IX. *On the Tides.* *By* John William Lubbock, *Esq.*, *V.P.R.S.*

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In my last paper on the Tides I endeavoured to point out the remarkable agreement which obtains in some respects between Bernoulli's theory and results obtained from observations at the London Docks. Since that time my attention has been directed to the following points:

1. To ascertain, from a discussion of the Liverpool observations with reference to a previous transit *, whether they present the same kind of agreement with theory as those of London. (See Tables I. to XII.)

2. To ascertain whether, by taking into account a greater number of observations, the results given in my last paper remain sensibly unaltered. (See Tables XV. to XXVIII.)

3. To ascertain whether the *establishment* of the port varies sensibly in different years, and whether the removal of the old Bridge has occasioned any difference at London. (See Tables XIV. and XXX.)

Numerous tables have been computed for me, in order to elucidate these points, by Mr. Jones and Mr. Russell, having been enabled to procure their valuable assistance in these laborious investigations by means of a further sum of money placed at my disposal for the purpose by the British Association for the Advancement of Science, to which distinguished body I take this opportunity of offering my grateful acknowledgements.

The succeeding transits of the moon being denoted by the letters A, B, C, D, E, F; and F being the time of the moon's transit which immediately precedes the time of high water at London, my last discussion of the London Dock observations was instituted with reference to transit B: the present discussion of the observations made at Liverpool between the 1st of January 1774 and the 31st of December 1792, by Mr. Hutchinson, has been instituted with reference to transit A†, or that which precedes the time of high water at Liverpool by about $2^{d}\ 0^{h}\ 20^{m}{\cdot}9$. This paper contains, in fact, two sets of tables precisely similar; the one set deduced from 13,391 observations of high water made at Liverpool by Mr. Hutchinson, and the other set deduced from 24,592 observations of high water at the Wapping entrance of the

* The former discussion by Mr. Dessiou, given in the Philosophical Transactions for 1835, was made with reference to the transit immediately preceding.

† I had intended the transit B to be used as the argument: the mistake was not perceived until the work was too far advanced to make it worth while to have recommenced.

London Docks made under the direction of the late Mr. Peirce; the latter tables differing from those given in the Philosophical Transactions for 1836, Part I., chiefly by being founded upon nearly double the number of observations. The high waters at Liverpool considered in this paper occur about 48 hours after the transit of the moon to which they are referred; the tides at London which are considered occur about 50 hours after the transit to which they are referred in this discussion, so that in fact all the *intervals* of the Liverpool Tables given in this paper ought to be increased by 36 hours, and all the *intervals* in the London Tables by 48 hours. The tide which makes high water at Liverpool arrives at the same instant somewhere on the north-east coast of Scotland, and at London about fifteen hours later. This is proved by the epoch of the semimenstrual inequality.

I find by interpolation from Table II. the interval for the moon's transit A

	d	h	m
At 3 o'clock . . .	1	23	40·5
and at 9 o'clock . . .	2	1	2·0

The difference is $1^h\ 21^m{\cdot}5$, which converted into space

$$= 20^\circ\ 22' \qquad \log \tan 20^\circ\ 22' = 9{\cdot}56965 = \log (A).$$ (See p. 117.)

If we take the difference between the greatest and least heights = 5·52 from Table III.,

$$(E) = \frac{5{\cdot}52}{2(A)} = 7{\cdot}4353 \text{ for Liverpool,} \quad \log (E) = 0{\cdot}87130.$$

If we take the greatest height = 17·66 from Table III.,

$$17{\cdot}66 = D + \{1 + (A)\}\ (E) = D + \{1{\cdot}3712\}\ (E);$$

and hence definitively for Liverpool in the year 1786,

$$\log (A) = 9{\cdot}56965, \quad \log (E) = 0{\cdot}87130, \quad D = 7{\cdot}46,$$

D being reckoned from the datum in the East Wall of the Canning Dock.

And I find in the same manner for London in the year 1820

$$\log (A) = 9{\cdot}58418, \quad \log (E) = 0{\cdot}64690, \quad D = 16{\cdot}69,$$

D being reckoned from the sill of the London Dock gates at the Wapping entrance.

I conceive that the best if not the only method of investigating alterations in the height of the land above the water in any given locality where the water is influenced by the tides, will be to examine carefully whether any alteration has taken place in the values of the constants D and (E) for that place, the height of high water being of course always reckoned from some fixed mark in the land.

The semimenstrual* inequality of the interval at Liverpool presents the same remarkable agreement with observation which has been noticed before, while the form or law of the semimenstrual inequality of the height is also the same as that indi-

* The semimenstrual inequality is an inequality of high water or of the semidiurnal wave.

cated by the observations; but in order to render the agreement complete, it would be necessary to change the epoch by half an hour*. This remarkable circumstance also obtains in the London correction, as may be seen by reference to the plate which accompanies my last paper.

The results contained in the Tables here given are laid down in diagrams, without which they could not be so readily understood; but as they are similar in nature to those contained in my last paper, they do not require an extended description.

The calendar month inequality at Liverpool, considered as resulting implicitly from the corrections due to changes in the declinations of the luminaries and in the sun's parallax, agrees generally with the equilibrium theory, and with the results deduced from the London observations given in my last paper. The diagrams in Plate I. show that the spring equinoctial tides are greater than the neap equinoctial tides, and that the neap solstitial tides are greater than the spring solstitial tides, confirming what is stated by LAPLACE in the *Exposition du Système du Monde*, 5e ed., p. 83, and by NEWTON: "In quadraturis autem solstitialibus majores ciebunt æstus quam in quadraturis æquinoctialibus, eo quod Lunæ jam in æquatore constitutæ effectus maxime superat effectum Solis. Incidunt igitur æstus maximi in syzygias et minimi in quadraturas luminarium, circa tempora æquinoctii utriusque. Et æstum maximum in syzygiis comitatur semper minimus in quadraturis, ut experientiâ compertum est." LAPLACE says, "Elles [les marées] augmentent et diminuent avec le diamétre et le parallaxe lunaire, *mais dans un plus grand rapport*;" but the diagrams in Plate II. appear to confirm the truth of this passage only at neap tides.

It is desirable to establish the laws which regulate the diurnal inequality in the height of high water in different parts of the globe; at present the data are very insufficient. Mr. WHEWELL remarks, "that it would be easy to enumerate many actual cases in which the safety or loss of a ship has been determined by this inequality." Mr. WHEWELL was the first specially to notice, in his examination of the results of the tide observations made on the coasts of Europe and America in June 1835, contained in the Philosophical Transactions for 1836, the changes which this inequality presents in passing from one place to another.

This inequality depends chiefly upon the sign and amount of the moon's declination. The observations at London and Liverpool indicate no difference between tides corresponding to upper and lower transits, or between those corresponding to A.M. transits and transits P.M. six months afterwards; hence in endeavouring to determine the *diurnal inequality* at London and Liverpool, I have confounded in Tables XII. and XIII. the results corresponding to upper and lower transits, and those corresponding to A.M. transits and transits P.M. six months afterwards. I have also added to these those which ought, according to the preceding remarks, to differ only

* Or, adopting BERNOULLI's views in other respects, the epoch of the correction for the height is not the same as that for the interval.

in sign, and I have taken the mean of the whole for the result, as in the following example.

	h	m		ft.		ft.
Moon's transit A.—Liverpool, Jan.	0	30	A.M.	−·63	substituting	−·56
		. . .	P.M.	+·57	mean of all	+·56
July		. . .	A.M.	+·60	with proper	+·56
		. . .	P.M.	−·42	sign	−·56

4)2·22

·56

In the comparison of the heights in Plates I. II. and III. the London corrections have been multiplied by 1·7, that being the ratio of the quantities (E) for London and Liverpool, agreeably to the remark made in my last paper, p. 223. As the London discussion contained in my last paper was instituted with reference to transit B, and this discussion of the Liverpool observations has been made with reference to transit A, and as the tides which correspond to P.M. transits B correspond to A.M. transits A about twenty-five minutes less, in comparing our London and Liverpool results in all the Plates it was necessary to change the epoch, or to place the London corrections more to the left by half an hour, and to substitute in Plate III. for the London results corresponding to transits P.M. those corresponding to transits A.M. The diurnal inequality therefore, as it is laid down in Plate III. for London and Liverpool, has reference to the same tide or semidiurnal wave, making high water at London about fifteen hours later than at Liverpool.

I have already remarked that the laws to which the wave producing the semidiurnal inequality is subject, agree remarkably with Bernoulli's theory. The equilibrium theory also implies the existence of another wave producing a *diurnal inequality*. $2\psi - 2\varphi$ and 2ψ are the arguments of the *semidiurnal* inequality, $\psi - \varphi$ and ψ of the *diurnal inequality*. If we suppose the diurnal inequality-wave to move with a different velocity from the other, the diurnal inequality in the height may still be represented by the expression

$$\mathrm{d}\,h = B\,\{A \sin 2\,\delta \cos(\psi - \varphi) + \sin 2\,\delta' \cos\psi\},$$

and may be calculated by means of Tables X. and XI., δ being the sun's declination, and δ' that of the moon, but the constants which accompany ψ and φ will be different from those which accompany 2ψ and 2φ; and if we consider the constants to be included in the quantities ψ and φ, at high water, $\cos\psi$ may no longer be nearly equal to ± 1 in the last expression, but it will nearly equal $\pm$ some other constant, supposing the angle ψ still to increase by 180° in passing from one high water to the next; and the diurnal inequality, if the smaller term due to the sun's declination be neglected, may be represented approximately by

$$\mathrm{d}\,\psi = \frac{G \tan \delta'}{1 + A \cos 2\varphi} \qquad \mathrm{d}\,h = C \sin 2\,\delta' \text{ (for a given transit A.M. or P.M.)},$$

C and G being constant for any given place. Probably the amount depends also upon the moon's parallax, and then the expression for d h will be

$$C \times \frac{P^{\prime 3}}{(57')^3} \sin 2\,\delta' \text{ (for a given transit A.M. or P.M.).}$$

But this expression will not afford results agreeing with those which I have obtained from the observations at Liverpool if the declination of the moon be employed belonging to the time of the transit A; and it is necessary to employ the moon's declination at some time previous; that is, several days before the high water under consideration. This is not at variance with what is stated in the *Exposition*, except that, although LAPLACE considers the two waves separately*, he has not, I think, referred distinctly to the change in the epoch for different places, or to the difference between the epoch of the original diurnal and semidiurnal waves, which produce the derived tides observed on our coasts. If, however, the diurnal inequality-wave travels more slowly than the semidiurnal inequality-wave, the epoch also will be different, and thus it may depend upon the moon's declination several days earlier.

If this view be correct, the diurnal inequality of high water has a maximum (geographically) at those places on the coast at which the diurnal inequality-wave and the semidiurnal inequality-wave arrive simultaneously, and there will be places intermediate at which the diurnal inequality of high water is imperceptible, but where the diurnal inequality of low water is a maximum. This theory agrees with observation in giving no difference in the diurnal inequality for upper or lower transits.

The diurnal inequality in the interval at Liverpool is inappreciable; the diurnal inequality in the height has been laid down in Plate III. from the approximate expression

$$\mathrm{d}\,h = B\,\{A \sin 2\,\delta \cos(\psi - \varphi) + \sin 2\,\delta' \cos \psi\} \quad \text{(for transits A.)}$$

The moon's declination δ' was taken from Table X., where it is given for the time of the moon's transit A, but the curve evidently requires to be shifted more to the right; it is difficult to decide exactly how much. In the observations of the height at Liverpool in May 1836 (see Plate IV.) the diurnal inequality vanishes on the 15th, the moon having crossed the equator on the 11th. If we consider that the theory curve requires to be shifted to the right about two hours, this would amount to referring the diurnal inequality at Liverpool to the moon's declination about four days previously.

Mr. RUSSELL has extended the discussion of the London observations given in my last paper by employing those made between 1802 and 1807, and those between 1827 and 1835, omitted before, so that we have now obtained tables similar to those contained in my last paper from the concurrence of no less than 24,592 observations.

* J'ai determiné la grandeur de ce flux et l'heure de son *maximum* dans le port de Brest. J'ai trouvé un cinquième de mètre [7·4 inches] à fort peu près pour sa grandeur; et un dixième de jour environ, pour le temps dont il precède à Brest, l'heure du *maximum* de la marée semidiurne. (Exposition du Système du Monde, 5e ed., p. 286.)

In consequence of this additional number of observations some of the jumps or irregularities which the former tables presented have been removed*, but the differences are in general less than I anticipated.

It is evident from the diagrams in Plate III. that a diurnal inequality in the interval at London is distinct although small. The value of the constant C is different from that which obtains for Liverpool. It is evident from Plate III. that the diurnal inequality in passing from Liverpool to London becomes reversed, that is to say, if a and b denote two successive heights of high water at Liverpool, and a', b' successive heights at London caused by the same tides,

$$\text{if } a > b \text{ then generally } \quad a' < b'.$$

The character of the diurnal inequality is generally manifest in the observations of a single month, as may be seen by those which are laid down in Plate IV. When the change is remarked which takes place in the diurnal inequality in passing from Plymouth to Portsmouth, it will not excite surprise that this inequality should be so different for places more distant from each other, as for London and Liverpool.

The calculations or predictions of the time of high water at any given place have long been made to depend upon what is called the *establishment of the port*, or a certain quantity presumed to be constant and independent of the distances and declinations of the luminaries, but which may be influenced by local circumstances. It seemed to me desirable to ascertain carefully how much this quantity has fluctuated during the time the observations were made at Liverpool by Mr. Hutchinson, which we have employed, and since the observations at the London Docks were instituted. Tables XIV. and XXX., which give these fluctuations, have been computed by Mr. Russell. The changes of the Liverpool establishment, and the fluctuations of the average height of high water at Liverpool are given in Table XIV., and are exhibited in fig. 1. Plate V.: which shows the time and height of high water from 1802 to 1835 at the London Docks on the full and change of the moon; the moon's parallax being 57′, and the declinations of the luminaries 15°, i. e. *the establishment* and the fluctuations in the average height of high water during the same interval. All the intervals and heights have been carefully reduced to horizontal parallax 57′ and declination 15°.

The changes of the London establishment, and the fluctuations of the average height, are given in Table XXX., and are exhibited in fig. 2. Plate V. These fluctuations in the *interval* and in the *height* present an insuperable obstacle to extreme accuracy in tide predictions, unless they can be explained.

"In 1832 none of the lower portions of old London Bridge, (with the exception of two piers,) which prevented the natural flow of the tidal waters, were removed; and in the second year (1833) almost the whole of that structure was cleared away as

* See, for instance, the calendar month correction for the interval in January, and the correction for the height corresponding to H. P. 56′.

regarded the masonry and starlings, although the section of the river was far from completed, many portions still remaining one or two feet above low-water mark, and which were finally removed in the year 1834*."

The time of high water appears now to be nearly as late as in 1804; in 1821 it was about ten minutes sooner.

I am much indebted to Mr. YATES for notice of a very ancient tide table which exists in a MS. in the British Museum. It is in the Codex Cottonianus, Julius DVII., which appears to have been written in the 13th century, and to have belonged to St. Albans Abbey. It contains calendar and other astronomical or geographical matters, some of which are the productions of JOHN WALLINGFORD, who died Abbot of St. Albans A.D. 1213. At p. 45 b. is a table on one leaf, showing the time of high water at London Bridge, "flod at london brigge", thus:

Ætas Lunæ.

	h	m
1	3	48
2	4	36
3	5	24
4	6	12
....	....	....
....	....	....
28	1	24
29	2	12
30	3	0

N.B. The numbers increase by a constant difference of forty-eight minutes. The first column gives the moon's age in days.

Hence it would appear that high water at London on full and change was at that epoch $3^h\ 48^m$, or more than an hour later than at present. The time of high water at London on full and change is given in Mr. RIDDLE's *Navigation* and in other works $2^h\ 45^m$: FLAMSTEED made it 3^h†.

Note.—*On the Fluctuations of the Height of High Water due to changes in the Atmospheric Pressure.*

Read June 15.

M. DAUSSY having ascertained that at Brest the ocean rises when the barometer is depressed, I verified the existence of the same fact at Liverpool and London, and I found that at Liverpool when the barometer falls ·91 inch the tide rises 10·1 inches. As the *range* of the barometer is 3 inches‡, the correction which arises from change in the atmospheric pressure is by no means inconsiderable, its *range* being at Liverpool about 33 inches. At London I have found that when the barometer falls ·9 inch

* RENNIE, Report on Hydraulics, p. 512.

† See Philosophical Transactions, vol. xii. p. 12.

‡ Between the tropics the fluctuations of the barometer do not much exceed one fourth of an inch, while beyond this space they reach to 3 inches. DANIELL's Meteorological Essays, p. 108.

the tide rises 6·3 inches, and hence the *range* of the correction here is about 21 inches. Hence it is evident that in many inquiries relative to the tides, and particularly when observations are employed throughout only a limited period, the *correction* due to the atmospheric pressure may require to be attended to. Here, however, a question arises of some interest; does the surface of the ocean rise in narrow seas *simultaneously* with the depression of the barometer, or otherwise? In order to acquire some information upon this point, I requested Mr. RUSSELL to calculate carefully from our Tables the height of high water at Liverpool and London for May and June 1836, and to compare the calculations with the observations, which is done in the accompanying Table, and the *errors*, together with the height of the barometer at Liverpool and London, are exhibited in fig. 3. Plate V.

Table showing the difference between the Height of High Water as calculated, and the Heights derived from observations at the London and Liverpool Docks.

1836. May.	Liverpool. O − C.	London. O − C.	1836. May.	Liverpool. O − C.	London. O − C.	1836. June.	Liverpool. O − C.	London. O − C.	1836. June.	Liverpool. O − C.	London. O − C.
	inches.	inches.		inches.	inches.		inches.	inches.		inches.	inches.
1	− 1	− 1	17		+ 1	1.		+ 6	17.	+ 11	+ 9
	− 7	+ 5		− 8	0		− 3	+ 4		+ 12	+ 9
2	− 11	+ 13	18	− 6	− 1	2.	0	+ 6	18.	+ 14	+ 5
		+ 18		− 4	+ 1		+ 6	+ 6		+ 14	+ 5
3	− 15	+ 11	19	− 3	+ 1	3.	+ 11	+ 1	19.	+ 14	+ 7
	− 11	+ 8		− 1	− 1		+ 14	+ 1		+ 13	+ 10
4	− 6	+ 6	20	+ 1	− 1	4.	+ 17	+ 4	20.	+ 12	+ 8
	− 2	+ 5		+ 2	+ 1		+ 18	+ 4		+ 12	+ 5
5	− 1	+ 2	21	+ 3	+ 4	5.	+ 14	+ 8	21.	+ 11	+ 5
	− 4	+ 5		+ 3	+ 5		+ 12			+ 10	+ 4
6	− 5	+ 7	22	+ 4	+ 2	6.	+ 12	+ 17	22.	+ 12	0
	− 3	+ 5		+ 1	+ 1		+ 5	+ 6		+ 14	0
7	− 4	+ 6	23	0	+ 5	7.	+ 12	+ 6	23.	+ 16	+ 1
	− 2	+ 4		− 3	+ 7		+ 9	+ 8		+ 15	+ 2
8	− 2	+ 4	24	− 1	+ 6	8.	+ 6	+ 7	24.	+ 11	+ 2
	0	+ 3		+ 1	0		+ 9	+ 6		+ 10	+ 1
9	+ 1	+ 4	25	+ 1	0	9.	+ 9	+ 6	25.	+ 9	0
	0	+ 2		− 3	+ 1		+ 9	+ 4		+ 4	+ 1
10	0	+ 1	26	− 2	+ 5	10.	+ 9	+ 3	26.	0	+ 3
	− 1	− 3		− 2	+ 1		+ 5	+ 5		− 2	+ 2
11	0	− 5	27	− 2	− 1	11.	+ 3		27.	− 1	
	0	− 5		− 2	− 1		+ 5	+ 6		+ 2	+ 1
12	0		28	− 0		12.	+ 5	+ 4	28.	+ 3	0
	− 3	+ 1		− 2	0		+ 3	+ 2		+ 2	+ 2
13	− 5	0	29	− 3	0	13.	+ 1	+ 3	29.	0	+ 3
	− 8	− 2		− 3	+ 1		+ 1	+ 4		0	+ 3
14	− 9	− 2	30	− 2	0	14.	+ 4	+ 5	30.		+ 3
	− 9	− 1		− 3	+ 1		+ 5	+ 7		− 1	+ 2
15	− 9	− 1	31	− 0	+ 3	15.	+ 7	+ 9			
	− 7	− 1		− 3	+ 2			+ 11			
16	− 7	0				16.	+ 11	+ 10			
	− 7	+ 1					+ 11	+ 9			

The above differences, O — C, are not the differences between Calculation and *actual* observation, but between Calculation and what it is presumed observation would be if freed of diurnal inequality by drawing an intermediate curve between those given in Plate IV.

Results deduced from Observations made at

LIVERPOOL.

TABLE I. (*a*.)

Showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Transit A* in each month of the year, from 13,391 observations made at the Liverpool Docks, between the 1st of January 1774 and the 31st of December 1792.

January.						February.					
Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.	Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.
	h m	h m	ft. in.	°	′		h m	h m	ft. in.	°	′
91	0 30·1	12 10·1	17 10·1	18·6	57·6	88	0 31·4	12 12·9	18 3·6	9·9	57·3
94	1 30·4	11 57·1	17 3·7	14·9	57·4	91	1 30·7	11 57·7	17 7·1	5·2	57·4
96	2 29·7	11 45·5	16 4·1	9·9	57·4	90	2 29·9	11 47·1	16 4·9	4·8	57·2
104	3 29·7	11 38·8	15 0·8	5·6	57·0	91	3 29·1	11 38·2	14 8·7	8·3	57·1
100	4 29·9	11 42·7	13 4·8	4·9	56·7	91	4 29·3	11 42·3	12 11·5	13·4	56·9
104	5 30·0	12 3·5	12 6·8	8·5	56·8	86	5 29·5	12 3·6	11 9·5	18·4	56·9
96	6 30·1	12 36·2	12 6·8	13·5	56·7	85	6 29·0	12 40·6	11 11·2	20·9	56·7
92	7 27·6	13 2·6	13 9·1	17·9	56·9	83	7 29·5	13 5·2	13 7·0	22·3	57·0
92	8 29·2	13 7·3	15 3·8	20·6	57·1	81	8 29·0	13 8·7	15 0·5	22·9	57·0
86	9 30·2	12 59·4	16 2·2	22·7	57·5	83	9 29·8	12 59·4	16 6·3	21·7	57·2
89	10 30·2	12 44·7	17 3·5	22·6	57·6	81	10 30·4	12 43·9	17 7·9	18·9	57·5
86	11 30·7	12 28·7	17 9·0	21·9	57·7	87	11 30·3	12 28·2	18 2·8	14·9	57·3
Sun's Declination S. 21°.						Sun's Declination S. 13°.					
March.						April.					
102	0 28·8	12 13·1	18 4·3	4·5	57·7	94	0 29·0	12 13·1	17 6·8	12·4	57·5
101	1 29·1	11 58·9	17 5·0	8·0	57·7	93	1 30·0	11 57·7	16 9·6	16·8	57·6
100	2 29·9	11 45·5	15 11·9	12·8	57·3	87	2 30·7	11 43·1	15 4·8	20·6	57·5
92	3 30·0	11 35·9	14 1·1	17·5	56·9	86	3 30·6	11 34·1	13 10·1	22·2	57·2
91	4 29·3	11 37·7	12 3·5	20·7	56·8	88	4 30·7	11 37·7	12 3·3	23·0	57·0
89	5 29·7	12 0·2	11 2·5	22·3	56·7	85	5 30·7	12 2·2	11 5·8	22·2	57·0
89	6 31·2	12 42·2	11 8·8	22·8	56·2	91	6 30·3	12 39·6	11 10·9	19·8	56·7
84	7 30·1	13 6·2	13 3·6	21·7	56·8	91	7 30·5	13 1·6	13 8·3	15·8	57·1
94	8 29·7	13 8·8	15 0·7	19·7	56·8	94	8 29·4	13 4·5	15 5·1	11·1	57·1
98	9 30·2	12 58·4	16 8·2	15·2	57·2	96	9 28·4	12 56·9	16 10·1	6·2	57·2
98	10 30·9	12 44·1	17 10·3	10·6	57·4	103	10 29·0	12 43·5	17 8·3	4·4	57·2
92	11 30·4	12 28·4	18 6·4	6·0	57·7	94	11 29·4	12 29·1	18 0·5	7·4	57·3
Sun's Declination S. 2°.						Sun's Declination N. 10°.					
May.						June.					
87	0 28·6	12 12·8	16 9·0	20·3	57·3	82	0 28·7	12 11·1	16 9·1	23·1	57·3
89	1 29·8	11 57·1	16 2·3	22·1	57·4	85	1 28·9	11 56·8	16 3·3	22·1	57·3
83	2 30·6	11 43·1	15 3·3	22·8	57·5	87	2 29·4	11 44·2	15 5·9	19·5	57·2
87	3 29·3	11 35·2	14 0·7	22·1	57·3	92	3 28·6	11 38·7	14 5·5	15·9	57·1
95	4 29·4	11 38·9	12 11·7	20·0	57·1	99	4 30·0	11 44·5	13 8·0	11·5	57·1
96	5 29·7	12 3·2	12 4·1	15·1	57·1	96	5 29·7	12 4·6	12 11·2	6·4	57·0
101	6 28·9	12 35·7	12 10·8	11·9	57·1	108	6 30·2	12 35·4	13 3·0	4·8	57·0
106	7 29·5	12 57·1	14 1·6	6·6	57·2	97	7 30·9	12 57·2	14 0·5	7·5	57·2
103	8 30·0	13 1·3	15 4·4	4·5	57·0	96	8 30·1	13 2·6	15 2·5	13·4	57·3
101	9 30·5	12 55·5	16 5·7	7·2	57·3	91	9 30·4	12 57·2	16 2·0	17·0	57·4
98	10 31·3	12 43·0	16 11·6	11·9	57·2	85	10 29·8	12 45·1	16 8·0	20·4	57·6
89	11 29·9	12 29·3	17 3·5	16·9	57·4	84	11 29·5	12 29·4	16 9·4	22·2	57·3
Sun's Declination N. 19°.						Sun's Declination N. 23°.					

* The succeeding transits of the moon are denoted by the letters A, B, C, D, E, F; F being the transit immediately preceding the time of high water at London.

TABLE I. (*a*.) (Continued.)

July.

Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.
	h m	h m	ft. in.	°	′
93	0 30·3	12 13·3	17 2·5	19·4	57·4
90	1 30·1	11 58·5	16 10·1	16·1	57·3
101	2 29·8	11 45·4	16 1·1	11·0	57·1
101	3 30·8	11 41·8	14 9·0	6·4	56·9
100	4 29·7	11 45·3	13 8·2	4·7	56·8
102	5 29·0	12 5·2	12 8·5	7·5	56·8
99	6 29·1	12 37·0	12 7·9	12·7	56·9
97	7 29·7	13 0·8	13 10·8	17·2	57·1
92	8 30·6	13 6·2	14 11·1	20·7	57·1
85	9 29·5	13 0·2	16 1·6	22·2	57·6
88	10 29·1	12 44·3	16 10·1	22·9	57·6
89	11 30·0	12 29·2	17 3·3	21·9	57·6

Sun's Declination N. 21°.

August.

Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.
	h m	h m	ft. in.	°	′
97	0 29·6	12 14·3	18 0·5	10·7	57·7
103	1 28·3	12 0·0	17 4·1	6·1	57·6
105	2 28·0	11 47·0	16 5·0	4·5	57·3
100	3 28·4	11 40·1	14 9·5	7·0	56·9
100	4 28·7	11 41·3	13 1·1	12·8	56·8
93	5 28·8	12 2·4	11 9·4	17·5	56·7
93	6 29·0	12 39·7	12 0·4	20·6	56·7
84	7 29·1	13 4·9	13 4·7	22·2	56·9
90	8 29·3	13 9·7	14 9·0	22·9	56·9
88	9 30·4	13 0·2	16 3·3	21·6	57·1
92	10 30·6	12 44·8	17 2·8	19·4	57·4
92	11 30·3	12 28·5	18 0·6	15·5	57·7

Sun's Declination N. 13°.

September.

98	0 30·5	12 13·5	18 4·9	4·5	57·6
98	1 30·9	11 58·7	17 6·5	7·0	57·5
96	2 30·4	11 45·6	16 2·5	12·4	57·5
93	3 30·0	11 36·6	14 4·9	16·8	57·1
88	4 29·6	11 37·9	12 6·7	19·9	56·9
82	5 28·4	11 59·3	11 6·0	22·1	56·8
92	6 29·2	12 39·5	12 1·6	23·3	56·7
83	7 30·4	13 4·9	13 6·9	22·1	57·0
88	8 29·7	13 8·2	15 2·4	20·0	56·9
91	9 29·9	12 58·7	16 9·2	16·0	57·2
94	10 29·7	12 44·0	17 11·2	11·2	57·4
98	11 30·2	12 28·5	18 3·8	6·5	57·5

Sun's Declination N. 3°.

October.

95	0 28·7	12 12·9	18 0·0	11·3	57·3
93	1 28·3	11 57·0	17 3·1	16·3	57·5
92	2 28·7	11 41·3	15 8·0	20·2	57·3
91	3 28·2	11 35·0	14 3·2	22·0	57·4
97	4 29·8	11 34·9	12 7·4	23·0	57·1
89	5 31·6	12 0·4	11 8·1	21·9	57·2
88	6 29·7	12 37·7	12 1·9	20·2	56·9
100	7 29·6	13 3·3	13 10·6	17·0	57·0
96	8 30·7	13 5·7	15 6·8	12·4	56·9
100	9 30·0	12 57·3	17 0·6	6·9	57·1
98	10 29·3	12 43·5	17 8·9	4·5	57·3
100	11 28·7	12 28·8	18 6·8	6·6	57·3

Sun's Declination S. 9°.

November.

86	0 31·1	12 11·9	17 5·2	19·7	57·4
82	1 30·6	11 56·0	16 6·8	22·2	57·2
83	2 29·9	11 41·7	15 6·4	22·9	57·2
85	3 29·6	11 34·1	14 2·8	22·2	57·1
94	4 31·3	11 37·2	12 10·7	20·2	57·0
89	5 31·0	12 2·4	12 5·5	16·4	57·1
100	6 30·2	12 37·5	12 11·5	12·3	56·9
98	7 30·0	12 57·7	14 2·9	7·3	57·0
98	8 28·7	13 2·4	15 9·6	4·5	57·1
99	9 28·4	12 54·4	16 11·7	6·2	57·3
94	10 28·3	12 43·9	17 8·0	11·6	57·4
94	11 29·9	12 28·8	17 10·1	16·5	57·4

Sun's Declination S. 19°.

December.

85	0 29·6	12 12·0	17 1·2	23·1	57·3
87	1 29·8	11 55·2	16 5·8	22·1	57·3
86	2 29·1	11 42·7	15 7·6	19·3	57·1
97	3 28·7	11 38·3	14 9·2	15·8	57·1
101	4 30·3	11 41·6	13 6·0	11·0	56·9
104	5 30·1	12 3·7	12 10·3	6·6	56·9
106	6 30·2	12 35·8	13 2·0	4·9	56·9
103	7 30·0	12 57·8	14 3·4	7·1	57·1
101	8 29·5	13 2·3	15 7·7	12·3	57·3
90	9 29·1	12 57·0	16 7·7	16·3	57·5
93	10 29·1	12 45·1	17 3·3	20·1	57·5
85	11 30·3	12 28·2	17 6·3	22·2	57·6

Sun's Declination S. 23°.

TABLE II. (*b*.) (Interpolated from Table I.)

Showing the Interval between the Apparent Solar Time of the Moon's Transit A, and the Time of High Water at the Liverpool Docks for each month in the year.

Apparent Solar Time of Moon's Transit A.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Mean.
h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
0 30	12 9·9	12 13·2	12 12·6	12 12·6	12 12·3	12 10·6	12 13·3	12 14·0	12 13·4	12 12·4	12 12·1	12 11·9	12 12·3
1 30	11 56·8	11 57·5	11 58·1	11 57·2	11 56·1	11 56·2	11 58·2	11 59·1	11 58·4	11 56·1	11 55·9	11 54·9	11 57·0
2 30	11 44·8	11 46·8	11 45·0	11 42·4	11 43·4	11 43·8	11 45·2	11 46·1	11 44·9	11 40·6	11 41·4	11 42·3	11 43·9
3 30	11 38·8	11 38·0	11 36·1	11 33·7	11 34·5	11 38·4	11 42·0	11 40·2	11 36·4	11 34·0	11 33·9	11 38·0	11 37·0
4 30	11 43·5	11 42·7	11 38·3	11 37·7	11 38·8	11 44·3	11 45·9	11 42·1	11 38·3	11 34·7	11 36·9	11 41·8	11 40·4
5 30	12 3·7	12 4·0	12 0·8	12 1·9	12 3·2	12 4·8	12 5·9	12 3·4	12 0·3	11 59·4	12 1·8	12 3·8	12 2·8
6 30	12 35·8	12 40·7	12 40·6	12 39·0	12 36·4	12 35·3	12 37·4	12 39·8	12 39·5	12 37·7	12 37·8	12 35·6	12 37·9
7 30	13 2·8	13 5·3	13 5·7	13 1·7	12 57·7	12 57·5	13 1·1	13 4·8	13 4·8	13 3·4	12 57·7	12 58·0	13 1·7
8 30	13 7·5	13 8·7	13 8·3	13 4·7	13 1·3	13 3·3	13 6·4	13 9·5	13 8·0	13 5·5	13 2·7	13 3·0	13 5·7
9 30	13 0·2	12 59·7	12 58·7	12 56·9	12 56·1	12 57·9	13 1·1	13 0·5	12 59·0	12 57·5	12 53·6	12 57·6	12 58·2
10 30	12 45·2	12 44·5	12 44·7	12 43·5	12 43·5	12 45·6	12 44·7	12 45·3	12 44·3	12 43·6	12 43·9	12 45·4	12 44·5
11 30	12 29·1	12 28·4	12 28·7	12 29·0	12 29·4	12 29·4	12 29·4	12 28·8	12 28·8	12 28·5	12 28·9	12 28·5	12 29·0

Moon's Hor. Par. 57′.

TABLE III. (*c.*) (Interpolated from Table I.)

Showing the Height of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Transit A, in each month of the year.

Apparent Solar Time of Moon's Transit A.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Mean.
h m	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
0 30	17·59	18·18	18·06	17·35	16·61	16·62	17·04	17·75	18·16	17·86	17·27	16·97	17·46
1 30	17·15	17·43	17·12	16·55	16·02	16·13	16·71	17·07	17·33	17·02	16·50	16·35	16·78
2 30	16·17	16·33	15·87	15·21	15·33	15·40	16·05	16·26	16·02	15·53	15·45	15·57	15·77
3 30	15·06	14·66	14·13	13·76	13·93	14·38	14·81	14·79	14·37	14·06	14·18	14·70	14·40
4 30	13·51	12·98	12·35	12·30	12·93	13·63	13·75	13·14	12·59	12·58	12·92	13·55	13·02
5 30	12·65	11·82	11·33	11·49	12·30	12·93	12·78	11·89	11·56	11·62	12·43	12·90	12·14
6 30	12·69	12·06	12·03	12·03	12·87	13·25	12·71	12·16	12·26	12·20	13·00	13·21	12·54
7 30	13·85	13·58	13·38	13·64	14·06	13·94	13·87	13·45	13·58	13·88	14·24	14·24	13·81
8 30	15·30	15·07	15·15	15·40	15·37	15·09	14·87	14·81	15·26	15·59	15·79	15·53	15·27
9 30	15·98	16·45	16·60	16·79	16·35	16·01	15·90	16·23	16·69	17·01	16·89	16·46	16·45
10 30	17·04	17·43	17·68	17·62	16·87	16·42	16·60	17·05	17·76	17·63	17·52	17·07	17·22
11 30	17·46	18·10	18·34	17·91	17·12	16·65	17·03	17·76	18·11	18·45	17·67	17·28	17·66

Moon's Hor. Par. 57′.

TABLE IV. (*d.*)

Showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Transit A, for every minute of her Horizontal Parallax.

Hor. Par. 54′.					Hor. Par. 55′.				
Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
	h m	h m	ft. in.	°		h m	h m	ft. in.	°
201	0 29·8	12 12·3	16 4·0	14·5	159	0 29·4	12 13·2	16 7·8	14·8
191	1 29·9	11 53·9	15 7·7	15·0	169	1 29·6	11 56·1	15 11·2	14·8
191	2 29·1	11 39·6	14 8·4	15·3	175	2 30·3	11 39·7	14 10·9	15·0
167	3 28·6	11 30·2	13 4·2	15·1	193	3 28·3	11 31·5	13 7·6	14·8
150	4 27·7	11 32·2	11 11·5	15·5	236	4 30·4	11 34·1	12 3·0	15·8
108	5 29·0	11 58·0	10 10·4	15·3	242	5 30·2	12 0·2	11 3·0	14·8
120	6 30·1	12 41·6	11 4·0	16·3	266	6 29·1	12 40·7	11 6·9	15·3
133	7 30·8	13 8·5	12 8·6	14·8	214	7 28·5	13 6·7	12 10·9	15·3
174	8 29·3	13 12·7	14 2·3	15·8	208	8 29·1	13 13·7	14 7·3	15·5
179	9 29·3	13 4·9	15 5·1	14·8	186	9 29·8	13 4·6	15 9·7	15·1
196	10 29·9	12 46·4	16 2·9	15·1	169	10 29·4	12 46·4	16 6·4	14·4
190	11 29·6	12 29·9	16 6·9	14·8	168	11 29·6	12 29·4	16 9·1	14·7
Sun's Declination 15°.					Sun's Declination 15°.				
Hor. Par. 56′.					Hor. Par. 57′.				
116	0 30·1	12 12·7	16 11·4	14·4	105	0 32·0	12 12·4	17 3·3	14·1
118	1 30·8	11 56·2	16 2·8	14·6	103	1 31·2	11 57·2	16 9·3	14·1
119	2 28·8	11 37·4	15 6·2	13·9	106	2 30·6	11 43·9	15 11·3	13·6
147	3 30·5	11 35·2	14 0·0	14·6	118	3 30·3	11 39·5	14 5·2	14·4
141	4 31·4	11 38·9	12 6·8	14·6	128	4 29·4	11 41·9	13 0·4	14·3
143	5 29·1	12 0·6	11 7·1	15·1	144	5 29·5	12 2·2	12 1·6	14·9
153	6 29·5	12 38·4	12 0·4	14·8	136	6 31·9	12 38·4	12 6·6	14·9
143	7 29·5	13 3·6	13 4·2	14·7	136	7 29·5	13 1·0	13 9·8	14·5
139	8 29·7	13 7·3	14 9·5	14·5	113	8 29·0	13 5·9	15 3·0	14·4
125	9 30·0	12 59·2	16 0·8	14·5	102	9 27·5	12 55·5	16 3·4	14·0
124	10 30·0	12 44·2	16 10·0	14·6	99	10 29·2	12 43·0	17 1·9	14·1
107	11 30·9	12 29·3	17 2·7	14·6	109	11 30·4	12 29·0	17 6·3	14·3
Sun's Declination 15°.					Sun's Declination 15°.				

TABLE IV. (*d.*) (Continued.)

Hor. Par. 58′.					Hor. Par. 59′.				
Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Number of Observations.	Apparent Solar Time of Moon's Transit A.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
	h m	h m	ft. in.	°		h m	h m	ft. in.	°
92	0 27·4	12 13·7	17 6·2	13·5	94	0 29·1	12 13·3	18 4·9	14·0
101	1 28·6	11 58·0	17 2·2	13·8	98	1 31·7	11 58·4	17 8·2	14·1
101	2 30·0	11 46·1	16 0·1	14·0	114	2 30·9	11 47·3	16 6·5	14·6
126	3 30·3	11 38·9	14 9·6	14·4	133	3 30·2	11 41·0	15 2·2	14·2
133	4 31·7	11 43·5	13 4·6	14·5	204	4 31·7	11 46·1	13 10·9	15·0
154	5 31·9	12 5·5	12 8·4	14·5	285	5 31·0	12 7·1	13 2·4	15·4
147	6 29·0	12 36·5	13 0·2	14·9	301	6 28·1	12 34·9	13 6·6	15·0
144	7 30·0	12 58·1	14 2·9	14·3	196	7 27·9	12 55·7	14 6·9	15·3
114	8 28·8	13 2·9	15 8·0	13·7	143	8 28·5	13 2·8	16 0·8	14·7
114	9 30·9	12 56·6	16 8·9	13·9	113	9 26·7	12 54·2	17 2·5	14·3
104	10 29·9	12 43·3	17 6·2	13·4	97	10 28·3	12 44·0	18 0·8	14·4
88	11 28·7	12 28·6	17 8·9	14·1	98	11 29·5	12 29·0	18 6·1	13·8
Sun's Declination 15°.					Sun's Declination 15°.				
Hor. Par. 60′.					Hor. Par. 61′.				
113	0 31·6	12 13·3	18 8·9	14·8	191	0 29·7	12 13·2	19 3·0	14·7
112	1 30·3	11 59·8	18 1·8	14·4	213	1 27·6	12 1·2	18 6·1	15·1
161	2 31·3	11 49·3	16 11·4	14·2	140	2 26·5	11 50·3	17 5·1	15·6
219	3 30·0	11 43·7	15 7·7	15·5	16	3 12·4	11 46·1	16 1·1	18·6
150	4 25·7	11 47·2	14 4·7	16·1					
33	5 15·3	11 58·6	13 8·4	15·2					
30	6 43·6	12 41·4	13 9·6	15·9					
150	7 33·9	12 55·6	15 0·9	15·4					
212	8 29·7	12 58·9	16 5·7	15·3	19	8 48·9	12 57·9	16 9·1	19·8
162	9 27·4	12 53·8	17 9·3	14·6	127	9 35·6	12 52·6	18 0·8	15·1
123	10 29·6	12 42·2	18 7·1	14·4	201	10 31·4	12 40·3	18 10·9	14·9
106	11 30·2	12 27·0	19 0·0	14·1	195	11 28·7	12 27·8	19 5·1	15·1
Sun's Declination 15°.					Sun's Declination 15°.				

TABLE V. (*e.*)

Interpolated from Table IV., and reduced to Moon's Declination 15°.

Apparent Solar Time of Moon's Transit A.	H. P. 54′.		H. P. 55′.		H. P. 56′.		H. P. 57′.	
	Interval.	Height of Tide.	Interval.	Height of Tide.	Interval.	Height of Tide.	Interval.	Height of Tide.
h m	h m	feet.	h m	feet.	h m	feet.	h m	feet.
0 30	12 12·1	16·31	12 13·0	16·64	12 12·6	16·92	12 12·8	17·23
1 30	11 53·9	15·64	11 56·0	15·91	11 56·3	16·22	11 57·3	16·74
2 30	11 39·5	14·70	11 39·6	14·93	11 36·9	15·42	11 43·6	15·86
3 30	11 30·2	13·32	11 31·4	13·58	11 35·0	13·99	11 39·3	14·40
4 30	11 33·0	11·94	11 34·4	12·32	11 38·4	12·58	11 41·7	12·98
5 30	11 58·6	10·88	12 0·1	11·24	12 1·1	11·59	12 2·5	12·12
6 30	12 41·4	11·42	12 40·3	11·61	12 38·7	12·03	12 37·4	12·53
7 30	13 8·4	12·69	13 6·8	12·96	13 3·8	13·35	13 1·3	13·80
8 30	13 12·3	14·27	13 13·4	14·66	13 7·5	14·77	13 6·1	15·24
9 30	13 4·9	15·43	13 4·6	15·82	12 59·4	16·04	12 55·3	16·27
10 30	12 46·4	16·25	12 46·4	16·52	12 44·3	16·81	12 43·0	17·11
11 30	12 29·8	16·57	11 29·3	16·75	12 29·5	17·21	12 29·2	17·49
	H. P. 58′.		H. P. 59′.		H. P. 60′.		H. P. 61′.	
0 30	12 12·9	17·41	12 13·0	18·34	12 13·7	18·74	12 13·1	19·16
1 30	11 57·5	17·08	11 58·6	17·64	11 59·8	18·12	12 0·6	18·49
2 30	11 45·8	15·95	11 47·4	16·54	11 49·3	16·93	11 49·9	17·40
3 30	11 38·7	14·77	11 40·7	15·16	11 44·0	15·67		
4 30	11 43·0	13·39	11 45·8	13·95	11 45·8	14·37		
5 30	12 4·4	12·69	12 6·7	13·24				
6 30	12 37·0	13·03	12 35·9	13·58				
7 30	12 58·4	14·20	12 55·9	14·65	12 54·6	15·02		
8 30	13 3·3	15·62	13 3·0	16·10	12 58·7	16·51		
9 30	12 57·1	16·65	12 53·8	17·24	12 53·4	17·81	12 53·6	17·96
10 30	12 43·6	17·42	12 43·7	18·06	12 42·2	18·57	12 40·6	18·89
11 30	12 28·3	17·69	12 29·0	18·43	12 27·2	18·94	12 27·4	19·45

TABLE VI. (*f*.)

Showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Upper and Lower Transit A, P.M. and A.M.

January.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Apparent Solar Time of Moon's Transit A	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
h m	′	h m	ft. in.	°	h m	′	h m	ft. in.	°
0 30·1	57.6	12 11·3	18 7·6	S. 18·4	0 28·7	57·8	12 12·6	17 2·7	S. 19·2
1 30·4	58·0	11 56·3	18 5·3	S. 14.7	1 28·4	57·0	11 57·9	16 7·8	S. 14·7
2 28·7	57·2	11 45·7	17 0·3	S. 10·0	2 29·9	57·8	11 45·1	15 10·9	S. 9·9
3 29·9	56·9	11 38·3	15 9·7	S. 4·2	3 29·4	57·0	11 39·8	14 4·7	S. 3·9
4 29·4	56·9	11 42·9	14 3·1	N. 2·1	4 29·6	56·6	11 41·9	12 8·2	N. 2·2
5 30·6	56·5	12 3·8	12 10·1	N. 7·9	5 29·8	56·8	12 3·2	12 1·0	N. 7·6
6 33·5	56·7	12 39·0	12 10·7	N. 13·8	6 27·3	56·5	12 35·7	12 2·9	N. 13·5
7 28·9	56·8	13 1·9	13 9·5	N. 17·8	7 27·0	56·7	13 2·0	13 7·4	N. 17·9
8 29·3	56·9	13 8·5	15 4·1	N. 20·3	8 28·7	56·7	13 6·1	15 3·7	N. 20·6
9 31·2	57·2	12 59·9	16 1·6	N. 23·1	9 24·2	57·6	12 59·8	16 5·1	N. 22·5
10 34·2	57·2	12 45·4	16 11·2	N. 22·5	10 25·6	57·3	12 46·5	17 4·7	N. 22·2
11 32·1	57·8	12 29·2	17 4·6	N. 21·5	11 30·7	57·5	12 30·0	17 7·1	N. 22·2
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 29·1	57·4	12 13·5	17 2·5	N. 18·5	0 32·1	57·4	12 11·2	18 2·1	N. 18·2
1 33·2	56·9	11 57·0	16 8·7	N. 14·9	1 29·4	57·6	11 57·3	17 8·5	N. 15·2
2 30·7	57·3	11 46·1	15 8·8	N. 10·1	2 29·5	57·2	11 45·5	16 6·4	N. 8·6
3 29·0	57·0	11 39·7	14 7·1	N. 3·7	3 30·5	57·1	11 37·3	15 4·5	N. 4·0
4 30·8	56·6	11 43·1	12 11·5	S. 2·5	4 29·8	56·9	11 42·8	13 10·9	N. 0·5
5 29·8	57·2	12 5·0	12 6·8	S. 7·8	5 29·6	56·8	12 3·0	12 7·9	S. 8·9
6 28·9	56·9	12 34·8	12 8·3	S. 13·4	6 31·0	56·7	12 35·6	12 5·4	S. 13·1
7 33·1	56·9	13 2·3	14 0·7	S. 18·2	7 23·3	57·2	13 0·4	13 8·5	S. 17·7
8 35·1	57·4	13 5·9	15 10·2	S. 20·9	8 24·8	57·2	13 8·5	14 10·5	S. 20·5
9 32·1	57·8	12 58·7	16 4·7	S. 22·4	9 31·9	57·3	12 58·9	15 10·1	S. 22·8
10 26·6	57·8	12 45·1	17 9·5	S. 22·7	10 34·1	57·9	12 42·8	17 1·5	S. 22·9
11 26·1	57·5	12 28·9	18 1·0	S. 22·1	11 34·2	58·2	12 26·9	17 10·6	S. 21·5

February.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
0 32·1	56·7	12 12·1	18 4·1	S. 9·9	0 30·9	57·9	12 12·1	17 11·2	S. 10·2
1 31·5	58·2	11 58·0	18 4·6	S. 3·8	1 30·8	57·1	11 57·9	16 9·8	S. 3·4
2 30·2	57·2	11 44·6	16 10·7	N. 2·3	2 28·9	57·3	11 46·3	15 7·8	N. 0·6
3 30·8	56·9	11 37·0	15 0·7	N. 8·6	3 27·7	57·3	11 36·2	14 2·8	N. 8·7
4 30·1	56·9	11 42·5	13 8·0	N. 13·4	4 28·8	56·8	11 41·5	12 8·8	N. 13·4
5 28·8	56·5	12 0·6	11 11·9	N. 18·1	5 29·8	56·6	12 3·9	11 9·0	N. 18·6
6 29·9	56·6	12 39·8	11 10·5	N. 21·3	6 29·9	56·7	12 40·0	12 1·2	N. 21·0
7 32·2	56·7	13 4·1	13 3·6	N. 22·6	7 26·7	56·7	13 3·3	13 9·8	N. 21·9
8 34·1	57·2	13 5·6	15 1·2	N. 22·8	8 25·5	56·7	13 8·2	14 11·8	N. 23·2
9 32·8	57·1	12 57·7	16 6·2	N. 21·2	9 28·1	57·0	12 58·8	16 9·6	N. 21·6
10 31·4	57·4	12 42·8	17 8·9	N. 18·9	10 28·8	57·6	12 40·9	17 7·7	N. 18·8
11 29·4	56·9	12 26·2	17 10·8	N. 15·1	11 27·8	57·2	12 27·9	18 7·2	N. 15·2
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 28·9	57·9	12 15·0	18 5·1	N. 9·8	0 33·3	57·1	12 12·6	18 5·9	N. 9·6
1 29·7	57·0	11 57·9	17 4·5	N. 3·3	1 31·0	57·8	11 56·8	18 0·9	N. 3·8
2 31·7	57·5	11 47·9	16 3·7	S. 2·3	2 28·7	56·9	11 49·6	16 8·3	S. 2·9
3 30·1	57·3	11 40·5	14 6·4	S. 7·5	3 27·5	57·1	11 39·6	15 0·4	S. 7·3
4 29·9	56·8	11 43·3	12 6·5	S. 13·4	4 28·7	57·3	11 41·5	13 0·9	S. 13·9
5 32·2	57·1	12 7·1	11 8·7	S. 18·9	5 27·4	57·4	12 3·4	11 7·8	S. 18·1
6 28·3	56·9	12 41·7	12 0·2	S. 20·8	6 27·9	56·7	12 40·9	11 8·9	S. 20·7
7 28·2	57·4	13 7·6	13 10·7	S. 22·3	7 30·3	57·3	13 6·1	13 4·4	S. 22·4
8 30·0	57·2	13 10·7	15 4·4	S. 23·2	8 26·9	57·2	13 10·2	14 8·6	S. 22·6
9 32·6	56·9	13 0·0	16 7·7	S. 21·8	9 25·6	57·6	13 1·2	16 1·3	S. 22·3
10 33·2	57·7	12 45·3	18 2·9	S. 18·2	10 28·6	57·2	12 46·2	17 0·9	S. 19·6
11 30·7	57·9	12 28·5	18 9·4	S. 15·3	11 32·8	57·1	12 29·9	17 9·7	S. 14·1

TABLE VI. (*f*.) (Continued.)

March.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
h m	′	h m	ft. in.	°	h m	′	h m	ft. in.	°
0 30·7	57·8	12 12·3	18 10·4	N. 1·2	0 25·5	57·3	12 14·1	17 7·5	N. 1·2
1 31·0	57·2	11 58·3	17 5·1	N. 8·7	1 26·1	58·0	11 59·5	17 1·9	N. 6·7
2 29·9	57·6	11 46·0	16 4·6	N. 12·6	2 28·2	57·0	11 44·4	15 6·1	N. 12·9
3 29·1	56·6	11 35·4	14 2·3	N. 17·4	3 29·9	56·9	11 36·4	13 9·3	N. 18·0
4 30·1	56·8	11 35·7	12 2·8	N. 20·9	4 28·6	56·7	11 41·0	12 1·9	N. 20·5
5 28·6	56·7	11 56·6	10 10·7	N. 22·8	5 29·3	56·6	12 1·6	11 1·7	N. 21·9
6 31·8	56·5	12 42·5	11 6·8	N. 22·6	6 31·0	56·4	12 42·8	11 8·2	N. 22·6
7 29·4	56·6	13 5·9	13 1·4	N. 21·4	7 32·2	56·6	13 6·9	13 4·6	N. 21·9
8 28·5	56·6	13 9·2	14 10·1	N. 20·0	8 28·9	56·9	13 8·4	15 3·0	N. 19·4
9 31·1	56·9	12 57·8	16 6·2	N. 15·1	9 30·8	57·4	12 57·9	16 10·8	N. 15·4
10 29·5	57·6	12 43·5	17 10·8	N. 10·3	10 35·1	57·0	12 43·2	17 11·1	N. 10·2
11 29·4	57·2	12 29·9	18 1·0	N. 4·8	11 31·3	57·8	12 27·5	18 9·8	N. 4·8
Upper Transits A, A.M.					**Lower (Interpolated) Transits A, P.M.**				
0 31·7	58·1	12 12·2	18 3·9	S. 1·4	0 27·6	57·7	12 13·7	18 7·1	S. 0·6
1 28·9	57·8	11 58·7	17 3·9	S. 7·1	1 30·1	57·5	11 59·2	17 8·6	S. 8·3
2 31·9	57·3	11 45·2	15 11·4	S. 13·1	2 29·2	57·6	11 46·9	16 3·7	S. 12·7
3 35·0	57·3	11 34·6	14 1·1	S. 18·2	3 26·7	57·1	11 35·9	14 3·3	S. 17·4
4 30·1	56·9	11 37·2	12 5·8	S. 20·8	4 28·6	56·9	11 36·7	12 3·5	S. 20·8
5 30·5	56·7	12 2·1	11 6·8	S. 22·3	5 30·4	56·9	12 0·8	11 3·2	S. 22·2
6 32·4	56·8	12 44·4	12 1·9	S. 23·2	6 29·7	56·7	12 39·2	11 6·5	S. 22·9
7 31·2	57·1	13 5·2	13 8·7	S. 21·6	7 27·6	56·9	13 6·9	12 11·5	S. 21·9
8 32·5	56·8	13 7·9	15 4·8	S. 19·1	8 29·1	56·8	13 8·5	14 9·0	S. 20·1
9 27·6	57·6	12 58·9	17 2·2	S. 15·6	9 30·6	57·1	12 59·2	16 2·6	S. 14·9
10 29·0	57·3	12 42·7	18 2·0	S. 11·2	10 29·7	57·9	12 43·8	17 5·1	S. 10·3
11 30·9	58·0	12 27·4	19 1·1	S. 5·7	11 30·5	57·8	12 28·2	18 0·9	S. 5·7

April.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
0 29·5	57·6	12 14·3	17 9·7	N. 13·6	0 27·7	57·2	12 12·7	17 1·4	N. 11·9
1 30·1	57·0	11 58·3	16 7·2	N. 16·6	1 31·6	57·7	11 56·3	16 7·9	N. 17·0
2 32·1	57·5	11 43.2	15 4·3	N. 20·7	2 30·3	57·2	11 42·7	15 2·8	N. 20·2
3 33·1	57·1	11 33·6	13 7·5	N. 22·6	3 27·6	57·0	11 33·4	13 9·4	N. 22·0
4 34·0	56·8	11 38·8	11 10·0	N. 22·7	4 28·6	56·6	11 36·7	12 3·2	N. 22·9
5 34·7	56·6	12 5·3	11 1·4	N. 22·0	5 28·1	57·0	12 0·9	11 6·3	N. 22·4
6 30·9	56·7	12 40·3	11 9·5	N. 20·1	6 30·3	56·7	12 39·5	12 0·9	N. 19·0
7 32·6	56·8	13 2·8	13 9·4	N. 15·3	7 31·9	57·0	13 2·2	13 9·1	N. 16·1
8 31·9	57·0	13 5·3	15 6·7	N. 10·7	8 30·7	57·0	13 3·6	15 7·1	N. 11·7
9 26·6	57·3	12 58·4	16 11·6	N. 5·7	9 29·8	57·3	12 56·0	17 0·2	N. 5·1
10 27·5	57·1	12 42·9	17 8·6	S. 0·8	10 32·6	57·4	12 42·7	17 10·0	S. 0·5
11 26·6	57·9	12 29·6	18 3·6	S. 6·8	11 32·6	57·3	12 27·1	18 1·1	S. 7·4
Upper Transits A, A.M.					**Lower (Interpolated) Transits A, P.M.**				
0 26·9	57·3	12 13·7	17 7·3	S. 11·5	0 33·0	58·0	12 11·3	17 10·3	S. 13·0
1 29·2	58·0	11 58·3	17 1·4	S. 17·4	1 28·8	58·0	11 58·0	16 10·5	S. 16·4
2 28·4	57·9	11 43·5	15 10·9	S. 20·6	2 31·4	57·6	11 43·2	15 1·7	S. 20·8
3 30·7	57·3	11 34·3	14 2·8	S. 21·9	3 31·1	57·3	11 35·3	13 8·5	S. 22·4
4 31·6	57·3	11 37·5	12 10·2	S. 23·4	4 28·8	57·3	11 37·7	12 2·2	S. 22·9
5 31·8	57·2	12 1·6	12 0·6	S. 22·1	5 27·8	57·2	12 1·0	11 2·6	S. 22·3
6 32·5	56·7	12 41·3	12 3·1	S. 19·6	6 27·3	56·8	12 37·5	11 6·0	S. 20·5
7 31·4	57·2	12 59·8	13 11·9	S. 15·7	7 25·4	57·3	13 1·3	13 2·3	S. 16·1
8 27·2	57·2	13 3·9	15 7·6	S. 11·9	8 28·4	57·2	13 5·0	15 0·7	S. 10·8
9 27·1	56·7	12 57·0	16 10·7	S. 6·0	9 30·4	57·4	12 56·4	16 5·1	S. 5·0
10 26·4	57·5	12 44·1	18 0·1	N. 0·6	10 29·4	57·0	12 44·4	17 3·5	N. 0·5
11 28·3	56·9	12 30·2	18 0·1	N. 6·7	11 29·7	57·6	12 29·5	17 9·5	N. 7·3

TABLE VI. (*f*.) (Continued.)

May.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
h m	′	h m	ft. in.	°	h m	′	h m	ft. in.	°
0 27·2	57·1	12 13·4	16 5·9	N. 20·9	0 29·9	57·4	12 12·9	17 0·3	N. 20·2
1 30·4	57·1	11 57·6	15 9·9	N. 22·3	1 31·1	57·1	11 56·0	16 3·2	N. 21·8
2 31·4	57·5	11 43·2	14 10·7	N. 22·8	2 32·3	57·2	11 41·5	15 4·7	N. 23·3
3 29·4	57·0	11 35·7	13 7·9	N. 21·7	3 29·1	57·1	11 35·3	14 2·4	N. 21·9
4 26·3	57·0	11 39·2	12 8·0	N. 20·6	4 30·7	56·9	11 38·1	13 3·3	N. 19·6
5 28·9	56·9	12 2·8	12 2·2	N. 15·9	5 28·9	56·9	12 1·9	12 7·6	N. 16·2
6 29·2	56·9	12 36·3	12 11·7	N. 11·5	6 27·7	57·0	12 33·6	13 1·3	N. 12·5
7 26·9	57·2	12 57·5	14 2·2	N. 5·4	7 29·9	57·1	12 57·6	14 3·1	N. 5·9
8 28·9	56·8	13 2·5	15 6·2	S. 0·8	8 29·6	57·4	13 0·8	15 5·8	N. 0·4
9 29·9	57·8	12 56·0	16 8·6	S. 6·9	9 29·5	57·2	12 55·0	16 4·6	S. 6·8
10 31·1	57·1	12 43·9	17 4·0	S. 11·9	10 31·6	57·7	12 42·9	17 1·1	S. 12·2
11 32·5	57·2	12 28·2	17 8·7	S. 17·5	11 26·8	57·1	12 30·9	17 4·8	S. 16·4
Upper Transits A, A.M.					**Lower (Interpolated) Transits A, P.M.**				
0 29·8	57·6	12 12·2	17 3·9	S. 19·9	0 27·9	57·2	12 12·7	16 8·4	S. 20·3
1 27·3	57·5	11 56·6	16 8·1	S. 21·9	1 30·3	57·8	11 58·5	15 11·7	S. 22·5
2 28·8	57·7	11 43·1	15 9·6	S. 22·8	2 30·4	57·7	11 44·4	14 11·8	S. 22·6
3 29·7	57·5	11 33·7	14 7·7	S. 22·6	3 28·8	57·7	11 36·2	13 8·5	S. 22·2
4 31·0	57·3	11 38·9	13 7·5	S. 19·6	4 29·2	57·2	11 39·2	12 3·5	S. 20·3
5 30·4	57·4	12 3·4	12 10·7	S. 16·3	5 30·6	57·1	12 4·9	11 9·4	S. 15·4
6 26·9	56·9	12 34·4	13 2·6	S. 12·2	6 31·5	57·4	12 38·1	12 4·4	S. 11·4
7 28·1	57·0	12 55·9	14 3·0	S. 5·9	7 33·6	57·4	12 57·4	13 9·7	S. 6·3
8 29·6	57·1	13 0·7	15 5·8	N. 0·5	8 31·9	56·9	13 1·7	15 0·0	N. 0·9
9 32·5	56·9	12 54·8	16 4·3	N. 6·9	9 29·9	57·2	12 56·5	16 6·2	N. 6·4
10 34·1	57·1	12 40·3	16 7·0	N. 12·0	10 28·7	56·9	12 44·4	16 10·0	N. 11·8
11 30·1	57·0	12 29·7	17 0·5	N. 16·6	11 29·9	56·9	12 28·6	16 11·9	N. 17·0

June.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
0 30·8	57·4	12 12·1	16 3·7	N. 23·0	0 28·9	57·1	12 11·5	16 11·5	N. 23·1
1 26·1	57·2	11 57·7	15 10·9	N. 22·1	1 32·6	57·1	11 55·1	16 5·7	N. 21·6
2 29·4	56·8	11 43·4	14 10·9	N. 19·9	2 32·3	57·2	11 43·2	15 9·2	N. 18·8
3 31·7	56·8	11 37·6	13 10·9	N. 15·2	3 27·3	56·9	11 37·5	14 9·5	N. 16·4
4 30·9	57·1	11 45·0	13 2·3	N. 10·9	4 30·7	56·9	11 43·8	13 9·2	N. 11·4
5 29·4	56·7	12 5·0	12 6·9	N. 4·9	5 32·2	57·3	12 3·0	13 3·1	N. 4·9
6 29·5	57·0	12 37·5	13 1·8	S. 0·9	6 28·0	56·9	12 32·6	13 2·5	S. 0·8
7 31·8	57·2	12 57·8	14 1·7	S. 7·5	7 29·4	57·3	12 56·9	13 11·8	S. 7·2
8 33·3	57·4	13 2·2	15 6·9	S. 12·4	8 26·4	57·6	13 1·9	15 0·6	S. 11·9
9 34·9	57·7	12 56·9	16 7·8	S. 18·0	9 26·0	57·6	12 56·8	15 10·7	S. 16·4
10 28·6	57·9	12 45·3	17 3·0	S. 20·3	10 29·4	57·6	12 44·1	16 4·8	S. 20·5
11 26·6	57·4	12 30·5	17 4·3	S. 22·3	11 31·9	57·6	12 28·6	16 5·7	S. 22·4
Upper Transits A, A.M.					**Lower (Interpolated) Transits A, P.M.**				
0 25·3	57·3	12 10·9	17 3·0	S. 23·2	0 30·3	57·9	12 9·7	16 5·1	S. 22·9
1 27·3	57·8	11 57·0	16 10·7	S. 22·2	1 29·3	57·6	11 57·6	15 9·2	S. 22·5
2 27·4	57·6	11 44·1	16 4·6	S. 19·5	2 28·5	57·4	11 44·8	15 0·5	S. 19·7
3 25·6	57·3	11 37·8	15 4·4	S. 16·7	3 31·9	57·3	11 38·8	13 11·3	S. 15·7
4 26·3	57·2	11 44·3	14 5·6	S. 10·8	4 32·7	57·4	11 45·3	13 0·4	S. 10·9
5 27·5	57·1	12 4·2	13 7·9	S. 5·8	5 29·9	56·9	12 6·0	12 4·1	S. 5·2
6 31·4	57·2	12 35·9	13 10·3	N. 1·1	6 31·7	56·9	12 35·6	12 8·8	N. 1·0
7 33·9	56·9	12 57·5	14 2·4	N. 7·0	7 28·5	57·3	12 56·4	13 9·7	N. 6·9
8 30·2	56·9	13 4·1	15 2·0	N. 12·3	8 29·5	57·0	13 2·3	15 0·0	N. 12·4
9 28·9	57·0	12 58·4	15 11·8	N. 16·4	9 32·7	57·4	12 55·9	16 4·4	N. 17·2
10 31·0	57·0	12 45·9	16 3·8	N. 20·6	10 30·1	57·9	12 44·9	16 9·9	N. 20·4
11 32·7	57·1	12 29·2	16 5·7	N. 22·1	11 26·8	56·9	12 29·4	16 9·9	N. 21·9

TABLE VI. (*f*.) (Continued.)

July.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
h m	′	h m	ft. in.	°	h m	′	h m	ft. in.	°
0 34·5	56·9	12 13·2	16 10·2	N. 18·9	0 28·6	57·4	12 12·8	17 9·9	N. 19·7
1 34·5	57·2	11 58·2	16 5·5	N. 15·6	1 29·5	56·9	11 56·7	17 3·5	N. 16·5
2 31·3	57·0	11 44·0	15 6·7	N. 10·8	2 29·6	56·8	11 42·8	16 5·8	N. 10·9
3 30·4	56·6	11 41·4	14 4·8	N. 4·9	3 29·0	57·0	11 40·8	15 1·9	N. 5·0
4 30·8	56·9	11 45·3	13 4·5	S. 0·9	4 28·4	56·7	11 44·3	13 11·9	S. 0·7
5 28·8	56·7	12 5·5	12 6·1	S. 7·6	5 30·5	57·0	12 5·3	13 0·6	S. 7·6
6 28·8	56·9	12 37·8	12 9·0	S. 13·2	6 30·9	57·2	12 35·1	12 10·1	S. 12·1
7 25·7	57·3	12 59·5	13 11·8	S. 17·4	7 31·9	57·2	13 0·7	13 7·4	S. 17·2
8 25·1	57·2	13 4·9	15 3·3	S. 20·0	8 34·1	57·2	13 6·8	14 7·7	S. 21·3
9 26·7	57·9	13 0·6	16 5·2	S. 22·6	9 31·0	57·7	12 59·3	15 9·6	S. 22·1
10 30·9	57·8	12 44·5	17 5·2	S. 22·9	10 26·2	57·9	12 46·7	16 3·5	S. 23·2
11 31·8	57·9	12 28·0	17 10·1	S. 21·5	11 26·9	58·1	12 30·8	16 11·3	S. 22·3
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 25·7	57·8	12 14·5	17 11·8	S. 19·7	0 31·5	57·4	12 12·9	16 5·4	S. 19·3
1 25·4	57·2	11 59·2	17 4·2	S. 16·8	1 31·4	57·8	12 0·4	16 2·2	S. 15·6
2 29·2	57·4	11 48·4	16 8·4	S. 11·0	2 29·3	57·2	11 45·7	15 5·6	S. 11·4
3 31·2	57·3	11 39·5	15 6·4	S. 4·9	3 32·4	56·9	11 44·7	14 2·3	S. 4·6
4 29·0	56·6	11 44·7	14 0·8	N. 1·7	4 31·2	57·2	11 47·5	13 1·0	N. 1·8
5 29·4	56·8	12 5·6	13 2·0	N. 6·2	5 27·4	56·7	12 4·4	12 1·6	N. 6·8
6 26·9	56·8	12 35·9	12 9·4	N. 12·7	6 29·6	56·7	12 38·8	12 3·7	N. 12·9
7 27·6	56·9	13 0·1	13 7·4	N. 17·0	7 33·1	57·1	13 3·1	13 9·3	N. 17·1
8 29·5	57·1	13 6·7	14 8·2	N. 20·7	8 34·1	56·8	13 6·6	15 0·6	N. 21·0
9 28·3	57·3	13 2·6	15 9·7	N. 21·9	9 32·6	57·3	12 57·9	16 3·9	N. 22·2
10 28·9	57·6	12 45·9	16 5·7	N. 22·6	10 30·2	57·2	12 40·3	17 1·1	N. 22·9
11 31·6	57·2	12 28·6	16 8·9	N. 22·1	11 29·5	57·2	12 29·6	17 8·4	N. 21·6

August.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
0 31·7	57·5	12 14·1	17 6·7	N. 10·8	0 29·4	57·3	12 13·8	18 2·2	N. 10·6
1 31·4	57·3	11 59·7	16 10·6	N. 4·4	1 24·9	57·7	12 1·0	18 0·0	N. 5·6
2 28·2	57·3	11 46·1	16 2·6	S. 1·1	2 26·6	57·1	11 47·8	16 7·6	S. 0·7
3 26·2	56·7	11 41·4	14 7·7	S. 6·3	3 31·1	57·1	11 39·3	14 11·6	S. 6·4
4 27·4	56·9	11 42·5	13 1·8	S. 13·4	4 31·5	56·8	11 41·9	13 2·9	S. 12·1
5 24·5	56·7	12 1·0	12 0·1	S. 17·0	5 31·2	56·9	12 2·0	11 9·5	S. 18·2
6 24·9	56·7	12 37·3	12 2·7	S. 20·5	6 31·6	56·9	12 41·8	11 11·3	S. 20·7
7 26·3	57·2	13 4·3	13 9·4	S. 22·4	7 31·3	57·3	13 4·2	13 2·1	S. 22·5
8 28·8	56·9	13 9·3	15 2·8	S. 22·9	8 30·6	56·9	13 10·7	14 3·2	S. 22·8
9 29·0	57·6	13 1·6	16 11·6	S. 21·8	9 32·8	57·6	12 58·9	15 10·0	S. 22·1
10 26·6	57·8	12 46·8	18 0·9	S. 19·8	10 34·5	57·4	12 44·7	16 8·3	S. 18·9
11 26·2	57·8	12 28·0	18 8·6	S. 15·7	11 35·3	58·2	12 28·2	17 5·5	S. 14·9
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 30·7	57·8	12 13·6	18 9·3	S. 10·5	0 25·8	58·1	12 15·7	17 5·6	S. 10·9
1 29·3	58·0	11 59·4	18 4·0	S. 5·3	1 27·2	57·3	12 0·1	16 7·9	S. 5·2
2 28·6	56·9	11 46·7	16 9·0	N. 0·9	2 28·9	58·1	11 47·5	15 10·9	N. 1·3
3 28·9	57·1	11 40·2	15 3·7	N. 6·7	3 27·6	56·8	11 39·4	14 4·0	N. 6·4
4 26·9	56·9	11 41·2	13 4·1	N. 12·5	4 28·9	56·9	11 39·6	12 8·1	N. 13·4
5 28·4	56·5	12 2·8	11 9·3	N. 18·1	5 30·8	56·8	12 3·6	11 7·2	N. 16·7
6 28·6	56·5	12 41·2	11 11·7	N. 20·4	6 31·4	56·8	12 38·4	11 11·6	N. 20·8
7 24·9	56·6	13 4·9	12 11·9	N. 21·8	7 33·6	56·6	13 6·2	13 6·9	N. 22·4
8 26·3	56·8	13 9·2	14 4·5	N. 22·9	8 32·3	56·9	13 9·3	15 2·1	N. 23·2
9 27·4	56·9	13 1·0	15 9·2	N. 21·9	9 32·2	56·7	12 59·5	16 6·2	N. 20·9
10 29·6	56·9	12 42·9	16 8·6	N. 19·5	10 31·0	57·4	12 45·0	17 8·5	N. 19·3
11 30·7	57·8	12 29·1	17 7·4	N. 15 3	11 29·7	57·3	12 28·9	18 3·4	N. 15·9

TABLE VI. (*f*.) (Continued.)

September.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
h m	′	h m	ft. in.	°	h m	′	h m	ft. in.	°
0 30·0	57·7	12 14·3	18 2·1	S. 0·9	0 31·9	57·3	12 12·2	18 6·6	S. 0·9
1 29·8	57·5	11 58·7	17 4·2	S. 6·9	1 34·7	57·8	11 53·6	17 9·4	S. 7·1
2 30·5	57·7	11 46·4	16 0·2	S. 12·7	2 31·4	57·4	11 45·2	16 3·6	S. 11·9
3 26·8	56·9	11 36·9	14 6·8	S. 16·8	3 30·6	57·3	11 36·3	14 5·2	S. 16·9
4 25·9	57·0	11 38·1	12 10·7	S. 19·5	4 32·4	56·9	11 37·2	12 3·8	S. 20·7
5 23·9	57·1	11 56·9	11 11·1	S. 22·3	5 34·4	56·9	12 0·8	11 4·0	S. 22·1
6 26·7	56·8	12 34·1	12 5·0	S. 23·1	6 32·7	57·0	12 42·1	12 3·5	S. 23·1
7 28·4	57·3	13 3·4	13 11·9	S. 22·1	7 32·6	57·3	13 5·2	13 4·5	S. 22·2
8 25·6	56·9	13 8·3	15 7·9	S. 20·1	8 33·9	57·0	13 8·2	14 11·8	S. 19·9
9 26·3	57·8	12 58·5	17 6·1	S. 15·9	9 33·7	57·4	12 57·7	16 8·1	S. 15·4
10 29·2	57·2	12 44·9	18 5·8	S. 11·2	10 29·5	57·8	12 41·5	17 5·1	S. 11·1
11 29·8	57·8	12 25·4	19 2·9	S. 5·2	11 29·6	57·4	12 29·5	17 10·1	S. 6·4
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 28·0	57·5	12 13·9	18 11·9	S. 0·3	0 31·9	57·8	12 14·1	17 9·9	N. 1·6
1 28·0	57·3	11 59·7	18 1·0	N. 6·4	1 31·4	57·3	12 2·5	16 11·9	N. 6·6
2 27·5	57·7	11 45·0	16 8·8	N. 12·0	2 32·3	57·7	11 45·3	15 9·8	N. 12·7
3 29·5	56·8	11 35·9	14 5·9	N. 16·8	3 32·5	57·1	11 37·1	14 1·9	N. 16·6
4 28·5	56·8	11 38·8	12 8·0	N. 19·1	4 31·8	56·8	11 37·7	12 4·1	N. 20·2
5 25·7	56·4	11 59·2	11 4·1	N. 21·7	5 29·3	56·9	12 0·3	10 5·4	N. 22·4
6 27·9	56·7	12 42·3	11 8·8	N. 23·7	6 29·9	56·5	12 40·3	12 0·4	N. 23·1
7 27·6	56·8	13 5·4	13 3·4	N. 22·0	7 32·5	56·6	13 5·6	13 8·2	N. 22·0
8 26·8	56·8	13 8·4	14 8·1	N. 20·4	8 32·5	56·8	13 7·8	15 6·1	N. 19·6
9 29·1	56·8	12 59·3	16 1·8	N. 15·9	9 30·3	56·9	12 59·7	16 9·9	N. 16·6
10 28·3	57·6	12 45·6	17 7·0	N. 11·2	10 31·3	56·9	12 43·8	18 0·7	N. 11·0
11 30·0	56·9	12 30·4	17 8·2	N. 5·9	11 31·9	57·9	12 28·8	18 9·9	N. 5·1

October.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
0 26·7	56·9	12 13·9	17 4·9	S. 11·2	0 30·8	57·6	12 12·2	18 5·2	S. 11·6
1 26·5	57·7	11 58·5	17 4·2	S. 16·4	1 28·2	57·5	11 56·4	17 4·5	S. 15·8
2 24·1	57·3	11 44·1	16 1·1	S. 19·8	2 30·9	57·4	11 43·1	15 6·3	S. 20·3
3 22·6	57·6	11 36·3	14 9·5	S. 21·9	3 31·3	57·7	11 35·5	14 1·5	S. 22·3
4 24·8	57·0	11 34·8	13 0·9	S. 23·2	4 33·1	57·5	11 34·4	12 2·9	S. 22·6
5 27·8	57·3	11 59·0	12 3·2	S. 22·1	5 32·2	57·2	12 1·4	11 3·0	S. 22·1
6 27·8	57·0	12 35·2	12 7·7	S. 20·1	6 30·7	56·9	12 38·5	11 9·8	S. 20·6
7 27·3	57·3	12 59·8	14 3·6	S. 16·9	7 33·5	57·1	13 3·9	13 5·4	S. 16·9
8 30·3	56·9	13 6·1	15 11·8	S. 12·8	8 33·4	57·1	13 4·9	15 0·6	S. 12·4
9 29·3	57·2	12 58·8	17 5·7	S. 5·6	9 29·9	57·3	12 56·8	16 5·7	S. 6·5
10 25·7	57·6	12 43·7	18 7·6	S. 1·0	10 28·8	56·9	12 44·5	17 6·7	S. 0·4
11 26·9	56·8	12 29·1	19 0·2	N. 5·6	11 30·2	57·8	12 27·6	18 2·9	N. 5·9
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 28·4	57·7	12 12·1	18 8·4	N. 10·9	0 29·4	56·9	12 13·2	17 8·1	N. 11·1
1 27·0	57·3	11 57·4	17 4·6	N. 16·4	1 31·1	57·3	11 56·2	16 10·9	N. 16·6
2 28·9	57·1	11 40·9	15 6·2	N. 20·5	2 30·9	57·4	11 36·6	15 6·6	N. 20·2
3 27·4	57·1	11 34·5	13 10·8	N. 21·5	3 31·5	57·4	11 33·7	14 3·3	N. 22·2
4 26·9	57·2	11 34·3	12 5·9	N. 23·1	4 34·1	56·9	11 35·9	12 7·5	N. 23·2
5 28·9	56·9	11 56·1	11 1·6	N. 22·1	5 37·5	56·8	12 5·6	11 11·4	N. 21·5
6 25·5	56·6	12 35·9	11 10·5	N. 20·4	6 34·8	56·8	12 41·2	12 3·9	N. 19·9
7 27·4	56·7	13 3·4	13 6·3	N. 17·1	7 30·3	56·9	13 2·8	14 5·4	N. 17·2
8 29·0	56·9	13 5·3	15 3·2	N. 12·2	8 30·5	56·7	13 6·1	15 9·7	N. 12·2
9 28·9	56·9	12 57·2	16 10·6	N. 6·9	9 31·7	57·2	12 56·5	17 4·6	N. 6·0
10 29·7	57·2	12 43·3	17 4·6	S. 0·5	10 32·7	57·3	12 42·3	17 6·2	S. 0·7
11 26·4	57·7	12 29·7	18 5·2	S. 4·9	11 30·9	57·0	12 28·8	18 5·7	S. 6·5

TABLE VI. (*f*.) (Continued.)

November.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Apparent Solar Time of Moon's Transit A.	Moon's Parallax.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.
h m	′	h m	ft. in.	°	h m	′	h m	ft. in.	°
0 31·5	57·4	12 11·3	17 9·8	S. 19·9	0 29·5	57·7	12 12·4	17 5·1	S. 19·8
1 28·9	57·1	11 56·1	16 11·5	S. 21·7	1 32·0	57·6	11 55·8	16 5·2	S. 22·2
2 28·4	57·2	11 41·8	16 0·9	S. 23·1	2 29·6	57·5	11 40·9	15 3·3	S. 22·9
3 29·8	57·3	11 33·8	14 9·8	S. 22·0	3 28·3	57·3	11 33·7	13 9·9	S. 22·6
4 28·4	57·3	11 38·7	14 0·7	S. 20·1	4 30·9	57·2	11 38·4	12 5·2	S. 20·3
5 27·3	57·3	11 59·5	13 1·9	S. 16·5	5 36·9	57·1	12 6·3	11 11·6	S. 16·2
6 29·4	56·9	12 36·2	13 4·6	S. 12·0	6 32·0	57·2	12 37·8	12 2·7	S. 12·5
7 29·4	57·2	12 56·5	14 7·0	S. 6·6	7 29·5	57·1	12 57·0	13 9·4	S. 6·6
8 27·3	57·3	13 1·0	16 0·1	S. 0·9	8 30·5	57·0	13 2·7	15 3·9	S. 0·8
9 29·8	57·1	12 50·8	17 1·3	N. 5·5	9 27·8	57·4	12 55·3	16 4·1	N. 4·5
10 30·7	57·5	12 43·1	17 9·5	N. 11·5	10 27·2	57·3	12 44·1	17 2·3	N. 11·3
11 30·4	57·3	12 28·5	17 8·6	N. 17·0	11 30·6	57·3	12 28·8	17 7·6	N. 16·3
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 35·6	57·1	12 11·2	17 2·5	N. 19·8	0 27·8	57·3	12 12·7	17 3·1	N. 19·3
1 33·2	57·4	11 55·7	16 4·9	N. 22·0	1 28·5	57·0	11 56·5	16 6·1	N. 22·7
2 29·4	57·0	11 42·4	15 0·3	N. 22·9	2 32·2	57·1	11 41·7	15 8·1	N. 22·9
3 25·5	56·9	11 34·0	13 9·7	N. 22·2	3 34·2	56·8	11 34·7	14 5·3	N. 21·9
4 30·1	56·6	11 36·7	12 5·0	N. 20·5	4 36·4	56·9	11 34·3	12 11·0	N. 19·6
5 31·5	57·0	12 4·2	12 0·0	N. 16·1	5 28·2	56·8	11 59·3	12 8·7	N. 16·7
6 28·4	57·1	12 38·2	12 10·7	N. 12·4	6 31·2	56·7	12 38·0	13 1·8	N. 12·5
7 29·2	56·7	12 58·8	14 1·2	N. 7·2	7 32·3	57·3	12 58·7	14 7·7	N. 5·8
8 28·5	57·0	13 2·5	15 10·1	N. 0·8	8 28·3	56·9	13 3·5	16 0·8	S. 0·2
9 28·6	57·5	12 55·6	17 1·9	S. 4·8	9 27·2	57·1	12 56·6	17 2·0	S. 4·7
10 30·0	57·0	12 44·3	17 9·4	S. 12·2	10 25·2	57·8	12 44·1	18 0·2	S. 11·2
11 32·9	57·9	12 28·4	18 2·5	S. 16·6	11 26·5	57·2	12 29·5	17 10·3	S. 16·2

December.

Upper Transits A, P.M.					Lower (Interpolated) Transits A, A.M.				
0 32·8	57·6	12 10·1	17 8·7	S. 23·2	0 25·9	57·3	12 12·8	16 11·3	S. 23·2
1 29·2	57·6	11 55·8	17 3·6	S. 22·2	1 31·4	57·3	11 54·6	16 2·4	S. 21·9
2 28·4	57·2	11 43·0	16 5·6	S. 19·7	2 33·4	57·4	11 42·6	15 3·1	S. 19·1
3 28·5	56·9	11 35·2	15 9·0	S. 15·1	3 27·4	57·7	11 42·9	14 3·7	S. 16·2
4 31·8	57·3	11 41·0	14 5·6	S. 11·4	4 27·0	56·8	11 41·0	12 11·9	S. 11·6
5 31·8	56·9	12 3·8	13 8·1	S. 4·8	5 29·9	57·5	12 5·2	12 10·3	S. 5·5
6 31·6	56·8	12 36·6	13 9·3	N. 1·1	6 28·3	57·1	12 34·4	12 8·3	N. 0·3
7 30·8	57·3	12 58·1	14 7·5	N. 6·7	7 27·7	57·0	12 57·1	14 1·0	N. 5·8
8 29·0	57·0	13 3·5	15 9·8	N. 12·4	8 30·2	57·3	13 1·5	15 5·9	N. 12·2
9 29·2	57·4	12 57·2	16 9·3	N. 16·7	9 29·5	57·6	12 55·9	16 5·7	N. 15·5
10 26·8	57·5	12 46·8	17 1·1	N. 19·9	10 30·6	57·1	12 44·1	17 0·0	N. 20·8
11 27·5	57·6	12 29·8	17 4·1	N. 22·0	11 34·1	57·2	12 26·6	17 6·0	N. 21·9
Upper Transits A, A.M.					Lower (Interpolated) Transits A, P.M.				
0 27·0	57·2	12 14·0	16 8·2	N. 23·2	0 33·9	57·1	12 10·8	17 1·7	N. 22·7
1 29·4	56·9	11 55·8	15 10·6	N. 22·5	1 29·2	57·3	11 54·8	16 7·8	N. 21·8
2 29·3	56·8	11 42·9	14 11·2	N. 19·0	2 25·2	56·9	11 42·3	15 11·5	N. 19·6
3 29·3	56·9	11 42·5	14 0·2	N. 15·8	3 29·5	56·4	11 34·6	14 9·4	N. 16·1
4 30·6	56·6	11 42·5	12 8·2	N. 10·6	4 32·2	57·0	11 42·1	14 0·5	N. 10·5
5 30·0	56·7	12 4·2	12 3·5	N. 6·2	5 28·7	56·6	12 2·5	12 7·7	N. 4·9
6 31·4	57·0	12 36·3	12 11·7	S. 1·2	6 29·4	56·8	12 35·6	13 1·4	S. 0·5
7 30·3	56·7	12 58·2	14 1·7	S. 6·1	7 32·0	57·3	12 57·6	14 4·3	S. 5·6
8 28·8	57·7	13 1·9	15 8·3	S. 12·3	8 30·0	57·3	13 2·4	15 6·8	S. 12·1
9 24·7	57·5	12 58·6	16 11·5	S. 15·8	9 32·6	57·5	12 56·2	16 5·0	S. 17·3
10 27·5	57·6	12 45·2	17 6·9	S. 19·7	10 32·2	58·1	12 44·1	17 4·7	S. 20·1
11 34·4	57·7	12 26·5	17 10·3	S. 22·9	11 23·7	57·7	12 30·7	17 4·5	S. 21·8

TABLE VII. (*g*.)

Showing the Diurnal Inequality at Liverpool, or the Difference in the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Interval in Table II., and the Difference between the Height of High Water and the Height in Table III.

Apparent Solar Time of Moon's Transit A.	Diurnal Inequality. January. Interval.	Height.	Moon's Declination.	February. Interval.	Height.	Moon's Declination.	March. Interval.	Height.	Moon's Declination.
h m	m	feet.	°	m	feet.	°	m	feet.	°
P.M. 0 30	+ 1·4	+ ·57	S. 18·3	− 0·2	+ ·29	S. 9·8	− 0·1	+ ·42	N. 0·9
1 30	− 0·8	+ ·60	S. 15·6	− 0·5	+ ·50	S. 3·8	− 1·6	+ ·25	N. 8·5
2 30	+ 0·4	+ ·50	S. 9·3	+ 0·2	+ ·45	N. 2·7	+ 0·3	+ ·25	N. 12·7
3 30	− 1·1	+ ·55	S. 5·0	+ 0·2	+ ·37	N. 8·0	+ 0·5	+ ·13	N. 17·4
4 30	− 0·3	+ ·60	N. 1·3	− 0·8	+ ·30	N. 13·7	− 1·7	− ·06	N. 20·8
5 30	− 1·3	+ ·27	N. 8·4	− 1·0	+ ·03	N. 18·1	− 1·7	− ·23	N. 22·5
6 30	− 0·1	+ ·08	N. 13·5	0·0	− ·13	N. 21·0	− 0·7	− ·10	N. 22·8
7 30	− 1·1	+ ·02	N. 18·9	− 0·5	− ·28	N. 22·5	+ 1·9	− ·24	N. 21·7
8 30	+ 1·3	− ·16	N. 20·4	− 0·4	− ·27	N. 22·7	+ 1·4	− ·22	N. 20·0
9 30	0·0	− ·14	N. 22·9	+ 0·2	− ·27	N. 21·7	+ 0·1	− ·26	N. 15·0
10 30	+ 0·3	− ·32	N. 22·7	+ 1·5	− ·22	N. 19·3	− 0·4	− ·35	N. 10·3
11 30	+ 0·1	− ·27	N. 21·5	+ 0·1	− ·33	N. 14·6	+ 0·6	− ·35	N. 5·1
A.M. 0 30	0·0	− ·63	N. 18·8	+ 0·1	− ·38	N. 10·0	− 0·1	− ·35	S. 1·3
1 30	+ 0·9	− ·45	N. 14·9	+ 0·4	− ·36	N. 3·4	− 0·2	− ·29	S. 6·9
2 30	− 0·2	− ·57	N. 10·0	− 0·2	− ·49	S. 1·5	− 0·4	− ·21	S. 13·4
3 30	+ 1·0	− ·56	N. 3·8	− 0·5	− ·43	S. 8·1	− 0·6	− ·18	S. 18·1
4 30	0·0	− ·53	S. 2·3	+ 0·3	− ·28	S. 13·4	+ 1·5	+ ·03	S. 20·7
5 30	+ 0·3	− ·32	S. 7·7	+ 1·1	+ ·01	S. 18·8	+ 1·5	+ ·17	S. 22·1
6 30	+ 0·1	− ·07	S. 13·5	+ 0·5	+ ·10	S. 20·9	+ 1·5	+ ·02	S. 22·9
7 30	− 0·9	− ·03	S. 18·0	+ 0·7	+ ·09	S. 22·2	+ 0·1	+ ·22	S. 21·8
8 30	− 1·4	− ·19	S. 20·8	+ 1·4	+ ·43	S. 23·2	− 0·4	+ ·20	S. 19·3
9 30	+ 0·4	− ·17	S. 22·4	− 0·2	+ ·27	S. 21·7	+ 0·3	+ ·08	S. 15·5
10 30	+ 0·2	− ·37	S. 22·4	− 0·6	+ ·25	S. 18·5	− 1·1	+ ·26	S. 10·7
11 30	+ 0·2	− ·18	S. 22·2	− 0·2	+ ·25	S. 15·3	− 0·7	+ ·20	S. 5·3
	Sun's Declination 21° S.			Sun's Declination 13° S.			Sun's Declination 2° S.		
	April.			May.			June.		
P.M. 0 30	+ 0·6	− ·15	N. 13·3	0·0	− ·31	N. 20·6	+ 0·3	− ·54	N. 23·0
1 30	+ 0·4	− ·05	N. 16·5	+ 1·8	− ·19	N. 22·4	+ 0·2	− ·50	N. 22·3
2 30	+ 0·2	− ·13	N. 20·7	− 0·4	− ·43	N. 22·7	+ 0·6	− ·44	N. 19·8
3 30	+ 0·1	− ·15	N. 22·5	+ 0·6	− ·43	N. 22·0	+ 0·6	− ·42	N. 15·5
4 30	0·0	− ·29	N. 22·8	+ 0·6	− ·55	N. 18·5	− 0·1	− ·54	N. 11·0
5 30	+ 0·6	− ·27	N. 22·1	+ 0·7	− ·30	N. 15·7	+ 0·7	− ·40	N. 5·0
6 30	− 0·3	− ·31	N. 20·3	+ 0·8	− ·33	N. 11·4	+ 1·9	− ·32	S. 1·0
7 30	+ 0·5	− ·10	N. 15·6	+ 0·5	− ·18	N. 5·8	+ 0·4	− ·09	S. 7·2
8 30	+ 0·6	− ·17	N. 10·8	+ 0·3	− ·03	S. 0·9	− 0·6	+ ·07	S. 12·4
9 30	+ 0·8	− ·20	N. 5·4	+ 1·1	+ ·03	S. 6·6	+ 1·9	+ ·26	S. 17·6
10 30	− 0·2	− ·14	S. 0·7	+ 0·7	+ ·26	S. 11·9	+ 0·2	+ ·26	S. 20·4
11 30	+ 0·2	− ·15	S. 7·0	− 0·7	+ ·18	S. 17·3	− 0·1	+ ·38	S. 22·1
A.M. 0 30	− 0·1	− ·12	S. 11·7	+ 0·1	+ ·55	S. 19·5	− 0·3	+ ·34	S. 23·2
1 30	− 0·6	+ ·01	S. 17·2	− 0·3	+ ·31	S. 21·9	− 0·4	+ ·47	S. 21·9
2 30	+ 0·7	+ ·06	S. 20·4	− 1·8	+ ·27	S. 23·0	− 0·7	+ ·51	S. 19·2
3 30	− 2·1	− ·12	S. 21·9	− 0·7	+ ·35	S. 22·3	− 1·1	+ ·58	S. 16·6
4 30	− 0·6	+ ·26	S. 23·2	− 0·7	+ ·50	S. 19·6	0·0	+ ·43	S. 11·1
5 30	− 1·0	+ ·14	S. 22·3	− 0·5	+ ·38	S. 16·3	− 1·1	+ ·47	S. 5·4
6 30	+ 1·7	+ ·26	S. 19·3	− 1·0	+ ·32	S. 12·4	− 0·9	+ ·30	N. 0·9
7 30	− 0·7	+ ·16	S. 15·9	− 0·5	+ ·18	S. 5·7	− 0·6	+ ·07	N. 7·1
8 30	− 0·6	+ ·21	S. 11·8	+ 0·2	·00	N. 0·5	+ 0·5	− ·05	N. 12·1
9 30	+ 0·1	+ ·16	N. 5·6	− 1·0	·00	N. 6·9	+ 0·1	− ·15	N. 16·4
10 30	+ 0·4	+ ·19	N. 0·6	− 0·8	− ·03	N. 12·1	− 0·5	− ·10	N. 20·6
11 30	− 0·2	+ ·10	N. 7·0	− 3·4	− ·12	N. 18·7	+ 0·2	− ·35	N. 22·3
	Sun's Declination 10° N.			Sun's Declination 19° N.			Sun's Declination 23° N.		

TABLE VII. (*g*.) (Continued.)

Diurnal Inequality.

Apparent Solar Time of Moon's Transit A.	July.			August.			September.		
	Interval.	Height.	Moon's Declination.	Interval.	Height.	Moon's Declination.	Interval.	Height.	Moon's Declination.
h m	m	feet.	°	m	feet.	°	m	feet.	°
P.M. 0 30	+ 0·5	− ·42	N. 19·1	+ 0·4	− ·57	N. 10·9	+ 0·3	− ·49	S. 1·3
1 30	+ 1·3	− ·56	N. 15·6	+ 0·1	− ·53	N. 4·9	+ 1·7	− ·31	S. 6·8
2 30	− 0·5	− ·58	N. 11·1	− 0·9	− ·52	S. 1·2	+ 0·2	− ·35	S. 12·7
3 30	+ 1·7	− ·40	N. 4·8	+ 0·9	− ·26	S. 6·4	+ 0·6	− ·03	S. 16·5
4 30	− 1·8	− ·50	S. 1·4	− 0·4	− ·24	S. 13·4	+ 0·3	+ ·05	S. 19·8
5 30	+ 1·4	− ·36	S. 7·2	+ 0·3	− ·04	S. 18·9	0·0	+ ·09	S. 22·4
6 30	− 4·7	− ·17	S. 13·0	− 1·3	+ ·08	S. 20·7	− 2·7	+ ·15	S. 23·1
7 30	+ 0·8	− ·08	S. 17·3	+ 0·2	+ ·27	S. 22·4	− 0·6	+ ·28	S. 22·0
8 30	− 0·7	+ ·32	S. 20·5	− 0·2	+ ·45	S. 23·0	− 0·1	+ ·39	S. 19·9
9 30	− 1·3	+ ·33	S. 22·4	+ 0·1	+ ·49	S. 21·3	+ 0·3	+ ·40	S. 16·3
10 30	− 1·6	+ ·43	S. 20·7	+ 0·9	+ ·61	S. 19·6	+ 0·2	+ ·48	S. 11·2
11 30	− 0·9	+ ·53	S. 21·5	− 0·6	+ ·53	S. 15·8	− 1·3	+ ·58	S. 5·1
A.M. 0 30	− 0·6	+ ·60	S. 19·7	− 0·5	+ ·49	S. 10·6	− 0·4	+ ·44	S. 0·6
1 30	− 1·1	+ ·51	S. 16·6	− 0·4	+ ·69	S. 5·5	− 1·9	+ ·37	N. 6·8
2 30	+ 0·3	+ ·50	S. 11·0	+ 0·7	+ ·38	N. 0·8	− 0·9	+ ·25	N. 11·9
3 30	− 2·7	+ ·37	S. 4·9	− 0·7	+ ·28	N. 6·6	− 0·4	+ ·10	N. 16·8
4 30	− 0·3	+ ·37	N. 1·3	+ 0·1	+ ·21	N. 12·3	− 0·2	− ·06	N. 17·6
5 30	+ 0·7	+ ·37	N. 6·9	− 0·4	+ ·01	N. 18·1	+ 0·1	− ·10	N. 21·9
6 30	− 1·4	+ ·12	N. 12·4	+ 1·1	− ·12	N. 20·6	+ 2·4	− ·22	N. 23·4
7 30	− 0·7	− ·24	N. 17·1	− 0·1	− ·28	N. 24·6	+ 0·7	− ·29	N. 22·1
8 30	+ 0·7	− ·34	N. 21·0	+ 0·5	− ·40	N. 22·9	+ 0·1	− ·40	N. 20·1
9 30	− 0·9	− ·28	N. 21·9	0·0	− ·55	N. 22·0	− 0·2	− ·30	N. 15·5
10 30	+ 0·3	− ·48	N. 22·9	− 0·7	− ·46	N. 19·2	− 0·4	− ·54	N. 11·1
11 30	− 0·7	− ·44	N. 22·2	− 0·7	− ·61	N. 15·1	+ 1·1	− ·61	N. 6·2
	Sun's Declination 21° N.			Sun's Declination 13° N.			Sun's Declination 3° N.		
	October.			November.			December.		
P.M. 0 30	+ 0·6	− ·34	S. 11·1	− 0·1	+ ·11	S. 19·6	− 0·6	+ ·34	S. 22·9
1 30	+ 0·9	− ·15	S. 16·5	+ 0·1	+ ·19	S. 22·3	− 0·2	+ ·45	S. 22·0
2 30	− 1·3	+ ·09	S. 20·0	+ 0·1	+ ·36	S. 23·0	− 2·4	+ ·58	S. 19·6
3 30	− 0·3	+ ·20	S. 22·1	− 0·5	+ ·51	S. 21·9	− 2·4	+ ·62	S. 15·7
4 30	+ 0·7	+ ·20	S. 23·2	− 1·0	+ ·59	S. 19·9	− 1·2	+ ·69	S. 10·8
5 30	+ 1·4	+ ·53	S. 21·8	− 1·3	+ ·46	S. 16·6	− 0·6	+ ·35	S. 4·9
6 30	− 0·3	+ ·31	S. 20·0	− 0·6	+ ·35	S. 12·3	0·0	+ ·29	N. 0·8
7 30	− 2·0	+ ·50	S. 17·0	− 1·9	+ ·29	S. 6·2	+ 0·9	+ ·05	N. 6·2
8 30	0·0	+ ·38	S. 12·5	− 0·1	+ ·27	S. 0·6	+ 0·4	− ·09	N. 12·4
9 30	+ 0·5	+ ·33	S. 5·8	− 0·1	+ ·24	N. 5·1	− 0·4	− ·09	N. 17·0
10 30	− 0·5	+ ·35	S. 0·9	− 0·3	+ ·17	N. 11·4	+ 0·6	− ·12	N. 20·0
11 30	+ 0·2	+ ·35	N. 6·0	− 0·2	+ ·00	N. 16·6	+ 0·8	− ·19	N. 21·9
A.M. 0 30	− 0·4	+ ·54	N. 11·3	+ 0·5	− ·10	N. 19·8	+ 0·3	− ·29	N. 23·2
1 30	− 0·2	+ ·16	N. 16·1	− 0·1	− ·26	N. 22·1	+ 0·3	− ·34	N. 22·2
2 30	+ 0·9	− ·12	N. 20·4	+ 1·1	− ·11	N. 22·9	+ 0·4	− ·49	N. 19·0
3 30	+ 0·1	− ·23	N. 21·9	− 0·3	− ·38	N. 22·4	+ 3·9	− ·70	N. 16·0
4 30	− 1·2	− ·38	N. 22·9	+ 0·9	− ·54	N. 20·4	+ 3·4	− ·63	N. 11·2
5 30	− 1·0	− ·43	N. 22·1	+ 1·4	− ·45	N. 16·2	+ 0·4	− ·36	N. 5·9
6 30	+ 0·3	− ·26	N. 20·5	+ 0·8	− ·46	N. 12·5	0·0	− ·40	S. 0·8
7 30	− 2·7	− ·54	N. 17·0	− 0·1	− ·43	N. 6·9	− 0·4	− ·07	S. 5·9
8 30	− 0·4	− ·45	N. 12·3	− 0·1	− ·20	N. 0·8	− 0·3	− ·15	S. 12·3
9 30	− 0·3	− ·39	N. 6·7	+ 2·4	− ·27	S. 4·7	+ 0·2	+ ·07	S. 15·7
10 30	+ 0·3	− ·18	S. 0·9	+ 0·2	− ·09	S. 11·7	− 0·4	+ ·08	S. 20·3
11 30	− 0·1	− ·45	S. 5·5	+ 0·2	− ·02	S. 16·5	− 0·6	+ ·17	S. 22·4
	Sun's Declination 9° S.			Sun's Declination 19° S.			Sun's Declination 23° S.		

Table VIII. (*h*.)

Showing a Comparison between the Semimenstrual Correction at Liverpool in the Interval and in the Height, as deduced from theory and from the results of observation contained in Tables II. and III.

Moon's Hor. Par. 57′, and Decl. 15°.

Apparent Solar Time of Moon's Transit A.	Interval. ψ + constant.		Height. *h*.	
	Theory.	Observation.	Theory.	Observation.
h m	h m	h m	feet.	feet.
0 0	12 21·2		17·67	
0 30	12 13·2	12 12·3	17·51	17·46
1 0	12 5·3		17·37	
1 30	11 58·7	11 57·0	17·00	16·78
2 0	11 51·0		16·58	
2 30	11 45·0	11 43·9	16·58	15·77
3 0	11 40·2		15·38	
3 30	11 38·2	11 37·0	14·70	14·40
4 0	11 38·2		13·97	
4 30	11 41·2	11 40·4	13·30	13·02
5 0	11 50·3		12·69	
5 30	12 2·8	12 2·8	12·29	12·14
6 0	12 21·2		12·15	
6 30	12 36·5	12 37·9	12·27	12·54
7 0	12 51·9		12·65	
7 30	13 1·5	13 1·7	13·25	13·81
8 0	13 4·4		13·92	
8 30	13 4·2	13 5·7	14·72	15·27
9 0	13 2·0		15·39	
9 30	12 58·2	12 58·2	16·00	16·45
10 0	12 51·6		16·59	
10 30	12 44·5	12 44·5	17·02	17·22
11 0	12 37·0		17·36	
11 30	12 29·0	12 29·0	17·52	17·66

α' = Moon's Right Ascension. α = Sun's Right Ascension.

μ = Sidereal Time.

$\mu - \alpha' = \psi$ $\alpha - \alpha' = \varphi$ $\mu - \alpha = \psi - \varphi$.

h = Height of High Water.

The columns headed "Theory" have been calculated from the expressions

$$\tan 2\psi = \frac{(A)\sin 2\varphi}{1 + (A)\cos 2\varphi}$$

$$h = D + (E)\{(A)\cos(2\psi - 2\varphi) + \cos 2\psi\}$$

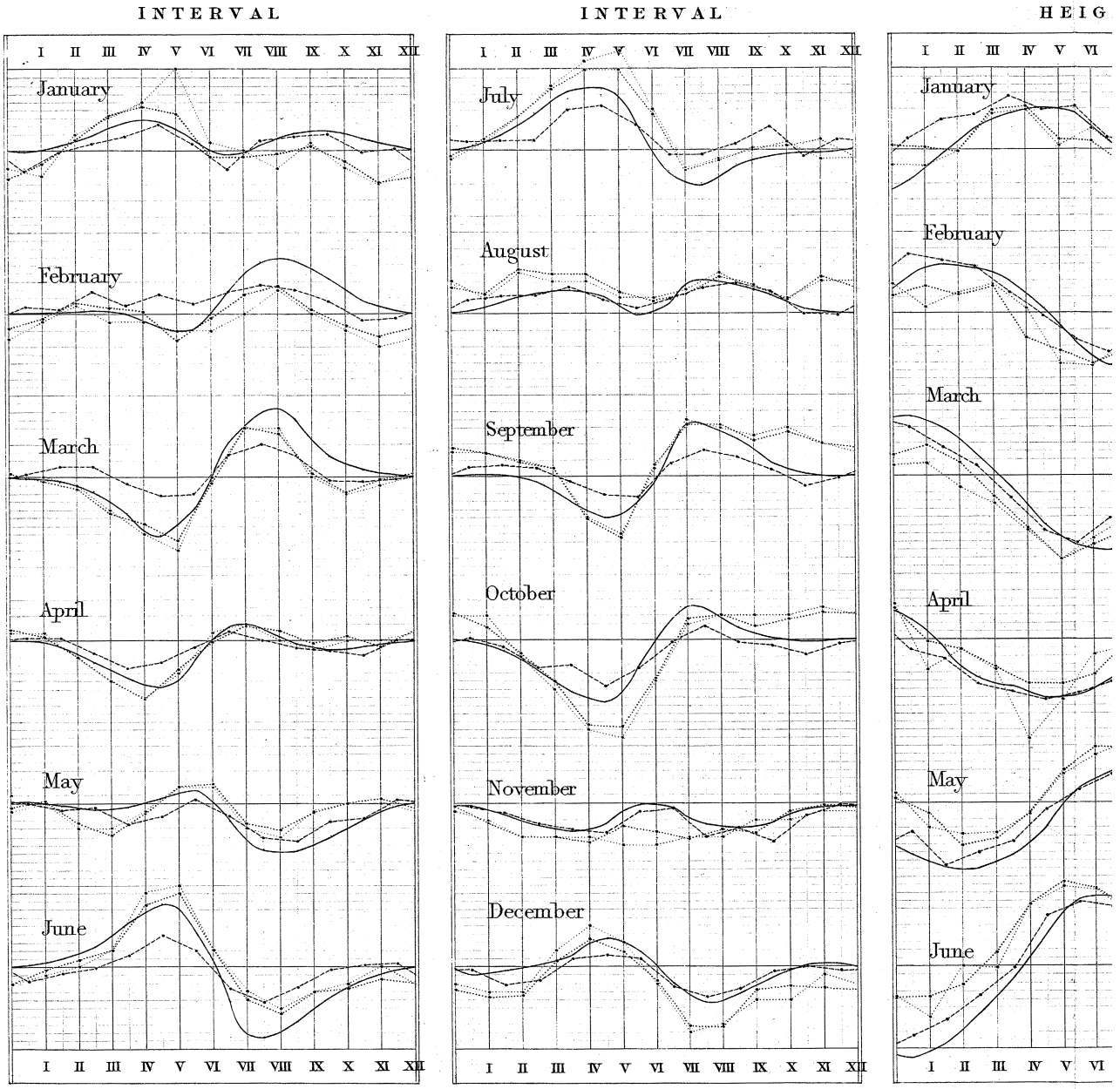
$$\log(A) = 9{\cdot}56965 \qquad \log(E) = 0{\cdot}871{\cdot}30 \qquad D = 7{\cdot}46$$

TABLE IX. (*i.*)

Showing the Calendar-month Inequality in the Interval and in the Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Tables II. and III. See Plate I.

Apparent Solar Time of Moon's Transit A.	January.					February.					March.					Apparent Solar Time of Moon's Transit. A.
	d ψ		d *h*		Moon's Declination.	d ψ		d *h*		Moon's Declination.	d ψ.		d *h*		Moon's Declination.	
	Theory.	Observation.	Theory.	Observation.		Theory.	Observation.	Theory.	Observation.		Theory.	Observation.	Theory.	Observation.		
h m	m	m	feet.	feet.	°	m	m	feet.	feet.	°	m	m	feet.	feet.	°	h m
0 30	−0·2	−2·4	−·39	+·13	19	0·0	+0·9	+·44	+·72	10	−0·1	+0·3	+·74	+·60	5	0 30
1 30	+0·5	−0·2	−·05	+·37	15	+0·2	+0·5	+·60	+·65	5	−0·6	+1·1	+·59	+·34	8	1 30
2 30	+1·9	+0·9	+·26	+·42	10	+0·4	+2·9	+·55	+·58	5	−1·9	+1·1	+·26	+·12	13	2 30
3 30	+3·3	+1·8	+·44	+·66	6	0·0	+1·0	+·40	+·26	8	−4·5	−0·9	−·12	−·27	17	3 30
4 30	+3·4	+3·1	+·50	+·49	5	−1·7	+2·3	+·06	−·04	13	−7·2	−2·1	−·59	−·67	21	4 30
5 30	+1·3	+0·9	+·44	+·51	8	−1·9	+1·2	−·36	−·32	18	−3·9	−2·0	−·82	−·81	22	5 30
6 30	−0·5	−2·1	+·12	+·15	14	+2·8	+2·8	−·64	−·48	21	+4·2	+2·7	−·91	−·51	23	6 30
7 30	+0·7	+1·1	−·19	+·04	18	+6·3	+3·6	−·65	−·23	22	+7·9	+4·0	−·68	−·43	22	7 30
8 30	+2·1	+1·8	−·49	+·03	21	+6·4	+3·0	−·65	−·20	23	+6·1	+2·6	−·37	−·12	20	8 30
9 30	+2·4	+2·0	−·71	−·47	23	+4·2	+1·5	−·51	·00	22	+2·5	−0·5	+·13	+·15	15	9 30
10 30	+1·3	−0·2	−·75	−·18	23	+1·7	−0·9	−·20	+·21	19	+0·9	−0·7	+·45	+·46	11	10 30
11 30	+0·5	+0·1	−·67	−·20	22	+0·3	−0·6	+·14	+·44	15	+0·1	−0·3	+·72	+·68	6	11 30
	Sun's Decl. S. 21°, and Par. 8″·94.					Sun's Decl. S. 13°, and Par. 8″·90.					Sun's Decl. S. 2°, and Par. 8″·84.					
	April.					May.					June.					
0 30	0·0	+0·3	+·25	−·11	12	+0·1	0·0	−·63	−·35	20	+0·3	−1·7	−1·11	−·84	23	0 30
1 30	−0·8	+0·2	−·10	−·23	17	−0·2	−0·9	−·78	−·76	22	+1·0	−0·8	−·92	−·65	22	1 30
2 30	−2·8	−1·5	−·46	−·54	21	−0·7	−0·5	−·80	−·44	23	+2·5	−0·1	−·58	−·35	20	2 30
3 30	−4·6	−3·3	−·57	−·63	22	−0·4	−2·5	−·62	−·47	22	+5·5	+1·4	−·13	−·02	16	3 30
4 30	−5·8	−2·7	−·71	−·72	23	+0·7	−1·6	−·30	−·09	20	+7·7	+3·9	+·40	+·61	11	4 30
5 30	−2·4	−0·9	−·67	−·65	22	+1·6	+0·4	+·18	+·16	15	+4·1	+2·0	+·81	+·79	6	5 30
6 30	+1·7	+1·1	−·48	−·51	20	−2·1	−1·5	+·38	+·33	12	−4·1	−2·6	+·83	+·71	5	6 30
7 30	+1·5	0·0	−·10	−·17	16	−5·7	−4·0	+·51	+·25	7	−8·5	−4·2	+·54	+·13	8	7 30
8 30	−0·5	−1·0	+·24	+·13	11	−5·8	−4·4	+·42	+·10	5	−6·7	−2·4	+·07	−·18	13	8 30
9 30	−1·2	−1·3	+·48	+·34	6	−4·0	−2·1	+·29	−·10	7	−3·6	−0·3	−·33	−·44	17	9 30
10 30	−0·8	−1·9	+·55	+·40	4	−1·9	−1·9	+·02	−·35	12	−1·5	+0·2	−·73	−·80	20	10 30
11 30	−0·2	0·0	+·48	+·25	7	−0·3	+0·4	−·37	−·54	17	−0·3	+0·4	−1·00	−1.01	22	11 30
	Sun's Decl. N. 10°, and Par. 8″·76.					Sun's Decl. N. 19°, and Par. 8″·70.					Sun's Decl. N. 23°, and Par. 8″·66.					
	July.					August.					September.					
0 30	+0·4	+1·0	−·65	−·42	19	+0·3	+1·7	+·21	+·29	11	+0·1	+1·1	+·65	+·70	4	0 30
1 30	+1·9	+1·2	−·35	−·07	16	+1·4	+2·1	+·42	+·29	6	+0·1	+1·4	+·53	+·55	7	1 30
2 30	+4·5	+1·3	+·07	+·30	11	+2·3	+2·2	+·45	+·51	5	−0·6	+1·0	+·26	+·27	12	2 30
3 30	+7·3	+5·0	+·40	+·41	6	+2·9	+3·2	+·39	+·39	7	−3·0	−0·6	−·14	−·03	17	3 30
4 30	+7·7	+5·5	+·62	+·73	5	+2·1	+1·7	+·14	+·12	13	−5·0	−2·1	−·46	−·43	20	4 30
5 30	+3·4	+3·1	+·66	+·64	8	−0·2	+0·6	−·12	−·25	17	−3·0	−2·5	−·73	−·58	22	5 30
6 30	−2·7	−0·5	+·40	+·17	13	+1·3	+1·9	−·48	−·38	21	+3·3	+1·6	−·82	−·28	23	6 30
7 30	−4·1	−0·6	·00	+·06	17	+4·1	+3·1	−·67	−·36	23	+6·3	+3·1	−·64	−·23	22	7 30
8 30	−1·9	+0·7	−·53	−·40	21	+3·6	+3·8	−·67	−·46	23	+4·6	+2·3	−·39	−·01	20	8 30
9 30	−0·8	+2·9	−·76	−·55	22	+2·2	+2·3	−·61	−·22	22	+1·8	+0·8	−·01	+·24	16	9 30
10 30	−0·3	−0·7	−·97	−·62	23	+0·5	−0·1	−·36	−·17	19	+0·3	−1·1	+·36	+·54	11	10 30
11 30	−0·1	+1·2	−·93	−·63	22	0·0	−0·2	−·12	+·10	16	−0·1	−0·2	+·61	+·45	6	11 30
	Sun's Decl. N. 21°, and Par. 8″·66.					Sun's Decl. N. 13°, and Par. 8″·70.					Sun's Decl. N. 3°, and Par. 8″·76.					
	October.					November.					December.					
0 30	−0·2	+0·1	+·42	+·40	11	−0·3	0·4	−·45	−·19	20	−1·0	−0·4	−·85	−·49	23	0 30
1 30	−1·3	−0·9	+·07	+·24	16	−1·4	−1·1	−·62	−·28	22	−0·5	−2·1	−·70	−·43	22	1 30
2 30	−3·6	−3·3	−·30	−·22	20	−2·7	−2·5	−·70	−·30	23	+0·1	−1·6	−·36	−·18	19	2 30
3 30	−6·3	−3·0	−·55	−·34	22	−3·2	−3·1	−·58	−·22	22	+1·5	+1·0	−·09	+·30	16	3 30
4 30	−7·6	−5·7	−·76	−·44	23	−2·4	−3·5	−·38	−·10	20	+3·4	+1·4	+·28	+·53	11	4 30
5 30	−3·3	−3·4	−·76	−·52	22	−0·1	−1·0	−·06	+·29	16	+1·9	+1·0	+·55	+·76	7	5 30
6 30	+2·6	−0·2	−·57	−·34	20	−0·6	−0·6	+·22	+·46	12	−2·0	−2·3	+·61	+·67	5	6 30
7 30	+3·8	+1·7	−·23	+·07	17	−2·6	−4·0	+·43	+·43	7	−4·3	−3·7	+·45	+·43	7	7 30
8 30	+1·5	−0·2	+·21	+·32	12	−3·0	−3·0	+·46	+·52	5	−3·1	−2·7	+·17	+·26	12	8 30
9 30	+0·2	−0·7	+·51	+·56	7	−2·2	−4·6	+·43	+·44	6	−1·2	−0·6	−·12	+·01	16	9 30
10 30	−0·1	−1·8	+·65	+·41	4	−0·7	−1·5	+·18	+·30	12	+0·1	−0·0	−·51	−·15	20	10 30
11 30	0·0	−0·5	+·60	+·79	7	−0·3	−0·1	−·19	+·01	17	+0·3	−0·5	−·74	−·38	22	11 30
	Sun's Decl. S. 9°, and Par. 8″·84.					Sun's Decl. S. 19°, and Par. 8″·90.					Sun's Decl. S. 23°, and Par. 8″·94.					

Diagram showing a comparison between the Calendar Month Inequality in the Inte
deduced from Bernoullis' Theory and from Observations at the London and Live



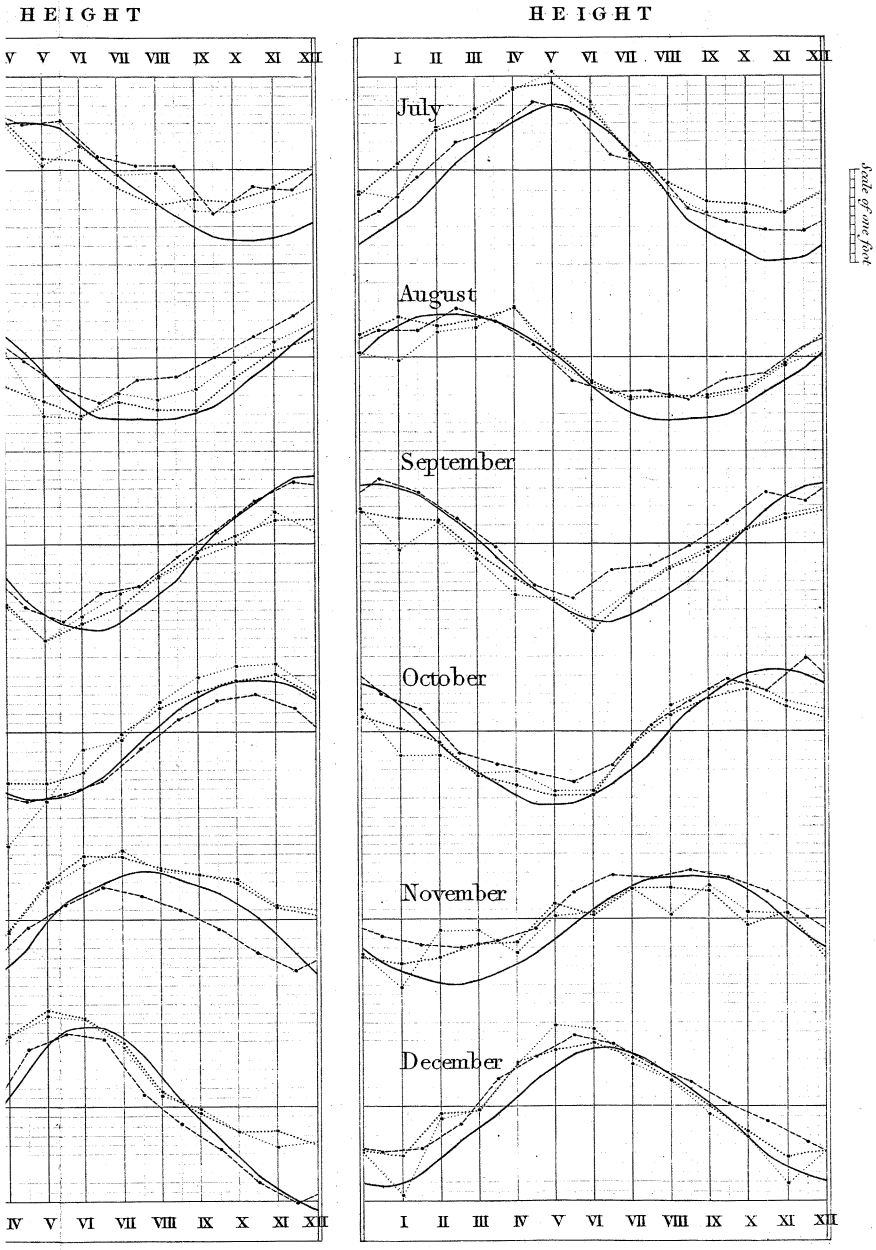
Theory ——— *Observation*

London

Liverpo

In this comparison of the London and Liverpool results, the London corrections have been shifted
and the London height corrections have been multiplied by 1·7 The abscissa represents the app

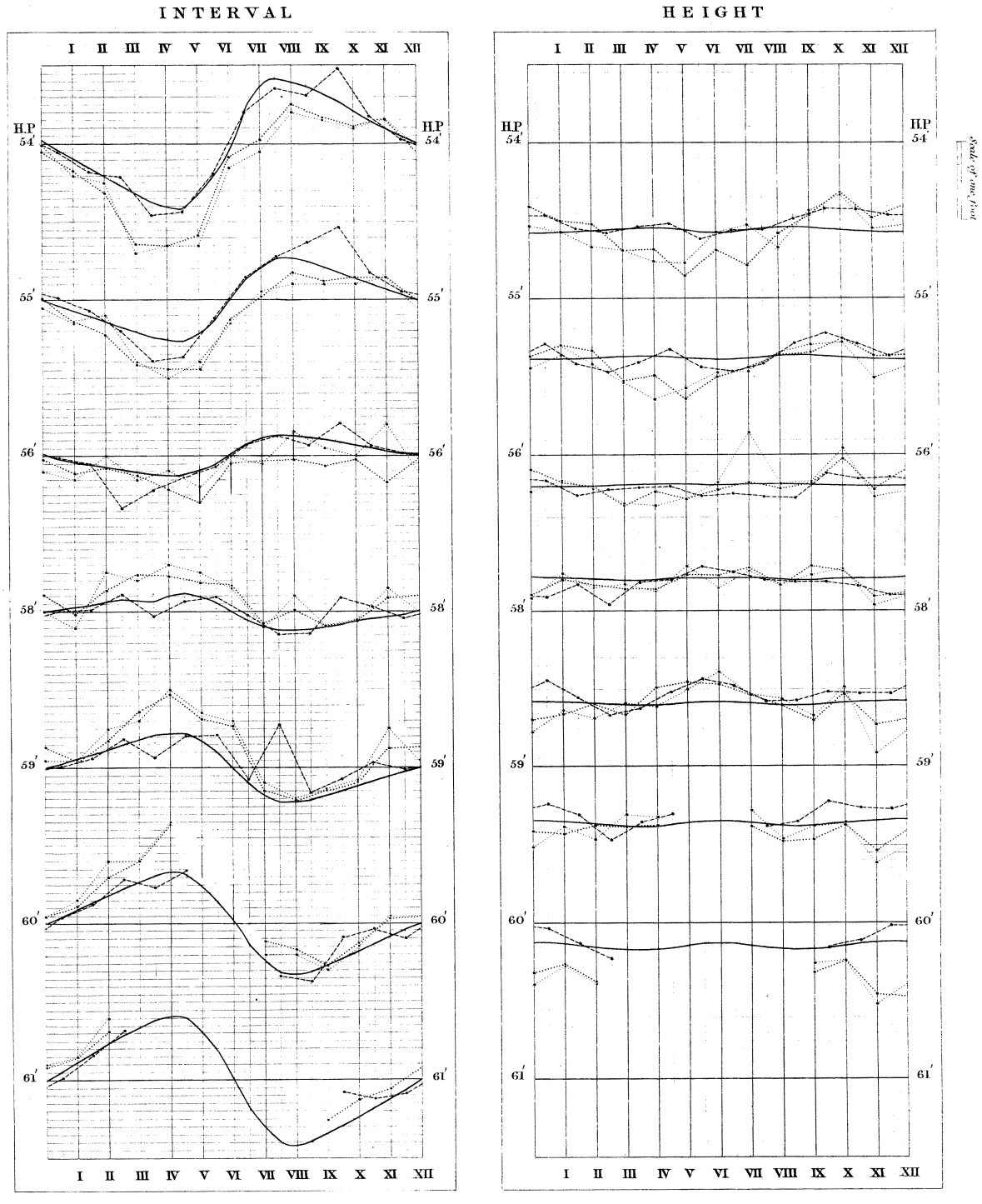
the Interval and in the Height of high water as
nd Liverpool Docks.—See Tables IX and XXIII. p. 118 and 192.



London 19 *Years* (13,370 *Observations*)
..... 35 *Years* (24,392 *Observations*)
Liverpool 19 *Years* (13,391 *Observations*)

n shifted to the left half an hour agreeably to the remark p.100
ts the apparent solar time of moon's transit A.

Diagram showing a comparison between the Moon's Parallax inequality in the Interval and in the Height of high water as deduced from Bernoulli's Theory and from Observations at the London and Liverpool Docks. *See Tables X and XXIV. p. 119. and p. 133.*



Theory ——— *Observation*

London 19 Years
35 Years
Liverpool

In this comparison of the London and Liverpool results the London corrections have been shifted to the left half an hour agreeably to the remark in p. 100 and the London height corrections have been multiplied by 1.7 The abscissa represents the apparent solar time of moon's transit A.

Table X. (*j*.)

Showing the Moon's Parallax Inequality in the Interval and in the Height of High Water, as deduced from Bernoulli's theory and from the results of observation contained in Table V. See Plate II.

Apparent Solar Time of Moon's Transit A.	H. P. 54′.				H. P. 55′.				Apparent Solar Time of Moon's Transit A.
	d ψ		d *h*		d ψ		d *h*		
	Theory.	Observation.	Theory.	Observation.	Theory.	Observation.	Theory.	Observation.	
h m	m	m	feet.	feet.	m	m	feet.	feet.	h m
0 30	− 1·0	− 0·7	−1·16	−0·92	− 0·7	+ 0·2	− ·79	− ·59	0 30
1 30	− 3·0	− 3·4	−1·14	−1·10	− 2·0	− 1·3	− ·77	− ·83	1 30
2 30	− 5·3	− 4·1	−1·11	−1·16	− 3·4	− 4·0	− ·75	− ·93	2 30
3 30	− 7·4	− 9·1	−1·09	−1·08	− 4·9	− 7·9	− ·74	− ·82	3 30
4 30	− 8·3	− 8·7	−1·10	−1·04	− 5·3	− 7·3	− ·75	− ·66	4 30
5 30	− 4·0	− 3·9	−1·15	−1·24	− 2·6	− 2·4	− ·78	− ·88	5 30
6 30	+ 4·0	+ 4·0	−1·15	−1·11	+ 2·6	+ 2·9	− ·78	− ·92	6 30
7 30	+ 8·3	+ 7·1	−1·10	−1·11	+ 5·3	+ 5·5	− ·75	− ·84	7 30
8 30	+ 7·4	+ 6·2	−1·09	−0·97	+ 4·9	+ 7·3	− ·74	− ·58	8 30
9 30	+ 5·3	+ 9·6	−1·11	−0·84	+ 3·4	+ 9·3	− ·75	− ·45	9 30
10 30	+ 3·0	+ 3·4	−1·14	−0·86	+ 2·0	+ 3·4	− ·77	− ·59	10 30
11 30	+ 1·0	+ 0·6	−1·16	−0·92	+ 0·7	+ 0·1	− ·79	− ·74	11 30
	H. P. 56′.				H. P. 57′.				
0 30	− 0·3	− 0·2	− ·40	− ·31	0·0	0·0	0·0	0·0	0 30
1 30	− 1·0	− 1·0	− ·40	− ·52	0·0	0·0	0·0	0·0	1 30
2 30	− 1·7	− 6·7	− ·39	− ·44	0·0	0·0	0·0	0·0	2 30
3 30	− 2·3	− 4·3	− ·38	− ·41	0·0	0·0	0·0	0·0	3 30
4 30	− 2·5	− 2·7	− ·38	− ·40	0·0	0·0	0·0	0·0	4 30
5 30	− 1·2	− 1·4	− ·39	− ·53	0·0	0·0	0·0	0·0	5 30
6 30	+ 1·2	+ 1·3	− ·39	− ·50	0·0	0·0	0·0	0·0	6 30
7 30	+ 2·5	+ 2·5	− ·38	− ·44	0·0	0·0	0·0	0·0	7 30
8 30	+ 2·3	+ 1·4	− ·38	− ·46	0·0	0·0	0·0	0·0	8 30
9 30	+ 1·7	+ 4·1	− ·39	− ·23	0·0	0·0	0·0	0·0	9 30
10 30	+ 1·0	+ 1·3	− ·40	− ·30	0·0	0·0	0·0	0·0	10 30
11 30	+ 0·3	+ 0·3	− ·40	− ·28	0·0	0·0	0·0	0·0	11 30
	H. P. 58′.				H. P. 59′.				
0 30	+ 0·3	+ 0·1	+ ·42	+ ·18	+ 0·6	+ 0·2	+ ·85	+1·11	0 30
1 30	+ 0·9	+ 0·2	+ ·41	+ ·34	+ 1·8	+ 1·3	+ ·84	+0·90	1 30
2 30	+ 1·6	+ 2·2	+ ·40	+ ·09	+ 3·0	+ 3·8	+ ·81	+0·68	2 30
3 30	+ 2·2	− 0·6	+ ·39	+ ·37	+ 4·2	+ 1·4	+ ·80	+0·76	3 30
4 30	+ 2·3	+ 1·3	+ ·41	+ ·40	+ 4·4	+ 4·1	+ ·81	+0·97	4 30
5 30	+ 1·1	+ 1·9	+ ·42	+ ·57	+ 2·0	+ 4·2	+ .84	+1·12	5 30
6 30	− 1·1	− 0·4	+ ·42	+ ·50	− 2·0	− 1·5	+ ·84	+1·05	6 30
7 30	− 2·3	− 2·9	+ ·41	+ ·40	− 4·4	− 5·4	+ ·81	+0·85	7 30
8 30	− 2·2	− 2·8	+ ·39	+ ·38	− 4·2	− 3·1	+ ·80	+0·86	8 30
9 30	− 1·6	+ 1·8	+ ·40	+ ·38	− 3·0	− 1·5	+ ·81	+0·97	9 30
10 30	− 0·9	+ 0·6	+ ·41	+ ·31	− 1·8	+ 0·7	+ ·84	+0·95	10 30
11 30	− 0·3	− 0·9	+ ·42	+ ·20	− 0·6	− 0·2	+ ·85	+0·94	11 30
	H. P. 60′.				H. P. 61′.				
0 30	+ 0·9	+ 0·9	+1·30	+1·51	+ 1·2	+ 0·3	+1·76	+1·93	0 30
1 30	+ 2·7	+ 2·5	+1·28	+1·38	+ 3·5	+ 3·3	+1·73	+1·75	1 30
2 30	+ 4·5	+ 5·7	+1·24	+1·07	+ 5·9	+ 6·3	+1·68	+1·54	2 30
3 30	+ 6·1	+ 4·7	+1·22	+1·27	+ 7·9		+1·66		3 30
4 30	+ 6·2	+ 6·9	+1·24	+1·39	+ 8·0		+1·69		4 30
5 30	+ 2·9		+1·28		+ 3·7		+1·74		5 30
6 30	− 2·9		+1·28		− 3·7		+1·74		6 30
7 30	− 6·2	− 6·7	+1·24	+1·22	− 8·0		+1·69		7 30
8 30	− 6·1	− 7·4	+1·22	+1·27	− 7·9		+1·66		8 30
9 30	− 4·5	− 1·9	+1·24	+1·54	− 5·9	− 1·7	+1·68	+1·69	9 30
10 30	− 2·7	− 0·8	+1·28	+1·46	− 3·5	− 2·4	+1·73	+1·78	10 30
11 30	− 0·9	− 2·0	+1·30	+1·45	− 1·2	− 1·8	+1·76	+1·96	11 30

TABLE XI. (*k*.)

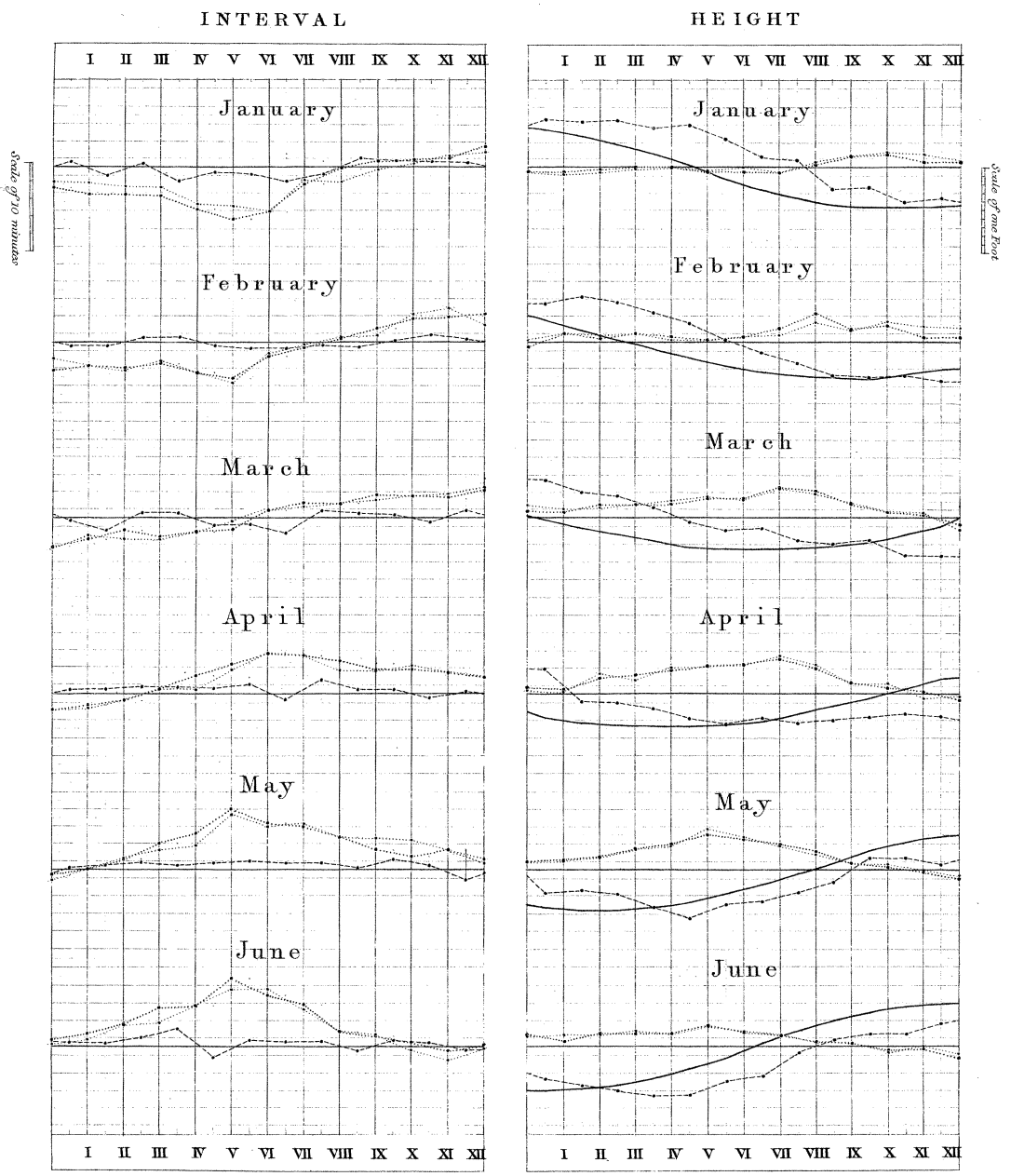
Showing the Diurnal Inequality in the Interval and in the Height in the first six months of the year, for the Moon's Transit A, P.M. See Plate III.

Apparent Solar Time of Moon's Transit A.	January.			February.			March.			Apparent Solar Time of Moon's Transit A.
	d ψ.	d *h*.	Moon's Declination.	d ψ.	d *h*.	Moon's Declination.	d ψ.	d *h*.	Moon's Declination.	
	Observation.	Observation.		Observation.	Observation.		Observation.	Observation.		
P.M.										
h m	m	feet.	°	m	feet.	°	m	feet.	°	h m
0 30	+ 0·6	+ ·56	S. 19	− 0·3	+ ·43	S. 10	− 0·2	+ ·43	N. 1	0 30
1 30	− 1·0	+ ·53	S. 15	− 0·4	+ ·52	S. 4	− 1·4	+ ·30	N. 7	1 30
2 30	+ 0·4	+ ·54	S. 10	+ 0·5	+ ·46	N. 2	+ 0·5	+ ·27	N. 13	2 30
3 30	− 1·6	+ ·47	S. 5	+ 0·6	+ ·34	N. 7	+ 0·5	+ ·11	N. 17	3 30
4 30	− 0·6	+ ·50	N. 2	− 0·4	+ ·21	N. 13	− 0·9	− ·05	N. 20	4 30
5 30	− 0·9	+ ·33	N. 8	− 0·7	+ ·02	N. 18	− 0·8	− ·15	N. 22	5 30
6 30	− 1·6	+ ·11	N. 13	− 0·7	− ·11	N. 21	− 1·8	− ·12	N. 23	6 30
7 30	− 0·9	+ ·09	N. 18	− 0·4	− ·23	N. 23	+ 0·8	− ·26	N. 22	7 30
8 30	+ 1·0	− ·25	N. 21	− 0·6	− ·39	N. 23	+ 0·5	− ·30	N. 20	8 30
9 30	+ 0·7	− ·23	N. 22	+ 0·1	− ·40	N. 22	+ 0·2	− ·26	N. 16	9 30
10 30	+ 0·6	− ·40	N. 22	+ 0·9	− ·39	N. 19	− 0·5	− ·41	N. 11	10 30
11 30	+ 0·5	− ·36	N. 22	+ 0·4	− ·43	N. 15	+ 0·9	− ·43	N. 5	11 30
	July.			August.			September.			
	April.			May.			June.			
0 30	+ 0·4	+ ·29	N. 12	+ 0·2	− ·27	N. 20	+ 0·4	− ·38	N. 23	0 30
1 30	+ 0·5	− ·09	N. 17	+ 0·6	− ·24	N. 22	+ 0·3	− ·44	N. 22	1 30
2 30	+ 0·8	− ·10	N. 20	+ 0·9	− ·29	N. 23	+ 1·0	− ·50	N. 19	2 30
3 30	+ 0·7	− ·18	N. 22	+ 0·5	− ·42	N. 22	+ 2·0	− ·58	N. 16	3 30
4 30	+ 0·6	− ·28	N. 23	+ 0·8	− ·55	N. 20	− 1·2	− ·57	N. 11	4 30
5 30	+ 1·0	− ·34	N. 22	+ 1·0	− ·40	N. 16	+ 0·7	− ·40	N. 5	5 30
6 30	− 0·7	− ·29	N. 20	+ 0·8	− ·37	N. 12	+ 0·5	− ·33	S. 1	6 30
7 30	+ 1·5	− ·33	N. 16	+ 0·8	− ·27	N. 6	+ 0·6	− ·07	S. 7	7 30
8 30	+ 0·4	− ·30	N. 12	+ 0·2	− ·13	S. 1	− 0·5	+ ·09	S. 12	8 30
9 30	+ 0·4	− ·27	N. 6	+ 1·2	+ ·14	S. 6	+ 0·7	+ ·14	S. 17	9 30
10 30	− 0·4	− ·22	S. 1	+ 0·5	+ ·14	S. 12	+ 0·4	+ ·14	S. 29	10 30
11 30	+ 0·2	− ·26	S. 6	− 1·1	+ ·08	S. 17	− 0·4	+ ·26	S. 22	11 30
	October.			November.			December.			

The tide depending on the Moon's Transit A.M. for the last six months has the same inequality and the same signs as the above; and in the first six months A.M. and the last six months P.M. the same values obtain, but with a contrary sign.

The quantities in the columns headed "Observation" have been obtained by taking the mean of January and July, February and August, &c. A.M. and P.M., as explained in p. 100. The corresponding moon's declination has been obtained in a similar manner.

Diagram showing the Diurnal inequality in the Interval and in the Height of high water as deduced from Observations at the London and Liverpool Docks—*See Tables XI. & XXV. p. 120 and p. 134.*



Theory——— *Observation*

London 35 *Years*.....
London 19 *Years*.....
Liverpool ----------

In this comparison of the London and Liverpool results the London corrections have been shifted to the left half an hour agreeably to the remark in p 100 and the signs reversed. The abscissa represents the apparent solar time of moons transit A.P.M.

Diagram showing the Establishment of the Port of Liverpool. — *See Table XIV. p. 121.*

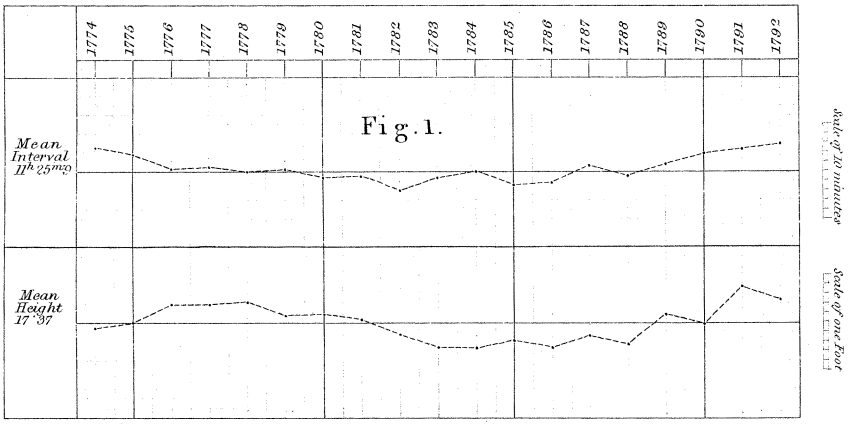


Diagram showing the Establishment of the Port of London. — *See Table XXX. p. 136.*

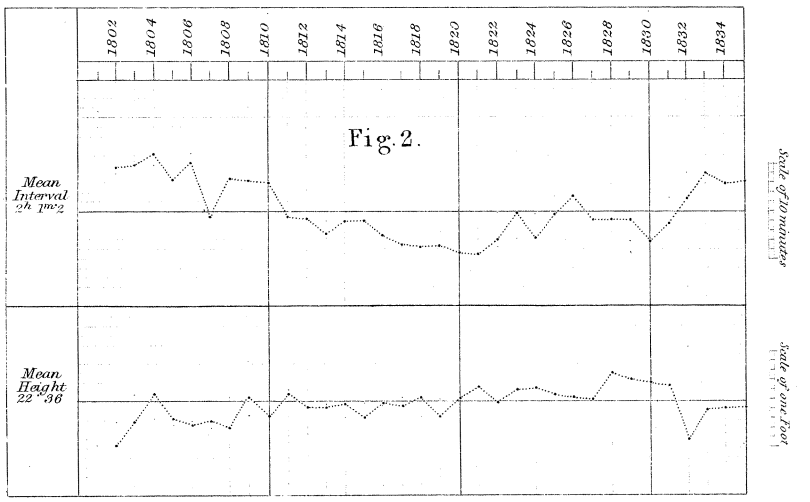
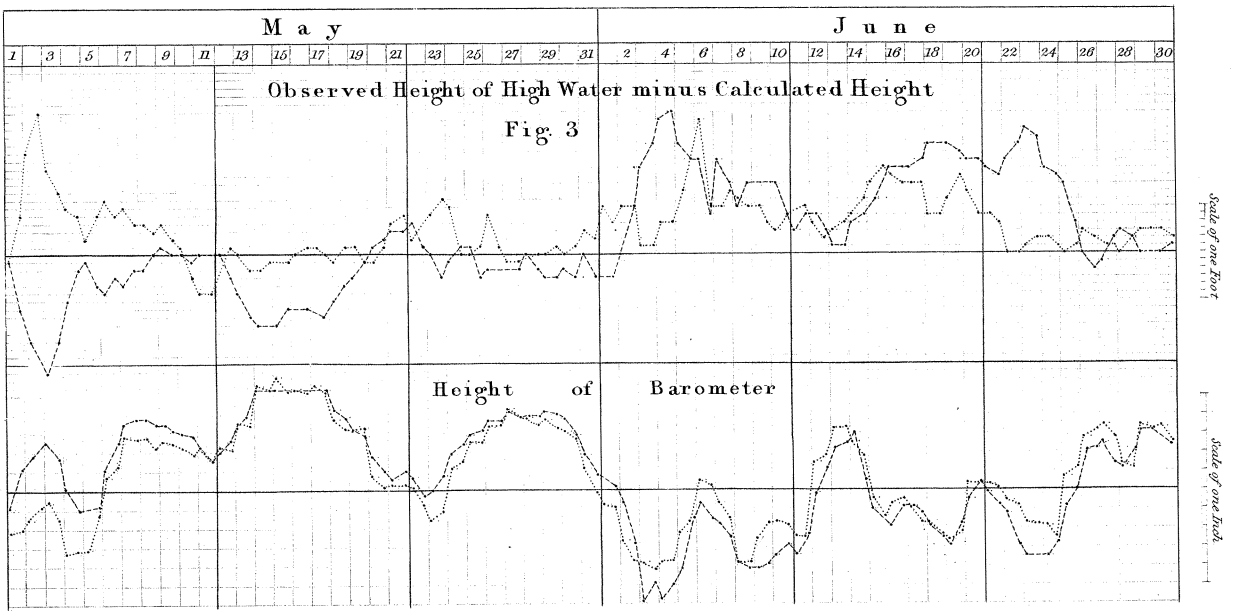


Diagram showing the errors of calculated Heights of Highwater for May & June and the corresponding Heights of the Barometer at Liverpool & London. — *See. p. 104.*



Liverpool..... London.....

Table XII. (*l.*)

Showing the Interval and Height of High Water at the Liverpool Docks, with the Sun's and Moon's Declinations, and the Moon's Horizontal Parallax (for the mean of all the Moon's Transits A occurring between 0^h and 1^h) for every year from 1774 to 1792.

Year.	Number of Observations.	Moon's Transit A.	Interval.	Height.	Moon's Declination.	Moon's Hor. Par.	Sun's Declination.
		h m	h m	ft. in.	°	′	°
1774	58	0 27·5	12 15·4	18 0·9	10·9	57·6	14·0
1775	57	0 29·3	12 14·3	17 10·7	11·6	57·4	14·0
1776	59	0 30·8	12 12·3	17 11·7	12·7	57·3	14·5
1777	59	0 32·2	12 12·1	17 10·1	14·0	57·3	14·6
1778	52	0 30·6	12 12·1	17 10·0	15·1	57·4	14·6
1779	58	0 29·3	12 12·7	17 8·9	15·8	57·6	14·4
1780	62	0 29·3	12 11·9	17 6·7	16·8	57·3	14·4
1781	59	0 29·5	12 11·9	17 6·0	16·9	57·3	14·2
1782	53	0 29·6	12 10·5	17 4·4	17·2	57·4	13·6
1783	57	0 30·3	12 11·6	17 4·7	16·8	57·7	13·7
1784	59	0 29·4	12 12·5	17 2·0	17·3	57·3	14·1
1785	55	0 31·3	12 11·4	17 4·1	16·5	57·4	14·3
1786	62	0 29·6	12 11·3	17 3·1	16·1	57·3	14·4
1787	62	0 28·3	12 13·1	17 7·0	15·1	57·6	14·1
1788	55	0 30·0	12 11·9	17 5·8	14·0	57·4	14·7
1789	54	0 28·1	12 13·7	17 11·1	12·4	57·4	14·0
1790	56	0 28·2	12 14·8	17 9·8	11·9	57·3	14·4
1791	55	0 29·6	12 14·8	18 3·8	11·7	57·6	14·9
1792	62	0 29·3	12 15·4	18 1·0	11·2	57·3	14·4

Table XIII. (*m.*)

Interpolated from Table XII. by reducing each quantity to Moon's Transit A ($0^h 30^m$), and correcting the quantities for deviation from mean Declinations and Parallax.

Moon's Transit A = 0^h 30^m.

Year.	Interval.	Height.
	h m	feet.
1774	12 14·7	17·40
1775	12 14·1	17·46
1776	12 12·5	17·65
1777	12 12·7	17·65
1778	12 12·3	17·67
1779	12 12·5	17·53
1780	12 11·7	17·55
1781	12 11·8	17·49
1782	12 10·4	17·34
1783	12 11·7	17·20
1784	12 12·3	17·19
1785	12 11·0	17·27
1786	12 11·2	17·20
1787	12 12·9	17·32
1788	12 11·9	17·24
1789	12 13·2	17·55
1790	12 14·3	17·45
1791	12 14·7	17·84
1792	12 15·2	17·69

Table XIV. (*n.*)

Showing the *Establishment* of the Port of Liverpool obtained from Table XIII. by altering the argument from Transit A to Transit D, and reducing it to $0^h 0^m$ from $0^h 30^m$. Moon's Hor. Par. 57′, and Decl. 15°.

Moon's Transit D = 0^h 0^m.

Year.	Interval.*	Height.
	h m	feet.
1774	11 28·3	17·31
1775	11 27·7	17·37
1776	11 26·1	17·56
1777	11 26·3	17·56
1778	11 25·9	17·58
1779	11 26·1	17·44
1780	11 25·3	17·46
1781	11 25·4	17·40
1782	11 24·0	17·25
1783	11 25·3	17·11
1784	11 25·9	17·10
1785	11 24·6	17·18
1786	11 24·8	17·11
1787	11 26·5	17·23
1788	11 25·5	17·15
1789	11 26·8	17·46
1790	11 27·9	17·36
1791	11 28·3	17·75
1792	11 28·8	17·60

* i. e. *Establishment*.

Results deduced from Observations made at

LONDON.

TABLE XV. (*a.*)

Showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B in each month of the year, from 24,592 observations made at the London Docks, between the 1st of September 1801 and the 31st of August 1836.

January.						February.					
Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.	Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.
	h m	h m	ft. in.	°	′		h m	h m	ft. in.	°	′
167	0 30·1	3 3·9	22 9·1	19	57·1	165	0 30·2	3 5·5	22 10·8	10	57·3
166	1 29·7	2 49·7	22 6·3	15	57·3	169	1 28·3	2 50·9	22 8·2	6	57·2
186	2 29·1	2 38·1	21 11·4	10	57·1	172	2 28·4	2 38·5	22 1·4	5	57·2
188	3 29·6	2 30·5	21 4·8	6	56·9	175	3 29·1	2 27·1	21 3·8	8	56·9
189	4 29·9	2 28·9	20 6·0	5	56·9	166	4 29·9	2 22·9	20 0·9	14	56·7
194	5 30·1	2 41·7	19 7·3	9	56·9	152	5 29·6	2 32·5	19 2·2	18	56·6
179	6 29·3	3 9·4	19 7·0	13	56·9	151	6 29·7	3 9·6	19 1·5	21	56·7
176	7 29·3	3 40·7	20 1·8	18	57·0	144	7 29·0	3 43·8	19 11·2	22	56·8
169	8 29·9	3 52·8	20 11·9	21	57·2	142	8 28·7	3 56·9	20 9·4	23	56·9
154	9 29·2	3 50·7	21 8·9	22	57·2	149	9 28·6	3 51·1	21 6·7	21	57·1
162	10 29·1	3 37·8	22 3·2	23	57·2	157	10 30·0	3 37·2	22 4·1	19	57·2
158	11 29·1	3 19·9	22 7·4	21	57·2	157	11 30·8	3 20·6	22 9·5	15	57·3
Sun's Declination 21°.						Sun's Declination 13°.					
March.						April.					
178	0 29·3	3 7·8	22 10·8	5	57·2	170	0 29·0	3 9·0	23 0·0	12	57·3
185	1 29·9	2 50·5	22 8·2	8	57·1	165	1 28·9	2 51·8	22 5·8	17	57·2
176	2 29·6	2 35·1	22 0·0	13	56·9	161	2 29·0	2 34·7	21 10·5	20	57·0
170	3 28·7	2 21·6	20 11·8	17	56·8	154	3 29·2	2 21·0	20 11·2	22	56·8
167	4 28·8	2 16·7	19 9·9	20	56·7	155	4 29·1	2 15·4	19 10·4	23	56·7
166	5 30·0	2 28·4	18 10·8	22	56·7	157	5 29·0	2 31·4	19 1·6	22	56·5
163	6 29·6	3 9·5	19 0·4	23	56·8	165	6 28·8	3 9·6	19 2·9	20	56·7
163	7 28·9	3 47·4	19 10·0	22	56·9	174	7 29·2	3 43·5	20 1·9	16	56·7
177	8 29·0	3 58·3	20 11·8	19	57·2	175	8 29·2	3 54·5	21 3·3	11	57·0
175	9 29·6	3 50·5	21 10·7	16	57·3	186	9 30·0	3 49·8	22 2·1	6	57·2
180	10 30·3	3 36·7	22 6·6	11	57·4	175	10 29·1	3 39·5	22 9·4	5	57·3
187	11 30·5	3 23·7	22 11·2	6	57·5	179	11 28·9	3 23·0	23 1·4	7	57·4
Sun's Declination 3°.						Sun's Declination 10°.					
May.						June.					
166	0 30·0	3 6·9	22 10·3	20	57·6	157	0 28·2	3 5·8	22 6·8	23	57·3
161	1 29·8	2 51·6	22 5·6	22	57·5	156	1 29·3	2 51·2	22 3·8	22	57·4
165	2 30·0	2 34·5	21 8·1	23	57·2	163	2 29·5	2 38·1	21 10·6	19	57·3
163	3 30·1	2 22·5	20 10·4	22	56·9	172	3 30·0	2 28·7	21 2·9	16	57·0
170	4 29·7	2 21·8	20 1·3	20	56·8	176	4 30·0	2 30·6	20 7·2	11	56·8
171	5 29·4	2 37·5	19 8·2	16	56·6	186	5 29·6	2 45·0	20 0·9	7	56·7
183	6 29·4	3 12·0	19 9·7	12	56·5	184	6 29·8	3 12·0	19 11·9	5	56·6
192	7 29·7	3 39·3	20 6·7	7	56·7	179	7 29·3	3 37·5	20 7·2	7	56·8
188	8 29·8	3 50·6	21 5·0	5	56·8	179	8 29·4	3 47·7	21 2·5	12	56·9
183	9 30·0	3 49·3	22 2·0	7	57·0	161	9 29·0	3 47·6	21 10·0	17	57·0
176	10 29·2	3 39·0	22 8·0	12	57·2	161	10 29·3	3 36·4	22 3·4	20	57·1
175	11 28·9	3 24·4	22 9·9	17	57·3	149	11 28·8	3 22·4	22 6·6	22	57·2
Sun's Declination 19°.						Sun's Declination 23°.					

TABLE XV. (*a*.) (Continued.)

Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Mean of Moon's Declination.	Mean Horizontal Parallax.
	h m	h m	ft. in.	°	′
July.					
159	0 30·0	3 6·6	22 7·4	19	57·2
167	1 28·4	2 52·7	22 6·3	16	57·1
186	2 29·7	2 40·7	22 2·1	11	57·1
186	3 29·7	2 34·7	21 6·0	6	57·1
198	4 29·3	2 33·4	20 8·7	5	56·9
191	5 29·3	2 46·6	20 1·0	8	56·9
185	6 29·0	3 14·4	19 10·4	13	56·8
175	7 29·2	3 39·2	20 4·0	17	56·9
165	8 29·0	3 52·3	21 0·4	20	56·9
162	9 29·2	3 50·6	21 8·5	22	57·1
154	10 29·6	3 39·5	22 2·8	23	57·1
164	11 30·5	3 22·3	22 5·6	22	57·2
Sun's Declination 21°.					
August.					
179	0 30·6	3 10·0	22 10·3	11	57·0
178	1 29·7	2 53·4	22 7·9	6	56·9
181	2 28·8	2 42·0	22 1·6	5	57·0
184	3 29·0	2 31·2	21 4·4	8	56·9
182	4 29·4	2 27·5	20 5·4	13	56·7
174	5 29·0	2 38·5	19 6·4	17	56·7
175	6 29·2	3 11·7	19 4·4	20	56·9
168	7 30·2	3 43·8	20 0·2	22	57·0
162	8 30·0	3 57·7	20 11·2	23	57·1
165	9 29·9	3 53·7	21 8·4	22	57·2
165	10 30·0	3 40·6	22 3·6	19	57·3
171	11 29·8	3 28·2	22 8·5	16	57·3
Sun's Declination 14°.					
September.					
179	0 29·4	3 10·9	22 11·9	4	57·4
182	1 29·7	2 54·0	22 7·4	7	57·1
173	2 29·8	2 38·3	22 0·9	12	57·0
163	3 29·0	2 27·3	21 0·9	17	56·9
164	4 29·3	2 17·5	19 11·4	20	56·7
157	5 30·0	2 28·8	19 1·7	22	56·7
155	6 29·9	3 11·6	18 11·5	23	56·7
160	7 29·1	3 47·7	19 10·8	22	56·8
164	8 28·4	3 59·7	20 11·5	20	57·0
174	9 29·5	3 54·5	21 10·5	16	57·2
176	10 30·1	3 44·1	22 6·7	12	57·3
177	11 29·8	3 27·7	22 11·1	6	57·4
Sun's Declination 4°.					
October.					
175	0 30·0	3 10·6	22 11·1	12	57·5
173	1 29·7	2 53·0	22 6·4	16	57·4
166	2 29·8	2 34·9	21 10·3	20	57·0
164	3 28·9	2 21·3	20 10·5	22	56·9
157	4 28·9	2 12·5	19 10·8	23	56·8
164	5 29·2	2 24·8	19 0·8	22	56·6
170	6 30·6	3 5·6	19 1·0	20	56·6
167	7 30·6	3 44·6	20 1·2	17	56·6
180	8 29·7	3 56·5	21 2·5	12	56·9
187	9 28·7	3 52·3	22 1·0	7	57·1
190	10 29·0	3 41·4	22 8·9	5	57·4
189	11 30·1	3 26·8	22 11·3	7	57·5
Sun's Declination 9°.					
November.					
162	0 28·9	3 7·3	22 6·8	20	57·4
158	1 28·9	2 49·2	22 3·2	22	57·4
152	2 29·2	2 33·2	21 9·4	23	57·3
163	3 29·3	2 23·4	21 0·6	22	57·2
161	4 29·4	2 18·8	20 0·6	20	56·8
169	5 28·7	2 32·2	19 6·6	17	56·6
185	6 30·0	3 7·0	19 6·0	12	56·7
177	7 30·2	3 37·4	20 4·8	7	56·8
182	8 29·9	3 50·6	21 3·6	5	56·8
174	9 29·4	3 46·8	22 0·9	7	57·1
176	10 29·6	3 37·9	22 5·0	11	57·2
159	11 29·3	3 23·6	22 9·5	16	57·3
Sun's Declination 18°.					
December.					
157	0 29·4	3 4·6	22 6·2	22	57·3
159	1 29·6	2 47·6	22 2·8	22	57·3
165	2 30·0	2 33·4	21 11·1	20	57·2
175	3 30·4	2 27·9	21 1·7	16	57·1
185	4 29·7	2 26·7	20 5·6	11	56·9
197	5 29·8	2 38·9	19 10·6	7	56·9
181	6 29·2	3 8·2	19 10·2	5	56·7
193	7 28·4	3 34·3	20 5·2	8	56·7
184	8 29·2	3 46·4	21 3·3	12	56·9
167	9 29·3	3 47·6	21 10·7	17	57·1
160	10 28·6	3 36·9	22 3·5	20	57·2
163	11 28·5	3 21·5	22 5·1	22	57·2
Sun's Declination 23°.					

TABLE XVI. (*b*.) (Interpolated from Table XV.)

Showing the Interval between the Apparent Solar Time of the Moon's Transit B, and the Time of High Water at the London Docks for each month in the year.

Apparent Solar Time of Moon's Transit B.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Mean.
h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m
0 30	3 3·8	3 5·3	3 7·5	3 8·5	3 6·6	3 5·1	3 6·5	3 10·2	3 10·5	3 10·3	3 6·8	3 4·2	3 7·1
1 30	2 49·3	2 50·3	2 50·4	2 51·4	2 51·1	2 50·6	2 52·2	2 53·4	2 53·8	2 52·5	2 48·5	2 47·2	2 50·9
2 30	2 37·7	2 37·8	2 35·2	2 34·5	2 34·1	2 37·4	2 40·6	2 41·8	2 38·3	2 34·9	2 32·5	2 33·0	2 36·5
3 30	2 30·9	2 27·5	2 22·3	2 21·7	2 22·9	2 28·7	2 34·3	2 31·6	2 27·7	2 21·7	2 22·7	2 27·5	2 26·7
4 30	2 29·3	2 24·2	2 18·2	2 16·9	2 22·8	2 31·5	2 33·9	2 28·9	2 18·9	2 13·6	2 19·8	2 27·2	2 23·8
5 30	2 42·1	2 34·4	2 29·7	2 34·0	2 39·5	2 46·5	2 47·4	2 40·3	2 30·1	2 26·9	2 34·6	2 39·4	2 37·1
6 30	3 10·0	3 10·3	3 10·0	3 10·7	3 13·1	3 12·8	3 15·2	3 12·3	3 12·2	3 6·0	3 7·5	3 9·1	3 10·8
7 30	3 40·7	3 43·9	3 47·5	3 43·4	3 39·2	3 37·5	3 39·3	3 43·8	3 47·8	3 44·1	3 37·3	3 34·4	3 41·7
8 30	3 53·1	3 56·8	3 58·6	3 54·5	3 50·3	3 47·6	3 52·2	3 57·8	3 59·6	3 56·4	3 50·3	3 46·3	3 53·6
9 30	3 50·9	3 50·9	3 50·8	3 50·1	3 49·3	3 47·4	3 50·6	3 54·0	3 54·7	3 52·2	3 46·8	3 47·6	3 50·4
10 30	3 37·8	3 37·4	3 37·1	3 39·5	3 39·0	3 36·3	3 39·5	3 40·8	3 44·3	3 41·5	3 38·0	3 36·8	3 39·0
11 30	3 19·7	3 20·8	3 23·8	3 22·7	3 24·1	3 22·1	3 22·4	3 28·1	3 27·6	3 26·8	3 23·4	3 21·1	3 23·6

TABLE XVII. (*c.*) (Interpolated from Table XV.)

Showing the Height of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B, in each month of the year.

Apparent Solar Time of Moon's Transit B.	January.	February.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Mean.
h m.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
0 30	22·74	22·84	22·86	22·94	22·75	22·50	22·58	22·86	22·91	22·82	22·49	22·46	22·73
1 30	22·45	22·62	22·66	22·43	22·37	22·23	22·48	22·68	22·60	22·45	22·17	22·15	22·44
2 30	21·91	22·05	22·01	21·85	21·63	21·80	22·16	22·11	22·07	21·86	21·69	21·88	21·92
3 30	21·42	21·33	21·00	20·96	20·90	21·24	21·46	21·37	21·08	20·87	20·98	21·12	21·14
4 30	20·53	20·16	19·87	19·93	20·16	20·66	20·74	20·52	20·02	19·94	20·10	20·49	20·22
5 30	19·64	19·30	18·99	19·27	19·80	20·16	20·10	19·61	19·23	19·18	19·66	19·91	19·55
6 30	19·61	19·20	19·07	19·31	19·94	20·09	19·92	19·40	19·03	19·17	19·57	19·93	19·52
7 30	20·17	19·99	19·87	20·25	20·64	20·65	20·37	20·02	19·96	20·18	20·44	20·55	20·26
8 30	20·95	20·83	20·97	21·29	21·46	21·24	21·08	20·91	21·00	21·24	21·34	21·31	21·14
9 30	21·72	21·57	21·84	22·13	22·17	21·85	21·71	21·66	21·84	22·09	22·06	21·89	21·89
10 30	22·24	22·30	22·47	22·73	22·64	22·27	22·22	22·24	22·50	22·67	22·38	22·27	22·42
11 30	22·59	22·74	22·84	23·05	22·77	22·55	22·44	22·66	22·85	22·85	22·74	22·40	22·71

In reducing the above Tables from Table XV., the quantities have been corrected for the deviation from a mean Horizontal Parallax (57′).

TABLE XVIII. (*d.*)

Showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B, for every minute of her Horizontal Parallax.

Hor. Par. 54′.						Hor. Par. 55′.					
Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Sun's Declination.	Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Sun's Declination.
	h m	h m	ft. in.	°	°		h m	h m	ft. in.	°	°
409	0 29·2	3 6·2	22 2·7	14·5	14·3	280	0 30·3	3 6·5	22 3·4	14·4	14·5
417	1 29·3	2 48·3	21 10·2	14·5	14·3	289	1 29·2	2 48·9	22 1·4	14·4	14·9
383	2 29·0	2 30·7	21 4·0	14·9	14·7	322	2 29·9	3 32·3	21 6·3	14·0	14·5
375	3 28·9	2 14·5	20 5·8	14·7	15·0	343	3 29·2	2 19·1	20 7·8	14·8	15·0
331	4 29·2	2 10·7	19 6·9	14·9	14·9	385	4 30·0	2 15·0	19 8·0	14·8	15·0
293	5 28·9	2 25·4	18 8·4	15·5	14·9	412	5 30·1	2 29·2	18 11·3	14·9	15·2
298	6 30·0	3 7·3	18 8·7	15·0	15·3	412	6 28·9	3 6·0	18 11·1	15·0	15·2
334	7 30·6	3 42·9	19 4·2	15·1	15·5	385	7 29·3	3 42·6	19 8·6	14·9	14·7
364	8 29·6	3 57·5	20 5·7	14·8	14·9	347	8 29·6	3 55·7	20 8·9	14·4	15·1
402	9 29·3	3 54·3	21 3·8	14·7	14·8	293	9 29·1	3 53·5	21 5·3	14·6	14·3
406	10 29·3	3 41·5	21 11·0	14·3	14·4	294	10 30·1	3 42·1	21 11·9	14·5	14·3
410	11 29·8	3 24·8	22 2·4	14·1	14·2	290	11 29·8	3 24·6	22 3·9	14·2	14·3
Hor. Par. 56′.						Hor. Par. 57′.					
219	0 29·2	3 5·9	22 7·0	14·3	14·2	166	0 30·0	3 6·2	22 8·4	14·5	14·3
203	1 29·5	2 49·5	22 3·0	14·2	14·3	182	1 30·1	2 51·5	22 4·8	14·9	14·4
228	2 29·0	2 35·3	21 8·5	14·6	15·1	201	2 30·2	2 36·6	21 10·8	14·9	14·6
234	3 30·2	2 24·9	20 10·4	14·8	14·9	215	3 29·9	2 27·2	21 2·9	14·7	14·3
259	4 29·4	2 19·7	20 0·5	14·9	15·1	233	4 29·9	2 24·0	20 3·6	15·0	15·2
276	5 29·4	2 32·9	19 4·2	14·7	15·2	256	5 29·2	2 37·2	19 8·3	15·5	15·0
271	6 29·8	3 8·0	19 3·3	14·8	15·4	254	6 29·4	3 8·8	19 6·3	15·0	15·3
253	7 28·8	3 41·4	20 0·3	14·7	14·9	240	7 28·6	3 42·0	20 2·7	15·1	15·2
254	8 28·7	3 56·3	20 10·5	15·1	14·5	210	8 29·1	3 52·8	21 1·5	15·0	14·5
226	9 29·0	3 52·3	21 7·6	14·7	14·6	202	9 29·0	3 51·3	21 10·2	14·8	14·5
217	10 28·5	3 40·1	22 2·9	14·5	14·5	187	10 27·7	3 39·6	22 3·0	14·7	14·9
206	11 29·0	3 25·3	22 5·8	14·6	14·7	182	11 30·0	3 21·7	22 9·0	14·0	14·0

TABLE XVIII. (*d.*) (Continued.)

Hor. Par. 58′.						Hor. Par. 59′.					
Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Sun's Declination.	Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Sun's Declination.
	h m	h m	ft. in.	°	°		h m	h m	ft. in.	°	°
158	0 31·1	3 8·0	22 9·9	14·6	14·5	180	0 28·2	3 9·4	23 0·8	14·2	14·3
173	1 29·1	2 51·5	22 7·9	14·5	14·2	182	1 30·0	2 52·4	22 10·0	14·1	14·4
197	2 29·7	2 39·7	22 1·3	14·7	14·9	204	2 30·4	2 40·1	22 4·5	14·7	14·8
208	3 29·6	2 32·0	21 4·8	15·0	14·4	282	3 31·0	2 34·3	21 7·8	14·8	14·4
268	4 28·9	2 28·3	20 5·9	14·8	15·1	404	4 32·3	2 33·6	20 10·0	14·9	14·6
288	5 29·9	2 41·7	19 11·0	14·9	14·8	533	5 30·0	2 44·1	20 3·5	15·0	15·1
290	6 28·5	3 11·7	19 8·8	15·4	14·9	518	6 29·6	3 14·2	20 1·5	15·1	15·0
254	7 28·1	3 40·2	20 6·2	14·6	15·0	381	7 27·6	3 38·6	20 8·6	14·7	15·0
220	8 27·9	3 53·0	21 3·2	15·3	14·7	258	8 27·8	3 49·3	21 6·9	14·2	14·7
184	9 28·3	3 49·4	22 1·7	14·9	14·8	216	9 28·6	3 48·4	22 2·5	14·6	14·2
171	10 30·0	3 38·1	22 6·9	14·7	14·5	176	10 29·7	3 37·5	22 10·0	14·2	14·2
174	11 29·4	3 23·7	22 10·0	14·7	14·7	164	11 28·0	3 24·6	23 0·4	14·4	14·4
Hor. Par. 60′.						Hor. Par. 61′.					
200	0 29·3	3 7·4	23 4·2	14·9	14·8	390	0 29·7	3 8·0	23 5·8	14·3	14·5
223	1 30·5	2 53·7	23 0·7	14·4	14·3	301	1 28·4	2 55·0	23 3·4	14·6	14·5
327	2 31·5	2 42·4	22 7·2	14·3	14·2	172	2 22·8	2 44·2	22 9·0	15·1	15·5
380	3 28·1	2 35·7	21 11·9	14·5	15·0	10	3 13·7	3 14·2	21 9·3	16·6	15·7
180	4 22 7	2 35·4	21 2·0	15·2	15·6						
12	5 7·6	2 50·2	20 4·5	17·2	16·2						
28	6 42·7	3 25·4	20 2·9	16·4	14·2						
207	7 35·0	3 41·0	21 0·1	15·1	15·5						
388	8 31·1	3 49·0	21 9·0	15·5	15·9	18	8 47·2	3 52·4	21 10·2	16·7	17·9
309	9 26·8	3 46·3	22 5·7	14·0	13·8	195	9 36·4	3 44·7	22 8·8	15·3	15·5
229	10 28·2	3 37·0	22 11·6	14·4	14·2	342	10 31·2	3 36·2	23 2·0	14·3	14·6
203	11 28·7	3 22·7	23 3·4	14·0	14·0	386	11 30·1	3 22·8	23 4·7	14·3	14·3

TABLE XIX. (*e.*) (Interpolated from Table XVIII.)

Apparent Solar Time of Moon's Transit B.	H. P. 54′.		H. P. 55′.		H. P. 56′.		H. P. 57′.	
	Interval.	Height of Tide.	Interval.	Height of Tide.	Interval.	Height of Tide.	Interval.	Height of Tide.
h m	h m	feet.	h m	feet.	h m	feet.	h m	feet.
0 30	3 6·1	22·22	3 6·4	22·26	3 5·7	22·55	3 6·2	22·68
1 30	2 48·2	21·83	2 48·7	22·06	2 49·4	22·21	2 51·6	22·40
2 30	2 30·5	21·31	2 32·2	21·52	2 35·0	21·67	2 36·7	21·90
3 30	2 14·5	20·44	2 19·1	20·62	2 24·9	20·86	2 27·4	21·23
4 30	2 10·9	19·52	2 15·0	19·74	2 19·6	20·03	2 23·9	20·30
5 30	2 26·2	18·69	2 29·0	18·94	2 32·9	19·34	2 37·9	19·66
6 30	3 7·3	18·72	3 6·5	18·94	3 8·1	19·26	3 9·1	19·51
7 30	3 42·8	19·34	3 42·7	19·73	3 41·7	20·03	3 42·3	20·23
8 30	3 57·5	20·47	3 56·0	20·73	3 56·0	20·90	3 52·5	21·14
9 30	3 54·2	21·32	3 53·4	21·44	3 52·1	21·64	3 51·0	21·84
10 30	3 41·3	21·90	3 42·1	21·98	3 39·7	22·24	3 39·2	22·27
11 30	3 24·8	22·16	3 24·6	22·29	3 25·0	22·46	3 21·7	22·71
	H. P. 58′.		H. P. 59′.		H. P. 60′.		H. P. 61′.	
0 30	3 8·3	22·80	3 8·9	23·03	3 7·2	23·35	3 7·9	23·47
1 30	2 51·3	22·63	2 52·4	22·79	2 53·8	23·05	2 54·6	23·24
2 30	2 39·6	22·09	2 40·2	22·37	2 42·7	22·60	2 42·8	22·61
3 30	2 32·2	21·39	2 34·5	21·62	2 35·4	21·92		
4 30	2 28·4	20·46	2 33·3	20·88	2 36·7	21·00		
5 30	2 41·7	19·92	2 44·1	20·29				
6 30	3 12·5	19·77	3 14·4	20·12				
7 30	3 40·8	20·54	3 39·3	20·76	3 40·0	20·92		
8 30	3 52·6	21·33	3 49·4	21·60	3 49·2	21·74		
9 30	3 49·1	22·17	3 48·1	22·18	3 45·6	22·45	3 45·9	22·61
10 30	3 38·0	22·56	3 37·4	22·80	3 36·6	22·97	3 36·6	23·13
11 30	3 23·5	22·82	3 24·1	23·02	3 22·4	23·24	3 22·8	23·34

In forming the above Table, the quantities have been corrected for deviations from mean Declinations.

TABLE XX. (*f*.)

Showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B, A.M. and P.M.

A.M.						P.M.					
Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Horizontal Parallax.	Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Horizontal Parallax.
	h m	h m	ft. in.	°	′		h m	h m	ft. in.	°	′
January.											
84	0 30·8	3 3·0	22 8·3	N. 19·0	57.1	83	0 29·3	3 5·0	22 10·2	S. 19·1	57·2
82	1 30·4	2 48·0	22 5·5	N. 15·3	57·4	84	1 29·0	2 51·3	22 7·2	S. 15·1	57·1
94	2 29·3	2 35·5	21 11·2	N. 10·0	57·1	92	2 28·8	2 40·8	21 11·7	S. 9·9	57·2
91	3 29·2	2 28·2	21 5·3	N. 4·1	56·9	97	3 29·9	2 32·7	21 4·7	S. 4·0	56·9
97	4 29·6	2 24·2	20 5·9	S. 1·7	56·8	92	4 30·3	2 33·6	20 6·1	N. 2·1	56·9
95	5 29·2	2 35·5	19 6·3	S. 8·2	56·9	89	5 31·0	2 47·7	19 8·1	N. 8·2	56·8
91	6 28·9	3 3·9	19 5·8	S. 13·1	56·9	88	6 29·8	3 15·0	19 8·2	N. 13·5	56·9
89	7 30·1	3 38·0	20 0·9	S. 17·7	57·0	87	7 28·5	3 43·4	20 2·7	N. 17·5	57·0
83	8 30·4	3 51·2	21 0·1	S. 20·8	57·2	86	8 29·5	3 54·3	20 11·7	N. 20·7	57·1
73	9 28·1	3 50·7	21 10·8	S. 22·4	57·2	81	9 30·2	3 50·7	21 7·1	N. 22·5	57·2
83	10 28·0	3 38·0	22 4·9	S. 22·5	57·1	79	10 30·3	3 37·5	22 1·4	N. 22·9	57·4
79	11 28·3	3 19·2	22 8·0	S. 21·2	57·2	79	11 30·0	3 20·5	22 6·8	N. 21·1	57·2
Sun's Declination S. 21°.											
February.											
86	0 29·2	3 3·5	22 9·2	N. 10·0	57·2	79	0 31·2	3 7·8	23 0·4	S. 9·8	57·3
81	1 27·5	2 48·6	22 10·0	N. 4·3	57·2	88	1 29·1	2 52·9	22 6·3	S. 4·0	57·2
91	2 28·0	2 36·0	22 1·5	S. 1·8	57·1	81	2 28·9	3 41·1	22 1·3	N. 2·2	57·2
86	3 28·9	2 27·1	21 4·6	S. 7·8	57·0	89	3 29·3	2 27·1	21 3·2	N. 8·0	56·9
84	4 30·1	2 19·8	20 1·1	S. 13·6	56·6	82	4 29·7	2 26·4	20 0·7	N. 13·8	56·8
77	5 30·0	2 28·2	19 1·3	S. 18·1	56·5	75	5 29·0	2 37·1	19 3·1	N. 18·1	56·6
73	6 29·6	3 6·9	19 1·6	S. 20·6	56·7	78	6 29·9	3 12·0	19 1·3	N. 20·6	56·7
74	7 28·5	3 41·3	20 0·2	S. 22·4	56·7	70	7 29·7	3 46·2	19 10·1	N. 22·5	56·9
73	8 29·4	3 54·4	20 11·9	S. 22·5	56·8	69	8 28·0	3 59·5	20 6·9	N. 22·8	56·9
71	9 28·5	3 50·9	21 8·6	S. 21·4	57·1	78	9 28·7	3 51·2	21 5·0	N. 21·4	57·1
80	10 29·9	3 37·8	22 6·6	S. 18·5	57·3	77	10 30·1	3 36·6	22 1·5	N. 18·5	57·2
81	11 31·6	3 22·1	22 9·8	S. 15·0	57·3	76	11 30·0	3 19·0	22 9·2	N. 14·7	57·3
Sun's Declination S. 13°.											
March.											
91	0 29·1	3 5·7	22 11·6	S. 1·1	57·0	87	0 29·5	3 9·4	22 9·9	N. 1·7	57·3
89	1 28·7	2 50·6	22 9·0	S. 6·9	57·1	96	1 31·0	2 50·5	22 7·5	N. 7·4	57·1
94	2 28·8	2 34·8	22 1·4	S. 12·6	56·9	82	2 30·5	2 35·6	21 10·3	N. 13·0	56·9
84	3 29·1	2 20·9	21 1·8	S. 17·3	56·8	86	3 28·4	2 22·2	20 9·8	N. 17·3	56·8
83	4 29·1	2 15·9	20 0·5	S. 20·2	56·7	84	4 28·4	2 17·6	19 7·3	N. 20·4	56·6
84	5 30·0	2 27·1	19 1·6	S. 21·9	56·7	82	5 30·0	2 29·9	18 7·9	N. 22·3	56·7
84	6 30·2	3 9·0	19 2·6	S. 22·8	56·8	79	6 28·9	3 10·2	18 10·5	N. 22·7	56·8
80	7 29·7	3 46·9	20 2·3	S. 21·8	56·9	83	7 28·1	3 47·9	19 6·0	N. 21·7	56·9
86	8 28·7	3 57·8	21 3·0	S. 19·2	57·2	91	8 29·3	3 58·7	20 8·8	N. 19·0	57·2
89	9 28·9	3 51·9	22 0·4	S. 15·7	57·3	86	9 30·3	3 49·0	21 9·0	N. 15·3	57·3
89	10 30·5	3 38·2	22 7·8	S. 10·6	57·6	91	10 30·2	3 35·2	22 5·4	N. 10·4	57·3
96	11 30·5	3 24·4	22 11·9	S. 4·7	57·4	91	11 30·3	3 23·0	22 10·5	N. 4·7	57·6
Sun's Declination S. 2°.											
April.											
84	0 29·0	3 8·2	23 0·8	S. 12·2	57·3	86	0 29·2	3 9·6	22 11·3	N. 12·4	57·3
83	1 29·0	2 51·7	22 6·9	S. 16·4	57·3	82	1 28·8	2 52·1	22 4·6	N. 17·0	57·2
79	2 28·9	2 35·0	22 0·6	S. 20·0	57·0	82	2 29·0	2 34·6	21 8·5	N. 19·9	57·0
78	3 29·0	2 22·6	21 1·4	S. 21·8	56·8	76	3 29·1	2 19·8	20 9·0	N. 21·9	56·9
79	4 30·2	2 17·9	20 1·8	S. 22·6	56·7	76	4 28·0	2 12·6	19 6·8	N. 22·6	56·7
79	5 30·8	2 34·7	19 5·1	S. 21·9	56·6	78	5 27·2	2 28·0	18 10·0	N. 21·8	56·5
78	6 29·1	3 11·6	19 7·3	S. 20·0	56·7	87	6 28·4	3 7·9	18 10·7	N. 19·7	56·7
89	7 28·9	3 44·6	20 6·0	S. 15·7	56·7	85	7 29·6	3 42·1	19 9·7	N. 15·9	56·7
87	8 29·3	3 56·4	21 6·3	S. 11·5	57·0	88	8 29·1	3 52·6	21 0·3	N. 11·0	56·9
95	9 29·9	3 50·4	22 4·0	S. 5·4	57·2	91	9 30·0	3 49·3	22 0·2	N. 5·3	57·1
83	10 28·2	3 40·6	22 10·5	N. 0·6	57·4	92	10 29·9	3 38·6	27 8·4	S. 0·8	57·3
92	11 28·5	3 23·9	23 1·3	N. 6·3	57·4	87	11 29·3	3 22·1	23 1·4	S. 6·9	57·4
Sun's Declination N. 19°.											

TABLE XX. (*f*.) (Continued.)

May.

A.M. Number of Observations.	A.M. Apparent Solar Time of Moon's Transit B.	A.M. Interval between the Moon's Transit and the Time of high water.	A.M. Height of Tide.	A.M. Moon's Declination.	A.M. Horizontal Parallax.	P.M. Number of Observations.	P.M. Apparent Solar Time of Moon's Transit B.	P.M. Interval between the Moon's Transit and the Time of high water.	P.M. Height of Tide.	P.M. Moon's Declination.	P.M. Horizontal Parallax.
	h m	h m	ft. in.	°	′		h m	h m	ft. in.	°	′
81	0 29·3	3 7·5	22 11·3	S. 19·7	57·7	85	0 30·7	3 6·4	22 9·3	N. 19·9	57·5
82	1 28·7	2 51·7	22 7·4	S. 21·9	57·5	79	1 31·0	2 51·5	22 3·8	N. 21·7	57·5
83	2 29·4	2 37·2	21 10·3	S. 22·5	57·2	82	2 30·6	2 31·8	21 5·9	N. 22·8	57·2
80	3 29·4	2 26·6	21 2·1	S. 21·8	56·9	83	3 30·9	2 18·4	20 7·6	N. 21·8	56·9
86	4 29·2	2 24·8	20 4·4	S. 19·9	56·8	84	4 30·3	2 18·6	19 10·1	N. 19·7	56·9
87	5 29·4	2 43·5	20 0·2	S. 16·3	56·7	84	5 29·3	2 31·4	19 4·2	N. 16·4	56·6
90	6 29·7	3 16·3	20 1·8	S. 11·7	56·5	93	6 29·2	3 7·7	19 5·8	N. 11·4	56·5
95	7 29·0	3 42·5	20 9·8	S. 5·9	56·7	97	7 30·5	3 36·1	20 3·5	N. 5·7	56·7
94	8 28·7	3 52·9	21 7·0	N. 0·0	56·8	94	8 30·9	3 48·4	21 3·1	S. 0·2	56·8
94	9 30·2	3 50·8	22 3·3	N. 6·1	57·0	89	9 29·8	3 47·7	22 0·7	S. 6·4	57·0
91	10 30·4	3 39·2	22 8·2	N. 12·0	57·3	85	10 28·0	3 38·7	22 7·7	S. 11·6	57·2
85	11 30·1	3 25·5	22 9·8	N. 16·9	57·4	90	11 27·6	3 23·6	22 9·9	S. 16·6	57·3

Sun's Declination N. 19°.

June.

77	0 26·3	3 7·7	22 8·3	S. 23·0	57·3	80	0 30·1	3 3·8	22 5·3	N. 22·7	57·3
79	1 27·4	2 54·3	22 5·3	S. 21·9	57·5	77	1 31·2	2 48·0	22 2·2	N. 21·8	57·2
83	2 28·4	2 41·7	22 0·3	S. 19·2	57·3	80	2 30·7	2 34·3	21 9·0	N. 19·3	57·3
86	3 29·3	2 33·6	21 4·5	S. 16·3	56·9	86	3 30·7	2 23·9	21 1·4	N. 15·8	57·1
90	4 30·2	2 35·9	20 9·4	S. 11·6	56·9	86	4 29·7	2 25·2	20 4·8	N. 11·0	56·8
94	5 30·4	2 52·3	20 1·9	S. 5·9	56·6	92	5 28·8	2 37·5	19 11·8	N. 5·9	56·8
90	6 30·4	3 18·2	20 2·2	N. 0·7	56·7	94	6 29·2	3 6·1	19 9·7	S. 0·5	56·5
91	7 29·5	3 41·3	20 8·5	N. 6·3	56·7	88	7 29·1	3 33·7	20 5·8	S. 6·8	56·9
87	8 29·1	3 47·9	21 3·0	N. 12·1	56·9	92	8 29·7	3 47·5	21 2·1	S. 11·9	56·9
82	9 28·4	3 47·4	21 10·0	N. 16·5	57·0	79	9 29·7	3 47·7	21 10·0	S. 17·2	57·0
81	10 28·9	3 36·1	22 3·0	N. 20·0	57·1	80	10 29·7	3 36·7	22 3·9	S. 19·9	57·1
76	11 29·2	3 21·6	22 6·4	N. 22·1	57·4	73	11 28·3	3 23·3	22 6·7	S. 21·9	57·1

Sun's Declination N. 23°.

July.

82	0 30·0	3 9·9	22 7·6	S. 19·1	57·1	77	0 30·2	3 2·9	22 7·2	N. 19·3	57·3
80	1 28·3	2 57·8	22 7·0	S. 15·9	57·3	87	1 28·5	2 48·0	22 5·8	N. 15·4	57·0
97	2 30·3	2 44·3	22 2·4	S. 11·0	57·1	89	2 28·9	2 36·8	22 1·8	N. 11·0	57·1
90	3 30·3	2 39·5	21 6·1	S. 4·8	57·1	96	3 29·1	2 30·2	21 5·9	N. 4·9	57·1
98	4 28·8	2 38·6	20 8·8	N. 0·9	56·9	100	4 29·8	2 28·3	20 8·7	S. 1·4	56·9
96	5 28·3	2 52·3	20 1·4	N. 7·0	56·9	95	5 30·4	2 40·8	20 0·7	S. 7·1	56·9
92	6 28·3	3 18·9	19 10·6	N. 12·6	56·8	93	6 29·7	3 9·9	19 10·3	S. 12·6	56·8
88	7 28·1	3 40·3	20 4·2	N. 16·4	56·8	87	7 30·0	3 38·4	20 3·8	S. 17·1	57·0
82	8 28·2	3 51·5	20 11·7	N. 20·1	56·9	83	8 29·7	3 53·1	21 1·3	S. 20·1	56·9
80	9 28·2	3 49·2	21 7·7	N. 22·3	57·1	82	9 30·1	3 52·0	21 9·3	S. 22·3	57·1
79	10 29·2	3 37·6	22 1·5	N. 23·1	57·1	75	10 30·1	3 41·4	22 4·2	S. 22·8	57·1
83	11 31·1	3 19·4	22 4·6	N. 21·4	57·1	81	11 29·9	3 25·2	22 6·6	S. 21·6	57·3

Sun's Declination N. 21°.

August.

92	0 30·1	3 13·9	22 10·0	S. 10·9	57·0	87	0 31·1	3 6·0	22 10·7	N. 10·4	57·0
87	1 29·1	2 57·1	22 7·3	S. 5·2	56·9	91	1 30·3	2 49·9	22 8·6	N. 4·8	56·9
91	2 28·2	2 45·3	22 0·5	N. 0·8	57·0	90	2 29·4	2 38·6	22 2·8	S. 1·2	57·0
92	3 27·9	2 36·1	21 3·0	N. 7·1	56·8	92	3 30·2	2 26·2	21 5·8	S. 7·4	56·9
93	4 29·2	2 31·7	20 4·0	N. 12·4	56·8	89	4 29·6	2 23·3	20 6·9	S. 12·6	56·7
88	5 29·2	2 43·1	19 5·7	N. 17·2	56·9	86	5 28·9	2 33·8	19 7·2	S. 17·4	56·5
87	6 29·6	3 13·0	19 3·2	N. 20·2	56·9	88	6 28·7	3 10·5	19 5·6	S. 20·3	56·9
86	7 31·4	3 42·6	19 9·7	N. 22·2	57·0	82	7 29·0	3 44·7	20 2·8	S. 22·3	57·0
81	8 31·9	3 54·6	20 9·0	N. 22·3	57·1	81	8 28·3	4 1·1	21 1·6	S. 22·7	57·1
82	9 31·5	3 50·2	21 6·6	N. 21·7	57·3	83	9 28·3	3 57·2	21 10·2	S. 21·7	57·2
80	10 31·4	3 35·2	22 1·7	N. 19·4	57·3	85	10 28·8	3 45·7	22 5·4	S. 19·3	57·3
87	11 30·5	3 24·0	22 7·3	N. 15·8	57·2	84	11 29·1	3 32·5	22 9·8	S. 15·7	57·3

Sun's Declination N. 14°.

TABLE XX. (*f.*) (Continued.)

A.M.						P.M.					
Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Horizontal Parallax.	Number of Observations.	Apparent Solar Time of Moon's Transit B.	Interval between the Moon's Transit and the Time of high water.	Height of Tide.	Moon's Declination.	Horizontal Parallax.
	h m	h m	ft. in.	°	′		h m	h m	ft. in.	°	′
September.											
83	0 30·0	3 15·7	22 11·0	S. 0·3	57·4	96	0 28·8	3 6·7	23 0·8	N. 0·1	57·4
93	1 29·0	2 58·7	22 6·3	N. 6·6	57·1	89	1 30·5	2 49·1	22 8·5	S. 6·6	57·1
86	2 29·4	2 40·7	21 11·1	N. 11·9	57·1	87	2 30·2	2 36·0	22 2·7	S. 12·3	56·9
83	3 29·0	2 31·0	20 11·2	N. 16·5	56·9	80	3 29·1	2 23·5	21 2·7	S. 16·8	56·9
82	4 30·0	2 19·8	19 9·2	N. 20·1	56·7	82	4 28·7	2 15·2	20 1·6	S. 20·1	56·7
81	5 31·7	2 30·2	18 10·7	N. 22·1	56·6	76	5 28·3	2 27·0	19 4·8	S. 22·0	56·7
76	6 30·9	3 10·0	18 7·8	N. 22·8	56·7	79	6 27·8	3 14·4	19 3·1	S. 23·0	56·7
78	7 29·5	3 43·1	19 6·4	N. 22·1	56·9	82	7 28·7	3 52·1	20 2·9	S. 22·0	56·7
82	8 28·4	3 55·8	20 7·2	N. 19·7	57·1	82	8 28·4	4 3·6	21 3·8	S. 19·9	56·9
88	9 29·9	3 50·5	21 8·6	N. 16·4	57·2	86	9 29·1	3 58·6	22 0·5	S. 16·1	57·2
89	10 30·6	3 41·0	22 5·7	N. 11·0	57·3	87	10 29·5	3 47·5	22 7·6	S. 11·9	57·3
82	11 29·3	3 23·7	22 10·7	N. 6·1	57·3	95	11 30·2	3 31·1	22 11·4	S. 5·4	57·5
Sun's Declination N. 3°.											
October.											
86	0 29·8	3 14·1	22 10·1	N. 11·5	57·5	89	0 30·2	3 7·5	23 0·1	S. 11·5	57·5
89	1 29·9	2 55·0	22 6·4	N. 15·6	57·4	84	1 29·5	2 51·0	22 6·4	S. 16·3	57·4
84	2 30·9	2 36·2	21 7·5	N. 19·8	56·9	82	2 28·5	2 33·6	22 1·2	S. 19·2	57·1
80	3 30·0	2 21·8	20 7·5	N. 22·0	56·9	84	3 27·8	2 20·9	21 1·3	S. 21·8	56·9
77	4 29·3	2 11·2	19 7·6	N. 22·7	56·8	80	4 28·4	2 13·8	20 1·8	S. 22·7	56·8
81	5 29·0	2 20·4	18 9·0	N. 22·2	56·7	83	5 29·3	2 29·1	19 4·4	S. 22·0	56·6
87	6 30·9	2 58·0	18 9·3	N. 19·6	56·7	83	6 30·4	3 13·3	19 4·8	S. 20·0	56·6
83	7 31·6	3 37·8	19 8·1	N. 16·9	56·6	84	7 29·7	3 51·3	20 6·3	S. 16·6	56·6
92	8 30·3	3 51·4	20 10·6	N. 12·6	56·8	88	8 29·1	4 1·9	21 6·7	S. 12·4	56·9
90	9 28·8	3 47·8	21 11·3	N. 7·0	57·0	97	9 28·5	3 56·5	22 2·5	S. 7·0	57·1
98	10 28·8	3 36·6	22 8·2	N. 0·9	57·4	92	10 29·2	3 46·5	22 9·9	S. 0·3	57·4
95	11 29·7	3 23·4	22 11·1	S. 5·6	57·6	94	11 30·3	3 30·6	22 11·6	N. 5·7	57·3
Sun's Declination S. 9°.											
November.											
81	0 30·5	3 8·5	22 5·2	N. 19·8	57·5	81	0 27·2	3 6·2	22 8·4	S. 19·2	57·4
80	1 31·5	2 48·7	22 1·7	N. 21·9	57·4	78	1 26·3	2 49·7	22 4·7	S. 21·7	57·4
75	2 31·8	2 32·6	21 7·3	N. 22·6	57·3	77	2 26·7	2 33·7	21 11·5	S. 22·5	57·3
81	3 30·9	2 21·4	20 9·1	N. 21·8	57·2	82	3 27·7	2 25·4	21 4·0	S. 22·1	57·2
79	4 30·5	2 14·4	19 8·1	N. 20·4	56·9	82	4 28·4	1 23·1	20 4·9	S. 19·8	56·8
85	5 29·5	2 24·7	19 1·0	N. 17·0	56·6	84	5 27·9	2 39·8	20 0·2	S. 17·0	56·6
91	6 30·2	3 0·4	19 1·6	N. 12·1	56·7	94	6 29·8	3 13·3	19 10·3	S. 12·1	56·7
87	7 29·7	3 30·6	20 0·7	N. 6·4	56·8	90	7 30·6	3 44·1	20 8·5	S. 6·2	56·8
94	8 29·7	3 45·8	21 0·7	N. 0·5	56·8	88	8 30·1	3 55·9	21 6·8	S. 0·1	56·8
85	9 29·6	3 43·7	22 0·1	S. 5·6	57·1	89	9 29·3	3 49·7	22 1·6	N. 5·8	57·1
89	10 29·0	3 35·6	22 4·4	S. 11·2	57·2	87	10 30·2	3 40·3	22 5·6	N. 11·6	57·2
78	11 28·3	3 20·6	22 9·7	S. 16·2	57·4	81	11 30·2	3 26·6	22 9·3	N. 16·1	57·3
Sun's Declination S. 18°.											
December.											
81	0 28·6	3 4·9	22 4·7	N. 22·4	57·4	76	0 30·2	3 4·4	22 7·9	S. 22·4	57·2
78	1 29·6	2 47·3	22 1·9	N. 22·2	57·3	81	1 29·6	2 48·0	22 3·7	S. 21·8	57·3
82	2 29·2	2 32·2	21 9·3	N. 19·6	57·3	83	2 30·7	2 34·6	22 0·8	S. 19·6	57·1
89	3 29·5	2 24·3	21 0·1	N. 16·0	57·1	86	3 31·4	2 31·6	21 3·4	S. 16·0	57·1
91	4 29·2	2 22·7	20 4·5	N. 11·5	57·0	94	4 30·2	2 30·6	20 6·8	S. 10·9	56·9
101	5 29·9	2 30·9	19 6·7	N. 5·5	56·8	96	5 29·6	2 47·3	20 2·7	S. 5·3	56·9
89	6 29·7	3 2·0	19 7·7	S. 0·2	56·7	92	6 28·7	3 14·3	20 0·7	N. 0·7	56·7
97	7 28·4	3 28·4	20 3·7	S. 6·6	56·7	96	7 28·3	3 40·4	20 6·8	N. 6·7	56·7
89	8 28·5	3 43·0	21 2·6	S. 12·1	57·0	95	8 29·8	3 49·6	21 4·1	N. 12·3	56·9
87	9 28·7	3 45·5	21 9·7	S. 16·4	57·1	80	9 29·9	3 49·9	21 11·8	N. 16·9	57·1
82	10 29·9	3 35·4	22 4·5	S. 19·7	57·1	78	10 27·3	3 38·4	22 2·5	N. 19·7	57·2
81	11 30·0	3 21·2	22 5·3	S. 22·3	57·3	82	11 27·0	3 21·7	22 4·9	N. 22·1	57·1
Sun's Declination S. 23°.											

In the above Table the Lower Transits have been incorporated with the upper, the declinations are those corresponding to the Upper Transits.

Table XXI. (*g*.)

Showing the Diurnal Inequality at London, or the Difference in the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Interval in Table XVI., and the Difference between the Height of High Water and the Height in Table XVII.

Diurnal Inequality.									
Apparent Solar Time of Moon's Transit B.	January.			February.			March.		
	Interval.	Height.	Moon's Declination.	Interval.	Height.	Moon's Declination.	Interval.	Height.	Moon's Declination.
h m	m	feet.	°	m	feet.	°	m	feet.	°
P.M. 0 30	+ 0·9	+ ·07	S. 19·1	+ 2·6	+ ·14	S. 9·8	+ 1·6	− ·09	N. 1·7
1 30	+ 1·7	+ ·12	S. 15·1	+ 2·2	− ·15	S. 4·0	+ 0·2	− ·05	N. 7·4
2 30	+ 2·5	·00	S. 9·9	+ 2·7	·00	N. 2·2	+ 0·7	− ·12	N. 13·0
3 30	+ 2·2	·00	S. 4·0	0·0	− ·05	N. 8·0	+ 0·5	− ·20	N. 17·3
4 30	+ 4·6	+ ·02	N. 2·1	+ 3·1	− ·04	N. 13·8	+ 1·5	− ·19	N. 20·4
5 30	+ 5·9	+ ·12	N. 8·2	+ 4·9	+ ·07	N. 18·1	+ 1·5	− ·24	N. 22·3
6 30	+ 5·3	+ ·09	N. 13·5	+ 2·1	− ·02	N. 20·6	+ 1·0	− ·15	N. 22·7
7 30	+ 3·0	+ ·08	N. 17·5	+ 2·3	− ·12	N. 22·5	+ 0·7	− ·31	N. 21·7
8 30	+ 1·3	+ ·02	N. 20·7	+ 2·5	− ·19	N. 22·8	+ 0·4	− ·26	N. 19·0
9 30	+ 0·1	− ·17	N. 22·5	+ 0·2	− ·14	N. 21·4	− 1·3	− ·16	N. 15·3
10 30	+ 0·1	− ·20	N. 22·9	− 0·6	− ·22	N. 18·5	− 1·7	− ·08	N. 10·4
11 30	+ 0·8	− ·05	N. 21·1	− 1·8	− ·02	N. 14·7	− 0·5	− ·07	N. 4·7
A.M. 0 30	− 0·7	− ·07	N. 19·0	− 2·1	− ·11	N. 10·0	− 2·0	+ ·11	S. 1·1
1 30	− 1·6	− ·06	N. 15·3	− 2·5	+ ·14	N. 4·3	− 0·2	+ ·05	S. 6·9
2 30	− 2·5	− ·01	N. 10·0	− 2·4	+ ·01	S. 1·8	− 0·4	+ ·10	S. 12·6
3 30	− 2·3	+ ·03	N. 4·1	− 0·4	+ ·03	S. 7·8	− 0·7	+ ·18	S. 17·3
4 30	− 4·2	+ ·01	S. 1·7	− 2·6	+ ·04	S. 13·6	− 0·8	+ ·23	S. 20·2
5 30	− 5·8	− ·09	S. 8·2	− 4·1	− ·04	S. 18·1	− 1·3	+ ·23	S. 21·9
6 30	− 5·3	− ·10	S. 13·1	− 2·7	·00	S. 20·6	− 0·8	+ ·19	S. 22·8
7 30	− 2·7	− ·10	S. 17·7	− 2·5	+ ·13	S. 22·4	− 0·6	+ ·35	S. 21·8
8 30	− 1·6	− ·01	S. 20·8	− 2·7	+ ·21	S. 22·5	− 0·5	+ ·27	S. 19·2
9 30	− 0·2	+ ·18	S. 22·4	− 0·2	+ ·16	S. 21·4	+ 1·3	+ ·15	S. 15·7
10 30	− 0·1	+ ·18	S. 22·5	+ 0·6	+ ·19	S. 18·5	+ 1·7	+ ·05	S. 10·6
11 30	− 1·0	+ ·06	S. 21·2	+ 1·7	+ ·02	S. 15·0	+ 0·8	+ ·05	S. 4·7
	April.			May.			June.		
P.M. 0 30	+ 0·7	− ·06	N. 12·4	− 0·3	− ·08	N. 19·9	− 1·5	− ·12	N. 22·7
1 30	+ 0·3	− ·11	N. 17·0	+ 0·1	− ·14	N. 21·7	− 2·5	− ·07	N. 21·8
2 30	− 0·1	− ·16	N. 19·9	− 2·6	− ·16	N. 22·8	− 3·6	− ·11	N. 19·3
3 30	− 1·5	− ·20	N. 21·9	− 4·1	− ·22	N. 21·8	− 5·2	− ·13	N. 15·8
4 30	− 2·6	− ·32	N. 22·6	− 3·9	− ·25	N. 19·7	− 5·4	− ·20	N. 11·0
5 30	− 2·5	− ·32	N. 21·8	− 6·1	− ·34	N. 16·4	− 7·6	− ·13	N. 5·9
6 30	− 1·5	− ·35	N. 19·7	− 4·2	− ·33	N. 11·4	− 5·5	− ·08	S. 0·5
7 30	− 1·4	− ·36	N. 15·9	− 3·4	− ·29	N. 5·7	− 3·7	− ·13	S. 6·8
8 30	− 2·0	− ·23	N. 11·0	− 2·2	− ·18	S. 0·2	− 0·2	− ·04	S. 11·9
9 30	− 0·7	− ·13	N. 5·3	− 1·6	− ·11	S. 6·4	+ 0·2	− ·01	S. 17·2
10 30	− 0·7	− ·09	S. 0·8	− 0·6	− ·01	S. 11·6	+ 0·4	+ ·03	S. 19·9
11 30	− 0·8	·00	S. 6·9	− 1·1	+ ·01	S. 16·6	+ 0·8	+ ·02	S. 21·9
A.M. 0 30	− 0·8	+ ·07	S. 12·2	+ 0·3	+ ·06	S. 19·7	+ 1·4	+ ·11	S. 23·0
1 30	− 0·2	+ ·06	S. 16·4	− 0·2	+ ·13	S. 21·9	+ 2·8	+ ·07	S. 21·9
2 30	+ 0·3	+ ·18	S. 20·0	+ 2·6	+ ·18	S. 22·5	+ 3·4	+ ·13	S. 19·2
3 30	+ 1·6	+ ·18	S. 21·8	+ 4·1	+ ·29	S. 21·8	+ 4·5	+ ·14	S. 16·3
4 30	+ 2·3	+ ·30	S. 22·6	+ 3·1	+ ·25	S. 19·9	+ 4·8	+ ·15	S. 11·6
5 30	+ 2·0	+ ·28	S. 21·9	+ 5·6	+ ·31	S. 16·3	+ 7·3	+ ·12	S. 5·9
6 30	+ 1·9	+ ·37	S. 20·0	+ 4·1	+ ·33	S. 11·7	+ 5·7	+ ·16	N. 0·7
7 30	+ 1·2	+ ·34	S. 15·7	+ 3·3	+ ·27	S. 5·9	+ 3·7	+ ·14	N. 6·3
8 30	+ 1·9	+ ·25	S. 11·5	+ 2·3	+ ·19	0·0	+ 0·2	+ ·05	N. 12·1
9 30	+ 0·6	+ ·16	S. 5·4	+ 1·5	+ ·10	N. 6·1	− 0·3	+ ·01	N. 16·5
10 30	+ 1·0	+ ·08	N. 0·6	+ 0·5	− ·03	N. 12·0	− 0·4	− ·03	N. 20·0
11 30	+ 0·8	·00	N. 6·3	+ 1·4	− ·02	N. 16·9	− 0·7	− ·02	N. 22·1

TABLE XXI. (*g*.) (Continued.)

Diurnal Inequality.

Apparent Solar Time of Moon's Transit B.	July.			August.			September.		
	Interval.	Height.	Moon's Declination.	Interval.	Height.	Moon's Declination.	Interval.	Height.	Moon's Declination.
h m	m	feet.	°	m	feet.	°	m	feet.	°
P.M. 0 30	− 3·8	− ·04	N. 19·3	− 3·9	+ ·03	N. 10·4	− 4·3	+ ·08	N. 0·1
1 30	− 4·6	− ·02	N. 15·4	− 3·3	+ ·06	N. 4·8	− 4·7	+ ·10	S. 6·6
2 30	− 4·0	− ·03	N. 11·0	− 3·3	+ ·11	S. 1·2	− 2·1	+ ·17	S. 12·3
3 30	− 4·5	− ·02	N. 4·9	− 5·0	+ ·15	S. 7·4	− 3·8	+ ·15	S. 16·8
4 30	− 5·2	+ ·01	S. 1·4	− 4·2	+ ·12	S. 12·6	− 2·1	+ ·16	S. 20·1
5 30	− 6·4	− ·01	S. 7·1	− 3·8	+ ·13	S. 17·4	− 0·9	+ ·24	S. 22·0
6 30	− 4·9	− ·02	S. 12·6	− 1·0	+ ·10	S. 20·3	+ 3·3	+ ·31	S. 23·0
7 30	− 0·9	− ·05	S. 17·1	+ 1·1	+ ·23	S. 22·3	+ 4·4	+ ·38	S. 22·0
8 30	+ 0·8	+ ·06	S. 20·1	+ 3·3	+ ·24	S. 22·7	+ 3·8	+ ·38	S. 19·9
9 30	+ 1·5	+ ·04	S. 22·3	+ 3·2	+ ·18	S. 21·7	+ 4·0	+ ·18	S. 16·1
10 30	+ 2·0	+ ·11	S. 22·8	+ 4·8	+ ·17	S. 19·3	+ 3·3	+ ·07	S. 11·9
11 30	+ 2·8	+ ·06	S. 21·6	+ 4·2	+ ·11	S. 15·7	+ 3·5	+ ·01	S. 5·4
A.M. 0 30	+ 3·3	+ ·03	S. 19·1	+ 3·7	− ·03	S. 10·9	+ 5·0	− ·07	S. 0·3
1 30	+ 4·9	+ ·01	S. 15·9	+ 3·6	− ·06	S. 5·2	+ 4·6	− ·11	N. 6·6
2 30	+ 3·8	+ ·05	S. 11·0	+ 3·2	− ·11	N. 0·8	+ 2·1	− ·18	N. 11·9
3 30	+ 4·8	+ ·03	S. 4·8	+ 5·1	− ·12	N. 7·1	+ 3·7	− ·14	N. 16·5
4 30	+ 5·3	·00	N. 0·9	+ 3·9	− ·15	N. 12·4	+ 2·2	− ·17	N. 20·1
5 30	+ 6·2	+ ·03	N. 7·0	+ 3·6	− ·12	N. 17·2	+ 0·9	− ·20	N. 22·1
6 30	+ 4·9	+ ·02	N. 12·6	+ 1·1	− ·11	N. 20·2	− 2·2	− ·32	N. 22·8
7 30	+ 1·3	+ ·06	N. 16·4	− 1·5	− ·25	N. 22·2	− 4·7	− ·40	N. 22·1
8 30	− 0·9	− ·05	N. 20·1	− 3·0	− ·23	N. 22·3	− 3·8	− ·38	N. 19·7
9 30	− 1·6	− ·05	N. 22·3	− 3·1	− ·20	N. 21·7	− 3·9	− ·16	N. 16·4
10 30	− 2·0	− ·11	N. 23·1	− 5·1	− ·18	N. 19·4	− 3·0	− ·09	N. 11·0
11 30	− 2·7	− ·08	N. 21·4	− 4·0	− ·08	N. 15·8	− 4·1	− ·01	N. 6·1
	October.			November.			December.		
P.M. 0 30	− 3·1	+ ·09	S. 11·5	− 1·5	+ ·12	S. 19·2	+ 0·2	+ ·16	S. 22·4
1 30	− 2·0	·00	S. 16·3	− 0·1	+ ·08	S. 21·7	+ 0·4	+ ·09	S. 21·8
2 30	− 1·7	+ ·19	S. 19·2	− 0·9	+ ·13	S. 22·5	+ 1·5	+ ·19	S. 19·6
3 30	− 0·5	+ ·21	S. 21·8	+ 1·9	+ ·24	S. 22·1	+ 3·7	+ ·16	S. 16·0
4 30	+ 1·4	+ ·24	S. 22·7	+ 4·5	+ ·34	S. 19·8	+ 3·8	+ ·11	S. 10·9
5 30	+ 4·2	+ ·30	S. 22·0	+ 8·0	+ ·46	S. 17·0	+ 8·5	+ ·34	S. 5·3
6 30	+ 7·8	+ ·33	S. 20·0	+ 6·4	+ ·36	S. 12·1	+ 6·3	+ ·21	N. 0·7
7 30	+ 6·9	+ ·44	S. 16·6	+ 6·6	+ ·30	S. 6·2	+ 6·1	+ ·12	N. 6·7
8 30	+ 5·4	+ ·36	S. 12·4	+ 5·3	+ ·27	S. 0·1	+ 3·2	+ ·06	N. 12·3
9 30	+ 4·1	+ ·13	S. 7·0	+ 2·9	+ ·06	N. 5·8	+ 2·4	+ ·07	N. 16·9
10 30	+ 5·1	+ ·08	S. 0·3	+ 2·5	+ ·05	N. 11·6	+ 1·2	− ·06	N. 19·7
11 30	+ 3·9	+ ·07	N. 5·7	+ 3·3	− ·02	N. 16·1	− 0·2	+ ·01	N. 22·1
A.M. 0 30	+ 3·5	− ·08	N. 11·5	+ 1·5	− ·16	N. 19·8	+ 0·1	− ·16	N. 22·4
1 30	+ 2·1	·00	N. 15·6	+ 0·2	− ·09	N. 21·9	− 0·3	− ·07	N. 22·2
2 30	+ 1·6	− ·20	N. 19·8	− 0·2	− ·11	N. 22·6	− 1·5	− ·20	N. 19·6
3 30	+ 0·5	− ·21	N. 22·0	− 2·0	− ·25	N. 21·8	− 3·6	− ·13	N. 16·0
4 30	− 1·4	− ·26	N. 22·7	− 5·1	− ·39	N. 20·4	− 4·3	− ·14	N. 11·5
5 30	− 3·7	− ·35	N. 22·2	− 7·9	− ·46	N. 17·0	− 7·6	− ·29	N. 5·5
6 30	− 8·0	− ·34	N. 19·6	− 6·7	− ·37	N. 12·1	− 6·4	− ·22	S. 0·2
7 30	− 7·0	− ·45	N. 16·9	− 6·7	− ·33	N. 6·4	− 5·9	− ·14	S. 6·6
8 30	− 5·3	− ·33	N. 12·6	− 4·8	− ·23	N. 0·5	− 3·4	− ·06	S. 12·1
9 30	− 4·6	− ·13	N. 7·0	− 3·1	− ·06	S. 5·6	− 2·2	− ·07	S. 16·4
10 30	− 4·9	− ·05	N. 0·9	− 2·4	− ·04	S. 11·2	− 1·3	+ ·08	S. 19·7
11 30	− 3·4	− ·03	S. 5·6	− 3·3	+ ·01	S. 16·2	+ 0·1	− ·01	S. 22·3

TABLE XXII. (*h*.)

Showing a Comparison between the Semimenstrual Inequality at London in the Interval and in the Height, as deduced from theory and from the results of observation contained in Tables XVI. and XVII.

Moon's Hor. Par. 57′, and Decl. 15°.

Apparent Solar Time of Moon's Transit B.	Interval. ψ + a constant.		Height. *h*.	
	Theory.	Observation.	Theory.	Observation.
h m	h m	h m	feet.	feet.
0 0	3 15·3		22·76	
0 30	3 7·1	3 7·1	22·77	22·72
1 0	2 58·8		22·70	
1 30	2 51·3	2 50·9	22·58	22·44
2 0	2 43·1		22·35	
2 30	2 36·8	2 36·5	22·09	21·92
3 0	2 30·8		21·73	
3 30	2 26·8	2 26·7	21·35	21·14
4 0	2 24·8		20·90	
4 30	2 23·3	2 24·0	20·47	20·23
5 0	2 29·8		20·10	
5 30	2 37·8	2 37·5	19·75	19·57
6 0	2 52·8		19·58	
6 30	3 10·8	3 10·8	19·47	19·55
7 0	3 25·8		19·64	
7 30	3 42·8	3 41·5	19·85	20·26
8 0	3 48·8		20·25	
8 30	3 53·8	3 53·4	20·63	21·15
9 0	3 51·8		21·10	
9 30	3 49·8	3 50·4	21·50	21·89
10 0	3 44·8		21·89	
10 30	3 38·8	3 39·0	22·22	22·42
11 0	3 30·8		22·47	
11 30	3 23·8	3 23·6	22·66	22·70

The above Inequalities from theory are the same as for the preceding London Discussion*, excepting that the constant applied to ψ is now $3^h\ 8^m{\cdot}4$, formerly it was $3^h\ 6^m{\cdot}6$. They have been calculated from the expressions (See p. 117.)

$$\tan 2\psi = \frac{(A)\sin 2\varphi}{1 + (A)\cos 2\varphi}$$

$$h = D + (E)\{(A)\cos(2\psi - 2\varphi) + \cos 2\psi\}$$

$$\log(A) = 9{\cdot}56284 \qquad \log(E) = 0{\cdot}63749 \qquad D = 16{\cdot}79$$

The columns headed "Observation" have been deduced from the quantities headed "Mean" in Tables II. and III., by applying to them proper corrections for the deviations from declination 15°.

* Philosophical Transactions, 1836.

TABLE XXIII. (*i.*)

Showing the Calendar-month Inequality in the Interval and in the Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Tables XVI. and XVII. See Plate I.

Apparent Solar Time of Moon's Transit B.	January.					February.					March.					Apparent Solar Time of Moon's Transit. B.
	d ψ		d *h*		Moon's Declination.	d ψ		d *h*		Moon's Declination.	d ψ		d *h*		Moon's Declination.	
	Theory.	Observation.	Theory.	Observation.		Theory.	Observation.	Theory.	Observation.		Theory.	Observation.	Theory.	Observation.		
h m	m	m	feet.	feet.	°	m	m.	feet.	feet.	°	m	m	feet.	feet.	°	h m
0 30	0·0	−3·3	−·49	+·02	19	0·0	−1·8	+·08	+·12	10	0·0	+0·4	+·32	+·14	5	0 30
1 30	+0·3	−1·6	−·36	+·01	16	+0·1	−0·6	+·16	+·18	6	−0·4	−0·5	+·25	+·22	8	1 30
2 30	+1·2	+1·2	−·13	−·01	11	+0·2	+1·3	+·16	+·13	5	−1·7	−1·3	+·10	+·09	13	2 30
3 30	+2·8	+4·2	+·03	+·28	6	0·0	+0·8	+·10	+·19	8	−4·1	−4·4	−·11	−·14	17	3 30
4 30	+3·5	+5·3	+·10	+·30	5	−2·2	+0·2	−·09	−·17	14	−7·2	−5·8	−·36	−·36	22	4 30
5 30	+2·5	+4·6	+·08	+·07	9	−3·6	−3·1	−·28	−·27	18	−7·8	−7·8	−·52	−·58	23	5 30
6 30	0·0	−0·8	+·01	+·06	13	0·0	−0·5	−·45	−·35	21	0·0	−0·8	−·58	−·48	23	6 30
7 30	+0·9	−0·8	−·24	−·09	18	+7·0	+2·4	−·54	−·27	23	+7·8	+6·0	−·49	−·39	22	7 30
8 30	+3·0	−0·3	−·45	−·20	21	+6·9	+3·4	−·50	−·32	22	+6·5	+5·2	−·26	−·18	19	8 30
9 30	+3·3	+0·5	−·57	−·17	23	+5·2	+0·5	−·45	−·32	22	+3·7	+0·4	−·06	−·05	16	9 30
10 30	+2·1	−1·2	−·62	−·18	23	+2·4	−1·6	−·29	−·12	19	+1·7	−1·9	+·16	+·05	11	10 30
11 30	+0·1	−3·9	−·60	−·11	21	+0·7	−2·8	−·07	+·04	14	+0·3	+0·2	+·29	+·14	6	11 30
	Sun's Decl. 21°, and Par. 8″·94.					Sun's Decl. 13°, and Par. 8″·90.					Sun's Decl. 3°, and Par. 8″·84.					
	April.					May.					June.					
0 30	0·0	+1·4	+·22	+·22	13	0·0	−0·5	−·17	+·03	20	0·0	−2·0	−·34	−·22	23	0 30
1 30	−0·5	+0·5	+·04	−·01	17	−0·2	+0·2	−·28	−·07	22	+0·7	−0·3	−·29	−·21	22	1 30
2 30	−2·0	−2·0	−·12	−·07	20	−0·7	−2·4	−·30	−·29	23	+2·2	+0·9	−·14	−·12	20	2 30
3 30	−4·1	−5·0	−·24	−·18	22	−0·6	−3·8	−·22	−·24	22	+5·1	+2·0	+·11	+·10	16	3 30
4 30	−6·4	−7·1	−·31	−·30	23	+0·2	−1·2	−·07	−·07	20	+7·8	+7·5	+·36	+·43	11	4 30
5 30	−5·3	−3·5	−·32	−·30	22	+1·8	+2·0	+·10	+·23	17	+8·5	+9·0	+·55	+·59	7	5 30
6 30	0·0	−0·1	−·22	−·24	20	0·0	+2·3	+·34	+·39	12	0·0	+2·0	+·67	+·54	5	6 30
7 30	+1·9	+1·9	−·02	−·01	16	−5·4	−2·3	+·42	+·38	7	−8·2	−4·0	+·55	+·39	8	7 30
8 30	−0·1	+1·1	+·20	+·14	11	−6·4	−3·1	+·41	+·31	5	−8·2	−5·8	+·34	+·09	12	8 30
9 30	−1·2	−0·3	+·34	+·24	6	−4·7	−1·1	+·34	+·28	7	−4·7	−3·0	+·06	−·04	17	9 30
10 30	−0·6	+0·5	+·38	+·31	5	−2·4	0·0	+·20	+·22	12	−2·2	−2·7	−·14	−·15	20	10 30
11 30	−0·3	−0·9	+·37	+·35	7	−0·7	+0·5	−·02	+·07	17	−0·6	−1·5	−·29	−·15	22	11 30
	Sun's Decl. 10°, and Par. 8″·76.					Sun's Decl. 19°, and Par. 8″·70.					Sun's Decl. 23°, and Par. 8″·66.					
	July.					August.					September.					
0 30	0·0	−0·6	−·14	−·14	20	0·0	+3·1	+·30	+·14	11	0·0	+3·4	+·46	+·19	5	0 30
1 30	+1·3	+1·3	+·05	+·04	16	+0·9	+2·5	+·41	+·24	7	0·0	+2·9	+·39	+·16	8	1 30
2 30	+2·8	+4·1	+·26	+·24	11	+2·2	+5·3	+·44	+·19	4	−0·9	+1·8	+·26	+·15	12	2 30
3 30	+6·8	+7·6	+·41	+·32	6	+2·9	+4·9	+·35	+·23	8	−2·7	+1·0	+·02	−·06	17	3 30
4 30	+8·7	+9·9	+·48	+·51	5	+2·2	+4·9	+·22	+·29	13	−5·4	−5·1	−·18	−·21	20	4 30
5 30	+7·1	+9·9	+·50	+·53	8	−0·3	+2·8	·00	+·04	18	−6·4	−7·4	−·36	−·34	22	5 30
6 30	0·0	+4·4	+·42	+·37	13	0·0	+1·5	−·16	−·15	21	0·0	+1·4	−·45	−·52	23	6 30
7 30	−3·7	−2·2	+·20	+·11	17	+3·0	+2·3	−·21	−·24	22	+6·4	+6·3	−·36	−·30	22	7 30
8 30	−2·2	−1·2	−·01	−·07	20	+3·7	+4·4	−·24	−·24	23	+4·7	+6·2	−·18	−·15	20	8 30
9 30	−0·7	+0·2	−·22	−·18	23	+2·3	+3·6	−·19	−·23	22	+2·3	+4·3	+·02	−·05	17	9 30
10 30	−0·5	+0·5	−·27	−·20	23	+0·4	+1·8	−·03	−·18	19	+0·9	+5·3	+·26	+·08	12	10 30
11 30	−0·5	−1·2	−·25	−·26	22	−0·2	+4·5	+·10	−·04	16	−0·1	+4·0	+·41	+·15	7	11 30
	Sun's Decl. 21°, and Par. 8″·66.					Sun's Decl. 14°, and Par. 8″·70.					Sun's Decl. 4°, and Par. 8″·76.					
	October.					November.					December.					
0 30	0·0	+ 3·2	+·13	+·10	12	0·0	−0·3	−·42	−·23	20	0·0	−2·9	−·77	−·26	23	0 30
1 30	−0·9	+ 1·6	−·05	+·01	16	−1·0	−2·4	−·53	−·27	22	−0·5	−3·7	−·70	−·29	22	1 30
2 30	−2·8	− 1·6	−·24	−·06	20	−2·3	−4·0	−·56	−·23	23	−0·2	−3·5	−·53	−·04	20	2 30
3 30	−5·3	− 5·0	−·37	−·27	22	−3·2	−4·0	−·47	−·16	22	+1·3	+0·8	−·27	−·02	16	3 30
4 30	−8·2	−10·4	−·45	−·29	23	−3·4	−4·8	−·34	−·13	20	+2·6	+3·2	−·01	+·26	11	4 30
5 30	−6·7	−10·6	−·46	−·39	22	−1·2	−2·9	−·22	+·09	18	+4·1	+1·9	+·15	+·34	7	5 30
6 30	0·0	− 4·8	−·37	−·38	20	0·0	−3·3	+·05	+·02	12	0·0	−1·7	+·25	+·38	5	6 30
7 30	+3·3	+ 2·6	−·21	−·08	17	−2·4	−4·2	+·14	+·18	7	−3·8	−7·1	+·13	+·29	8	7 30
8 30	+1·7	+ 3·0	+·04	+·09	12	−2·8	−3·1	+·15	+·19	5	−3·0	−7·1	−·04	+·16	12	8 30
9 30	0·0	+ 1·8	+·19	+·20	7	−2·1	−3·6	+·09	+·17	7	+0·9	−2·8	−·32	·00	17	9 30
10 30	+0·2	+ 2·5	+·26	+·25	5	−0·8	−1·0	·00	−·04	12	+0·2	−2·2	−·53	−·15	20	10 30
11 30	+0·1	+ 3·2	+·24	+·15	7	−0·2	−0·2	−·23	+·04	16	+0·6	−2·5	−·70	−·30	23	11 30
	Sun's Decl. 9°, and Par. 8″·84.					Sun's Decl. 18°, and Par. 8″·90.					Sun's Decl. 23°, and Par. 8″·94.					

TABLE XXIV. (*j*.)

Showing the Moon's Parallax Inequality in the Interval and in the Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Table XIX. See Plate II.

Apparent Solar Time of Moon's Transit B.	H. P. 54′.				H. P. 55′.				Apparent Solar Time of Moon's Transit B.
	d ψ		d *h*		d ψ		d *h*		
	Theory.	Observation.	Theory.	Observation.	Theory.	Observation.	Theory.	Observation.	
h m	m	m	feet.	feet.	m	m	feet.	feet.	h m
0 30	0·0	− 0·1	− ·66	− ·46	0·0	+ 0·2	− ·45	− ·42	0 30
1 30	− 2·0	− 3·4	− ·66	− ·57	− 1·3	− 2·9	− ·45	− ·34	1 30
2 30	− 4·2	− 6·2	− ·64	− ·59	− 2·7	− 4·5	− ·44	− ·38	2 30
3 30	− 6·5	−12·9	− ·62	− ·79	− 4·2	− 8·3	− ·42	− ·61	3 30
4 30	− 8·7	−13·0	− ·61	− ·78	− 5·6	− 8·9	− ·42	− ·56	4 30
5 30	− 8·4	−11·7	− ·64	− ·97	− 5·2	− 8·9	− ·44	− ·72	5 30
6 30	0·0	− 1·8	− ·66	− ·79	0·0	− 2·6	− ·45	− ·57	6 30
7 30	+ 8·4	+ 0·5	− ·64	− ·89	+ 5·2	+ 0·4	− ·44	− ·50	7 30
8 30	+ 8·7	+ 5·0	− ·61	− ·67	+ 5·6	+ 3·5	− ·42	− ·41	8 30
9 30	+ 6·5	+ 3·2	− ·62	− ·52	+ 4·2	+ 2·4	− ·42	− ·40	9 30
10 30	+ 4·2	+ 2·1	− ·64	− ·37	+ 2·7	+ 2·9	− ·44	− ·29	10 30
11 30	+ 2·0	+ 3·1	− ·66	− ·55	+ 1·3	+ 2·9	− ·45	− ·42	11 30
	H. P. 56′.				H. P. 57′.				
0 30	0·0	− 0·5	− ·23	− ·10	0·0	0·0	·00	·00	0 30
1 30	− 0·6	− 2·2	− ·23	− ·19	0·0	0·0	·00	·00	1 30
2 30	− 1·3	− 1·7	− ·23	− ·23	0·0	0·0	·00	·00	2 30
3 30	− 2·0	− 2·5	− ·21	− ·37	0·0	0·0	·00	·00	3 30
4 30	− 2·7	− 4·3	− ·21	− ·27	0·0	0·0	·00	·00	4 30
5 30	− 2·5	− 6·0	− ·22	− ·32	0·0	0·0	·00	·00	5 30
6 30	0·0	− 1·0	− ·23	− ·25	0·0	0·0	·00	·00	6 30
7 30	+ 2·5	− 0·6	− ·22	− ·20	0·0	0·0	·00	·00	7 30
8 30	+ 2·7	+ 0·5	− ·21	− ·24	0·0	0·0	·00	·00	8 30
9 30	+ 2·0	+ 1·1	− ·21	− ·20	0·0	0·0	·00	·00	9 30
10 30	+ 1·3	+ 0·5	− ·23	− ·03	0·0	0·0	·00	·00	10 30
11 30	+ 0·6	+ 3·3	− ·23	− ·25	0·0	0·0	·00	·00	11 30
	H. P. 58′.				H. P. 59′.				
0 30	0·0	+ 2·1	+ ·24	+ ·12	0·0	+ 2·7	+ ·49	+ ·35	0 30
1 30	+ 0·6	− 0·3	+ ·24	+ ·23	+ 1·2	+ 0·8	+ ·48	+ ·39	1 30
2 30	+ 1·3	+ 2·9	+ ·23	+ ·19	+ 2·5	+ 3·5	+ ·47	+ ·47	2 30
3 30	+ 2·0	+ 4·8	+ ·22	+ ·16	+ 3·8	+ 7·1	+ ·45	+ ·39	3 30
4 30	+ 2·5	+ 4·5	+ ·22	+ ·16	+ 4·8	+ 9·4	+ ·45	+ ·58	4 30
5 30	+ 2·0	+ 3·8	+ ·23	+ ·26	+ 4·2	+ 6·2	+ ·46	+ ·63	5 30
6 30	0·0	+ 3·4	+ ·24	+ ·26	0·0	+ 5·3	+ ·49	+ ·61	6 30
7 30	− 2·0	− 1·5	+ ·23	+ ·31	− 4·2	− 3·0	+ ·46	+ ·53	7 30
8 30	− 2·5	+ 0·1	+ ·22	+ ·19	− 4·8	− 3·1	+ ·45	+ ·46	8 30
9 30	− 2·0	− 1·9	+ ·22	+ ·33	− 3·8	− 2·9	+ ·45	+ ·34	9 30
10 30	− 1·3	− 1·2	+ ·23	+ ·29	− 2·5	1·8	+ ·47	+ ·53	10 30
11 30	− 0·6	+ 1·8	+ ·24	+ ·11	− 1·2	+ 2·4	+ ·48	+ ·31	11 30
	H. P. 60′.				H. P. 61′.				
0 30	0·0	+ 1·0	+ ·75	+ ·67	0·0	+ 1·7	+1·01	+ ·79	0 30
1 30	+ 1·8	+ 2·2	+ ·73	+ ·65	+ 2·3	+ 3·0	+0·99	+ ·84	1 30
2 30	+ 3·6	+ 6·0	+ ·72	+ ·70	+ 4·7	+ 6·1	+0·97	+ ·71	2 30
3 30	+ 5·5	+ 8·0	+ ·70	+ ·69	+ 7·1		+0·95		3 30
4 30	+ 6·9	+12·8	+ ·69	+ ·70	+ 8·9		+0·94		4 30
5 30	+ 6·1		+ ·71		+ 7·6		+0·97		5 30
6 30	0·0		+ ·75		0·0		+1·01		6 30
7 30	− 6·1	− 2·3	+ ·71	+ ·69	− 7·6		+0·97		7 30
8 30	− 6·9	− 3·3	+ ·69	+ ·60	− 8·9		+0·94		8 30
9 30	− 5·5	− 5·4	+ ·70	+ ·61	− 7·1	− 5·1	+0·95	+ ·77	9 30
10 30	− 3·6	− 2·6	+ ·72	+ ·70	− 4·7	− 2·6	+0·97	+ ·86	10 30
11 30	− 1·8	+ 0·7	+ ·73	+ ·53	− 2·3	− 1·1	+0·99	+ ·63	11 30

Table XXV. (*k*.)

Showing the Diurnal Inequality in the Interval and in the Height of High Water for the first six months of the year, for the Moon's Transit B, P.M. See Plate III.

Apparent Solar Time of Moon's Transit B.	January.		February.		March.		Apparent Solar Time of Moon's Transit B.
	d ψ.	d *h*.	d ψ.	d *h*.	d ψ.	d *h*.	
	Observation.	Observation.	Observation.	Observation.	Observation.	Observation.	
P.M.							
h m	m	feet.	m	feet.	m	feet.	h m
0 30	+ 2·3	+ ·05	+ 3·2	+ ·05	+ 3·2	− ·09	0 30
1 30	+ 3·2	+ ·05	+ 2·8	− ·10	+ 2·5	− ·08	1 30
2 30	+ 3·2	+ ·02	+ 3·0	− ·05	+ 1·4	− ·15	2 30
3 30	+ 3·3	·00	+ 2·5	− ·10	+ 2·1	− ·16	3 30
4 30	+ 4·9	·00	+ 3·5	− ·08	+ 1·6	− ·17	4 30
5 30	+ 6·0	+ ·05	+ 4·1	− ·03	+ 1·2	− ·22	5 30
6 30	+ 5·1	+ ·05	+ 1·6	− ·06	− 0·9	− ·23	6 30
7 30	+ 2·0	+ ·06	+ 0·6	− ·17	− 1·8	− ·36	7 30
8 30	+ 0·2	− ·02	− 0·4	− ·22	− 1·7	− ·32	8 30
9 30	− 0·7	− ·11	− 1·5	− ·16	− 2·7	− ·17	9 30
10 30	− 0·9	− ·15	− 2·7	− ·20	− 2·5	− ·08	10 30
11 30	− 1·0	− ·07	− 2·9	− ·06	− 2·2	− ·04	11 30
	April.		May.		June.		
0 30	+ 1·9	− ·08	+ 0·6	− ·10	− 0·8	− ·14	0 30
1 30	+ 1·2	− ·05	0·0	− ·11	− 1·4	− ·08	1 30
2 30	+ 0·8	− ·18	− 1·1	− ·15	− 2·6	− ·15	2 30
3 30	− 0·5	− ·20	− 3·0	− ·23	− 4·3	− ·15	3 30
4 30	− 2·0	− ·28	− 4·2	− ·30	− 4·6	− ·15	4 30
5 30	− 3·3	− ·31	− 7·0	− ·40	− 7·8	− ·23	5 30
6 30	− 4·7	− ·34	− 5·3	− ·35	− 5·9	− ·17	6 30
7 30	− 4·2	− ·40	− 5·0	− ·30	− 4·9	− ·12	7 30
8 30	− 2·7	− ·30	− 3·8	− ·21	− 1·7	− ·05	8 30
9 30	− 3·4	− ·13	− 2·2	− ·09	− 1·1	− ·04	9 30
10 30	− 2·9	− ·08	− 1·5	− ·03	− 0·4	+ ·04	10 30
11 30	− 2·3	− ·03	− 2·2	+ ·01	+ 0·5	+ ·02	11 30

The tide depending on the Moon's Transit A.M. for the last six months has the same inequality and the same signs as the above; and in the first six months A.M. and the last six months P.M. the same values obtain, but with a contrary sign.

The quantities in the columns headed "Observation" have been obtained by taking the mean of January and July, February and August, &c., A.M. and P.M., as explained in p. 100.

Table XXVI.

Showing that part of the Diurnal Inequality in the Height of High Water depending on the Moon, calculated from the expression $d\,h = B \sin 2\,\delta'$, assuming for Parallax 57′, $B = 0{\cdot}5$ feet.

d h.

Moon's Declination.	Moon's Horizontal Parallax.				
	54′.	55′.	57′.	59′.	61′.
3	·04	·05	·05	·06	·06
6	·09	·09	·10	·11	·12
9	·13	·14	·15	·17	·18
12	·17	·18	·20	·22	·24
15	·21	·22	·25	·27	·30
18	·25	·26	·29	·32	·35
21	·28	·30	·33	·37	·40
24	·31	·33	·37	·40	·44
27	·34	·36	·40	·44	·48
30	·37	·39	·43	·47	·51

For Moon's Upper Transit the correction in the above Table has the same sign as the Declination. For the Lower Transit it has a contrary sign.

This Table was originally calculated for an hourly variation of φ, and for a Mean Parallax from the expression $d\,h = B \sin 2\,\delta \cos \psi$; but it being found that as long as the factor B was less than unity, $\cos \psi$ might always be considered equal to 1, it was thought preferable to Tabulate it in the above form, which admits of B varying as the cube of the Moon's Parallax.

Table XXVII.

The following Table contains the part of the Diurnal Inequality in the Height depending upon the Sun's Declination, calculated from the expression

$(A)\ B \sin 2\,\delta \cos \varphi \qquad \log (A) = 9{\cdot}56965.$

φ.	Sun's Declination.								φ.
	3°.	6°.	9°.	12°.	15°.	18°.	21°.	24°.	
0	+ ·02	+ ·04	+ ·06	+ ·08	+ ·10	+ ·11	+ ·13	+ ·14	360
15	+ ·02	+ ·04	+ ·06	+ ·08	+ ·09	+ ·11	+ ·13	+ ·14	345
30	+ ·02	+ ·04	+ ·05	+ ·07	+ ·09	+ ·10	+ ·12	+ ·13	330
45	+ ·02	+ ·03	+ ·05	+ ·06	+ ·08	+ ·09	+ ·11	+ ·12	315
60	+ ·01	+ ·03	+ ·04	+ ·05	+ ·06	+ ·07	+ ·08	+ ·09	300
75	+ ·01	+ ·02	+ ·02	+ ·03	+ ·04	+ ·04	+ ·05	+ ·06	285
90	·00	·00	·00	·00	·00	·00	·00	·00	270
105	− ·01	− ·02	− ·02	− ·03	− ·04	− ·04	− ·05	− ·06	255
120	− ·01	− ·03	− ·04	− ·05	− ·06	− ·07	− ·08	− ·09	240
135	− ·02	− ·03	− ·05	− ·06	− ·08	− ·09	− ·11	− ·12	225
150	− ·02	− ·04	− ·05	− ·07	− ·09	− ·10	− ·12	− ·13	210
165	− ·02	− ·04	− ·06	− ·08	− ·09	− ·11	− ·13	− ·14	195
180	− ·02	− ·04	− ·06	− ·08	− ·10	− ·11	− ·13	− ·14	180

Table XXVIII. (*l.*)

Showing the Interval and Height of High Water at the London Docks, with the Sun's and Moon's Declinations, and the Moon's Horizontal Parallax, (for the Mean of all the Moon's Transits B occurring between 0^h and 1^h) for every year from 1802 to 1835.

Year.	Number of Observations.	Moon's Transit B.	Interval.	Height of Tide.	Moon's Declination.	Moon's Hor. Par.	Sun's Declination.
		h m	h m	ft. in.	°	′	°
1802	58	0 29·4	3 12·2	22 3·8	17·0	57·5	14·1
1803	59	0 29·1	3 12·4	22 6·4	17·1	57·4	14·3
1804	56	0 29·2	3 13·8	22 10·7	15·7	57·6	13·8
1805	54	0 27·9	3 11·2	22 7·0	15·8	57·3	14·8
1806	57	0 30·3	3 12·4	22 7·2	14·4	57·5	14·5
1807	57	0 31·3	3 6·7	22 7·7	13·5	57·3	14·6
1808	55	0 32·5	3 10·1	22 7·2	12·7	57·3	14·1
1809	59	0 29·2	3 10·6	22 11·0	12·0	57·2	14·7
1810	54	0 29·3	3 10·7	22 10·2	11·6	57·7	15·1
1811	60	0 29·8	3 7·2	23 0·4	11·1	57·3	14·3
1812	53	0 27·8	3 6·7	23 1·1	11·3	57·4	14·0
1813	59	0 27·7	3 5·3	22 9·9	12·8	57·1	14·4
1814	59	0 29·0	3 6·3	22 10·5	13·5	57·5	14·4
1815	59	0 29·5	3 5·9	22 7·0	15·0	57·1	14·5
1816	57	0 27·9	3 5·1	22 9·2	15·2	57·2	13·8
1817	57	0 29·2	3 3·4	22 7·8	16·6	57·1	14·3
1818	57	0 28·4	3 3·5	22 9·4	17·5	57·4	14·5
1819	55	0 28·7	3 3·6	22 6·7	17·0	57·3	14·1
1820	58	0 30·2	3 2·7	22 8·7	17·3	57·3	14·2
1821	58	0 31·1	3 2·1	22 9·5	17·5	57·0	14·1
1822	59	0 30·7	3 3·6	22 8·1	17·2	57·2	14·4
1823	57	0 29·7	3 7·1	22 10·5	15·7	57·2	14·1
1824	61	0 29·6	3 4·1	22 11·3	15·3	57·3	14·1
1825	63	0 30·4	3 7·0	22 10·7	14·2	57·3	14·9
1826	59	0 28·0	3 9·5	22 11·2	13·0	57·3	14·5
1827	53	0 29·6	3 6·1	22 11·3	12·4	57·4	14·9
1828	61	0 31·5	3 5·5	23 2·0	11·5	57·1	14·6
1829	56	0 29·9	3 6·0	23 2·0	11·3	57·3	15·1
1830	57	0 31·9	3 2·2	23 1·1	11·6	57·2	14·7
1831	57	0 31·3	3 5·1	23 0·5	12·1	57·1	14·3
1832	55	0 30·0	3 8·5	22 5·0	13·5	57·2	15·3
1833	60	0 29·1	3 11·6	22 9·3	13·5	57·4	14·4
1834	57	0 27·8	3 11·0	22 8·6	15·5	57·4	14·9
1835	53	0 28·0	3 11·1	22 8·3	15·5	57·5	13·7

Table XXIX. (*m.*)

Interpolated from Table XXVIII. by reducing each quantity to Moon's Transit (B) $0^h\,30^m$, and correcting for deviation from Mean Declinations and Parallax.

Year.	Interval.	Height.
	h m	ft.
1802	3 11·8	22·27
1803	3 12·0	22·51
1804	3 13·3	22·79
1805	3 10·4	22·54
1806	3 12·2	22·48
1807	3 6·8	22·52
1808	3 10·6	22·44
1809	3 10·3	22·76
1810	3 10·1	22·58
1811	3 6·7	22·80
1812	3 5·9	22·85
1813	3 4·6	22·67
1814	3 5·7	22·70
1815	3 5·7	22·56
1816	3 4·4	22·71
1817	3 3·1	22·68
1818	3 2·9	22·77
1819	3 3·0	22·57
1820	3 2·6	22·75
1821	3 2·4	22·88
1822	3 3·7	22·72
1823	3 7·0	22·85
1824	3 3·8	22·88
1825	3 6·9	22·80
1826	3 8·8	22·77
1827	3 5·8	22·75
1828	3 5·8	23·03
1829	3 5·8	22·97
1830	3 2·6	22·93
1831	3 5·5	22·90
1832	3 8·4	22·32
1833	3 11·2	22·63
1834	3 10·1	22·65
1835	3 10·3	22·66

Table XXX. (*n.*)

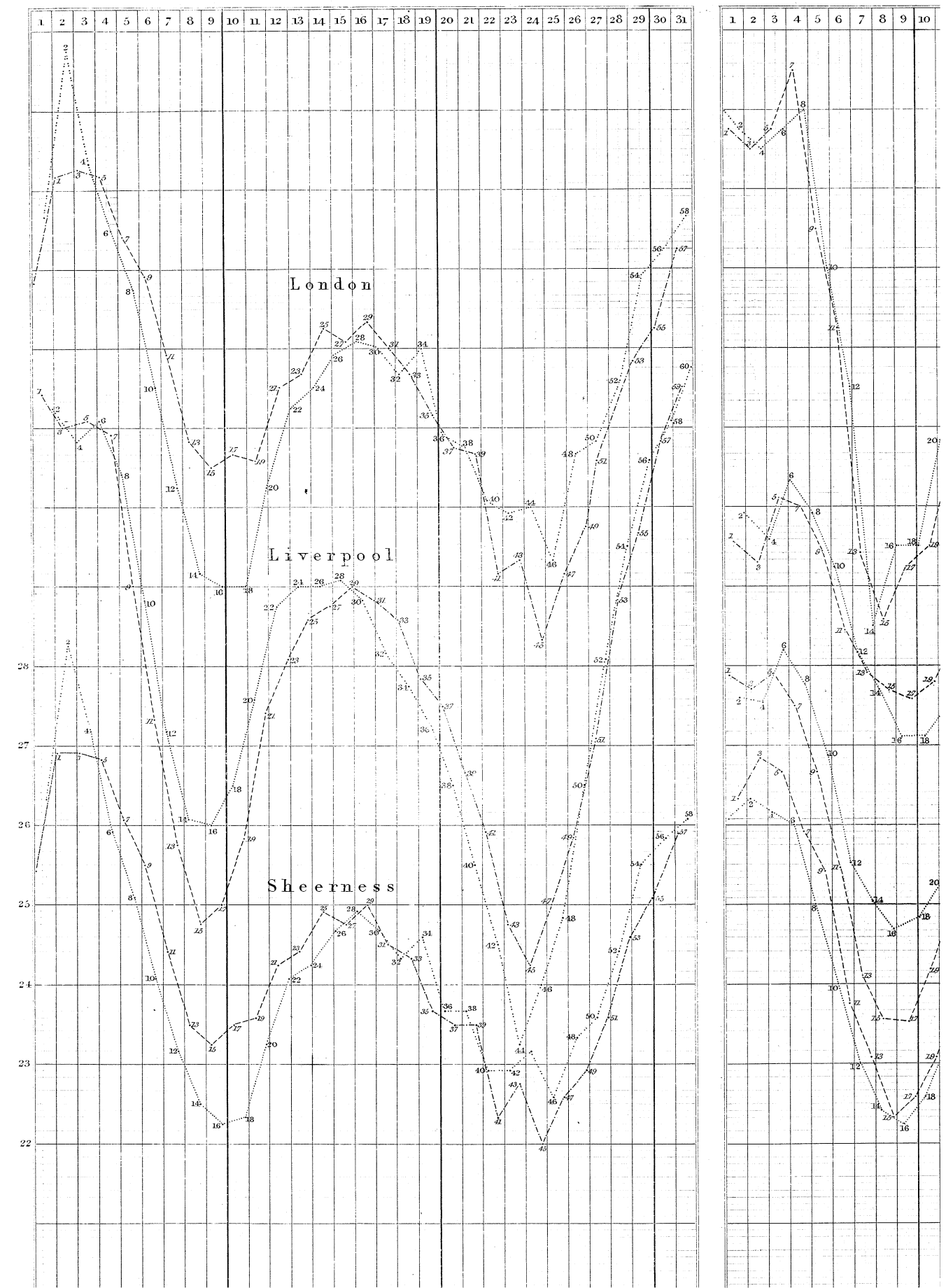
Showing the *Establishment* of the Port of London since 1802, obtained from Table XXIX. by altering the argument from Transit B to Transit F, and reducing it to $0^h\,0^m$ from $0^h\,30^m$. Moon's Hor. Par. 57′, and Decl. 15°.

Moon's Transit F = $0^h\,0^m$.

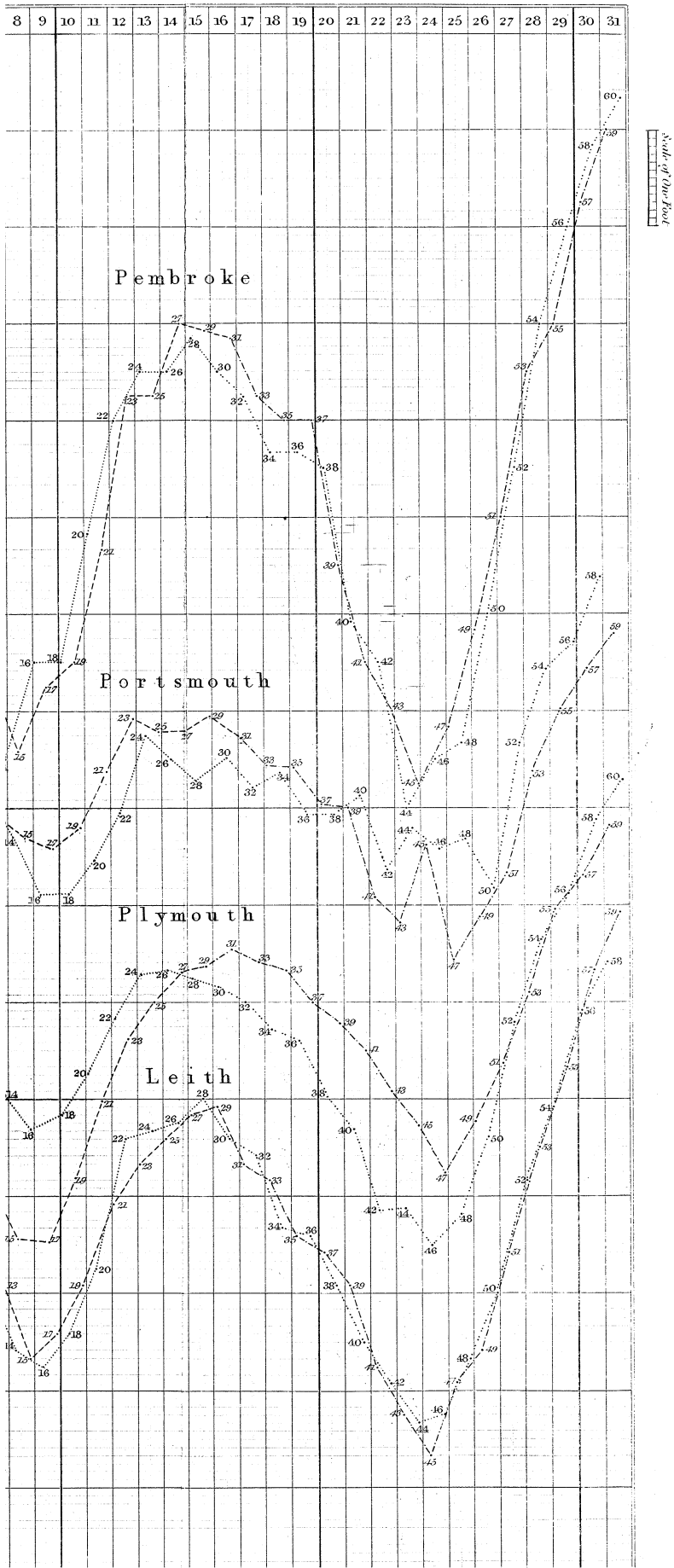
Year.	Interval*.	Height.	Year.	Interval.	Height.
	h m	ft.		h m	ft.
1802	2 5·9	21·90	1819	1 57·1	22·20
1803	2 6·1	22·14	1820	1 56·7	22·38
1804	2 7·4	22·42	1821	1 56·5	22·51
1805	2 4·5	22·17	1822	1 57·8	22·35
1806	2 6·3	22·11	1823	2 1·1	22·48
1807	2 0·9	22·15	1824	1 57·9	22·51
1808	2 4·7	22·07	1825	2 1·0	22·43
1809	2 4·4	22·39	1826	2 2·9	22·40
1810	2 4·2	22·21	1827	1 59·9	22·38
1811	2 0·8	22·43	1828	1 59·9	22·66
1812	2 0·0	22·48	1829	1 59·9	22·60
1813	1 58·7	22·30	1830	1 56·7	22·56
1814	1 59·8	22·33	1831	1 59·6	22·53
1815	1 59·8	22·19	1832	2 2·5	21·95
1816	1 58·5	22·34	1833	2 5·3	22·26
1817	1 57·2	22·31	1834	2 4·2	22·28
1818	1 57·0	22·40	1835	2 4·4	22·29

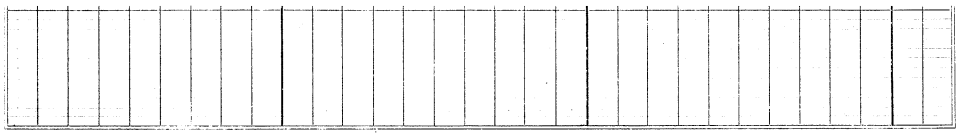
* i. e. *Establishment.*

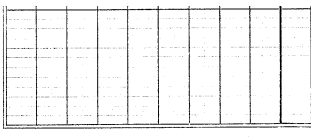
Heights of High Water in May 1836 — See Ta



See Table. XXXI.

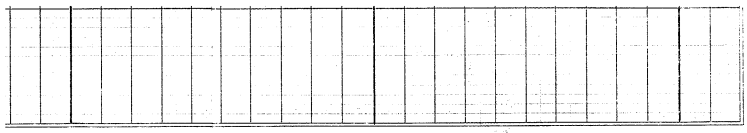






All the Heights of Tides depending upon { *Upper Transits* A. A.M are thus connected ——— } and are
…… A. P.M …… ——— } by odd
Lower Transits A.P.M …… } and are
…… A.A.M …… } by even

The Moons declination is …… from May 12th to May 26th The Heights caused by the same Tide are marked with t



_.-._ } and are marked
_ _ _ } by odd numbers
. . . . } and are marked
..... } by even numbers
marked with the same figures

TABLE XXXI.

Observations of High Water in May 1836.

Date.	Plymouth.		Portsmouth.		London Docks.		Pembroke.		Liverpool. Salthouse Dock.		Leith.	
	Time.	Height.	Time.	Height.	Time.	Height.	Time.	Height.	Time.	Height.	Time.	Height.
1836.	h m	ft. in.	h m	ft. in.	h m	ft. in.	h m	ft. in.	h m	ft. in.	h m	ft. in.
May 1. A.M.	5 12	17 10½	11 28	18 6·9	1 40	22 10	6 20	22 9	11 6	18 5	2 12	16 1
P.M.	5 45	17 7¼	11 48	18 11·8	2 10	23 8	6 40	22 9	11 25	18 3	2 24	16 4
2. A.M.	6 5	17 8½	.....	.....	2 20	24 2	7 0	22 6	11 50	18 0	2 46	16 4
P.M.	6 22	17 6½	0 5	18 3·9	2 45	25 9	7 15	22 6	.....	.....	3 4	16 10
3. A.M.	6 44	17 10¾	0 35	18 7·2	2 55	24 3	7 35	22 9	0 5	17 10	3 23	16 2
P.M.	7 6	18 2¼	0 55	19 1·5	3 25	24 4	8 0	22 9	0 30	18 1	3 54	16 8
4. A.M.	7 28	17 6	1 15	19 4·9	3 40	24 2	8 0	23 6	0 50	18 1	4 18	16 0
P.M.	7 54	17 9¼	1 35	19 0·2	4 0	23 6	8 25	23 0	1 12	17 11	4 43	15 11
5. A.M.	8 13	16 8	1 58	18 11·4	4 25	23 5	8 50	21 6	1 26	17 5	5 8	15 0
P.M.	8 22	16 10½	2 30	18 5·2	4 50	22 9	9 10	21 0	2 0	16 0	5 35	15 5
6. A.M.	9 1	15 5½	2 50	18 3·2	5 15	22 11	9 30	20 3	2 20	15 10	6 5	14 0
P.M.	9 32	15 6¼	3 25	17 5·5	5 35	21 6	10 10	19 6	2 50	14 4	6 27	13 9
7. A.M.	9 56	14 1¼	3 45	17 2·0	6 10	21 11	10 45	17 5	3 15	14 2	7 0	13 0
P.M.	10 17	15 1½	4 30	16 11·0	6 20	20 3	11 10	16 6	3 49	12 9	7 40	13 1
8. A.M.	11 2	13 6¾	5 15	16 8·6	7 15	20 10	11 55	16 7	4 29	13 1	8 18	12 5
P.M.	11 37	14 8¼	5 45	16 8·7	7 35	19 2	.....	.....	5 6	11 9	9 6	12 4
9. A.M.	.....	.....	6 15	16 1·2	8 35	20 6	12 25	17 6	5 50	13 0	9 30	12 3
P.M.	0 32	13 6¼	7 0	16 7·0	9 20	19 0	12 55	17 3	6 40	12 0	10 18	12 7
10. A.M.	12 55	14 10	7 20	16 1·3	10 5	20 8	1 10	17 6	7 16	13 6	10 34	12 7
P.M.	1 47	14 2¼	8 5	16 9·6	10 30	19 0	2 30	17 6	7 50	12 10	11 28	13 1
11. A.M.	2 19	15 3¼	8 43	16 5·7	11 15	20 7	2 55	18 10	8 25	14 7	11 36	13 3
P.M.	2 58	14 11¾	9 8	17 4·7	11 30	20 3	3 45	18 8	8 55	14 5	.....	.....
12. A.M.	3 15	15 10	9 42	16 11·5	.....	.....	4 5	20 0	9 14	15 9	0 10	13 11
P.M.	3 40	15 7½	10 5	17 11·0	12 10	21 6	4 30	20 3	9 42	15 1	0 22	14 7
13. A.M.	3 53	16 3½	10 20	17 9·0	12 25	21 3	4 50	20 6	9 57	16 0	0 58	14 4
P.M.	4 23	16 0	10 46	17 9·5	1 0	21 8	5 10	20 3	10 16	15 7	1 2	14 8
14. A.M.	4 43	16 4	10 55	17 6·0	1 10	21 6	5 30	20 6	10 34	16 0	1 32	14 7
P.M.	5 2	16 3¾	11 15	17 9·8	1 25	22 3	5 30	21 0	10 48	15 9	1 38	14 9
15. A.M.	5 19	16 3	11 32	17 3·5	1 45	21 11	5 45	20 10	11 10	16 1	1 55	14 10
P.M.	5 28	16 4½	11 51	17 11·2	2 10	22 1	6 10	20 11	11 24	16 0	2 12	15 0
16. A.M.	5 47	16 2	.....	.....	2 20	22 1	6 35	20 6	11 45	15 10	2 29	14 11
P.M.	6 4	16 6¼	0 14	17 6·2	2 45	22 4	6 45	20 10	11 58	15 10	2 57	14 7
17. A.M.	6 26	16 0	0 24	17 8·7	3 5	22 0	7 15	20 3	.....	.....	3 13	14 4
P.M.	6 35	16 5	0 39	17 2·8	3 15	22 0	7 35	20 3	0 16	15 2	3 32	14 5
18. A.M.	6 47	15 8¾	0 58	17 5·3	3 30	21 8	7 50	19 8	0 30	15 6	3 50	14 2
P.M.	7 4	16 4	1 20	17 4·5	3 50	21 8	8 0	20 0	0 46	14 9	4 10	13 8
19. A.M.	7 31	15 7¼	1 35	17 5·0	4 10	22 0	8 25	19 8	1 4	14 10	4 20	13 7
P.M.	7 36	16 0	1 50	16 11·3	4 20	21 2	8 35	20 0	1 22	14 3	4 38	13 7
20. A.M.	7 53	15 0¼	2 0	17 0·5	4 35	20 11	8 45	19 6	1 35	14 6	4 58	13 5
P.M.	8 1	15 9½	2 20	16 11·3	4 45	20 9	9 0	18 6	2 0	13 6	5 26	13 1
21. A.M.	8 36	14 8¼	2 37	17 0·0	5 10	20 9	9 30	17 11	2 15	13 8	5 41	13 1
P.M.	8 45	15 6	3 0	17 1·6	5 15	20 8	9 45	17 6	2 40	12 6	6 8	12 6
22. A.M.	9 6	13 10¼	3 14	16 1·0	5 55	20 1	10 10	17 6	3 0	12 11	6 37	12 3
P.M.	9 29	15 1	3 30	16 4·5	6 0	19 2	10 30	17 0	3 19	11 6	7 5	12 1
23. A.M.	9 53	13 10½	3 56	15 9·8	6 35	19 11	11 0	16 0	3 50	11 9	7 36	11 9
P.M.	10 36	14 8¾	4 27	16 9·8	7 0	19 4	11 25	16 3	4 15	10 3	8 14	11 8
24. A.M.	11 2	13 6	5 18	16 7·5	7 35	20 0	.....	.....	4 55	11 3	8 36	11 4
P.M.	11 48	14 3	5 43	16 7·0	7 55	18 4	12 15	16 6	5 40	11 0	9 13	11 9
25. A.M.	.....	.....	6 18	15 5·1	8 55	19 4	12 35	16 10	6 20	12 0	9 53	12 1
P.M.	0 34	13 9¾	6 50	16 8·2	9 20	19 2	1 30	16 8	7 0	11 10	10 16	12 4
26. A.M.	1 8	14 9¼	7 40	15 10·5	10 10	20 8	1 55	17 10	7 20	12 10	10 46	12 5
P.M.	1 44	14 7¼	8 12	16 2·0	10 45	19 9	2 30	18 0	7 58	13 6	11 13	13 0
27. A.M.	2 16	15 4½	8 38	16 4·0	11 20	20 10	3 10	19 0	8 28	14 1	11 33	13 5
P.M.	2 49	15 9½	9 5	17 8·0	11 35	20 7	3 40	19 6	8 46	15 1	.....	.....
28. A.M.	3 6	16 1¼	9 21	17 4·6	.....	.....	3 50	20 6	9 11	15 10	0 5	14 2
P.M.	3 37	16 7¾	9 56	18 5·1	12 5	21 7	4 20	21 0	9 35	16 6	0 27	14 6
29. A.M.	4 0	16 11½	10 12	18 0·2	12 20	21 10	4 45	21 0	9 55	16 8	0 52	14 11
P.M.	4 27	17 1½	10 37	18 8·5	12 50	22 11	4 45	22 0	10 16	17 7	1 17	15 4
30. A.M.	4 47	17 3¾	11 4	18 5·2	1 10	22 3	5 10	22 3	10 40	17 10	1 34	15 11
P.M.	5 26	17 10¾	11 23	19 4·6	1 35	23 3	5 45	22 10	11 0	18 1	2 8	16 4
31. A.M.	5 42	17 10	11 42	18 9·5	1 50	23 3	6 10	23 0	11 23	18 6	2 24	16 5
P.M.	6 5	18 3½	.....	.....	2 20	23 8	6 40	23 4	11 45	18 9	2 58	16 11

Index to the Tables.

Results deduced from Observations made at LIVERPOOL.

These observations were made at Liverpool by Mr. HUTCHINSON, Dockmaster at that place: they are now in the possession of the Liverpool Lyceum, and they were granted with the greatest kindness and liberality to the author for the purposes of this inquiry by the Committee of that Institution.

The *intervals* in Tables I. II. IV. V. and VI. should be increased by 36 hours to give the real *interval* between the moon's transit A and the time of high water.

I have concluded that Mr. HUTCHINSON's observations are given in *apparent solar* time.

Table I. (*a.*), showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Transit A in each month of the year, from 13,391 observations made at the Liverpool Docks, between the 1st of January 1774 and the 31st of December 1792.

Table II. (*b.*) (Interpolated from Table I.), showing the Interval between the Apparent Solar Time of the Moon's Transit A, and the Time of High Water at the Liverpool Docks for each month in the year.

Table III. (*c.*) (Interpolated from Table I.), showing the Height of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Transit A, in each month of the year.

Table IV. (*d.*), showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Transit A, for every minute of her Horizontal Parallax.

Table V. (*e.*), Interpolated from Table IV., and reduced to Moon's Declination 15°.

Table VI. (*f.*), showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the Liverpool Docks, corresponding to the Apparent Solar Time of the Moon's Upper and Lower Transit A, A.M. and P.M.

Table VII. (*g.*), showing the Diurnal Inequality at Liverpool, or the Difference in the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Interval in Table II., and the Difference between the Height of High Water and the Height in Table III.

Table VIII. (*h.*), showing a Comparison between the Semimenstrual Correction at Liverpool in the Interval and in the Height, as deduced from theory and from the results of observation contained in Tables II. and III.

Table IX. (*i.*), showing the Calendar-month Inequality in the Interval and in the Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Tables II. and III. See Plate I.

Table X. (*j.*), showing the Moon's Parallax Inequality in the Interval and in the

Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Table V. See Plate II.

Table XI. (*k.*), showing the Diurnal Inequality in the Interval and in the Height for the first six months of the year for the Moon's Transit A, P.M. See Plate III.

Table XII. (*l.*), showing the Interval and Height of High Water at the Liverpool Docks, with the Sun's and Moon's Declinations, and the Moon's Horizontal Parallax (for the mean of all the Moon's Transits A occurring between 0^h and 1^h) for every year from 1774 to 1792.

Table XIII. (*m.*), interpolated from Table XII. by reducing each quantity to Moon's Transit A ($0^h\ 30^m$), and correcting the quantities for deviation from mean Declinations and Parallax.

Table XIV. (*n.*), showing the *Establishment* of the Port of Liverpool obtained from Table XIII. by altering the argument from Transit A to Transit D, and reducing it to $0^h\ 0^m$ from $0^h\ 30^m$. Moon's Hor. Par. 57′, and Decl. 15°.

Results deduced from Observations made at LONDON.

These observations were made at the London Docks under the direction of the late Mr. PEIRSE, and they are now in the possession of the Royal Society.

The intervals in Tables XV. XVI. XVIII. XIX. and XX. must be increased by 48 hours to give the real interval between the moon's transit B and the time of high water.

I have concluded that these observations are given in *mean solar* time.

Table XV. (*a.*), showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B in each month of the year, from 24,592 observations made at the London Docks, between the 1st of September 1801 and the 31st of August 1836.

Table XVI. (*b.*) (Interpolated from Table XV.), showing the Interval between the Apparent Solar Time of the Moon's Transit B, and the Time of High Water at the London Docks for each month in the year.

Table XVII. (*c.*) (Interpolated from Table XV.), showing the Height of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B, in each month of the year.

Table XVIII. (*d.*), showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B, for every minute of her Horizontal Parallax.

Table XIX. (*e.*), Interpolated from Table XVIII.

Table XX. (*f.*), showing the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Height of High Water at the London Docks, corresponding to the Apparent Solar Time of the Moon's Transit B, A.M. and P.M.

Table XXI. (*g.*), showing the Diurnal Inequality at London, or the Difference in the Interval between the Apparent Solar Time of the Moon's Transit and the Time of High Water, and the Interval in Table XVI., and the Difference between the Height of High Water and the Height in Table XVII.

Table XXII. (*h.*), showing a Comparison between the Semimenstrual Inequality at London in the Interval and in the Height, as deduced from theory and from the results of observation contained in Tables XVI. and XVII.

Table XXIII. (*i.*), showing the Calendar-month Inequality in the Interval and in the Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Tables XVI. and XVII. See Plate I.

Table XXIV. (*j.*), showing the Moon's Parallax Inequality in the Interval and in the Height of High Water, as deduced from BERNOULLI's theory and from the results of observation contained in Table XIX. See Plate II.

Table XXV. (*k.*), showing the Diurnal Inequality in the Interval and in the Height of High Water for the first six months of the year, for the Moon's Transit B, P.M. See Plate III.

As the London discussion contained in this paper has been made with reference to transit B, and the discussion of the Liverpool observations has been made with reference to transit A, it was necessary to pay attention to this circumstance in the comparisons on the Plates. This has been done for the present roughly, by placing the London corrections more to the left by half an hour. The interval corrections would strictly require, in extreme cases, a slight alteration, which may be obtained from Tables XXIII. XXV. and XXVII., given in a former paper*.

Table XXVI., showing that part of the Diurnal Inequality in the Height of High Water depending on the Moon, calculated from the expression $\mathrm{d}\,h = B \sin 2\,\delta'$, assuming for Parallax $57'$, $B = 0{\cdot}5$ feet.

Table XXVII. contains the part of the Diurnal Inequality in the Height depending upon the Sun's Declination, calculated from the expression

$$(A)\ B \sin 2\,\delta \cos \varphi \qquad \log (A) = 9{\cdot}56965.$$

Table XXVIII. (*l.*), showing the Interval and Height of High Water at the London Docks with the Sun's and Moon's Declinations, and the Moon's Horizontal Parallax, for the Mean of all the Moon's Transits B occurring between 0^h and 1^h for every year from 1802 to 1835.

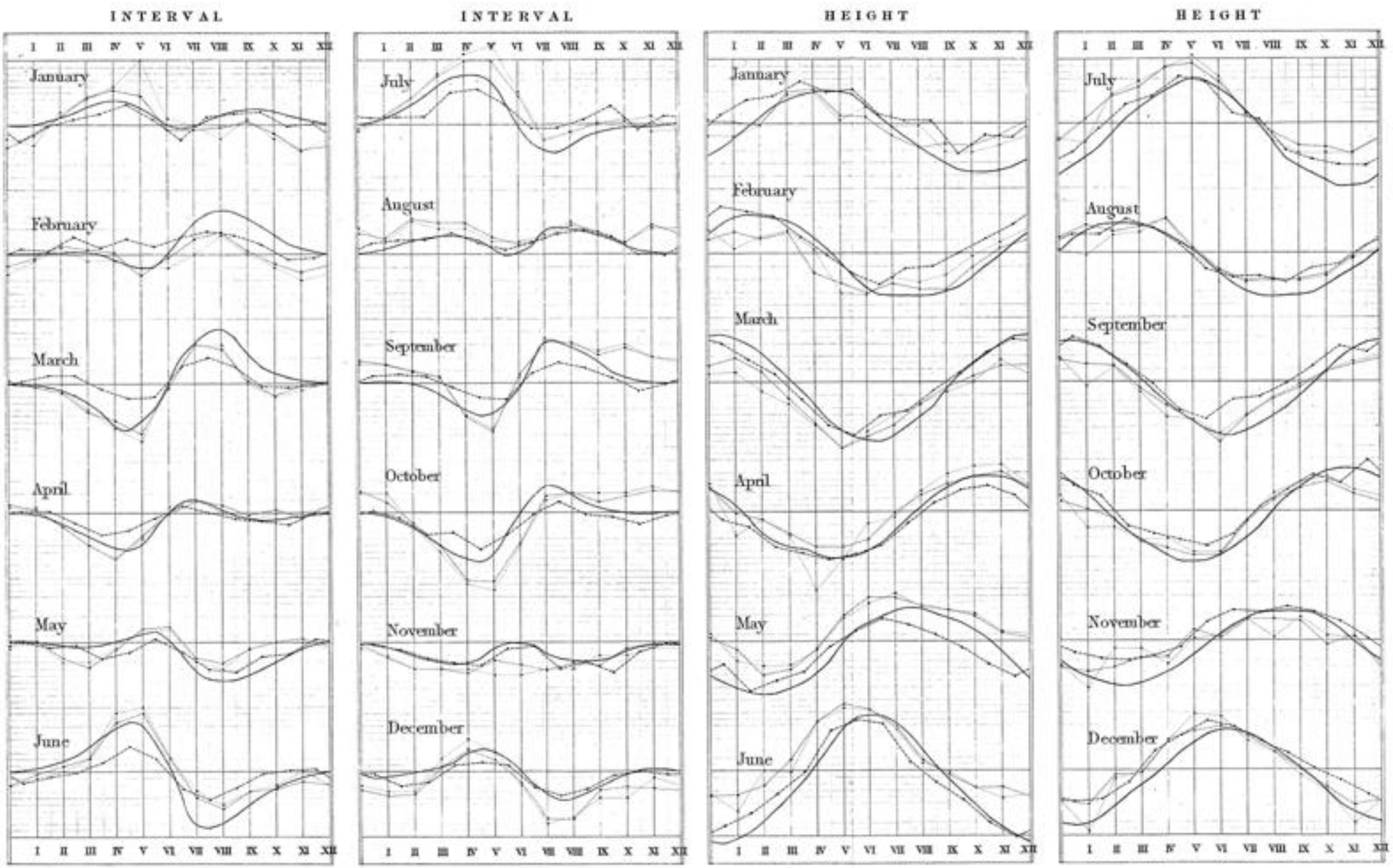
Table XXIX. (*m.*), interpolated from Table XXVIII. by reducing each quantity to Moon's Transit (B) $0^h\ 30^m$, and correcting for deviation from Mean Declinations and Parallax.

Table XXX. (*n.*), showing the *Establishment* of the Port of London since 1802, obtained from Table XXIX. by altering the argument from Transit B to Transit F, and reducing it to $0^h\ 0^m$ from $0^h\ 30^m$. Moon's Hor. Par. $57'$, and Decl. $15°$.

Table XXXI. Observations of High Water in May 1836. See Plate IV.

* Philosophical Transactions, 1836, p. 255.

Diagram showing a comparison between the Calendar Month Inequality in the Interval and in the Height of high water as deduced from Bernoullis' Theory and from Observations at the London and Liverpool Docks.—See Tables IX and XXIII. p. 118 and 192.

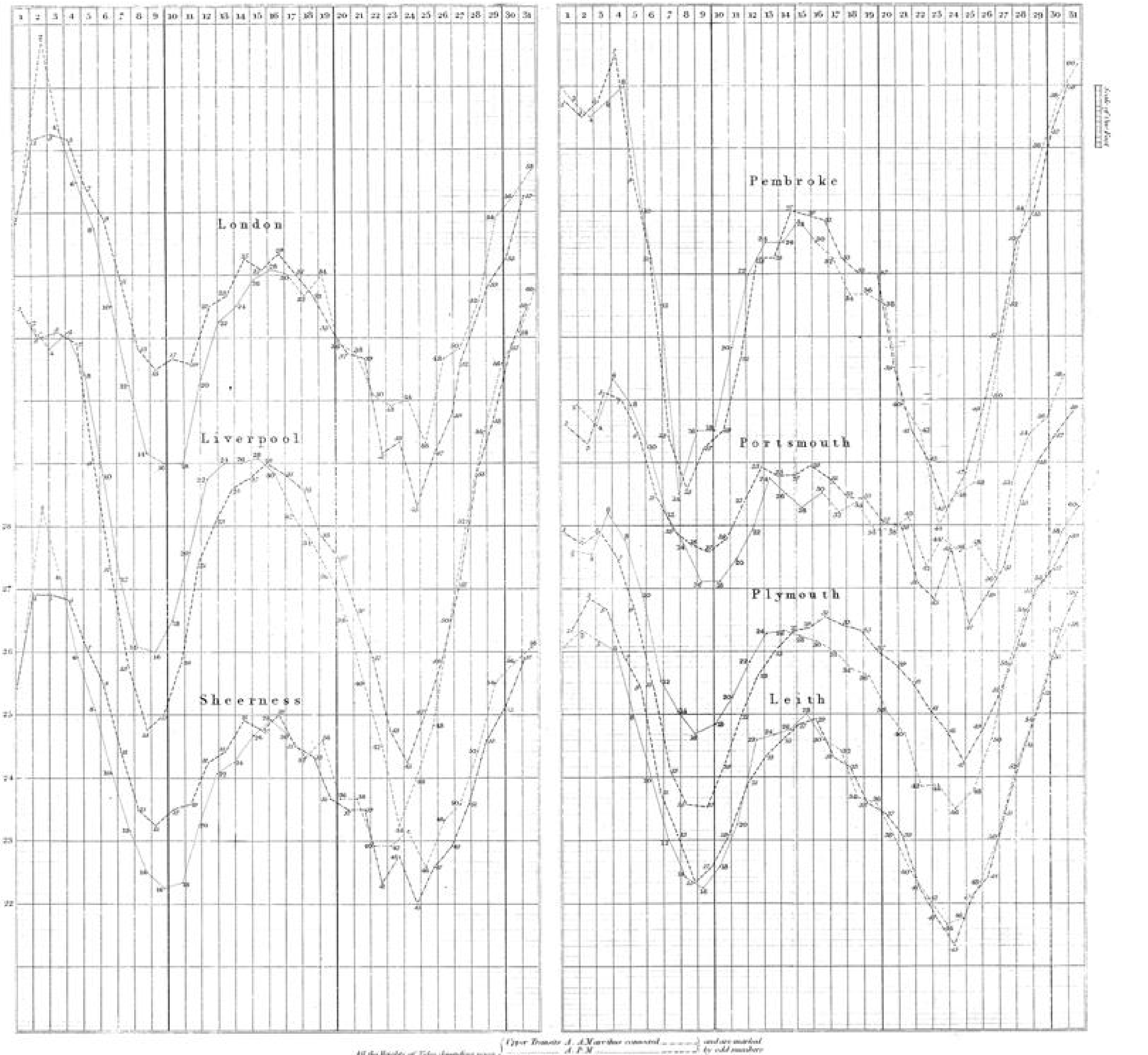


Theory —— *Observation*

London	19	Years	(13,510 Observations)
	35	Years	(24,302 Observations)
Liverpool	19	Years	(13,391 Observations)

In this comparison of the London and Liverpool results, the London corrections have been shifted to the left half an hour agreeably to the remark p.100 and the London height corrections have been multiplied by 1·7. The abscissa represents the apparent solar time of moon's transit A.

Heights of High Water in May 1836 — See Table XXXI.



All the Heights of Tides depending upon { Upper Transits A. A. M. are thus connected ------ / A. P. M. ------ } and are marked by odd numbers; { Lower Transits A. P. M. ------ / A. A. M. ------ } and are marked by even numbers

The Moons declination ...... from May 11th to May 20th. The Heights caused by the same Tide are marked with the same figures