	85944,55 vibrations.
	Experiment 4. . .	Captain SABINE. . .	85944,64 vibrations.
	Experiment 5. . .	Captain SABINE. . .	85944,55 vibrations.
	Experiment 6. . .	Captain SABINE. . .	85944,63 vibrations.
	Experiment 7. . .	Captain SABINE. . .	85944,41 vibrations.
	Experiment 8. . .	Captain SABINE. . .	85944,72 vibrations.
	Experiment 9. . .	M. QUETELET. . . .	85944,79 vibrations.
	Experiment 10. . .	Captain SABINE. . .	85944,60 vibrations.
	Experiment 11. . .	M. QUETELET. . . .	85944,71 vibrations.
	Experiment 12. . .	Captain SABINE. . .	85944,50 vibrations.
Pendulum No. 8.	Experiment 1. . .	Captain SABINE. . .	85932,05 vibrations.
	Experiment 2. . .	Captain SABINE. . .	85932,09 vibrations.
	Experiment 3. . .	Captain SABINE. . .	85932,04 vibrations.
	Experiment 4. . .	Captain SABINE. . .	85932,00 vibrations.
	Experiment 5. . .	M. QUETELET. . . .	85932,17 vibrations.
	Experiment 6. . .	M. QUETELET. . . .	85932,29 vibrations.
	Experiment 7. . .	Captain SABINE. . .	85932,13 vibrations.
	Experiment 8. . .	Captain SABINE. . .	85931,93 vibrations.
	Experiment 9. . .	Captain SABINE. . .	85931,84 vibrations.
	Experiment 10. . .	Captain CHAPMAN. . .	85931,85 vibrations.

It appears then, by these experiments, that the pendulum No. 7 would make 85944,60 vibrations at 63° FAHR., and the pendulum No. 8, 85932,04 at 63°, in 24 hours of mean solar time, in a vacuum, at the spot in which Captain KATER measured the length of the seconds pendulum in London.

We have, therefore, for pendulum No. 7, 85933,83 vibrations at 60° FAHR. in Paris, and 85944,60 vibrations at 63° in London; and for pendulum No. 8, 85922,06 vibrations at 58° at Paris, and 85932,04 vibrations at 63° in London.

Employing 0,421 of a vibration per diem as the equivalent to one degree of FAHRENHEIT'S scale (according to the result of the experiments made with two similar pendulums, of which the particulars are related in the volume of my former pendulum experiments, pages 198—208), and reducing the vibrations in Paris and in London to a common temperature of 60°, we have

	For Pendulum No. 7.	*For Pendulum No. 8.*
In Paris	85933,83	85921,22
In London . . .	85945,80	85933,30
Whence the accelerations . .	12,03	12,08

The mean acceleration is 12,05.—Such is the result obtained by taking into account the experiments made by means of the counter as well as those by the observation of coincidences; and with the agate planes belonging to No. 7, as well as with those belonging to No. 8: that is to say, all the experiments made with either pendulum.

Should we confine ourselves to that portion of the experiments alone in which the method of coincidences was followed and the planes of No. 8 employed, we obtain as the mean of eleven distinct results in Paris and ten in London with pendulum No. 7, twelve in Paris and seven in London with pendulum No. 8, an acceleration of 11,93 vibrations. Finally, therefore, if we regard in round numbers 12 seconds as the acceleration between Paris and London, we are warranted by these experiments in considering one tenth of a second, per diem, as the limit of probable error, and that it is extremely unlikely that the error should amount to two tenths of a second.

The length of the seconds pendulum in Mr. BROWNE's house in London, by KATER's measurement, is 39,13908; and in the Salle de la Méridienne in the Observatory at Paris, by BIOT's measurement, 39,12843. The difference of these two numbers is ,01065, corresponding to an acceleration of 11,76 seconds. The difference in the length of the seconds pendulum in London and in Paris, equivalent to an acceleration of 12 seconds, is ,01088. Captain KATER's measurement in London, transferred to Paris by means of an acceleration of 12 seconds, would make the pendulum in Paris 39,12820, instead of 39,12843, the determination of M. BIOT: and M. BIOT's measurement, transferred in like manner to London, would make its pendulum 39,13931, instead of 39,13908 as measured by KATER.

It is fitting that I should notice the original measurement of the length of the seconds pendulum in the Observatory at Paris, made in 1792 by M. BORDA. The result he obtained was 39,12776; but as his experiments were made in the basement story of the Observatory, which is two stories lower than the Salle de la Méridienne, a compensation of ,00012, equivalent to something more than 30 feet, may be supposed to place M. BORDA's result in fair comparison with M. BIOT's. Thus reduced, M. BORDA's result becomes 39,12764 for the Salle de la Méridienne.

Without the slightest intention of deciding between authorities, each of whom is deservedly held in such high respect,—and viewing indeed the very small differences in the three determinations as evidencing, in a remarkable manner, the ingenuity of the respective methods, and the experimental skill by which each was obtained,—it may be remarked in conclusion, that if a mean be taken for the Observatory at Paris, between the measurements of BORDA, BIOT, and KATER, (the latter transferred to Paris by means of the intermediate acceleration of 12 seconds,) the determination of KATER will be found to hold very nearly the middle line between the other two; approaching nearer by ,00011 (equivalent to somewhat more than one-tenth of a vibration per diem) to the measurement of BIOT than to that of BORDA.

TABLE I.—Paris.—Comparaisons de l'Horloge qui a servi aux Expériences du Pendule Invariable avec l'Horloge Sidérale qui est à côté de la Lunette Méridienne.

Année 1827.	Epoques moyennes des Comparaisons		Marche diurne de l'horloge sidérale.	Intervalles entre les Comparaisons				Retard de l'horloge sur le tems moyen	
	à l'horloge d'expérience.	à l'horloge sidérale.		à l'horloge sidérale.	en tems sidéral.	en tems moyen.	à l'horloge. d'expérience.	entre les compar.	en 24h moyennes
	h m s	h m s	s	h m s	h m s	h m s	h m s	m s	m s
Avril 27. Matin	8 54 42,00	23 46 42,65	+0,23	12 24 6,66	12 24 6,54	12 22 4,64	12 20 16,00	1 48,64	3 31,33
Soir	9 14 58,00	12 10 49,31							
28. Matin	7 34 29,00	22 33 33,31	+0,23	14 18 24,90	14 18 24,77	14 16 4,14	14 13 59,33	2 4,81	3 30,45
Soir	9 48 28,33	12 51 58,21							
29. Matin	6 05 17,33	21 11 22,05	−0,26	12 16 5,14	12 16 5,27	12 14 4,68	12 12 17,67	1 47,01	3 30,42
Soir	6 17 35,00	9 27 27,19							
30. Matin	5 59 55,00	21 13 25,58	−0,13	12 18 5,44	12 18 5,51	12 16 4,59	12 14 17,00	1 47,59	3 30,99
Soir	6 14 12,00	9 31 31,02							
Mai 1. Matin	6 43 27,00	22 04 39,15	−0,25	11 39 59,63	11 39 59,75	11 38 5,07	11 36 23,00	1 42,07	3 31,06
Soir	6 19 50,00	9 44 38,78							
2. Matin	6 02 10,33	21 30 37,88	−0,35	12 27 7,79	12 27 7,97	12 25 5,57	12 23 16,67	1 48,90	3 30,46
Soir	6 25 27,00	9 57 45,67							
3. Matin	6 34 44,00	22 10 49,41	−0,28	11 45 58,44	11 45 58,58	11 44 2,92	11 42 20,10	1 42,82	3 30,29
Soir	6 17 04,10	9 56 47,85							
4. Matin	6 17 22,67	22 00 50,93	−0,13	12 5 2,79	12 5 2,85	12 3 4,07	12 1 18,33	1 45,74	3 30,58
Soir	6 18 41,00	10 05 53,72							
5. Matin	6 22 59,00	22 13 57,05	0,00	10 23 46,11	10 23 46,11	10 22 3,92	10 20 33,00	1 30,92	3 30,46
Soir	4 43 32,00	8 37 43,16							
7. Matin	7 33 04,33	23 39 21,22	+0,08	12 18 6,06	12 18 6,02	12 16 5,10	12 14 17,67	1 47,43	3 30,16
Soir	7 47 22,00	11 57 27,28							
8. Matin	8 17 35,00	0 31 34,09	+0,12	12 13 4,30	12 13 4,24	12 11 4,14	12 9 17,33	1 46,81	3 30,38
Soir	8 26 52,33	12 44 38,39							
10. Matin	6 09 07,00	22 37 22,65	+0,12	13 46 20,10	13 46 20,03	13 44 4,66	13 42 4,00	2 0,66	3 30,66
Soir	7 51 11,00	12 23 42,75							

La marche diurne de l'horloge sidérale a été obtenue par les passages des étoiles au méridien. Je me suis particulièrement attaché à observer les passages de jour. La veille du jour où l'on a commencé les expériences du pendule, le 26 avril, j'avais trouvé par 4 étoiles le retard absolu de l'horloge sidérale sur le temps sidéral. Je l'ai ensuite déterminé le 27 par 9 etoiles, le 28 par 8 étoiles, le 29 par 8 étoiles, le 30 par 2 étoiles, le 1er mai par 4 étoiles, le 2 par 8 etoiles, le 3 par 3 étoiles, le 4 par 6 étoiles. Des retards absolus obtenus chaque jour j'ai conclu la marche diurne du 27 avril au 4 mai. Les petites irregularités que l'on remarque dans les avances ou retards diurnes tiennent aux changemens de température qui ont été très sensibles. Le ciel s'est couvert le Samedi 5 mai, je n'ai pu revoir des étoiles que le 9 : j'en ai observé 4 qui m'ont servi à conclure la marche diurne pour le 5, le 7, le 8, et le 10. Les nombres que j'ai adoptés pour ces quatre jours sont d'ailleurs confirmés par les passages du soleil au méridien.

TABLE II.

Paris.—Coincidences observed with the Invariable Pendulum No. 8.

EXP. 1. April 28th A.M. Clock making 86189,55 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}759^{mm},40.\ \text{Th. } 12°,9\ \text{Cent.}\\ 759\ \ ,00.\ \text{Th. } 13\ ,8\ \text{Cent.}\end{matrix}\right\}$ $759^{mm},20.$ Th. 13°,35. Planes No. 8. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
53,5	1	57 37	57 40	7 57 38,5	1,00
53,7	2	08 08	08 15	8 08 11,5	0,94
53,8	3	18 39	18 47	8 18 43	0,88
	4	29 11	29 18	8 29 14,5	0,82
53,9	5	39 41	39 49	8 39 45	0,78
	6	50 13	50 20	8 50 16,5	0,74
	7	00 45	00 52	9 00 48,5	....
54,2	8	11 14	11 26	9 11 20	0,63
	9	.....	.....	.....	....
	10	32 22	32 27	9 32 22,5	0,58
	11	42 52	43 01	9 42 56,5	0,52
	12	53 26	53 31	9 53 28,5	0,48
55,1	13	04 00	04 16	10 04 08	0,46
55,1	14	14 30	14 46	10 14 38	0,43
55,3	15	25 03	25 13	10 25 08	0,40
	16	35 36	35 44	10 35 40	0,38
	17	46 07	46 19	10 46 13	0,36
55,8	18	56 39	56 49	10 56 44	0,33

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	632,1	630,1	0,72	85917,60
2—17	632,1	630,1	0,64	85917,52
3—18	632,07	630,07	0,56	85917,42
Mean; Vibrations at 54°,49 FAHR.				85917,51
Reduction to 58° FAHR.				−1,47
Correction for buoyancy				+6,08
Vibrations in vacuo at 58° FAHR.				85922,12

EXP. 2. April 28th Noon. Clock making 86189,55 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}758^{mm},90.\ \text{Th. } 13°,8\ \text{Cent.}\\ 757\ \ ,68.\ \text{Th. } 14\ ,4\ \text{Cent.}\end{matrix}\right\}$ $758^{mm},29.$ Th. 14°,1. Planes No. 8. Therm. No. 4.

Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
56,1	1	25 07	25 11	11 25 09	0,91
	2	35 36	35 43	11 35 39,5	0,86
	3	46 07	46 14	11 46 10,5	0,81
56,3	5	07 05	07 17	12 07 11	0,70
56,8	13	31 14	31 26	13 31 20	0,41
	14	41 42	42 00	13 41 51	0,38
	15	52 20	52 29	13 52 24,5	0,36
56,7	16	02 49	03 00	14 02 54,5	0,33

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—14	630,92	628,92	0,65	85917,01
2—15	631,15	629,15	0,57	85917,03
3—16	631,08	629,08	0,51	85916,95
Mean; Vibrations at 56°,475 FAHR.				85916,99
Reduction to 58° FAHR.				−0,64
Correction for buoyancy				+6,05
Vibrations in vacuo at 58° FAHR.				85922,40

TABLE II. (Continued.)

EXP. 3. April 28th P.M. Clock making 86189,55 Vibrations in a Mean Solar Day.

Barom. { 757^{mm},68. Th. 14°,4 Cent. / 757 ,00. Th. 14 ,3 Cent. } 757^{mm},34. Th. 14°,35. Planes No. 8. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
56,7	1	16 01	16 04	14 16 02,5	0,98
	2	26 29	26 34	14 26 31,5	0,94
	3	36 57	37 03	14 37 00	0,88
	4	47 25	47 37	14 47 31	0,81
56,4	5	57 54	58 05	14 57 59,5	0,78
	6	08 25	08 35	15 08 30	0,72
	7	18 55	19 06	15 19 00,5	0,67
	8	29 28	29 37	15 29 32,5	0,63
56,4	9	39 59	40 08	15 40 03,5	0,59
	10	50 27	50 38	15 50 32,5	0,56
	11	01 02	01 10	16 01 06	0,52
	12	11 29	11 39	16 11 34	....
56,4	13	22 04	22 13	16 22 08,5	0,47
	14	32 32	32 43	16 32 37,5	....
	15	43 05	43 17	16 43 11	0,39
	16	53 35	53 48	16 53 41,5	0,38
	17	04 06	04 20	17 04 13	0,36
56,4	18	14 40	14 50	17 14 45	0,34

Intervals between Coincidences. Nos.	Clock. Vibrations.	Pendulum. Vibrations.	Correction for Arc. +	Corrected Vibrations in 24 Hours Mean Solar Time.
1—16	630,6	628,6	0,70	85916,92
2—17	630,77	628,77	0,64	85916,94
3—18	631,0	629,0	0,57	85916,95
Mean; Vibrations at 56°,46 FAHR.				85916,94
Reduction to 58° FAHR.				−0,65
Correction for buoyancy				+6,04
Vibrations in vacuo at 58° FAHR.				85922,33

EXP. 4. April 29th A.M. Clock making 86189,58 Vibrations in a Mean Solar Day.

Barom. { 758^{mm},60. Th. 13°,3 Cent. / 759 ,25. Th. 14 ,0 Cent. } 758^{mm},92. Th. 13°,65. Planes No. 8. Therm No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
54,3	1	18 04	18 06	6 18 05	1,00
54,4	2	28 32	28 36	6 28 34	0,94
54,4	3	39 04	39 09	6 39 06,5	0,88
54,5	4	49 35	49 39	6 49 37	0,83
54,6	5	00 05	00 12	7 00 08,5	0,78
	6	.....	.....	.....	....
54,8	7	21 09	21 15	7 21 12	0,69
	8	31 37	31 47	7 31 42	0,66
	9	42 09	42 19	7 42 14	0,61
	10	52 42	52 49	7 52 45,5	0,57
55,0	11	03 11	03 22	8 03 16,5	0,54
55,1	12	13 47	13 56	8 13 51,5	0,50
55,3	13	24 20	24 27	8 24 23,5	0,47
	14	.....	.....	.....	....
55,7	15	45 26	45 33	8 45 29,5	0,41
55,8	16	55 57	56 05	8 56 01	0,39
56,0	17	06 30	06 36	9 06 33	0,37
56,0	18	17 00	17 08	9 17 04	0,36

Intervals between Coincidences. Nos.	Clock. Vibrations.	Pendulum. Vibrations.	Correction for Arc. +	Corrected Vibrations in 24 Hours Mean Solar Time.
1—16	631,73	629,73	0,74	85917,48
2—17	631,93	629,93	0,65	85917,47
3—18	631,83	629,83	0,59	85917,37
Mean; Vibrations at 55°,07 FAHR.				85917,44
Reduction to 58° FAHR.				−1,23
Correction for buoyancy				+6,07
Vibrations in vacuo at 58° FAHR.				85922,28

TABLE II. (Continued.)

EXP. 5. April 29th A.M. Clock making 86189,58 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}759^{mm},80.\ \text{Th. } 14°,0\ \text{Cent.}\\ 759\ \ ,10.\ \text{Th. } 14\ ,9\ \text{Cent.}\end{matrix}\right\}$ $759^{mm},20$. Th. 14°,45. Planes No. 8. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
56,3	1	37 12	37 13	9 37 12,5	1,05
	2	47 40	47 42	9 47 41	1,00
	3	58 07	58 12	9 58 09,5	0,92
	4	08 37	08 42	10 08 39,5	0,86
56,6	5	19 06	19 12	10 19 09	0,81
	6	.....	.....	.....	....
	7	40 06	40 15	10 40 10,5	0,70
	8	.....	.....	.....	....
56,8	9	01 09	01 19	11 01 14	0,60
	10	.....	.....	.....	....
	11	22 08	22 18	11 22 13	0,52
	12	32 42	32 50	11 32 46	....
	13	43 11	43 22	11 43 16,5	0,46
	14	53 43	53 54	11 53 48,5	0,42
57,2	15	04 14	04 25	12 04 19,5	0,40
	16	14 46	14 57	12 14 51,5	0,38
	17	25 16	25 28	12 25 22	0,36
	18	35 48	35 59	12 35 53,5	0,32
	19	.....	.....	.....	....
57,6	20	56 48	57 04	12 56 56	0,30
	21	07 20	07 34	13 07 27	0,26
57,7	22	17 48	18 08	13 17 58	0,25

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—20	630,71	628,71	0,66	85916,96
2—21	630,84	628,84	0,57	85916,93
3—22	630,97	628,97	0,48	85916,88
Mean; Vibrations at 57°,03 FAHR.				85916,92
Reduction to 58° FAHR.				−0,41
Correction for buoyancy				+6,05
Vibrations in vacuo at 58° FAHR.				85922,56

EXP. 6. April 29th P.M. Clock making 86189,58 Vibrations in a Mean Solar Day.

Barom. 758^{mm},84. Th. 14°,9 Cent. Planes No. 8. Therm No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
587,	1	37 51	37 54	1 37 52,5	1,02
	2	48 19	48 23	1 48 21	0,94
	3	58 46	58 52	1 58 49	0,88
	4	09 12	09 23	2 09 17,5	0,82
	5	19 40	19 53	2 19 46,5	0,78
	6	30 10	30 23	2 30 16,5	0,71
57,2	7	40 40	40 55	2 40 47,5	0,67
	8	51 07	51 25	2 51 16	0,62
	9	01 38	01 57	3 01 47,5	0,58
	10	12 09	12 28	3 12 18,5	....
	11	22 40	22 58	3 22 49	....
	12	33 12	33 31	3 33 21,5	....
57,0	13	43 47	43 57	3 43 52	0,48
	14	54 12	54 35	3 54 23,5	....
	15	.....	.....	.....	....
	16	15 17	15 33	4 15 25	0,38
	17	25 46	26 06	4 25 56	0,35
57,1	18	36 16	37 38	4 36 27	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	630,167	628,167	0,74	85916,80
2—17	630,467	628,467	0,63	85916,81
3—18	630,533	628,533	0,55	85916,75
Mean; Vibrations at 57°,275 FAHR.				85916,79
Reduction to 58° FAHR.				−0,30
Correction for buoyancy				+6,05
Vibrations in vacuo at 58° FAHR.				85922,54

TABLE II. (Continued.)

EXP. 7. April 30th A.M. Clock making 86189,01 Vibrations in a Mean Solar Day.

Barom. { 760mm,00. Th. 13°,8 Cent. / 760 ,20. Th. 14 ,3 Cent. } 760mm,10. Th. 14°,15. Planes No. 8. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
o		m s	m s	h m s	o
55,3	1	02 10	02 12	6 02 11	1,02
55,4	2	12 40	12 42	6 12 41	0,96
55,5	3	23 09	23 12	6 23 10,5	0,91
55,5	4	33 39	33 43	6 33 41	0,86
55,6	5	44 07	44 13	6 44 10	0,80
55,6	6	54 35	54 45	6 54 40	0,75
55,7	7	05 06	05 15	7 05 10,5	0 70
55,7	8	15 36	15 45	7 15 40,5	0,66
55,8	9	26 07	26 15	7 26 11	0,62
55,9	10	36 37	36 47	7 36 42	0,58
56,0	11	47 08	47 20	7 47 14	0,53
56,0	12	57 38	57 51	7 57 44,5	0,50
56,0	13	08 09	08 21	8 08 15	0,48
56,1	14	18 39	18 54	8 18 46,5	0,44
56,1	15	29 09	29 26	8 29 17,5	0,41
56,2	16	39 41	39 58	8 39 49,5	0,39
56,2	17	50 13	50 30	8 50 21,5	0,37
56,4	18	00 43	01 01	9 00 52	0,35

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	630,57	628,57	0,75	85916,37
2—17	630,7	628,7	0,67	85916,37
3—18	630,77	628,77	0,60	85916,32

Mean; Vibrations at 55°,83 FAHR.	85916,35
Reduction to 58° FAHR.	−0,91
Correction for buoyancy	+6,07
Vibrations in vacuo at 58° FAHR. .	85921,51

EXP. 8. April 30th A.M. Clock making 86189,01 Vibrations in a Mean Solar Day.

Barom. { 760mm,20. Th. 14°,3 Cent. / 760 ,02. Th. 15 ,1 Cent. } 760mm,11. Th. 14°,7. Planes No. 8. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
o		m s	m s	h m s	o
56,6	1	26 33	26 36	9 26 34,5	0,98
	2	37 02	37 06	9 37 04	0,93
	3	47 29	47 36	9 47 32,5	0,86
	4	57 57	58 04	9 58 00,5	0,81
57,0	5	08 27	08 34	10 08 30,5	0,76
	6	18 56	19 05	10 19 00,5	0,70
	7	29 25	29 34	10 29 29,5	0,66
57,6	8	39 55	40 05	10 40 00	0,60
	9	50 24	50 35	10 50 29,5	0,57
57,7	10	00 54	01 06	11 01 00	0,53
	11	11 22	11 37	11 11 29,5	0,50
	12	21 55	22 07	11 22 01	0,46
	13	.....	.....	.....	....
58,0	14	42 57	43 11	11 43 04	0,42
	15	53 26	53 38	11 53 32	0,37
	16	03 56	04 10	12 04 03	0,36
	17	14 23	14 43	12 14 33	0,34
58,1	18	24 54	25 15	12 25 04,5	0,31

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	629,9	627,9	0,67	85916,01
2—17	629,9	627,9	0,61	85915,95
3—18	630,13	628,13	0,52	85915,94

Mean: Vibrations at 57°,5 FAHR.	85915,97
Reduction to 58° FAHR.	−0,21
Correction for buoyancy	+6,05
Vibrations in vacuo at 58° FAHR.	85921,81

TABLE II. (Continued.)

EXP. 9. April 30th P.M. Clock making 86189,01 Vibrations in a Mean Solar Day.
Barom. $\left\{\begin{matrix}760^{mm},00.\ \text{Th. } 15°,2\ \text{Cent.}\\ 759\ \ ,08.\ \text{Th. } 14\ \ ,3\ \text{Cent.}\end{matrix}\right\}$ $759^{mm},54.$ Th. 14°,75. Planes No. 8. Therm. No. 4.
Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
58,5	1	41 40	41 45	0 41 42,5	0,90	1—16	629,77	627,77	0,59	85915,77
	2	52 08	52 13	0 52 10,5	0,83	2—17	630,00	628,00	0,50	85915,88
	3	02 37	02 42	1 02 39,5	0,78	3—18	630,17	628,17	0,44	85915,90
	4	13 04	13 12	1 13 08	0,74					
	5	23 32	23 42	1 23 37	0,68	Mean; Vibrations at 58°,15 FAHR.				85915,85
	16	19 00	19 18	3 19 09	0,34					
	17	29 31	29 50	3 29 40,5	0,32	Reduction to 58° FAHR.				+0,06
57,8	18	40 02	40 22	3 40 12	0,29	Correction for buoyancy				+6,04
						Vibrations in vacuo at 58° FAHR. .				85921,95

EXP. 10. May 1st A.M. Clock making 86188,94 Vibrations in a Mean Solar Day.
Barom. $\left\{\begin{matrix}760^{mm},00.\ \text{Th. } 14°,5\ \text{Cent.}\\ 760\ \ ,00.\ \text{Th. } 14\ \ ,8\ \text{Cent.}\end{matrix}\right\}$ $760^{mm},00.$ Th. 14°,65. Planes No. 8. Therm. No. 4.
Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
56,6	1	30 22	30 25	6 30 23,5	1,00	1—16	630,6	628,6	0,72	85916,30
56,7	2	40 51	40 54	6 40 52,5	0,93	2—17	630,8	628,8	0,61	85916,27
56,8	3	51 19	51 23	6 51 21	0,88	3—18	631,0	629,0	0,55	85916,29
56,9	4	01 48	01 53	7 01 50,5	0,82					
56,9	5	12 17	12 24	7 12 20,5	0,77	Mean; Vibrations at 56°,89 FAHR.				85916,29
56,9	6	22 46	22 55	7 22 50,5	0,72					
56,9	7	33 14	33 25	7 33 19,5	0,68	Reduction to 58° FAHR.				−0,47
56,9	8	43 46	43 57	7 43 51,5	0,63	Correction for buoyancy				+6,06
	9	.....	.....	.....	....					
56,9	10	04 47	04 59	8 04 53	0,55	Vibrations in vacuo at 58° FAHR. .				85921,88
56,9	11	15 18	15 30	8 15 24	0,51					
	12	.....	.....	.....	....					
56,8	13	36 19	36 36	8 36 27,5	0,46					
56,8	14	46 51	47 09	8 47 00	0,42					
56,9	15	57 22	57 39	8 57 30,5	0,39					
57,0	16	07 54	08 11	9 08 02,5	0,37					
57,1	17	18 24	18 45	9 18 34,5	0,34					
57,3	18	28 56	29 16	9 29 06	0,32					

TABLE II. (Continued.)

EXP. 11. May 1st A.M. Clock making 86188,94 Vibrations in a Mean Solar Day.

Barom. { 760mm,00. Th. 14°,8 Cent. / 759 ,36. Th. 15 ,3 Cent. } 759mm,68. Th. 15°,05. Planes No. 8. Therm. No. 4.

Observers: 1—9, M. NICOLLET; 12—18, M. SAVARY.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibration in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
	1	32 49	32 50	9 32 49,9	1,02	1—16	629,43	627,43	0,74	85915,82
57,8	2	43 16	43 21	9 43 18,5	0,95	2—17	629,50	627,50	0,63	85915,73
	3	53 44	53 49	9 53 46,5	0,90	3—18	629,63	627,63	0,58	85915,74
57,8	4	04 11	04 18	10 04 14,5	0,84					
	5	14 40	14 48	10 14 44	0,78	Mean; Vibrations at 58°,24 FAHR.				85915,76
57,9	6	25 10	25 19	10 25 14,5	0,72					
58,0	7	35 38	35 48	10 35 43	0,68	Reduction to 58° FAHR.				+0,10
58,2	9	56 38	56 47	10 56 42,5	0,58	Correction for buoyancy				+6,04
58,5	12	28 04	28 18	11 28 11	0,48					
	13	38 33	38 48	11 38 40,5	0,44	Vibrations in vacuo at 58° FAHR.				85921,90
58,8	15	59 34	59 48	11 59 41	0,40					
	16	10 04	10 18	12 10 11	0,37					
	17	20 33	20 49	12 20 41	0,34					
58,9	18	31 03	31 19	12 31 11	0,33					

EXP. 12. May 1st P.M. Clock making 86188,94 Vibrations in a Mean Solar Day.

Barom. { 759mm,35. Th. 15°,7 Cent. / 758 ,50. Th. 14 ,5 Cent. } 758mm,92. Th. 15°,1. Planes No. 8. Therm. No. 4.

Observers: 1—15, M. SAVARY; 16—18, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
58,9	1	03 02	03 05	1 03 03,5	0,92	1—16	629,17	627,17	0,60	85915,58
58,9	2	13 29	13 32	1 13 30,5	0,87	2—17	629,37	627,37	0,54	85915,58
	3	23 57	24 03	1 24 00	0,80	3—18	629,40	627,40	0,45	85915,51
	4	34 26	34 31	1 34 28,5	0,75					
58,8	5	44 53	44 59	1 44 56	0,70	Mean; Vibrations at 58°,71 FAHR.				85915,56
	6	55 21	55 28	1 55 24,5	0,67					
	7	05 50	05 58	2 05 54	0,62					
58,7	8	16 18	16 27	2 16 22,5	0,59	Reduction to 58° FAHR.				+0,30
	9	26 50	26 57	2 26 53,5	0,56	Correction for buoyancy				+6,05
58,7	10	37 18	37 28	2 37 23	0,52					
	11	47 47	47 59	2 47 53	0,49	Vibrations in vacuo at 58° FAHR.				85921,91
	12	58 17	58 28	2 58 22,5	0,46					
58,6	13	08 45	08 57	3 08 51	0,44					
	14	19 12	19 30	3 19 21	0,39					
	15	29 43	30 00	3 29 51,5	0,38					
58,6	16	40 11	40 31	3 40 21	0,34					
	17	50 42	51 00	3 50 51	0,32					
58,5	18	01 10	01 32	4 01 21	0,30					

TABLE II. (Continued.)

EXP. 13. May 8th A.M. Clock making 86189,62 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}751^{mm},60.\ \text{Th. } 15°\ \text{Cent.}\\ 752\ \ ,56.\ \text{Th. } 15\ \ \text{Cent.}\end{matrix}\right\}$ $752^{mm},58.$ Th. 15°. Planes No. 7. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
57,4	1	17 55	18 01	8 17 58	0,94	1—16	630,77	628,77	0,62	85916,96
57,3	2	28 22	28 32	8 28 27	0,88	2—17	630,93	628,93	0,55	85916,95
57,2	3	38 51	39 01	8 38 56	0,82	3—18	631,11	629,11	0,47	85916,95
57,3	4	49 23	49 33	8 49 28	0,76					
57,3	5	00 55	01 04	9 00 59,5	0,70	Mean; Vibrations at 57°,3 FAHR.				85916,95
57,3	6	10 24	10 36	9 10 30	0,66					
57,3	11	02 56	03 13	10 03 04,5	0,46	Reduction to 58° FAHR.				−0,29
57,3	15	44 55	45 20	10 45 07,5	0,37	Correction for buoyancy				+5,99
57,3	16	55 29	55 50	10 55 39,5	0,34					
57,3	17	06 00	06 22	11 06 11	0,32	Vibrations in vacuo at 58° FAHR.				85922,65
57,3	18	16 30	16 55	11 16 42,5	0,30					

TABLE III.

Paris.—Coincidences observed with the Invariable Pendulum No. 7.

EXP. 1. May 2nd A.M. Clock making 86189,54 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}758^{mm},60.\ \text{Th. } 14°,8\ \text{Cent.}\\ 758\ \ ,60.\ \text{Th. } 15\ \ ,2\ \text{Cent.}\end{matrix}\right\}$ $758^{mm},60.$ Th. 15°. Planes No. 8. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
57,0	1	54 07	54 09	5 54 08	1,00	1—16	659,43	657,43	0,72	85928,84
57,1	2	05 03	05 05	6 05 04	0,95	2—17	659,67	657,67	0,65	85928,87
57,1	3	16 00	16 04	6 16 02	0,89	3—18	659,77	657,77	0,57	85928,83
57,2	4	26 57	27 03	6 27 00	0,83					
57,2	5	37 57	38 03	6 38 00	0,78	Mean; Vibrations at 57°,45 FAHR.				85928,85
57,3	6	48 56	49 03	6 48 59,5	0,72					
57,3	7	59 56	00 03	6 59 59,5	0,68	Reduction to 60° FAHR.				−1,07
57,4	8	10 54	11 02	7 10 58	0,63	Correction for buoyancy				+6,03
57,4	9	21 52	22 02	7 21 57	0,59					
57,5	10	32 51	33 02	7 32 56,5	0,56	Vibrations in vacuo at 60° FAHR.				85933,81
57,5	11	43 50	44 02	7 43 56	0,52					
57,5	12	54 50	55 04	7 54 57	0,49					
57,6	13	05 50	06 05	8 05 57,5	0,47					
57,6	14	16 50	17 06	8 16 58	0,43					
57,7	15	27 50	28 07	8 27 58,5	0,40					
57,8	16	38 51	39 08	8 38 59,5	0,38					
57,9	17	49 51	50 07	8 49 59	0,36					
58,1	18	00 49	01 08	9 00 58,5	0,33					

TABLE III. (Continued.)

EXP. 2. May 2nd A.M. Clock making 86189,54 Vibrations in a Mean Solar Day.

Barom. { 758mm,60. Th. 14°,8 Cent. / 757 ,52. Th. 16 ,0 Cent. } 758mm,06. Th. 15°,4. Planes No. 8. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
	1	36 13	36 21	9 36 17	0,88	1—16	659,07	657,07	0,53	85928,51
58,5	2	47 11	47 20	9 47 15,5	0,82	2—17	659,20	657,20	0,45	85928,49
	3	58 09	58 18	9 58 13,5	0,77	3—18	659,33	657,33	0,40	85928,50
	4	09 06	09 06	10 09 11	0,72					
58,9	5	20 04	20 14	10 20 09	0,66	Mean; Vibrations at 59°,12 FAHR.				85928,50
	6	31 03	31 13	10 31 08	0,62					
	7	42 01	42 11	10 42 06	0,56	Reduction to 60° FAHR.				−0,37
59,0	8	52 58	53 12	10 53 05	0,52	Correction for buoyancy				+6,02
59,1	11	25 52	26 15	11 26 03,5	0,44					
	13	47 53	48 14	11 48 03,5	0,42	Vibrations in vacuo at 60° FAHR.				85934,15
	15	09 53	10 14	12 10 03,5	0,33					
59,6	16	20 52	21 14	12 21 03	0,30					
	17	31 54	32 13	12 32 03,5	0,28					
59,6	18	42 53	43 14	12 43 03,5	0,26					

EXP. 3. May 2nd P.M. Clock making 86189,54 Vibrations in a Mean Solar Day.

Barom. { 757mm,52. Th. 16°,0 Cent. / 756 ,50. Th. 15 ,8 Cent. } 757mm,01. Th. 15°,9. Planes No. 8. Therm. No. 4.

Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.	Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	°		Vibrations.	Vibrations.	+	
59,4	1	04 41	04 44	2 04 42,5	0,91	1—14	658,58	656,58	0,61	85928,41
	2	15 36	15 43	2 15 39,5	0,84	2—15	658,81	656,81	0,53	85928,43
59,2	3	26 34	26 41	2 26 37,5	0,79	3—16	658,89	656,89	0,47	85928,41
	4	37 29	37 40	2 37 34,5	0,74					
59,1	7	10 24	10 34	3 10 29	0,59	Mean; Vibrations at 59°,17 FAHR.				85928,42
	9	32 22	32 33	3 32 27,5	0,53					
59,1	10	43 21	43 34	3 43 27,5	0,50	Reduction to 60° FAHR.				−0,35
	11	54 21	54 31	3 54 26	0,47	Correction for buoyancy				+6,02
	12	05 19	05 30	4 05 24,5	0,42					
59,1	13	16 17	16 29	4 16 23	0,38	Vibrations in vacuo at 60° FAHR.				85934,09
	14	27 17	27 31	4 27 24	0,36					
	15	38 15	38 33	4 38 24	0,34					
59,1	16	49 14	49 31	4 49 22,5	0,32					

TABLE III. (Continued.)

EXP. 4. May 3rd A.M. Clock making 86189,71 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}756^{mm},50. \text{ Th. } 15°,2 \text{ Cent.} \\ 756 \quad ,95. \text{ Th. } 15 \ ,5 \text{ Cent.}\end{matrix}\right\}$ $756^{mm},72$. Th. 15°,35. Planes No. 8. Therm. No. 8.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
57,8	1	53 20	53 22	5 53 21	1,00
57,9	2	04 16	04 19	6 04 17,5	0,95
57,9	3	15 12	15 17	6 15 14,5	0,89
57,9	4	26 08	26 15	6 26 11,5	0,83
57,9	5	37 07	37 13	6 37 10	0,78
58,0	6	48 03	48 11	6 48 07	0,72
	7	.....	.....	.....	....
	8	09 59	10 11	7 10 05	0,60
58,1	9	20 56	21 08	7 21 02	0,58
	10	31 56	32 08	7 32 02	0,55
58,2	11	42 55	43 08	7 43 01,5	0,51
	12	53 55	54 08	7 54 01,5	0,49
	13	04 54	05 08	8 05 02	0,45
58,4	14	15 53	16 07	8 16 00	0,42
58,4	15	26 53	27 07	8 27 00	0,39
58,5	16	37 53	38 07	8 38 00	0,37
58,6	17	48 52	49 07	8 48 59,5	0,34
58,8	18	59 52	00 06	8 59 59	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	658,6	656,6	0,71	85928,70
2—17	658,8	656,8	0,63	85928,67
3—18	658,97	656,97	0,56	85928,68
Mean; Vibrations at 58°,19 FAHR.				85928,68
Reduction to 60° FAHR.				−0,76
Correction for buoyancy				+6,01
Vibrations in vacuo at 60° FAHR.				85933,93

EXP. 5. May 3rd A.M. Clock making 86189,71 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}757^{mm},00. \text{ Th. } 15°,5 \text{ Cent.} \\ 756 \quad ,45. \text{ Th. } 16 \ ,1 \text{ Cent.}\end{matrix}\right\}$ $756^{mm},72$. Th. 15°,8. Planes No. 8. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
59,0	1	06 49	06 51	9 06 50	1,00
59,0	2	17 45	17 49	9 17 47	0,96
59,1	3	28 41	28 47	9 28 44	0,91
59,2	4	39 37	39 42	9 39 39,5	0,84
59,3	5	50 34	50 40	9 50 37	0,80
	6	01 30	01 35	10 01 32,5	0,74
	7	12 26	12 33	10 12 29,5	0,69
59,4	8	23 22	23 31	10 23 26,5	0,63
	9	.....	.....	.....	....
59,4	10	45 20	45 28	10 45 24	0,56
59,4	11	56 16	56 27	10 56 21,5	0,52
59,4	12	07 16	07 26	11 07 21	0,48
59,6	13	18 14	18 26	11 18 20	0,47
	14	.....	.....	.....	....
59,7	15	40 11	40 24	11 40 17,5	0,38
59,8	16	51 08	51 25	11 51 16,5	0,36
59,9	17	02 09	02 25	12 02 17	0,34
60,0	18	13 08	13 24	12 13 16	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	657,77	655,77	0,70	85928,34
2—17	658,00	656,00	0,64	85928,38
3—18	658,13	656,13	0,58	85928,38
Mean; Vibrations at 59°,44 FAHR.				85928,37
Reduction to 60° FAHR.				−0,23
Correction for buoyancy				+6,00
Vibrations in vacuo at 60° FAHR.				85934,14

TABLE III. (Continued.)

EXP. 6. May 3rd P.M. Clock making 86189,71 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}756^{mm},45.\ \text{Th. } 16°,1\ \text{Cent.}\\ 756\ \ ,60.\ \text{Th. } 16\ ,2\ \text{Cent.}\end{matrix}\right\}$ $756^{mm},52.$ Th. 16°,15. Planes No. 8. Therm. No. 4.

Observer, Captain DUPERREY.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
o		m s	m s	h m s	o
60,0	1	30 44	30 48	12 30 46	0,90
60,2	2	41 40	41 44	12 41 42	0,84
	3	52 35	52 42	12 52 38,5	0,78
	4	03 32	03 40	13 03 36	0,72
	5	14 30	14 37	13 14 33,5	0,68
	6	.....	.....	.....	....
60,1	7	36 25	36 34	13 36 29,5	0,60
	8	47 22	47 32	13 47 27	0,57
	9	58 21	58 31	13 58 26	0,52
	10	.....	.....	.....	....
60,2	11	20 19	20 28	14 20 23,5	0,45
	12	31 16	31 27	14 31 21,5	0,42
	13	.....	.....	.....	....
	14	53 12	53 27	14 53 19,5	0,38
59,7	15	04 11	04 27	15 04 19	0,35
	16	15 10	15 26	15 15 18	0,32
	17	26 10	26 26	15 26 18	0,30
59,7	18	37 08	37 26	15 37 17	0,30

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	658,13	656,13	0,57	85928,37
2—17	658,40	656,40	0,49	85928,41
3—18	658,57	656,57	0,44	85928,40
Mean; Vibrations at 60°,05 FAHR.				85928,39
Reduction to 60° FAHR.				+0,02
Correction for buoyancy				+5,99
Vibrations in vacuo at 60° FAHR.				85934,40

EXP. 7. May 4th A.M. Clock making 86189,42 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}757^{mm},15.\ \text{Th. } 15°,3\ \text{Cent.}\\ 757\ \ ,10.\ \text{Th. } 15\ ,4\ \text{Cent.}\end{matrix}\right\}$ $757^{mm},12.$ Th. 15°,35. Planes No. 8. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
o		m s	m s	h m s	o
57,8	1	08 41	08 44	6 08 42,5	1,01
57,9	2	19 38	19 41	6 19 39,5	0,96
57,9	3	30 35	30 40	6 30 37,5	0,90
57,9	4	41 33	41 40	6 41 36,5	0,84
57,9	5	52 31	52 39	6 52 35	0,79
57,9	6	03 30	03 38	7 03 34	0,72
57,9	7	14 29	14 38	7 14 33,5	0,68
58,0	8	25 28	25 38	7 25 33	0,63
	9	.....	.....	.....	....
	10	.....	.....	.....	....
58,0	11	58 26	58 38	7 58 32	0,52
58,0	12	09 24	09 37	8 09 30,5	0,49
58,0	13	20 23	20 37	8 20 30	0,46
58,1	14	31 25	31 38	8 31 31	0,43
58,2	15	42 25	42 39	8 42 32	0,40
58,2	16	53 26	53 40	8 53 33	0,37
58,3	17	04 27	04 40	9 04 33,5	0,34
	18	15 27	15 41	9 15 34	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	659,37	657,37	0,72	85928,71
2—17	659,60	657,60	0,64	85928,72
3—18	659,77	657,77	0,57	85928,71
Mean; Vibrations at 58° FAHR...				85928,71
Reduction to 60° FAHR.				−0,84
Correction for buoyancy				+6,05
Vibrations in vacuo at 60° FAHR.				85933,92

TABLE III. (Continued.)

EXP. 8. May 4th A.M. Clock making 86189,42 Vibrations in a Mean Solar Day.

Barom. { 757mm,10. Th. 15°,3 Cent. / 756 ,22. Th. 16 ,1 Cent. } 756mm,66. Th. 15°,7. Planes No. 8. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
58,6	1	25 47	25 47	9 25 47	1,02
	2	36 42	36 44	9 36 43	0,96
	3	47 36	47 41	9 47 38	0,88
59,0	4	58 33	58 40	9 58 36,5	0,82
59,1	5	09 29	09 37	10 09 33	0,77
	6	20	.....	.....	....
	7	31 21	31 33	10 31 27	....
	8	42	.....	.....	....
59,5	9	53 21	53 31	10 53 27	0,58
	10	.....	.....	.....	....
59,8	11	15 16	15 32	11 15 24	0,50
59,9	12	26 18	26 31	11 26 24,5	0,47
60,0	13	37 17	37 29	11 37 23	0,44
	14	.....	.....	.....	....
	15	59 14	59 26	11 59 20	0,40
60,1	16	10 13	10 28	12 10 20,5	0,36
	17	21 10	21 28	12 21 19	0,34
60,1	18	32 09	32 28	12 32 18,5	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	658,23	656,23	0,72	85928,26
2—17	658,40	656,40	0,64	85928,26
3—18	658,70	656,70	0,55	85928,27
Mean; Vibrations at 59°,85 FAHR.				85928,26
Reduction to 60° FAHR.				−0,06
Correction for buoyancy				+5,99
Vibrations in vacuo at 60° FAHR.				85934,19

EXP. 9. May 4th P.M. Clock making 86189,42 Vibrations in a Mean Solar Day.

Barom. { 756mm,4. Th. 16°,3 Cent. / 755 ,1. Th. 16 ,3 Cent. } 755mm,75. Th. 16°,3. Planes No. 8. Therm. No. 4.

Observer, Captain FREYCINET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
60,1	1	18 00	18 09	1 18 04,5	0,78
60,0	2	28 58	29 08	1 29 03	0,73
60,0	3	39 50	40 07	1 39 58,5	0,69
60,0	4	50 52	51 05	1 50 58,5	0,65
60,0	5	01 50	02 05	2 01 57,5	0,62
60,0	6	12 48	13 01	2 12 54,5	0,55
60,0	7	23 45	24 01	2 23 53	0,52
60,0	8	34 45	35 00	2 34 52,5	0,49
60,0	9	45 44	46 01	2 45 52,5	0,46
60,0	10	56 42	56 59	2 56 50,5	0,42
60,0	11	07 42	07 59	3 07 50,5	0,41
59,9	12	18 40	18 59	3 18 49,5	0,38
59,9	13	29 40	29 59	3 29 49,5	0,36
59,9	14	40 40	40 57	3 40 48,5	0,33
59,9	15	51 38	51 59	3 51 48,5	0,30
	16	.....	.....	.....	....
59,8	17	13 39	13 56	4 13 47,5	0,28
59,8	18	24 38	24 55	4 24 46,5	0,28
59,8	19	35 36	35 54	4 35 45	0,25

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—17	658,94	656,94	0,43	85928,25
2—18	658,97	656,97	0,39	85928,23
3—19	659,16	657,16	0,33	85928,25
Mean; Vibrations at 59°,95 FAHR.				85928,24
Reduction to 60° FAHR.				−0,02
Correction for buoyancy				+5,99
Vibrations in vacuo at 60° FAHR.				85934,21

TABLE III. (Continued.)

EXP. 10. May 5th A.M. Clock making 86189,54 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}753^{mm},35.\ \text{Th. } 15°,9\ \text{Cent.}\\ 753\ \ ,30.\ \text{Th. } 16\ ,3\ \text{Cent.}\end{matrix}\right\}$ $753^{mm},32.$ Th. 16°,1. Planes No. 8. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
58,8	1	13 43	13 44	6 13 43,5	1,02
58,9	2	24 37	24 39	6 24 38	0,96
59,0	3	35 32	35 35	6 35 33,5	0,89
59,0	4	46 29	46 33	6 46 31	0,83
59,0	5	57 26	57 31	6 57 28,5	0,78
59,1	6	08 22	08 29	7 08 25,5	0,72
59,2	7	19 20	19 27	7 19 23,5	0,68
	8	.....	.....	.....	....
59,3	9	41 15	41 24	7 41 19,5	0,59
59,4	10	52 13	52 24	7 52 18,5	0,56
59,4	11	03 11	03 22	8 03 16,5	0,52
59,4	12	14 10	14 21	8 14 15,5	0,49
	13	.....	.....	.....	....
59,6	14	36 08	36 18	8 36 13	0,42
59,8	15	47 06	47 17	8 47 11,5	0,39
59,9	16	58 05	58 17	8 58 11	0,37
60,0	17	09 03	09 15	9 09 09	0,36
60,1	18	20 02	20 14	9 20 08	0,33

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	657,83	655,83	0,73	85928,23
2—17	658,07	656,07	0,66	85928,26
3—18	658,30	656,30	0,57	85928,25
Mean; Vibrations at 59°,37 FAHR.				85928,25
Reduction to 60° FAHR.				−0,26
Correction for buoyancy				+5,97
Vibrations in vacuo at 60° FAHR.				85933,96

EXP. 11. May 5th A.M. Clock making 86189,54 Vibrations in a Mean Solar Day.

Barom. $\left\{\begin{matrix}753^{mm},30.\ \text{Th. } 15°,9\ \text{Cent.}\\ 752\ \ ,80.\ \text{Th. } 16,3\ \text{Cent.}\end{matrix}\right\}$ $753^{mm},05.$ Th. 16°,1. Planes No. 8. Therm. No. 4.

Observer, M. NICOLLET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
°		m s	m s	h m s	°
60,3	1	34 05	34 06	9 34 05,5	1,02
60,4	2	45 02	45 05	9 45 03,5	0,94
60,4	3	55 54	56 01	9 55 57,5	0,88
60,5	4	06 51	06 58	10 06 54,5	0,83
60,9	7	39 39	39 49	10 39 44	0,68
60,9	8	50 36	50 47	10 50 41,5	0,62
60,9	9	01 33	01 45	11 01 39	0,58
60,8	10	12 31	12 43	11 12 37	0,55
60,8	11	23 29	23 41	11 23 35	0,51
60,4	16	18 21	18 35	12 18 28	0,38
60,4	17	29 20	29 34	12 29 27	0,36
	18	40 19	40 34	12 40 26,5	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	657,5	655,5	0,74	85928,10
2—17	657,57	655,57	0,64	85928,04
3—18	657,93	655,93	0,55	85928,09
Mean; Vibrations at 60°,61 FAHR.				85928,08
Reduction to 60° FAHR.				+0,26
Correction for buoyancy				+5,96
Vibrations in vacuo at 60° FAHR.				85934,30

TABLE III. (continued.)

EXP. 12. May 7th A.M. Clock making 86189,84 Vibrations in a Mean Solar Day.

Barom. { 748mm,90. Th. 15°,6 Cent. / 749 ,00. Th. 16 ,0 Cent. } 748mm,95. Th. 15°,8. Planes No. 7. Therm. No. 4.

Observer, M. MATHIEU.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
o		m s	m s	h m s	o
58,4	1	24 01	24 03	7 24 02	1,00
58,5	2	34 57	35 02	7 34 59,5	0,94
58,7	3	45 54	46 01	7 45 57,5	0,89
58,9	4	56 52	56 59	7 56 55,5	0,82
59,1	7	29 50	29 57	8 29 53,5	0,68
59,2	8	40 50	40 58	8 40 54	0,62
59,3	9	51 48	51 57	8 51 52,5	0,58
59,4	10	02 48	02 56	9 02 52	0,53
59,4	11	13 46	13 56	9 13 51	0,50
59,5	12	24 43	24 57	9 24 50	0,47
59,6	13	35 43	35 57	9 35 50	0,45
59,8	14	46 44	46 58	9 46 51	0,42
59,9	15	57 44	57 59	9 57 51,5	0,38
59,8	16	08 45	09 02	10 08 53,5	0,36
59,3	18	30 45	31 03	10 30 54	0,32

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—16	659,43	657,43	0,70	85929,12
3—18	659,74	657,74	0,59	85929,15
Mean; Vibrations at 59°,25 FAHR.				85929,13
Reduction to 60° FAHR.				−0,31
Correction for buoyancy				+5,95
Vibrations in vacuo at 60° FAHR.				85934,77

EXP. 13. May 7th A.M. Clock making 86189,84 Vibrations in a Mean Solar Day.

Barom. { 749mm,00. Th. 16°,0 Cent. / 749 ,10. Th. 16 ,2 Cent. } 749mm,05. Th. 16°,1. Planes No. 7. Therm. No. 4.

Observer, M. SAVARY.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc of Vibration.
o		m s	m s	h m s	o
59,4	1	43 14	43 14	10 43 14	1,02
59,5	2	54 07	54 12	10 54 09,5	0,96
59,5	3	05 03	05 11	11 05 07	0,88
59,5	4	15 59	16 10	11 16 04,5	0,83
59,5	5	26 59	27 08	11 27 03,5	0,76
59,5	6	37 57	38 07	11 38 02	0,70
59,9	7	48 55	49 05	11 49 00	0,66
60,0	8	59 54	00 04	11 59 59	0,63
60,0	9	10 53	11 03	12 10 58	0,58
60,0	10	21 51	22 03	12 21 57	0,53
60,0	11	32 51	33 04	12 32 57,5	0,49
60,0	12	43 49	44 07	12 43 58	0,46
59,7	13	54 49	55 06	12 54 57,5	0,42
59,3	14	05 48	06 08	13 05 58	0,40
59,3	15	16 50	17 08	13 16 59	0,37
59,3	16	27 52	28 08	13 28 00	0,35
59,3	17	38 53	39 11	13 39 02	0,33

Intervals between Coincidences. Nos.	Clock.	Pendulum.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	Vibrations.	Vibrations.	+	
1—15	658,93	656,93	0,73	85928,95
2—16	659,32	657,32	0,65	85929,03
3—17	659,64	657,64	0,56	85929,06
Mean; Vibrations at 59°,73 FAHR.				85929,01
Reduction to 60° FAHR.				−0,11
Correction for buoyancy				+5,93
Vibrations in vacuo at 60° FAHR.				85934,83

TABLE IV.

Paris.—Rate of the Invariable Pendulum No. 7, obtained by the Counter.

EXP. 1. April 29th, 1827. Clock making 86189,58 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	°	Fahr.	mm	Cent.
1	11 07	3 50 01,536	1,10	57,4	759,30	14,2
2	11 37	4 19 56,218	0,88	....	759,25	14,5
3	12 07	4 49 50,709	0,76	58,0	759,25	14,6
4	12 37	5 19 45,277	0,64	58,0	759,25	14,8
5	13 07	5 49 39,700	0,55	58,0	759,25	14,8
6	13 37	6 19 34,282	0,47	58,0	759,25	14,8
7	14 07	6 49 28,791	0,40	57,8	759,00	14,6
8	15 07	7 49 17,891	0,30	57,3	758,80	14,5
9	16 07	8 49 06,973	0,24	57,2	758,80	14,5
		Mean....		57,71	759,13	14,6

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—8	4 0	14356,355	0,70	85929,04
1—9	5 0	17945,437	0,62	85928,94
2—8	3 30	12561,673	0,49	85927,91
2—9	4 30	16150,755	0,45	85928,01
3—9	4 0	14356,264	0,37	85928,15

Mean; Vibrations at 57°,71 FAHR.	85928,41
Reduction to 60° FAHR.	—0,96
Correction for buoyancy	+6,04
Vibrations in vacuo at 60° FAHR. .	85933,49

EXP. 2. April 30th, 1827. Clock making 86189,01 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	°	Fahr.	mm	Cent.
1	8 15	0 30 19,9	1,01	56,0	760,15	14,1
2	9 15	1 30 08,864	0,71	56,6	.....	....
3	10 25	2 39 56,182	0,50	57,6	.....	....
4	11 25	3 39 45,309	0,38	58,2	760,20	15,0
5	12 15	4 29 36,091	0,30	58,5	.....	....
6	13 25	5 39 23,418	0,21	58,8	759,85	15,1
		Mean....		57,62	760,07	14,73

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—5	4 0	14356,191	0,63	85927,42
1—6	5 10	18543,518	0,51	85927,78
2—5	3 0	10767,227	0,39	85927,86
2—6	4 10	14954,554	0,31	85928,18

Mean; Vibrations at 57°,62 FAHR.	85927,81
Reduction to 60° FAHR.	—1,00
Correction for buoyancy	+6,05
Vibrations in vacuo at 60° FAHR.	85932,86

TABLE IV. (Continued.)

EXP. 3. May 1st, 1827. Clock making 86188,94 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observers, MM. MATHIEU and SABINE.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	°	Fahr.	mm	Cent.
1	9 14	1 03 23,836	1,00	57,1	760,00	14,8
2	9 49	1 38 17,600	0,80	57,9	.....	.....
3	10 19	2 08 11,991	0,68	58,3	.....	.....
4	11 34	3 22 58,164	0,47	59,0	.....	.....
5	13 14	5 02 40,002	0,28	59,1	.....	.....
6	14 14	6 02 29,018	0,20	59,1	.....	.....
		Mean		58,42	760,00	14,8

Intervals between Comparisons. Nos.	Clock. h m	Counter. Vibrations.	Correction for Arc. Vibrations.	Corrected Vibrations in 24 Hours Mean Solar Time.
1—5	4 0	14356,166	0,59	85927,17
1—6	5 0	17945,182	0,49	85926,94
2—5	3 25	12262,402	0,44	85925,93
2—6	4 25	15851,418	0,35	85925,95
Mean; Vibrations at 58°,42 FAHR.				85926,50
Reduction to 60° FAHR.				−0,66
Correction for buoyancy				+6,04
Vibrations in vacuo at 60° FAHR.				85931,88

EXP. 4. May 8th, 1827. Clock making 86189,62 Vibrations in a Mean Solar Day.
Planes No. 8. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	°	Fahr.	mm	Cent.
1	7 53	0 24 20,600	1,01	57,5	751,60	15,0
2	8 53	1 24 09,736	0,77	57,7	.....	.....
3	9 53	2 23 58,736	0,60	57,8	.....	.....
4	10 53	3 23 47,778	0,48	57,8	.....	.....
5	11 53	4 23 36,827	0,38	57,7	.....	.....
6	12 53	5 23 25,909	0,30	57,7	752,85	15,8
		Mean....		57,7	752,22	15,4

Intervals between Comparisons. Nos.	Clock. h m	Counter. Vibrations.	Correction for Arc. Vibrations.	Corrected Vibrations in 24 Hours Mean Solar Time.
1—5	4 0	14356,227	0,73	85928,37
1—6	5 0	17945,309	0,63	85928,38
2—5	3 0	10767,091	0,52	85927,48
2—6	4 0	14356,173	0,44	85927,74
Mean; Vibrations at 57°,7 FAHR.				85927,99
Reduction to 60° FAHR.				−0,97
Correction for buoyancy				+5,99
Vibrations in vacuo at 60° FAHR.				85933,01

TABLE IV. (Continued.)

EXP. 5. May 10th, 1827. Clock making 86189,36 Vibrations in a Mean Solar Day.
Planes No. 8. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	°	Fahr.	mm	Cent.
1	5 58	0 43 12,982	1,00	57,3	751,25	14,6
2	6 58	1 43 02,054	0,78	57,4	.....	.....
3	7 58	2 42 51,209	0,60	58,3	.....	.....
4	8 58	3 42 40,091	0,44	59,0	.....	.....
5	9 58	4 42 29,209	0,33	59,6	.....	.....
6	10 58	5 42 18,164	0,22	60,0	750,30	16,0
		Mean....		58,6	750,77	15,3

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—5	4 0	14356,227	0,66	85928,04
1—6	5 0	17945,182	0,52	85927,38
2—5	3 0	10767,155	0,47	85927,71
2—6	4 0	14356,110	0,36	85927,02
Mean; Vibrations at 58°,6 FAHR.				85927,54
Reduction to 60° FAHR.				−0,59
Correction for buoyancy				+5,97
Vibrations in vacuo at 60° FAHR.				85932,92

TABLE V.

Paris.—Rate of the Invariable Pendulum No. 8, obtained by the Counter.

EXP. 1. May 2nd, 1827. Clock making 86189,54 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	°	Fahr.	mm	Cent.
1	9 08	0 56 12,218	1,00	58,5	758,60	15,2
2	10 08	1 56 00,745	0,71	59,0	.....	.....
3	11 23	3 10 46,218	0,49	59,4	.....	.....
4	12 13	4 01 36,773	0,37	60,0	.....	.....
5	13 08	4 55 26,173	0,28	60,0	.....	.....
6	14 08	5 55 14,673	0,20	59,8	757,15	15,8
		Mean....		59,45	757,87	15,5

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—5	4 0	14353,955	0,59	85914,49
1—6	5 0	17942,455	0,50	85914,46
2—5	3 0	10765,428	0,37	85913,99
2—6	4 0	14353,928	0,30	85914,04
Mean; Vibrations at 59°,45 FAHR.				85914,25
Reduction to 58° FAHR.				+0,61
Correction for buoyancy				+6,01
Vibrations in vacuo at 58° FAHR.				85920,87

TABLE V. (Continued.)

EXP. 2. May 3rd, 1827. Clock making 86189,71 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	o	Fahr.	mm	Cent.
1	9 33	0 18 35,100	1,00	59,8	757,00	15,5
2	10 33	1 18 23,745	0,70	59,8	.....	.....
3	11 33	2 18 12,011	0,50	60,0	.....	.....
4	12 33	3 18 00,718	0,37	60,2	.....	.....
5	13 33	4 17 48,945	0,28	60,2	.....	.....
6	14 33	5 17 37,789	0,20	60,1	755,65	16,1
		Mean		60,17	756,32	15,8

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—5	4 0	14353,845	0,59	85914,02
1—6	5 0	17942,689	0,50	85915,75
2—5	3 0	10765,200	0,36	85912,33
2—6	4 0	14354,044	0,29	85914,90
Mean; Vibrations at 60°,17 FAHR.				85914,25
Reduction to 58° FAHR.				+0,91
Correction for buoyancy				+5,99
Vibrations in vacuo at 58° FAHR.				85921,15

EXP. 3. May 4th, 1827. Clock making 86189,42 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	o	Fahr.	mm	Cent.
1	8 46	0 41 57,873	1,00	58,5	757,30	15,2
2	9 46	1 41 46,363	0,70	59,4	.....	.....
3	10 48	2 43 34,364	0,50	59,9	.....	.....
4	11 46	3 41 23,589	0,36	60,3	.....	.....
5	12 46	4 41 11,809	0,27	60,6	.....	.....
6	14 16	6 10 54,745	0,18	60,4	.....	.....
		Mean		59,85	757,30	15,2

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—5	4 0	14353,936	0,58	85914,26
1—6	5 30	19736,872	0,47	85915,03
2—5	3 0	10765,443	0,35	85913,95
2—6	4 30	16148,382	0,27	85915,00
Mean; Vibrations at 59°,85 FAHR.				85914,56
Reduction to 58° FAHR.				+0,78
Correction for buoyancy				+6,00
Vibrations in vacuo at 58° FAHR.				85921,34

TABLE V. (Continued.)

EXP. 4. May 5th, 1827. Clock making 86189,54 Vibrations in a Mean Solar Day.
Planes No. 7. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	o	Fahr.	mm	Cent.
1	8 08	0 33 25,382	1,00	59,9	753,50	16,0
2	9 28	1 53 09,909	0,62	60,5	.....	.....
3	10 08	2 33 02,464	0,50	61,0	.....	.....
4	11 08	3 32 50,855	0,38	61,3	.....	.....
5	12 08	4 32 39,527	0,29	60,9	.....	.....
6	13 08	5 32 27,864	0,21	60,6	752,60	16,4
		Mean		60,7	753,05	16,2

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—5	4 00	14354,145	0,60	85915,64
1—6	5 00	17942,482	0,50	85914,60
2—5	2 40	9569,618	0,32	85917,08
2—6	3 40	13157,955	0,26	85915,24
Mean; Vibrations at 60°,7 FAHR.				85915,64
Reduction to 58° FAHR.				+1,13
Correction for buoyancy				+5,96
Vibrations in vacuo at 58° FAHR.				85922,73

EXP. 5. May 7th, 1827. Clock making 86189,84 Vibrations in a Mean Solar Day.
Planes No. 8. Therm. No. 3. Observer, M. MATHIEU.

No. of Comparisons.	Comparisons. Clock.	Comparisons. Counter.	Arc of Vibration.	Temp.	Barometer. Merc.	Barometer. Therm.
	h m	h m s	o	Fahr.	mm	Cent.
1	8 18	0 10 31,182	1,00	59,2	748,90	15,6
2	9 18	1 10 19,782	0,70	60,0	.....	.....
3	11 18	3 09 56,955	0,38	59,9	.....	.....
4	12 28	4 19 43,636	0,28	60,4	.....	.....
5	13 18	5 09 33,927	0,20	59,9	749,00	16,0
		Mean		59,88	748,95	15,8

Intervals between Comparisons. Nos.	Clock.	Counter.	Correction for Arc.	Corrected Vibrations in 24 Hours Mean Solar Time.
	h m	Vibrations.	Vibrations.	
1—4	4 10	14952,454	0,59	85917,19
1—5	5 00	17942,745	0,49	85916,13
2—4	3 10	11363,854	0,36	85916,88
2—5	4 00	14354,145	0,29	85915,63
Mean; Vibrations at 59°,88 FAHR.				85916,46
Reduction to 58° FAHR.				+0,79
Correction for buoyancy				+5,93
Vibrations in vacuo at 58° FAHR.				85923,18

TABLE VI.—Transits observed in London.

1827.	Stars.	Wires Observed.					Mean.		
		1st.	2d.	Meridian.	4th.	5th.	By Chronometer.	By MOLYNEUX.	By CUMMING.
Sept.		m s	m s	h m s	m s	m s	h m s	h m s	h m s
12	γ Aquilæ ...	13 40,4	14 04	8 14 28	14 51,2	15 15,2	8 14 27,8	8 13 41,58	8 14 11,38
	α Aquilæ ...	17 58,8	18 22	8 18 45,6	19 08,8	19 32,8	8 18 45,6	8 17 59,35	8 18 29,15
	α Cygni ...	10 48,4	11 21,2	9 11 53,6	12 26,4	13 59,6	9 11 53,8	9 11 07,36	9 11 37,16
	ε Pegasi ...	11 00,4	11 24,4	10 11 48	12 12	12 36	10 11 48,13	10 11 01,5	10 11 31,3
	Capella...	37 49,2	38 22,4	17 38 56	39 29,2	40 02,8	17 38 55,93	17 38 08,5	17 38 38,3
	Rigel.....	.....	.....	17.....	41 28,8	.....	17 41 05,2	17 40 17,76	17 40 47,56
13	α Lyræ.....	2 52,4	3 22,8	7 3 52,4	4 22	4 51,6	7 3 52,27	7 03 03,3	7 03 33,1
	γ Aquilæ ...	9 48,4	10 11,6	8 10 35,2	10 59,2	11 22,4	8 10 35,33	8 09 46,11	8 10 15,91
	α Aquilæ ...	14 06,4	14 30	8 14 53,2	15 16,8	15 40,4	8 14 53,33	8 14 04,1	8 14 33,9
	α Cygni ...	6 55,6	7 28,8	9 08 01,6	8 34	9 06,8	9 08 01,4	9 07 12,05	9 07 41,9
14	Sun's 1st L.	54 30	54 53,6	23 55 17,6	55 40,8	56 04	} 23 56 21,32	23 55 29,92	23 55 59,72
	Sun's 2d L.	56 38,4	57 02	23 57 25,2	57 49,2	58 12,4			
15	Sun's 1st L.	.....	.....	23 54 59,6	55 22,8	55 46,4	} 23 56 03,73	23 55 09,13	23 55 38,93
	Sun's 2d L.	56 20,8	56 44,8	23 57 08	57 31,6	57 54,8			
	γ Draconis	16 30,8	17 08	6 17 45,6	18 22,8	19 00,4	6 17 45,53	6 16 49,73	6 17 19,53
16	Sun's 1st L.	53 56	54 19,6	23 54 42,8	55 06	55 29,2	} 23 55 46,75	23 54 48,65	23 55 18,5
	Sun's 2d L.	56 04	56 27,6	23 56 50,8	57 14	.....			
17	Sun's 1st L.	53 37,2	54 00,4	23 54 24	54 47,2	55 10,4	} 23 55 28	23 54 27,7	23 54 57,45
	Sun's 2d L.	55 45,6	56 09,2	23 56 32	56 55,2	57 18,8			
18	Sun's 1st L.	53 19,2	53 42,8	23 54 06	54 29,6	54 52,8	} 23 55 10,16	23 54 06,56	23 54 36,36
	Sun's 2d L.	55 27,2	55 50,8	23 56 14	56 37,6	57 01,2			
	Capella...	.....	15 07,2	17 15 40,8	16 13,6	16 47,2	17 15 40,53	17 14 34,33	17 15 04,23
	Rigel ...	.....	17 26	17 17 49,6	18 13,2	18 36,4	17 17 49,6	17 16 43,4	17 17 13,3
	α Orionis...	56 32,8	56 56,4	17 57 20	57 43,6	58 07,6	17 57 20,07	17 56 13,8	17 56 43,7
19	Sun's 1st L.	.....	53 24,4	23 53 48	54 11,6	54 34,8	} 23 54 52,55	23 53 45,65	23 54 15,55
	Sun's 2d L.	55 10	55 34	23 55 57,2	56 20,4	56 43,6			
	γ Draconis	.....	.....	6 02 14,8	2 51,6	.....	6 02 14,6	6 01 06,7	6 01 36,6
	α Lyræ.....	39 36,4	40 06,4	6 40 36	41 05,6	41 35,6	6 40 36	6 39 28,1	6 39 58
20	α Cygni ...	39 48,4	40 20,8	8 40 53,6	41 26,4	41 59,2	8 40 53,67	8 39 41,07	8 40 10,87
	α Orionis...	48 49,2	49 12,4	17 49 36,4	49 59,2	50 23,2	17 48 36,13	17 48 22,53	17 48 52,43
22	Sun's 1st L.	.....	.....	23 52 57,6	.....	.....	} 23 54 01,6	23 52 43,4	23 53 13,5
	Sun's 2d L.	.....	.....	23 55 05,6	.....	.....			
	α Lyræ.....	28 00	28 29,6	6 28 59,6	29 29,6	29 59,2	6 28 59,6	6 27 40,8	6 28 11
	γ Aquilæ...	34 56	35 19,6	7 35 42,8	36 06,8	36 30,4	7 35 43,07	7 34 24,2	7 34 54,4
	α Aquilæ...	39 13,6	39 37,2	7 40 00,8	40 24,8	40 48,4	7 40 00,93	7 38 42,03	7 39 12,23
	α Cygni ...	32 03,2	32 36,4	8 33 09,2	33 41,6	34 14	8 33 08,93	8 31 49,98	8 32 20,18
	ε Pegasi ...	32 16	32 40	9 33 03,6	33 26,8	33 50,8	9 33 03,47	9 31 44,42	9 32 14,62
	α Orionis...	.....	.....	17 41 50	42 13,6	42 37,6	17 41 50,07	17 40 30,07	17 41 00,47
23	γ Draconis	45 31,2	46 08	5 46 45,2	47 22,8	48 00,4	5 46 45,47	5 45 24,07	5 45 54,77
	α Lyræ.....	24 07,6	24 37,6	6 25 06,8	25 36,4	26 06,4	6 25 06,93	6 23 45,43	6 24 16,13
	γ Aquilæ...	31 03,2	31 26,4	7 31 50,4	32 14	32 38	7 31 50,4	7 30 28,8	7 30 59,5
	α Aquilæ...	35 20,4	35 44,2	7 36 07,6	36 31,6	36 55,2	7 36 07,77	7 34 46,17	7 35 16,87
	α Cygni ...	.....	28 42,8	8 29 15,6	29 48,8	30 21,2	8 29 15,7	8 27 54,1	8 28 24,7
	ε Pegasi ...	.....	.....	9.....	.....	29 58	9 28 10,4	9 27 48,73	9 28 19,33

TABLE VII.

Rate of MOLYNEUX deduced from the preceding Transits of Stars.

Stars.	Dates.	Clock's Loss on Sidereal Time.	Difference between Sidereal and Solar Time.	Clock's Gain on Solar Time.	Interval of Days.	Clock's daily Gain on Solar Time.
	September.	m s	m s	s		s
γ Aquilæ	12 to 22	39 17,38	39 19,1	1,72	10	0,17
,,	12 to 23	43 12,78	43 15,01	2,23	11	0,22
,,	13 to 22	35 21,91	35 23,19	1,28	9	0,14
,,	13 to 23	39 17,31	39 19,1	1,79	10	0,18
α Aquilæ	12 to 22	39 17,32	39 19,1	1,78	10	0,18
,,	12 to 23	43 13,18	43 15,01	1,83	11	0,17
,,	13 to 22	35 22,08	35 23,19	1,11	9	0,12
,,	13 to 23	39 17,93	39 19,1	1,17	10	0,12
α Cygni	12 to 20	31 26,29	31 27,28	0,99	8	0,12
,,	12 to 22	39 17,38	39 19,1	1,72	10	0,17
,,	12 to 23	43 13,26	43 15,01	1,75	11	0,16
,,	13 to 20	27 30,98	27 31,37	0,39	7	0,06
,,	13 to 22	35 22,07	35 23,19	1,12	9	0,12
,,	13 to 23	39 17,95	39 19,1	1,15	10	0,12
,,	20 to 23	11 46,97	11 47,73	0,76	3	0,25
ε Pegasi	12 to 22	39 17,08	39 19,1	2,02	10	0,20
,,	12 to 23	43 12,77	43 15,01	2,34	11	0,21
Capella	12 to 18	23 34,17	23 35,46	1,29	6	0,21
Rigel	12 to 18	23 34,36	23 35,46	1,10	6	0,18
α Lyræ	13 to 19	23 35,2	23 35,46	0,26	6	0,04
,,	13 to 22	35 22,5	35 23,19	0,69	9	0,08
,,	13 to 23	39 17,87	39 19,1	1,23	10	0,12
,,	19 to 23	15 42,67	15 43,64	0,97	4	0,24
γ Draconis	15 to 19	15 43,03	15 43,64	0,61	4	0,15
,,	15 to 23	31 25,66	31 27,28	1,62	8	0,20
,,	19 to 23	15 42,63	15 43,64	1,01	4	0,25
α Orionis	18 to 22	15 43,73	15 43,64	—0,09	4	—0,02
				Mean daily Gain.....		0,15

TABLE VIII.

Rate of MOLYNEUX deduced from Transits of the Sun.

1827.	Sun's Transit by MOLYNEUX.	Mean Time of Apparent Noon.	MOLYNEUX Slow.	Rate of MOLYNEUX deduced.								
				Dates.	Int^{s}	Daily Gain.	Dates.	Int^{s}	Daily Gain.	Dates.	Int^{s}	Daily Gain.
Sept.	h m s	h m s	s	September.	Days	s	September.	Days	s	September.	Days	s
14	23 55 29,92	23 55 40,2	10,28	14 to 15	1	0,21	15 to 17	2	0,28	16 to 22	6	0,06
15	23 55 09,13	23 55 19,2	10,07	„ 16	2	0,36	„ 18	3	0,22	17 to 18	1	−0,14
16	23 54 48,65	23 54 58,2	9,55	„ 17	3	0,26	„ 19	4	0,14	„ 19	2	−0,02
17	23 54 27,7	23 54 37,2	9,50	„ 18	4	0,16	„ 22	7	0,13	„ 22	5	0,06
18	23 54 06,56	23 54 16,2	9,64	„ 19	5	0,15	16 to 17	1	0,05	18 to 19	1	−0,09
19	23 53 45,65	23 53 55,2	9,55	„ 22	8	0,14	„ 18	2	−0,04	„ 22	4	0,11
22	23 52 43,4	23 52 52,6	9,20	15 to 16	1	0,52	„ 19	3	0,00	19 to 22	3	0,12
				Mean daily Rate.						Gaining ^{s}0,13.		

Mean daily Rate of MOLYNEUX finally concluded, gaining ^{s}0,15 from the 12th to the 23rd of Sept.

TABLE IX.

Comparisons of MOLYNEUX and CUMMING, Sept. 12th to Sept. 23rd.

Sept.		^{s}	Sept.		^{s}
12;	7 P.M. CUMMING Fast of MOLYNEUX	29,8	18;	7 P.M. CUMMING Fast of MOLYNEUX	29,8
13;	5 A.M.	29,8	19;	5 A.M.	29,9
—	7 P.M.	29,8	—	6 P.M.	29,9
14;	7 A.M.	29,9	20;	7 A.M.	29,85
—	8 P.M.	29,8	—	9 P.M.	29,85
15;	8 A.M.	29,8	21;	5 A.M.	29,9
—	6 P.M.	29,8	—	10 P.M.	29,95
16;	5 A.M.	29,8	22;	10 P.M.	30,2
—	6 P.M.	29,8	23;	5 A.M.	30,4
17;	6 P.M.	29,7	—	10 P.M.	30,6

Rate of CUMMING deduced:
- Sept. 12th P.M. to Sept. 20th P.M. gaining ^{s}0,18 per diem.
- Sept. 20th P.M. to Sept. 21st P.M. gaining 0,28 per diem.
- Sept. 21st P.M. to Sept. 23d P.M. gaining 0,38 per diem.

TABLE X.

London.—Coincidences observed with the Invariable Pendulum No. 7.

EXP. 1. September 13th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 29°,96. Planes No. 8. Therm. No. 4. Observer, CAPTAIN SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
o		m s	m s	h m s / h m s	o s	s	At 63°,85 FAHR.
63,7	1	44 29	44 33	6 44 31			
	2	50 41	50 46	6 50 43,5 / 6 50 43,7	0,87		
63,8	3	56 54	56 59	6 56 56,5	0,49	373,7	85938,27
63,9	33	03 43	03 52	10 03 47,5			
	34	09 58	10 06	10 10 02 / 10 10 02,0	0,28		
64,0	35	16 12	16 19	10 16 16,5			
				Reduction to 63° FAHR.			+0,36
				Correction for buoyancy			+5,98
				Vibrations in vacuo at 63° FAHR.			85944,61

EXP. 2. September 13th Noon. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,00. Planes No. 8. Therm. No. 4. Observer, CAPTAIN SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
o		m s	m s	h m s / h m s	o s	s	At 64°,2 FAHR.
64,1	1	35 52	35 55	10 35 53,5			
	2	42 05	42 08	10 42 06,5 / 10 42 06,7	0,83		
64,2	3	48 18	48 22	10 48 20	0,47	373,5	85937,99
64,2	31	42 34	42 41	1 42 37,5			
	32	48 48	48 56	1 48 52 / 1 48 51,7	0,29		
64,3	33	55 01	55 10	1 55 05,5			
				Reduction to 63° FAHR.			+0,50
				Correction for Buoyancy			+5,99
				Vibrations in vacuo at 63° FAHR.			85944,48

TABLE X. (Continued.)

EXP. 3. September 13th P.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,05. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s h m s	° s	s	At 64°,2 FAHR.
64,3	1	16 20	16 24	2 16 22			
	2	22 33	22 36	2 22 34,5 } 2 22 34,7	0,85		
64,3	3	28 46	28 49	2 28 47,5	} 0,51	373,52	85938,05
64,1	30	16 48	16 58	5 16 53			
	31	23 00	23 11	5 23 05,5 } 5 23 06,7	0,31		
64,1	32	29 16	29 27	5 29 21,5			
				Reduction to 63° FAHR.			+0,50
				Correction for buoyancy			+6,00
				Vibrations in vacuo at 63° FAHR.			85944,55

EXP. 4. September 14th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,25. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s h m s	° s	s	At 63°,25 FAHR.
63,1	1	10 42	10 44	7 10 43			
	2	16 55	16 58	7 16 56,5 } 7 16 56,5	0,80		
63,2	3	23 08	23 12	7 23 10	} 0,47	373,89	85938,49
63,3	29	05 06	05 15	10 05 10,5			
	30	11 21	11 30	10 11 25,5 } 10 11 25,33	0,30		
63,4	31	17 37	17 43	10 17 40			
				Reduction to 63° FAHR.			+0,10
				Correction for buoyancy			+6,05
				Vibrations in vacuo at 63° FAHR.			85944,64

TABLE X. (Continued.)

EXP. 5. September 14th Noon. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,22. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	° s		s	At 63°,725 FAHR.
63,4	1	28 45	28 48	10 28 46,5					
	2	34 58	35 02	10 35 00	10 35 00	0,86			
63,7	3	41 12	41 15	10 41 13,5			0,53	373,62	85938,21
63,8	29	23 04	23 11	1 23 07,5					
	30	29 19	29 24	1 29 21,5	1 29 21,33	0,32			
64,0	31	35 30	35 40	1 35 35					
					Reduction to 63° FAHR.				+0,30
					Correction for buoyancy				+6,04
					Vibrations in vacuo at 63° FAHR.				85944,55

EXP. 6. September 14th P.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,20. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Mean Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	° s		s	At 63°,975 FAHR.
64,0	1	44 22	44 25	1 44 23,5					
	2	50 35	50 37	1 50 36	1 50 36	0,87			
64,1	3	56 47	56 50	1 56 48,5			0,65	373,51	85938,19
63,9	28	32 24	32 31	4 32 27,5					
	29	38 36	38 45	4 38 40,5	4 38 40,83	0,42			
63,9	30	44 50	44 59	4 44 54,5					
					Reduction to 63° FAHR.				+0,41
					Correction for buoyancy				+6,03
					Vibrations in vacuo at 63° FAHR.				85944,63

TABLE X. (Continued.)

EXP. 7. September 15th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,30. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	°	s	s	At 64°,025 FAHR.
63,6	1	50 24	50 26	10 50 25					
	2	56 37	56 40	10 56 38,5	10 56 38,5	0,83			
64,0	3	02 50	02 54	11 02 52			0,47	373,45	85937,93
64,2	30	50 54	50 59	1 50 56,5					
	31	57 05	57 12	1 57 08,5	1 57 08,63	0,30			
64,3	32	03 18	03 24	2 03 21					
					Reduction to 63° FAHR.				+0,43
					Correction for buoyancy				+6,05
					Vibrations in vacuo at 63° FAHR.				85944,41

EXP. 8. September 19th P.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,19. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	°	s	s	At 64°,05 FAHR.
64,1	1	18 12	18 16	1 18 14					
	2	24 25	24 29	1 24 27	1 24 27,17	0,97			
64,1	3	30 39	30 42	1 30 40,5			0,81	373,433	85938,25
64,0	21	22 40	22 45	3 22 42,5					
	22	28 53	28 58	3 28 55,5	3 28 55,83	0,475			
64,0	23	35 06	35 13	3 35 09,5					
					Reduction to 63° FAHR.				+0,44
					Correction for buoyancy				+6,03
					Vibrations in vacuo at 63° FAHR.				85944,72

TABLE X. (Continued.)

EXP. 9. September 20th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 29°,79. Planes No. 8. Therm. No. 4. Observer, M. QUETELET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s / h m s	° s	s	At 61°,95 FAHR.
61,6	1	16 37	16 42	7 16 39,5			
61,6	2	22 49	22 56	7 22 52,5 / 7 22 52,5	0,96		
61,7	3	29 02	29 09	7 29 05,5	0,64	374,37	85939,26
62,1	31	23 47	23 53	11 23 50			
62,2	32	30 00	30 07	11 30 03,5 / 11 30 03,67	0,34		
62,5	33	36 14	36 21	11 36 17,5			
				Reduction to 63° FAHR.			−0,44
				Correction for buoyancy			+5,97
				Vibrations in vacuo at 63° FAHR.			85944,79

EXP. 10. September 20th P.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 29°,78. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s / h m s	° s	s	At 62°,25 FAHR.
62,0	1	2 29	2 32	1 02 30,5			
	2	8 42	8 46	1 08 44 / 1 08 44,17	0,94		
62,2	3	14 56	15 00	1 14 58	0,71	374,08	85938,95
62,3	23	19 35	19 43	3 19 39			
	24	25 50	25 57	3 25 53,5 / 3 25 53,67	0,41		
62,5	25	32 04	32 13	3 32 08,5			
				Reduction to 63° FAHR.			−0,31
				Correction for buoyancy			+5,96
				Vibrations in vacuo at 63° FAHR.			85944,60

TABLE X. (Continued.)

EXP. 11. September 22nd A.M. Clock making 86400,38 Vibrations in a Mean Solar Day.
Barom. 29°,58. Planes No. 7. Therm. No. 4. Observer, M. QUETELET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s h m s	° s	s	At 61°,95 FAHR.
	1	*	*	*			
61,9	2	*	*	* 7 25 42,5	1,00		
	3	*	*	*		0,74		
61,9	29	14 00	14 08	10 14 04		374,113	85939,22
62,0	30	20 12	20 22	10 20 17 10 20 17,67	0,40		
62,0	31	26 27	26 37	10 26 32			
		(* Particulars mislaid.)		Reduction to 63° FAHR.			−0,44
				Correction for buoyancy			+5,93
				Vibrations in vacuo at 63° FAHR.			85944,71

EXP. 12. September 22nd P.M. Clock making 86400,38 Vibrations in a Mean Solar Day.
Barom. 29°,57. Planes No. 7. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	° s	s	At 61°,95 FAHR.
61,8	1	01 41	01 42	12 01 41,5	1,18		
62,1	26	37 21	37 29	2 37 25	0,44	0,99	373,74	85939,01
				Reduction to 63° FAHR.			−0,44
				Correction for buoyancy			+5,93
				Vibrations in vacuo at 63° FAHR.			85944,50

TABLE XI.

London.—Coincidences observed with the Invariable Pendulum No. 8.

EXP. 1. September 16th Noon. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,34. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	°	s	s	At 64°,9 FAHR.
64,5	1	16 23	16 27	11 16 25					
	2	22 26	22 29	11 22 27,5	11 22 28	0,82			
64,9	3	28 30	28 33	11 28 31,5			0,42	363,48	85925,20
65,0	33	30 12	30 19	2 30 15,5					
	34	36 15	36 23	2 36 19	2 36 19,33	0,25			
65,2	35	42 19	42 28	2 42 23,5					
					Reduction to 63° FAHR.				+0,80
					Correction for buoyancy				+6,05
					Vibrations in vacuo at 63° FAHR.				85932,05

EXP. 2. September 17th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,36. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	°	s	s	At 64°,65 FAHR.
64,3	1	16 32	16 36	7 16 34					
	2	22 35	22 39	7 22 37	7 22 37,17	0,93			
64,6	3	28 39	28 42	7 28 40,5			0,54	363,53	85925,36
64,7	34	36 26	36 35	10 36 30,5					
	35	42 30	42 38	10 42 34	10 42 33,67	0,30			
65,0	36	48 33	48 40	10 48 36,5					
					Reduction to 63° FAHR.				+0,69
					Correction for buoyancy				+6,04
					Vibrations in vacuo at 63° FAHR.				85932,09

TABLE XI. (Continued.)

EXP. 3. September 17th P.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,34. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	° s		s	at 65°,1 FAHR.
65,0	1	56 48	56 51	12 56 49,5					
	2	02 50	02 53	1 02 51,5	1 02 51,67	0,92			
65,0	3	08 52	08 56	1 08 54			0,56	363,32	85925,12
65,2	30	52 21	52 28	3 52 24,5					
	31	58 24	58 32	3 58 28	3 58 28	0,32			
65,2	32	04 28	04 35	4 04 31,5					
						Reduction to 63° FAHR.			+0,88
						Correction for buoyancy			+6,04
						Vibrations in vacuo at 63° FAHR.			85932,04

EXP. 4. September 18th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,27. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	° s		s	at 64°,775 FAHR.
64,5	1	00 31	00 36	8 00 33,5					
	2	06 34	06 39	8 06 36,5	8 06 36,67	0,89			
64,7	3	12 38	12 42	8 12 40			0,50	363,44	85925,22
64,9	31	02 14	02 19	11 02 16,5					
	32	08 17	08 23	11 08 20	11 08 20	0,30			
65,0	33	14 21	14 26	11 14 23,5					
						Reduction to 63° FAHR.			+0,74
						Correction for buoyancy			+6,04
						Vibrations in vacuo at 63° FAHR.			85932,00

TABLE XI. (Continued.)

EXP. 5. September 18th P.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,24. Planes No. 8. Therm. No. 4. Observer, M. QUETELET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	°	s	s	At 65°,91 FAHR.
65,9	1	10 35	10 40	1 10 37,5					
65,9	2	16 37	16 42	1 16 39,5					
66,0	3	22 40	22 44	1 22 42	1 22 42	0,95			
66,0	4	28 42	28 47	1 28 44,5					
	5	34 44	34 49	1 34 46,5			0,64	363,124	85924,92
65,8	30	06 03	06 10	4 06 06,5					
65,9	31	12 05	12 12	4 12 08,5					
65,9	32	18 08	18 16	4 18 12	4 18 12,6	0,35			
65,9	33	24 12	24 20	4 24 16					
65,9	34	30 16	30 24	4 30 20					
					Reduction to 63° FAHR.				+1,22
					Correction for buoyancy				+6,03
					Vibrations in vacuo at 63° FAHR.				85932,17

EXP. 6. September 19th A.M. Clock making 86400,18 Vibrations in a Mean Solar Day.
Barom. 30°,20. Planes No. 8. Therm. No. 4. Observer, M. QUETELET.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.		Arc and Correction.		Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	°	s	s	At 64°,17 FAHR.
64,0	1	19 47	19 53	8 19 50					
64,1	2	25 49	25 55	8 25 52	8 25 52,5	0,85			
64,1	3	31 53	31 58	8 31 55,5			0,44	363,91	85925,78
64,2	34	39 52	40 04	11 39 58					
64,3	35	45 56	46 06	11 46 01	11 46 01,67	0,25			
64,3	36	52 00	52 12	11 52 06					
					Reduction to 63° FAHR.				+0,49
					Correction for buoyancy				+6,02
					Vibrations in vacuo at 63° FAHR.				85932,29

TABLE XI. (Continued.)

EXP. 7. September 21st A.M. Clock making 86400,28 Vibrations in a Mean Solar Day.
Barom. 29°,84. Planes No. 8. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s h m s	° s	s	At 61°,85 FAHR.
61,6	1	35 51	35 52	10 35 51,5			
	2	41 55	41 56	10 41 55,5 } 10 41 55,17	1,07		
61,8	3	47 57	48 00	10 47 58,5	} 0,92	364,11	85926,62
62,0	23	49 18	49 25	12 49 21,5			
	24	55 23	55 28	12 55 25,5 } 12 55 25,67	0,47		
62,0	25	01 27	01 33	13 01 30			
					Reduction to 63° FAHR.		−0,48
					Correction for buoyancy		+5,99
					Vibrations in vacuo at 63° FAHR.		85932,13

EXP. 8. September 23rd A.M. Clock making 86400,38 Vibrations in a Mean Solar Day.
Barom. 29°,55. Planes No. 7. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	° s	s	At 60°,3 FAHR.
60,2	1	59 45	59 50	5 59 47,5	1,18 } 0,86	364,485	85927,12
60,4	34	20 11	20 20	9 20 15,5	0,35 }		
					Reduction to 63° FAHR.		−1,13
					Correction for buoyancy		+5,94
					Vibrations in vacuo at 63° FAHR.		85931,93

EXP. 9. September 23rd A.M. Clock making 86400,38 Vibrations in a Mean Solar Day.
Barom. 29°,55. Planes No. 7. Therm. No. 4. Observer, Captain SABINE.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	° s	s	At 60°,5 FAHR.
60,4	1	28 37	28 40	9 28 38,5	1,00 } 0,71	364,464	85926,95
60,7	29	18 40	18 47	12 18 43,5	0,37 }		
					Reduction to 63° FAHR.		−1,05
					Correction for buoyancy		+5,94
					Vibrations in vacuo at 63° FAHR.		85931,84

TABLE XI. (Continued.)

EXP. 10. September 23rd P.M. Clock making 86400,38 Vibrations in a Mean Solar Day. Barom. 29°,57. Planes No. 7. Therm. No. 4. Observer, Captain CHAPMAN, R.A.

Therm.	No. of Coincid.	Times of Disapp.	Times of Re-app.	Times of Coincidence.	Arc and Correction.	Mean Interval.	Corrected Vibrations in 24 Hours Mean Solar Time.
°		m s	m s	h m s	h m s	o s	s	
60,9	1	44 04	44 10	1 44 07				At 61°,37 FAHR.
	2	50 07	50 13	1 50 10	1 50 10,5	1,01		
61,4	3	56 11	56 17	1 56 14			0,61	364,265	85926,60
61,4	35	10 24	10 41	5 10 32,5				
	36	16 31	16 42	5 16 36,5	5 16 35,5	0,28		
61,4	37	22 32	22 43	5 22 37,5				
						Reduction to 63° FAHR.			−0,68
						Correction for buoyancy			+5,93
						Vibrations in vacuo at 63° FAHR.			85931,85

POSTSCRIPT.

The expenses attendant on the conveyance of the pendulums and apparatus from London to Paris, and from Paris back to London, amounting to 26*l.* 15*s.* were defrayed by the Board of Longitude; with whom the papers have been deposited, containing the original entries of the several observations recorded in this paper.

In the account of my pendulum experiments made within the tropics and in the arctic circle, printed at the expense of the Board of Longitude, the rate of the clock with which the pendulums were compared was obtained at five stations, viz. at Bahia, Maranham, Trinidad, Jamaica, and New York, by means of a small repeating circle of six inches diameter, belonging to the Board of Longitude. The correct value of the divisions of the level of this instrument having been ascertained by Captain KATER since the publication of that volume, see Phil. Trans. 1827, Art. IX., the observations made with it at the stations above mentioned have been recomputed: whence it appears that at Bahia the astronomical clock was losing *less* by 0^s,09 per diem,—at Maranham *more* by 0^s,01 per diem,—at Trinidad *less* by 0^s,04 per diem,—at Jamaica *more* by 0^s,08 per diem,—and at New York *more* by 0^s,05 per diem,—

during the coincidences at each station, than was previously supposed. The length of the seconds pendulum at those stations requires consequently the following corrections, viz.

Bahia;	+ ·00008
Maranham; . .	— ·00001
Trinidad; . . .	+ ·00004
Jamaica; . . .	— ·00007
New York; . .	— ·00004

I am also indebted to Captain KATER for the discovery of the two following inaccuracies, which I gladly avail myself of the present opportunity to correct. "In the Table of results with the detached pendulums, the mean of the vibrations of pendulums 3 and 4 at New York should be 86117,98 instead of 86118,48; and at Hammerfest 86220,96 instead of 86221,46; and the resulting seconds pendulums, respectively, 39,10109 instead of 39,10153, and 39,19468 instead of 39,19512."

None of these corrections are of sufficient magnitude to be sensible in the deductions by any of the modes in which the observed pendulums are combined or applied in the volume alluded to; but, for the convenience of those persons who may have occasion to employ the results as data in other deductions, the following corrected Table is subjoined:

St. Thomas;	Latitude	0°	24′,7	N;	Pendulum 39,02074 inches.
Maranham; . . .		2	31,6	S;	. . . . 39,01213 . . .
Ascension;		7	55,2	S;	. . . . 39,02410 . . .
Sierra Leone; . . .		8	29,6	N;	. . . . 39,01997 . . .
Trinidad;		10	38,9	N;	. . . . 39,01888 . . .
Bahia;		12	59,3	S;	. . . . 39,02433 . . .
Jamaica;		17	56,1	N;	. . . . 39,03503 . . .
New York;		40	42,7	N;	. . . . 39,10120 . . .
London;		51	31,1	N;	. . . . 39,13929 . . .
Drontheim; . . .		63	26,0	N;	. . . . 39,17456 . . .
Hammerfest; . . .		70	40,1	N;	. . . . 39,19475 . . .
Greenland; . . .		74	32,3	N;	. . . . 39,20335 . . .
Spitzbergen; . . .		79	49,9	N;	. . . . 39,21469 . . .