

XLI. *A Letter to the Right Honourable the Earl of Macclesfield, President, the Council, and Fellows, of the Royal Society, concerning the Variation of the Magnetic Needle; with a Sett of Tables annexed, which exhibit the Result of upwards of Fifty Thousand Observations, in Six periodic Reviews, from the Year 1700 to the Year 1756, both inclusive; and are adapted to every Five Degrees of Latitude and Longitude in the more frequented Oceans. By William Mountaine and James Dodson, Fellows of the Royal Society.*

Dated London, Nov. 9th. 1757.

S I R S,

Read Nov. 10.
1757.

ON the 20th of March 1755, we presented an address to this illustrious Body, intituled, “ An Attempt to point out, “ in a concise manner, the Advantages which would “ accrue from a periodic Review of the Variation of “ the Magnetic Needle, throughout the known World; “ requesting contributions thereto, by communicating such observations concerning it, as had then “ been lately made, or could be procured from correspondents in foreign parts.”

This address was read at the same time, and afterwards honoured with a place in the Transactions, vol. xlviii. part ii. for 1754: which favour we now acknowledge in the most grateful manner; and, pur-

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fuant to our engagements, beg leave to lay before you some account of the communications received, with a specimen of the uses and applications which we have been enabled to make of those, and other assistances with which we have been indulged.

On application to the Honourable the Commissioners of the Navy, we were obliged with an order of free access to all their masters log-books and journals.

The Directors of the Honourable East India Company granted the like privilege.

The Honourable Committee of the Hudson's Bay Company obliged us with sundry observations, made, and tabulated, by their own Captains.

James Bradley, D. D. Regius Professor of Astronomy, and F. R. S. favoured us with several observations made at the Royal Observatory at Greenwich.

John Hyde, Esq; F. R. S. communicated a sett of useful observations, extracted from two journals kept on board the Triton and Britannia East Indiamen.

A correct journal kept on board the Delawar East Indiaman was handed to us by a gentleman unknown.

Capt. George Snow furnished a considerable number of observations, made with care and accuracy by himself, in several successive voyages to, and from Barbadoes and Virginia; together with several remarks upon the subject: *One*, which we apprehend to be material, we beg leave to insert, as it meets with some confirmation by the tables annexed; *viz.*

“ At Barbadoes the variation seems at a stand very
 “ near; for in the road, 1752, I observed 5 degrees
 “ east; and by Mr. Halley's draught, in the year
 “ 1701, $5\frac{1}{2}$ degrees: in 1747, at Port Royal keys,
 “ Jamaica, I observed the variation $7^{\circ} 20' E.$; and
 “ on the coast of Carthagen a the same week, off
 “ the

“ the high land of Sancta Martha, $7^{\circ} 45'$ E. nearly
 “ south of Port Royal : Therefore these curves are
 “ not much altered ; and the curve at Jamaica is
 “ nearly at a stand, as tho' tied ; and the south part
 “ of them, with the rest, dropping to the westward.”

Mr. Mungo Murray, author of a treatise on ship-building, presented us with several observations taken on board the Prince Edward and Chesterfield East Indiamen, and his Majesty's ship the Neptune.

For all these favours we return our sincere thanks.

No observations made upon land have been received, except Dr. Bradley's aforesaid ; which has frustrated our intentions of continuing the curves from sea to sea.

By collecting, comparing, and adjusting, all these materials, we have been enabled to construct variation-curves upon Dr. Halley's mercator-chart, adapted to the year 1756 ; which will soon be in readiness to present to this Royal Society.

As a work of this kind requires much time, and a multitude of observations, both by sea and land, to render it more perfect and general ; we hope the ingenious in all nations will lend their assistance : By this means every periodic review will be productive of improvement.

From the first instant that we made this affair the object of our more particular consideration, we have attended to the mode of increase and decrease in the variation : and as a considerable number of observations, made at periodic times, and duly registred, seem to be the most essential toward determining the laws of its mutation, or proving its irregularity, we have therefore formed a sett of tables, from actual observations collected for the years 1710, 1720, 1730, and 1744, the date of our last chart ; which, together

with Dr. Halley's for the year 1700, and the present chart now publishing, compleat six reviews: These are tabulated, and shew the quantity of the variation, at those several periods, to every 5 degrees of latitude and longitude in the more frequented oceans; which we hope will prove acceptable, as nothing of the like kind has yet appeared, or can easily be obtained.

Our materials have been so deficient, that even in the limits to which our tables are confined, we have been obliged to leave blanks in some of the above periods, for want of that concurrent testimony, on which the numbers inserted are founded: but, considering the difficulties unavoidably attending a work of this sort, and the little assistance which we have met with from private hands, we hope that this Royal Society will not only excuse those vacancies, but also those in the great tracts of sea, as well as land, concerning which we are very unwillingly obliged to be intirely silent.

Agreeable to our former address, we lay only what appear to be facts before you, without attempting to introduce any hypothesis for the solution of these phænomena; some of which (being very extraordinary) we recommend peculiarly to the notice of those gentlemen, who may endeavour the investigation of their causes.

Under the equator, in longitude 40° E. from London, the highest variation during the whole 56 years appears to be $17^{\circ} \frac{1}{4}$ W. and the least $16^{\circ} \frac{1}{2}$ W.: and in latitude 15° N. longitude 60° W. from London, the variation has been constantly 5° E. but in other places the case has been widely different; for in the latitude 10° S. longitude 60° E. from London, the variation has decreased from 17° W. to $7 \frac{1}{4}$ W.; and in latitude 10° S. longitude 5° W. from London, it
has

has increased from $2^{\circ}\frac{1}{4}$ W. to $12^{\circ}\frac{3}{4}$ W.; and in latitude 15° N. longitude 20° W. it has increased from 1° W. to 9° W.

But there is still a more extraordinary appearance in the Indian seas : for instance, under the equator.

Longitude from London	Variation in		Longitude from London	Variation in	
	1700.	1756.		1700.	1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
40 E	$16\frac{3}{4}$ W	$16\frac{3}{4}$ W	75 E	$9\frac{3}{4}$ W	1 W
45 E	$17\frac{3}{4}$ W	$14\frac{1}{2}$ W	80 E	$7\frac{3}{4}$ W	$0\frac{1}{4}$ E
50 E	$17\frac{1}{2}$ W	$11\frac{3}{4}$ W	85 E	$5\frac{1}{2}$ W	$1\frac{1}{4}$ E
55 E	$16\frac{1}{2}$ W	$8\frac{3}{4}$ W	90 E	$4\frac{1}{4}$ W	1 E
60 E	$15\frac{1}{4}$ W	6 W	95 E	$3\frac{1}{4}$ W	$0\frac{1}{2}$ W
65 E	$13\frac{1}{2}$ W	$4\frac{1}{2}$ W	100 E	$2\frac{1}{2}$ W	1 W
70 E	$11\frac{1}{2}$ W	$3\frac{1}{4}$ W			

Where the west variation in the longitude 40° E. is the same in both the above years ; and in 1700 the west variation seemed to be regularly decreasing from longitude 50° E. to the longitude 100° E. ; but in 1756 we find the west variation decreasing so fast, that we have east variation in the longitude 80° , 85° , and 90° E ; and yet, in the longitude 95° and 100° E. we have west variation again.

Such are the irregularities, that experience hath shewn us, in the variation of the magnetic needle ; which appear so considerable, that we cannot think it wholly under the direction of one general and uniform law ; but rather conclude, with the learned and judicious Dr. Gowen Knight, Fellow of this Society, in the 87th prop. of his treatise upon attraction and repulsion, That it is influenced by various and different magnetic

magnetic attractions, in all probability occasioned by the heterogeneous compositions in the great magnet, the *Earth*.

Notwithstanding all which, should the sagacity of some eminent philosopher be able to exhibit rules, whereby the quantity of the variation may be computed for future times, yet then such a review, as we have now made, will be necessary at a proper interval, to prove the truth of them : and should no such rules appear, then will a continued succession of such reviews be necessary so long as commerce and navigation subsist among us.

What we have now done is intirely for the public service, the sale of the former chart never having made good its expence ; and we propose to continue our endeavours for another review, at the proper time, if we shall then be alive, and capable of the task : but as the contrary may probably happen, we beg leave to conclude with recommending such a continuation, in the strongest manner, to such of the members of this Royal Society, or others, who may, at the proper intervals, have leisure and ability for such a performance.

We are, with the greatest deference,

Your Lordship's,

And the Royal Society's,

Most faithful and

most obedient Servants,

William Mountaine.

James Dodson.

A TABLE, exhibiting the different Variations of the MAGNETIC-NEEDLE in the more frequented Oceans, from the Year 1700 to the Year 1756.

		V A R I A T I O N.					
Lati- tude.	Longi- tude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
o	o	4 $\frac{1}{2}$ W			10 $\frac{1}{4}$ W	14 $\frac{1}{4}$ W	15 $\frac{1}{3}$ W
o	5 W	2 $\frac{3}{4}$ W			8 $\frac{3}{4}$ W	12 W	13 $\frac{1}{4}$ W
o	10 W	1 $\frac{1}{2}$ W	3 $\frac{1}{2}$ W	5 $\frac{1}{2}$ W	7 W	10 W	11 W
o	15 W	o $\frac{1}{2}$ W	2 W	3 $\frac{1}{2}$ W	5 W	7 $\frac{1}{2}$ W	9 W
o	20 W	o $\frac{3}{4}$ E	o $\frac{1}{2}$ W	1 $\frac{3}{4}$ W	3 W	5 $\frac{1}{4}$ W	6 $\frac{1}{2}$ W
o	25 W	1 $\frac{1}{2}$ E	o $\frac{1}{2}$ E	o $\frac{1}{2}$ W	1 $\frac{1}{2}$ W	3 W	4 W
o	30 W	2 $\frac{1}{2}$ E	2 E	1 $\frac{1}{2}$ E	1 E	o $\frac{3}{4}$ W	o $\frac{1}{2}$ W
o	35 W	3 $\frac{1}{4}$ E	3 E	2 $\frac{3}{4}$ E	2 $\frac{1}{2}$ E	1 $\frac{1}{2}$ E	1 $\frac{1}{2}$ E
o	40 W	4 $\frac{1}{4}$ E	4 $\frac{1}{4}$ E	4 E	3 $\frac{1}{4}$ E	3 $\frac{1}{2}$ E	3 $\frac{1}{2}$ E
o	45 W	5 $\frac{1}{2}$ E	5 $\frac{1}{2}$ E	5 $\frac{1}{4}$ E	5 E	4 $\frac{3}{4}$ E	5 E
o	50 W	6 $\frac{1}{4}$ E			5 $\frac{3}{4}$ E	6 E	6 $\frac{1}{2}$ E
o	5 E	6 W			12 $\frac{1}{2}$ W	15 $\frac{3}{4}$ W	16 $\frac{1}{2}$ W
o	10 E	7 $\frac{3}{4}$ W			14 $\frac{1}{4}$ W	17 W	17 $\frac{1}{2}$ W
o	40 E	16 $\frac{1}{4}$ W	17 W	17 $\frac{1}{4}$ W	17 W	16 $\frac{1}{2}$ W	16 $\frac{3}{4}$ W
o	45 E	17 $\frac{3}{4}$ W	17 $\frac{1}{4}$ W	16 $\frac{3}{4}$ W	16 $\frac{1}{4}$ W	15 $\frac{3}{4}$ W	14 $\frac{1}{2}$ W
o	50 E	17 $\frac{1}{2}$ W	16 $\frac{3}{4}$ W	16 W	15 W	14 W	11 $\frac{3}{4}$ W
o	55 E	16 $\frac{1}{2}$ W	15 $\frac{1}{4}$ W	14 W	13 W	11 $\frac{1}{2}$ W	8 $\frac{3}{4}$ W
o	60 E	15 $\frac{1}{4}$ W	13 $\frac{3}{4}$ W	12 $\frac{1}{2}$ W	11 W	9 W	6 W
o	65 E	13 $\frac{1}{2}$ W	11 $\frac{3}{4}$ W	10 W	8 $\frac{1}{4}$ W	6 $\frac{1}{2}$ W	4 $\frac{1}{2}$ W
o	70 E	11 $\frac{1}{2}$ W	9 $\frac{3}{4}$ W	7 $\frac{3}{4}$ W	6 W	4 W	3 $\frac{1}{4}$ W
o	75 E	9 $\frac{3}{4}$ W	7 $\frac{3}{4}$ W	5 $\frac{3}{4}$ W	4 W	1 $\frac{3}{4}$ W	1 W
o	80 E	7 $\frac{1}{4}$ W	6 W	4 $\frac{1}{4}$ W	3 W	o $\frac{1}{4}$ W	o $\frac{1}{4}$ E
o	85 E	5 $\frac{1}{2}$ W	4 W	2 $\frac{1}{2}$ W	1 $\frac{1}{2}$ W	o $\frac{1}{4}$ E	1 $\frac{1}{4}$ E

V A R I A T I O N .

Latitude.	Longitude, From London.	V A R I A T I O N .					
Degrees.	Degrees.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
0	90 E.	4 $\frac{1}{4}$ W	3 $\frac{1}{2}$ W	1 $\frac{1}{2}$ W	0 $\frac{1}{2}$ W	1 $\frac{1}{4}$ W	1 E
0	95 E.	3 $\frac{1}{4}$ W	2 $\frac{1}{4}$ W			2 W	0 $\frac{1}{2}$ W
0	100 E.	2 $\frac{1}{2}$ W	1 W			2 $\frac{1}{2}$ W	1 W
5 N	0	4 $\frac{3}{4}$ W			10 $\frac{1}{2}$ W	15 W	15 $\frac{1}{4}$ W
5 N	5 W	3 $\frac{1}{4}$ W			9 W	13 W	13 W
5 N	10 W	1 $\frac{3}{4}$ W			7 $\frac{1}{2}$ W	10 $\frac{3}{4}$ W	11 $\frac{1}{4}$ W
5 N	15 W	0 $\frac{3}{4}$ W	2 $\frac{1}{4}$ W	3 $\frac{3}{4}$ W	5 $\frac{1}{2}$ W	8 $\frac{1}{2}$ W	9 $\frac{1}{4}$ W
5 N	20 W	0	1 $\frac{1}{2}$ W	2 $\frac{1}{2}$ W	3 $\frac{1}{2}$ W	6 W	7 $\frac{1}{4}$ W
5 N	25 W	1 E	0	1 W	2 W	3 $\frac{1}{4}$ W	4 $\frac{1}{2}$ W
5 N	30 W	1 $\frac{3}{4}$ E	1 $\frac{1}{4}$ E	0 $\frac{1}{2}$ E	0 $\frac{1}{4}$ W	1 $\frac{1}{2}$ W	1 $\frac{1}{2}$ W
5 N	35 W	2 $\frac{1}{2}$ E	2 $\frac{1}{4}$ E	1 $\frac{3}{4}$ E	1 $\frac{1}{2}$ E	0 $\frac{1}{2}$ E	0 $\frac{1}{2}$ E
5 N	40 W	3 $\frac{1}{2}$ E	3 $\frac{1}{4}$ E	3 E	2 $\frac{1}{2}$ E	2 $\frac{1}{4}$ E	2 $\frac{1}{4}$ E
5 N	45 W	4 $\frac{1}{2}$ E	4 $\frac{1}{4}$ E	4 $\frac{1}{4}$ E	4 E	3 $\frac{3}{4}$ E	4 E
5 N	50 W	5 $\frac{1}{2}$ E	5 $\frac{1}{2}$ E	5 $\frac{1}{4}$ E	5 $\frac{1}{4}$ E	5 E	5 $\frac{1}{4}$ E
5 N	55 W	6 $\frac{3}{4}$ E				6 $\frac{1}{4}$ E	6 $\frac{1}{2}$ E
5 N	5 E	6 $\frac{1}{4}$ W			12 $\frac{3}{4}$ W	16 $\frac{1}{4}$ W	16 $\frac{1}{2}$ W
5 N	10 E	7 $\frac{3}{4}$ W			14 $\frac{1}{4}$ W	17 $\frac{1}{2}$ W	17 $\frac{1}{2}$ W
5 N	45 E	16 $\frac{3}{4}$ W	16 W	15 $\frac{1}{4}$ W	14 $\frac{3}{4}$ W	14 W	13 $\frac{1}{2}$ W
5 N	50 E	16 $\frac{3}{4}$ W	15 $\frac{3}{4}$ W	14 $\frac{3}{4}$ W	13 $\frac{1}{2}$ W	12 $\frac{1}{4}$ W	11 W
5 N	55 E	15 $\frac{1}{2}$ W	14 $\frac{1}{4}$ W	13 W	12 W	10 W	8 $\frac{1}{4}$ W
5 N	60 E	14 $\frac{1}{4}$ W	12 $\frac{3}{4}$ W	11 $\frac{1}{4}$ W	10 W	8 $\frac{1}{4}$ W	6 W
5 N	65 E	12 $\frac{3}{4}$ W	11 W	9 $\frac{1}{2}$ W	8 W	6 W	4 $\frac{1}{2}$ W
5 N	70 E	10 $\frac{3}{4}$ W	9 W	7 $\frac{1}{4}$ W	5 $\frac{1}{2}$ W	3 $\frac{3}{4}$ W	2 $\frac{3}{4}$ W
5 N	75 E	8 $\frac{3}{4}$ W	7 W	5 $\frac{1}{4}$ W	3 $\frac{3}{4}$ W	1 $\frac{1}{4}$ W	0 $\frac{3}{4}$ W
5 N	80 E	6 $\frac{1}{2}$ W	5 W	3 $\frac{1}{2}$ W	2 $\frac{1}{2}$ W	0 $\frac{1}{4}$ W	0 $\frac{1}{4}$ E
5 N	85 E	4 $\frac{1}{4}$ W	3 $\frac{1}{4}$ W	2 $\frac{1}{4}$ W	1 $\frac{1}{2}$ W	0 $\frac{1}{4}$ W	1 $\frac{1}{4}$ E
5 N	90 E	3 $\frac{3}{4}$ W				1 $\frac{1}{4}$ W	0 $\frac{1}{2}$ E
5 N	95 E	2 $\frac{3}{4}$ W				2 $\frac{1}{4}$ W	0 $\frac{1}{2}$ W

V A R I A T I O N .

Latitude.	Longitude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
10 N	15 W	1 $\frac{1}{4}$ W		4 $\frac{1}{2}$ W	6 W	9 $\frac{1}{4}$ W	10 W
10 N	20 W	0 $\frac{1}{2}$ W	2 W	3 $\frac{1}{4}$ W	4 $\frac{1}{2}$ W	7 W	8 W
10 N	25 W	0 $\frac{1}{4}$ E	0 $\frac{3}{4}$ W	1 $\frac{3}{4}$ W	2 $\frac{1}{2}$ W	4 $\frac{1}{2}$ W	5 $\frac{1}{2}$ W
10 N	30 W	1 E	0 $\frac{1}{2}$ E	0	1 W	2 $\frac{1}{4}$ W	3 W
10 N	35 W	1 $\frac{3}{4}$ E	1 $\frac{1}{4}$ E	0 $\frac{3}{4}$ E	0 $\frac{1}{4}$ E	0 $\frac{1}{2}$ W	1 W
10 N	40 W	2 $\frac{1}{2}$ E	2 $\frac{1}{4}$ E	2 E	1 $\frac{3}{4}$ E	1 $\frac{1}{4}$ E	1 E
10 N	45 W	3 $\frac{1}{2}$ E	3 $\frac{1}{2}$ E	3 $\frac{1}{4}$ E	3 E	2 $\frac{1}{4}$ E	2 $\frac{1}{2}$ E
10 N	50 W	4 $\frac{1}{2}$ E	4 $\frac{1}{2}$ E	4 $\frac{1}{4}$ E	4 $\frac{1}{4}$ E	4 E	4 E
10 N	55 W	5 $\frac{1}{2}$ E	5 $\frac{1}{2}$ E	5 $\frac{1}{2}$ E	5 $\frac{1}{4}$ E	5 $\frac{1}{4}$ E	5 $\frac{1}{2}$ E
10 N	60 W	6 $\frac{1}{2}$ E				6 $\frac{1}{2}$ E	6 $\frac{3}{4}$ E
10 N	50 E	16 W	15 W	14 W	12 $\frac{3}{4}$ W	11 $\frac{1}{4}$ W	10 $\frac{1}{2}$ W
10 N	55 E	15 W	13 $\frac{1}{2}$ W	12 W	11 W	9 $\frac{1}{4}$ W	8 W
10 N	60 E	13 $\frac{1}{2}$ W	12 W	10 $\frac{1}{2}$ W	9 $\frac{1}{4}$ W	7 $\frac{3}{4}$ W	6 W
10 N	65 E	12 W	10 $\frac{3}{4}$ W	9 W	7 $\frac{1}{2}$ W	6 W	4 $\frac{1}{2}$ W
10 N	70 E	10 W	8 $\frac{3}{4}$ W	6 $\frac{1}{2}$ W	5 W	3 $\frac{3}{4}$ W	3 W
10 N	75 E	8 W	6 $\frac{1}{2}$ W	5 W	3 $\frac{1}{2}$ W	1 $\frac{3}{4}$ W	1 E
10 N	80 E	5 $\frac{1}{4}$ W	4 $\frac{1}{2}$ W	3 $\frac{1}{4}$ W	2 W	0 $\frac{1}{2}$ W	0 $\frac{1}{4}$ E
10 N	85 E	4 $\frac{1}{2}$ W	3 $\frac{1}{2}$ W	2 $\frac{1}{4}$ W	1 $\frac{1}{4}$ W	0	1 E
10 N	90 E	3 $\frac{1}{2}$ W				1 $\frac{1}{2}$ W	0 $\frac{1}{2}$ E
10 N	95 E	2 $\frac{1}{2}$ W				2 $\frac{1}{4}$ W	0 $\frac{1}{2}$ W
15 N	20 W	1 W	2 $\frac{1}{2}$ W	4 W	5 $\frac{1}{2}$ W	7 W	9 W
15 N	25 W	0 $\frac{1}{2}$ W	1 $\frac{1}{2}$ W	2 $\frac{1}{2}$ W	3 $\frac{1}{2}$ W	4 $\frac{3}{4}$ W	6 $\frac{1}{2}$ W
15 N	30 W	0 $\frac{1}{4}$ E	0 $\frac{1}{4}$ W	1 W	1 $\frac{1}{4}$ W	2 $\frac{3}{4}$ W	4 $\frac{1}{2}$ W
15 N	35 W	1 E	0 $\frac{1}{2}$ E	0	0 $\frac{1}{2}$ W	1 $\frac{1}{4}$ W	3 $\frac{1}{2}$ W
15 N	40 W	1 $\frac{1}{2}$ E	1 $\frac{1}{4}$ E	1 E	0 $\frac{1}{2}$ E	0	0 $\frac{1}{2}$ W
15 N	45 W	2 $\frac{1}{4}$ E	2 $\frac{1}{4}$ E	2 E	1 $\frac{1}{4}$ E	1 $\frac{1}{2}$ E	1 E
15 N	50 W	3 $\frac{1}{4}$ E	3 $\frac{1}{4}$ E	3 $\frac{1}{4}$ E	3 E	2 $\frac{3}{4}$ E	2 $\frac{1}{2}$ E
15 N	55 W	4 E	4 E	4 E	4 E	4 E	3 $\frac{3}{4}$ E

VARIATION.

Latitude.	Longitude, From London.	VARIATION.					
		Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
15 N	60 W	5 E	5 E	5 E	5 E	5 E	5 E
15 N	65 W	6 E			5 E	6 E	6 E
15 N	70 W	7 E			5½ E	6¾ E	7 E
15 N	75 W	7¾ E				7 E	7¾ E
15 N	80 W	8¼ E				7 E	8 E
15 N	50 E	15½ W	14¼ W	13 W	11¾ W	10½ W	9¾ W
15 N	55 E	14¾ W	12¾ W	11½ W	10¾ W	8¾ W	7¾ W
15 N	60 E	13 W	11¾ W	10¼ W	9 W	7½ W	6 W
15 N	65 E	11½ W	10 W	8¾ W	7½ W	6 W	4½ W
15 N	70 E	9¾ W	8¼ W	6¾ W	5½ W	4 W	2¾ W
15 N	75 E	8 W	6½ W	5 W	3½ W	2½ W	0¾ W
15 N	80 E	5¾ W	4½ W	3½ W	2½ W	1¼ W	0
15 N	85 E	4¼ W	3¼ W	2¼ W	1 W	0¼ W	0¾ E
15 N	90 E	3¼ W	2½ W	1¼ W		0¾ W	0½ E
15 N	95 E	2½ W	1½ W			2¼ W	0½ W
20 N	20 W	1½ W	3 W	4¼ W	5¼ W	7 W	10 W
20 N	25 W	1 W	2 W	2¾ W	3½ W	4¾ W	8 W
20 N	30 W	0½ W	1 W	1½ W	2¼ W	3¼ W	5¾ W
20 N	35 W	0¼ E	0¼ W	0¾ W	1½ W	2¼ W	4 W
20 N	40 W	0¾ E	¼ E	0	0½ W	1 W	2½ W
20 N	45 W	1½ E	1¼ E	1 E	¾ E	0¼ E	0¾ W
20 N	50 W	2 E	2 E	1¾ E	1½ E	1¼ E	0¾ E
20 N	55 W	2¾ E	2¾ E	2¾ E	2½ E	2½ E	2 E
20 N	60 W	3¾ E	3¾ E	3¾ E	3½ E	3½ E	3¼ E
20 N	65 W	4¾ E				4¼ E	4 E
20 N	70 W	5½ E				5 E	5 E
20 N	75 W	6¼ E				5¼ E	5¼ E
20 N	80 W	7 E				5¼ E	6 E

V A R I A T I O N .

Lati- tude.	Longi- tude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
20 N	60 E	12 $\frac{3}{4}$ W	11 $\frac{1}{4}$ W	10 W	9 W	7 $\frac{1}{2}$ W	6 W
20 N	65 E	11 $\frac{1}{2}$ W	10 W	8 $\frac{1}{2}$ W	7 $\frac{1}{4}$ W	6 W	4 $\frac{1}{2}$ W
20 N	70 E	9 $\frac{3}{4}$ W	8 $\frac{1}{2}$ W	7 W	5 $\frac{3}{4}$ W	4 $\frac{1}{2}$ W	2 $\frac{3}{4}$ W
20 N	90 E	3 $\frac{1}{2}$ W	2 $\frac{1}{2}$ W	1 $\frac{1}{2}$ W	1 W	0 $\frac{1}{2}$ W	1 E
25 N	20 W	2 W	3 $\frac{1}{4}$ W	4 W	5 $\frac{1}{4}$ W	7 W	11 W
25 N	25 W	1 $\frac{3}{4}$ W	2 $\frac{3}{4}$ W	2 $\frac{3}{4}$ W	4 W	5 $\frac{1}{4}$ W	9 $\frac{1}{2}$ W
25 N	30 W	1 $\frac{1}{4}$ W	1 $\frac{3}{4}$ W	2 $\frac{1}{4}$ W	3 W	4 W	7 $\frac{1}{2}$ W
25 N	35 W	1 W	1 $\frac{1}{2}$ W	2 W	2 $\frac{1}{2}$ W	3 W	5 $\frac{1}{2}$ W
25 N	40 W	0 $\frac{1}{2}$ W	0 $\frac{3}{4}$ W	1 W	1 $\frac{1}{2}$ W	2 $\frac{1}{4}$ W	3 $\frac{3}{4}$ W
25 N	45 W	0 $\frac{1}{4}$ E	0	0 $\frac{1}{2}$ W	1 W	1 $\frac{1}{2}$ W	2 $\frac{1}{2}$ W
25 N	50 W	0 $\frac{3}{4}$ E	0 $\frac{1}{2}$ E	0 $\frac{1}{4}$ E	0	0 $\frac{1}{2}$ W	1 W
25 N	55 W	1 $\frac{1}{2}$ E	1 E	1 E	$\frac{3}{4}$ E	0 $\frac{1}{2}$ E	0
25 N	60 W	2 E	2 E	2 E	1 $\frac{1}{2}$ E	1 $\frac{1}{2}$ E	1 $\frac{1}{4}$ E
25 N	65 W	2 $\frac{3}{4}$ E				2 $\frac{1}{4}$ E	2 $\frac{1}{4}$ E
25 N	70 W	3 $\frac{1}{2}$ E				3 $\frac{1}{4}$ E	2 $\frac{3}{4}$ E
25 N	75 W	4 $\frac{1}{4}$ E				3 $\frac{1}{2}$ E	3 E
25 N	80 W	4 $\frac{3}{4}$ E				3 $\frac{1}{2}$ E	3 E
25 N	60 E	12 $\frac{3}{4}$ W	11 $\frac{1}{2}$ W	10 $\frac{1}{4}$ W	9 W	7 $\frac{1}{2}$ W	6 W
25 N	65 E	11 $\frac{1}{2}$ W	10 $\frac{1}{4}$ W	9 W	7 $\frac{1}{2}$ W	6 W	4 $\frac{1}{2}$ W
25 N	70 E	10 W	8 $\frac{3}{4}$ W	7 $\frac{1}{2}$ W	6 W	4 $\frac{1}{2}$ W	2 $\frac{3}{4}$ W
30 N	10 W	3 $\frac{1}{2}$ W				11 $\frac{1}{2}$ W	13 $\frac{3}{4}$ W
30 N	15 W	3 $\frac{1}{4}$ W				10 $\frac{1}{4}$ W	12 $\frac{3}{4}$ W
30 N	20 W	3 W	4 $\frac{1}{4}$ W	5 $\frac{1}{2}$ W	6 $\frac{1}{4}$ W	8 $\frac{1}{4}$ W	12 W
30 N	25 W	2 $\frac{3}{4}$ W	3 $\frac{1}{2}$ W	4 $\frac{1}{4}$ W	5 $\frac{1}{2}$ W	6 $\frac{3}{4}$ W	10 $\frac{3}{4}$ W
30 N	30 W	2 $\frac{1}{2}$ W	3 W	3 $\frac{1}{2}$ W	4 $\frac{1}{4}$ W	5 $\frac{1}{4}$ W	9 W
30 N	35 W	2 $\frac{1}{4}$ W	2 $\frac{3}{4}$ W	3 $\frac{1}{4}$ W	3 $\frac{3}{4}$ W	4 $\frac{1}{4}$ W	7 W
30 N	40 W	1 $\frac{3}{4}$ W	2 W	2 $\frac{1}{2}$ W	3 W	3 $\frac{1}{2}$ W	5 $\frac{1}{4}$ W
30 N	45 W	1 $\frac{1}{4}$ W	1 $\frac{1}{2}$ W	2 W	2 $\frac{1}{4}$ W	2 $\frac{3}{4}$ W	4 W

V A R I A T I O N.

Latitude.	Longitude, From London.	V A R I A T I O N.					
		Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
30 N	50 W	0 $\frac{3}{4}$ W	1 W	1 $\frac{1}{2}$ W	1 $\frac{3}{4}$ W	2 $\frac{1}{4}$ W	3 W
30 N	55 W	0 $\frac{1}{4}$ W	$\frac{1}{2}$ W	1 W	1 $\frac{1}{4}$ W	1 $\frac{1}{2}$ W	2 $\frac{1}{4}$ W
30 N	60 W	0 $\frac{3}{4}$ E	0	$\frac{1}{4}$ W	0 $\frac{1}{2}$ W	1 W	1 $\frac{1}{2}$ W
30 N	65 W	0 $\frac{3}{4}$ E	$\frac{1}{2}$ E	$\frac{1}{4}$ E	0	$\frac{1}{4}$ W	1 W
30 N	70 W	1 $\frac{1}{2}$ E	1 $\frac{1}{4}$ E	1 E	$\frac{1}{4}$ E	$\frac{1}{4}$ E	$\frac{1}{2}$ W
30 N	75 W	2 E	1 $\frac{1}{2}$ E	1 $\frac{1}{4}$ E	1 E	$\frac{1}{2}$ E	0
30 N	80 W	2 $\frac{1}{4}$ E				$\frac{3}{4}$ E	0
35 N	10 W	4 $\frac{1}{4}$ W			9 $\frac{3}{4}$ W	12 $\frac{1}{4}$ W	14 $\frac{1}{4}$ W
35 N	15 W	4 W			9 $\frac{1}{4}$ W	11 $\frac{1}{2}$ W	13 $\frac{3}{4}$ W
35 N	20 W	4 W			8 $\frac{1}{4}$ W	10 $\frac{1}{4}$ W	13 W
35 N	25 W	3 $\frac{3}{4}$ W	4 $\frac{3}{4}$ W	6 W	7 $\frac{1}{2}$ W	9 W	12 $\frac{1}{4}$ W
35 N	30 W	3 $\frac{3}{4}$ W	4 $\frac{1}{2}$ W	5 $\frac{1}{2}$ W	6 $\frac{3}{4}$ W	8 W	10 $\frac{1}{2}$ W
35 N	35 W	3 $\frac{3}{4}$ W	4 $\frac{1}{4}$ W	5 $\frac{1}{4}$ W	6 W	7 W	8 $\frac{3}{4}$ W
35 N	40 W	3 $\frac{3}{4}$ W	4 W	4 $\frac{1}{2}$ W	5 $\frac{1}{4}$ W	6 $\frac{1}{4}$ W	7 $\frac{1}{4}$ W
35 N	45 W	3 $\frac{1}{2}$ W	3 $\frac{3}{4}$ W	4 $\frac{1}{4}$ W	4 $\frac{3}{4}$ W	5 $\frac{1}{2}$ W	6 $\frac{1}{4}$ W
35 N	50 W	3 $\frac{1}{2}$ W	3 $\frac{3}{4}$ W	4 W	4 $\frac{1}{4}$ W	5 W	5 $\frac{1}{2}$ W
35 N	55 W	3 $\frac{1}{2}$ W	3 $\frac{3}{4}$ W	4 W	4 $\frac{1}{4}$ W	4 $\frac{3}{4}$ W	5 W
35 N	60 W	3 $\frac{1}{4}$ W	3 $\frac{3}{4}$ W	4 W	4 $\frac{1}{4}$ W	5 W	5 $\frac{1}{4}$ W
35 N	65 W	3 W				5 $\frac{1}{4}$ W	6 W
35 N	70 W	2 $\frac{1}{2}$ W				5 $\frac{3}{4}$ W	6 $\frac{3}{4}$ W
35 N	75 W	2 $\frac{1}{4}$ W				6 $\frac{1}{2}$ W	7 W
40 N	10 W	5 W			10 $\frac{3}{4}$ W	13 $\frac{1}{4}$ W	15 W
40 N	15 W	5 $\frac{1}{4}$ W			10 $\frac{1}{2}$ W	12 $\frac{3}{4}$ W	14 $\frac{1}{2}$ W
40 N	20 W	5 $\frac{1}{4}$ W			10 W	12 $\frac{1}{4}$ W	14 $\frac{1}{4}$ W
40 N	25 W	5 $\frac{1}{2}$ W			9 $\frac{1}{2}$ W	11 $\frac{1}{4}$ W	13 $\frac{1}{2}$ W
40 N	30 W	5 $\frac{3}{4}$ W	6 $\frac{3}{4}$ W	8 W	9 W	10 $\frac{1}{4}$ W	12 $\frac{3}{4}$ W
40 N	35 W	5 $\frac{3}{4}$ W	6 $\frac{1}{2}$ W	7 $\frac{1}{4}$ W	8 $\frac{1}{4}$ W	9 $\frac{1}{2}$ W	11 $\frac{1}{4}$ W
40 N	40 W	5 $\frac{3}{4}$ W	6 $\frac{1}{4}$ W	7 $\frac{1}{4}$ W	8 W	9 W	10 W

VARIATION.

Latitude.	Longitude, From London.	VARIATION.					
		Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
40 N	45 W	6 W			7½ W	8½ W	9½ W
40 N	50 W	6¼ W			7¾ W	8½ W	9½ W
40 N	55 W	6½ W			7¾ W	8¾ W	10 W
40 N	60 W	6¾ W			8 W	9¼ W	11 W
40 N	65 W	7 W			8½ W	10¼ W	12 W
40 N	70 W	7 W			9 W	11½ W	12¾ W
45 N	5 W	6 W			12½ W	15½ W	16½ W
45 N	10 W	6½ W			12¼ W	15 W	16½ W
45 N	15 W	6¾ W			11¾ W	14¾ W	16½ W
45 N	20 W	7 W			11½ W	14½ W	16 W
45 N	25 W	7½ W			11½ W	14 W	16 W
45 N	30 W	8 W			11¾ W	13¾ W	15¾ W
45 N	35 W	8¾ W			11¾ W	13¾ W	15¾ W
45 N	40 W	9½ W			12 W	13 W	15 W
45 N	45 W	10½ W			12¾ W	13¾ W	15½ W
45 N	50 W	11½ W			13½ W	14 W	16 W
45 N	55 W	12½ W			14 W	15¼ W	17 W
45 N	60 W	13¾ W			14 W	16 W	18½ W
50 N	5 W	7½ W				17 W	19¼ W
50 N	10 W	7¾ W				17¾ W	19½ W
50 N	15 W	8½ W				17½ W	20 W
50 N	20 W	9 W				17½ W	20½ W
50 N	25 W	9¾ W				17¾ W	21 W
5 S	0	4¼ W			10 W	13¼ W	15 W
5 S	5 W	2½ W			8½ W	11½ W	13 W
5 S	10 W	1 W	3 W	4¾ W	6½ W	9¼	10¾ W
5 S	15 W	0	1½ W	3 W	4½ W	6¾ W	8½ W
5 S	20 W	1¼ E	0¼ E	0¾ W	2¼ W	4 W	6 W

V A R I A T I O N.							
Latitude.	Longitude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
5 S	25 W	2¼ E	1¼ E	0¼ E	0¾ W	2 W	3 W
5 S	30 W	3¼ E	2¼ E	1¾ E	1 E	0¼ E	0
5 S	35 W	4¼ E	4 E	3½ E	3¾ E	2¾ E	2¾ E
5 S	5 E	6 W			12½ W	15 W	16 W
5 S	10 E	7½ W			14¼ W	16½ W	17 W
5 S	40 E	18 W	17¾ W	17¾ W	17½ W	17½ W	17 W
5 S	45 E	18½ W	18¼ W	18 W	17½ W	17 W	16 W
5 S	50 E	18½ W	17¾ W	17 W	16¾ W	15½ W	12¾ W
5 S	55 E	17½ W	16½ W	15½ W	14¾ W	13 W	9¼ W
5 S	60 E	16¾ W	14¾ W	13¾ W	12 W	10 W	6½ W
5 S	65 E	14¾ W	12¾ W	10¾ W	9 W	7 W	4½ W
5 S	70 E	13 W	11 W	9 W	6¾ W	4½ W	3 W
5 S	75 E	11 W	9 W	7 W	5 W	2½ W	1 W
5 S	80 E	9 W	7 W	5 W	3 W	0¾ W	0
5 S	85 E	7 W	5½ W	3¾ W	2½ W	0½ W	0¾ E
5 S	90 E	5 W	4½ W	2¾ W	2 W	1¼ W	0¾ E
5 S	95 E	3¾ W	3½ W	1½ W	1½ W	2 W	0½ W
5 S	100 E	3 W	2½ W	1½ W	1 W	2¾ W	1½ W
10 S	0	3¾ W			9½ W	12½ W	14¼ W
10 S	5 W	2¼ W	4¼ W	6½ W	8½ W	10½ W	12¾ W
10 S	10 W	0¾ W	2¾ W	4¾ W	6½ W	8½ W	10¾ W
10 S	15 W	½ E	1 W	2½ W	4 W	5¾ W	7¾ W
10 S	20 W	1¾ E	0½ E	0	1½ W	3 W	4¾ W
10 S	25 W	3 E	2½ E	1¾ E	0¾ E	0¾ W	2 W
10 S	30 W	4 E	3½ E	3 E	2½ E	1¾ E	1 E
10 S	35 W	5½ E	5 E	4¾ E	4½ W	4 E	3½ E
10 S	5 E	5¾ W			12 W	14½ W	15½ W
10 S	10 E	7½ W			14 W	16 W	16¾ W

VARIATION.

Latitude.	Longitude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degr.es.	Degr.es.
10 S	15 E	9 $\frac{1}{4}$ W			15 $\frac{1}{2}$ W	17 $\frac{3}{4}$ W	17 $\frac{3}{4}$ W
10 S	40 E	18 $\frac{3}{4}$ W	18 $\frac{3}{4}$ W	18 $\frac{3}{4}$ W	18 $\frac{3}{4}$ W	19 W	19 $\frac{1}{4}$ W
10 S	45 E	19 $\frac{1}{2}$ W	19 $\frac{1}{2}$ W	19 W	18 $\frac{3}{4}$ W	18 $\frac{1}{2}$ W	18 W
10 S	50 E	19 $\frac{1}{2}$ W	19 W	18 $\frac{1}{2}$ W	17 $\frac{3}{4}$ W	16 $\frac{3}{4}$ W	14 $\frac{1}{4}$ W
10 S	55 E	18 $\frac{1}{2}$ W	17 $\frac{1}{2}$ W	16 $\frac{1}{2}$ W	15 $\frac{1}{2}$ W	14 $\frac{1}{2}$ W	10 $\frac{1}{2}$ W
10 S	60 E	17 W	16 W	15 W	14 W	11 $\frac{1}{2}$ W	7 $\frac{1}{2}$ W
10 S	65 E	15 $\frac{3}{4}$ W	13 $\frac{3}{4}$ W	11 $\frac{1}{2}$ W	10 W	8 W	5 W
10 S	70 E	14 $\frac{1}{2}$ W	12 W	10 W	8 W	5 $\frac{1}{2}$ W	3 $\frac{1}{2}$ W
10 S	75 E	12 $\frac{1}{2}$ W	10 $\frac{1}{4}$ W	9 W	5 $\frac{3}{4}$ W	3 $\frac{1}{2}$ W	2 W
10 S	80 E	10 $\frac{1}{2}$ W	8 W	5 $\frac{1}{2}$ W	4 W	1 $\frac{3}{4}$ W	1 W
10 S	85 E	8 $\frac{1}{2}$ W	6 $\frac{3}{4}$ W	5 W	3 $\frac{3}{4}$ W	1 $\frac{1}{2}$ W	0 $\frac{1}{4}$ W
10 S	90 E	6 $\frac{3}{4}$ W	5 $\frac{1}{2}$ W	4 $\frac{1}{4}$ W	3 W	1 $\frac{3}{4}$ W	0 $\frac{1}{4}$ W
10 S	95 E	5 W	4 $\frac{1}{2}$ W	4 W	3 $\frac{1}{4}$ W	2 $\frac{1}{2}$ W	1 W
10 S	100 E	3 $\frac{3}{4}$ W	3 $\frac{1}{2}$ W	3 $\frac{1}{4}$ W	3 W	2 $\frac{3}{4}$ W	2 W
10 S	105 E	2 $\frac{3}{4}$ W	2 $\frac{3}{4}$ W	2 $\frac{1}{2}$ W	2 $\frac{1}{2}$ W	3 $\frac{1}{4}$ W	2 $\frac{1}{4}$ W
10 S	110 E	2 W				3 $\frac{3}{4}$ W	3 $\frac{1}{4}$ W
15 S	0	3 $\frac{1}{2}$ W	5 $\frac{1}{2}$ W	7 $\frac{1}{2}$ W	9 $\frac{1}{2}$ W	11 $\frac{1}{4}$ W	14 W
15 S	5 W	1 $\frac{1}{4}$ W	3 $\frac{1}{4}$ W	5 $\frac{3}{4}$ W	7 $\frac{1}{4}$ W	9 $\frac{1}{2}$ W	12 W
15 S	10 W	$\frac{1}{4}$ W	2 W	3 $\frac{3}{4}$ W	5 $\frac{1}{2}$ W	7 $\frac{1}{2}$ W	9 $\frac{1}{2}$ W
15 S	15 W	1 $\frac{1}{4}$ E	0 $\frac{1}{4}$ W	1 $\frac{1}{4}$ W	3 $\frac{1}{4}$ W	4 $\frac{1}{4}$ W	7 W
15 S	20 W	2 $\frac{1}{4}$ E	1 $\frac{1}{2}$ E	0 $\frac{1}{4}$ E	0 $\frac{1}{2}$ W	1 $\frac{3}{4}$ W	4 W
15 S	25 W	3 $\frac{3}{4}$ E	3 E	2 $\frac{1}{4}$ E	1 $\frac{1}{2}$ E	0 $\frac{1}{2}$ E	1 W
15 S	30 W	5 E	4 $\frac{1}{2}$ E	4 E	3 $\frac{1}{2}$ E	3 E	2 E
15 S	35 W	6 $\frac{1}{2}$ E	6 $\frac{1}{4}$ E	5 $\frac{3}{4}$ E	5 $\frac{1}{2}$ E	5 E	4 $\frac{1}{2}$ E
15 S	40 W	7 $\frac{3}{4}$ E				6 $\frac{3}{4}$ E	6 $\frac{1}{2}$ E
15 S	5 E	5 $\frac{1}{2}$ W			11 $\frac{1}{2}$ W	13 $\frac{3}{4}$ W	15 $\frac{1}{4}$ W
15 S	10 E	7 $\frac{1}{2}$ W			14 W	15 $\frac{1}{2}$ W	16 $\frac{1}{2}$ W
15 S	40 E	19 $\frac{3}{4}$ W	19 $\frac{3}{4}$ W	20 W	20 W	20 W	20 W

V A R I A T I O N.

Latitude.	Longitude, From London.	V A R I A T I O N.					
		Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
<i>Degrees.</i>	<i>Degrees.</i>	<i>Degrees.</i>	<i>Degrees.</i>	<i>Degrees.</i>	<i>Degrees.</i>	<i>Degrees.</i>	<i>Degrees.</i>
15 S	45 E	20½ W	20½ W	20¼ W	20¼ W	20 W	19½ W
15 S	50 E	20½ W	20 W	19½ W	18¾ W	18 W	16¼ W
15 S	55 E	19½ W	18½ W	17½ W	16½ W	15½ W	12½ W
15 S	60 E	18¾ W	17 W	16 W	14½ W	12½ W	9 W
15 S	65 E	17 W	15½ W	13½ W	12 W	9¾ W	6 W
15 S	70 E	15½ W	12¾ W	10¾ W	9 W	7¼ W	4¼ W
15 S	75 E	14 W	12 W	9¾ W	7½ W	5 W	3¾ W
15 S	80 E	12 W	10 W	8 W	6 W	3½ W	2½ W
15 S	85 E	10 W	8 W	6¼ W	4¾ W	2¾ W	2¼ W
15 S	90 E	8½ W	7¼ W	6 W	4½ W	3 W	2¼ W
15 S	95 E	6½ W	5¾ W	5 W	4¼ W	3¾ W	2¾ W
15 S	100 E	5 W	4¾ W	4½ W	4¼ W	3¾ W	3½ W
15 S	105 E	3½ W	3½ W	3¾ W	3¾ W	4¼ W	3¾ W
15 S	110 E	2½ W				4½ W	
20 S	0	3¼ W	5¼ W	7¼ W	9 W	11 W	13½ W
20 S	5 W	1½ W	3¼ W	5 W	6¾ W	8¾ W	11¼ W
20 S	10 W	0½ E	1¼ W	3 W	4¾ W	6½ W	8¾ W
20 S	15 W	1¾ E	0½ E	0¾ W	2 W	3½ W	5¾ W
20 S	20 W	3 E	2¾ E	1½ E	0½ W	0½ W	3 W
20 S	25 W	4¾ E	4¼ E	3½ E	2¾ E	2 E	0
20 S	30 W	6 E	5½ E	5¼ E	4¾ E	4¼ E	2½ E
20 S	35 W	7¾ E	7½ E	7¼ E	6¾ E	6½ E	5 E
20 S	40 W	9½ E				8 E	7½ E
20 S	5 E	5½ W			11 W	13¾ W	15 W
20 S	10 E	7½ W			13½ W	15 W	16¼ W
20 S	15 E	9½ W			15½ W	16½ W	17¾ W
20 S	35 E	19 W	19¼ W	19¾ W	20¼ W	20¾ W	22 W
20 S	40 E	20½ W	20¾ W	21¼ W	21½ W	21¾ W	22 W

V A R I A T I O N.							
Latitude.	Longitude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
20 S	45 E	21 $\frac{1}{4}$ W	21 $\frac{1}{4}$ W	21 $\frac{1}{2}$ W	21 $\frac{1}{2}$ W	21 $\frac{1}{4}$ W	21 $\frac{1}{4}$ W
20 S	50 E	21 $\frac{1}{4}$ W	21 W	20 $\frac{3}{4}$ W	20 $\frac{1}{2}$ W	19 $\frac{3}{4}$ W	18 $\frac{3}{4}$ W
20 S	55 E	20 $\frac{1}{2}$ W	20 W	19 $\frac{1}{4}$ W	18 $\frac{1}{2}$ W	17 W	15 W
20 S	60 E	19 $\frac{1}{2}$ W	18 $\frac{3}{4}$ W	17 W	5 $\frac{3}{4}$ W	14 $\frac{1}{2}$ W	11 $\frac{1}{4}$ W
20 S	65 E	18 $\frac{3}{4}$ W	17 W	15 $\frac{3}{4}$ W	14 $\frac{1}{2}$ W	12 W	8 W
20 S	70 E	16 $\frac{3}{4}$ W	15 $\frac{1}{2}$ W	13 $\frac{1}{2}$ W	12 W	10 W	6 W
20 S	75 E	15 W	13 W	10 $\frac{1}{2}$ W	9 W	7 $\frac{1}{2}$ W	4 $\frac{3}{4}$ W
20 S	80 E	13 $\frac{1}{2}$ W	11 $\frac{3}{4}$ W	9 $\frac{3}{4}$ W	8 W	6 W	4 $\frac{1}{2}$ W
20 S	85 E	11 $\frac{1}{2}$ W	10 W	8 $\frac{1}{2}$ W	7 W	5 W	4 $\frac{1}{4}$ W
20 S	90 E	10 W	8 $\frac{3}{4}$ W	7 $\frac{1}{2}$ W	6 $\frac{1}{2}$ W	4 $\frac{3}{4}$ W	4 $\frac{1}{2}$ W
20 S	95 E	8 W	7 $\frac{1}{4}$ W	6 $\frac{1}{2}$ W	5 $\frac{3}{4}$ W	4 $\frac{3}{4}$ W	4 $\frac{1}{2}$ W
20 S	100 E	6 $\frac{1}{2}$ W	6 $\frac{1}{4}$ W	6 W	5 $\frac{1}{2}$ W	5 W	4 $\frac{3}{4}$ W
20 S	105 E	4 $\frac{3}{4}$ W	5 W	5 W	5 W	5 W	4 $\frac{3}{4}$ W
25 S	0	3 W	5 W	7 W	8 $\frac{3}{4}$ W	10 $\frac{1}{2}$ W	12 $\frac{1}{2}$ W
25 S	5 W	1 W	2 $\frac{3}{4}$ W	4 $\frac{1}{2}$ W	6 $\frac{1}{4}$ W	8 W	10 W
25 S	10 W	1 E	0 $\frac{1}{2}$ W	2 $\frac{1}{4}$ W	4 W	5 $\frac{1}{2}$ W	7 $\frac{1}{2}$ W
25 S	15 W	2 $\frac{1}{2}$ E	1 $\frac{1}{4}$ E	0	1 $\frac{1}{4}$ W	2 $\frac{1}{2}$ W	4 $\frac{1}{2}$ W
25 S	20 W	4 E	3 $\frac{1}{4}$ E	2 E	1 $\frac{1}{4}$ E	0 $\frac{1}{2}$ E	2 $\frac{3}{4}$ W
25 S	25 W	6 E	5 $\frac{1}{4}$ E	4 $\frac{1}{2}$ E	3 $\frac{3}{4}$ E	3 E	1 E
25 S	30 W	7 $\frac{1}{2}$ E	7 E	6 $\frac{1}{2}$ E	6 E	5 $\frac{1}{2}$ E	3 $\frac{1}{2}$ E
25 S	35 W	9 $\frac{1}{4}$ E				7 $\frac{1}{2}$ E	6 E
25 S	40 W	11 E				9 E	
25 S	5 E	5 $\frac{1}{4}$ W	7 W	8 $\frac{3}{4}$ W	10 $\frac{1}{2}$ W	12 $\frac{1}{2}$ W	14 $\frac{1}{2}$ W
25 S	10 E	7 $\frac{1}{2}$ W				14 $\frac{1}{2}$ W	16 W
25 S	15 E	9 $\frac{1}{2}$ W				16 $\frac{1}{4}$ W	17 $\frac{3}{4}$ W
25 S	35 E	19 $\frac{1}{2}$ W	20 $\frac{1}{4}$ W	20 $\frac{3}{4}$ W	21 $\frac{1}{2}$ W	22 $\frac{1}{4}$ W	23 $\frac{1}{2}$ W
25 S	40 E	21 W	21 $\frac{1}{2}$ W	22 W	22 $\frac{1}{2}$ W	23 $\frac{1}{4}$ W	23 $\frac{3}{4}$ W
25 S	45 E	22 $\frac{1}{4}$ W	22 $\frac{1}{2}$ W	22 $\frac{3}{4}$ W	23 W	23 $\frac{1}{4}$ W	23 W
25 S	50 E	22 $\frac{1}{2}$ W	22 $\frac{1}{2}$ W	22 $\frac{1}{2}$ W	22 $\frac{1}{4}$ W	22 W	21 W

		VARIATION.					
Latitude.	Longitude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
25 S	55 E	22 W	21½ W	21 W	20½ W	19¾ W	18 W
25 S	60 E	20¾ W	19¾ W	19 W	18¼ W	17 W	14½ W
25 S	65 E	19¼ W	18¼ W	17¼ W	16¼ W	15 W	11¾ W
25 S	70 E	17¾ W	16¾ W	15¾ W	14½ W	13 W	9½ W
25 S	75 E	16¼ W	15 W	13¾ W	12½ W	11¾ W	8 W
25 S	80 E	14¾ W	13½ W	12¼ W	10¾ W	9¼ W	7½ W
25 S	85 E	13 W	11¾ W	10½ W	9¼ W	8 W	7½ W
25 S	90 E	11¼ W	10¼ W	9¼ W	8¼ W	7¾ W	7 W
25 S	95 E	9½ W	9 W	8½ W	7¾ W	7 W	6½ W
25 S	100 E	7¾ W	7½ W	7¼ W	7 W	6¾ W	6 W
30 S	0	2¾ W	4¼ W	6 W	7¾ W	9½ W	11½ W
30 S	5 W	0½ W	2 W	3½ W	5¼ W	7 W	9 W
30 S	10 W	1½ E	0	1½ W	3 W	4½ W	6½ W
30 S	15 W	3¼ E	2¼ E	0¾ E	0½ W	1½ W	3½ W
30 S	20 W	5 E	4¾ E	3¾ E	2¾ E	1½ E	0½ W
30 S	25 W	7¼ E	6½ E	5¾ E	5 E	4 E	2 E
30 S	30 W	9 E				6½ E	4½ E
30 S	35 W	11 E				8½ E	7¾ E
30 S	5 E	5 W	7 W	8¾ W	10¼ W	11½ W	13¾ W
30 S	10 E	7¼ W	9¼ W	11¼ W	12¾ W	14 W	15½ W
30 S	15 E	9½ W				16 W	18 W
30 S	30 E	17½ W	18½ W	19½ W	20½ W	21¾ W	23¾ W
30 S	35 E	20¼ W	21 W	21¾ W	22½ W	23½ W	24¾ W
30 S	40 E	21¾ W	22½ W	23¼ W	24 W	24¾ W	25¼ W
30 S	45 E	23 W	23½ W	24 W	24½ W	25¼ W	24½ W
30 S	50 E	23½ W	23¾ W	24 W	24¼ W	24½ W	23¾ W
30 S	55 E	23 W	23 W	23 W	22¾ W	22½ W	21 W
30 S	60 E	21¾ W	21½ W	21 W	20½ W	20 W	18 W
30 S	65 E	20¼ W	19½ W	19 W	18½ W	17¾ W	15 W

VARIATION.

Latitude.	Longitude, From London.	VARIATION.					
		Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
30 S	70 E	18 $\frac{3}{4}$ W	18 W	17 $\frac{1}{4}$ W	16 $\frac{1}{2}$ W	15 $\frac{1}{2}$ W	13 W
30 S	75 E	17 $\frac{1}{4}$ W	16 $\frac{1}{2}$ W	15 $\frac{3}{4}$ W	14 $\frac{3}{4}$ W	13 $\frac{3}{4}$ W	11 $\frac{1}{2}$ W
30 S	80 E	15 $\frac{3}{4}$ W	15 W	14 W	13 W	12 W	10 $\frac{3}{4}$ W
30 S	85 E	14 W	13 $\frac{1}{4}$ W	12 $\frac{1}{2}$ W	11 $\frac{1}{2}$ W	10 $\frac{1}{2}$ W	10 $\frac{1}{4}$ W
30 S	90 E	12 $\frac{1}{2}$ W	11 $\frac{3}{4}$ W	11 W	10 $\frac{1}{4}$ W	9 $\frac{1}{2}$ W	9 $\frac{1}{2}$ W
30 S	95 E	10 $\frac{1}{2}$ W	10 W	9 $\frac{1}{2}$ W	9 $\frac{3}{4}$ W	8 $\frac{3}{4}$ W	9 W
30 S	100 E	8 $\frac{3}{4}$ W				8 $\frac{1}{2}$ W	
35 S	0	2 $\frac{1}{2}$ W	4 W	5 $\frac{1}{2}$ W	7 W	8 $\frac{1}{2}$ W	10 $\frac{1}{2}$ W
35 S	5 W	0	1 W	2 $\frac{1}{2}$ W	4 W	5 $\frac{3}{4}$ W	7 $\frac{3}{4}$ W
35 S	10 W	2 $\frac{1}{4}$ E	1 $\frac{1}{2}$ E	0 $\frac{1}{2}$ W	1 $\frac{1}{4}$ W	3 $\frac{1}{4}$ W	5 $\frac{1}{2}$ W
35 S	15 W	4 $\frac{1}{4}$ E				0 $\frac{1}{4}$ W	2 $\frac{1}{4}$ W
35 S	20 W	6 $\frac{3}{4}$ E				2 $\frac{1}{2}$ E	0 $\frac{1}{2}$ E
35 S	25 W	8 $\frac{3}{4}$ E				5 E	3 E
35 S	30 W	10 $\frac{3}{4}$ E				7 $\frac{1}{4}$ E	5 $\frac{3}{4}$ E
35 S	35 W	12 $\frac{3}{4}$ E				9 $\frac{1}{4}$ E	8 $\frac{1}{4}$ E
35 S	5 E	5 W	6 $\frac{1}{2}$ W	8 W	9 $\frac{1}{2}$ W	11 W	13 W
35 S	10 E	7 $\frac{1}{4}$ W	8 $\frac{1}{2}$ W	10 $\frac{1}{4}$ W	11 $\frac{3}{4}$ W	13 $\frac{1}{2}$ W	15 $\frac{1}{4}$ W
35 S	15 E	9 $\frac{3}{4}$ W	11 $\frac{1}{4}$ W	12 $\frac{3}{4}$ W	14 $\frac{1}{4}$ W	15 $\frac{1}{2}$ W	17 $\frac{1}{2}$ W
35 S	20 E	12 $\frac{1}{2}$ W	14 W	15 $\frac{1}{2}$ W	17 W	18 $\frac{1}{2}$ W	19 $\frac{3}{4}$ W
35 S	25 E	15 $\frac{1}{4}$ W	16 $\frac{1}{2}$ W	18 W	19 $\frac{1}{4}$ W	20 $\frac{3}{4}$ W	22 $\frac{1}{2}$ W
35 S	30 E	18 $\frac{1}{4}$ W	19 $\frac{1}{2}$ W	20 $\frac{1}{2}$ W	21 $\frac{1}{2}$ W	22 $\frac{3}{4}$ W	24 $\frac{1}{4}$ W
35 S	35 E	21 W	22 W	22 $\frac{3}{4}$ W	23 $\frac{1}{2}$ W	24 $\frac{1}{2}$ W	26 W
35 S	40 E	22 $\frac{3}{4}$ W	23 $\frac{1}{2}$ W	24 $\frac{1}{4}$ W	25 W	26 W	26 $\frac{3}{4}$ W
35 S	45 E	24 $\frac{1}{4}$ W	25 W	25 W	26 W	27 W	26 $\frac{1}{2}$ W
35 S	50 E	24 $\frac{3}{4}$ W	25 $\frac{1}{4}$ W	25 $\frac{3}{4}$ W	26 W	26 $\frac{1}{2}$ W	24 $\frac{3}{4}$ W
35 S	55 E	24 $\frac{1}{4}$ W	24 $\frac{1}{2}$ W	24 $\frac{1}{2}$ W	24 $\frac{3}{4}$ W	25 W	23 W
35 S	60 E	23 W	23 W	23 W	22 $\frac{3}{4}$ W	22 $\frac{3}{4}$ W	21 W
35 S	65 E	21 $\frac{1}{2}$ W	21 $\frac{1}{4}$ W	21 W	20 $\frac{3}{4}$ W	20 $\frac{1}{4}$ W	18 $\frac{3}{4}$ W
35 S	70 E	19 $\frac{3}{4}$ W	19 $\frac{1}{4}$ W	18 $\frac{3}{4}$ W	18 $\frac{1}{4}$ W	17 $\frac{3}{4}$ W	16 $\frac{3}{4}$ W

VARIATION.

Latitude.	Longitude, From London.	Anno 1700.	Anno 1710.	Anno 1720.	Anno 1730.	Anno 1744.	Anno 1756.
Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.
35 S	75 E	18 $\frac{1}{4}$ W	17 $\frac{3}{4}$ W	17 $\frac{1}{4}$ W	17 $\frac{1}{2}$ W	16 W	15 $\frac{1}{4}$ W
35 S	80 E	16 $\frac{3}{4}$ W	16 $\frac{1}{4}$ W	15 $\frac{3}{4}$ W	15 W	14 $\frac{1}{2}$ W	14 $\frac{1}{4}$ W
35 S	85 E	15 W	14 $\frac{1}{2}$ W	14 W	13 $\frac{1}{2}$ W	13 W	13 $\frac{1}{2}$ W
35 S	90 E	13 $\frac{1}{2}$ W	13 W	12 $\frac{3}{4}$ W	12 $\frac{1}{2}$ W	12 W	12 $\frac{1}{4}$ W
35 S	95 E	11 $\frac{1}{2}$ W	11 $\frac{1}{2}$ W	11 $\frac{1}{4}$ W	11 W	10 $\frac{3}{4}$ W	
40 S	0	2 W	3 $\frac{1}{2}$ W	5 W	6 $\frac{1}{2}$ W	7 $\frac{3}{4}$ W	9 $\frac{1}{4}$ W
40 S	5 W	0 $\frac{3}{4}$ E	0 $\frac{1}{2}$ W	2 W	3 $\frac{1}{2}$ W	5 W	6 $\frac{3}{4}$ W
40 S	10 W	3 $\frac{1}{4}$ E				2 $\frac{1}{2}$ W	4 $\frac{1}{4}$ W
40 S	15 W	5 $\frac{1}{2}$ E				0 $\frac{1}{2}$ E	1 $\frac{1}{2}$ W
40 S	20 W	8 E				3 $\frac{1}{4}$ E	1 $\frac{1}{4}$ E
40 S	25 W	10 $\frac{1}{2}$ E				5 $\frac{1}{2}$ E	4 E
40 S	30 W	12 $\frac{1}{2}$ E				8 E	6 $\frac{1}{2}$ E
40 S	5 E	4 $\frac{1}{2}$ W	6 W	7 $\frac{1}{2}$ W	9 W	10 $\frac{1}{4}$ W	12 W
40 S	10 E	7 $\frac{1}{4}$ W	8 $\frac{1}{2}$ W	10 W	11 $\frac{1}{2}$ W	12 $\frac{3}{4}$ W	14 $\frac{1}{2}$ W
40 S	15 E	9 $\frac{3}{4}$ W	11 $\frac{1}{4}$ W	12 $\frac{3}{4}$ W	14 W	15 $\frac{1}{2}$ W	17 $\frac{1}{4}$ W
40 S	20 E	12 $\frac{3}{4}$ W	14 $\frac{1}{4}$ W	15 $\frac{1}{2}$ W	17 W	18 $\frac{1}{2}$ W	20 W
40 S	25 E	16 W	17 $\frac{1}{4}$ W	18 $\frac{1}{2}$ W	19 $\frac{3}{4}$ W	21 $\frac{1}{4}$ W	22 $\frac{3}{4}$ W
40 S	30 E	19 W	20 W	21 $\frac{1}{4}$ W	22 $\frac{1}{4}$ W	23 $\frac{1}{2}$ W	25 $\frac{1}{4}$ W
40 S	35 E	21 $\frac{1}{4}$ W	22 $\frac{3}{4}$ W	23 $\frac{1}{2}$ W	24 $\frac{1}{2}$ W	25 $\frac{1}{2}$ W	27 W
40 S	40 E	23 $\frac{3}{4}$ W	24 $\frac{1}{2}$ W	25 W	26 W	27 W	28 $\frac{1}{2}$ W
40 S	45 E	25 $\frac{1}{4}$ W	26 W	26 $\frac{3}{4}$ W	27 $\frac{1}{2}$ W	28 $\frac{1}{4}$ W	27 $\frac{1}{4}$ W
40 S	50 E	26 W	26 $\frac{1}{2}$ W	27 W	27 $\frac{1}{2}$ W	28 $\frac{1}{4}$ W	26 W
40 S	55 E	25 $\frac{1}{4}$ W	25 $\frac{1}{2}$ W	25 $\frac{3}{4}$ W	26 W	26 $\frac{1}{2}$ W	24 $\frac{1}{2}$ W
40 S	60 E	24 W	24 W	24 W	24 $\frac{1}{4}$ W	24 $\frac{1}{2}$ W	22 $\frac{3}{4}$ W
40 S	65 E	22 $\frac{1}{2}$ W	22 $\frac{1}{2}$ W	22 $\frac{1}{4}$ W	22 $\frac{1}{4}$ W	22 W	20 $\frac{3}{4}$ W
40 S	70 E	20 $\frac{3}{4}$ W	20 $\frac{1}{2}$ W	20 $\frac{1}{4}$ W	20 W	19 $\frac{1}{2}$ W	19 $\frac{1}{2}$ W
40 S	75 E	19 $\frac{1}{4}$ W	18 $\frac{3}{4}$ W	18 $\frac{1}{4}$ W	17 $\frac{3}{4}$ W	17 $\frac{1}{4}$ W	18 $\frac{1}{4}$ W
40 S	80 E	17 $\frac{1}{2}$ W	17 W	16 $\frac{1}{2}$ W	16 W	15 $\frac{1}{2}$ W	17 $\frac{1}{4}$ W

VARIATION of the Magnetic-Needle, from the Islands of Orkney to Hudfon's Straits, for the Year 1757.

West Longitude From London.	Degrees of West Variation.	Degrees of North Latitude.								
		56	57	58	59	60	61	62	63	
Degrees.										
4					18	18	19	19		
10				19	19	20	20	21		
27				24	24	25	25			
45		29	29	30	31					
55										
65						39	40	41		

VARIATION in Hudfon's-Bay and Straits, for the Year 1757.

West Longitude From London.	Degrees of West Variation.	Degrees of North Latitude.									
		52	55	56	57	58	59	60	61	62	63
Degrees.											
65								39	40	41	
71									41	41	
79											43
81									38	39	40
83		18	20							39	40
86									35	37	
92					17	17					
94						17	18				
95							18				

We have been informed, that in Hudfon's-Bay, there has been very little alteration in the variation of the compass during the twenty years last past.