ASTRONOMICAL OBSERVATIONS,

MADE IN THE

VOYAGES

Which were Undertaken

By ORDER of His PRESENT MAJESTY,

FOR MAKING

Diſcoveries in the Southern Hemiſphere,

And ſucceſſively performed by

COMMODORE BYRON, CAPTAIN WALLIS, || CAPTAIN CARTERET, AND CAPTAIN COOK,

IN THE

DOLPHIN, TAMER, SWALLOW, AND ENDEAVOUR.

Drawn up and publiſhed by ORDER of the

COMMISSIONERS OF LONGITUDE,

From the JOURNALS which were kept by the ſeveral COMMANDERS, And from the Papers of Mr. CHARLES GREEN, formerly Aſſiſtant at the ROYAL OBSERVATORY.

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Illuſtrated with MAPS of NEW ZEALAND and the Eaſtern Coaſt of NEW HOLLAND, from the original DRAWINGS by Captain COOK.

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CONTENTS.

Page

INTRODUCTION. 1

Variations of the Compaſs obſerved on board His Majeſty's *ſhip Dolphin, in her firſt voyage round the world, under the command of* John Byron, Eſq. - - - - - - * 1

Aſtronomical Obſervations made on board His Majeſty's *ſhip the Dolphin, in her ſecond voyage round the world, under the command of* Samuel Wallis, Eſq. *by* Mr. Harriſon, *the Purſer.* - - 1

Deductions from the Obſervations made in the Dolphin's ſecond voyage. - 7

Aſtronomical Obſervations made on board His Majeſty's *bark the Endeavour, in her voyage round the world, under the command of* James Cook, Eſq. *by* Mr. Charles Green, Capt. Cook, *and* Mr. Clerke. - - 15

Meteorological Obſervations made at Otaheite by Mr. Charles Green, *during the months of May and June* 1769. - - - - 67

Variations of the Compaſs obſerved on board His Majeſty's *ſhip Dolphin, in her ſecond voyage round the world, under the command of* Samuel Wallis, Eſq. - - - - - - 73

Variations of the Compaſs obſerved on board His Majeſty's *ſloop Swallow, in her voyage round the world, under the command of* Philip Carteret, Eſq. - - - - - - - 81

Variations of the Compaſs obſerved on board His Majeſty's *bark the Endeavour, in her voyage round the world, under the command of* James Cook, Eſq. - - - - - - 87

Deductions from the Obſervations made in the Endeavour's voyage. - 93

INTRODUCTION.

THE Obſervations which compoſe the following Work, were made in the courſe of the voyages which have been recorded by the late Dr. Hawkſworth; and the journals and papers which contained them were put into my hands, by order of the Commiſſioners of Longitude, in April 1778, with directions to prepare them for publication, and to deduce the ſituations of ſuch lands as were ſeen in theſe voyages from them, in the beſt manner that the obſervations and other data would admit of. The obſervations which were made in the Dolphin's ſecond voyage were finiſhed immediately; and I made ſome progreſs in thoſe which were made on board the Endeavour: but I ſoon found that doubts and difficulties multiplied very faſt, owing to the imperfect ſtate that Mr. Green's papers were left in at his death, which happened in the courſe of the voyage; and, therefore, I laid the work aſide, at that time, in hopes of having thoſe difficulties removed by Captain Cook, when he returned from the voyage which he was then upon; but which, unfortunately, never happened. When the melancholy news of Captain Cook's death arrived, I was engaged in another work for the Board of Longitude; and after that was completed, bad health, and ſome avocations which required to be performed immediately, prevented me from reſuming this for ſome time afterwards: and this is the true reaſon why it has appeared ſo late.

The lunar obſervations which were made on board the Dolphin, in her ſecond voyage, under the command of Captain Wallis, were all made by Mr. Harriſon, the Purſer: they were alſo computed by him; and it is but juſtice to his merit to ſay that they have every appearance of being exceeding good ones. It is alſo much to his credit as an aſtronomer, that I have found but one error of any importance in all his computations, notwithſtanding he had not the advantage of a Nautical Almanac, but had all the places of the ſun and moon to compute from the tables. Computing theſe obſervations was, at that time, an arduous taſk in compariſon of what it is now! The obſervations were made with a braſs Hadley's Sextant of 18 inches radius, ſupported on the back with edge bars, and made by the late Mr. Bird. In computing them, the height of the obſerver's eye has been ſuppoſed about 20 feet above the ſurface of the ſea.

The obſervations which were made on board the Endeavour were made chiefly by Mr. Charles Green, who was ſent out by the Royal Society to obſerve the Tranſit of the planet Venus over the ſun, in 1769: but all the obſervations in this voyage are diſtinguiſhed by the initial letters of the obſerver's name. No perſon, however, except Mr. Green, preſerved their obſervations while he lived, but contented themſelves with inſerting the reſults in their journals, or log-books; and whatever obſervations, appear of any other perſon's making, have been preſerved by him, which renders them, in ſome meaſure, doubtful, becauſe it is not certain that he has always had the errors of the quadrants which they were made with. Many inſtances occur where he expreſsly ſays the error of the quadrant was unknown to him; and there is great reaſon to believe that there have been errors in other inſtances which he has not known of beſide theſe, becauſe the longitudes of the ſhip; which have been derived from the obſervations by me, will not agree with the reſults

ſults which have been put down by the obſervers themſelves. However, as this may have ariſen from faults in the computations, I have not thought proper to exclude any obſervations but ſuch as Mr. Green has expreſſed ſome doubts of: where he has, I have uniformly rejected them. After Mr. Green's death, indeed, Mr. Charles Clerke, who undertook to make the lunar obſervations, preſerved them as Mr. Green had done. All the meridional altitudes of the ſun's lower limb, which are inſerted among the obſervations, where obſerved by Mr. Green, without a ſingle exception.

Where I have put down, "Latitude of the Ship obſerved," without the meridional altitude, I have found it ſo inſerted, in the log-books; and where I have called it the "Latitude by account", the latitude deduced from the dead reckoning is to be underſtood; no obſervation having been made that day, on account of the unfavourable ſtate of the atmoſphere, or owing to ſome local impediment; and, in every inſtance of this kind, Captain Cook has been my authority, if it could be found in his Journal: where it was not, I have taken it from the Maſter's or the Gunner's log-books; but theſe inſtances are too few to merit particular notice.

When the letter U occurs at the end of the numbers which ſtand in the column of Moon's Altitudes, the Upper limb of the moon was obſerved; and when the letter L occurs, the moon's Lower limb was obſerved. In thoſe few inſtances, where the letter C is found, the apparent altitude of the moon's center has been obtained by Computation: the moon's altitude having been erroneouſly obſerved, or not obſerved at all, on account of ſome local impediment. One inſtance alone, muſt be excepted, in which the moon's center was obſerved with the aſtronomical quadrant. The ſun's lower limb was always obſerved.

When

When no latitude is put down in the proper column againſt the obſerved diſtance of the moon from the ſun or a ſtar, the apparent time is found from ſome obſerved altitude of the ſun, either preceding or following it. If it be the diſtance of the moon from the ſun, near noon, the time is found from that altitude of the ſun, on the ſame day, which is fartheſt from noon; and if it be the diſtance of the moon from a ſtar, in the night, the time is found from that altitude of the ſun which is neareſt to it, whether before or after: in both theſe caſes, the longitude put down againſt the diſtance, is to be eſteemed the longitude of the ſhip at the inſtant when the altitudes were taken, which the time is derived from.

In all the lunar obſervations which were made on Point Venus, the time was derived from equal altitudes of the ſun, taken with the Aſtronomical Quadrant.

In the column intitled, "Long. W. (or E.) of Greenwich," the longitude of the ſhip is put down every day at noon. This longitude is taken from Mr. Green's papers to the time of his death; and afterwards from Mr. Clerke's. It is what they eſteemed to be the true longitude of the ſhip, at noon; and though it differs ſomething from that which I have inſerted in the tables, among "the deductions from the obſervations," never deviated far from the truth: and, as it exhibits the opinion of a perſon who was on the ſpot, I thought it might be pleaſing to ſome perſons, and therefore inſerted it. I have certainly done no harm in this, becauſe it only occupies a ſpace which would otherwiſe be blank. It ſeemed to me, however, neceſſary to mention it, becauſe ſome might otherwiſe be ſurpriſed to find two accounts of longitude, which differ from each other.

In

In the column entitled, " Phenomena and Remarks :" P. ſignifies that the obſervation was taken on the poop, where the obſerver's eye was about 22 feet above the ſurface of the ſea. Q. D. or Q. Deck, is meant to expreſs, that the obſervation was made on the quarter deck, on which place the obſerver's eye was about 19 or 20 feet above the ſurface of the ſea. M. D. ſignifies that the obſervation was made on the main deck; and F. C. that it was made on the forecaſtle, in either of which caſes, the height of the obſerver's eye was about 18 feet above the ſurface of the ſea. The obſervations were made with a braſs Hadley's Sextant, of 15 inches radius, conſtructed by Mr. Ramſden, with edge bars.

In determining the longitudes of places in the Dolphin's voyage, it does not appear to me, that I could have taken any method but that which I have followed, unleſs I had ſuffered them to depend on a ſingle obſervation; a mode which I conceive few would have thought well of. But in the Endeavour's voyage, where the obſervations are more numerous, a greater variety of methods might have been purſued. That which I have made uſe of appears to me to be the beſt. It is that which I followed in the voyage I made with Captain Cook in the Reſolution, and has now been many years before the Public without cenſure, that I know of. Some may, indeed, think that I ought to have allowed more weight to ſome obſervations than to others, or that I ſhould have allowed more weight to thoſe means which are compoſed of a great number of obſervations than to thoſe which are compoſed of fewer. I wiſh, however, to obſerve, that it would be very difficult for any perſon, except the obſerver himſelf, to form any judgment with regard to the value of one obſervation above another; and I have frequently found that he is, himſelf, very liable to be miſtaken in this matter: and that obſervations which have been moſt eſteemed by him, at the time when they were made, have deviated more from the mean of the whole,

than others which he has thought leſs of. In reſpect to allowing more weight to one mean than to another, the method which I have followed will be found to be of no inconvenience to thoſe who think ſo; becauſe I have laid every mean fairly before him, and the number of obſervations which each is compoſed of, as well as the obſervations themſelves, and the circumſtances which attended them, as far as they came to my knowledge. He has, therefore, nothing to do but form his own judgment of the matter, and allow what weight he may think proper to each---All the laborious part of the buſineſs is done to his hands. But after all, this mode of proceeding appears to me to involve a great deal of fancy and hypotheſis, which it was my duty to avoid: I have contrived to leave all the materials, which I have made uſe of, in ſuch a ſtate that thoſe who are fond of it may form what hypotheſis they think proper, and apply them to it without trouble.

The reader is requeſted to take notice, that the algebraic ſigns (+ and —) which are annexed to the errors in the tables, do not expreſs the nature of theſe errors, but the manner in which they are to be applied.

The meteorological journal for the months of May and June, in the year 1769, will afford ſome idea of the winds, weather, and ſtate of the atmoſphere in general, for theſe two months, at Otaheite; and may be uſeful in ſeveral enquiries. It will certainly afford amuſement to ſome, and takes up but little room.

In conſtructing the Tables of the Variations of the Compaſs, which were obſerved on board the Dolphin, the Swallow, and the Endeavour, I have determined the ſituation of the ſhip with all the exactneſs that circumſtances would admit of when each obſervation was made, becauſe the variations of the compaſs which have been obſerved in

"a wind:" but this addition agrees perfectly with what he has written in his journal.

The words which Dr. Hawkſworth has put into Captain Cook's mouth, vol. III. p. 621, concerning the lunar obſervations, and the theory on which they depend, has been very ſeverely, and very juſtly cenſured. It is, therefore, no more than juſtice to the memory of Captain Cook to produce the very words which he has made uſe of in his journal on that occaſion. He ſays, "In juſtice to Mr. Green I muſt "ſay that he was indefatigable in making and calculating theſe obſer- "vations. By his inſtructions alſo, ſeveral of the petty officers can "make and calculate them almoſt as well as himſelf. It is only by this "means that this method of finding the longitude at ſea can be brought "into univerſal practice---A method which we have found may be "depended on to within half a degree! which is a degree of accuracy "more than ſufficient for all nautical purpoſes. Would ſea officers "once apply themſelves to the making and calculating theſe obſerva- "tions, they would not find them ſo difficult as they at firſt imagine, "eſpecially with the aſſiſtance of the Nautical Almanac; for by the "help of it, the calculations for finding the longitude take up but "little more time than that of working an azimuth for finding the vari- "ation of the compaſs: but unleſs this Ephemeris be publiſhed for "ſome time to come, more than either one or two years *, it can never "be of general uſe in long voyages, and in ſhort ones it is not ſo much "wanted, for without it the calculations are laborious, and diſcouraging "to beginners, and ſuch as are not well verſed in this kind of calcula- "tions." Captain Cook's journal does not contain a word relative to "the labours of the ſpeculative theoriſt" being ſuperſeded by the qualifications of ſea officers. His knowledge of the ſubject was at leaſt ſuf-

* When Captain Cook ſailed on his voyage in the Endeavour, the Commiſſioners of Longitude had not been able to print the Nautical Almanac for many years in advance. It may now always be had five or ſix years in advance.

ficient

ficient to prevent him from falling into ſuch an error; and to inform him that the labours both of the theoretical and practical Aſtronomer will always be neceſſary to keep the tables, which the Ephemeris is computed from, correſpondent to the Heavens.

Page 665, it is ſaid, " We were now well aſſured, that as *the firſt* " land we had ſeen was Timor, the laſt iſland we had paſſed was Timor " Laut." They were, at the time Captain Cook was writing, a-breaſt of Timor, and the Captain's words are " As *this* land *is* Timor, the laſt " iſland we ſaw muſt have been Timor Laut." The firſt that they ſaw was ſuppoſed by Captain Cook to be the Arrou Iſlands.

In the obſervations which were made on board the Dolphin, the number of obſervations which each mean conſiſts of, is expreſſly mentioned in a column kept for the purpoſe: but in thoſe obſervations which were made on board the Endeavour, each mean is compoſed of three obſervations, unleſs it be expreſſed to the contrary, by means of a figure in a parentheſis (2), where the figure denotes the number of obſervations which that mean is formed from.

As no obſervations for determining the longitude of the ſhip were made in the Dolphin's firſt voyage, under the command of Commodore Byron, it was not thought neceſſary to put any of the journals of that voyage into my hands. But, in making the deductions from the obſervations which were taken in the other voyages, it occurred to me that Mr. Byron ſaw many places, the longitudes of which have been well determined in the courſe of other voyages; and, therefore, that the reckoning, kept on board the Dolphin, might be corrected with ſufficient accuracy to render the variations which they obſerved uſeful. I therefore mentioned this circumſtance to the Board of Longitude, which was held on

the firſt of this month; and, in conſequence, all the journals which could be found, relating to the Dolphin's firſt voyage, were ſent me, and I have collected out of them the variations of the compaſs which are inſerted on the following pages, marked 3* and 4*. But it muſt be obſerved that no log-books could be found which had been kept by any of the principal officers; and, therefore, it is highly probable, that many obſervations were made of the variation which I have not been able to meet with: and, indeed, this appears but too plainly; for there are many variations inſerted in Dr. Hawkſworth's narrative of this voyage, which will not be found here.

The places which I have made uſe of for correcting the longitudes in the journals of the Dolphin's firſt voyage, are the following:

Places.	Longitude.	By whom determined.
	° ′	
Funchall	17 11 W.	Reſolution's firſt voyage.
Port Praya	23 29 W.	Ditto.
Rio Janiero	43 18 W.	Endeavour's voyage.
Port Deſire	67 10 W.	Dolphin's ſecond voyage.
Cape Virgins	68 26 W.	Ditto.
Cape Deſſeada	74 18 W.	Reſolution's firſt voyage.
Maſſa-fuero	80 22 W.	Meſſrs. Juan and Ulloa.
King George's Iſles	145 10 W.	Reſolution's firſt voyage.
Tinian	214 4 W.	Dolphin's ſecond voyage.
Baſhee Iſles	239 5 W.	Dolphin's ſecond voyage.
Pulo Wawoor	104 40 E.	Reſolution's ſecond voyage.
Java Head	104 48 E.	Rev. Mr. Mohr, of Batavia.
Cape of Good Hope	18 23 E.	Meſſrs. Maſon and Dixon.
St. Helena	5 49 W.	Rev. Dr. Maſkelyne.
Scilly Lights	6 46 W.	Requiſite Tables.

From the reckoning, corrected by theſe means, I have derived the ſituations of the five following iſlands, none of which, as far as I can find, except the Iſles of Diſappointment, have been ſeen by any navigator

tor but Commodore Byron: they certainly have none of them been ſeen by any who had better means of determining their ſituations than he had

ISLANDS.	Latitude.	Longitude.
	° ′	° ′
The weſtermoſt of the Iſles of Diſappointment.	14 7 S.	141 22 W.
Prince of Wales's Iſlands,	14 58 S.	147 48 W.
The Iſles of Danger,	10 56 S.	165 59 W.
The Duke of York's Iſland,	8 29 S.	172 22 W.
Byron's Iſland,	1 13 S.	177 8 E.

The utmoſt care has been taken to give theſe obſervations with accuracy: Every mean has been taken by two perſons, ſeparately, and carefully compared, and corrected, where neceſſary, by myſelf. From all thoſe obſervations which are marked with an aſteriſk (*), the longitudes of the ſhip or place, have been recomputed by two perſons, ſeparately, and their computations compared with each other. One of the computers made uſe of the parallactic tables, which have been publiſhed by order of the Commiſſioners of Longitude, and the other made uſe of the method which is given at page 304, vol. II. of the latter editions of Robertſon's Navigation. Four minutes in longitude were allowed for the difference which might poſſibly ariſe from computing by theſe two different methods, and the mean of the two reſults were conſtantly taken, ſo that the numbers which are inſerted never differ more than two minutes from either computation, and very ſeldom more than half that quantity. Thoſe obſervations which are not marked with an aſteriſk, being made in ſituations where they were not much wanted, the recomputing of them has been diſpenſed with. On the whole, I am willing

willing to hope that every thing will be found as correct as the nature of theſe things will admit of. In many figures, and long computations, ſome errors muſt be expected; and, if there are not too many of them, will, I hope, be pardoned.

WILLIAM WALES.

Chriſt's Hoſpital,
March 27, 1788.

ASTRONOMICAL OBSERVATIONS

Made on Board His MAJESTY'S Ship the DOLPHIN,

In her SECOND VOYAGE Round the WORLD,

UNDER THE COMMAND OF

SAMUEL WALLIS, ESQ.

In the YEARS 1766, 1767, and 1768.

1766.	Time by the Watch.	Altit. ☉'s L.L. or ✳.	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latitude S.	Long. W. of Greenwich.	Number of Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′		
☉ Dec. 7.	1 50 8	56 47	33 40 U.	74 27 0	47 26	66 33½	* 3	☽ and ☉. By the ship's run, the Tower Rock, in Port Desire, bore S. W. ½ S. true, at the time when this observation was taken, distant 13 leagues. Hence the latitude of the Tower Rock is 47° 56′ S. and its longitude 67° 10′ W.
☽ —— 22.	19 33 55	32 33	29 12 U.	100 31 30	52 30	69 52⅓	*sev.	☽ and ☉. At anchor in the Straits of Magellan, and Point Possession bearing N. E. by E. distant 5 leagues; the Ass's Ears N. W. by W. ½ W. 4 or 5 leagues, and the First Narrows S. S. W. distant 4 leagues.
♃ —— 25.	17 46 25	17 2⅓	48 4 U.	66 59 20	53 12	71 7½	* 4	☽ and ☉. Off Porpoise Point, near the south end of Elizabeth's Island, in the Straits of Magellan. Capt. Wallis makes Porpoise Point 4′ to the northward, and 5′ 25″ in longitude to the eastward of the place where this observation was taken; and Port Famine 31′ to the southward, and 7′ 25″ to the eastward of it.
1767.								
☽ April 20.	19 44 0	10 8	60 06 L.	90 51 0	42 30	95 46	* 3	☽ and ☉.
☉ May 3.	3 29 45	22 6	33 21 L.	68 6 40	29 13	96 18½	* 3	☽ and ☉.
♂ —— 19.	20 54 0	28 38	46 51 L.	93 21 0	21 0	106 46¾	* 5	☽ and ☉.
♀ —— 22.	20 43 0	26 43	61 11 L.	53 1 44	20 20	112 22⅜	* 4	☽ and ☉.
☉ —— 31.	3 17 0	25 41	48 5 L.	49 43 55	20 38	127 59	* 4	☽ and ☉.
☽ June 1.	4 2 0	17 0	52 15 L.	61 14 40	20 40	129 7	* 4	☽ and ☉.
♂ —— 2.	3 6 0	28 5	47 11 L.	72 10 30	19 30	129 45¼	* 2	☽ and ☉.
☿ —— 10.	6 48 0	69 31	30 40 L.	45 26 0	19 20	138 45	* 3	☽ and Spica Virginis. The apparent time at the ship when this observation was taken, is said to be 6ʰ 47′ 34″: It does not, however, appear how it has been derived. The altitude of the star gives only 6ʰ 41′ 29″, but it is too near the meridian. Taking the apparent time at the ship, as put down by Capt. Wallis, the longitude deduced from this observation is as above. Queen Charlotte's Island bore N. 80° E. distance 40 miles, and Egmont Isle E. ½ N. distance 15 miles.
♃ —— 18.	20 20 0	22 01	51 37 L.	81 12 36	17 52	148 59½	*	☽ and ☉. Osnaburg Island (Miatea) bore N. 82° E. distance 56 miles when this observation was taken; and the ship was off the N. E. end of King George the Third's Island.
♄ —— 20.	19 35 0	13 17⅓	53 37⅔ U.	55 9 50	17 30	149 14⅔	* 3	☽ and ☉. This observation was taken 6 leagues to the eastward of that where the observation was taken on the 18th, and about 15 miles east of Point Venus.
♀ July 3.	2 53 0	31 17 0	49 30	86 56 12	17 30	149 58½	*	☽ and ☉ In. Matavai Bay.
♀ —— 24.	18 49 50		Beginning of the solar Eclipse.		By Mr. Harrison, the Purser,			Observed on Point Venus: the height of the Observer's eye being about 9 feet above the surface of the sea. The beginning is said to be a little uncertain; but the end was supposed to be well observed: the longitude, however, resulting from it is only 148° 32′ west.
	18 52 30		Apparent Time 18ʰ 52′ 23″.		By Mr. Robertson, the Master.			
	19 3 20	8 43	Apparent Time 19ʰ 5′ 53″.		17 29⅓			Mr. Harrison's Wat.
	19 6 0	8 43						Mr. Robertson's Wa.
	19 59 0		End of the solar Eclipse.		By Mr. Harrison,			
	20 1 48		Apparent Time 20ʰ 1′ 48″		By Mr. Robertson.			
	20 10 12	22 52	Apparent Time 20ʰ 13′ 00″.		17 29⅓			Mr. Harrison's Wat.
	20 13 0	22 52						Mr. Robertson's Wa.

1767.	Time by the Watch.	Altit. ☉'s L.L. or ✳.	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latitude S.	Long. W. of Greenwich.	Number of Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′		
♃ July 30.	2 23 0	40 00	70 40 U.	57 17 0	16 44	154 46½	✳ 1	☽ and ☉. Howe's Island E. distant 12 leagues. They had now made 5° 0′ of longitude from King George the Third's Island.
♀ —— 31.	2 39 0	37 37	67 5 U.	68 28 15	16 26	156 00½	✳ 4	☽ and ☉. Scilly Isles S. 74° E. distant 10 leagues. The log gave 30′ difference of longitude between Lord Howe's and Scilly Islands.
☉ Aug. 16.	20 43 8	33 41	41 48 U.	74 27 23	12 38	177 5	✳ 3	☽ and ☉. Wallis's Island S. E. by S. distant 18 leagues.
☽ —— 17.	22 7 20	51 32⅔	38 56⅓ U.	61 56 12	11 8	178 29⅔	✳ 3	☽ and ☉. This observation was made 1° 3′ to the westward of the place where yesterday's observation was made, according to the run by the log.
♃ —— 27.	22 37 30	67 42	24 28⅔ U.	49 57 7	0 28 N.	187 27½	✳ 3	☽ and ☉. They made 5° 0′ west longitude from the place where this observation was made to the Pifcadore Islands.
☽ Sept. 14.	22 25 13	63 12	37 51⅓ L.	78 34 57	15 4 N.	209 21⅔	✳ 3	☽ and ☉. When this observation was taken they had made 16° 30′ west longitude from the Pifcadore Islands.
☿ —— 16.	21 20 5	47 46	75 53⅓ U.	55 45 33	15 0 N.	212 20	✳ 3	☽ and ☉. They made 1° 26′ of west longitude from the place where this observation was made, to the place where they anchored at Tinian.
♃ —— 17.	21 20 6	48 13⅓	86 52⅔ U.	44 29 45	15 4 N.	213 18¼	✳ 3	☽ and ☉. The South End of Tinian W. distant 7 or 8 leagues, and the South End of Saypan W. by N.
♀ —— 25.	Noon.	73 49			14 54⅓			☉'s Merid. Altitude.
☉ —— 27.	3 32 26	34 39	49 37 L.	56 41 41	54 56 N.	215 10½	✳ 4	☽ and ☉. At anchor off the S. W. side of Tinian, about a mile from the shore.
♂ —— 29.	3 24 43	36 31	39 27⅓ U.	80 14 17	14 56 N.	214 26½	✳ 3	☽ and ☉. At anchor off Tinian.
♀ Octo. 16.	22 59 41	58 2⅔	58 31 L.	52 10 23	16 8 N.	215 9½	✳ 3	☽ and ☉. West of Tinian by account 2° 15′.
♀ —— 28.	2 19 2	41 8⅓	27 41⅔ L.	74 52 49	21 20 N.	239 20⅔	✳ 3	☽ and ☉. Grafton Isle, or the most northerly of the Bashees, S. S. E. distant 6 leagues; and Monmouth Isle, the highest of them, S. by E. ½ E. These two islands lie north and south of each other.
♃ —— 29.	2 10 40	43 10	19 12	87 28 10	20 24 N.	241 32	✳ 1	☽ and ☉. In 2° 36′ W. of Grafton Isle by the log. The altitudes are corrected for dip and Semidiameter.
♄ Nov. 14.	20 57 35	40 12⅔	76 40 U.	60 34 17	1 45 N.	253 46½	✳ 3	☽ and ☉. The south end of Pulo Aroe, called Pulo Aor by some, but by the natives Pulo Wawoor, N. W. by N. distant 17 leagues.

1768.	Time by the Watch.	Altit. ☉'s L.L. or ✳.	Moon's Altitude.	Diſt. ☽'s L. from ☉ or ✳.	Ship's Latitude S.	Long. W. of Greenwich.	Number of Obſerv.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′		
☉ Jan. 10.	20 44 24	42 28	47 13⅓ U.	89 55 20	23 12 S.	298 10	3	☽ and ☉.
☽ —— 11.	23 2 31	76 7⅓	25 24½ U.	78 0 27	23 46 S.	299 00	3	☽ and ☉. By the log, this obſervation was made 1° 2′ of longitude weſt of yeſterday's obſervation.
☽ —— 25.	2 8 21	57 14	17 29½ U.	90 20 20	34 24 S.	323 30	3	☽ and ☉. This obſervation was made 26° 14′ to the weſtward of the place where the laſt was, according to the log.
☿ —— 26.	5 9 44	20 14	29 17⅓ U.	104 27 57	34 14 S.	323 13	3	☽ and ☉. It had been quite calm the laſt 24ʰ, and therefore we may ſuppoſe this obſervation was made under the ſame meridian with that of yeſterday.
♃ Feb. 11.	19 54 40	30 27	80 42 U.	63 41 50	33 54⅓	341 42	* 3	Theſe obſervations were made under the ſmall Fort, which ſtands on the weſt ſide of Table Bay, at the Cape of Good Hope; which Fort is nearly under the ſame meridian, and about a mile and a half N. of the place where the Engliſh obſervations have been generally made*.
☽ March 14	21 18 22	47 25	88 19½ L.	44 45 57	16 44	1 45¾	* 3	☽ and ☉ The Lon. made by
	22 43 55	65 58½	66 48½ U.	44 17 20	16 36	2 20½	* 3	☽ and ☉ the log,
♅ —— 23.	2 13 47	61 55⅓	38 28⅔ U.	68 43 30	7 28	14 26½	* 3	☉ and ☽. The N. W. point of the Iſland of Aſcenſion bore S. E. by S. 42 miles, when theſe obſervations were made. The log gave alſo 8° 30′ diff. of longitude between the Iſlands of St. Helena and Aſcenſion.

* By the Engliſh obſervations, I mean thoſe which were made by Meſſrs. Maſon and Dixon in 1761; and thoſe made by Mr. Bayley and myſelf in 1772, 1774, and 1775. Theſe obſervations were made at the very ſouthern extremity of the Cape Town, near a Houſe which then belonged to a perſon whoſe name was Peter Ziemen. The Abbé de la Caille made his obſervations at a Houſe which is ſituated on the Strand, towards the northern extremity of the Town, and not far from the Cuſtom-houſe.

1768.	Time by the Watch.	Altit. ☉'s L.L. or ✳.	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latitude N.	Long. W. of Greenwich.	Number of Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′		
♃ April 7.	20 47 28	39 28⅓	18 25⅓ U.	112 22 27	15 8 N.	34 30	3	☉ and ☽.
☉ —— 10.	20 48 27	41 18	44 35⅔ U.	76 1 40	21 28 N.	36 47	3	☉ and ☽.
♂ —— 20.	3 38 50	35 32	80 50⅓ L.	50 54 20	33 55 N.	32 41	* 3	☉ and ☽.
♀ —— 22.	1 59 43	53 7⅓	45 33⅓ U.	75 42 20	36 15 N.	29 19	* 3	☉ and ☽.
☽ May 9.	19 40 0	29 23⅓	29 6 L.	82 18 10	49 43 N.	7 54½	* 3	☉ and ☽.
♂ —— 10.	22 28 0	53 52	26 42 L.	67 59 30	48 48 N.	7 59	* 1	☉ and ☽.
♃ —— 12.	22 12 20	51 56⅓	47 51⅓ U.	40 44 57	49 44 N.	7 10¼	* 3	☉ and ☽. St. Agnes' Light-House, on the Islands of Scilly, bore north distant 12 miles; the variation allowed.

The End of the Observations made in Capt. Wallis's Voyage.

DEDUCTIONS *from the preceding* OBSERVATIONS.

1. When the obſervation of the 7th of December, 1766, was made, the Tower Rock, in Port Deſire, bore S. W. ½ W. the variation being allowed, and was diſtant 13 leagues by the ſhip's run: I therefore conclude, that the latitude of the Tower Rock is 47° 56′ ſouth, and that its longitude, by this obſervation, is 67° 10′ weſt of Greenwich.

2. When the obſervation was made on the 22d of December, 1766, Point Poſſeſſion, in the Straits of Magalhaens, bore N. E. by E. diſtant 5 leagues; and the variation of the compaſs was 23° eaſt: conſequently, Point Poſſeſſion is in latitude 52° 27′ ſouth, and longitude 69° 28′ weſt, by this obſervation. By the map of the Straits of Magalhaens, which is annexed to Dr. Hawkſworth's account of this voyage, Point Poſſeſſion is 38′ 24″ in longitude weſt of Cape Virgins: conſequently, this obſervation places Cape Virgins in longitude 68° 49′ 36″ weſt of Greenwich.

The place where the obſervation was taken on the 25th of December is, according to the remarks of Capt. Wallis, 4′ 00″ to the ſouthward, and 5′ 25″ to the weſtward of Porpoiſe Point; and by the above mentioned map of the Straits, Porpoiſe Point is 2° 22′ 15″ weſt of Point Poſſeſſion, or 3° 0′ 39″ weſt of Cape Virgins. Cape Virgins is therefore in longitude 68° 1′ 26″ weſt, by this obſervation. The mean of the two is 68° 25′ 31″ weſt of Greenwich.

3. The longitude made by the log, according to Capt. Wallis's reckoning, from the time of making the obſervation May the 31ſt, 1767, to that of their being a-breaſt of Whitſun Iſland was 10° 34′: By the Maſter's reckoning it was 10° 30′. The medium is 10° 32′: conſequently, the longitude of Whitſun Iſland, by this obſervation, is 138° 31′ weſt. The longitude made, according to Capt. Wallis's reckoning, from the place where the obſervation was made on the

1ſt

1ſt of June to Whitſun Iſland, was 8° 59′, and by the Maſter's reckoning 8° 52′; the medium is 8° 55′½, and the longitude of Whitſun Iſland, by that obſervation, 138° 2′½ weſt. According to Capt. Wallis, the difference of longitude between the place which the ſhip was in when the obſervation was made on the 2d of June and Whitſun Iſland was 8° 20′ 30″: according to the Maſter, it was 8° 15′ 30″; the medium is 8° 18′; and hence the longitude of Whitſun Iſland is 138° 3′ 15″ weſt. The bearings and diſtances put down by Capt. Wallis make the ſhip 41′ 40″ weſt of Queen Charlotte's Iſland when the Moon's diſtance from Spica Virginis was taken on the 10th of June; moreover, his bearings and diſtances make Queen Charlotte's Iſland 7′ 45″ in longitude weſt of Whitſun Iſland: conſequently, the longitude of Whitſun Iſland is, by that obſervation, 137° 55′ 35″ weſt. Laſtly, the longitude made by the log, according to Capt. Wallis, from Whitſun Iſland to the place which the ſhip was in when the obſervation was taken on the 18th of June, was 10° 42′: according to the Maſter, it was 10° 19′ 45″; the medium is 10° 30′ 52″½, and, conſequently, the longitude of Whitſun Iſland, by that obſervation, is 138° 28′ 15″. The mean of theſe five determinations is 138° 12′ 7″ weſt of Greenwich.

4. Hence, from what is obſerved above, the longitude of Queen Charlotte's Iſland is 138° 19′ 52″ weſt of Greenwich.

5. The bearings and diſtances given by Capt. Wallis, make Egmont Iſland 26′ 15″ weſt of Queen Charlotte's Iſland, and, therefore, in longitude 138° 46′ 7″ weſt of Greenwich.

6. Gloceſter Iſland, according to Capt. Wallis, is 2° 8′ in longitude to the weſt of Whitſun Iſland; and, conſequently, lies in 140° 20′ 7″ weſt of Greenwich.

7. Cumberland Iſland is 2° 40′ weſt of Whitſun Iſland, and, conſequently, in longitude 140° 52′ 7″ weſt of Greenwich.

8. Prince

8. Prince William Henry's Iſland lies 3° 10′ in longitude weſt of Whitſun Iſland, and, therefore, is 141° 22′ 7″ weſt of Greenwich. I do not find that the latitude of theſe ſix iſlands can be aſſigned with a greater probability of truth, than will be done by tranſcribing them literally from Capt. Wallis's journal, as follows;

		°	′	
Latitude of	Whitſun Iſland - -	19	26	S.
	Queen Charlotte's Iſland - -	19	18	S.
	Earl of Egmont's Iſland - -	19	20	S.
	Gloceſter Iſland - - -	19	11	S.
	Cumberland Iſland - -	19	18	S.
	Prince William Henry's Iſland -	19	0	S.

9. There are ſome circumſtances which incline me to think, that the ſituation of Oſnaburgh Iſland will be more exactly determined, after I have determined that of Port Royal, or Matavai Bay: I ſhall therefore endeavour to ſettle the longitude of this latter place firſt.

It appears from the bearings and diſtances, put down with the obſervations, that the ſhip was 34′ 35″, in longitude, eaſt of Port Royal Harbour, when the obſervation was taken on the 18th of June, and 15′ 43″ eaſt of it, when the obſervation was taken on the 20th. The longitude of Port Royal Harbour will therefore be, by the former of them, 149° 33′ 42″; and by the latter, 149° 30′ 21″ weſt. It appears alſo, by the bearings and diſtances of Lord Howe's and Scilly Iſlands, put down with the obſervations of July 30th and 31ſt, and the differences of longitude made by the log, between theſe iſlands, and between the former of them and Port Royal Harbour, that the ſhip was 5° 00′ weſt of that harbour when the obſervation was made on the 30th, and 5° 41′ 16″ weſt of it when the obſervation was made on the 31ſt: the longitude, therefore, of Port Royal Harbour will be 149° 46′ 30″ by the former of them, and 150° 18′ 59″ by the latter. The mean of theſe four determinations, and the reſult of the

obſervation which was made July the 3d in the harbour, is 149° 49′ 36″ weſt of Greenwich.

10. Capt. Wallis makes the difference of longitude between Oſnaburgh Iſland, or Miatea, and Port Royal Harbour 1° 28′, which being taken from 149° 49′ 36″, the longitude of Port Royal Harbour, leaves 148° 21′ 36″ weſt for the longitude of Oſnaburgh Iſland: but its longitude, according to the obſervation which was made on the 18th of June, is 148° 00′ 45″; the mean of theſe two is 148° 11′ 10″ weſt of Greenwich.

11. The bearings and diſtances, put down by Capt. Wallis and the Maſter, give, on a medium, 19′ 15″ for the difference of longitude between the middle of the Duke of York's Iſland, or Eimeo, and Port Royal Harbour; and, conſequently, the longitude of the latter is 150° 8′ 51″ weſt of Greenwich.

12. Sir Charles Saunders's Iſland is 1° 7′ 0″ in longitude weſt of Port Royal Harbour, according to Capt. Wallis's reckoning, and 1° 0′ 0″ by the Maſter's: the medium of the two is 1° 3′ 30″; and the longitude of the iſland, from thence, 150° 53′ 6″ weſt of Greenwich.

They made the latitude of Oſnaburgh Iſland 17° 51′ ſouth. The latitude of Port Royal Harbour 17° 30′ ſouth. That of the Duke of York's Iſland 17° 31′ ſouth, and of Sir Charles Saunders's Iſland 17° 28′ ſouth.

13. The ſhip made 5° 0′ of longitude weſterly between leaving Port Royal Harbour, and making the obſervation on the 30th of July; at which time ſhe was 12 leagues weſt of Lord Howe's Iſland: 12 leagues, in the latitude of 16°¾, makes 37′ 30″ difference of longitude, which being taken from 5° 00′, leaves 4° 22′ 30″ for the difference of longitude between Port Royal Harbour and Lord Howe's Iſland;

Iſland; and, therefore, this iſland is in 154° 12′ 6″ of weſt longitude. By allowing the difference of longitude correſponding to 12 leagues, the diſtance which the ſhip was weſt of Lord Howe's Iſland when the obſervation was made, that obſervation will give the longitude of the iſland 154° 9′ 0″ weſt. Laſtly, allowing the difference of longitude, ſhewn by the log, between Lord Howe's and Scilly Iſlands, and 28′ 46″ for the difference of longitude correſponding to the bearing and diſtance of Scilly, when the obſervation was made on the 31ſt of July, we ſhall find, that the ſhip, at the time of taking that obſervation, was 1° 18′ 46″ weſt of Lord Howe's Iſland, and, conſequently, the longitude of Lord Howe's Iſland, by that obſervation, is 154° 41′ 29″ weſt. The mean of theſe three determinations is 154° 20′ 52″ weſt of Greenwich.

14. By adding 50′, the difference of longitude made by the log, to the longitude of Lord Howe's Iſland, we obtain the longitude of Scilly = 155° 10′ 52″ weſt of Greenwich.

The latitude of Lord Howe's Iſland is 16° 46′ ſouth, and that of Scilly 16° 28′ ſouth, according to Capt. Wallis; and I ſee no reaſon for objecting to them.

15. When the obſervation was made on the 16th of Auguſt, Wallis's Iſland bore S. E. by S. diſtant 54 miles: conſequently, the ſhip was weſt of it in longitude 30′ 48″, and the longitude of Wallis's Iſland, by that obſervation, is 176° 34′ 12″ weſt. From this time to that when the obſervation was taken on the 17th, the ſhip made 1° 3′ weſt longitude, and, conſequently, was then 1° 33′ 48″ weſt of the iſland. The longitude of the iſland is, therefore, by that obſervation, 176° 55′ 50″ weſt. The mean of the two is 176° 45′ 1″ weſt of Greenwich. The latitude of this iſland is 13° 17′ ſouth.

16. According to Capt. Wallis's reckoning and bearings, Wallis's Iſland is 2° 38′ 13″ in longitude weſt of Boſcawen's Iſland, and

2°

2° 35′ 28″ weſt of Keppel's Iſland. By the Maſter's reckoning and bearings, theſe numbers are 2° 36′ 31″ and 2° 33′ 47″: the two mediums are 2° 37′ 22″ and 2° 34′ 37″; and, conſequently, the longitude of the former iſland will be 174° 7′ 39″, and that of the latter 174° 10′ 24″ weſt of Greenwich. Their latitudes are 15° 50′, and 15° 56′½ ſouth, reſpectively.

17. From the time of taking the obſervation on the 27th of Auguſt, which gave 187° 27′ 30″ weſt, to that of their arrival at the Piſcadore Iſlands, the ſhip made exactly 5° of weſt longitude; and, conſequently, the longitude of the Piſcadores is 192° 27′ 30″ weſt by that obſervation. But from the Piſcadores to the time of taking the obſervation on the 14th of September, the ſhip made 16° 30′ of weſt longitude; and, conſequently, the longitude of the Piſcadores, by this latter obſervation, is 192° 51′ 52″ weſt. The mean of the two is 192° 39′ 41″ weſt of Greenwich. The latitudes of the two iſlands which they ſaw, were 11° 00′ and 11° 20′ ſouth.

18. The obſervation on the 16th of September, 1767, gave 212° 20′ weſt, for the longitude of the ſhip when the obſervation was taken; and they made 1° 26′ of weſt longitude from this time to that of their coming to an anchor on the S. W. ſide of the iſland of Tinian. The longitude of Tinian Road is, therefore, 213° 46′ weſt, by that obſervation. Two obſervations made on the 27th and 30th of September, while the ſhip was at anchor there, gave 215° 10′ 30″ and 214° 26′½ weſt. When the obſervation was taken on the 16th, the ſhip had made 2° 15′ of weſt longitude from Tinian; and, therefore, as that obſervation gave the longitude of the ſhip 215° 9′½ weſt, the longitude of Tinian will be 212° 54′ 30″ weſt. The mean of the four is 214° 4′⅛ weſt of Greenwich. The latitude obſerved on board the ſhip, at anchor, was 14° 58′ north.

19. The bearings and diſtances of the two moſt eaſterly of the Baſhee Iſlands place them 6′ 30″ of longitude eaſt of the ſhip, when the

the obſervation was made on the 28th of October: theſe iſlands are, therefore, in 239° 13′ weſt, by that obſervation. At the time when the obſervation was taken on the 29th, they had made 2° 36′ weſt longitude from theſe iſlands; and, conſequently, that obſervation places them in 238° 56′ weſt. The mean of the two is 239° 4′ 49″ weſt. Capt. Wallis makes the latitude of Grafton Iſland 21° 4′ north.

20. Capt. Wallis's reckoning gives 15° 14′ of longitude between Grafton Iſland and Pulo Condore; Mr. Harriſon's, the Purſer, 15° 16′; and the Maſter made 15° 24′ of it: the medium is 15° 18′, which being added to 239° 4′ 49″, the longitude of Grafton Iſland, gives 254° 22′ 49″ weſt, for the longitude of Pulo Condore, by the obſervations of the 28th and 29th of October. Again, Capt. Wallis made 1° 3′ weſt longitude from Pulo Condore to the place the ſhip was in, when the obſervation was taken on the 14th of November; Mr. Harriſon 1° 13′; and the Maſter 1° 5′: the medium is 1° 7′, which being taken from 253° 46′ 30″, the longitude given by the obſervation, leaves 252° 39′ 30″ weſt, for the longitude of Pulo Condore, by this obſervation: the medium is 253° 31′ 10″ weſt of Greenwich, which is about ten minutes more than Capt. King's determination of it in the laſt voyage, and ſixteen minutes leſs than Mr. Bayly's. Capt. Wallis makes the latitude of Pulo Condore 8° 40′ to 45′ north; Mr. Harriſon 8° 42′ north; and the Maſter's bearings give 8° 41¼ north, for the middle of it.

21. Capt. Wallis, by his ſurvey and reckoning, makes Pulo Timoan, or, as it is called by the natives, Pulo Teoman,* 1° 45′ weſt of Pulo Condore, and, conſequently, in 255° 26′ 10″ weſt longitude from Greenwich. He makes the latitude of it 2° 58′ north. Mr. Harriſon makes the ſouth end of it to lie in latitude 2° 43′ north.

* I am obliged to ALEXANDER DALRYMPLE, Eſq. F.R.S. for the native names of theſe iſlands.

22. Pulo Aroe, or, according to the natives, Pulo Wawoor, bearing N. W. by N. diſtant 51 miles, when the obſervation was made on the 14th of November; we ſhall find, from thence, having regard to the preceding determinations, that its longitude is 254° 57′ 30″ weſt of Greenwich, and its latitude 2° 27′ north; but Mr. Harriſon makes its latitude 2° 35′ N. The data which this is drawn from are not put down.

23. The bearings of Pulo Piſſang, called Pulo Pambeelan by the natives, at 4ʰ. and 6ʰ. on the 14th of November, give the latitude of its ſouth end 2° 40′ north. By the ſame bearings, and Capt. Wallis's reckoning, it is 1° 40′ weſt of Pulo Condore; by the Maſter's reckoning it is 1° 52′ weſt of it; and by Mr. Harriſon's 1° 50′: the medium is 1° 47′ 20″; which being added to 253° 31′ 10″, the longitude of Pulo Condore, gives 255° 18′ 30″ weſt, for the longitude of Pulo Pambeelan.

The reckonings of Capt. Wallis, his Maſter, and the Purſer all end here, and are not reſumed until they left Batavia.

24. Between the times of making the obſervations on the 9th and 12th of May, 1768, at the latter of which times the ſhip was due ſouth of the Scilly Lights, ſhe made 1° 5′½ of eaſt longitude; which being taken from 7° 54′½, the longitude given by the obſervation on the 9th, leaves 6° 49′ weſt for the longitude of Scilly Light-houſe, by that obſervation. Between the obſervations on the 10th and 12th, the ſhip made 20′½ of eaſt longitude, which being taken from 7° 59′, the longitude given by the obſervation of the 10th, leaves 7° 38′½ weſt for the longitude of the Light-houſe, by this obſervation. The obſervation which was made on the 12th, when the ſhip was due ſouth of the Light-houſe, gave 7° 10′¼ weſt; and the medium of the three is 7° 12′ 35″ weſt of Greenwich.

ASTRONOMICAL OBSERVATIONS

Made on Board His MAJESTY's Ship the ENDEAVOUR,

In her VOYAGE Round the WORLD,

UNDER THE COMMAND OF

JAMES COOK, Esq.

In the YEARS 1768, 1769, 1770 and 1771.

1768.	Time by the Watch. H ′ ″	Alt. ⊙'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ⊙ or ✳. ° ′ ″	Ship's Latit. N. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
♀ Aug. 26.	Noon.	50 28½			49 31¼		65		Merid. Alt. Obſerved on the Poop.
	4 52 30	20 0½	Appa. Time	4h 42′ 52″	49 26				Obſ. on the Forecaſtle.
	9 46 19		24 42 L.	18 31 30	49 20	6 51 ✳		G.	☽ & β. Capr. faint. Q. D.
♄ —— 27.	Noon.	50 56			48 42⅔		64		Merid. Alt. Obſ. on P.
⊙ —— 28.	Noon.	52 0			47 17½		68		Ditto.
☽ —— 29.	Noon.	52 19			46 37		66		Ditto. Eye 24 f. above ſea.
♂ —— 30.	Noon.	52 24½			46 9¼		66		Ditto. Obſ. on Forecaſt.
☿ —— 31.	Noon.	53 9½			45 3		68		Ditto. Obſ. on Q. Deck.
♃ Sept. 1	Noon.				44 57		67		Latitude by account
♀ —— 2.	Noon.				43 55		68		Ditto.
	22 56 53	51 31⅔	20 36⅔ U.	91 58 50	44 11	8 55¼ ✳		G.	☽ & ⊙. These obſ. are dubious. Obſ. on the Poop.
	23 11 16	52 11⅓	18 19 U.	91 50 10	44 10	9 21¾ ✳		G.	☽ & ⊙.
♄ —— 3.	Noon.	52 57			44 9¼		68		Mer. Alt. Obſ. on F.C.
⊙ —— 4.	Noon.				43 40		68		Latitude by account.
	1 0 11	49 30⅚	10 8⅙ U.	78 2 10		8 40½ ✳		G.	⊙ & ☽. Good. Obſerved on the Quarter Deck.
	1 21 32	47 20⅙	Appa. Time	1h 37′ 56″	43 34½				Obſerv. on the Q. Deck.
	23 25 16	52 12⅔	35 41⅙ U.	66 16 10		9 28 ✳		G.	⊙ & ☽. Pretty good.
	23 41 54	53 13⅓	32 50 U.	66 9 0		9 32¾ ✳		G.	⊙ & ☽. On the Poop.
☽ —— 5.	Noon.	53 18			43 3¼		67		Meridian Alt. Q. Deck.
	3 33 44	28 2	Appa. Time	3h 48′ 16″	42 56	✳			Obſerv. on the Q. Deck.
	15 48 00	58 37½	33 0⅙ L.	40 44 30		10 10¼ ✳		G.	☽ and Aldebaran. Q. D.
	21 28 57	42 41	Appa. Time	21h 41′ 45″	42 4				Obſerv. on the Q. Deck.
	22 7 6	47 41	57 45 U.	54 26 10		9 4½ ✳		G.	⊙ & ☽.
	22 15 40	48 36⅙	56 24⅔ U.	54 22 0		9 35½ ✳		G.	⊙ & ☽. Obſerved on the Poop.
	22 57 28	52 17⅚	49 5 U.	54 5 25		10 15 ✳		G.	⊙ & ☽.
♂ —— 6.	Noon.	53 59			42 0⅓		70		⊙'s Meridian Altitude. Obſerv. on the Poop.
☿ —— 7.	Noon.	55 7½			40 28⅓		71		⊙'s Meridian Altitude. On the Forecaſtle.
♃ —— 8.	Noon.				38 33		71		Latitude by account.
♀ —— 9.	Noon.				37 4		69		Latitude obſerved.
♄ —— 10.	Noon.				35 20		72		Ditto.
⊙ —— 11.	Noon.				34 01		73		Ditto.
☽ —— 12.	Noon.				32 42		74½		Ditto.
♂ —— 13.	Noon.						74		In Funchal Road.
☽ —— 19.	Noon.				31 45		74		Lat. obſ. Funchal N. 7° E. true, diſt. 49 m.
	4 30 17	18 20⅚	28 38⅓ U.	94 35 30	31 36½	18 35⅜ ✳		G.	⊙ & ☽. On the P. The run ſince noon S. S. W. by Compaſs. diſt. 8 miles.
	4 44 38	15 15⅔	29 52⅔ U.	94 41 20	31 36½	19 30⅞ ✳		G.	⊙ & ☽.
	5 18 3	8 19⅙	32 16⅓ U.	94 45 40	31 36½	17 35 ✳		G.	⊙ & ☽.
♂ —— 20	Noon.				31 18		75		Latitude obſerved.
☿ —— 21.	Noon.				30 46		74		Ditto.

1768.	Time by the Watch. H ′ ″	Alt. ☉'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. N ° ′	Long. W. of Greenwich. ° ′	Thermo.	Observ.	Phenomena and Remarks.
☿ Sept. 21.	5 30 26	4 25⅔	29 27⅓ U.	118 36 30	30 30	16 32½ ✳		G.	☽ & ☉. Rather uncert. The Salvages S. ¼ W. true, dist. about 5 leag.
	10 37 33		27 49⅓ U.	52 23 40		14 12½ ✳		G.	☽ & ∝ Peg. Very uncert.
♃ —— 22.	Noon.	60 9½			29 39⅔		75		☉'s Mer. Alt. Q. Deck.
	4 59 3½	10 40¾	Appa. Time 5h 10′ 9″		29 31				Obſ. on the Q. D. The Peak of Teneriffe W. by S. ¼ S. and the Gd. Canary S. ½ W.
	13 11 46		14 14⅓ L.	38 25 20	29 13	14 38½ ✳		G.	☽ & ∝ Peg. Pretty good.
	21 20 27	43 47½	Appa. Time 21h 31′ 15″		28 56				Obſerv. on the Q. Deck.
♀ —— 23.	Noon.	60 35½			28 50¾		73		☉'s Mer. Alt. Q. Deck.
♄ —— 24.	Noon.	61 52			27 10		72½		☉'s Meridian Altitude. Obſ. on the Main Deck.
☉ —— 25.	Noon.	63 3			25 35⅓		73		☉'s Mer. Alt. Q. Deck.
	3 43 21	30 41⅓	Appa. Time 3h 38′ 44″		25 24				Obſerv. on the Q. Deck.
	10 25 5	46 21½	61 24 L.	61 4 0		18 38 ✳		G.	☽ & ∝ Aquilæ. Pretty good. Forecaſtle.
	21 30 43	43 59⅚	Appa. Time 21h 23′ 6″		23 57				Obſerv. on the Q. Deck.
☽ —— 26.	Noon.	64 32			23 42⅘		74		☉'s Mer. Alt. Forecaſt.
	4 26 8	22 33½	Appa. Time 4h 17′ 16″		23 21½				Obſerv. on the Q. Deck.
	10 28 59	45 21⅔	56 42 L.	74 20 30		20 27 ✳		G.	☽ & ∝ Aquilæ. Pretty good. Quarter Deck.
	21 27 5	43 15	Appa. Time 21h 15′ 32″		21 40				Obſerv. on the Q. Deck.
♂ —— 27.	Noon.	66 26			21 25½		76		☉'s Meridian Altitude.
☿ —— 28.	Noon.				18 59		79		Latitude obſerved.
♃ —— 29.	Noon.				17 32		81½		Ditto.
♀ —— 30.	Noon.				15 56		82		Ditto.
	19 24 7	22 43⅙	45 36⅓ U.	110 35 20	14 28½	22 35¼		G.	☽ & ☉.
	20 6 5	32 42⅚	36 19 U.	110 19 00	14 25½	22 50		G.	☽ & ☉. Very good.
	20 58 12	44 44⅔	24 51⅔ U.	109 56 50	14 21	22 47¼		G.	☽ & ☉.
♄ Octo. 1.	Noon.				14 6½		80		Latitude obſerved.
☉ —— 2.	Noon.				12 31		81		Ditto.
☽ —— 3.	Noon.				11 56		80		Latitude by account.
	20 29 55	27 7⅔	78 57⅗ U.	72 29 00		22 48 ✳		G.	☽ & ☉. Clear air.
	20 39 20	29 22⅔	Appa. Time 20h 6′ 00″		11 54				
♂ —— 4.	Noon.	73 14			11 54		81		☉'s Mer. Alt. Q. Deck.
☿ —— 5.	Noon.	73 49			10 55⅝		80		Ditto.
♃ —— 6.	Noon.				9 42		81		Latitude obſerved.
♀ —— 7.	Noon.				9 42½		84		Ditto.
♄ —— 8.	Noon.				8 26		81		Ditto.
☉ —— 9.	Noon.	75 13½			7 59⅔		82		☉'s Meridian Altitude.
☽ —— 10.	Noon.				7 42		82		Latitude by account.
♂ —— 11.	Noon.				7 36½		79		Latitude obſerved.
☿ —— 12.	Noon.				7 21		80		Latitude by account.
♃ —— 13.	Noon.				7 2½		80		Latitude obſerved.
♀ —— 14.	Noon.				6 38		81		Latitude by account.

1768.	Time by the Watch.	Alt. ☉'s L.L.or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. N.	Long. W. of Greenwich.	Thermo.	Obſerr.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♀ Octo. 14.	23 54 43	72 24½	24 28½ U.	51 35 0	6 48⅔	23 41			☽&☉. Very good.
♄ —— 15.	Noon.	74 9			6 48¾		82		☉'s Meridian Altitude.
	3 53 47⅔	35 28½			6 46				Main Deck.
	4 4 50	32 39⅔	58 36 U.	52 42 20	6 46	23 21		G.	☽ and ☉. Good.
	4 4 50	32 39⅔	58 36 U.	52 42 30	6 46	23 33½		C.	☽ and ☉. Good.
	4 19 17	29 19	58 8¾ U.	52 45 20	6 45½	23 18		G.	☽&☉. Rath. indiſtinct.
	4 21 17½	28 49½	58 3 U.	52 45 54	6 45½			C.	☽ and ☉.
	Noon.				5 38		80		Latitude by account.
☉ —— 16.	1 5 25	64 31⅔	37 23 U.	63 17 20	5 35	23 20		G.	☽&☉.
	2 6 1	61 0⅔	40 42⅔ U.	63 21 50	5 32	23 58		G.	☽&☉. V. good. The 1ſt and two laſt by Mr. Green's W. the others by Cap. Cook's. On the Poop.
	2 6 1	61 0⅔	40 42⅔ U.	63 21 20	5 32	23 46		C.	☽&☉.
	2 14 25	59 11	42 21 U.	63 24 00	5 32	23 42		G.	☽&☉.
	2 14 25	59 11	42 21 U.	63 24 00	5 32	23 44		C.	☽&☉.
	3 42 18	28 49⅓	59 40⅔ U.	63 58 10	5 31½	23 38½		G.	☽&☉.
	3 48 11	27 24⅓	59 58 U.	63 58 00	5 31½	23 40		G.	☽&☉.
	Noon.				5 17		80		Latitude obſerved.
☽ —— 17.	3 33 3	34 26⅓	52 26⅓ U.	75 15 30	5 15⅓	24 32		G.	☽ and ☉. Diſt. Good. ☽'s Altitude dubious.
♂ —— 18.	Noon.				4 45		79		Latitude by account.
☿ —— 19.	Noon.				3 44		80		Latitude obſerved.
	5 12 26	16 30	53 25⅙ U.	99 21 0		25 9		G.	☽&☉. Pretty good.
	5 23 23	13 30⅔	55 31⅓ U.	99 25 0	3 42	25 58		G.	☽&☉. On the Poop.
	5 41 51	9 24	59 20 U.	99 27 0		25 18⅔		G.	☽&☉. Very good. P.
♃ —— 20.	Noon.	75 53			3 15½		81		☉'s Meridian Altitude.
	4 24 27	26 24	35 12 U.	111 39 00	3 7⅓	26 10		G.	☽&☉.
	4 51 54	19 44⅓	41 29 U.	111 47 30		26 40		G.	☽&☉. Very diſt. Obſ. on the P. The time for the two firſt by Mr. Green's Watch the others by Capt. Cook's.
	5 9 46	17 35⅓	43 32 U.	111 50 10		26 20		G.	☽&☉.
	5 9 46	17 35⅓	43 32 U.	111 51 20	3 6	25 46		C.	☽&☉.
	5 18 6	15 31⅓	45 37⅔ U.	111 53 20	3 6	26 31⅔		G.	☽&☉.
	5 18 6	15 31⅓	45 37⅔ U.	111 53 00		25 46		C.	☽&☉.
	5 33 39	11 37⅓	49 9 U.	111 57 30		26 23⅓		G.	☽&☉.
♀ —— 21.	Noon.				2 49		79½		Latitude obſerved.
	4 47 45	25 8⅓	25 45⅓ U.	124 38 00		26 41		G.	☽&☉.
	5 2 32	21 44	29 15⅔ U.	124 45 20	2 38⅔	26 40		G.	☽&☉. Diſtan. good, but the horizon indiſtinct.
	5 25 7	16 9	34 40 U.	124 52 30		26 29⅓		G.	☽&☉.
♄ —— 22.	Noon.				1 45		79		Latitude obſerved.
☉ —— 23.	Noon.				1 40		79½		Ditto.
	3 41 38	26 29	Appa. Time 4h 9′ 18″		1 39				
	8 31 44½	40 52½	70 3½ L.	67 29 30				G.	☽&α Aqui. Very g. (2)
	8 36 4	39 44	71 3 L.	67 31 0				C.	☽&α Aquilæ. (1)
	20 50 10	46 3⅔	Appa. Time 21h 12′ 3″						Alt. ☉'s L. L. Bad hori.
☽ —— 24.	Noon.	76 37½			1 6½		79¼		☉'s Merid. Alt. Q. D.
					South.				
♂ —— 25.	Noon.	77 39			0 15¾		79¼		Ditto.
☿ —— 26.	Noon.	78 24			1 21¼		79		Ditto.
♃ —— 27.	Noon.				2 22		80¼		Latitude obſerved.

1768.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♃ Octo. 27	13 4 37	57 28⅝	57 4½ L.	35 43 36		32 27		G.	☽ & ♃A. (5) Very indist.
	13 40 43	28 41¾	60 34½ L.	40 6 0		32 0¼		G.	☽ & P. (4) and the horizon bad.
	13 51 23	31 13			3 3				Pollux.
	21 13 59	47 39⅙			3 31				☉'s L. L.
♀ —— 28.	Noon.				3 41		79		Latitude observed.
♄ —— 29.	Noon.				5 24		79		Ditto.
☉ —— 30.	Noon.				7 8		79½		Latitude by account.
☽ —— 31.	Noon.				8 59		80		Latitude observed.
♂ Nov. 1.	Noon.				10 37		79¼		Ditto.
	14 56 12	56 14	27 8⅔ L.	72 58 20	11 54⅘	32 11		G.	☽ & Aldebaran.
								G.	(✳'s Alt. bad.) Pret.
	16 16 16	48 10⅓	43 43⅓ L.	31 43 20	12 5⅘	31 25		G.	☽ & Pollux. good
	16 58 32	35 8½	52 59 L.	73 43 0	12 9⅘	32 19		G.	☽ & Aldeb. (2)
	20 29 6	39 49	56 40⅔ U.	78 46 00	12 29½	32 40		G.	☽ & ☉. Air but indiff.
	20 57 19	46 42	51 27⅓ U.	78 37 10	12 32	32 40½		G.	☽ & ☉. Bad horizon.
☿ —— 2.	Noon.	87 34⅚			12 50		80½		☉'s Meridian Altitude.
	19 30 37	48 34	61 7⅓ U.	67 0 20	14 26	32 50		G.	☽ and ☉. Very clear.
♃ —— 3.	Noon.	89 17			14 51		80		☉'s Meridian Altitude.
	22 34 22	58 25⅓	63 14⅔ U.	55 27 30	16 41⅔	34 30		G.	☽ & ☉. Obj. very dist.
♀ —— 4	Noon.	88 39½			16 49		78½		☉'s Merid. Alt. Poop.
	20 58 47	46 26	75 57 U.	44 30 30	18 12⅞	34 26½		G.	☽ and ☉. (1) Cloudy.
♄ —— 5.	Noon.	87 24½			18 22¼		78		☉'s Meridian Altitude.
☉ —— 6.	Noon.	87 3			19 1¾		77		Ditto.
☽ —— 7.	Noon.	86 37			19 45½		77		Ditto.
♂ —— 8.	Noon.				21 15		77		Latitude observed.
☿ —— 9.	Noon.				21 30		74		Ditto.
♃ —— 10	Noon.				21 30		75		Ditto.
♀ —— 11.	Noon.				22 37		72½		Ditto.
♄ —— 12.	Noon.				23 6		72		Ditto.
	3 33 25	41 47		33 58 40		43 25⅞ ✳		G.	☽ & ☉. ☽'s Inentr. of the
	3 46 50	38 43½		34 0 40	23 2⅓	42 43¾ ✳		G.	☽ & ☉. Limb Harb.
	3 54 8	37 3⅔		34 2 30		42 44⅞ ✳		G.	☽ & ☉. faint. of Rio
		6 2	Mag. Azi. ☉'s	Cent. S. 65°48′⅓ W.	Var. of the Compass		7° 11′ E.		✳ Janeiro.
♃ Dec. 8.	Noon.	88 17			24 21⅔		78		☉'s Merid. Alt. Q.D.
♀ —— 9.	Noon.	87 58¼			24 46⅓		78½		Ditto. Poop.
♄ —— 10.	Noon.	87 15½			25 34⅓		75½		Ditto.
☉ —— 11.	Noon.	87 11¼			25 42⅞		75		Ditto.
☽ —— 12.	Noon.	86 44			26 14⅞		74		Ditto.
	4 34 41	28 7⅓	62 47 L.	38 13 20	26 27½	42 43⅛		G.	☽ & ☉. Obs. on M. D.
	4 47 6	25 22⅔	60 20 L.	38 16 57	26 28½	42 36		G.	☽ & ☉. Objects faint,
	5 1 14	22 25½			26 29⅓				☉'s Al. air clear, and
	5 15 15	19 24	54 14⅓ L.	38 26 50	26 30¼	42 37⅛		G.	☽ & ☉. horizon good.
♂ —— 13.	Noon.	85 2			28 0½		75		☉'s Meridian Altitude.
☿ —— 14.	Noon.	Cloudy					73		Latitude by account.
♃ —— 15.	Noon.	83 1			30 8		72		☉'s Meridian Altitude.

1768.	Time by the Watch.	Alt. ☉'s L.L.or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♃ Dec. 15.	1 40 9	65 47	37 18¼ U.	73 57 10	30 11	42 25		G.	☽&☉.
	3 24 40	43 27	55 39½ U.	74 35 0	30 14⅙	42 33½		G.	☽&☉.
	3 41 14	39 57	57 53 U.	74 40 50	30 14½	42 38¼		G.	☽&☉. Pretty good.
	3 55 32	36 49	59 25⅓ U.	74 46 30	30 15	42 38		G.	☽&☉. Observed on
	4 3 6	35 25⅓	60 13⅔ U.	74 48 10	30 15	42 33¾		G.	☽&☉. the Poop.
	4 9 15	33 35⅓			30 15¼				☉'s Al.
♀ —— 16.	Noon.	81 50			31 21⅓		72		☉'s Meridian Altitude.
♄ —— 17.	Noon.	80 58			32 15¼		71		Ditto.
	3 9 2	48 4⅓	26 31⅔ U.	100 10 53	32 22⅔	43 59½ ✳		G.	☽&☉.
	3 21 49	45 17	28 44⅓ U.	100 16 40	32 22⅓	44 00¼ ✳		G.	☽&☉.
	3 30 27	43 40	Appa. Time 3h 26′ 55″		32 23¼	✳			Clear air, and
	3 43 3	41 2⅔	32 18 U.	100 25 30	32 23⅔	43 59¼ ✳		G.	☽&☉. good horizon.
	3 51 13	39 23	33 36 U.	100 30 50	32 24	44 54 ✳		G.	☽&☉.
	4 6 40	35 55⅔	36 5⅔ U.	100 37 00	32 24⅓	44 47 ✳		G.	☽&☉.
	8 47 2	34 28⅓	38 40 L.	57 19 10	32 33¼	43 56 ✳		G.	☽ & Ald. Clear air,
	9 0 31	35 57⅓	36 49 L.	57 12 0	32 33½	43 16		G.	☽ & Ald. and good
	9 16 29	37 30	34 21⅓ L.	57 5 30	32 33¾	43 19¼		G.	☽ & Ald. horizon.
					32 41¾		68		☉'s Meridian Altitude.
☉ —— 18.	Noon.	80 33							
	3 57 57	38 0⅔	22 7⅔ U.	113 49 10		44 30		G.	☽&☉.
	4 9 50	35 31⅔	24 1⅔ U.	113 55 30	32 47¾	44 28		G.	☽&☉. Very clear and
	4 19 38	33 28	25 37⅓ U.	113 59 0		44 39		G.	☽&☉. distinct.
							69		☉'s Meridian Altitude.
☽ —— 19.	Noon.	79 11½			34 4¼		70		Latitude by account.
♂ —— 20.	Noon.				36 2				
♅ —— 21.	Noon.	76 9			37 7¼		72		☉'s Meridian Altitude.
♃ —— 22.	Noon.	76 8			37 8		77		Ditto.
					36 46⅙		69		Ditto.
♀ —— 23.	Noon.	76 29					68		Ditto.
♄ —— 24.	Noon.	76 3			37 10¾				
☉ —— 25.	Noon.				38 37		70		Latitude by account.
☽ —— 26.	Noon.				40 19		69		Ditto.
♂ —— 27.	Noon.				41 38		68		Ditto.
♅ —— 28.	Noon.	72 16			40 47½		67½		☉'s Merid. Alt. Poop.
	19 58 27	35 33¼	31 54⅓ U.	106 33 00	41 26¼	59 8		G.	☽&☉.
	20 6 47	37 10½	30 32⅔ U.	106 29 30	41 26⅔	59 21		G.	☽&☉.
	20 15 52	38 50	29 6 U.	106 26 10	41 27	59 17		G.	☽&☉.
	21 31 7½	52 36½	16 20 U.	105 55 30	41 33¼	59 34		C.	☽&☉. Observed on
	21 32 20	52 48⅔	16 6 U.	105 55 50	41 33½	59 12		G.	☽&☉. the Q. Deck.
	21 41 47	54 27⅔	14 28½ U	105 52 00	41 34	59 17½		G.	☽&☉. Very good.
	21 41 47	54 27⅔	14 28½ U.	105 51 10	41 34	59 11¼		C.	☽&☉.
	21 52 13	56 15	12 40⅔ U.	105 46 30	41 34¾	59 43		G.	☽&☉.
	21 52 13	56 15	12 40⅔ U.	105 46 10	41 34¾	59 20¾		C.	☽&☉.
					41 44		67		☉'s Merid. Alt. Poop.
♃ —— 29.	Noon.	71 16			42 31½		66		Ditto. Do.
♀ —— 30.	Noon.	70 24			43 14		65		Latitude by account.
♄ —— 31.	Noon.								
	21 47 00	54 26⅔	44 13⅔ U.	72 28 00	43 34	61 18½		G.	☽&☉. Observ. on the
	21 47 00	54 26⅔	44 13⅔ U.	72 26 00	43 34			C.	☽&☉. Poop. The
	21 56 22½	56 5	42 44½ U.	72 23 00	43 35			C.	☽&☉. air clear.

1768.	Time by the Watch.	Alt. ☉'s L.L.or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♄ Dec. 31.	21 57 47	56 17¼	42 30⅔ U.	72 23 27	43 35	61 9½		G.	☽&☉.
	22 6 12	57 59	40 38⅓ U.	72 20 20	43 36	61 6		G.	☽&☉.
	22 6 12	57 59	40 38⅓ U.	72 20 00	43 36			C.	☽&☉. Observ. on the Poop. The air clear.
	22 17 32	59 47⅚	38 43⅓ U.	72 16 50	43 37¼	61 6		G.	☽&☉.
	22 28 10	61 24⅚	36 58 U.	72 13 20	43 38½	61 15½		G.	☽&☉.
		63 10	34 39 U.	72 8 0	43 39½	61 13		G.	☽&☉.
1769.									
☉ Jan. 1.	Noon	69 00			43 45¼		62		☉'s Meridian Altitude.
	21 23 28	56 49⅚	49 54 U.	61 24 40	45 7⅓	61 10		G.	☽&☉.
	21 43 57	59 48⅚	46 44 U.	61 19 00	45 9⅓	61 16		G.	☽&☉. (5) Good air. Good obs.
	22 0 30	61 53½	44 5 U.	61 13 0	45 10½	61 13		G.	☽&☉. On the P.
☽ —— 2.	Noon	67 23			45 17¼		64		☉'s Meridian Altitude.
	21 27 18	48 47⅓	62 7 U.	50 40 40		61 29		G.	☽&☉. Very clear.
	21 39 31	50 41	61 3⅓ U.	50 36 50	47 5½	61 16		G.	☽&☉. On the Poop.
	21 49 40	52 12⅔	60 12⅓ U.	50 33 30		61 35		G.	☽&☉.
♂ —— 3.	Noon.	65 17			47 17		64		☉'s Merid. Alt.
☿ —— 4.	Noon.	63 59			48 28¾		57		Ditto. Q. D.
♃ —— 5.	Noon.	62 32			49 48¾		63		Ditto.
♀ —— 6.	Noon.				51 20		60		Latitude by account.
♄ —— 7.	Noon.	60 40			51 26		57		☉'s Merid. Alt.
☉ —— 8.	Noon.	60 40			51 17⅓		58		Ditto.
☽ —— 9.	Noon.	59 25½			51 23⅓		57		Ditto.
♂ —— 10.	Noon.	58 47			52 52⅔		56		Ditto. Q. D.
☿ —— 11.	Noon.	57 10½			54 19⅔		57		Ditto.
♃ —— 12.	Noon.	56 47			54 33		52		Ditto.
♀ —— 13.	Noon.	56 28			54 41¾		54		C. St. Diego N° dist. 2 leagues.
	6 12 53	15 14⅓	24 7 U.	71 27 40		66 9¾ *		G.	☽&☉. Very clear, but a turb. sea.
	6 18 41	14 26	23 41⅓ U.	71 30 30	54 22¾	66 17⅓ *		G.	☽&☉. Cape St. Diego S. by E. true,
	6 24 26	13 38	23 18⅓ U.	71 32 10		66 00 *		G.	☽&☉. dist. 4 or 5 lea. Q. D. †
♄ —— 21.	Noon.	54 11			55 21½		48		☉'s Merid. Altitude.
☉ —— 22.	Noon.	53 12			56 6⅔		50		☉'s Merid. Altitude.

† Capt. Cook has computed these three observations; and, contrary to his constant practice in every other instance, has put down both the results and the observations. He has also put down the apparent times at the ship, as he computed them; but he has not put down the latitude he made use of, which would have been of great use here, as the variety of currents which the ship was affected by, prevents us from determining this point, now, with so much exactness as he could, who had the land before him for a guide. His apparent times uniformly exceed mine by 9″, which must have arisen from his taking the latitude somewhat greater than I have: for it is not likely that we should differ much in the sun's declination at this time of the year. Captain Cook's results are 66° 7′¾ west, 66° 19′¾ west, and 66° 00′¾ west. Mr. Green makes them 66° 7′¾ west, 66° 19′¾ west, and 66° 3′¾ west. In deducing those which are put down in the proper column, I have reduced the distance in the most rigid manner by spherical Trigonometry; but if I had made use of Captain Cook's apparent times at the ship, each result would have been less than it is by 2′ 15″.

1769.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☽ Jan. 23.	Noon.	53 40			55 24⅓		53		Ditto.
♂ —— 24	Noon.	53 12			55 37⅝		56		Ditto.
☿ —— 25	Noon.				55 57		52		Latitude by account.
♃ —— 26.	Noon.				56 57		56		Ditto.
	11 59 57	18 1	23 13⅔ U.	42 14 30		67 2¼ ✳		G.	☽ & Regul. Uncert. P.
	18 54 19	20 50⅔	31 33 L.	116 3 30		66 1½ ✳		G.	☽&☉. But indif. The ship E. of Cape Horn, in long. 27′,9. Poop.
	19 0 43	21 41	30 51⅓ L.	115 59 20	57 11¼	67 0 ✳		G.	☽&☉.
	19 6 38	22 28	30 16 L.	115 57 00		67 5¼ ✳		G.	☽&☉.
♀ —— 27.	Noon.	51 0½			57 3½		56		☉'s Merid. Alt. Obs. on the Poop. †
	21 33 5	41 50⅔	20 15 L	103 42 30		69 6¼ ✳		G.	☽&☉. Pretty clear. The ship W. of Cape Horn, in long. 1°31′¼. On the Poop.
	21 55 8	44 0⅓	17 35 L.	103 33 40	58 1	68 33¼ ✳		G.	☽&☉.
	22 3 12	44 36	16 36½ L.	103 29 40		69 3¼ ✳		G.	☽&☉.
♄ —— 28.	Noon.	49 44			58 4		56		☉'s Merid. Altitude.
	22 7 48	44 38	23 47⅓ U.	92 25 00		71 14 ✳		G.	☽&☉. Pretty good. Ship W. of C. Horn, in lon. 4°27′. Q. D.
	22 17 27	45 12¼	22 33⅓ U.	92 20 20	58 54⅔	71 56 ✳		G.	☽&☉.
	22 24 33	45 43¼	21 43 U.	92 17 0		72 0¼ ✳		G.	☽&☉.(2)
☉ —— 29.	Noon.	48 32			58 59⅔		50		☉'s Merid. Altitude.
	22 43 29	44 56⅓	29 4 L.	81 18 40		73 24 ✳		G.	☽&☉. Very clear. The ship W. of Cape Horn, in long. 5° 51′. M. D.
	22 49 10	45 15	28 26⅓ L.	81 16 40	60 2	73 14 ✳		G.	☽&☉.
	22 53 28	45 29	27 55 L.	81 14 30		73 23¾ ✳		G.	☽&☉.
☽ —— 30.	Noon.	47 11			60 4⅓		56		☉'s Merid. Altitude.
♂ —— 31.	Noon.	47 10			59 48⅓		58		Ditto.
☿ Feb. 1.	Noon.	47 57			58 44		61		Ditto.
♃ —— 2	Noon.				58 30		64		Latitude by account.
♀ —— 3.	Noon.				58 30		65		Ditto.
♄ —— 4.	Noon.	48 1			57 46⅔		66		☉'s Merid. Altitude.
☉ —— 5.	Noon.				56 46		66		Latitude by account.
☽ —— 6.	Noon.	50 13			55 17⅔		66¼		☉'s Merid. Altitude.
♂ —— 7.	Noon.				54 40		52		Latitude by account.
☿ —— 8.	Noon.	50 51			53 41⅔		55		☉'s Meridian Altitude.
♃ —— 9.	Noon.				52 22		56		Latitude observed.
♀ —— 10.	Noon.				51 16		55		Latitude by account.
♄ —— 11.	Noon.				50 55		57		Ditto.
	4 19 35	22 49⅔	22 19 U.	67 5 30	50 33¼	89 7		G.	☽&☉. Very good.
	4 19 35	22 49⅔	22 19 U.	67 7 50				C.	☽&☉. Mr. Green remarks that the numbers were read off from his quadrant by Capt. Cook.
	4 37 42	19 47	21 41⅓ U.	67 16 00		89 6¾		G.	☽&☉.
	4 37 42	19 47	21 41⅓ U.	67 16 10				C.	☽&☉.
	4 44 52	18 41⅔	21 24 U.	67 18 30		89 7		G.	☽&☉.
	4 44 52	18 41⅔	21 24 U.	67 17 50				C.	☽&☉. Obs. on M. D.

† At 2ʰ 0′ 00″, they saw the Island of Diego Ramiriz bearing north true, distant about 8 leagues. They had made a W. N. W. course good from the time when the observations were taken in the morning to this; and had run 33½ miles, of which, 11 had been run since noon. Hence the latitude of Diego Ramiriz is 56° 35′ South, and its longitude west of Cape Horn 28′ 54″.

1769.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♄ Feb. 11.	4 52 50	17 25	20 59⅔ U.	67 19 50	50 33½	89 8		G.	☽&☉. Very good.
	4 52 50	17 25	20 59⅔ U.	67 19 50	50 33½			C.	☽&☉. Very good.
	4 56 37	16 47⅔	20 48⅔ U.	67 21 50		89 17		G.	☽&☉. Mr. Green remarks that the
	4 56 37	16 47⅔	20 48⅔ U.	67 22 30				C.	☽&☉. numbers were
	5 0 39	16 9	20 37⅓ U.	67 22 40				G.	☽&☉. read off from
	5 0 39	16 9	20 37⅓ U.	67 24 0				C.	☽&☉. his quadrant
	5 4 18	15 35⅓	20 26 U.	67 24 0				G.	☽&☉. by Capt. Cook.
	5 4 18	15 35⅓	20 26 U.	67 24 50	50 33½			C.	☽&☉. Obs. on M. D.
☉ —— 12.	Noon.	53 32½			49 40½		59		☉'s Merid. Altitude.
	4 14 8	26 12⅓	19 36⅓ U.	80 12 50		89 58		G.	☽&☉.
	4 14 8	26 12⅓	19 36⅓ U.	80 13 5		90 13		C.	☽&☉.
	4 24 15	24 41⅓	19 48⅓ U.	80 16 20	49 43	89 40		G.	☽&☉. Observ. on the
	4 24 15	24 41⅓	19 48⅓ U.	80 17 10	49 43	90 13		C.	☽&☉. M. D.
	4 32 2	23 19⅔	19 56⅓ U.	80 20 00	49 23	89 29¼		G.	☽&☉.
	4 32 2	23 19⅔	19 56⅓ U.	80 20 20	49 23	90 13		C.	Ditto.
☽ —— 13.	Noon.	53 21			49 31½		56		☉'s Merid. Altitude.
♂ —— 14.	Noon.	53 25			49 7		60		Ditto.
	5 9 38	17 12	12 59⅓ U.	106 49 30		90 52½ ✳		G.	☽&☉.
	5 18 5	15 49⅓	13 28⅔ U.	106 53 32		91 9 ✳		G.	☽&☉. Observed on
	5 25 57	14 31	13 55⅔ U.	106 57 0	49 1	91 19 ✳		G.	☽&☉. the Poop.
	5 34 47	13 3	14 25⅔ U.	107 00 30		90 49 ✳		G.	☽&☉.
	9 32 55	20 19	8 34 L.	70 54 00	48 55	91 4½ ✳		G.	☽ & Reg. Obs. on Q. D.
♉ —— 15.	Noon.	53 44			48 27		62		☉'s Merid. Altitude.
♃ —— 16.	Noon.	53 49			48 1		59		Ditto.
♀ —— 17.	Noon.				46 48		61		Latitude observed.
♄ —— 18.	Noon.				44 50		63		Ditto.
☉ —— 19.	Noon.				43 21		61½		Ditto.
☽ —— 20.	Noon.				43 46		66		Ditto.
♂ —— 21.	Noon.				44 39		66		Ditto.
♉ —— 22.	Noon.				44 46		66		Latitude by account.
♃ —— 23.	Noon.				44 35		66		Latitude observed.
♀ —— 24.	Noon.				43 37		64		Ditto.
♄ —— 25.	Noon.				42 23		67		Ditto.
☉ —— 26.	Noon.				41 4		67		Ditto.
	21 15 55	19 29⅓	55 15⅔ U.	102 3 50		108 56		G.	☽&☉. Observed on
	21 20 32	20 21	54 29 U.	102 2 0		109 10		G.	☽&☉. the Poop.
☽ —— 27.	Noon.				39 43		67		Latitude observed.
	20 44 33	36 27⅔	47 49⅔ U.	90 39 20		109 52¾ ✳		G.	☽&☉.
	20 44 33	36 27⅔	47 49⅔ U.	90 38 55	39 52			C.	☽&☉.
	20 52 25	37 51	46 21 U.	90 37 0		109 57¾ ✳		G.	☽&☉. Observed on
	20 52 25	37 51	46 21 U.	90 38 50				C.	☽&☉. the Poop.
	20 59 4	39 1⅔	45 9 U.	90 33 50	39 52	109 56 ✳		G.	☽&☉.
	20 59 4	39 1⅔	45 9 U.	90 36 20				C.	☽&☉.
♂ —— 28.	Noon.	57 53			39 32⅔		68		☉'s Merid. Altitude.
♉ March 1.	Noon.				38 44		69		Latitude observed.
♃ —— 2.	Noon.	59 22			37 18		70		☉'s Merid. Altitude.
♀ —— 3.	Noon.	59 27			36 49¾		70		Ditto.

1769.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♄ March 4.	Noon.	59 41			36 12⅖		74		☉'s Merid. Altitude.
☉ —— 5.	Noon.	59 10			36 20⅓		73		Ditto.
☽ —— 6.	Noon.	58 35			36 32		75		Ditto.
♂ —— 7.	Noon.	57 37			37 6⅗		73		Ditto.
♉ —— 8.	Noon.				37 24				Latitude by account.
♃ —— 9.	Noon.	58 9			35 47½		65		☉'s Merid. Altitude.
♀ —— 10.	Noon.				34 14				Latitude by account.
♄ —— 11.	Noon.	60 15			32 54		72		☉'s Merid. Altitude.
☉ —— 12.	Noon.	61 12			31 33⅓		73		Ditto.
	3 40 13	30 34	35 47 U.	63 39 40	31 20	125 6½		G.	☽ & ☉. On Forecaſtle.
	3 40 13	30 34	35 47 U.	63 40 20	31 20			C.	Ditto.
☽ —— 13.	Noon.	61 35			30 46¾		76		☉'s Merid. Altitude.
	3 2 34	37 20½	28 59¾ U.	76 51 30		126 23¾ ✳		G.	☽ & ☉.
	3 2 34	37 20½	28 59½ U.	76 52 0				C.	☽ & ☉. ☉'s Altitude obſerved on the Bowſprit: ☽'s on the Forecaſtle.
	3 8 58	36 0¼	29 35 U.	76 54 30	30 45	126 3½ ✳		G.	☽ & ☉.
	3 8 58	36 0¼	29 35 U.	76 54 30				C.	☽ & ☉.
	3 17 5	34 22¾	30 21¾ U.	76 56 40		125 45 ✳		G.	☽ & ☉.
	3 17 5	34 22¾	30 21¾ U.	76 56 30				C.	☽ & ☉.
♂ —— 14.	Noon.	61 41			30 17		75		☉'s Merid. Altitude.
♉ —— 15.	Noon.	61 50			29 44⅓		79		Ditto.
	5 13 43	9 19½	32 38 U.	103 40 00	29 40⅓	126 40 ✳		G.	☽ & ☉. Obſerved on the Q. D.
	5 22 53	7 23	33 27⅗ U.	103 43 10		126 27 ✳		G.	☽ & ☉.
	8 1 7	♄ immerged totally behind the ☽'s dark limb. Appa. Time 8h 7′ 41″.							A little hazy.
	8 55 50	♄ emerged totally from the ☽'s enlightened limb. Appa. Time 9h 2′ 24″.							Very clear and diſtinct.
		This occultation of ♄ by the Moon was obſerved with a four feet Refractor, made by Mr. Dollond, with which the Satellites of Jupiter could be ſeen in a clear night.							
♃ —— 16.	Noon.	61 59			29 11⅖		80		☉'s Meridian Altitude.
	5 24 28	7 52⅘	29 46⅓ U.	116 22 50		126 46¼ ✳		G.	☽ & ☉. Obſerved on the Quarter Deck.
	5 32 11	6 14	30 49⅖ U.	116 25 00	29 01	127 0½ ✳		G.	☽ & ☉.
	5 39 12	4 43⅓	31 45 U.	116 26 30		127 19½ ✳		G.	☽ & ☉.
	8 15 33	19 49	41 24⅓ U.	48 1 30	28 56¾	126 35¼		G.	☽ & Ald. Obſerv. on the Quarter Deck.
	8 28 43	17 22	40 17⅓ L.	48 3 20	28 56½	126 57		G.	☽ & Ald.
	8 44 10	14 25	39 22⅓ L.	48 7 37	28 56	127 9		G.	☽ & Ald.
	9 2 18	45 29	38 12⅓ L.	31 57 0	28 55⅖	127 19		G.	☽ & Regulus. Q. Deck.
♀ —— 17.	Noon.	62 16			28 31		78		☉'s Meridian Altitude.
♄ —— 18.	Noon.	Cloudy			27 52		79		Latitude by account.
	8 3 23	32 14⅘	47 14⅓ U.	32 48 20		126 37		G.	☽ & Pollux. Obſerv. on the Q. D.
	8 13 39	31 35	48 47⅓ U.	32 54 00	28 6	126 55½		G.	☽ & Pollux.
	8 25 10	30 29⅘	49 41⅓ U.	32 57 30		127 31½		G.	☽ & Pollux.
	8 39 32	27 21⅗	50 9 U.	60 56 40	28 6	127 35¾		G.	☽ & Spi. ♍. Obſ. on P.
☉ —— 19.	Noon.	62 20			27 39¼		78		☉'s Meridian Altitude.
☽ —— 20.	Noon.	63 52			25 43¾		79		Ditto.
♂ —— 21.	Noon.	63 50			25 22		81		Ditto.
♉ —— 22.	Noon.	63 26			25 22⅓		81		Ditto.
♃ —— 23.	Noon.	63 40			24 44⅖		80		Ditto.

1769.	Time by the Watch. H ′ ″	Alt. ⊙'s L.L. or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ⊙ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Observ.	Phenomena and Remarks.
♀ March 24.	Noon.	64 33			23 28		78		⊙'s Merid. Altitude.
♄ —— 25.	Noon.	Cloudy			22 11		79		Latitude by account.
⊙ —— 26.	Noon.	65 44			21 30¼		79		⊙'s Meridian Altitude.
☽ —— 27.	Noon.	65 48			21 2¾		80		Ditto.
♂ —— 28.	Noon.	65 58			20 29⅓		81		Ditto.
♃ —— 29.	Noon.	65 50			20 14		82		Ditto.
	22 25 17	56 22⅓	32 18⅔ U.	87 26 50	19 38⅓	126 48¾	✳	G.	☽&⊙.
	22 25 17	56 22⅓	32 18⅔ U.	87 27 40		126 22	✳	C.	☽&⊙.
	22 32 14	57 35⅓	30 45⅔ U.	87 24 0		126 51½	✳	G.	☽&⊙.
	22 32 14	57 35⅓	30 45⅔ U.	87 24 10		126 46½	✳	C.	☽&⊙. Observed on the Main Deck.
	22 39 30	58 47	29 9 U.	87 20 0		127 27¾	✳	G.	☽&⊙.
	22 39 30	58 47	29 9 U.	87 21 0		126 51	✳	C.	☽&⊙.
	22 46 55	59 54⅔	27 23⅓ U.	87 16 40	19 37¾	127 41½	✳	G.	☽&⊙.
	22 46 55	59 54⅔	27 23⅓ U.	87 16 50		127 36½	✳	C.	☽&⊙.
♃ —— 30.	Noon.	66 6			19 34¾		81		⊙'s Meridian Altitude.
	21 25 22	44 25⅔	57 13 U.	76 13 33	19 8	129 17	✳	G.	☽&⊙.
	21 25 22	44 25⅔	57 13 U.	76 13 30		129 18½	✳	C.	☽&⊙.
	21 35 16	46 28⅔	55 1⅓ U.	76 9 40		129 42½	✳	G.	☽&⊙.
	21 35 16	46 28⅔	55 1⅓ U.	76 9 50		129 37	✳	C.	☽&⊙.
	21 45 35	48 36	52 38⅓ U.	76 6 50		129 32	✳	G.	☽&⊙. Observed on the Poop.
	21 45 35	48 36	52 38⅓ U.	76 7 20		129 16	✳	C.	☽&⊙.
	22 17 6	54 45	45 23⅔ U.	75 58 0		128 37½	✳	C.	☽&⊙.
	22 27 35	56 30	43 1⅔ U.	75 53 40		129 10	✳	G.	☽&⊙.
	22 35 2	57 43½	41 19⅔ U.	75 49 50	19 8¼	129 50¼	✳	G.	☽&⊙.
					19 8½				
♀ —— 31.	Noon.	66 9					79		⊙'s Meridian Altitude.
♄ April 1.	Noon.	65 50			19 4¼		80		Ditto.
	19 20 30	15 0	67 47⅔ L.	52 31 10	19 2½	133 26½	✳	G.	☽&⊙.
	19 31 13	17 24⅓	69 58⅔ L.	52 27 57	19 2⅓	133 37½	✳	G.	☽&⊙.
	19 40 32½	19 32½	71 56½ L.	52 25 15	19 2	133 44¾	*(2)	G.	☽&⊙. Observed on the Poop.
	21 20 43	41 47	78 45⅔ U.	51 57 20	19 1¾	133 52⅓	✳	G.	☽&⊙.
	21 28 28	43 24⅔	77 41⅔ U.	51 55 00	19 1¾	133 54¾	✳	G.	☽&⊙.
					19 1¼				
⊙ —— 2.	Noon.	65 30					83		⊙'s Meridian Altitude.
☽ —— 3.	Noon.	65 22			18 46		82		Ditto.
♂ —— 4.	Noon.	65 3½			18 41⅔				Ditto.
♃ —— 5.	Noon.	64 59			18 23⅓		83		Ditto.
♃ —— 6.	Noon.	64 40			18 19⅔		84		Ditto.
♀ —— 7.	Noon.	64 48			17 49		82		Ditto.
♄ —— 8.	Noon.	64 30½			17 44		83		Ditto.
⊙ —— 9.	Noon.	64 10			17 42⅓		83		Ditto.
☽ —— 10.	Noon.	63 29			18 1		79		Ditto.
	5 6 3	8 34⅚	45 10⅓ U.	60 32 20	17 59	148 6¾	✳	G.	☽&⊙. M. D. Osnaburgh Island, or Miatea N. by E. dist. 8 or 9 miles.
	5 6 3	8 34⅚	45 10⅓ U.	60 33 15	17 59	148 31½	✳	C.	☽&⊙.
	5 11 46	7 12⅙	44 54 U.	60 34 13	17 59	148 28¾	✳	G.	☽&⊙.
	5 11 46	7 12⅙	44 54 U.	60 34 58	17 59	148 49	✳	C.	☽&⊙.
♂ —— 11.	Noon.	63 29½					83		Otaheite S. to W. by N. distant 5 leagues.

1769.	Time by the Watch.	Altit. ☉'s L. L. or ✳.	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′ ″	° ′	° ′ ″	° ′ ″	° ′			
☿ April 26.	22 1 10	47 51	20 9⅔ U.	105 50 40		148 34¼	✳	G.	☽&☉.
	22 1 10	47 51	20 9⅔ U.	105 49 50		149 1	✳	C.	☽&☉.
	22 14 18	49 57	17 11⅔ U.	105 44 40		148 30¾	✳	G.	☽&☉. Observed on Point Venus, in Otaheite.
	22 14 18	49 57	17 11⅔ U.	105 43 45		148 59¾	✳	C.	☽&☉.
	22 25 15	51 32⅔	14 44⅔ U.	105 39 0		148 42¼	✳	G.	☽&☉.
	22 25 15	51 32⅔	14 44⅔ U.	105 39 5		148 39½	✳	C.	☽&☉.
☉ —— 30.	22 7 14	49 34	54 28 U.	57 31 30		148 57½	✳	G.	☽&☉.
	22 7 14	49 34	54 28 U.	57 32 5		148 41	✳	C.	☽&☉.
	22 18 46	51 10	51 52 U.	57 26 40		149 18	✳	G.	☽&☉. Observed on Point Venus, in Otaheite.
	22 18 46	51 10	51 52 U.	57 27 25		148 57	✳	C.	☽&☉.
	22 27 54	52 16⅔	49 53 U.	57 23 55		149 6¼	✳	G.	☽&☉.
	22 27 54	52 16⅔	49 53 U.	57 24 30		148 49¾	✳	C.	☽&☉.
♄ May 6.	Noon.	34 33 7			17 29 28				Z. D. ☉'s L. L. Astron. Quad. C. G.
	Noon.	55 30 30			17 29 21				Altit. ☉'s L. L. Hadley's Quad. C. G.

OBSERVATIONS

OBSERVATIONS of equal ALTITUDES of the SUN,

Made on Point Venus, in Otaheite, with an Aſtronomical Quadrant, of one Foot Radius, for finding the apparent Time, and Rate of Going of a Clock.

1769.	Times by the Clock. Lower Wire.	Middle Wire.	Upper Wire.	Time of Apparent Noon by the Clock.	Phenomena and Obſerver.	Remarks.
	′ ″	H ′ ″	′ ″	H ′ ″		
♂ May 9.	39 5½	21 41 43	44 25		⊙'s U. L.	
	42 20	45 00	47 42½		⊙'s L. L.	
☿ —— 10.				23 51 44,8	Mr. Green.	
	00 57	1 58 18	55 34½		⊙'s L. L.	
	4 11½	2 1 35	58 53		⊙'s U. L.	
♃ —— 11.	9 8	21 11 36	14 00		⊙'s U. L.	
	12 9	14 35	17 1		⊙'s L. L.	
♀ —— 12.				23 50 58,3	Mr. Green.	
	29 36	2 27 10	24 45		⊙'s L. L.	
	Cloudy.	2 30 8	Cloudy.		⊙'s U. L.	
	11 38	21 14 4	16 31		⊙'s U. L.	
	14 40	17 4½	19 33		⊙'s L. L.	
♄ —— 13.				23 50 36,7	Mr. Green.	
	26 24	Too late for theſe wires.			⊙'s L. L.	
	29 22	2 26 58			⊙'s U. L.	
	39 23	21 42 8	44 52		⊙'s U. L.	
	42 47	45 30	48 16		⊙'s L. L.	
☉ —— 14.				23 50 13,7	Mr. Green.	
	Cloudy.	1 54 46::	52 00:		⊙'s L. L.	
	Cloudy.	Cloudy.	55 24		⊙'s U. L.	
♂ —— 16.	27 52	21 30 30	33 9		⊙'s U. L.	
	31 5	33 45½	36 25		⊙'s L. L.	
☿ —— 17.				23 49 15,0	Mr. Green.	
	7 14	2 4 33½			⊙'s L. L.	
	10 27	2 7 50	5 09½		⊙'s U. L.	
	21 2	20 23 15	25 27		⊙'s U. L.	
	23 45	25 56	28 11		⊙'s L. L.	
	36 31½	20 38 47	41 5		⊙'s U. L.	
	39 19	41 36	43 53		⊙'s L. L.	
♃ —— 18.				23 48 56,8	Mr. Green.	
	58 26::	2 56 6½	53 52::		⊙'s L. L.	None of theſe obſervations good; the ſun being in a confuſed haze.
	1 11	2 59 00:	Cloudy.		⊙'s U. L.	
	14 00:	3 11 45	Cloudy.		⊙'s L. L.	
	16 41:	Cloudy.	12 15:		⊙'s U. L.	
♄ —— 20.	44 51	21 47 44	50 39		⊙'s U. L.	
	48 23	21 51 19	54 17		⊙'s L. L.	

1769.	Times by the Clock. Lower Wire. ′ ″	Middle Wire. H ′ ″	Upper Wire. ′ ″	Time of Apparent Noon by the Clock. H ′ ″	Phenomenon and Obſerver.	Remarks.
☉ May 21.				23 48 2,6	Mr. Green.	
	47 27	1 44 36	41 37		☉'s L. L.	
	51 7	1 48 12	45 19		☉'s U. L.	
☽ —— 22.	12 24	21 14 59½	17 33		☉'s U. L.	
	15 34	21 18 8½	20 43		☉'s L. L.	
	30 46½	21 33 31	36 16		☉'s U. L.	
	34 7	21 36 55	39 42½		☉'s L. L.	
♂ —— 23.				23 47 29,4	Mr. Green.	
	0 39	1 57 52	55 5		☉'s L. L.	
	3 57	2 1 15	58 28		☉'s U. L.	
	19 20	2	14 11		☉'s L. L.	
	22 27	2 19 54	17 20		☉'s U. L.	
	43 17	19 45 26	47 33		☉'s U. L.	
	45 55	19 48 2	50 10		☉'s L. L.	
	5 29	20 7 39	9 52		☉'s U. L.	
	8 10	20 10 21	12 33		☉'s L. L.	
☿ —— 24.				23 47 14,1	Capt. Cook.	
	26 11	3 23 59	21 49		☉'s L. L.	Obſerved with a ſtop.
	28 52	3 26 41	24 29		☉'s U. L.	Obſerved with a ſtop.
	48 26	3 46 16	44 9		☉'s L. L.	
	51 1	3 48 52	46 45		☉'s U. L.	
	4 21½	22 7 41½	11 2½		☉'s U. L.	
	8 26½	22 11 50½	15 16		☉'s L. L.	
♃ —— 25.				23 47 1,1	Capt. Cook.	
	25 27	1 22 3	Cloudy.		☉'s L. L.	
	29 32	1 26 12	22 49		☉'s U. L.	
♀ —— 26.	15 59	20 18 20	20 35¼		☉'s U. L.	
	18 42	20 21 11	23 20		☉'s L. L.	
♄ —— 27.				23 46 30,6	Mr. Green.	
	14 7	3 11 46	9 35		☉'s L. L.	
	16 51	3 14 33	12 21		☉'s U. L.	
	41 17	20 43 45	46 00		☉'s U. L.	
	44 9	20 46 38	48 57		☉'s L. L.	
☉ —— 28.				23 46 20,5	Mr. Green.	
	48 25	2 45 54	43 37		☉'s L. L.	
	51 17	48 49	46 31		☉'s U. L.	
	5 39	21 8 18	10 48¼		☉'s U. L.	
	8 44½	21 11 28	13 56¼		☉'s L. L.	
☽ —— 29.				23 46 6,5	Mr. Green.	
	23 20	2 20 39	18 10		☉'s L. L.	
	26 25	2 23 46	21 17½		☉'s U. L.	
	Immediately after theſe obſervations Mr. Green wound up the Clock, and put it forward 10′ 57″.					
	19 13½	21 21 55	24 23½		☉'s U. L.	
	22 23	21 25 4½	27 35		☉'s L. L.	

1769.	Times by the Clock. Lower Wire. ′ ″	Middle Wire. H ′ ″	Upper Wire. ′ ″	Time of Apparent Noon by the Clock. H ′ ″	Phenomenon and Obſerver.	Remarks.
☽ May 29.	36 52	21 39 48	42 27½		☉'s U. L.	
	40 16½	21 43 11	45 53		☉'s L. L.	
	55 57	21 59 6½	2 2½		☉'s U. L.	
	59 40½	22 2 50	5 50		☉'s L. L.	
♂ —— 30.				23 56 52,6	Capt. Cook.	
	Loſt.	1 50 48	47 48		☉'s L. L.	
	57 38	1 54 32	51 36		☉'s U. L.	
	13 19	2 10 24	Loſt.		☉'s L. L.	
	16 38	2 13 47	11 7		☉'s U. L.	
	31 18	2 28 37	26 6½		☉'s L. L.	
	34 28	2 31 48	29 16		☉'s U. L.	
	30 09	20 32 30	34 42		☉'s U. L.	
	33 7	20 35 17½	37 31		☉'s L. L.	
	36 8	21 38 59	41 39		☉'s U. L.	
	39 29	21 42 21½	45 6		☉'s L. L.	
☿ —— 31.				23 56 38,9	Capt. Cook.	
	13 43	2 10 51	8 6		☉'s L. L.	
	17 3½	2 14 13	11 32		☉'s U. L.	
	20 4	3 17 53	15 39		☉'s L. L.	
	23 1	3 20 40	18 27		☉'s U. L.	
	24 00	20 26 19	28 31		☉'s U. L.	
	26 46	20 29 6	31 18		☉'s L. L.	
24 June 1.				23 56 29,1	Capt. Cook.	
	26 6	3 23 46	21 34		☉'s L. L.	
	28 51	3 26 33	24 21		☉'s U. L.	
	39 36	19 41 48	43 52		☉'s U. L.	
	42 12	19 44 24	46 29		☉'s L. L.	
	54 39	19 56 52	58 59		☉'s U. L.	
	57 17	19 59 32	1 38		☉'s L. L.	
♀ —— 2.				23 56 18,9	Capt. Cook.	
	55 17	3 53 2	50 55		☉'s L. L.	
	57 54½	3 55 42	53 34		☉'s U. L.	
	10 18	4 8 6	6 1		☉'s L. L.	
	12 53½	4 10 43	8 37		☉'s U. L.	
	36 43	19 39 1	41 3		☉'s U. L.	
	39 25	19 41 37	43 42		☉'s L. L.	
	46 20	19 48 32½	50 38½		☉'s U. L.	
	48 57	19 51 10	53 15		☉'s L. L.	
♄ —— 3.				23 56 3,2	Capt. Cook.	The Clock was expoſed to the Sun from 9 or 10 o'clock in the morning till 4 in the afternoon.
	3 5	4 0 50	58 45		☉'s L. L.	
	5 40	4 3 28	1 21		☉'s U. L.	
	12 35	4 10 26	8 22		☉'s L. L.	
	15 17	4 13 00	10 57		☉'s U. L.	
	11 43	20 14 2	16 12		☉'s U. L.	
	14 26	20 16 45	18 56		☉'s L. L.	
	29 50	20 32 13	34 28		☉'s U. L.	

1769.	Times by the Clock. Lower Wire.	Middle Wire.	Upper Wire.	Time of Apparent Noon by the Clock.	Phenomenon and Observer.	Remarks.
	′ ″	H ′ ″	′ ″	H ′ ″		
♄ June 3.	32 38	20 35 2	37 16½		⊙'s L. L.	
☉ —— 4.				23 55 53, 3	Capt. Cook.	The observations of both yesterday and to-day are as good as can be made. The afternoon observations were made with a ſtop.
	19 4	3 16 39	Loſt.		⊙'s L. L.	
	21 50	3 19 28	17 13		⊙'s U. L.	
	37 16	3 34 56	32 45		⊙'s L. L.	
	39 58	3 37 40	35 29		⊙'s U. L.	
	11 42	21 14 16	16 48½		⊙'s U. L.	
	14 47	21 17 17	19 48		⊙'s L. L.	
☽ —— 5.				23 55 40, 8	Mr. Green.	
	36 29½	2 33 59	31 28		⊙'s L. L.	Obſerved with a ſtop.
	39 35	2 37 00	34 27		⊙'s U. L.	
	13 19	20 Cloudy.	17 48		⊙'s U. L.	
	16 1	20 18 22	20 34		⊙'s L. L.	
♂ —— 6.				23 55 31, 4	Mr. Green.	
	34 57	3 32 37	30 26		⊙'s L. L.	
	37 36	Cloudy.	33 10		⊙'s U. L.	
	58 22	20 0 45	3 9		⊙'s U. L.	
	1 12	20 3 44	6 10::		⊙'s L. L.	
☿ —— 7.				23 55 19, 8	Mr. Green.	
	49 24	2 46 51	44 26::		⊙'s L. L.	
	52 13	2 49 50	47 25		⊙'s U. L.	
	47 44½	19 49 57	52 5		⊙'s U. L.	
	Cloudy.	19 52 36	54 40		⊙'s L. L.	
♃ —— 8.				23 55 11, 0	Mr. Green.	
	59 57	3 57 41	Cloudy.		⊙'s L. L.	
	2 34	4 0 20	58 14		⊙'s U. L.	
	50 00	21 53 2	56 4		⊙'s U. L.	
	53 35	21 56 47	59 48		⊙'s L. L.	
♀ —— 9.				23 54 56, 1	Mr. Green.	
	56 11	1 53 2	50 0		⊙'s L. L.	
	59 49	1 56 44	53 46		⊙'s U. L.	
♄ —— 10.	57 43	21			⊙'s U. L.	
	1 32	22	8 30		⊙'s L. L.	
☉ —— 11.				23 54 42, 3	Mr. Green.	
					⊙'s L. L.	
	51 38	1			⊙'s U. L.	
	52 56	19 55 33			⊙'s U. L.	
	56 36	19 57 52			⊙'s L. L.	
☽ —— 12.				23 54 35, 9	Mr. Green.	
					⊙'s L. L.	
	56 14	3 53 35			⊙'s U. L.	
	14 52	21 17 34	20 6		⊙'s U. L.	
	18 2	21 20 45			⊙'s L. L.	
♂ —— 13.				23 54 31, 8	Mr. Green.	
	30 59	2 28 15			⊙'s L. L.	

1769.	Times by the Clock. Lower Wire.	Middle Wire.	Upper Wire.	Time of Apparent Noon by the Clock.	Phenomenon and Observer.	Remarks.
	′ ″	H ′ ″	′ ″	H ′ ″		
♂ June 13.	34 10	2 31 28	28 54		⊙'s U. L.	
	34 3	20 36 31	38 49		⊙'s U. L.	
	36 57	20 39 23	41 40		⊙'s L. L.	
☿ —— 14.				23 54 22,1	Mr. Green.	
	11 45	3 9 21			⊙'s L. L.	
	14 37	3 12 10	9 54		⊙'s U. L.	
♀ —— 16.	15 31	20 17 52			⊙'s U. L.	
	18 15	20 20 36	22 47		⊙'s L. L.	
	29 32	20 31 59	34 16		⊙'s U. L.	
		20 34 48	37 5		⊙'s L. L.	
♄ —— 17.				23 53 58,1	Mr. Green.	
	15 33::	3 13 6			⊙'s L. L.	
		3 15 55:	13 40:		⊙'s U. L.	
	29 41	3	25 7		⊙'s L. L.	
		3 30 4	27 52		⊙'s U. L.	
	13 48	21 16 32	19 04		⊙'s U. L.	
	16 59	21 19 42	22 17		⊙'s L. L.	
⊙ —— 18.				23 53 48,9	Mr. Green.	
	30 39	2 27 55	25 20		⊙'s L. L.	
	33 48	2 31 5	28 32		⊙'s U. L.	
	52 55	20 55 28	57 49		⊙'s U. L.	
	55 55	20 58 25	0 50		⊙'s L. L.	
☽ —— 19.				23 53 42,0	Mr. Green.	
	51 30	2 48 57	46 33		⊙'s L. L.	
	54 30		49 34		⊙'s U. L.	
	13 26	20 15 47	18 0		⊙'s U. L.	
	16 11	20 18 33	20 47		⊙'s L. L.	
♂ —— 20.				23 53 35,6	Mr. Green.	
	31 0	3 28 38	26 25		⊙'s L. L.	
	33 45	3 31 24	29 11		⊙'s U. L.	
	49 1	19 51 15	53 22		⊙'s U. L.	
	51 38	19 53 54	56 1		⊙'s L. L.	
☿ —— 21.				23 53 24,8	Mr. Green.	
	55 12	3 52 55	50 49		⊙'s L. L.	
	57 50	3 55 35	53 27		⊙'s U. L.	
	25 23	20 27 47			⊙'s U. L.	
	28 12	20 30 36	32 53		⊙'s L. L.	
♃ —— 22.				23 53 18,2	Mr. Green.	
					⊙'s L. L.	
	21 14	3			⊙'s U. L.	
♀ —— 23.	57 50	20 0 7	2 15		⊙'s U. L.	
	0 30	20 2 49	4 58		⊙'s L. L.	
♄ —— 24.				23 53 0,0	Mr. Green.	
	45 31	3 43 12	41 5		⊙'s L. L.	
	48 10	3 45 54	43 46		⊙'s U. L.	

1769.	Times by the Clock. Lower Wire.	Middle Wire.	Upper Wire.	Time of apparent Noon by the Clock.	Phenomenon and Observer.	Remarks.
	′ ″	H ′ ″	′ ″	H ′ ″		
♄ June 24.	6 49	22 10 12	13 35		⊙'s U. L.	
	10 50	22 14 27	17 50		⊙'s L. L.	
⊙ —— 25.				23 52 51,7	Mr. Green.	
	34 55	1 31 20	27 53		⊙'s L. L.	
	39 00	1 35 31	32 10		⊙'s U. L.	
☽ —— 26.	27 17	21 30 10	32 49		⊙'s U. L.	
	30 39	21 33 31	36 15		⊙'s L. L.	
♂ —— 27.				23 52 34,1	Mr. Green.	
	14 33	2 11 39	8 56		⊙'s L. L.	
	17 53	2 15 1	12 21		⊙'s U. L.	
♄ July 1.	2 29	20	6 56		⊙'s U. L.	
	5 12	20 7 28	9 38		⊙'s L. L.	
⊙ —— 2.				23 51 47,5	Mr. Green.	
		3			⊙'s L. L.	
	41 10	3			⊙'s U. L.	
	7 13	21 9 51	12 21		⊙'s U. L.	
	10 19	21 13 0	15 31		⊙'s L. L.	
☽ —— 3.				23 51 39,7	Mr. Green.	
	33 6	2 30 25	27 52		⊙'s L. L.	
	36 10	2 33 34	31 2		⊙'s U. L.	
	33 21	19 35 33	37 36		⊙'s U. L.	
	35 55	19 38 7	40 13		⊙'s L. L.	
♂ —— 4.				23 51 29,5	Mr. Green.	
		4 4 57	2 50		⊙'s L. L.	
	9 43	4 7 31	5 27		⊙'s U. L.	
♅ —— 5.	29 44	19 31 57	34 1		⊙'s U. L.	
	32 19				⊙'s L. L.	
♃ —— 6.				23 51 7,6	Mr. Green.	
	10 3	4			⊙'s L. L.	
	12 35	4 10 24	8 19		⊙'s U. L.	
♄ —— 8.	Mr. Green took down the Clock, Observatory, and Instruments; at which time the Pendulum vibrated 1° 55′ each way from the perpendicular, and never vibrated less than 1° 50′. The Bob remained as it was when going at Greenwich; where it gained at the rate of 1′ 45″, 8 in 24 hours, from April 19th to July 18th, 1768.					

An Account of the going of the Clock, deduced from the foregoing Obſervations.

1769.	Time of apparent Noon by the Clock.	Mean Time of apparent Noon.	Clock too ſlow for mean Time.	Clock's Loſs on M. T. between the Obſerva.	Interval between the Obſ.	Daily Loſs of the Clock.
	H. M. S.	H. M. S.	M. S.	M. S.	Days.	S.
☿ May 10.	23 51 44, 8	23 56 2, 8	4 18, 0			
♀ —— 12.	23 50 58, 3	23 55 59, 7	5 1, 4	0 43, 4	2	21, 7
♄ —— 13.	23 50 36, 7	23 55 58, 9	5 22, 2	0 20, 8	1	20, 8
☉ —— 14.	23 50 13, 7	23 55 58, 7	5 45, 0	0 22, 8	1	22, 8
☿ —— 17.	23 49 15, 0	23 56 1, 4	6 46, 4	1 1, 4	3	20, 5
				0 20, 2	1	20, 2
♃ —— 18.	23 48 56, 8	23 56 3, 4	7 6, 6			
☉ —— 21.	23 48 2, 6	23 56 12, 5	8 9, 9	1 3, 3	3	21, 1
♂ —— 23.	23 47 29, 4	23 56 21, 4	8 52, 0	0 42, 1	2	21, 0
☿ —— 24.	23 47 14, 1	23 56 26, 6	9 12, 5	0 20, 5	1	20, 5
♃ —— 25.	23 47 1, 1	23 56 32, 3	9 31, 2	0 18, 7	1	18, 7
				0 43, 4	2	21, 7
♄ —— 27.	23 46 30, 6	23 56 45, 2	10 14, 6			
☉ —— 28.	23 46 29, 5	23 56 52, 4	10 31, 9	0 17, 3	1	17, 3
☽ —— 29.	23 46 6, 5	23 57 0, 2	10 53, 7	0 21, 8	1	21, 8
	Put the Clock forward 10′ 57″			0 19, 1	1	19, 1
♂ —— 30.	23 56 52, 6	23 57 8, 4	0 15, 8			
				0 22, 4	1	22, 4
☿ —— 31.	23 56 38, 9	23 57 17, 1	0 38, 2	0 18, 9	1	18, 9
♃ June 1.	23 56 29, 1	23 57 26, 2	0 57, 1	0 19, 6	1	19, 6
♀ —— 2.	23 56 18, 9	23 57 35, 6	1 16, 7	0 25, 6	1	25, 6
♄ —— 3.	23 56 3, 2	23 57 45, 5	1 42, 3	0 20, 0	1	20, 0
☉ —— 4.	23 55 53, 3	23 57 55, 6	2 2, 3	0 23, 0	1	23, 0
				0 20, 4	1	20, 4
☽ —— 5.	23 55 40, 8	23 58 6, 1	2 25, 3	0 22, 8	1	22, 8
♂ —— 6.	23 55 31, 4	23 58 17, 0	2 45, 6	0 20, 2	1	20, 2
☿ —— 7.	23 55 19, 8	23 58 28, 2	3 8, 4	0 26, 5	1	26, 5
♃ —— 8.	23 55 11, 0	23 58 39, 6	3 28, 6	0 37, 5	2	18, 7
♀ —— 9.	23 54 56, 1	23 58 51, 2	3 55, 1			
				0 18, 6	1	18, 6
☉ —— 11.	23 54 42, 3	23 59 14, 9	4 32, 6	0 16, 5	1	16, 5
☽ —— 12.	23 54 35, 9	23 59 27, 1	4 51, 2	0 22, 2	1	22, 2
♂ —— 13.	23 54 31, 8	23 59 39, 5	5 7, 7	1 2, 0	3	20, 7
☿ —— 14.	23 54 22, 1	23 59 52, 0	5 29, 9	0 22, 0	1	22, 0
♄ —— 17.	23 53 58, 1	0 0 30, 0	6 31, 9			
				0 19, 8	1	19, 8
☉ —— 18.	23 53 48, 9	0 0 42, 8	6 53, 9	0 19, 3	1	19, 3
☽ —— 19.	23 53 42, 0	0 0 55, 7	7 13, 7	0 23, 6	1	23, 6
♂ —— 20.	23 53 35, 6	0 1 8, 6	7 33, 0	0 19, 4	1	19, 4
☿ —— 21.	23 53 24, 8	0 1 21, 4	7 56, 6	0 43, 0	2	21, 8
♃ —— 22.	23 53 18, 2	0 1 34, 2	8 16, 0			
				0 20, 9	1	20, 9
♄ —— 24.	23 53 0, 0	0 1 59, 6	8 59, 6	0 42, 5	2	21, 2
☉ —— 25.	23 52 51, 7	0 2 12, 2	19 20, 5	1 45, 7	5	21, 1
♂ —— 27.	23 52 34, 1	0 2 37, 1	10 3, 0	0 18, 8	1	18, 8
☉ July 2.	23 51 47, 5	0 3 36, 2	11 48, 7	0 21, 0	1	21, 0
☽ —— 3.	23 51 39, 7	0 3 47, 2	2 7, 5	0 42, 5	2	21, 2
♂ —— 4.	23 51 29, 5	0 3 58, 0	12 28, 5			
♃ —— 6.	23 51 7, 6	0 4 18, 6	13 11, 0			

The mean of theſe 40 reſults is 20″,82, which may be taken for the clock's loſs each day, on mean time, while it was going at this place: but if the firſt and laſt day's obſervations be compared together, taking in, at the ſame time, the 10′ 57″ which the clock was put forward on the 29th of May, the total loſs, in the 57 days it was going, will be 19′ 50″, or 20″,88 per day.

OBSERVATIONS of the ECLIPSES of JUPITER's SATELLITES,

With Reflecting Teleſcopes of 2 feet focus, magnifying power 95.

1769.	Time by the Clock. H ′ ″	Apparent Time. H ′ ″	Time at Green-wich by Naut. Almanac. H ′ ″	Long. W. of Greenwich, in Time. H ′ ″	Phenomena and Observer.	
☿ May 10.	16 2 30	16 11 1	26 5 8	9 54 7	Emerſion 4's firſt Satellite.	Mr. Green.
	16 3 30	16 12 1	26 5 8	9 53 7	Ditto.	Capt. Cook.
♀ —— 12.	10 27 55	10 37 6	20 33 50	9 56 44	Ditto.	Mr. Green.
	10 28 5	10 37 16	20 33 50	9 56 34	Ditto.	Capt. Cook.
♄ —— 27.	11 44 4	11 57 38			Emerſion 4's ſecond Satellite.	Mr. Green.
	11 44 5	11 57 39			Ditto.	Capt. Cook.
	11 47 15	12 0 50			Emerſion of 4's third Satellite.	Mr. Green.
	11 48 8	12 1 43			Ditto.	Capt. Cook.
☉ June 4.	10 41 19	10 45 31	20 44 39	9 59 8	Emerſion 4's firſt Satellite.	Mr. Green.
	10 41 28	10 45 40	20 44 39	9 58 59	Ditto.	Capt. Cook.
♂ —— 13.	7 2 45	7 8 16	17 6 31	9 58 15	Ditto.	Mr. Green.
	7 2 45	7 8 16	17 6 31	9 58 15	Ditto.	Capt. Cook.
☉ —— 18.	14 27 21	14 33 36	24 31 41	9 58 5	Ditto.	Mr. Green.
	14 28 9	14 34 24	24 31 41	9 57 17	Ditto.	Capt. Cook.
♂ —— 20.	8 55 15	9 1 43	19 0 2	9 58 19	Ditto.	Mr. Green.
☿ —— 21.	8 46 45	8 53 23			Emerſion 4's ſecond Satellite.	Mr. Green.
	8 47 44	8 54 22			Ditto.	Capt. Cook.
♂ —— 27.	10 48 45	10 56 15	20 53 43	9 57 28	Emerſion 4's firſt Satellite.	Mr. Green.
♂ July 4.	12 42 40	12 51 16	22 47 33	9 56 17	Ditto.	Mr. Green.
4 —— 6.	7 9 20	7 18 16	17 16 5	9 57 49	Ditto.	Mr. Green.
	7 9 25	7 18 21	17 16 5	9 57 44	Ditto.	Capt. Cook.

It may be proper to reject the obſervations which were made of the firſt Satellite, on the 10th and 12th of May, on account of Jupiter's proximity to his oppoſition with the Sun at theſe times: the mean of the others is $9^h\ 57'\ 58''$. But the ſame Satellite was obſerved to emerge, at Greenwich, with a ſix feet reflector at $9^h\ 40'\ 56''$ on the 8th of June; and at $9^h\ 50'\ 24''$ on the 1ſt of July, with a teleſcope ſimilar to thoſe which were uſed by Mr. Green and Capt. Cook. Dr. Maſkelyne has found by experience, that 20″ ought to be allowed in theſe obſervations, on account of the ſuperiority which the ſix feet reflector has over the two feet ones, and this will reduce the former of theſe times to $9^h\ 41'\ 16''$. The times of theſe two emerſions, put down in the Nautical Almanac, are $9^h\ 41'\ 26''$, and $9^h\ 50'\ 37''$; conſequently, the firſt of them was ſeen 10″ and the latter 13″ ſooner than they are put down in the Almanac: the mean of the two is $11''\frac{1}{2}$; which may be taken for the medium time, by which emerſions of the firſt Satellite were ſeen ſooner about that time, with theſe teleſcopes, than they are put down in the Almanac. Theſe $11''\frac{1}{2}$ being ſubtracted from $9^h\ 57'\ 58''$, give $9^h\ 57'\ 46''\frac{1}{2}$, $=149°\ 26'\frac{1}{8}$, for the longitude of Point Venus, weſt of Greenwich.

ECLIPSE of the MOON.

1769.	Times by the Clock. H ′ ″	Apparent Time. H ′ ″	Diſtance of the Cuſps. Parts of Micro. In. Pts. V.	Parts of a Cir. ′ ″	Phenomena and Observer.
☉ June 18.	8 18 5	8 24 18½			Beginning of the Eclipſe. C. G.
	9 1 51	9 8 5	4 15 11	29 47,8	I have added 5″,7 for the error of the micrometer in reducing theſe meaſures. It reſults from meaſures of ☿'s diameter taken on the 20th and 21ſt.
	9 7 24	9 13 38	4 15 12	29 48,7	
	9 13 55	9 20 9	4 15 4	29 41,8	
	9 23 54	9 30 8	3 80 6	27 13,9	
	11 52 10	11 58 24½			End of the eclipſe. Capt. Cook.
	11 52 30	11 58 44½			Ditto. - - - - - - Mr. Green.
	11 55 10	12 1 24½			The ☽ clear of the penumbra. Capt. Cook.
	11 55 37	12 1 51½			Ditto. - - - - - - - - - - - - Mr. Green.

1769.	Time by the Watch. H ′ ″	Alt. or Zen. Dist. ☉'s L. L. or ✳. ° ′ ″	Moon's Alt. or Zen. Dist. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latitude N. ° ′ ″	Long. W. of Greenwich. ° ′	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
♄ May 13.	Noon.	53 42 0			17 28 56			G.	Alt. ☉'s L. L. Hadley's Quad.
	3 47 38	21 20 20	52 55 U.	106 2 00		149 36		G.	☽ & ☉. Obſerv. on Point Venus. The ☽'s Zen. Diſt. with the Aſtron. Quad.
	3 47 38	21 20 20	52 55 U.	106 2 5		149 38¾		C.	☽ & ☉.
	3 58 28	19 4 20	50 31½ U.	106 7 00		150 28⅛		G.	☽ & ☉.
	3 58 28	19 4 20	50 31½ U.	106 6 5		149 52		C.	☽ & ☉.
	4 7 36	17 5 20	48 31⅛ U.	106 10 30		150 41¼		G.	☽ & ☉.
	4 7 36	17 5 20	48 31⅛ U.	106 10 5		150 28½		C.	☽ & ☉.
♂ —— 16.	9 51 16	27 57 30	80 8 L.	52 53 45		148 28		C.	☽ & R. (2) Obſerv. on Point Venus.
	9 52 57	27 27 40	79 54 L.	52 55 00		148 55		G.	☽ & Reg.
	10 2 35	24 56 20	77 52 L.	52 58 10		149 23⅛		G.	☽ & Reg.
	10 2 35	24 56 20	77 52 L.	52 58 55		149 45⅞		C.	☽ & Reg.
	10 12 57	22 32 20	75 21 L.	53 1 5		149 26¼		G.	☽ & Reg.
	10 12 57	22 32 20	75 21 L.	53 0 55		149 21¼		C.	☽ & Reg.
	10 41 13½	25 58 40	68 56 L.	46 46 35		149 11½		C.	☽ & A. (2) Obſer. on Point Venus. The ✳'s Zen. Diſt. with Aſtro. Q.
	10 44 26	25 17 17	68 14 L.	46 44 25		149 15½		G.	☽ & Anta.
	10 59 0	22 7 40	64 55 L.	46 40 00		149 15⅜		G.	☽ & Anta.
	10 59 0	22 7 40	64 55 L.	46 39 40		149 25⅛		C.	☽ & Anta.
	11 9 48	19 51 00	62 27 L.	46 37 0		149 4⅜		G.	☽ & Anta.
	11 9 48	19 51 00	62 27 L.	46 35 20		149 54⅛		C.	☽ & Anta.
☿ —— 17.	8 5 46	47 26 20	26 53 U.	64 29 30		149 59½		G.	☽ & Reg. Obſer. on Point Venus. ☽'s Zen. Diſt. with the Aſtro. Q.
	8 21 54	44 33 00	23 36 U.	64 34 55		150 3¾		G.	☽ & Reg.
	8 30 4	43 4 40	21 12 U.	64 38 10		150 25		G.	☽ & Reg.
♃ —— 18.	Noon.	36 58 12			17 28 50			G.	Merid. Zen. Diſt. ☉'s U. L.
♀ —— 26.	21 28 52	38 16 00	26 50 U.	100 37 5		148 8		G.	☽ & ☉.
	21 28 52	38 16 00	26 50 U.	100 36 55		148 13		C.	☽ & ☉.
	21 42 29	40 25 20	24 1 U.	100 30 45		148 26⅛		G.	☽ & ☉. Obſerv. on Point Venus.
	21 42 29	40 25 20	24 1 U.	100 31 00		148 18⅝		C.	☽ & ☉.
	21 55 34	42 19 40	20 59 U.	100 24 40		148 34⅛		G.	☽ & ☉.
	21 55 34	42 19 40	20 59 U.	100 24 52		148 28⅛		C.	☽ & ☉.
♄ —— 27.	Noon.	38 39 10			17 27 52			G.	Merid. Zen. Diſt. ☉'s U. L.
☉ —— 28.	Noon.	38 50 00			17 29 11			G.	Ditto.
	Noon.	50 41 00			17 29 33			G.	Merid. Altitude. ☉'s L. L.
	22 24 35	45 50 00	32 13 U.	75 26 30		149 54½		G.	☽ & ☉. Obſerv. on Point Venus.
	22 29 51	46 24 20	31 2 U.	75 24 50		149 40⅞		G	☽ & ☉.
	22 39 19	47 21 20	28 53 U.	75 21 10		149 34⅛		G.	☽ & ☉.
	22 44 48	47 52 20	27 37 U.	75 19 20		149 20⅝		G.	☽ & ☉.
	22 51 33	48 22 20	26 4 U.	75 16 40		149 13¼		G.	☽ & ☉.
☽ —— 29.	Noon.	38 59 00			17 29 1			G.	Merid. Zen. Diſt. ☉'s U. L.
	Noon.	50 33 00			17 28 54			G.	Merid. Altitude. ☉'s L. L.

1769.	Time by the Clock.	Alt. or Zen. Dist. ⊙'s L. L. or ✳.	Moon's Alt. or Zen. Dist.	Dist. ☽'s L. from ⊙ or ✳.	Ship's Latitude S.	Long. W. of Greenwich.	Therm.	Obſerv.	PHENOMENA AND REMARKS.
	H ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′ ″	° ′			
☽ May 29.	17 49 32	43 12 20	52 50 L.	67 5 00		149 2	*	G.	☽ & α Aqui. } Obſ. on Point Venus.
	17 56 39	41 56 20	54 3 L.	67 6 57		149 6½	*	G.	☽ & Ditto.
	22 10 40	42 36 20	45 34 U.	62 34 20		149 42½	*	G.	☽ & ⊙.
	22 18 3	43 36 20	45 2 U.	62 31 50		149 28⅝	*	G.	☽ & ⊙.
	22 25 28	44 29 00	42 28 U.	62 29 10		149 37⅛	*	G.	☽ & ⊙.
	22 30 46	45 10 20	41 25 U.	62 26 50		149 47⅛	*	G.	☽ & ⊙.
	22 35 43	45 48 40	40 24½ U.	62 25 20		149 38⅛	*	G.	☽ & ⊙.
♂ —— 30.	Noon.	39 8 12			17 29 27			G.	Merid. Zen. Diſt. ⊙'s U. L.
	Noon.	50 23 30			17 29 38			G.	Merid. Altitude. ⊙'s L. L.
☿ —— 31.	Noon.	39 16 21			17 29 13			G.	Merid. Zen. Diſt. ⊙'s U. L.
☿ June 7.	Noon.	40 3 32			17 28 29			G.	Ditto.
♃ —— 8.	Noon.	40 9 00			17 28 42			G.	Ditto.
♀ —— 9.	Noon.	40 13 00			17 27 51			G.	Ditto.
♄ —— 10.	Noon.	40 17 00			17 27 24			G.	Ditto.
⊙ —— 11.	Noon.	40 21 00			17 27 21			G.	Ditto.
		37 51 57			17 29 16			G.	Mer. Zen. Diſt. Arcturus.
☽ —— 12.	Noon.	40 26 4			17 28 46			G.	Merid. Zen. Diſt. ☽'s U. L.
	4 18 53	13 33 00	42 52 U.	111 34 20		151 1½	*	G.	☽ & ⊙. } The ☽'s Z. Diſtan. was obſer. with the Aſt. Q.
	4 28 32	11 34 00	40 37 U.	111 35 40		150 22¼	*	G.	☽ & ⊙.
	4 37 57	9 36 20	38 24 U.	111 37 50		150 21¾	*	G.	☽ & ⊙.
♂ —— 13.	Noon.	40 29 00			17 28 28			G.	Merid. Zen. Diſt. ⊙'s U. L.
	3 16 21	25 56 40	66 39⅔ U.	122 20 45		148 54⅛	*	G.	☽ & ⊙. } The ☽'s Zen. Diſt. was obſer. with the Aſtro. Q.
	3 22 54	24 35 50	65 3½ U.	122 24 30		149 32⅝	*	G.	☽ & ⊙.
	3 29 43	23 23 40	63 33½ U.	122 26 50		149 18¾	*	G.	☽ & ⊙.
	3 44 36	20 25 20	60 1⅔ U.	122 32 10		149 10¾	*	G.	☽ & ⊙.
	3 50 49	19 7 00	58 34⅔ U.	122 35 00		149 31¼	*	G.	☽ & ⊙.
		27 32 30			17 28 57			G.	Mer. Z. D. γ Aquilæ.
		25 44 50			17 28 47			G.	Ditto. α Aquilæ.
		23 19 22			17 28 59			G.	Ditto. β Aquilæ.
♃ —— 15.	Noon.	40 34 00			17 28 15			G.	Merid. Zen. Diſt. ⊙'s U. L.
♄ —— 17.	Noon.	40 36 45			17 27 26			G.	Ditto.
	Noon.	48 54 00			17 28 37			G.	Merid. Altitude. ⊙'s L. L.
	10 9 35	48 4 40	14 26⅔ U.	55 34 50		149 5½	*	G.	☽ & Spi. ♍. } The ☽'s Z. Diſt. was obſ. with the Aſtr. Q.
	10 9 35	48 4 40	14 26⅔ U.	55 35 10		149 15⅝	*	C.	☽ & Spi. ♍.
	10 20 15	45 31 40	12 14 U.	55 38 20		149 22⅛	*	G.	☽ & Spi. ♍.
	10 20 15	45 31 40	12 14 U.	55 38 10		149 17⅛	*	C.	☽ & Spi. ♍.
	10 28 35	43 35 00	10 36⅓ U.	55 41 30		149 47⅝	*	G.	☽ & Spi. ♍.
	10 28 35	43 35 00	10 36⅓ U.	55 41 40		149 52¾	*	C.	☽ & Spi. ♍.

1769.	Time by the Clock. H ′ ″	Alt. or Zen. Dist. ☉'s L. L. or ✳. ° ′ ″	Moon's Alt. or Zen. Dist. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latitude S. ° ′ ″	Long. W. of Greenwich. ° ′	Thermo.	Observ.	PHENOMENA AND REMARKS.
♄ June 17.		27 33 34			17 30 1			G.	Mer. Z. D. γ Aquilæ.
		25 44 53			17 28 49½			G.	Ditto. α Aquilæ.
		61 54 40			17 28 33½			G.	Merid. Z. D. α Cygni.
					17 28 01			G.	Mer. Z. Dist. ☉'s U. L.
☉ —— 18.	Noon.	40 38 30							
	13 27 30	46 45 20	68 23 L.	63 9 50		149 2¾		G.	☽ & Foma. ✳'s Z. D. obs. with the Astr. Q.
	13 38 49	44 20 20	65 53 L.	63 6 40		149 21¾		G.	Ditto.
	13 46 56	42 36 00	64 35 L.	63 5 0		149 12⅜		G.	Ditto.
☽ —— 19.	Noon.	40 39 0			17 27 45			G.	Merid. Zen. Distance. ☉'s U. L.
	Noon.	48 50 30			17 30 12			G.	Meridian Altitude. ☉'s L. L.
♂ —— 20.	Noon.	40 40 00			17 28 23			G.	Merid. Zen. Dist. ☉'s U. L.
☿ —— 21.	Noon.	40 39 40			17 28 08			G.	Mer. Zenith Distance. ☉'s U. L.
		40 54 30			17 30 32½			G.	—— β Crucis.
		41 44 10			17 30 10			G.	—— β Centauri.
		37 53 00			17 30 17			G.	—— Arcturus.
♃ —— 22.	Noon.	40 39 40			17 28 37			G.	Merid. Zen. Distance. ☉'s U. L.
		37 50 0			17 27 17			G.	—— Arcturus.
		42 22 0			17 29 51			G.	—— α Centauri.
		44 20 0			17 28 44			G.	—— α Crucis.
♀ —— 23.		38 19 00			17 29 50½			G.	—— γ Crucis.
		40 54 45			17 30 17½			G.	—— β Crucis.
		30 33 40			17 30 18			G.	—— β Gruis.
		13 19 59			17 29 48			G.	—— Fomalhaut.
		61 1 15			17 29 48			G.	—— α Hydri.
	20 20 58	65 39 40	24 14 U.	117 59 17		149 18½		G.	☽ & ☉. The ☉'s Z. D. with the Astr. Quad.
	20 28 59	64 8 40	22 22 U.	117 56 20		149 3¼		G.	☽ & ☉.
	20 41 35	27 45 40	70 23 U.	117 48 50		150 4¾		G.	☽ & ☉. The ☽'s Z. D. with the Astr. Quad.
	20 46 48	28 43 00	71 36 U.	117 46 30		150 4½		G.	☽ & ☉.
♄ —— 24.		41 44 26			17 29 54			G.	Mer. Z. D. β Centauri.
		37 51 40			17 28 56½			G.	—— Arcturus.
		42 21 40			17 30 11			G.	—— α Centauri.
		56 3 20			17 29 52			G.	—— α Lyræ.
		27 32 20			17 28 45½			G.	—— γ Aquilæ.
		39 57 36			17 28 23			G.	—— α Pavonis.
		61 56 0			17 29 51½			G.	—— α Cygni.
		30 35 0			17 28 58			G.	—— β Gruis.
	15 10 21	51 6 20	27 8⅔ L.	51 2 30		150 13⅓		G.	☽ & α Aqu. ☽'s Z. D. obser. with the Astr. Q.
	15 20 4	49 48 40	25 22⅔ L.	51 4 30		149 52⅓		G.	☽ & α Aqu.
	15 27 52	48 19 40	24 2 L.	51 6 17		149 36⅓		G.	☽ & α Aqu.

1769	Time by the Clock. H ′ ″	Alt. or Zen. Dist. ☉'s L. or ✳. ° ′ ″	Moon's Alt. or Zen. Dist. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latitude S. ° ′ ″	Long. W. of Greenwich. ° ′	Thermo.	Observ.	Phenomena and Remarks.
½ June 24.	21 50 28	39 12 20	77 31½ U.	105 7 30		149 8⅝		G.	☽ & ☉. ☽'s Zen. D.
	21 55 14	39 52 00	78 37⅛ U.	105 5 20		148 58⅛		G.	☽ & ☉. observ. with
	21 59 34	40 28 20	79 36⅜ U.	105 3 3		148 58⅞		G.	☽ & ☉. the Astr. Qu.
☉ —— 25.		42 22 00			17 29 51			G.	Mer. Z. D. α Centauri.
☽ —— 26.	21 46 12	38 41 20	30 46⅓ U.	79 47 02		149 23½		G.	☽ and ☉.
	21 54 20	39 53 40	29 5 U.	79 43 50		149 22½		G.	☽ and ☉.
	21 59 42	40 39 00	27 57⅓ U.	79 41 50		149 17¼		G.	☽ and ☉.
	22 4 3	41 12 20	27 2 U.	79 39 40		149 28		G.	☽ and ☉.
	22 7 48	41 41 40	26 14⅓ U.	79 38 30		149 17½		G.	☽ and ☉.
♂ —— 27.	Noon.	40 30 00			17 27 33			G.	Mer. Z. Dist. ☉'s U. L.
		41 44 32			17 29 48			G.	—— β Centauri.
		56 3 00			17 29 32			G.	—— α Lyræ.
	20 36 16	26 56 00	49 59⅓ U.	66 55 40		149 13⅜		G.	☽ & ☉.
	20 44 7	28 23 20	48 53⅓ U.	66 52 00		149 43⅜		G.	☽ & ☉.
	20 50 31	29 31 40	47 57⅜ U.	66 50 50		149 17⅛		G.	☽ & ☉.
	20 55 31	30 25 20	47 11⅜ U.	66 48 57		149 23		G.	☽ & ☉.
	20 59 52	31 9 40	46 31⅜ U.	66 47 10		149 30¼		G.	☽ & ☉.
☿ —— 28.		27 32 12			17 28 37				Mer. Z. D. γ Aquilæ.
		25 44 30			17 28 24				—— α Aquilæ.
		23 19 00			17 28 35				—— β Aquilæ.
		39 56 16			17 29 43				—— α Pavonis.
		61 54 20			17 28 10½				—— α Cygni.
♀ —— 30.	21 13 57	33 43 20	40 28 C.	39 6 10		149 48¼		G.	☽ & ☉. The Z. Dist.
	21 23 52	35 24 0	40 45⅔ C.	39 2 7		150 9¾		G.	☽ & ☉. ☽'s C. with
	21 30 12	36 25 20	41 0⅓ C.	39 0 10		150 6⅛		G.	☽ & ☉. Astr. Quad.
♂ July 4.		37 52 00			17 29 15			G.	Mer. Z. Dist. Arcturus.
♂ —— 18.	Noon.	52 13			16 40			G.	M. Alt. ☉'s L. L. Dip. 2′ 10″. In O-wharre H.
☉ —— 23.	Noon.	53 6½			16 47			G.	Ditto. In Oopoa Har.
	20 2 42	19 42	29 49 C.	109 40 40		150 53¾	*	G.	☽ & ☉. Of the N°.
	20 9 39	21 7⅔	28 19¼ C.	109 38 47		150 33¾	*	G.	☽ & ☉. entrance in-
	20 15 18	22 19½	27 3¼ C.	109 36 20	16 45	150 39½	*	G.	☽ & ☉. to Oopoa
	20 19 57	23 19	25 59½ C.	109 34 0		150 50¼	*	G.	☽ & ☉. Harbour in
☽ —— 24.	Noon.				16 45	151 20			Ulietea. F. C.
	21 57 59	38 48	17 55⅔ U.	96 12 0		149 58	*	G.	Latitude by account.
	22 6 45	40 22½	15 58 U.	96 5 20		151 6¼	*	G.	☽ & ☉. Peak of Bo-
	22 15 17	41 41½	14 13⅓ U.	96 1 30	16 28	151 8	*	G.	☽ & ☉. labola. W.
	22 21 0	42 36	12 59⅔ U.	95 59 20		150 50	*	G.	☽ & ☉. b. S. & N°. P.
♂ —— 25.	Noon.				16 27	151 14		G.	☽ & ☉. of Otaha S.
☿ —— 26.	Noon.				16 26				W. b. W. P.
									Latitude observed.
									Bolabola W. by S. N° P. of Otaha S. W. b. W.
	21 20 46	39 33⅙	35 43⅔ U.	69 42 30		151 9½	*	G.	☽ & ☉. O-Wharre Har. S. 65° E. Peak of Bolabola N. 86°½ W. Do.
	21 26 6	40 24½	34 47⅓ U.	69 41 40		150 42½	*	G.	☽ & ☉. of Otaha S. 68°½ W. Oopoa Har. S. by comp. P.

1769.	Time by the Watch. H ′ ″	Alt. ☉'s L. L. or ✳ ° ′ ″	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Therm.	Observ.	PHENOMENA AND REMARKS.
☿ July 26.	21 31 26	41 20½	33 54 U.	69 39 30	16 34½	150 44½	*	G.	☽&☉. Owharre Harbour S. 65° E. Peak of Bolabola N. 86°½ W.
	21 35 49	42 7⅙	33 1 U.	69 37 50		150 47½	*	G.	☽&☉.
	21 40 23	42 50⅙	32 17⅓ U.	69 35 50		150 55	*	G.	☽&☉. Do. of Otaha S. 68°½ W. Oopoa Har. S. b. com. P.
♃ —— 27.	Noon.	54 10			16 36½	151 16½	77		Ulietea from S. 6° W. to S. 50° W.
♀ —— 28.	Noon.				16 37	151 23	76		Otaha from N. N. W. to W. S. W. by com.
♄ —— 29.	Noon.	54 47			16 28	151 32	78		Otaha from S. by E. to S. E. by E. ¾ E. by C.
☉ —— 30.	Noon.	54 49			16 40⅔	151 37½	78		Bolabola N. 21½ W. and Maurua N. 74°½ W. by compass.
☽ —— 31.	Noon.	55 7			16 37¼	151 34	77		Ulietea from N. 40° E. to S. 82° E. by com.
♂ Aug. 1.	Noon.						77		
☿ —— 2.	Noon.						76		
♃ —— 3.	Noon.						78		
♀ —— 4.	Noon.						79		In Ohamaneno Harbour, on the west side of Ulietea.
♄ —— 5.	Noon.						77		
☉ —— 6.	Noon.						77		
☽ —— 7.	Noon.						77		
♂ —— 8.	Noon.						76		
	1 39 50	49 48	36 42¾ C.	84 59 30		152 24½	*	G.	☽&☉. In Ohamaneno Harb. on the west side of Ulietea. Quarter Deck.
	1 44 25	49 6	37 48¾ C.	85 0 10		151 49½	*	G.	☽&☉.
	1 48 23	48 33⅓	38 39⅓ C.	85 1 10	16 45½	151 39¼	*	G.	☽&☉.
	1 52 12	47 53	39 40½ C.	85 3 25		152 2	*	G.	☽&☉.
	1 56 31	47 15⅓	39 35½ C.	85 4 57		152 3¾	*	G.	☽&☉.
☿ —— 9.	Noon.						78		
♃ —— 10.	Noon.	56 54½			17 35	151 41	79	G.	☉'s Merid. Altitude.
♀ —— 11.	Noon.				18 58	151 45	78	G.	Latitude observed.
♄ —— 12.	Noon.	54 52			20 13⅔	151 36	77	G.	☉'s Merid. Altitude.
☉ —— 13.	Noon.	53 30			21 54	151 9	77	G.	Ditto.
☽ —— 14.	Noon.				22 26	150 55		G.	Lat. obs. Oheteroa East true, dist. 2 leagues off shore.
♂ —— 15	Noon.	52 9			23 52½	150 37		G.	Merid. Alt. ☉'s L. L.
☿ —— 16.	Noon.	51 20			25 0½	150 19	72	G.	Ditto.
♃ —— 17.	Noon.	50 29			26 10⅚	149 46	67	G.	Ditto.
♀ —— 18.	Noon.	50 11			26 48⅓	149 42	71	G.	Ditto.
♄ —— 19.	Noon.				27 40	149 6	72	G.	Latitude observed.
☉ —— 20.	Noon.	49 15			28 23⅚	148 25	72	G.	Merid. Alt. ☉'s L. L.
☽ —— 21.	Noon.				29 44	148 22	71	G.	Latitude by account.

1769.	Time by the Watch.	Alt. ⊙'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ⊙ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♂ Aug. 22.	Noon.	47 15			31 4⅕	148 0	69	G.	Merid. Altit. ⊙'s L. L.
☿ —— 23.	Noon.	46 33			32 6⅖	147 29	66	G.	Ditto.
♃ —— 24.	Noon.				32 44	147 00	62	G.	Latitude by account.
♀ —— 25.	Noon.	47 0½			32 20⅔	147 22	61	G.	Merid. Altit. ⊙'s L. L.
	22 8 8	37 57⅔	27 24⅓ U.	59 23 50		147 2	*	G.	☽ & ⊙. Very clear.
	22 15 8	38 53	26 36⅓ U.	59 21 10		147 2¾	*	G.	☽ & ⊙. Observed on
	22 21 6	39 37⅓	25 53⅓ U.	59 18 50	32 37	147 7¾	*	G.	☽ & ⊙. the Quarter
	22 27 35	40 25⅔	25 6⅔ U.	59 16 55		146 52¼	*	G.	☽ & ⊙. Deck.
♄ —— 26.	Noon.	47 2			32 40	147 20	59	G.	Mer. Alt. ⊙'s L.L. Q.D.
⊙ —— 27.	Noon.	46 27			33 36	147 25		G.	Ditto.
☽ —— 28.	Noon.				35 34	147 27	67	G.	Latitude by account.
♂ —— 29.	Noon.	43 46			37 0	147 30	62	G.	Mer. Alt. ⊙'s L.L. Q.D.
☿ —— 30.	Noon.	42 46			38 21⅓	147 20	68	G.	Ditto.
♃ —— 31.	Noon.	41 58			39 31¼	147 16	54	G.	Ditto.
♀ Sept. 1.	Noon.				40 12	146 51	48	G.	Latitude by account.
♄ —— 2.	Noon.	42 30			39 43	146 07	50	G.	Mer. Alt. ⊙'s L.L. Q.D.
⊙ —— 3.	Noon.	43 29			39 6	146 10	50	G.	Ditto.
☽ —— 4	Noon.	44 25			38 32⅓	146 10	60	G.	Ditto.
♂ —— 5.	Noon.	45 27			37 52⅔	146 42	56	G.	Ditto.
☿ —— 6.	Noon.	45 52			37 50¼	148 16	61	G.	Ditto.
	1 36 17	38 53	48 26⅔ U.	76 32 20	37 43				☽ & ⊙. Observed on
	1 43 25	37 56½	49 47⅓ U.	76 35 0	37 43	148 48½	*	G.	☽ & ⊙. the Quarter
	1 49 12	37 11⅓	50 54½ U.	76 36 15	37 43				☽ & ⊙. Deck.
♃ —— 7.	Noon.				37 52	148 40	65	G.	Latitude observed.
♀ —— 8.	Noon.				36 36	148 36	68	G.	Ditto.
♄ —— 9.	Noon.				36 19	150 10		G.	Ditto.
⊙ —— 10.	Noon.				35 19	151 46		G.	Ditto.
	4 26 20	16 2⅓	38 39⅓ U.	121 45 30	35 1½	152 54	*	G.	☽ & ⊙. Obs. on the Q.D.
☽ —— 11.	Noon.	51 21			34 15	153 01	60	G.	Quarter Deck.
♂ —— 12.	Noon.	52 47			33 12	153 47	62	G.	Ditto.
☿ —— 13.	Noon.	54 19			32 3	154 24	60	G.	Ditto.
♃ —— 14.	Noon.	54 40			32 5	155 05	62	G.	Ditto.
♀ —— 15.	Noon.				32 36	157 48	64	G.	Latitude by account.
♄ —— 16.	Noon.	55 47			31 44⅔	159 34	60	G.	Main Deck.
⊙ —— 17.	Noon.	57 41			30 14	160 24	60	G.	Ditto.
☽ —— 18.	Noon.	59 19			28 59½	160 50	62	G.	Quarter Deck.
♂ —— 19.	Noon.				29 0	160 43	62	G.	Latitude by account.
☿ —— 20.	Noon.	59 44			29 21½	161 5	62	G.	Poop.
♃ —— 21.	Noon.	59 32			29 56⅔	162 0	64	G.	Ditto.
♀ —— 22.	Noon.	58 45			31 7⅙	163 0	62	G.	Ditto.
	21 7 10	36 48⅔	30 12⅓ U.	75 57 20	31 51⅓				☽ & ⊙. Very dis-
	21 16 13	38 32⅓	29 07 U.	75 54 10	31 51⅓	162 54	*	G.	☽ & ⊙. tinct.
	21 22 32½	39 42	28 21 U.	75 52 45	31 51⅓				(2) ☽ & ⊙. Poop.
♄ —— 23.	Noon.	58 16			31 59⅔	164 16	60	G.	Quarter Deck.
⊙ —— 24.	Noon.				33 18	164 43	66	G.	Latitude by account.
☽ —— 25.	Noon.	56 30			34 32¾	167 2	64	G.	Quarter Deck.

1769.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♂ Sept. 26.	Noon.				36 9	169 16	64	G.	Latitude by account.
☿ —— 27	Noon.	54 16			37 34	170 22	62	G.	Quarter Deck.
♃ —— 28.	Noon.	53 16			38 57½	171 27	59	G.	Poop.
♀ —— 29.	Noon.	54 6			38 29⅚	172 46	62	G.	Main Deck.
♄ —— 30	Noon.	54 35			38 25⅓	175 2	62	G.	Quarter Deck.
☉ Octo. 1.	Noon				37 45	175 45	64	G.	Latitude observed. The observed latitude several miles to the northward of that by account.
☽ —— 2.	Noon.	56 37			37 10	176 30	63	G.	Ship N. of the account.
♂ —— 3.	Noon.	57 16			36 54⅓	177 30	62	G.	Ship 10′ N. of the account.
	3 57 50	28 28	71 36⅔ L.	47 16 0	36 58⅓	178 46½	*	G.	☽ and ☉. Indifferent.
	4 23 32½	23 27	68 15 L.	47 22 30	36 58½	178 37	*	G.	☽ and ☉. (2)
	5 22 17	12 11⅔	58 32 L.	47 36 27	36 59⅗	178 21½	*	G.	☽ & ☉. Very good.
	5 29 23	10 48	57 14⅔ L.	47 38 30	36 59⅗	178 37	*	G.	☽ & ☉. Quar. Deck.
☿ —— 4.	Noon.	56 50			37 43½	179 13	62	G.	Merid. Altit. ☉'s L. L.
♃ —— 5.	Noon.	56 32			38 24¾	180 24	62	G.	Ditto.
	1 17 5	53 4⅔	43 15⅔ L.	68 28 0		179 48¾	*	G.	☽ & ☉.
	1 17 5	53 4⅔	43 15⅔ L.	68 29 10		180 27¼	*	M	☽ & ☉.
	1 24 17	52 21⅔	44 37⅔ L.	68 31 20		180 18¼	*	G.	☽ & ☉. Very good; but too near noon. Observed on the Poop.
	1 24 17	52 21⅔	44 37⅔ L.	68 29 40	38 26¾	179 22¾	*	M	☽ & ☉.
	1 30 42	51 41	45 51⅓ L.	68 33 20		180 13¼	*	G.	☽ & ☉.
	1 30 42	51 41	45 51⅓ L.	68 33 0		180 2	*	M	☽ & ☉.
	1 36 6	51 1	46 52⅓ L.	68 35 27		180 17⅓	*	G.	☽ & ☉.
	1 36 6	51 1	46 52⅓ L.	68 34 43		179 52½	*	M	☽ & ☉.
	3 30 5	33 31⅔	66 58⅔ L.	69 8 10		179 36¼	*	G.	☽ & ☉.
	3 30 5	33 31⅔	66 58⅔ L.	69 9 30		180 21	*	M	☽ & ☉.
	3 37 33	32 7⅔	68 10⅓ L.	69 10 40	38 31	179 48½	*	G.	☽ & ☉. Observed on the Poop. Very good.
	3 37 33	32 7⅔	68 10⅓ L.	69 12 30		180 49½	*	M	☽ & ☉.
	3 44 40	30 50	69 10 L.	69 12 27		179 46	*	G.	☽ & ☉.
	3 44 40	30 50	69 10 L.	69 13 55		180 35	*	M	☽ & ☉.
	3 50 50	29 41	69 56⅓ L.	69 13 5	38 31¼	179 7	*	G.	☽ & ☉.
	3 50 50	29 41	69 56⅓ L.	69 16 0		180 44½	*	M	☽ & ☉.
♀ —— 6.	Noon.	56 9			39 11	180 49¼	64		
	At 2 0 0	New Zealand was seen bearing W. by N.							
	4 9 48	26 52⅔	63 59⅔ U.	80 19 30		181 10	*	G.	☽ & ☉. Observed on the Poop. Very good.
	4 16 31	25 34⅓	64 57⅓ U.	80 21 50	39 11	181 22¼	*	G.	☽ & ☉.
	4 21 51	24 34⅓	65 47⅓ U.	80 24 0		181 47	*	G.	☽ & ☉.
♄ —— 7.	Noon.	56 45			38 58	181 27	62		
	3 56 22	29 53	52 3⅓ L.	91 22 17		182 41¼	*	G.	☽ & ☉. Observed on the Q. Deck.
	4 3 39	28 31⅔	53 20⅓ L.	91 24 20	38 55⅓	182 36	*	G.	☽ & ☉.
	4 8 40	27 35	54 15 L.	91 26 0		182 43¾	*	G.	☽ & ☉.
☉ —— 8.	Noon.						61		In Poverty Bay, New Zealand.
☽ —— 9.	Noon.				38 42	181 35⅔			
♂ —— 10.	Noon.								

1769.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♂ Octo. 11.	Noon.	57 59			39 15	182 1	64		
♃ —— 12.	Noon.	58 15			39 21⅔	182 5	66		
♀ —— 13.	Noon.	58 54			39 5	182 31	64		
♄ —— 14.	Noon.				39 37	182 59⅓	65		
☉ —— 15.	Noon.	58 55			39 48⅔	182 46	66		
☽ —— 16.	Noon.	58 33			40 32½	183 13	64		
♂ —— 17.	Noon.	59 36			39 51½	182 27½	64		Quarter Deck.
♅ —— 18.	Noon.	60 15			39 34½	182 27	66		
♃ —— 19.	Noon.	61 26			38 45	181 42	66		
♀ —— 20.	Noon.				38 16	181 25½	64 61		In Tegadoo Bay, New Zealand.
♄ —— 21.	Noon.								
☉ —— 22.	Noon.	63 1			38 13¾	181 20½	62		
	20 19 0	31 0⅔	41 53 U.	67 24 50		180 16	*	G.	☽&☉. Right before
	20 24 40	32 14	41 46⅓ U.	67 22 52		180 12	*	G.	☽&☉. Tegadoo Bay,
	20 30 8	33 13⅓	41 37 U.	67 21 0	38 16	180 14¾	*	G.	☽&☉. and about 3
	20 35 9	34 12⅓	41 25⅓ U.	67 19 10		180 20½	*	G.	☽&☉. miles from it.
	20 39 52	35 4⅓	41 15 U.	67 17 20		180 31½	*	G.	☽&☉. Good. Poop.
☽ —— 23.	Noon.	63 15::			38 20⅔	181 19	66		Off the N.P. of Tolaga B.
	19 12 21	19 30⅓	42 7⅓ U.	55 21 30		181 0¼	*	G.	☽&☉.
	19 17 37	20 27⅓	42 38⅓ U.	55 19 10	38 22	181 26	*	G.	☽&☉.
	19 22 56	21 35⅓	43 8⅓ U.	55 17 25		181 18	*	G.	☽&☉.
	19 28 0	22 37	43 32⅔ U.	55 16 0		181 11	*	G.	☽&☉. In Tolaga Bay,
♂ —— 24.	Noon.				38 22⅓	181 27			New Zealand.
♅ —— 25.	Noon.								Obſerved on
♃ —— 26.	Noon.						68		the Poop.
♀ —— 27.	Noon.								
♄ —— 28.	Noon.						68		
☉ —— 29.	Noon.	65 13			38 25	181 14½	68		Quarter Deck.
☽ —— 30.	Noon.	66 9			37 48¼	181 6	66		Q. D. Diſt. off Shore 6 m.
♂ —— 31.	Noon.	66 47			37 29⅔	181 56½	64		Quarter Deck.
♅ Nov. 1.	Noon.	66 45			37 51	182 24	64		Ditto.
	3 47 19	35 33⅓	69 36 L.	38 30 45		183 31¼	*	G.	☽&☉. Mount Edge-
	3 58 44	33 20⅔	67 59⅓ L.	38 34 35	37 55⅔	183 57½	*	G.	☽&☉. cumbe W. &
	4 10 32	31 2	66 6⅓ L.	38 36 57		183 31½	*	G.	☽&☉. White Iſland
	4 17 17	29 43⅓	64 59⅓ L.	38 38 40		183 26	*	G.	☽&☉. N°4°. W.b.C.
♃ —— 2.	Noon.	67 15½			37 39½	183 21	66		Quart. Deck.
♀ —— 3.	Noon.	68 17½			36 55¾	183 48	68		Quarter Deck.
	2 49 50	44 55⅔	66 57⅔ U.	60 15 45		184 51½	*	G.	Main Deck.
	3 0 9	42 57⅔	68 19⅓ U.	60 17 0		184 2½	*	G.	☽&☉. Off the en-
	3 5 35	41 51⅔	69 5⅓ U.	60 18 45		184 4	*	G	☽&☉. trance into
	3 10 30	40 53⅔	69 41 U.	60 20 25	36 51⅓	184 17½	*	G.	☽&☉. Mercury Bay,
	3 15 23	39 59	70 18⅓ U.	60 22 20		184 39¾	*	G.	☽&☉. New Zealand.
♄ —— 4.	Noon.						70		Forecaſtle.
☉ —— 5.	Noon.						70		
☽ —— 6.	Noon.					183 56½	68		In Mercury Bay.
♂ —— 7.	Noon.						74		

1769.	Time by the Watch.	Alt. ☉'s L.L.or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☿ Nov. 8.	Noon.				36 47¾		75		Obſerved by Capt. Cook with the Aſtro. Quad.
	At 19h 20′ 58″ apparent Time, the tranſit of Mercury began. Obſerved by Mr. Green, alone; Capt. Cook being then taking altitudes of the Sun for aſcertaining the time.								
♃ —— 9.	Noon.				36 48½				Obſerved with the Aſtronomical Quadrant.
	At 0h 8′ 45″ } Apparent Time internal Contact at the Egreſs.								Captain Cook.
	0h 8′ 58″ }								Mr. Green. †
	At 0h 9′ 43″ } Apparent Time external Contact at the Egreſs.								Captain Cook.
	0h 9′ 55″ }								Mr. Green.
♀ —— 10.	Noon.						72		
♄ —— 11.	Noon.						70		
☉ —— 12.	Noon.					183 56½			In Mercury Bay.
☽ —— 13.	Noon.						66		
♂ —— 14.	Noon.						67		
☿ —— 15.	Noon.	71 50			36 45½	183 48	68		☉'s Meridian Altitude.
♃ —— 16.	Noon.				36 31½	183 40	68		Latitude obſerved.
♀ —— 17.	Noon.						64		
	19 18 38	23 18⅔	29 31 U.	111 23 0		182 53½	*	G.	☽ & ☉.
	19 18 38	23 18⅔	29 31 U.	111 22 0		183 21½	*	C.	☽ & ☉.
	19 29 32	25 25	28 15⅓ U.	111 18 15		183 11	*	G.	☽ & ☉. Very clear. Taken under the weſt ſide of Cape Colville. Good. Quar. Deck.
	19 29 32	25 25	28 15⅓ U.	111 17 5	36 28⅔	183 43	*	C.	☽ & ☉.
	19 38 19	27 12⅓	27 9⅔ U.	111 14 55		183 5½	*	G.	☽ & ☉.
	19 38 19	27 12⅓	27 9⅔ U.	111 13 30		183 44½	*	C.	☽ & ☉.
	19 46 57	28 55⅔	26 1⅔ U.	111 12 0		182 50¼	*	G.	☽ & ☉.
♄ —— 18.	Noon.	72 50½			36 28⅔	184 16	64		

† Theſe Times are taken from Captain Cook's Journal: Mr. Green's barely informs us that they went on ſhore to obſerve the Tranſit of Mercury; and I cannot meet with any thing farther concerning it in any of his books or papers which have come to my hands. But it is remarkable, that all the memorandum books, in which his obſervations were originally written down at the time when they were taken, are exiſting, except that which was current at this time; and which appears to have contained all his obſervations between the 3d of November 1769, and the 20th of February 1770. The loſs of this book is more to be regretted, as it probably contained the altitudes of the ſun, which theſe times were deduced from, as well as the times themſelves; which are not now to be found. I think it alſo probable this book might have furniſhed us with ſome corrections of the lunar obſervations, on account of the errors of the quadrants, which may have been omitted in tranſcribing the obſervations into the fair books; as I have met with inſtances of ſuch omiſſions in other places: and Mr. Green's longitude of Queen Charlotte's Sound differing ſo much from the longitude of that place, as determined by every other perſon, ſeems to add ſtrength to ſuch a ſuppoſition.

1769.	Time by the Watch. H ′ ″	Alt. ☉'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W.of Greenwich. ° ′	Thermo.	Observ.	PHENOMENA AND REMARKS.
☉ Nov. 19.	Noon.	72 33			36 59⅔	184 6½	70	G.	Quarter Deck. Taken at anchor in the River Tham. New Zealand.
	19 56 39	30 43⅙	44 13⅔ U.	85 32 55		183 37	*	G.	☽&☉.
	20 4 41	32 19	43 33 U.	85 30 25		183 32	*	G.	☽&☉. Very good Q. D.
	20 10 52	33 27⅔	42 58⅔ U.	85 28 35	37 0	183 29	*	G.	☽&☉.
	20 16 18	34 38⅕	42 28⅔ U.	85 26 15		183 37½	*	G.	☽&☉.
☽ —— 20.	Noon.	72 46					74	G.	Quarter Deck.
♂ —— 21.	Noon.				37 0⅙	184 6½	72		
	22 59 47	69 52⅙	36 29⅓ U.	60 12 45		183 14	*	G.	☽&☉. At anchor in the River Thames. Obſ. on the Q. D.
	23 5 15	70 38⅔	35 33⅔ U.	60 9 55		183 41	*	G.	☽&☉.
	23 10 59	71 15⅓	34 30⅓ U.	60 8 10	36 59⅘	183 20⅛	*	G.	☽&☉.
	23 15 35	71 44⅓	33 31⅔ U.	60 6 40		183 23⅜	*	G.	☽&☉.
☿ —— 22.	Noon.	73 12			36 59⅘	It was noon, according to equal altitudes, at 23 52 34: the watch was therefore too ſlow for apparent Time by 7′ 26″. Thermometer 74°.			
♃ —— 23.	Noon.	73 34			36 51¼	184 10	76	G.	Quarter Deck. Two miles from the ſhore.
	0 30 17	71 56	31 34 U.	48 3 15	36 51¼	183 52	*	G.	☽&☉. At anchor in the River Thames. Q. D.
♀ —— 24.	Noon.	74 19			36 16¾		62	G.	Main Deck.
♄ —— 25.	Noon.	75 12			35 35¼		60	G.	Forecaſtle.
☉ —— 26.	Noon.	75 48½			35 10		60	G.	Main Deck.
☽ —— 27.	Noon.	76 15			34 54⅙	185 22	68	G.	Ditto.
♂ —— 28.	Noon.	76 20			34 59½	185 12	68	G.	Forecaſtle.
☿ —— 29.	Noon.					185 16			
♃ —— 30.	Noon.	76 26			35 13	185 16	70	G.	Forecaſtle.
♀ Dec. 1.	Noon.	76 34			35 14	185 16	72	G.	Ditto.
	4 5 1	38 51⅙	69 39⅓ C.	40 46 48		186 13¾	*	G.	☽&☉. Quarter Deck.
	4 11 13	37 33⅔	68 42⅔ C.	40 47 35		185 41	*	G.	☽&☉.
	4 17 46	36 17⅓	67 51 C.	40 49 55		186 1	*	G.	☽&☉.
♄ —— 2.	Noon.						63		
☉ —— 3.	Noon.	76 51			35 14	Height of the eye 19 f. and 1½ mile off ſhore.	67	G.	On ſhore, a mile North of the ſhip.
	2 27 28	54 23⅓	56 2⅔ U.	62 44 50		186 00	*	G.	☽&☉.
	2 38 34	52 16	57 44½ U.	62 48 52		186 29½	*	G.	☽&☉.(2) Dip. for the ☽'s alt. 5′; for the ☉'s 4′.
	2 44 43½	51 0	58 45½ U.	62 50 15		186 15⅛	*	G.	☽&☉.(2)
	2 51 25	49 39⅔	59 51⅔ U.	62 51 55		186 11	*	G.	☽&☉.
	2 57 46½	48 22½	60 43½ U.	62 54 0		186 15⅛	*	G.	☽&☉.(2)
☽ —— 4.	Noon.	76 59			35 14		68	G.	Quarter Deck.
	3 34 42	40 44⅚	56 18⅔ U.	74 28 28		184 42¾	*	G.	☽&☉.
	3 41 13	39 25	57 12⅔ U.	74 30 48		184 55	*	G.	☽&☉. Dip. for the ☉'s alt. 4′; for the ☽'s 12′.
	3 46 47	38 16	57 48⅔ U.	74 33 53		185 38⅞	*	G.	☽&☉.
	3 52 57	37 0⅔	58 25⅓ U.	74 34 48		185 11¼	*	G.	☽&☉.
	3 59 3	35 45⅔	59 3 U.	74 36 23		185 1½	*	G.	☽&☉.
♂ —— 5.	Noon.	77 11½			35 8¾	185 16	68	G.	Quarter Deck.

At anchor in the Bay of Iſlands.

1769.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♂ Dec. 5.	3 20 05	46 47½	41 0⅓ U.	86 2 40		185 25¼	*	G.	☽&☉. Quarter Deck.
	3 25 35	45 38⅓	41 55⅔ U.	86 4 30	35 8	185 21¼	*	G.	☽&☉. In the entrance of the Bay of Iſlands.
	3 30 18	44 35⅓	42 46⅔ U.	86 6 10		185 19	*	G.	☽&☉.
	3 34 2	43 30	43 34⅔ U.	86 7 40		185 8¾	*	G.	☽&☉.
☿ —— 6.	Noon.	77 28½			34 58½	185 13	70	G.	Forecaſtle.
	3 12 50	45 22	31 7 U.	98 8 27		186 10	*	G.	☽&☉.
	3 12 50	45 22	31 7 U.	98 6 57		185 25¼	*	C.	☽&☉.
	3 19 2	44 4⅓	32 9⅔ U.	98 11 30		186 27¼	*	G.	☽&☉. Cape Brett
	3 19 2	44 4⅓	32 9⅔ U.	98 10 23	34 53	185 54½	*	C.	☽&☉. S.S.E. diſtance
	3 27 14	42 24⅓	33 32⅓ U.	98 14 45		186 31	*	G.	☽&☉. about 6 leag.
	3 27 14	42 24⅓	33 32⅓ U.	98 13 40		185 58½	*	C.	☽&☉. Poop.
♃ —— 7.	Noon.				35 1	185 21¼	70	G.	Latitude by account.
	3 51 57	38 52¼	24 48 U.	110 46 50		186 0¾	*	G.	☽&☉.
	3 57 7	37 50	25 38⅚ U.	110 48 55		185 59	*	G.	☽&☉. Off the Ca-
	4 2 3	36 48⅓	26 27⅔ U.	110 51 40	34 59 ::	186 15½	*	G.	☽&☉. valle Iſles.
	4 6 41	35 53⅓	27 12⅚ U.	110 54 0		186 28½	*	G.	☽&☉. Poop.
	4 10 54	35 1⅔	27 56⅙ U.	110 55 50		186 32½	*	G.	☽&☉.
♀ —— 8.	Noon.	77 58½			34 41½	185 35	70	G.	Obſerved on the Poop.
	4 34 23	31 34	19 2 U.	123 56 0		186 10	*	G.	☽&☉.
	4 40 50	30 14⅔	20 5⅔ U.	123 59 25		186 22	*	G.	☽&☉. Off Doubtleſs
	4 45 34	29 20⅓	20 52⅓ U.	124 2 5	34 48½	186 38½	*	G.	☽&☉. Bay. Poop.
	4 50 11	28 23	21 37⅔ U.	124 4 55		186 59	*	G.	☽&☉.
	4 54 32	27 27⅓	22 19⅔ U.	124 6 15		186 40½	*	G.	☽&☉.
♄ —— 9.	Noon.	78 1			34 44⅙	185 57	70	G.	Forecaſtle.
☉ —— 10.	Noon.	78 11¾			34 38⅔	186 24	70	G.	Quarter Deck.
☽ —— 11.	Noon.	78 23½			34 31½	186 16	70	G.	Ditto.
♂ —— 12.	Noon.	78 25			34 34½	186 20	72	G.	Ditto.
☿ —— 13.	Noon.						70		
♃ —— 14.	Noon.	78 58			34 8½	185 40	66	G.	Quarter Deck.
♀ —— 15.	Noon.	78 59			34 10	185 59	66	G.	Main Deck.
♄ —— 16.	Noon.	79 29½			33 42	186 27	70	G.	Quarter Deck.
	21 10 0	50 47	9 44 U.	116 35 0	34 25⅔	184 47½	*	G.	☽&☉. (1) Clouds prevented us from taking more. Poop.
☉ —— 17.	Noon.	78 53½			34 19⅚	186 38	68	G.	Quarter Deck.
	19 36 33	34 28	36 20⅙ U.	104 29 55		185 31	*	G.	☽&☉.
	19 42 22	35 44⅔	35 19½ U.	104 27 30		185 32	*	G.	☽&☉. Poop.
	19 48 58	37 0½	34 16⅔ U.	104 24 30	33 54¾	185 49¾	*	G.	☽&☉.
	19 52 28	37 54⅔	33 33½ U.	104 22 30		185 58¾	*	G.	☽&☉.
☽ —— 18.	Noon.	79 6			34 8¾	186 42	68	G.	Quarter Deck.
♂ —— 19.	Noon.	79 14			34 1½	186 48	68	G.	Poop.
☿ —— 20.	Noon.	79 2			34 14	186 49	70	G.	Main Deck.

1769.	Time by the Watch. H ′ ″	Alt. ☉'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Observ.	PHENOMENA AND REMARKS.
☿ Dec. 20.	21 21 48	54 5	53 50⅔ U.	68 10 40		185 56¼	✳	G.	☽&☉. Very troublesome observing. Poop.
	21 21 48	54 5	53 50⅔ U.	68 10 20		186 7	✳	S.	☽&☉.
	21 39 47	57 47⅔	50 34⅔ U.	68 4 40		186 9½	✳	G.	☽&☉. The North Cape S. 21°½ E. true, dist. 67 miles.
	21 39 47	57 47⅔	50 34⅔ U.	68 4 45	33 20	186 7	✳	S.	☽&☉.
	21 49 17	59 43	48 38⅔ U.	68 0 50		186 38½	✳	G.	☽&☉.
	21 49 17	59 43	48 38⅔ U.	67 59 55		187 8	✳	S.	☽&☉.
♃ —— 21.	Noon.	79 58			33 17⅞	187 18	66	G.	Main Deck.
♀ —— 22.	Noon.	80 13			33 2⅔		66	G.	Ditto.
	21 3 13	50 40½	75 1 U.	45 43 0		186 56	✳	G.	☽&☉.
	21 7 56	51 40½	74 34½ U.	45 41 0		187 21	✳	G.	☽&☉.
	21 7 56	51 40½	74 34½ U.	45 40 30		187 36½	✳	S.	☽&☉. The North Cape S. 36° E. true, dist. 28 leagues. Poop.
	21 17 22	53 38	73 43 U.	45 38 50	33 15	187 8¼	✳	G.	☽&☉.
	21 17 22	53 38	73 43 U.	45 39 7		186 58¾	✳	S.	☽&☉.
	21 22 1	54 35½	73 8 U.	45 37 30		187 12¾	✳	G.	☽&☉.
	21 22 1	54 35½	73 8 U.	45 37 50		187 1½	✳	S.	☽&☉.
♄ —— 23.	Noon.	79 59			33 15⅔	187 42½	67	G.	Poop.
☉ —— 24.	Noon.	79 25			33 49	187 45	70	G.	Quarter Deck.
☽ —— 25.	Noon.	78 59			34 12	188 5½	66	G.	Poop. Three King's Isles S. by E. 7 or 8 leag.
♂ —— 26.	Noon.	78 0			35 8⅓	188 26	68	G.	Quarter Deck.
☿ —— 27.	Noon.				35 19	188 59	67	G.	Latitude by account.
♃ —— 28.	Noon.				34 50	188 30		G.	Ditto.
♀ —— 29.	Noon.	78 12			34 46⅞	187 53	67	G.	☉'s Merid. Altitude.
♄ —— 30.	Noon.	78 0			34 54⅓	187 38	67	G.	Ditto.
☉ —— 31.	Noon.	78 8			34 41¾	187 28	66	G.	Poop. ☉'s Merid. Altit.
1770.									
☽ Jan. 1.	Noon.	78 8			34 37	187 28	68	G.	Ditto. ☉'s Merid. Altit.
	2 38 24	53 53⅔	56 27⅓ U.	55 7 25	34 34½	188 25¾	✳	G.	☽&☉. Exceeding clear & the obj. very distinct. Cape Maria Van Dieman N. 45° E. and the middle of Three King's Isle N. 45° W. by comp. Poop.
	2 44 37	52 36⅔	57 2⅙ U.	55 9 30		188 32¼	✳	G.	☽&☉.
	2 50 28	51 28⅔	57 27⅓ U.	55 12 0		188 57½	✳	G.	☽&☉.
	2 56 6	50 18⅓	57 52 U.	55 13 45		188 58	✳	G.	☽&☉.
	3 2 18	49 01	58 16 U.	55 15 35	34 34	188 57	✳	G.	☽&☉.
	3 41 0		59 50 U.						☽'s Merid. Altit. Poop.
♂ —— 2.	Noon.	77 20			35 19	187 25	68	G.	☉'s Merid. Altit. Ditto.
☿ —— 3.	Noon.	76 31			36 2	187 16	67	G.	Ditto. Quarter Deck.
	4 8 40	35 47½	45 38⅓ U.	79 19 30		187 29	✳	G.	☽&☉. Observed on the Poop.
	4 13 57	34 45	45 56⅓ U.	79 20 40	36 5½	187 13¾	✳	G.	☽&☉.
	4 19 13	33 39	46 17 U.	79 22 55		187 27¾	✳	G.	☽&☉.
	4 24 33	32 34	46 35⅓ U.	79 25 10		187 42	✳	G.	☽&☉.
♃ —— 4.	Noon.	75 56			36 30½	186 5	64	G.	☉'s Merid. Altit. M.D.
♀ —— 5.	Noon.	77 9			35 10⅓	187 39	66	G.	Ditto.
♄ —— 6.	Noon.				35 8	187 39	68	G.	Latitude observed.

1770.	Time by the Watch.	Alt. ⊙'s L.L. or ✳	Moon's Altitude.	Diff. ☽'s L. from ⊙ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♄ Jan. 6.	6 34 35	5 30½	33 53½ U.	119 27 50			✳	G.	☽&⊙. There appears to be an error
	6 41 2	4 23	34 14⅔ U.	119 29 50	35 9½		✳	G.	☽&⊙. in these observ.
	6 45 36	3 34½	34 29¼ U.	119 30 50			✳	G.	☽&⊙. which cannot be accounted for.
⊙ —— 7.	Noon.	77 4			35 0	187 35	70	G.	⊙'s Merid. Altit. Q. D.
☽ —— 8.	Noon.	76 11			35 44¾	186 44	74	G.	Ditto.
♂ —— 9.	Noon.	75 7			36 40	186 7	70	G.	Ditto.
♃ —— 10.	Noon.				38 5	185 7	70	G.	Latitude by account.
♅ —— 11.	Noon.	73 24			38 4¼	185 18	69	G.	⊙'s Merid Altit. Poop.
♀ —— 12.	Noon.					185 18½	67	G.	
♄ —— 13.	Noon.	71 36			39 31⅚	185 58	64	G.	⊙'s Merid. Altit. Q. D.
⊙ —— 14.	Noon.	70 30			40 27	184 59	62	G.	Ditto.
	19 5 5	25 27⅓	26 35½ U.	124 50 50		184 53¼	✳	G.	☽&⊙. In the entrance
	19 12 42	26 53	25 16⅔ U	124 47 0	40 56½	185 10⅚	✳	G.	☽&⊙. into Queen Charlotte's
	19 18 6½	27 54	24 25⅔ U.	124 44 30		185 14⅓	✳	G.	☽&⊙. Sound, New Zealand.
☽ —— 15.	Noon.						62		
♂ —— 16.	Noon.				41 5½	185 16¾	69	G.	Latit. observed.
	21 39 5	53 39⅔	22 11¼ C.	96 27 30		185 7¼	✳	G.	☽&⊙. Quar.
	21 46 14	54 53	20 53 C.	96 24 50	41 6	184 53⅚	✳	G.	☽&⊙. Deck.
	21 50 13	55 33⅓	20 10⅓ C.	96 22 50		185 0¾	✳	G.	☽&⊙.
♃ —— 17.	Noon.						69		
	21 28 28	51 40⅓	35 55⅓ U.	88 0 35		184 23⅚	✳	G.	☽&⊙. Quar.
	21 34 20	52 41⅙	34 48⅔ U.	87 58 55	41 6	184 7¼	✳	G.	☽&⊙. Deck.
	21 39 32	53 35⅔	33 55 U.	87 56 50		184 12⅚	✳	G.	☽&⊙.
♅ —— 18.	Noon.						72		
	21 48 17	54 56⅓	42 50⅔ U	76 36 40		184 32¾	✳	G.	☽&⊙.
	21 54 49	56 1⅔	41 50⅔ U.	76 34 45	41 6	184 21½	✳	G.	☽&⊙. Poop.
	21 59 13	56 45	40 57½ U.	76 33 15		184 21½	✳	G.	☽&⊙.
♀ —— 19.	Noon.				41 5		72		Latit. observed.
	21 30 30	51 44⅔	56 1⅔ U.	65 38 0		184 11⅛	✳	G.	☽&⊙.
	21 35 12½	52 33⅔	55 17⅙ U.	65 36 0	41 6	184 28⅛	✳	G.	☽&⊙. Poop.
	21 39 55½	53 22⅓	54 35 U.	65 35 c		184 13⅜	✳	G.	☽&⊙.
♄ —— 20.	Noon.						72		
	21 25 32	50 43⅓	63 58⅔ C.	54 41 50		184 10¼	✳	G.	☽&⊙. Quar.
	21 30 43	51 37⅔	63 15 C.	54 40 0	41 6	184 21⅛	✳	G.	☽&⊙. Deck.
	21 37 36	52 49	62 14¾ C.	54 37 40		184 33⅓	✳	G.	☽&⊙.
⊙ —— 21.	Noon.						71		
☽ —— 22.	Noon.						70		
♂ —— 23.	Noon.						72		
♃ —— 24.	Noon.						72		
♅ —— 25.	Noon.						71		
	22 25 0	High Water in Queen Charlotte's Sound.							
♀ —— 26.	Noon.						72		
	22 0 0	High Water. Violent puffs of wind from the hills.							
♄ —— 27.	Noon.						70		

In Queen Charlotte's Sound, New Zealand.

1770.	Time by the Watch.	Alt. ☉'s L.L.or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☉ Jan. 28.	Noon.						68		
	23 30 0	High Water.							
☽ —— 29.	Noon.						68		
♂ —— 30.	Noon.	High Water; and the water roſe higher by a foot, than on any former Day.							
☿ —— 31.	Noon.						69		In Queen Charlotte's Sound, New Zealand.
♃ Feb. 1.	Noon.						70		
♀ —— 2.	Noon.						70		
♄ —— 3.	Noon.						71		
☉ —— 4.	Noon.						70		
☽ —— 5.	Noon.						70		
♂ —— 6.	Noon.				41 4	185 10	69		Latitude obſerved.
☿ —— 7.	Noon.	63 23			41 26½	185 3	66	G.	☉'s Merid. Altit. Poop.
♃ —— 8.	Noon.				41 30	184 4	64		Latitude by account.
♀ —— 9.	Noon.	63 15			40 55⅚	183 32	67	G.	☉'s Merid. Altit. ☉ D.
♄ —— 10.	Noon.				41 06	183 4½	64	G.	Latitude obſerved.
☉ —— 11.	Noon.	62 28:			41 3⅔	183 5½	68	G.	☉'s Merid. Altit. Poop.
☽ —— 12.	Noon.	61 20			41 51⅓	184 25		G.	Ditto. Quarter Deck.
♂ —— 13.	Noon.	60 50			42 2⅙	184 37¼	70	G.	Ditto.
	19 43 32	25 19	31 15⅓	U. 120 42 20		185 20½	*	G.	☽ & ☉. Obſerved on the Q. D. A little hazy.
	19 52 40	27 1⅔	29 41	U. 120 37 20	42 31½	186 1½	*	G.	☽ & ☉. Land from N. to S. by W. by comp.
	20 0 5	28 20⅔	28 23	U. 120 34 30		185 59	*	G.	☽ & ☉.
☿ —— 14.	Noon.				42 34	186 1½	70		Lat. obſ. by Capt. Cook.
♃ —— 15.	Noon.	59 14			42 56	186 23½	70	G.	☉'s Merid. Altit. ☉ D.
	21 4 22	39 19	37 40⅓	U. 97 10 0		186 31½	*	G.	☽ & ☉. Obſerved on the Poop. Very clear and diſtinct. Southern
	21 14 1	40 54⅔	36 1⅓	U. 97 6 30		186 32¾	*	G.	☽ & ☉. Iſland of New
	21 19 42	41 49⅔	35 3⅓	U. 97 4 30	43 7⅓	186 30¼	*	G.	☽ & ☉. Zealand S. W. ¼ S. to S. ¾ W. by compaſs.
	21 28 57	43 17	33 22⅔	U. 97 1 0		186 33¾	*		☽ & ☉. Diſtance by Mr. Monkhouſe. Poop.
		44 22⅔	32 13⅔	U. 96 56 45		187 24½	*		☽ & ☉. Diſtance by Mr. Clerke. Poop.
♀ —— 16.	Noon.	58 33			43 16	186 40¾	70	G.	☉'s Merid. Altit. ☉ D.
	19 57 12	26 33⅓	58 7	U. 86 25 40		186 19¼	*	G.	☽ & ☉. Very good obſerving. The
	19 57 12	26 33⅓	58 7	U. 86 22 10		188 14¾	*	C.	☽ & ☉. extremes of
	20 6 24	28 8⅓	56 48⅔	U. 86 22 30		186 36½	*	G.	☽ & ☉. Banks's Iſland
	20 6 24	28 8⅓	56 48⅔	U. 86 20 30	44 3	187 42½	*	C.	☽ & ☉. N. 13° W. and
	20 14 27	29 34⅓	55 36	U. 86 19 20		186 59	*	G.	☽ & ☉. N. 57° W. by
	20 14 27	29 34⅓	55 36	U. 86 18 10		187 38½	*	C.	☽ & ☉. comp. Obſer. on the Poop. *

* I ſtrongly ſuſpect there was an error of about 3′ in Captain Cook's quadrant which Mr. Green has not known of, or which he has omitted tranſcribing from his memorandum book, when theſe obſervations were made; for though Captain Cook has not put down the longitude of the ſhip which reſults from them, he has ſaid, "The longitude of Banks's Iſland is 186° 30′ weſt by obſervations of the ſun and moon, made this morning." But his diſtances, as I find them, would give the longitude of that Iſland, at leaſt, a degree and a half greater than that quantity.

1770.	Time by the Watch. H ′ ″	Alt. ☉'s L.L. or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Obſerv.	Phenomena and Remarks.
♄ Feb. 17.	Noon.	57 21			44 7¼	186 41½	74	G.	☉'s Merid. Altit. Poop.
☉ —— 18.	Noon.	55 55			45 12	186 51¼	68	G.	Ditto.
☽ —— 19.	Noon.	56 7			44 38¼	188 51½	60	G.	Ditto. Main Deck.
♂ —— 20.	Noon.	55 40			44 43⅗	189 15	60	G.	Ditto.
	20 26 56	33 29⅓	62 41 L.	42 21 10		187 9¼	✳	G.	☽&☉. Ten or 12 leag. from the Land, which bore W. Poop.
	20 35 12	34 54¼	63 7½ L.	42 18 30	44 34	187 13¾	✳	G.	☽&☉.
	20 43 22	36 14	63 15½ L.	42 16 45		186 58¼	✳	G.	☽&☉.
☿ —— 21.	Noon.	55 27			44 34⅚	188 54½	58	G.	☉'s Merid. Altit. M. D.
♃ —— 22.	Noon.				44 35	188 53	60	G.	Latitude by account.
♀ —— 23.	Noon.	54 38			44 39⅚	188 29½	64	G.	☉'s Merid. Altit. M. D.
♄ —— 24.	Noon.	53 36			45 19⅔	188 56¾	64	G.	Ditto.
☉ —— 25.	Noon.				46 00	189 38	69		Latitude by account.
☽ —— 26.	Noon.	51 36			46 36	189 0½	54	G.	☉'s Merid Altit. M. D.
♂ —— 27.	Noon.				46 54	188 34	55		Latitude by account.
☿ —— 28.	Noon.	49 44½			47 40⅔	187 37	57	G.	☉'s Merid. Altit. M. D.
♃ Mar. 1.	Noon.				47 52	188 36½	57		Latitude by account.
♀ —— 2.	Noon.	49 52			46 48	188 35⅔	57	G.	☉'s Merid Altit. M. D.
♄ —— 3.	Noon.	49 35			46 42	188 17½	58	G.	Ditto.
	3 18 23	31 33⅔	16 40⅔ U.	80 50 00		189 6¼	✳	G.	☽&☉. Very clear and distinct. Observed on the P.
	3 27 32	30 9⅔	17 20 U	80 53 10	46 37½	188 53½	✳	G.	☽&☉.
	3 34 57	29 0⅔	17 50⅓ U.	80 56 10		188 54½	✳	G.	☽&☉.
☉ —— 4.	Noon.	49 23			46 30¾	189 35½	59	G.	☉'s Merid Altit. M. D.
	5 10 20	14 20⅔	18 47⅔ U	94 37 47		190 34¼	✳	G.	☽&☉. Very good. Land from N. by E. to W. S. W. by com. P.
	5 16 50	13 13⅓	19 6⅔ U.	94 41 0	46 30⅙	190 55¾	✳	G.	☽&☉.
	5 21 36	12 21⅔	19 20⅓ U.	94 42 20		190 42¼	✳	G.	☽&☉.
☽ —— 5.	Noon.				46 50	191 37	59		Latitude by account.
♂ —— 6.	Noon.	48 18			46 49⅓	191 37	57	G.	☉'s Meridian Altitude.
☿ —— 7.	Noon.				47 6	191 25	60		Latitude by account.
♃ —— 8.	Noon.	47 8			47 13	191 45¾	60	G.	☉'s Meridian Altitude.
♀ —— 9.	Noon.	46 32			47 25⅚	192 32½	64	G.	☉'s Merid. Altit. The South Cape N. 72° W.
♄ —— 10.	Noon.				47 33	193 49¾			Latitude by observation.
☉ —— 11.	Noon.				46 24	193 17	62		Latitude observed.
☽ —— 12	Noon.				47 38	194 14	60		Latitude by account.
♂ —— 13.	Noon.				46 00	194 27	68		Latitude observed.
☿ —— 14.	Noon.				45 13	193 29	64		Ditto.
♃ —— 15.	Noon.				44 47	192 53			Ditto.
♀ —— 16.	Noon.				44 5	191 44			Ditto.
♄ —— 17.	Noon.				43 34½	190 47	66		Latitude by account.
	18 55 47	14 22¾	59 31 U.	95 47 30		189 27¼	✳	G.	☽&☉. A high sea and troublesome observing. P.
	19 3 21	15 39	58 22⅔ U.	95 45 20	43 8	189 36½	✳	G	☽&☉. Land from S. W. by S. to N. E. by E. by C. Off shore 6 m.
	19 9 29	16 45⅔	57 26⅔ U.	95 43 00		189 56	✳	G.	☽&☉.

1770.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☉ Mar. 18.	Noon.				43 4	189 39	67		Latitude observed.
	21 57 16	40 39	39 10⅓ U.	84 0 40		188 18½	✳	G.	☽&☉. Objects very distinct. The
	22 3 7	41 20⅓	38 4⅔ U.	83 58 27	42 10¾	188 20	✳	G.	☽&☉. Land from N. E. by N. to S.
	22 8 17	41 56⅔	37 9 U.	83 56 30		188 18⅜	✳	G.	☽&☉. Off shore 3 or 4 leagues. Forec.
☽ —— 19.	Noon.	47 53			42 8½	188 44½	68	G.	☉'s Merid. Altit. Q. D.
♂ —— 20.	Noon.				42 23	189 52½	70		Latitude by account.
☿ —— 21.	Noon.				41 37	188 7	69		Latitude observed.
♃ —— 22.	Noon.	47 59::			40 51½	187 11¼	66	G.	☉'s M. Alt. Forec. Clou.
	19 14 50	13 50	48 5 L.	40 12 40	40 40¾	187 12	✳	G.	☽&☉. Very clear and distinct. The
	19 23 6	15 16	49 12 L.	40 11 0	40 40¾	186 52⅞	✳	G.	☽&☉. three first ob-
	19 29 17	16 28¼	50 1 L.	40 8 50	40 40¾	187 3	✳	G.	☽&☉. served on the
	21 38 22	37 5	57 39½ L.	39 31 52	40 38⅝	186 58¾	✳	G.	☽&☉. Forecastle, the
	21 48 1	38 29⅔	57 20⅓ L.	39 28 50	40 38⅝	186 54½	✳	G.	☽&☉. three latter on
	21 54 17	39 18⅓	57 0⅔ L.	39 27 0	40 38⅝	186 52¾	✳	G.	☽&☉. the Poop. Cape Farewell N. 73° E. true, distant 5 leag.
	23 10 5	46 2½	51 22 U.	39 6 0	40 38½	186 40½	✳	G.	☽&☉. Very good
	23 17 53	46 34⅙	50 21 U.	39 3 30	40 38⅝	186 26⅞	✳	G.	☽&☉. Bearings near-
	23 25 32	46 54	49 22⅔ U.	39 1 40	40 38½	186 19¾	✳	G.	☽&☉. ly as above; it being calm. Quar. Deck.
♀ —— 23.	Noon.	47 49			40 38⅕	186 53¼	66	G.	☉'s Merid. Altit. Q. D.
♄ —— 24.	Noon.	47 42			40 21⅓	186 18¾	62	G.	☉'s Merid. Altit. Forec.
☉ —— 25.	Noon.				40 20	186 20½	62		Latitude by account.
☽ —— 26.	Noon.	46 44			40 32¼	185 37½	67	G.	☉'s Merid. Altit. Q. D.
♂ —— 27.	Noon.					185 36	66		
☿ —— 28.	Noon.						70		At anchor in Admiralty
♃ —— 29.	Noon.						65		Bay, New Zealand.
♀ —— 30.	Noon.								
♄ —— 31.	Noon.				40 35				Latitude observed.
☉ April 1.	Noon.				40 12	187 37	66		Latitude by account.
☽ —— 2.	Noon.	44 34			39 59¼	188 57	68	G.	☉'s Meridian Altitude.
♂ —— 3.	Noon.	45 14			38 56⅘	191 2	68	G.	Ditto.
☿ —— 4.	Noon.	45 51			37 56¼	193 19	66	G.	Ditto.
♃ —— 5.	Noon.	46 1			37 23½	195 35	62	G.	Ditto.
♀ —— 6.	Noon.	45 43			37 18¼	197 0	70	G.	Ditto.
♄ —— 7.	Noon.	45 2½			37 36¾	197 59	69	G.	Ditto.
☉ —— 8.	Noon.	44 16			38 0¾	199 26	71	G.	Ditto.
☽ —— 9.	Noon.	43 25			38 29⅘	201 9	69	G.	Ditto.
♂ —— 10.	Noon.	42 40			38 52⅕	203 9	71	G.	Ditto.
☿ —— 11.	Noon.	41 56			39 14⅕	2 3 47	74	G.	Ditto.
♃ —— 12.	Noon.	41 36			39 12½	203 59	72	G.	Ditto.
♀ —— 13.	Noon.	41 3			39 23⅔	204 27	76	G.	Ditto.
♄ —— 14.	Noon.				39 25	204 44	74		Latitude observed.
☉ —— 15.	Noon.				39 30	206 25			Ditto.

1770.	Time by the Watch. H ′ ″	Alt. ☉'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳ ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Observ.	PHENOMENA AND REMARKS.
☽ April 16.	Noon.				39 45	208 25			Latitude observed.
	22 58 55	37 24⅔	22 42 U.	91 55 50		207 3¼	*	G.	☽&☉.
	22 58 55	37 24⅔	22 42 U.	91 53 00		208 36¼	*	C.	☽&☉. Very good.
	23 7 13	37 59⅓	20 57⅔ U.	91 51 30		207 6¼	*	G.	☽&☉. Observed on
	23 7 13	37 59⅓	20 57⅔ U.	91 50 0	39 40	207 55¾	*	C	☽&☉. the Quarter
	23 15 2	38 22	19 27⅔ U.	91 47 20		207 32½	*	G.	☽&☉. Deck.
	23 15 2	38 22	19 27⅔ U.	91 45 30		208 30¾	*	C.	☽&☉.
♂ —— 17.	Noon.	39 21			39 40½	208 44	62	G.	☉'s Meridian Altitude.
☿ —— 18.	Noon.				38 45	210 5			Latitude observed.
♃ —— 19.	Noon.				37 50	210 44½			Ditto.
	22 49 26	38 30	42 13⅔ U.	58 5 50		209 43¼	*	G.	☽&☉. Very clear, &
	22 49 26	38 30	42 13⅔ U.	58 6 10		209 33	*	C.	☽&☉. good horizon.
	22 55 47	38 54⅓	41 10⅚ U.	58 2 30		210 26	*	G.	☽&☉. Poop. New
	22 55 47	38 54⅓	41 10⅚ U.	58 3 40	36 54½	209 50	*	C.	☽&☉. Holland from
	23 1 48	39 16⅓	40 3 U.	58 0 5		210 42	*	G.	☽&☉. S. to N.N.W.
	23 1 48	39 16⅓	40 3 U.	58 2 10		209 37½	*	C.	☽&☉. by comp. Off
♀ —— 20.	Noon.	41 8			36 51⅓	210 10	64		shore 3 or 4 lea.
	22 11 7	35 17⅓	51 5⅔ U.	46 27 40		209 6⅝	*	G.	☉'s Merid. Altit. Poop.
	22 11 7	35 17⅓	51 5⅔ U.	46 28 50		208 31	*	C.	☽&☉. Very good.
	22 18 35	36 7⅓	50 12⅓ U.	46 25 0		209 11¾	*	G.	☽&☉. Land from S.
	22 18 35	36 7⅓	50 12⅓ U.	46 23 50	36 1	209 47	*	C.	☽&☉. W. by S. to N.
	22 25 7	36 46⅔	49 28⅓ U.	46 22 40		209 20	*	G.	☽&☉. by E. Cape
	22 25 7	36 46⅔	49 28⅓ U.	46 22 20		209 30	*	C.	☽&☉. Dromedary S.
♄ —— 21.	Noon.	41 46			35 53	209 53¼	64	G.	☉'s Meridian Altitude.
☉ —— 22.	Noon.				35 27	209 44½	67		Latitude observed.
☽ —— 23	Noon.	41 23			35 36	209 46½	66	G.	☉'s Meridian Altitude.
♂ —— 24.	Noon.	41 29½			35 10½	209 11⅓	71	G.	Ditto. The Pidgeon House S. 62° W.
☿ —— 25.	Noon.	41 57			34 23½	208 57½	64	G.	Ditto.
♃ —— 26.	Noon.	41 48½			34 12¾	208 46	68	G.	Ditto. Land from S. 27° W. to N. 5° W.
♀ —— 27.	Noon.	41 21			34 21¼	208 57½	70	G.	Ditto. Land from S. 10° W. to N. 20° E.
♄ —— 28	Noon.						70		
☉ —— 29.	Noon.						70		
☽ —— 30.	Noon.	40 39½			34 6		71	G.	☉'s M. Alt. Dip 3′.
♂ May 1.	Noon.						70		
	3 38 22	20 27	28 40⅔ U.	87 26 35		208 47	*	G.	☽&☉.
	3 48 10	13 48¼	30 8⅔ U.	87 31 5		209 10⅞	*	G.	☽&☉. Dip 3′.
	3 56 13	17 30⅔	31 12⅔ U.	87 34 50		209 37⅛	*	G.	☽&☉.
☿ —— 2	Noon.						69		
	5 13 15	5 4½	37 25 U.	101 0 20		210 30¼	*	G.	☽&☉. Dip for ☉ 4′ 22″.
	5 19 8	4 0⅔	38 9⅔ U.	101 1 10		210 30¾	*	G.	☽&☉. Dip for
	5 23 5	3 14⅓	38 42⅔ U.	101 0 40		210 0⅛	*	G.	☽&☉. ☽ 6′ 30″.
♃ —— 3.	Noon.						70		

In Botany Bay.

1770.	Time by the Watch. H ′ ″	Alt. ⊙'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ⊙ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Observ.	Phenomena and Remarks.
4 May 3.	3 45 50	16 26	21 52½ U.	113 24 20		209 12	✳	G.	☽&⊙. Dip to ⊙ 3′00″.
	3 53 30	15 4	23 13 U.	113 27 15		209 5	✳	G.	☽&⊙. Dip to ☽ 6′00″.
	4 0 20	13 50	24 24⅓ U.	113 31 10		209 38⅓	✳	G.	☽&⊙. In Botany Bay.
♀ —— 4.	Noon.						72		
	About 5	6 40	26 13⅔ U.	126 16 27		208 41	✳	Cl	☽&⊙. Dip for ☽ 6′00″.
	o'Clock.	5 48⅔	27 15⅓ U.	126 18 27		208 59½	✳	Cl	☽&⊙. Dip for ⊙ 4′22″.
♄ —— 5.	Noon.						71		
⊙ —— 6.	Noon.	39 14			33 48½	208 35⅓	70	G.	⊙'s Merid. Alt. Nearest Land N. 83° W. 4 miles.
☽ —— 7.	Noon.	39 24½			33 21⅔	208 20⅗	73	G.	Ditto. Nearest Land W. 5 miles.
♂ —— 8.	Noon.	39 6			33 24	208 21⅛	73	G.	Ditto. Nearest Land N. 74° W. 4 miles.
☿ —— 9.	Noon.	38 36			33 38	208 15⅔	72	G.	Ditto. Quarter Deck.
♃ —— 10.	Noon.	39 5			32 53½	207 59⅕	69	G.	Ditto. Nearest Land N. W. 8 or 9 miles.
♀ —— 11.	Noon.	39 40			32 3¼	207 20½	70	G.	Ditto. Forecastle.
♄ —— 12.	Noon.	40 9			31 19¼	206 58⅕	70	G.	Ditto. Nearest Land W. 12 miles.
⊙ —— 13.	Noon.	40 30½			30 43	206 43½	70	G.	Ditto. Smoky Cape S. 36° W.
☽ —— 14.	Noon.	40 37			30 22⅓	206 34½	69		Ditto.
								G.	
	21 4 13	25 57⅔	28 59⅓ U.	111 49 35		205 30¾	✳	G.	☽&⊙. Very good. M. D. Land from S. 18° W. 20 m. to N. 9° W. dist. 9 miles. Off shore 3 miles.
	21 16 10	27 51⅓	26 21 U.	111 44 10	28 54⅓	206 2½	✳	G.	☽&⊙.
	21 28 27	29 42	23 42⅓ U.	111 40 0		205 30½	✳	G.	☽&⊙.
♂ —— 15.	Noon.	42 5			28 40	206 24½	65	G.	⊙'s Meridian Altitude.
	20 45 19	23 22	40 50½ U.	100 53 5		205 15	✳	G.	☽&⊙. Cloudy. Mount Warning S. 28° W. Obser. on the M. D.
	20 53 20	24 39⅓	39 8⅔ U.	100 50 20	28 3	205 20	✳	G.	☽&⊙.
	20 58 37	25 32	38 1 U.	100 48 15		205 28	✳	G.	☽&⊙.
☿ —— 16.	Noon.	42 44			27 48⅓	206 24¾	68	G.	⊙'s Meridian Altitude.
	22 29 52	38 50⅔	26 0⅓ U.	89 2 40	26 35	204 39¾	✳	G.	☽&⊙. Very good. The Glass Houses S. 42° W. Obs. on the Poop.
	22 36 3	39 28⅓	24 41⅔ U	89 0 10	26 34¾	204 38½	✳	G.	☽&⊙.
	22 41 13	40 6⅓	23 35 U.	88 58 15	26 34⅝	204 11⅝	✳	G.	☽&⊙.
♃ —— 17.	Noon.	43 49			26 28¾	206 43¾	67		⊙'s Meridian Altitude.
	22 29 45	39 12⅓	34 14⅓ U.	77 29 35		207 12	✳	G.	☽&⊙. Very good.
	22 35 0	39 48	33 7⅔ U.	77 28 20	25 35	206 45½	✳	G.	☽&⊙. Observed on the M. Deck.
	22 39 55	40 15⅔	32 4 U.	77 26 25		206 53	✳	G.	☽&⊙.
♀ —— 18.	Noon.	44 32			25 32⅔	206 41¼	68		⊙'s Meridian Altitude.
♄ —— 19.	Noon.	44 48			25 4	206 33¾	70	G.	⊙'s Merid. Altit. Sandy Cape N. 35° W. 4 miles.

1770.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♄ May 19.	23 0 12	42 23⅓	41 58 U.	53 13 7		206 43¼	*	G.	☽ & ☉. Observed on the Poop.
	23 10 10	43 7	40 10 U.	53 10 10	24 29	206 34	*	G.	☽ & ☉.
	23 18 42	43 42⅔	38 31⅔ U.	53 7 47		206 11	*	G.	☽ & ☉.
☉ —— 20.	Noon.	45 13½			24 26	206 47¾	74	G.	☉'s Merid. Altit. Sandy Cape S. ¾ W. true, 20 m.
☽ —— 21.	Noon.	44 59			24 28½	207 31¾	70	G.	☉'s Meridian Altitude.
♂ —— 22.	Noon.	44 56			24 19⅔	208 7	70	G.	Ditto.
☿ —— 23.	Noon.				24 04	208 18			At anchor in Bustard Bay.
♃ —— 24.	Noon.	45 1½			23 51¾	208 33¼	68	G.	☉'s Meridian Altitude.
♀ —— 25.	Noon.	45 19			23 23⅔	209 2¼	70	G.	Ditto. Cape Capricorn S. 60° E. true, dist. 2 lea.
♄ —— 26.	Noon.	45 25			23 7⅓	209 18¼		G.	Ditto.
☉ —— 27.	Noon.	45 29			22 53⅓	209 15½		G.	Ditto. Cape Manifold N. N.W. true, dist. 10 miles.
☽ —— 28.	Noon.	46 5			22 7⅘	210 1		G.	☉'s Mer. Alt. At anchor. Cape Townshend S. 74° E. distant 13 miles
♂ —— 29.	Noon.					210 23¼			
	2 26 9	35 14⅔	39 19⅔ U.	70 28 35		210 55¾	*	G.	☽ and ☉. Observed on the Forecast.
	2 32 23	34 18	40 29 U.	70 31 50	22 5½	211 19½	*	G.	☽ and ☉. in Thirsty Sound.
	2 38 21	33 2⅔	41 34⅓ U.	70 34 30		211 7½	*	G.	☽ and ☉.
☿ —— 30.	Noon.				22 5½	210 23¼			Latit. obs.
♃ —— 31.	Noon.	45 53			21 53⅓	210 30¾	73	G.	☉'s Mer Alt. Pier Head S. 36° W. true, dist. 5 lea.
♀ June 1.	Noon.	46 9			21 29⅓	210 46¼	70	G.	Cape Palmerston W. by N. true, 3 leagues.
♄ —— 2.	Noon.	46 35			20 55⅔	211 10¾	70	G.	Cape Hillsborough W. ½ N. true, 7 miles.
☉ —— 3.	Noon.	46 57			20 26⅖	211 25	70	G.	Cape Conway S. 19° W. true, distant 4 miles.
☽ —— 4.	Noon.	47 29			19 47½	212 13¾	75	G.	Cape Gloucester S. 63° E. true, dist. 7½ leagues.
♂ —— 5.	Noon.	47 58			19 12	212 51¼	78	G.	Cape Upstart S. 38° ½ E. distant 12 leagues.
☿ —— 6.	Noon.	47 4½			18 59½	213 16½	76	G.	Cape Cleveland S. ¼ E. & Magnetical Isle S. W. ¼ S.
♃ —— 7.	Noon.	48 9			18 49⅕	213 37¾	76	G.	☉'s Meridian Altitude.
♀ —— 8.	Noon.	48 54			17 59	213 56¾	76	G.	Cape Sandwich S. by E. ½ E. true, 19 miles.
♄ —— 9.	Noon.	49 54½			16 53½	214 8	76	G.	Off Cape Grafton.
☉ —— 10.	Noon.	50 23			16 20½	214 28¼	75	G.	Off Trinity Bay.
☽ —— 11.	Noon.	50 54			15 45⅖	214 24½	75	G.	Ship aground on a ledge of rocks.
♂ —— 12.	Noon.				15 46	214 24	78		About 1½ mile S.E. of the Rocks.
	20 55 20	31 15	18 16⅔ U.	118 49 50		213 56	*	G.	☽ & ☉. A little indist.
	20 59 33	32 0⅔	17 14⅔ U.	118 47 20	15 41	214 15	*	G.	☽ & ☉. Close under Hope Islands.
	21 3 32	32 43⅓	16 17 U.	118 45 30		214 18	*	G.	☽ & ☉. Obs. on Q. D.

1770.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☿ June 13.	Noon.	50 55			15 37⅔	214 40	77	G.	☉'s Meridian Altitude.
♃ —— 14.	Noon.	51 4			15 25½	214 48½	76	G.	Ditto.
♀ —— 15.	Noon.								
♄ —— 16.	Noon.								
☉ —— 17.	Noon.								
☽ —— 18.	Noon.								
♂ —— 19.	Noon.						79		
☿ —— 20.	Noon.	50 54			15 27¼		80	G.	☉'s Meridian Altit.
♃ —— 21.	Noon.						82		
♀ —— 22.	Noon.	50 55			15 26½	214 52	76	G.	☉'s Meridian Altit.
♄ —— 23.	Noon.								
☉ —— 24.	Noon.	50 54	The Eye 3 f. above the water.		15 27⅓		83	G.	☉'s Meridian Altit.
☽ —— 25.	Noon.								
♂ —— 26.	Noon.	50 57	High water at 12 o'clock.		15 27	Height of the Eye 3 f.	86	G.	☉'s Meridian Altit.
☿ —— 27.	Noon.								
♃ —— 28.	Noon.	51 2	The Eye 3 f. above the water.		15 27½		83	G.	☉'s Meridian Altit.
	5 0 28	7 42⅚	Apparent Time 4h 56′ 40″.					G.	☉'s L.L. The Eye 3 feet above the water.
	15 1 31	♃'s first Satellite emerged. Appa. Time 14h 58′ 49″.				214 43¾	✳		Mr. Green.
	15 2 0	Ditto.			14h 59′ 18″.	214 36½	✳		Captain Cook.
	19 58 30	18 48⅔	Height of the Eye 5½ feet. Apparent Time		19h 56′ 20″			G.	☉'s L.L. by Capt. Cook.
♀ —— 29.	Noon.								
♄ —— 30.	Noon.								
☉ July. 1.	Noon.	51 13	The Eye 3 f. above the water.		15 27⅔			G.	☉'s Meridian Altit.
☉ —— 15.	22 48 42	50 18	16 20⅓ U.	76 37 40		213 34	✳	G.	☽ & ☉. The objects faint.
	22 56 42	51 4	14 35⅔ U.	76 34 00		213 19	✳	G.	☽ & ☉. Dip for ☉ 1′ 39″.
	23 3 37	51 28⅓	13 4⅔ U.	76 30 55		213 32	✳	G.	☽ & ☉. Dip for ☽ 4′ 30″.
☽ —— 16.	7 26 0	♃'s first Satellite emerged. Appa. Time 7h 39′ 51″.				215 42½	✳		Mr. Green.
	7 27 40	Ditto.			7h 41′ 31″.	215 17½	✳		Captain Cook. *
	22 38 2	49 49⅔	27 43⅔ U.	63 45 0		214 33¼	✳	G.	☽ & ☉. Very clear and distinct.
	22 46 21	50 34⅓	26 6⅓ U.	63 41 50		214 32½	✳	G.	☽ & ☉. The Dip as yesterday.
	22 54 26	51 16	24 28 U.	63 37 55		214 46½	✳	G.	☽ & ☉.
♃ —— 26.	3 52 12	25 27	80 27⅓ U.	62 20 40		214 53¼	✳	G.	☽ & ☉. Very clear air.
	4 0 38	23 40	81 41⅓ U.	62 23 50		215 13¾	✳	G.	☽ & ☉. Dip for ☉ 4′ 22″.
	4 5 38	22 36	82 21⅓ U.	62 25 15		215 13½	✳	G.	☽ & ☉. Dip for ☽ 2′ 20″.
☽ —— 30.	High water at 5h 45′. Apparent Time.								

In Endeavour River.

* Mr. Green remarks that, "In his opinion, Captain Cook's Telescope was not well adjusted to his eye; because on looking through it at Jupiter, after the observation, both Jupiter and the Satellites appeared indistinct to him; and the same focal distance used to suit both their eyes."

1770.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♂ July 31.	Noon.						75		
☿ Aug. 1.	Noon.						80		In Endeavour River.
♃ —— 2.	Noon.						77		
♀ —— 3.	Noon.						77		
♄ —— 4.	Noon.	57 22½			15 24	214 37½	73	G.	☉'s Merid. Altit. Q. D. At anchor. Endeavour River S. 70° W. true, distant 5 leagues.
☉ —— 5.	Noon.	57 39½			15 23⅓	214 37½	74	G.	Ditto. Q. D.
☽ —— 6.	Noon.	58 2			15 17½	214 29½	70		Ditto. Quarter Deck. At anchor. Cape Bedford W. by N. ½ N. distant 5 leagues.
♂ —— 7.	Noon.						73		
☿ —— 8.	Noon.				15 10	214 33	72		Latit. observed. At anchor. Cape Bedford W. S. W. dist. 3½ leagues.
♃ —— 9.	Noon.						74		
♀ —— 10.	Noon.	59 37			14 51½	214 32	75	G.	☉'s Mer. Alt. Q. D. Cape Flattery S. S. W. true, distant 2 leagues.
♄ —— 11.	Noon.						75		
☉ —— 12.	Noon.	60 16			14 8½	214 36	74	G.	☉'s Meridian Altitude. Quarter Deck. At anchor under Point Lookout.
☽ —— 13.	Noon.	60 45			14 37¾	214 19½	76	G.	Ditto. Quarter Deck. Lizard Isle E. S. E. true, distant 1 mile.
	22 3 38	49 39	24 6 U.	81 28 10		213 59	*	G.	☽ & ☉. Troublesome observing on account of the rigging. Forec.
	22 12 23	51 11⅓	22 17⅓ U.	81 25 0	13 53	213 47¾	*	G.	☽ & ☉.
	22 18 58	52 19⅔	20 54 U.	81 21 15		214 12½	*	G.	☽ & ☉.
♂ —— 14.	Noon.	61 55			13 6⅔	214 29½	78	G.	☉'s Merid. Altit. Q. D.
	22 13 0	51 46	34 0⅓ U.	68 16 0		214 58½	*	G.	☽ & ☉. Very good. Observed on M. D.
	22 18 41	52 47⅓	32 54⅔ U.	68 13 40	13 2½	215 1	*	G.	☽ & ☉.
	22 23 39	53 38⅓	32 2⅔ U.	68 12 0		214 53¾	*	G.	☽ & ☉.
☿ —— 15.	Noon.	62 58			13 2¼	215 38	79	G.	☉'s Merid. Altit. Q. D.
	21 46 37	46 42	48 36⅓ U.	54 53 45		215 58½	*	G.	☽ & ☉. Very good. Off Providential Channel. On the Forecastle.
	21 51 33	47 37⅔	47 56 U.	54 52 40	12 36½	215 46½	*	G.	☽ & ☉.
	21 57 37	48 38	47 14⅓ U.	54 51 35		215 28¾	*	G.	☽ & ☉.
♃ —— 16.	Noon.	63 43			12 36⅓	215 59½	76	G.	☉'s Merid. Altit. Q. D.
♀ —— 17.	Noon.	64 1			12 37½	216 16¾	77	G.	Ditto. Q. D. At anchor, within Providential Channel.
♄ —— 18.	Noon.	64 30			12 28	216 31¼	80	G.	Ditto. Quarter Deck.
☉ —— 19.	Noon.	64 17			12 0⅔	216 51¼	80	G.	Ditto. Forecastle.

1770.	Time by the Watch. H ′ ″	Alt. ☉'s L.L.or ✳ ° ′	Moon's Altitude. ° ′		Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Obſerv.	Phenomena and Remarks.
☽ Aug. 20.	Noon.	65 15				11 22½	217 11½	81	G.	☉'s Merid. Altit. Forec.
♂ —— 21.	Noon.	67 19¼				10 38¼	217 45½	80	G.	Ditto. Quarter Deck.
☿ —— 22.	Noon.	67 32				10 46	218 19	80	G.	Ditto.
♃ —— 23.	Noon.	68 5				10 33⅔	218 49	78	G.	Ditto.
♀ —— 24.	Noon.	68 25				10 33⅔	218 54	78	G.	Ditto. M.D. Very good. At anchor in
	2 37 8	45 58⅚	77 25⅓	U.	56 3 0		219 16¼	*	G.	☽&☉. Endeavour
	2 42 53	44 44	78 43⅓	U.	56 5 0	10 33⅔	219 24¾	*	G.	☽&☉. Straits. Obſerved on the
	2 47 45	43 41	79 53	U.	56 6 5		219 15½	*	G.	☽&☉. Quar. Deck.
♄ —— 25.	Noon.	69 2				10 18	219 9	79	G.	☉'s Merid Altit. Q. D.
	2 45 23	44 12⅔	67 2	U.	68 16 30		219 1	*	G.	☽&☉. Very diſtinct and clear. P.
	2 52 39	42 40	68 44	U.	68 18 40	10 10	219 7½	*	G.	☽&☉. At anchor
	2 59 15	41 9⅔	70 10⅓	U.	68 21 15		219 26	*	G.	☽&☉. near the weſt entrance of Endeavour Straits.
☉ —— 26.	Noon.	69 30				10 10⅔	219 43½	80	G.	Latitude obſerved. Q. D.
	3 15 4	37 10	62 16⅔	U.	80 14 5		219 54	*	G.	☽&☉. Very clear; &
	3 20 34	35 56⅓	63 29⅔	U.	80 15 25	10 9	219 49½	*	G.	☽&☉. a good hori-
	3 26 8	34 39⅓	64 47	U.	80 17 30		220 7½	*	G.	☽&☉. zon. Obſerved on the Q. Deck.
☽ —— 27.	Noon.					9 56	220 32⅔	80	C.	Latitude obſerved.
♂ —— 28.	Noon.	71 31				8 51⅔	221 0¾	78	G.	Obſer. on the Forecaſtle.
☿ —— 29.	Noon.	72 26				8 18⅓	221 19	80	G.	Obſerved on the Q. Deck.
	4 12 5	24 16⅔	40 48⅔	U.	114 11 45		221 26	*	G.	☽&☉. Very clear, but high wind:
	4 19 43	22 22	42 34⅔	U.	114 14 00	8 27	221 25¾	*	G.	☽&☉. Cape Walſche
	4 26 19	20 41⅔	44 7⅓	U.	114 16 15		221 35¾	*	G.	☽&☉. or Point St. Auguſtine, in New Guinea, N. 65° W. true, diſt. 5 leagues. Q. D.
♃ —— 30.	Noon.	72 29				8 37	222 10¾	80	G.	Obſerved on the Q. Deck.
♀ —— 31.	Noon.	73 16				8 11⅘		80	G.	Ditto.
♄ Sept. 1.	Noon.					7 39	222 20½	82		Latitude obſerved.
☉ —— 2.	Noon.					7 14	222 9¾	81		Ditto.
☽ —— 3.	Noon.	75 18				7 15½		82	G.	Obſerved on the Q. Deck.
♂ —— 4.	Noon.	75 13				7 43¾	223 33¾	80	G.	Ditto.
☿ —— 5.	Noon.	75 55				7 23¾	225 24	81	G.	Ditto.
♃ —— 6.	Noon.	75 26				8 14⅞		80	G.	Ditto.
♀ —— 7.	Noon.	74 38				9 35½	229 18¾	82	G.	Ditto.
♄ —— 8.	Noon.	74 51				9 35⅙	231 2½	82	G.	Ditto.
☉ —— 9	Noon.	75 6				9 43	231 53½	84	G.	Ditto.
	20 51 56	42 49⅓	15 16	U.	110 53 20	10 00	233 2¾	*	G.	☽&☉. Pretty good,
	20 59 52	44 41	13 32	U	110 50 40		232 30½	*	G.	☽&☉. Moon's Limb rather faint. Forecaſtle.

1770.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. W. of Greenwich.	Thermo.	Obſerv.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☽ Sept. 10.	Noon.	75 12			10 00	233 15		G.	Obſerved on the Q. Deck.
	The Latitude obſerved was 15 miles more than the Latitude by account. Timor N. W.								
	21 10 3	44 46⅔	25 31⅔ U.	98 5 40		233 8¾	✳	G.	☽ & ☉. The Moon rather faint, but the obſervation good. The Iſland of Timor from N. N. E. to W. ½ S. true. Q. D.
	21 16 15	46 15⅓	24 17⅔ U.	98 3 10	9 41	233 7	✳	G.	☽ & ☉.
	21 21 40	47 32	23 5 U.	98 1 0		233 14	✳	G.	☽ & ☉.
♂ —— 11.	Noon.	75 59			9 35¾	233 42	81	G.	Obſerved on the Q. Deck.
	21 23 22	50 51⅓	32 21⅔ U.	84 55 20		232 40	✳	G.	☽ & ☉. Very good. The Iſland of Timor N. 42° E. to S. 59° W. Off ſhore 6 leagues. Q. D.
	21 29 12	52 14	31 11 U	84 52 37	9 35⅔	232 51	✳	G.	☽ & ☉.
	21 35 3	53 36⅓	30 0 U.	84 50 50		232 36	✳	G.	☽ & ☉.
☿ —— 12.	Noon.	76 22			9 35⅘	233 54	81	G.	Obſerved on the Q. Deck.
♃ —— 13.	Noon.	76 36			9 45	234 1¾	83		Obſerved on the Q. D. Timor from N. 31° E. to S. 73° W. true, diſtant 6 or 7 leagues.
♀ —— 14.	Noon.				9 54½	234 25½	84		Lat. obſer. Timor N. 11° E. to S. 78° W. diſt. 7 lea.
♄ —— 15.	Noon.				10 1	235 1½	85		Latit. obſer. South end of Timor S. W. by W. true, diſtant 4 leagues.
☉ —— 16.	Noon.				10 23*	235 49⅕	83		Lat. obſer. South end of Timor N. N. W. true, diſt. 5 or 6 leagues, and the Iſland of Rotte from S. 75° W. to N. 67° W. and Semau N. W.
☽ —— 17.	Noon.				10 27	237 24	85		Latitude obſerved. Off the north ſide of Savu.
♂ —— 18.	Noon.						81		
☿ —— 19.	Noon.						82		At anchor in Seba Bay, in the Iſland of Savu.
♃ —— 20.	Noon.						84		
♀ —— 21.	Noon.				10 33	237 28	85		Latitude obſerved.

* In Captain Cook's Journal, the *Latitude obſerved* is ſaid to be 10° 39′ S. but all the other Journals have 10° 23′ S. It is neceſſary to take notice of this circumſtance, becauſe the latitude of the ſouth end of Timor, inſerted at page 667, vol. III. of Dr. Hawkeſworth's account of this voyage, is manifeſtly deduced by Captain Cook, from this obſervation, and the bearing and diſtance of it from the ſhip when the obſervation was taken. I prefer the latitude given in the other journals, becauſe the latitude of the ſouth point of Timor, deduced from it by means of the bearing and diſtance, agrees with that deduced in the ſame manner, from the latitude obſerved on the 15th, which will not be the caſe if Captain Cook's latitude of this day be adopted. Mr. Green was, at this time, become too ill to obſerve often, and no other perſon in the ſhip ever put down their obſervations, but contented themſelves with inſerting the reſults, as is done by ſeamen in general; by which means, if a miſtake, like this, happens, it can never be rectified afterwards; a practice which cannot be too frequently, or too ſeverely reprobated.

1770.	Time by the Watch. H ′ ″	Alt. ☉'s L.L.or ✳ ° ′	Moon's Altitude. ° ′	Diſt. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
♄ Sept. 22.	Noon.				10 9	238 50⅔	84		Latitude obſerved.
☉ —— 23.	Noon.				11 10	240 33½	85		Ditto.
☽ —— 24	Noon.	79 32			11 5½	242 19¼	84	G.	Obſerved on the Q. Deck.
♂ —— 25.	Noon.	79 49			11 12½	244 27	81	G.	Ditto.
☿ —— 26.	Noon.	80 15			11 10	246 29	81	G.	Ditto.
♃ —— 27.	Noon.				10 46	249 50¾	82		Latitude obſerved.
♀ —— 28.	Noon.				10 50	252 10½	82		Ditto.
♄ —— 29.	Noon.				9 31	254 10½	84		Ditto.
☉ —— 30.	Noon.				7 34	255 14	85		Ditto.
☽ Octo. 1.	Noon.				6 29		85		Latit. obſ. Cracatoa N. 40° E. true, diſt. 7 leag. and Prince's Iſland from S. 35° E. to S. by E. diſtant about 3 leagues.
♂ —— 2.	Noon.						86		
☿ —— 3.	Noon.						85		
♃ —— 4.	Noon.				5 55		84		Latit. obſ. Pulo Moroc S. E. by S. diſt. 1½ mile.
♀ —— 5.	Noon.				5 53		86		Lat. obſ. Pulo Baba and Bantam Point in one, bearing E. by N. the Point diſtant 1½ mile.

No Obſervations were made, nor any particular account kept from this time until after they left Batavia; before which place they anchored on the 10th of October, according to their account; but on the 11th by the account of the Dutch, at that place. They lay at Batavia, repairing the ſhip, until the 26th of December, on which Day they weighed and ſailed; and on

1771.						East Long.			
☿ Jan. 16.	Noon.				6 45	104 42			Lat. obſ. Java Head * S. E. by S. true, diſt. 6 m.
♃ —— 17.	Noon.				7 32	104 22			Latitude obſerved.
♀ —— 18.	Noon.				7 55	104 0			Ditto.
♄ —— 19.	Noon.				8 48	104 0			Ditto.
☉ —— 20.	Noon.				9 14	103 33			Ditto.
☽ —— 21.	Noon.				9 46	102 40			Ditto.
♂ —— 22.	Noon.				9 29	102 34			Ditto.
☿ —— 23.	Noon.				9 30	102 49			Ditto.
♃ —— 24.	Noon.				9 34	102 46			Ditto.
♀ —— 25.	Noon.				9 44	102 49			Ditto.
♄ —— 26.	Noon.				9 56	102 58			Ditto.
☉ —— 27.	Noon.				10 12	102 46			Ditto.
☽ —— 28.	Noon.				11 0	101 57			Mr. Green died; and from this time the obſervations were made by Mr. Charles Clerke, (ſince Captain) who was Maſter's Mate in this voyage.
♂ —— 29.	Noon.				11 57	101 6			
☿ —— 30.	Noon.				12 48	100 19			
♃ —— 31.	Noon.				13 42	99 17			
♀ Feb. 1.	Noon.				14 44	97 26			

* Captain Cook ſays, that Java Head is in latitude 6° 49′ S. and longitude 104° 48′ E. and that this ſituation of it is deduced by means of the maps of theſe parts, from Aſtronomical Obſervations made by the Reverend Mr. Mohr, at Batavia.

1771.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Diſt. ☽'s L. from ☉ or ✳.	Ship's Latit. S.	Long. E. of Greenwich.	Thermo.	Obſerv.	PHENOMENA AND REMARKS.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
♄ Feb. 2.	Noon.				15 48	94 39			Latitude obſerved.
☉ —— 3.	Noon.				16 40	92 28			Ditto.
☽ —— 4.	Noon.				17 30	90 1			Ditto.
♂ —— 5.	Noon.				18 6	87 28			Ditto.
☿ —— 6.	Noon.				18 30	85 43			Ditto
	20 31 25	40 1⅔	55 31 U.	83 40 25		84 24½		Cl.	☽ & ☉. The air perfectly clear, and the limbs well defined. Obſerved on the Poop.
	20 36 24	41 15⅓	54 17 U.	83 36 40		83 53½		Cl.	☽ & ☉.
	20 38 16	42 22	53 14 U.	83 36 00	18 54	83 33		Cl.	☽ & ☉.
	20 45 31	43 19⅓	52 19⅓ U.	83 34 20		84 6		Cl.	☽ & ☉.
	20 48 18	44 2⅓	51 42⅓ U.	83 33 5		83 48		Cl.	☽ & ☉.
♃ —— 7.	Noon.				18 58	83 41			Latitude obſerved.
	20 39 31	41 54	65 30 U.	71 56 40		81 39½		Cl.	☽ & ☉.
	20 43 28	42 50⅔	64 36⅔ U.	71 54 50		81 29¾		Cl.	☽ & ☉. Very good.
	20 47 0	43 39⅔	63 47⅔ U.	71 53 15	19 17	81 15¾		Cl.	☽ & ☉. Obſerved on
	20 52 0	44 50⅓	62 49⅔ U.	71 52 40		81 38¼		Cl.	☽ & ☉. the Poop.
	20 55 55	45 47	61 50⅔ U.	71 50 40		81 18½		Cl.	☽ & ☉
♀ —— 8.	Noon.				19 24	81 10			Latitude obſerved.
♄ —— 9.	Noon.				19 58	78 58			Ditto.
☉ —— 10.	Noon.				20 28	76 34			Ditto.
☽ —— 11.	Noon.				20 58	74 22			Ditto.
♂ —— 12.	Noon.				21 25	72 58			Ditto.
☿ —— 13.	Noon.				21 51	71 25			Ditto.
♃ —— 14.	Noon.				22 21	69 35			Ditto.
♀ —— 15.	Noon.				22 40	67 21			Ditto.
♄ —— 16.	Noon.				22 52	65 14			Latitude by account.
☉ —— 17.	Noon.				23 20	62 24			Ditto.
☽ —— 18.	Noon.				23 57	59 44			Latitude obſerved.
♂ —— 19.	Noon.				24 26	57 23			Ditto.
☿ —— 20.	Noon.				24 57	55 5			Ditto.
	2 25 37	52 35½	43 52⅓ U.	64 2 20		55 32¼		Cl.	☽ & ☉. Clear air and
	2 35 17	50 28	44 52⅓ U.	64 5 40	25 00	55 23½		Cl.	☽ & ☉. fine weather.
	2 41 36	49 18⅔	45 27⅔ U.	64 7 40		55 26		Cl.	☽ & ☉. Obſ. on the P.
♃ —— 21.	Noon.				25 21	52 45			Latitude obſerved.
	3 22 15	39 48⅔	41 20⅓ U.	76 22 10		53 8		Cl.	☽ & ☉. Very good. On
	3 29 17	38 13	42 4⅔ U.	76 24 30	25 31	53 1¾		Cl.	☽ & ☉. the Poop.
	3 33 25	36 58⅔	42 33⅔ U.	76 27 0		52 59⅔		Cl.	☽ & ☉.
♀ —— 22.	Noon.				26 5	50 23			Latitude obſerved.
	3 48 37	33 38	36 33⅓ U.	88 54 20		50 25½		Cl.	☽ & ☉. Fine weather &
	3 54 36	32 18⅔	37 14⅓ U.	88 56 20	26 25	50 27¾		Cl.	☽ & ☉. the objects diſ-
	3 59 10	31 9⅓	37 46⅓ U.	88 59 20		50 22¼		Cl.	☽ & ☉. tinct. On the P.
♃ —— 23.	Noon.				26 59	48 14			Latitude obſerved.
	3 5 12	42 56⅔	20 13⅓ U.	101 22 20		47 58¾		Cl.	☽ & ☉. Smooth ſea and
	3 10 39	45 45⅓	21 10 U.	101 24 20	27 6	47 55¾		Cl.	☽ & ☉. clear air. Obſ.
	3 15 50	40 58	21 45 U.	101 25 20		47 50¼		Cl.	☽ & ☉. on the Poop.
☉ —— 24.	Noon.				27 45	46 11			Latitude obſerved.

1771.	Time by the Watch. H ′ ″	Alt. ☉'s L.L. or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. E. of Greenwich. ° ′	Thermo.	Observ.	PHENOMENA AND REMARKS.
☉ Feb. 24.	4 34 3	23 9⅓	24 49 U.	115 5 20		45 3¼		Cl.	☽&☉. Fine clear weather. Obſ. on the Poop.
	4 38 48	22 6	25 35½ U.	115 6 40	27 55	45 12¼		Cl.	☽&☉.
	4 43 10	20 49⅔	26 26½ U.	115 9 0		45 10		Cl.	☽&☉.
☽ —— 25.	Noon.				28 49	44 10			Latitude obſerved.
♂ —— 26.	Noon.				29 6	41 50			Ditto.
♅ —— 27.	Noon.				29 30	39 47			Latitude by account.
♃ —— 28.	Noon.				29 37	38 1			Ditto.
♀ Mar. 1.	Noon.				29 41	36 30			Ditto.
♄ —— 2.	Noon.				30 21	34 56			Ditto.
☉ —— 3.	Noon.				31 1	33 22			Latitude obſerved.
☽ —— 4.	Noon.				31 34	31 26			Ditto.
♂ —— 5.	Noon.				31 7	30 6			Latitude by account.
♅ —— 6.	Noon.				32 4	30 26			Latit. obſerved; which was 90 miles to the ſouthward of that by account, ſince the laſt obſervation.
♃ —— 7.	Noon.				32 54	28 6			Latitude by account.
	19 57 45	26 36½	59 8⅔ U.	90 7 0		27 36¼	*	Cl.	☽&☉.
	20 2 39	27 25⅓	58 22⅓ U.	90 5 50	34 11	27 36¼	*	Cl.	☽&☉.
	20 7 10	28 19⅔	57 26⅓ U.	90 4 0		27 20½	*	Cl.	☽&☉.
	21 37 50	45 43⅓	39 4⅔ U.	89 34 50		27 51½	*	Cl.	☽&☉.
	21 41 56	46 29⅓	38 7⅓ U.	89 33 20	34 13	27 55¼	*	Cl.	☽&☉.
	21 44 36	47 22⅔	37 7 U.	89 32 0		28 15	*	Cl.	☽&☉.
	22 7 51	50 40⅔	33 2 U.	89 23 50		28 4¼	*	Cl.	☽&☉.
	22 10 20	51 52	31 25⅔ U.	89 21 30	34 14	28 25	*	Cl.	☽&☉.
	22 13 40	52 53⅓	30 29⅓ U	89 19 20		28 48¼	*	Cl.	☽&☉. Observed on the Q. Deck. The Coaſt of Africa N. 28° W. true, diſtant 11 or 12 leagues.
♀ —— 8.	Noon.				34 18	27 37			Latit. obſerved; which was 93 miles to the ſouthward of that by account, ſince the laſt obſervation.
	22 0 51	48 16⅔	44 29 U.	78 2 0		24 24	*	Cl.	☽&☉.
	22 6 37	49 9	43 17 U.	77 59 40	35 40	24 13¼	*	Cl.	☽&☉. Obſerved on the Poop.
	22 12 10	50 2⅓	41 53⅓ U.	77 57 0		23 56	*	Cl.	☽&☉.
♄ —— 9.	Noon.				35 44	24 1			Lat. obſ. which was 46 miles to the ſouthward of that by account in the laſt 24 hours.
☉ —— 10.	Noon.				34 52	22 40			Latit. obſerved; which is 14 miles north of that by account.
	21 20 39	41 22⅔	66 54⅔ U.	56 6 50		21 28¼		Cl.	☽&☉.
	21 24 47	42 20	66 14⅔ U.	56 5 20	34 47	21 27½		Cl.	☽&☉. Obſ. on the Q. Deck. The Obſervations good.
	21 28 30	43 18⅔	65 32⅔ U.	56 4 0		21 35¼		Cl.	☽&☉.
☽ —— 11.	Noon.				34 45	21 12			Latitude obſerved.
♂ —— 12.	Noon.				34 58	20 30			Lat. obſerved. Cape La Aguilhas N. E. by N. true, diſt. about 4 leag.

1771.	Time by the Watch. H ′ ″	Alt. ☉'s L.L. or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. E. of Greenwich, ° ′	Thermo.	Observ.	Phenomena and Remarks.
☿ Mar. 13.	Noon.				34 15	18 13¼			Latit. observed. Cape of Good Hope S. E. true, distant 4 leagues.
♃ —— 14.	Anchored in Table Bay, at the Cape of Good Hope.								
☿ —— 20.	2 50 56	37 23	38 35 U.	47 4 20		18 25½	*	Cl.	☽&☉. Observed on the Forecastle.
	2 56 31	36 26⅓	38 34⅔ U.	47 5 50	33 54½	19 1½	*	Cl.	☽&☉.
	3 2 3	35 26	38 32⅓ U.	47 7 15		18 36¾	*	Cl.	☽&☉.
♃ —— 21.	2 57 25	36 1⅓	35 2 U.	59 16 50		18 19¼	*	Cl.	☽&☉. Observed on the Q. Deck.
	3 4 57	34 39⅔	35 28 U.	59 18 30	33 54½	18 39½	*	Cl.	☽&☉.
	3 13 33	33 4⅓	35 49 U.	59 21 30		18 32	*	Cl.	☽&☉.
♀ —— 22.	2 57 28	35 43	29 55⅔ U.	71 42 10		18 18½	*	Cl.	☽&☉. Observed on the Q. Deck.
	3 4 29	34 27⅓	30 28⅔ U.	71 44 50	33 54½	18 11½	*	Cl.	☽&☉.
	3 10 56	33 23⅔	31 3⅔ U.	71 47 0		18 5¼	*	Cl.	☽&☉.
♄ April 6.	21 15 52	33 34	47 44⅓ U.	86 39 40		18 31	*	Cl.	☽&☉. Observed on the Q. D. Dip for the ☽'s altitude 9′.
	21 25 8	35 2⅓	45 55⅓ U.	86 36 20	33 54½	18 19¼	*	Cl.	☽&☉.
	21 33 16	36 19	44 17 U.	86 34 40		18 54¾	*	Cl.	☽&☉.
☉ —— 7.	20 44 32	28 0	60 32⅔ U.	75 48 10		19 12½	*	Cl.	☽&☉. Observed on the Q. D. Dip for the ☽'s altitude 9′.
	20 53 56	29 38	58 57⅔ U.	75 44 50	33 54½	18 49¾	*	Cl.	☽&☉.
	21 2 27	31 5	57 26⅓ U.	75 42 20		18 47¼	*	Cl.	☽&☉.
♂ —— 16.	3 0 0	Sailed from the Cape of Good Hope.							
☿ —— 17.	Noon.				32 14	15 52			Latitude observed.
♃ —— 18.	Noon.				31 14	14 41			Ditto.
♀ —— 19.	Noon.				31 4	14 27			Ditto.
♄ —— 20.	Noon.				29 40	13 50			Ditto.
☉ —— 21.	Noon.				28 43	12 18			Ditto.
	2 56 52	30 57½	29 55⅓ U.	80 42 40		12 47½		Cl.	☽&☉. Obſ. on the M. D. Hazy, and the objects indiſtinct.
	3 6 16	29 18	31 21⅓ U.	80 46 00	28 36	11 59¾		Cl.	☽&☉.
	3 14 23	27 50½	32 30 U.	80 50 00		11 49¼		Cl.	☽&☉.
☽ —— 22.	Noon.				27 27	10 36			Latitude observed.
♂ —— 23.	Noon.				26 19	9 16			Ditto.
☿ —— 24.	Noon.				25 6	8 40			Ditto.
♃ —— 25.	Noon.				23 28	8 2			Latitude by account.
♀ —— 26.	Noon.				21 40	5 40			Latitude.
♄ —— 27.	Noon.				20 4	3 10			Ditto.
☉ —— 28.	Noon.				18 41	1 54 West Long.			Ditto.
☽ —— 29.	Noon.				17 19	1 4			Ditto.
♂ —— 30.	Noon.				16 11	2 58			Ditto.
☿ May 1.									At anchor before James's Fort, in the Iſland of St. Helena.
♃ —— 2									
♀ —— 3.									
♄ —— 4.									
☉ —— 5.	Noon.				15 5	6 46			Latitude obſerved.

1771.	Time by the Watch. H ′ ″	Alt. ☉'s L.L. or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. S. ° ′	Long. E. of Greenwich. ° ′	Thermo.	Observ.	Phenomena and Remarks.
☽ May 6.	Noon.				13 42	8 31			Latitude observed.
♂ —— 7.	Noon.				12 5	10 15			Ditto.
☿ —— 8.	Noon.				10 39	11 50			Ditto.
	22 20 36	53 31⅓	54 41½ U.	60 46 40		13 10		Cl.	☽ & ☉. } Observed on
	22 28 3	54 43⅓	52 56⅔ U.	60 45 10	9 23	12 40		Cl.	☽ & ☉. } the Q. Deck.
	22 36 4	55 57⅓	51 00 U.	60 41 50		13 16½		Cl.	☽ & ☉. }
♃ —— 9.	Noon.				9 16	13 17			Latitude observed.
♀ —— 10.	Noon.				7 51	14 42			Ditto. The Island of Ascension E. by S. true, distant 4 or 5 leagues.
♄ —— 11.	Noon.				6 24	16 14			Latitude observed.
☉ —— 12.	Noon.				4 38	17 30			Latitude by account.
☽ —— 13.	Noon.				2 58	18 48			Latitude observed.
♂ —— 14.	Noon.				1 26 North.	20 1			Ditto.
☿ —— 15.	Noon.				0 14	21 1			Ditto.
♃ —— 16.	Noon.				0 47	21 52			Ditto.
♀ —— 17.	Noon.				1 39	22 38			Ditto.
♄ —— 18.	Noon.				3 0	23 22			Ditto. Ship 14′ north of the account.
☉ —— 19.	Noon.				4 32	24 12			Ditto. Ship 16′ north of the account.
☽ —— 20.	Noon.				5 38	24 49			Ditto. Ship 27′ north of the log.
	1 52 29	58 58	36 17⅓ U.	78 57 50		24 47¾		Cl.	☽ & ☉. } Observed on
	1 58 35	57 39⅓	37 55⅓ U.	79 0 40	5 42	24 53		Cl.	☽ & ☉. } the Q. Deck.
	2 5 10	56 19⅓	39 15⅓ U.	79 2 50		24 59⅙		Cl.	☽ & ☉. }
♂ —— 21.	Noon.				6 8	25 8			Latitude observed.
☿ —— 22.	Noon.				6 58	25 46			Latitude.
♃ —— 23.	Noon.				7 49	26 18			Ditto.
♀ —— 24.	Noon.				8 42	27 42			Latitude observed.
♄ —— 25.	Noon.				9 41	29 2			Latitude.
☉ —— 26.	Noon.				10 47	30 15			Ditto.
☽ —— 27.	Noon.				12 7	31 28			Ditto.
♂ —— 28.	Noon.				13 30	32 46			Ditto.
☿ —— 29.	Noon.				15 19	34 4			Ditto.
♃ —— 30.	Noon.				17 5	35 18			Ditto.
♀ —— 31.	Noon.				18 50	36 56			Ditto.
♄ June 1.	Noon.				20 12	38 4			Latitude.
☉ —— 2.	Noon.				21 20	39 35			Latitude observed.
☽ —— 3.	Noon.				22 21	40 46			Ditto.
♂ —— 4.	Noon.				23 40	41 48			Ditto.
	18 39 10	19 23	60 40 U.	91 16 30		42 4		Cl.	(1) ☽ & ☉. } Cloudy.
	18 50 20	20 04	60 23 U.	91 15 0	24 29	42 42		Cl.	(1) ☽ & ☉. } Observed
	22 16 16	66 00	23 14 U.	90 11 30		42 32½		Cl.	☽ & ☉. } on the Poop.
☿ —— 5.	Noon.				24 31	43 2			Latitude observed.

1771.	Time by the Watch. H ′ ″	Alt. ☉'s L.L. or ✳ ° ′	Moon's Altitude. ° ′	Dist. ☽'s L. from ☉ or ✳. ° ′ ″	Ship's Latit. N. ° ′	Long. W. of Greenwich. ° ′	Thermo.	Observ.	PHENOMENA AND REMARKS.
☿ June 5.	19 12 45	25 6⅔	64 48⅓ U.	79 57 50		43 53½		Cl.	☽&☉.
	19 17 20	25 54⅓	64 31 U.	79 56 25		43 40½		Cl.	☽&☉.
	19 22 40	26 54⅔	64 5⅔ U.	79 55 45		43 58⅚		Cl.	☽&☉.
	19 28 17	28 30	63 21 U.	79 53 30	25 46	43 53		Cl.	(1) ☽&☉. } Observed on the Poop.
	19 33 15	29 10	63 11 U.	79 52 45		43 55⅚		Cl.	(1) ☽&☉.
	19 50 41	33 26	60 45 U.	79 48 30		43 25¼		Cl.	☽&☉.
	19 53 40	34 8⅔	60 16½ U.	79 47 20		43 37⅔		Cl.	☽&☉.
♃ —— 6.	Noon.				26 1	43 18			Latitude observed.
♀ —— 7.	Noon.				27 22	43 42			Ditto.
	20 54 4	47 49	68 44 U.	56 28 25		44 7¾		Cl.	☽&☉.
	21 4 10	49 7	67 58 U.	56 27 0	28 44	44 16⅕		Cl.	☽&☉. } Observed on the Poop.
	21 23 8	54 12¾	64 43⅓ U.	56 20 5		43 58¼		Cl.	☽&☉.
	21 30 0	55 28	63 43⅔ U.	56 16 35		44 0¼		Cl.	☽&☉.
♄ —— 8.	Noon.				28 50	43 42			Latitude observed.
☉ —— 9.	Noon.				30 11	44 17			Ditto.
☽ —— 10.	Noon.				31 12	45 6			Ditto.
♂ —— 11.	Noon.				32 16	45 38			Ditto.
☿ —— 12.	Noon.				33 8	45 25			Ditto.
♃ —— 13.	Noon.				34 14	45 5			Ditto.
♀ —— 14.	Noon.				35 28	44 36			Ditto.
♄ —— 15.	Noon.				37 2	42 50			Ditto.
☉ —— 16.	Noon.				38 18	41 42			Latitude observed.
	1 9 4	69 4⅚	49 52⅔ U.	49 35 33		41 17		Cl.	☽&☉.
	1 13 44	68 23⅙	50 30⅔ U.	49 37 30	38 20	40 57¾		Cl.	☽&☉. } Observed on
	2 41 1	52 38⅙	61 17⅓ U.	50 11 20		41 14½		Cl.	☽&☉. } the Poop.
	2 45 30	51 49⅚	61 32 U.	50 13 27		41 24		Cl.	☽&☉.
☽ —— 17.	Noon.				38 57	39 48			Latitude observed.
	0 51 29	70 46⅓	34 8⅓ U.	63 5 20		40 00		Cl.	☽&☉.
	3 9 24	46 58⅓	53 58⅔ U.	64 1 50	39 00	39 47⅔		Cl.	☽&☉. } Observed on the Poop.
	3 12 50	46 10⅔	54 19 U.	64 3 20		39 54⅓		Cl.	☽&☉.
♂ —— 18.	Noon.				39 52	38 20			Latitude observed.
	0 46 5	70 57⅔	20 21 U.	76 24 30		37 52¼		Cl.	☽&☉.
	0 50 10	70 34⅓	21 2 U.	76 26 23	39 54	37 59⅔		Cl.	☽&☉. } Observed on the Poop.
	3 33 57	55 5⅔	37 15⅓ U.	77 10 50		38 21		Cl.	☽&☉.
☿ —— 19.	Noon.				40 9	36 44			Latitude.
♃ —— 20.	Noon.				40 29	33 10			Ditto.
♀ —— 21.	Noon.				40 53	30 20			Ditto.
♄ —— 22.	Noon.				41 11	27 52			Ditto.
☉ —— 23.	Noon.				40 43	26 13			Ditto.
☽ —— 24.	Noon.				40 34	24 49			Ditto.
♂ —— 25.	Noon.				40 39	23 33			Ditto.
☿ —— 26.	Noon.				40 43	21 58			Ditto.
♃ —— 27.	Noon.				41 14	20 59			Ditto.
♀ —— 28.	Noon.				42 55	19 18			Ditto.
♄ —— 29.	Noon.				43 39	17 36			Ditto.
☉ —— 30.	Noon.				44 34	16 2			Latitude observed.

1771.	Time by the Watch.	Alt. ☉'s L.L. or ✳	Moon's Altitude.	Dist. ☽'s L. from ☉ or ✳.	Ship's Latit. N.	Long. W. of Greenwich.	Thermo.	Observ.	Phenomena and Remarks.
	H ′ ″	° ′	° ′	° ′ ″	° ′	° ′			
☽ July 1.	Noon.				44 54	13 59			Latitude observed.
♂ —— 2.	Noon.				45 54	13 2			Ditto.
	19 52 33	35 28 1/3	26 18 3/4 U.	110 35 20		10 56 1/2		Cl.	☽ & ☉. } Observed on
	19 56 40	36 12 5/6	25 46 U.	110 33 30	45 24	11 00		Cl.	☽ & ☉. } the Poop.
	20 24 38	41 5	21 14 3/4 U.	110 21 40		10 46		Cl.	☽ & ☉. }
☿ —— 3.	Noon.				45 24	11 59			Latitude observed.
♃ —— 4.	Noon.				45 29	10 46			Ditto.
♀ —— 5.	Noon.				45 34	10 37			Ditto.
♄ —— 6.	Noon.				44 45	9 50			Ditto.
	19 41 56	33 23 5/6	59 2 1/2 U.	64 56 10		9 29 1/2		Cl.	☽ & ☉. } Observed on
	19 46 56	34 14 5/6	59 10 3/4 U.	64 54 10	46 4	9 37 1/4		Cl.	☽ & ☉. } the Poop.
	19 50 24	35 13	59 2 1/2 U.	64 52 10		10 6		Cl.	☽ & ☉. }
☉ —— 7.	Noon.				46 16	8 59			Latitude observed.
☽ —— 8.	Noon.				46 45	8 17			Ditto.
	20 23 00	39 58	60 7 1/2 U.	39 41 48		8 17 1/4		Cl.	(5) ☽ & ☉. } Observ. on
	20 34 20	41 9 1/6	60 33 1/2 U.	39 38 24	48 2	7 57 1/2		Cl.	(5) ☽ & ☉. } the Poop.
	20 37 7	42 16	60 55 1/2 U.	39 35 36		8 30 1/4		Cl.	(5) ☽ & ☉. }
♂ —— 9.	Noon.				48 19	7 30			
☿ —— 10.	Noon.				49 29	5 50			
	2 0 0	Saw the Lizard Point.							
	6 00 00	The Lizard Point bore N. W. true, distant about 5 leagues.							

OBSERVATIONS

DEDUCTIONS *from the preceding* OBSERVATIONS.

1. According to Captain Cook's log, the ſhip ran 16 miles weſt ¼ north after the obſervations were made on the 12th of November, 1768, to 8 o'clock in the evening, when the Sugar-loaf Iſle, which lies in the entrance of the harbour of Rio Janiero, bore W. N. W. diſtant 5 leagues: and he adds, that the Sugar-loaf bears S. W. 4½ miles from the city of St. Sebaſtian. From theſe data, I conclude the ſhip was 29′ in longitude eaſt of that city when theſe obſervations were made: and, as the mean reſult of the obſervations is 42° 58′ W. the longitude of the city will be 43° 27′ W. Again, the ſhip had made 46′ of eaſt longitude from the city of St. Sebaſtian, by Captain Cook's reckoning, when the obſervations were made on the 12th of December, 32′ eaſt when the obſervations were made on the 15th, 40′ weſt when the obſervations were made on the 17th, and 1° 19′ weſt when the obſervations were made on the 18th of the ſame month: the mean reſults of the obſervations on theſe days are 42° 38′¾ W. 42° 33′¾ W. 44° 01′⅜ W. and 44° 32′½ W.: conſequently, the longitudes of the city of St. Sebaſtian will be 43° 24′¾ W. 43° 5′¾ W. 43° 21′⅜ W. and 43° 13′½ W. by theſe obſervations, reſpectively. The mean of the five reſults is 43° 18′ 26″½ W. I am perſuaded this determination is too great, though perhaps not much; for I have ſeen a great number of obſervations of the eclipſes of Jupiter's ſatellites which were made here; and which, as they are caſculated (and for any thing I know to the contrary they are calculated right) make the longitude of this place exactly the ſame. But let this be as it may, it is certain that Mr. Green's obſervations of the 1ſt, 2d, 3d, and 4th of November, when carried on to Rio Janiero by Captain Cook's reckoning, give the longitude of that place no more than 39° 28′¾ W. 39° 20′¼ W. 40° 24′¾ W. and 39° 13′¼ W. reſpectively. I have no doubt but that all theſe obſervations, except the ſecond, give

too ſmall a longitude; for Captain Cook remarks, that the mean reſult of thoſe which were taken on the firſt was leſs by a whole degree than the longitude by account, carried on from the obſervations which were made on the 27th of October. But ſuppoſing the whole of this error to lie in the latter obſervations, there will ſtill remain an error in the reckoning of about two degrees and an half, which the ſhip muſt have been ſet to the weſtward in running along the coaſt of Brazil, from the latitude of 13 degrees ſouth to that of 23 degrees ſouth, which is a very great quantity, the direction of the coaſt being conſidered. Captain Cook takes no notice of feeling the effect of any current in latitude before the 8th at noon, when he obſerves that the ſhip was found 10 miles to the ſouthward of the account; and the following days he obſerves that the ſhip was found 10 and 12 miles to the ſouthward of the account; ſo that it is evident a pretty ſtrong current ſets ſouth-weſterly along this part of the coaſt of South America.

2. After leaving Rio Janiero the dead reckoning appears to have correſponded very exactly with the lunar obſervations all the way until they arrived on the coaſt of Terra del Fugo; but in this run the ſhip was frequently found ſeveral miles to the ſouthward of the account, and once, ſoon after leaving the Rio Janiero, to the northward of it. The inſtances, as I find them in Captain Cook's journal are theſe: December the 12th, at noon, the ſhip was 10 miles north of the account; on the 19th it was 7 miles ſouth of the account; on the 20th it was 11 miles; on the 21ſt it was 16 miles; and on the 26th it was 26 miles the ſame way; but Captain Cook remarks, that he had great reaſon to ſuſpect much of this laſt difference had ariſen from bad ſteerage.

3. The reſult of the obſervations which were made off Cape St. Diego, on the 13th of January, 1769, is nearly a whole degree to the weſtward of the reckoning by the log: and this difference is attributed, by Captain Cook, to an indraught which may be cauſed by the Straits of Magelhaens, and to the current, which, coming round Cape Horn, ſets through Straits le Maire, and, as he thinks, eaſtward, along the northern

thern coaſt of Terra del Fugo. But if any confidence can be put in Mr. Green's ſubſequent obſervations, or in thoſe which I made on this coaſt in Captain Cook's ſecond voyage, the longitude reſulting from the obſervations which were made on the 13th of January, is near a degree too great; which is not at all ſurpriſing, if we conſider, that although the air was extremely clear when theſe obſervations were made, yet the ſea ran ſo high that it filled the quarter deck three times while they were obſerving; and the motion of the ſhip was ſo great that Captain Cook did not attempt to obſerve. The longitude of Cape St. Diego, from theſe obſervations, is, 66° 4′½ W. My obſervations place it 65° 14′ W. of Greenwich.

4. The mean reſult of the obſervations which were made on the 26th of January, is 66° 47′ 22″½ W. to which if there be added 27′ 54″, the diſtance which the ſhip was eaſt of Cape Horn in longitude when the obſervations were made, (ſee page 23) the ſum will be 67° 15′ 16″ W. which is the longitude of Cape Horn by theſe obſervations. In like manner, the medium reſults of the obſervations which were made on the 27th, 28th, and 29th are 68° 54′ 15″ W. 71° 43′ 25″ W. and 73° 20′ 35″ W. from which if there be ſubtracted 1° 31′ 15″, 4° 27′ 0″, and 5° 51′ 0″ the quantities which the ſhip was weſt of Cape Horn in longitude, when the reſpective obſervations were made, (ſee page 23) the reſults will be 67° 23′ 00″ W. 67° 16′ 25″ W. and 67° 29′ 35″ W. the longitudes of Cape Horn reſulting from the ſeveral obſervations. I have ſhewn above, that it is highly probable the obſervations which were taken off Cape St. Diego are near a degree too great: but as they were taken when the moon was on the eaſt ſide of the ſun, and thoſe of the 26th, 27th, 28th, and 29th, when it was on the weſt ſide, it may not be improper to take them into the account alſo, and when reduced to Cape Horn by Captain Cook's map, annexed to Hawkeſworth's account of this voyage, give 68° 17′½ W. The mean of theſe five reſults is 67° 32′ 21″ W.

Perhaps

Perhaps I ought to take notice here, that in Captain Cook's map of the eaſtern coaſt of Terra del Fugo, referred to above, as well as in Dr. Hawkeſworth's narrative, the longitude aſſigned to Cape Horn is greater than I make it by more than two-thirds of a degree, and to aſſign the cauſe of ſo great a difference. It appears clearly, from Captain Cook's journal, that he deduced the longitude of Cape Horn entirely from the obſervations which were made on the 13th, 26th, and 27th of January. I have already aſſigned my reaſons for thinking the firſt of theſe gives a reſult which is too great by almoſt a whole degree. Captain Cook rejects the obſervation of Regulus, and the firſt of the three obſervations of the ſun which were made on the 26th, and retains only the two laſt; and, in computing them, has unfortunately made a miſtake of more than a whole degree; for he ſays "the mean reſult is "68° 12′ W.:" but thoſe who will take the trouble of computing them, will find it no more than 67° 2′⅛ W. He ſays alſo, "that the mean "reſult of the obſervations which were made on the 27th is 69° "7′¼ W.;" whereas, I can make no more of it than 68° 54′ ¼ W. The truth is, they have made an error of half a degree in computing the middle obſervation; and theſe two errors cauſe the principal part of the difference between us, which is ſtill farther increaſed by my combining the obſervation of the 13th with four others, where the reſulting longitudes are leſs, inſtead of two only, as Captain Cook has done. It is remarkable, that Captain Cook takes particular notice of the great difference which there is between the reſults of the obſervations of the 26th and 27th; but thinks it may have ariſen partly from the ſhip's run, and partly from the obſervations themſelves; he has, notwithſtanding, written with a black lead pencil in the margin of his journal, "This to be reconſidered;" which if he had done, he muſt have diſcovered the miſtake.

From the note at the bottom of the 23d page it follows, that the longitude of Diego Ramiriz is 68° 1′¼ W.

In

5. In order to determine the ſituation of the ſhip every day at noon, and from thence the ſituations of the iſlands which were ſeen in the Pacific Ocean this voyage, it will be neceſſary to remark, that I ſuppoſe, for the reaſons which are given above, Captain Cook ſet out from Cape Horn with an error on his reckoning of 41 minutes of longitude in exceſs. That reckoning gave 67° 49′ 45″ W. when the obſervations were made on the 26th of January, 69° 49′ 30″ W. when thoſe of the 27th were made, 72° 40′ 00″ W. when thoſe of the 28th were made, and 73° 59′ 40″ W. when thoſe of the 29th were made; and, as I have already obſerved, the mean reſults of theſe obſervations were 66° 47′ 22″ weſt, 68° 54′ 15″ weſt, 71° 43′ 25″ weſt, and 73° 20′ 35″ weſt, reſpectively: the ſeveral errors of the reckoning will therefore be 62′ 22″, 55′ 15″, 56′ 35″, and 39′ 5″, all in exceſs; and the mean error, 53′ 19″ in exceſs. In all theſe the ſun was eaſt of the moon. On the 11th, 12th, and 14th of February, the ſun being then weſt of the moon, the mean reſults of obſervations, taken theſe days, were 89° 9′ 9″ weſt, 89° 57′ 42″ weſt, and 91° 2′ 48″ weſt, Captain Cook's reckoning gave 87° 51′ 30″ weſt, 89° 29′ 40″ weſt, and 91° 24′ 24″ weſt, at theſe times; conſequently, the errors of the reckoning are 77′ 39″, and 28′ 2″ in defect, and 21′ 36″ in exceſs, and the mean of them is 28′ 2″ in defect: the mean of theſe two means, or 12′ 39″ too much, I ſhall conclude was the real error of Captain Cook's account in longitude on the 6th of February at noon; which was the day of the full-moon.

The medium of the obſervations which were made on the 26th of February is 109° 3′ 00″ weſt, and of thoſe which were taken on the 27th 109° 55′ 20″ W.; Captain Cook's reckoning gave 110° 20′ 00″ weſt, and 110° 32′ 17″ W. at theſe two times; conſequently, the two errors are 76′ 00″, and 36′ 57″ in exceſs, and the mean of them 56′ 58″ in exceſs. The mean of this mean and the error when the ſun was weſt of the moon, is 14′ 28″ in exceſs. And by this quantity I ſuppoſe Captain Cook's reckoning exceeded the truth on the 20th of February, which was the day of the new-moon.

The reſult of the obſervations which were made on the 12th of March is 125° 6′ 30″ W. The mean reſult of thoſe which were made on the 13th of March is 126° 4′ 5″ weſt, on the 15th 126° 33′ 30″ weſt, on the 16th, 127° 0′ 56″ weſt, and on the 18th, 127° 9′ 56″ W.: Captain Cook's reckoning at theſe five times, was 124° 40′ 26″ weſt, 125° 33′ 8″ weſt, 126° 55′ 0″ weſt, 127° 13′ 40″ W. and 129° 9′ 0″ W. The five errors are, therefore, 26′ 4″ and 30′ 57″ in defect, and 21′ 30″, 12′ 44″, and 119′ 4″ in exceſs; and the mean of the whole 19′ 15″ in exceſs. The mean of this, and the mean error when the ſun was eaſt of the moon, (56′ 43″ in exceſs) is 38′ 7″ in exceſs; which I ſhall take for the real error of the reckoning at noon on the day of new-moon, which was March the 7th.

The mean reſults of the obſervations which were made on the 29th and 30th of March, are 127° 3′ 7″ W. and 129° 22′ 18″ W.; and the reckoning, at theſe two times, was 129° 21′⅛ W. and 131° 11′ W. On the 1ſt of April, the mean reſult of the three firſt obſervations is 133° 36′ 15″ W. and of the two laſt 133° 53′ 32″ W.; and Captain Cook's reckoning at theſe two times gave 135° 7′ 30″ W. and 135° 19′ 00″ W. Hence, the four errors are 2° 18′ 00″, 1° 48′ 42″, 1° 31′ 15″, and 1° 25′ 28″, all in exceſs. The mean of theſe is 1° 45′ 51″; and the mean of this and the mean error, (19′ 15″) when the ſun was weſt of the moon, is 1° 2′ 33″ in exceſs. And this may be taken as the real error of the account in longitude at noon on the 22d of March, which was the day of the full-moon.

April the 10th, the ſun being again on the weſt ſide of the moon, the mean reſult of the obſervations is 148° 29′ W.; and the reckoning, at the ſame time, 148° 22′⅛ W.; ſo that the error appears again to be in defect 6′ 8″: the mean of which, and the laſt reſult (105′ 51″ in exceſs,) gives 49′ 51″ in exceſs for the real error of the reckoning on the 6th of April, which was new-moon.

By

By working the log quite home to point Venus, it appears, that the real error of Captain Cook's reckoning was, at that time, 16′ 00″ in excefs; as it makes the longitude of Point Venus 149° 42′¼ W. of Greenwich.

From thefe data, and allowing a proportional part of the variation in the error to have happened every day between one femi-lunation and another, I have formed the following table; which exhibits the latitude of the fhip at the noon of every day during their paffage from Cape Horn to Otaheite, and its longitude, both according to Captain Cook's reckoning, and after it has been corrected by the error, derived in the manner which has been explained above. But it muft be obferved, that I have increafed Captain Cook's difference of longitude on the 7th of April, by 20 minutes; and, confequently, his reckoning every day afterwards until he arrived at Otaheite. For it is very evident, both from the courfes and diftances given by the log that day, and his own bearings and diftances between the iflands which they faw that day, the day before, and the day following it, that he muft have made a miftake of 20 miles in his diftance, which, from the courfe they ran, and the latitude they were in, made about the fame number of minutes in longitude.

1769.	Latitude of the Ship S.	Long. by the Reckon. W.	Error of Reckoning.	True Long. of the Ship W.	
	° ′	° ′	′	° ′	
4 Jan. 26.	56. 57	68. 13	— 40⅔	67. 32¼	Cape Horn, N. 58 Miles.
♀ —— 27.	57. 3½	68. 27	— 38	67. 49	
♄ —— 28.	58. 4	70. 1	— 35½	69. 25½	
☉ —— 29.	58. 59⅔	72. 48	— 33	72. 15	
☽ —— 30.	60. 4⅕	74. 10	— 30½	73. 39½	
♂ —— 31.	59. 48⅓	75. 54	— 28	75. 26	
☿ Feb. 1.	58. 44	78. 42	— 25½	78. 16¾	
4 —— 2.	58. 30	80. 58	— 22¾	80. 35¼	
♀ —— 3.	58. 30	81. 55	— 20¼	81. 34¾	
♄ —— 4.	57. 46⅔	82. 16	— 17⅔	81. 58½	
☉ —— 5.	56. 46	82. 16	— 15¼	82. 0¾	
☽ —— 6.	55. 17⅓	82. 23	— 12¾	82. 10¼	New Moon.
♂ —— 7.	54. 40	82. 54	— 12¾	82. 41¼	
☿ —— 8.	53. 41⅓	83. 19	— 13	83. 6	

1769.	Latitude of the Ship S.	Long. by the Reckon. W.	Error of Reckoning.	True Long. of the Ship W.	
	° ′	° ′	′	° ′	
♃ Feb. 9.	52. 22	86. 17	— 13	86. 4	
♀ —— 10.	51. 16	86. 37	— 13¾	86. 23¾	
♄ —— 11.	50. 55	87. 24	— 13¾	87. 10¾	
☉ —— 12.	49. 40½	89. 36	— 13¾	89. 22¾	
☽ —— 13.	49. 31½	90. 37	— 13½	90. 23½	
♂ —— 14.	49. 7	91. 12	— 13⅜	90. 58⅜	
☿ —— 15.	48. 27	92. 5	— 13¾	91. 51¾	
♃ —— 16.	48. 1	94. 25	— 13⅞	94. 11⅞	
♀ —— 17.	46. 48	97. 17	— 14	97. 3	
♄ —— 18.	44. 50	99. 7	— 14	98. 53	
☉ —— 19.	43. 21	100. 21	— 14¼	100. 6¾	
☽ —— 20.	43. 46	101. 34	— 14½	101. 19½	Full Moon.
♂ —— 21.	44. 39	103. 54	— 16	103. 38	
☿ —— 22.	44. 46	106. 1	— 17½	105. 43½	
♃ —— 23.	44. 35	105. 52	— 19¾	105. 32¾	
♀ —— 24.	43. 37	107. 6	— 20¾	106. 45¼	
♄ —— 25.	42. 23	109. 0	— 22⅓	108. 37⅔	
☉ —— 26.	41. 4	109. 52	— 24	109. 28	
☽ —— 27.	39. 43	110. 26	— 25½	110. 0½	
♂ —— 28.	39. 32⅔	110. 38	— 27	110. 11	
☿ Mar. 1.	38. 44	111. 43	— 28⅔	111. 14⅓	
♃ —— 2.	37. 18	112. 5	— 30¼	111. 34¾	
♀ —— 3.	36. 49¼	111. 54	— 31¼	111. 22¼	
♄ —— 4.	36. 12½	112. 50	— 33⅔	112. 16⅓	
☉ —— 5.	36. 20⅓	114. 9	— 35	113. 34	
☽ —— 6.	36. 32	114. 30	— 36½	113. 53½	
♂ —— 7.	37. 6½	116. 8	— 38⅜	115. 29⅝	New Moon.
☿ —— 8.	37. 24	117. 41	— 39¼	117. 1¾	
♃ —— 9.	35. 47½	119. 18	— 41⅛	118. 36⅞	
♀ —— 10.	34. 14	120. 54	— 43	120. 11	
♄ —— 11.	32. 54	122. 35	— 44⅝	121. 50⅜	
☉ —— 12.	31. 33¼	124. 25	— 46¼	123. 38¾	
☽ —— 13.	30. 46¾	125. 28	— 47⅞	124. 40⅛	
♂ —— 14.	30. 17	126. 10	— 49⅞	125. 20⅛	
☿ —— 15.	29. 44⅓	126. 53	— 51⅞	126. 1⅛	
♃ —— 16.	29. 11⅔	127. 8	— 52¾	126. 15¼	
♀ —— 17.	28. 31	127. 29	— 54⅜	126. 34⅝	
♄ —— 18.	27. 52	128. 44	— 56	127. 48	
☉ —— 19.	27. 39¾	129. 28	— 57⅝	128. 30⅜	
☽ —— 20.	25. 43¾	129. 28	— 59¼	128. 28¾	
♂ —— 21.	25. 22	129. 28	— 60⅞	128. 27⅛	Full Moon.
☿ —— 22.	25. 22⅕	129. 52	— 62½	128. 49½	
♃ —— 23.	24. 44⅔	130. 8	— 61⅔	129. 6⅓	
♀ —— 24.	23. 28	129. 2	— 60⅞	128. 1⅛	
♄ —— 25.	22. 11	127. 55	— 60	126. 55	
☉ —— 26.	21. 30¼	127. 43	— 59⅛	126. 43⅞	
☽ —— 27.	21. 2¼	127. 38	— 58⅓	126. 39⅔	
♂ —— 28.	20. 29⅓	127. 50	— 57½	126. 52½	
☿ —— 29.	20. 14	128. 45	— 56¾	127. 48¼	
♃ —— 30.	19. 34¾	129. 27	— 55¾	128. 31¼	
♀ —— 31.	19. 8½	131. 21	— 54⅞	130. 26⅛	

1769.	Latitude of the Ship S.	Long. by the Reckon. W.	Error of Reckoning.	True Long. of the Ship W.	
	° ′	° ′	′	° ′	
♄ Apr. 1.	19. 4¼	133. 28	— 54	132. 34	
☉ —— 2.	19. 1¼	135. 33	— 53½	134. 39½	
☽ —— 3.	18. 46	137. 29	— 52½	136. 36½	
♂ —— 4.	18. 41½	139. 29	— 51½	138. 37½	
☿ —— 5.	18. 23⅔	140. 51	— 50½	140. 01½	
♃ —— 6.	18. 19⅔	142. 29	— 49½	141. 39⅙	New Moon.
♀ —— 7.	17. 49·	143. 51	— 45	143. 6	
♄ —— 8.	17. 44·	145. 35	— 40½	144. 54½	
☉ —— 9.	17. 42¼	147. 0	— 35½	146. 24½	
☽ —— 10.	18. 1	148. 9	— 30½	147. 38½	
♂ —— 11.	17. 38	149. 0¾	— 25½	148. 35	
☿ —— 12.	17. 38	149. 19½	— 20½	148. 58½	
♃ —— 13.	17. 29⅓	149. 42¼	— 16	149. 26¼	In Matavia Bay.

6. Beſide exhibiting the real ſituation of the ſhip every day at noon, the preceding table renders the buſineſs of determining the ſituations of the ſeveral iſlands which they ſaw, extremely eaſy. For, on the 4th of April, at noon, I find by the journals, that LAGOON ISLAND, the firſt which they ſaw in the Pacific Ocean, bore S. 14 E. and was diſtant about 5 miles: conſequently, the Iſland was 4′ 53″ ſouth of the ſhip in latitude, and 1′ 3″ eaſt of it in longitude. And as I find, by the table, that the ſituation of the ſhip was 18° 41′⅔ S. and 138 37′½ W. that of the Iſland muſt be 18° 46′ 33″ S. and 138° 36′ 27″ W. from Greenwich.

7. THRUMB-CAP, the ſecond which they ſaw, is ſaid, by the journals, to bear N. 62° W. from Lagoon Iſland, and that it is 21 miles diſtant from it. This courſe and diſtance, gives 9′ 52″ difference of latitude, and, in the latitude of 18°½, 19′ 33″, difference of longitude: conſequently, the latitude of Thrumb-Cap is 18° 36′ 41″ S. and its longitude 138° 56″ W.

8. The ſituation of the ſhip on the 5th, at noon, was 18 23′ 20″ S. and 140° 0′ 20′ W. After which they ran W.½ N. 15 miles, W. 2 miles, W. S. W. ¾ miles, and W. by N. 3½ miles, and then had the middle of BOW ISLAND, due north of them; and they were about 4 miles from the reef which forms the ſouth ſide of that group of Iſlets: conſequently, the middle of it will be found to lie in 18° 17′ S. and 140° 25′ 20″ W. longitude from Greenwich.

9. At noon, on the 6th, the land called TWO GROUPS, bore N. W. by W. ½ W. and was diſtant, as they found by their run, 15 miles. The latitude of the ſhip was then 18° 19′ 40″ S. and its longitude 141° 39′½ W. Hence the latitude of this iſland will be found 18° 12′ 36″ S. and its longitude 141° 54′ 4″ W.

10. At 8 o'clock in the morning of the 7th, BIRD ISLAND bore due eaſt, and they were about two miles from the ſhore. From this ſituation the ſhip ran 18½ miles due weſt till noon, when they found the latitude to be 17° 49′ S. and the longitude was (by the table) 143° 6′ W. This iſland is, therefore, in latitude 17° 49′ S. and longitude 142° 43′ 24″ W. of Greenwich.

11. On the 8th, at noon, the latitude was 17° 44′ S. and the longitude 144° 54′ 48″ W. From this ſituation they ran 9 miles W. 3½ miles N. by W. and 12 miles N. by W. ½ W.; after which CHAIN ISLAND bore N. ½ W. and was diſtant about 2 leagues. Hence, I infer, that this iſland is in latitude 17° 26′ ſouth, and its longitude 145° 12′ 21″ weſt.

12. April the 10th, at noon, OSNABURG ISLAND bore N. by W. ½ W. and was diſtant about 4 leagues: the latitude of the ſhip was 18° 1′ S. and its longitude 147° 38′ 30″ W. Hence we may infer, that the latitude of this iſland is 17° 49′½ S. and its longitude 147° 42′ 10″ W.

13. The methods by which I have deduced the latitude and longitude of Point Venus will be very fully and comprehenſively expreſſed in the following tables.

The Latitude of POINT VENUS, deduced from Meridional Altitudes of the Sun's L. L. Taken with Hadley's Quadrant.

1769.	Merid. Alt. of Sun's L. L.	Sun's Declination North.	Latitude South.
	° ′ ″	° ′ ″	° ′ ″
♄ May 6.	55 30 30	16 48 20	17 29 21
♄ —— 13.	53 42 00	18 37 19	17 28 56
☉ —— 28.	50 41 00	21 37 18	17 30 4
☽ —— 29.	50 33 00	21 46 28	17 28 54
♂ —— 30.	50 23 30	21 55 14	17 29 38
♄ June 17.	48 54 00	23 25 49	17 28 37
☽ —— 19.	48 50 30	23 27 45	17 30 11
	The mean of all is		17 29 23

The Latitude of POINT VENUS deduced from Meridional Zenith Diſtances of the Sun and Stars which paſſed the Meridian to the northward of the Zenith. Obſerved with the Aſtronomical Quadrant.

1769.	Merid. Zen. Diſtance.	Declination North.	Latitude S.	Mean Reſults.	Object and Obſerver.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	
♄ May 6	34 33 7	16 48 20	17 29 28		☉'s L. L. by Capt. Cook.
♃ —— 18.	36 58 12	19 45 51	17 28 50		☉'s U. L. by Mr. Green.
♄ —— 27.	38 39 10	21 27 47	17 27 52		☉'s U. L. by Mr. Green.
☉ —— 28.	38 50 0	21 37 18	17 29 11		☉'s U. L. by Mr. Green.
☽ —— 29.	38 59 0	21 46 28	17 29 1		☉'s U. L. by Mr. Green.
♂ —— 30.	39 8 12	21 55 14	17 29 27		☉'s U. L. by Capt. Cook.
☿ —— 31.	39 16 21	22 3 38	17 29 13		☉'s U. L. by Mr. Green.
☿ June 7.	40 3 32	22 51 33	17 28 29		☉'s U. L. by Mr. Green.
♃ —— 8.	40 9 0	22 56 48	17 28 42		☉'s U. L. by Mr. Green.
♀ —— 9.	40 13 0	23 1 39	17 27 51	17 28 22½	☉'s U. L. by Mr. Green.
♄ —— 10.	40 17 0	23 6 6	17 27 24		☉'s U. L. by Mr. Green.
☉ —— 11.	40 21 00	23 10 9	17 27 21		☉'s U. L. by Mr. Green.
☽ —— 12.	40 26 4	23 13 48	17 28 46		☉'s U. L. by Mr. Green.
♂ —— 13.	40 29 0	23 17 2	17 28 28		☉'s U. L. by Mr. Green.
♃ —— 15.	40 34 0	23 22 14	17 28 15		☉'s U. L. by Mr. Green.
♄ —— 17.	40 36 45	23 25 49	17 27 26		☉'s U. L. by Capt. Cook.
☉ —— 18.	40 38 30	23 26 58½	17 28 1		☉'s U. L. by Mr. Green.
☽ —— 19.	40 39 0	23 27 44½	17 27 45		☉'s U. L. by Mr. Green.
♂ —— 20.	40 40 0	23 28 6½	17 28 23		☉'s U. L. by Mr. Green.
☿ —— 21.	40 39 40	23 28 2	17 28 8		☉'s U. L. by Mr. Green.
♃ —— 22.	40 39 40	23 27 33	17 28 37		☉'s U. L. by Mr. Green.
♂ —— 27.	40 30 0	23 18 56½	17 27 33		☉'s U. L. by Mr. Green.
☉ June 11.	37 51 57	20 23 26	17 29 16		
☿ —— 21.	37 53 0	20 23 27	17 30 17		
♃ —— 22.	37 50 0	20 23 27	17 27 17	17 29 0	Arcturus, by Mr. Green.
♄ —— 24.	37 51 40	20 23 28½	17 28 56½		
♂ July 4.	37 52 0	20 23 29½	17 29 15		
♄ June 24.	56 3 20	38 34 52½	17 29 52	17 29 42	α Lyræ, by Mr. Green.
♂ —— 27.	56 3 00		17 29 32		
♂ June 13.	27 32 30	10 4 2	17 28 57		
♄ —— 17.	27 33 34	10 4 3	17 30 1	17 29 5	γ Aquilæ, by Mr. Green.
♄ —— 24.	27 32 20	10 4 4	17 28 45½		
☿ —— 28.	27 32 12	10 4 5	17 28 37		
♂ June 13.	25 44 50	8 16 30	17 28 47		
♄ —— 17.	25 44 53	8 16 31	17 28 49½	17 28 40	α Aquilæ, by Mr. Green.
☿ —— 28.	25 44 30	8 16 33	17 28 24½		
♂ June 13.	23 19 22	5 50 47	17 28 59	17 28 47	β Aquilæ, by Mr. Green.
☿ —— 28.	23 19 0	5 50 49½	17 28 35		
♄ June 17.	61 54 40	44 27 53	17 28 33½		
♄ —— 24.	61 56 0	44 27 55	17 29 51½	17 28 52	α Cygni, by Mr. Green.
☿ —— 28.	61 54 20	44 27 56	17 28 10½		
The mean of all is - - - - -				17 28 55½	South.

The Latitude of POINT VENUS determined from Meridional Zenith Diſtances of Stars which paſſed the Meridian to the Southward of the Zenith. Obſerved with the Aſtronomical Quadrant.

1769.	Meridional Zenith Diſt.	Declination South.	Latitude South.	Mean Reſults.	Object and Obſerver.
	° ′ ″	° ′ ″	° ′ ″	° ′ ″	
♀ June 23.	61 1 15	78 33 13	17 29 48	17 29 48	α Hydri. Mr. Green.
♀ June 23.	44 20 00	61 49 39½	17 28 44	17 28 44	α Crucis. Mr. Green.
☿ June 21.	40 54 30	58 25 52	17 30 32½	17 30 25	β Crucis. Mr. Green.
♀ —— 23.	40 54 45		17 30 17½		
♀ June 23.	38 19 00	55 49 35½	17 29 50½	17 29 50½	γ Crucis. Mr. Green.
☿ June 21.	41 44 10	59 15 11	17 30 10	17 29 57	β Centauri. Mr. Green.
♄ —— 24.	41 44 26		17 29 54		
♂ —— 27.	41 44 32		17 29 48		
♃ June 22.	42 22 00	59 52 43	17 29 51	17 29 58	α Centauri. Mr. Green.
♄ —— 24.	42 21 40		17 30 11		
☉ —— 25.	42 22 00		17 29 51		
♄ June 24.	39 57 36	57 26 47	17 28 23	17 29 3	α Pavonis. Mr. Green.
♀ —— 28.	39 56 16		17 29 43		
♀ June 23.	30 33 40	48 4 32	17 30 18	17 29 38	β Gruis. Mr. Green.
♄ —— 24.	30 35 00		17 28 58		
♀ —— 23.	13 19 59	30 50 00½	17 29 48	17 29 48	Fomalhaut. Mr. Green.
	The mean of all theſe is - - - -			17 29 41, 3	South.
	The mean of the northern ſtars -			17 28 55, ½	South.
	The mean of both is - - - - - -			17 29 18, 4	South.

In deducing the preceding latitudes I have taken the declinations of all the ſtars which paſſed ſouth of the Zenith, except Fomalhaut, from the *Aſtronomiæ Fundamenta* of the *Abbé de la Caille*. The declinations of all the reſt are taken from Table X. inſerted at the end of the firſt volume of the Rev. Dr. *Maſkelyne's Aſtronomical Obſervations* made at Greenwich. The declinations of the Sun are from the *Nautical Almanac*.

The Longitude of POINT VENUS, in OTAHEITE, deduced from Obſervations of the Moon's Diſtance from the Sun and Fixed Stars, taken with HADLEY's Sextant.

The Reſults of Obſervations taken when the Moon was Weſt of the Sun or Star.

		° ′ ″	
☿	April 26.	148. 34. 15	The Sun.
		149. 1. 00	
		148. 30. 22	
		148. 59. 45	
		148. 42. 15	
		148. 39. 30	
☉	—— 30.	148. 57. 30	
		148. 41. 00	
		149. 18. 00	
		148. 57. 00	
		149. 6. 15	
		148. 49. 45	
♂	May 16.	149. 11. 30	Antares.
		149. 15. 30	
		149. 15. 8	
		149. 25. 7	
		149. 4. 23	
		149. 54. 37	
♀	—— 26.	148. 8. 00	The Sun.
		148. 13. 00	
		148. 26. 8	
		148. 18. 37	
		148. 34. 8	
		148. 28. 7	
☉	—— 28.	149. 54. 30	
		149. 40. 53	
		149. 34. 7	
		149. 20. 38	
		149. 13. 15	
☽	—— 29.	149. 42. 30	
☽	May 29.	149. 28. 38	
		149. 37. 22	
		149. 47. 53	
		149. 38. 7	
☉	June 18.	149. 2. 45	Fomalhaut.
		149. 21. 45	
		149. 12. 23	
♀	—— 23.	149. 18. 30	The Sun.
		149. 3. 15	
		150. 4. 45	
		150. 4. 30	
♄	—— 24.	149. 8. 37	
		148. 58. 8	
		148. 58. 52	
☽	—— 26.	149. 23. 30	
		149. 22. 30	
		149. 17. 45	
		149. 28. 00	
		149. 17. 30	
♂	—— 27.	149. 13. 23	
		149. 43. 22	
		149. 17. 8	
		149. 23. 00	
		149. 30. 15	
♀	—— 30.	149. 48. 15	
		150. 9. 45	
		150. 6. 7	
		149. 13. 23	W. The Mean.

The Reſults of Obſervations taken when the Moon was Eaſt of the Sun or Star.

		° ′ ″	
♄	May 13.	149. 36. 00	The Sun.
		149. 38. 45	
		150. 28. 7	
		149. 52. 00	
		150. 41. 15	
		150. 28. 30	
♂	—— 16.	148. 28. 00	Regulus.
		148. 55. 00	
		149. 23. 8	
		149. 45. 52	
		149. 26. 15	
		149. 21. 15	
☽	—— 29.	149. 2. 00	α Aquilæ.
		149. 6. 30	
☽	June 12.	151. 1. 30	The Sun.
		150. 22. 15	
		150. 21. 45	
♂	—— 13.	148. 54. 38	
		149. 32. 37	
		149. 18. 45	
♂	June 13.	149. 10. 15	
		149. 31. 15	
♄	—— 17.	149. 5. 30	Spica ♍.
		149. 15. 53	
		149. 22. 37	
		149. 17. 38	
		149. 47. 37	
		149. 52. 45	
♄	—— 24.	150. 13. 8	α Aquilæ.
		149. 52. 7	
		149. 36. 38	
		149. 38. 22	W. The Mean.
		149. 13. 23	M. of the Weſtern Obſervations.
		149. 25. 52½	The Mean of both.
		149. 26. 37½	By 4 Satellites. See p. 35.
		149. 26. 15	W. Long. of Point Venus.

By means of the bearings which are put down with the obſervations, and the aſſiſtance of Captain Cook's chart of the Society Iſlands, annexed to Dr. Hawkſworth's account of theſe voyages, I find that the ſhip was 7′ 30″ eaſt of Ohamaneno Harbour, in Uliatea, when the obſervations of the 23d of July were taken; 6′ 30″ eaſt of it when the obſervations on the 24th were taken; and 10′ 20″ eaſt of it when the obſervations were taken on the 26th. The mean reſults of the obſervations of theſe three days are 150° 44′ 19″ weſt, 150° 45′ 34″ weſt, and 150° 51′ 45″; and, conſequently, the longitude of the harbour will be 150° 51′ 49″ weſt, 150° 52′ 4″ weſt, and 151° 2′ 5″ W. The mean of the three is 150° 55′ 20″ W. The mean reſult of the obſervations which were taken in the harbour, on the 8th of Auguſt, and when the moon was on the contrary ſide of the ſun to that which it was on when the former obſervations were made, is 151° 59′ 54″ W.; and the mean of the two means is 151° 27′ 37″ W.

I have not attempted to determine the longitude of any other places among the Society Iſles from the obſervations, becauſe the bearings which are put down in the journals are by no means ſufficient to do it, independent of the map which I have referred to above: and, after I have determined the longitude of Ohamaneno, any other perſon can determine the longitudes of the reſt by means of the map as well as I can; but it may be neceſſary to obſerve in doing it, that the difference of longitude between Ohamaneno and Owharre is made too great in the map by 5 minutes; as appeared from Mr. Kendall's watch both times that we were there in the ſecond voyage.

I ſhall next proceed to determine the errors which ſeem to have ariſen in the reckoning between the Society Iſles and New Zealand. Captain Cook took his departure from Ohamaneno, reckoning it to lie exactly in the ſame longitude that I have determined it to lie in, notwithſtanding his map of the Society Iſles, places it in 151° 23′½ W. and his reckoning gave 147° 30′ 00″ W. when the obſervations were made on the 26th of Auguſt; conſequently, as the mean reſult of theſe obſervations

vations is 147° 1′ 11″ W. the reckoning erred in excess 28′ 49″. The moon was west of the sun when this observation was made.

On the 6th of September the ship was in 147° 32′ 36″ west longitude by the reckoning, and in 150° 58′ 30″ W. on the 10th; and the results of the observations which were made on these two days were 148° 48′ 30′ west, and 152° 54′ 00″ W.: the moon being then east of the sun; consequently, the errors of the reckoning appear to have been 1° 15′ 54″, and 1° 55′ 30″ in defect: the mean of these two is 1° 35′ 42″; and the mean of this mean, and the error on the 26th of August, is 33′ 26″ in defect, which may be taken for the real error of the reckoning on the 30th of August, at noon, the day on which the moon changed.

When the observations were made on the 23d of September, the reckoning gave 162° 41′ 18″ W.; and the result of the observations on this day being 152° 54′ 00″ W. the apparent error of the reckoning is 12′ 42″ too little. The mean of this, and 1° 35′ 42″; the apparent error of the reckoning, when the moon was east of the sun, is 54′ 12″ in defect, which I shall take for the real error of the reckoning on the 15th of September, at noon, the day on which the moon was at full.

The longitude of the ship was 173° 39′ 00″ W. by the reckoning, when the observations were made on the 3d of October, 176° 6′ 42″ W. and 176° 11′ 48″ W. on the 5th; 177° 9′ 42″ W. on the 6th, and 178° 0′ 21″ W. on the 7th. The mean results of the observations made at these times are, 178° 35′ 30″ west, 180° 2′ 43″ west, 180° 8′ 0″ west, 181° 26′ 25″ west, and 182° 40′ 20″ W. Hence the respective errors of the reckoning appear to be 4° 56′ 30″, 3° 56′ 1″, 3° 56′ 12″, 4° 16′ 43″, and 4° 39′ 59″, in defect. The mean of the five, is 4° 21′ 5″; and the mean of this mean, and 12′ 42″, the apparent error when the moon was west of the sun, is 2° 16′ 54″, which I conclude was the error of the reckoning on the 29th of September, at noon, the day on which it was new-moon.

It

It muſt not be concluded that the real error of the reckoning was ſo great, when the ſhip arrived on the coaſt of New Zealand, as it appears to be from the obſervations which were made in the beginning of October 1769; and ſome difficulty occurs in determining what it was; becauſe Captain Cook's reckoning cloſes on the 7th, after which he kept no numerical reckoning, but determined the ſhip's place from time to time by means of a ſeries of triangles, which he carried on all round the iſland, and which formed a continued connection of the ſituations of the ſhip with remarkable objects inland, and the principal points of the coaſt: and he made no farther uſe of the log than to connect thoſe points of the track which the ſhip was in when he took his angles and bearings. For this reaſon, I cannot compare the obſervations which were made at that time with thoſe which were made towards the latter part of the month, when the moon had paſſed the oppoſition, and was got on the other ſide of the ſun, as I have done hitherto. It happens, however, rather fortunately, that the places of the ſhip, when the obſervations of the 6th and 7th of October were made, can be aſſigned on Captain Cook's chart of New Zealand, as well as by his reckoning from the Society Iſlands *; and, conſequenrly, the deviation of each from the reſult of the obſervations may be found: and the difference between theſe two deviations muſt evidently be the difference between the two reckonings, or Captain Cook's aſſumed error of his reckoning when he arrived on this coaſt.

I have already ſhewn, that the reckoning differed 4° 16′ 43″ and 4° 39′ 59″ from the reſults of theſe obſervations, the longitude by the

* I had no better method of doing this than by working the log back from YOUNG NICK'S HEAD to the times when the obſervations were taken; but, as the latitudes which reſulted from this operation agreed very well with the latitudes put down with the obſervations, it may be hoped that no material error has been committed in doing it. It muſt, however, be owned that the difference of longitude of the two places, found this way, does not agree ſo well as might be wiſhed for, with their difference of longitude derived from Captain Cook's reckoning.

reckoning

reckoning being leſs than the reſults of the obſervations by theſe quantities. The longitude of the two places, on the chart, where the obſervations were made, are 180° 40′ 15″ W. and 181° 13′ 45″ W.; and as the reſults of the obſervations are 181° 26′ 25″ weſt, and 182° 40′ 20″ weſt, the errors of the chart appear to be 46′ 10″ and 86′ 35″; and the two differences between theſe and the two errors of the reckoning are 3° 30′ 33″, and 3° 13′ 24″; of which the mean of the two is 3° 21′ 58″. This appears from the preceding deductions to be the quantity which Captain Cook allowed for the error of his reckoning: He tells us in his journal, that he added 3° 16′ to it; but does not ſay how he determined it; and, therefore, I muſt purſue my own method. When the obſervations were made on the 22d of October, the ſhip was in the entrance into Tegadoo Bay, in longitude 181° 10′ 15″ weſt; and at anchor in Tolaga Bay, longitude 181° 16′ 30″ weſt, when the obſervations were made on the 23d. The mean reſults of the obſervations are 180° 18′ 57″ W. and 181° 13′ 49″ W.: conſequently, the two errors are 51′ 18″ and 2′ 41″ too great; and the mean of them is 2′ 27″ too great; which is the mean error of the chart, according to theſe obſervations. But I have ſhewn that the longitudes on the chart are greater than the longitudes, according to Captain Cook's reckoning, by 3° 24′ 58″; conſequently, the error of the reckoning is 2° 57′ 58″ by the obſervations of the 22d and 23d of October: it was found to be 4° 21′ 5″ when the moon was eaſt of the ſun, and therefore 3° 39′ 32″, the mean of the two, may be concluded to have been the real error of Captain Cook's reckoning when he arrived on the coaſt of New Zealand, in 1769; for it will appear, preſently, that there is no reaſon to ſuppoſe the errors in the reckoning increaſed after it began to be kept on the chart.

Having determined the errors of the account in this manner every ſemi-lunation, I deduced the following table of the ſhip's place at the noon of every day from them, by ſuppoſing that a proportional part of the variation of the error in each ſemi-lunation happened every day.

1769.	Latitude of the Ship. South.	Longit. by Account. West.	Error of the Account.	Longit. of the Ship corrected. West.
	° ′	° ′	′	° ′
♃ Aug. 10.	17. 35	151. 41	+ 0	151. 41
♀ —— 11.	18. 58	151. 45	+ 1 2/3	151. 46 2/3
♄ —— 12.	20. 13 2/3	151. 36	+ 3 1/3	151. 39 1/3
☉ —— 13.	21. 54	151. 9	+ 5	151. 14
☽ —— 14.	22. 26	150. 55	+ 6 2/3	151. 1 2/3
♂ —— 15.	23. 52 1/2	150. 37	+ 8 1/3	150. 45 1/3
☿ —— 16.	25. 0 1/2	150. 19	+ 10	150. 29
♃ —— 17.	26. 10 5/6	149. 46	+ 11 1/3	149. 57 1/3
♀ —— 18.	26. 48 5/6	149. 42	+ 13 1/3	149. 55 1/6
♄ —— 19.	27. 40	149. 6	+ 15	149. 21
☉ —— 20.	28. 23 1/6	148. 25	+ 16 2/3	148. 41 2/3
☽ —— 21.	29. 44	148. 22	+ 18 1/3	148. 40 1/3
♂ —— 22.	31. 4 1/2	148. 0	+ 20	148. 20
☿ —— 23.	32. 6 1/2	147. 29	+ 21 2/3	147. 50 2/3
♃ —— 24.	32. 44	147. 10	+ 22	147. 32
♀ —— 25.	32. 20 5/6	147. 32	+ 25	147. 57
♄ —— 26.	32. 40	147. 30	+ 26 2/3	147. 56 2/3
☉ —— 27.	33. 36	147. 25	+ 28 1/3	147. 53 1/3
☽ —— 28.	35. 34	147. 25	+ 30	147. 55
♂ —— 29.	37. 0	147. 21	+ 31 1/3	147. 52 1/3
☿ —— 30.	38. 21 1/3	147. 6	+ 33 1/3	147. 39 1/3
♃ —— 31.	39. 31 1/4	147. 0	+ 34 1/2	147. 34 1/2
♀ Sept. 1.	40. 12	146. 29	+ 36	147. 5
♄ —— 2.	39. 43	145. 39	+ 37 1/2	146. 16 1/2
☉ —— 3.	39. 6	145. 39	+ 38 1/3	146. 17 1/3
☽ —— 4.	38. 32 1/2	145. 32	+ 39 1/6	146. 11 1/6
♂ —— 5.	37. 52 1/2	146. 2	+ 41 1/2	146. 43 1/2
☿ —— 6.	37. 50 1/4	147. 30	+ 42 1/2	148. 12 1/2
♃ —— 7.	37. 52	147. 49	+ 43 5/6	148. 32 5/6
♀ —— 8.	36. 36	147. 40	+ 45 1/6	148. 25 1/6

1769.	Latitude of the Ship. South.	Longit. by Account. West.	Error of the Account.	Longit. of the Ship corrected. West.
	° ′	° ′	′	° ′
♄ Sept. 9.	36. 19	149. 12	+ 46 2/3	149. 58 2/3
☉ —— 10.	35. 19	150. 46	+ 47 1/3	151. 33 1/3
☽ —— 11.	34. 15	152. 0	+ 49	132. 49
♂ —— 12.	33. 12	152. 44	+ 50 1/2	153. 34 1/2
☿ —— 13.	32. 3	153. 16	+ 0. 51 2/3	154. 7 2/3
♃ —— 14.	32. 5	153. 54	+ 0. 52 2/3	154. 46 2/3
♀ —— 15.	32. 36	156. 34	+ 0. 54 1/6	157. 28 1/6
♄ —— 16.	31. 44 3/4	158. 46	+ 1. 0 5/6	159. 16 5/6
☉ —— 17.	30. 14	159. 6	+ 1. 6	160. 12
☽ —— 18.	28. 59 1/5	159. 32	+ 1. 11 1/2	160. 43 1/2
♂ —— 19.	29. 0	159. 25	+ 1. 17 1/2	160. 42 1/2
☿ —— 20.	29. 21 1/4	159. 47	+ 1. 23 1/2	161. 10 1/2
♃ —— 21.	29. 56 1/4	160. 42	+ 1. 29 1/2	162. 11 1/2
♀ —— 22.	31. 7	161. 35	+ 1. 35 1/2	163. 10 1/2
♄ —— 23.	31. 59 1/3	162. 44	+ 1. 41 1/2	164. 25 1/2
☉ —— 24.	33. 18	162. 51	+ 1. 47 1/2	164. 38 1/2
☽ —— 25.	34. 32 1/4	165. 10	+ 1. 53 1/2	167. 3 1/2
♂ —— 26.	36. 9	167. 14	+ 1. 59 1/6	169. 13 1/6
☿ —— 27.	37. 34	168. 10	+ 2. 5 5/6	170. 15 5/6
♃ —— 28.	38. 57 1/6	169. 5	+ 2. 11	171. 16
♀ —— 29.	38. 29 5/6	170. 14	+ 2. 16 1/6	172. 30 1/6
♄ —— 30.	38. 25 1/3	172. 20	+ 2. 27 1/2	174. 47 1/2
☉ Octo. 1.	37. 45	172. 36	+ 2. 37 1/2	175. 13 1/2
☽ —— 2.	37. 10	172. 54	+ 2. 48	175. 42
♂ —— 3.	36. 54 1/3	173. 27	+ 2. 58 2/3	176. 25 2/3
☿ —— 4.	37. 43 1/3	175. 0	+ 3. 8 1/3	178. 8 1/3
♃ —— 5.	38. 24 1/6	176. 3	+ 3. 19 1/2	179. 22 1/2
♀ —— 6.	39. 11	177. 2	+ 3. 29 1/2	180. 31 1/2
♄ —— 7.	38. 58	177. 54	+ 3. 39 1/2	181. 33 1/2

To this account of the run, from the Society's Iſles to New Zealand, I have only to add, that on the 14th of Auguſt, at noon, when the latitude of the ſhip was 22° 26′ ſouth, and its longitude, according to Captain Cook's reckoning, 150° 55′ W.; the higheſt part of the Iſland of OHETEROA bore E. ¼ S. and was diſtant about 4 leagues; conſequently, the latitude of this part of the Iſland is 22° 26′ ⅗ S. and its longitude, according to the reckoning, 150° 42′ 3″ W.; to which if

there

there be added 6′ 41″, the error of the reckoning at that time, according to the foregoing table, the result will be 150° 48′ 44″ weſt, the longitude of the iſland.

I have already obſerved, that Captain Cook kept no numerical reckoning on the Coaſt of New Zealand; and none of the owners of the many journals and log-books, which I was furniſhed with by the Admiralty, kept a reckoning of any kind: I was, therefore, under the neceſſity of making uſe of Captain Cook's chart of that country, for the purpoſe of reducing a number of obſervations, taken when the moon was on different ſides of the ſun, to the ſame point. But, in comparing the copy of this map, which is annexed to Dr. Hawkſworth's account of theſe voyages, with the log-books, it was found that many of the ſhorter traverſes had been thrown into one, in reducing the map to a proper ſcale for engraving from; and, as this happened in ſeveral inſtances, at places where the obſervations had been made, and which would therefore have introduced very conſiderable errors into the deductions, it was thought beſt to have the charts of New Zealand and New Holland reduced and engraved over again, from the original drawings, in the moſt accurate manner, and to introduce thoſe parts of the ſhip's track which had been omitted before, as of ſmall conſequence; but which became neceſſary to the preſent purpoſe. In performing this, I have diſcovered and rectified ſeveral little inaccuracies, which had ſlipped into the former plate; of no very great importance it is true, but which muſt nevertheleſs, have perplexed thoſe who compared the narrative with the chart. The moſt material of them is in the ſhip's track from Poverty Bay, in New Zealand, to Cape Turnagain, and back to Tolaga Bay.

The method which I have purſued in determining the errors of the chart, and from thence the true ſituations of the ſeveral points of land which they ſailed paſt, is ſo very ſimilar to that which I have hitherto purſued by means of the reckoning, that it may be explained in a few words.

I firſt

I firſt marked the places on the chart which the ſhip was in, when each lunar obſervation was made, by a ſmall croſs (×). Theſe points were aſcertained, in general, by the interſection of the ſhip's track with the parallel of latitude which ſhe was in when the obſervation was made. In thoſe few inſtances where the parallel of latitude made too acute an angle with the track to determine the point accurately, it has been determined by the interſection of the track with the bearing of ſome point of land, taken at the time when the obſervation was made; and when a proper bearing for the purpoſe was not found, by ſetting off the number of miles which the ſhip had run between the time of the obſervation and that when ſhe laſt altered her courſe, or between the time of the obſervation and that when ſhe next altered it, according as one or the other happened neareſt to the time of obſervation. But the inſtances in which the point was not found by means of the latitude, do not exceed three or four in either chart; and I had reaſon to be very well ſatisfied with the means which offered themſelves for determining theſe few. The points being marked on the chart, the longitudes of theſe points were found, and the difference between the longitude of each point and the mean reſult of the obſervations which were made at it taken, as they ſtand in the following table.

1769.	Long. by the Obſervations.	Longitude by the Chart.	Errors of the Chart.
	° ′ ″	° ′ ″	′ ″
October 6.	181. 26. 25	180. 40. 15	+ 46. 10
7.	182. 40. 20	181. 13. 45	+ 86. 35
22.	180. 18. 57	181. 10. 15	— 51. 18
23.	181. 13. 49	181. 16. 30	— 2. 41
Novem. 1.	183. 36. 34	182. 49. 30	+ 47. 4
3	184. 23. 3	183. 54. 15	+ 28. 48
17.	183. 18. 12	184. 28. 30	— 70. 18
19.	183. 33. 53	184. 19. 30	— 45. 37
21.	183. 24. 37	184. 25. 00	— 60. 23
23.	183. 52. 0	184. 34. 30	— 42. 30
Decem. 1.	185. 58. 35	185. 36. 30	+ 22. 5
3.	186. 14. 9	185. 36. 30	+ 37. 39
4.	185. 5. 52	185. 36. 30	— 30. 38
5.	185. 18. 34	185. 33. 0	— 14. 26
6.	186. 4. 25	185. 30. 30	+ 33. 55
7.	186. 15. 15	185. 42. 0	+ 33. 15
8.	186. 34. 0	186. 1. 30	+ 32. 30
17.	185. 42. 45	186. 46. 15	- - 63. 30
20.	186. 21. 2	187. 21. 0	— 59. 58

1769.	Long. by the Obſervations.	Longitude by the Chart.	Errors of the Chart.
	° ′ ″	° ′ ″	′ ″
Decem. 22.	187. 10. 52	187. 48. 30	— 37. 38
1770.			
January 1.	188. 46. 6	187. 21. 0	+ 85. 6
3.	187. 28. 7	187. 2. 0	+ 26. 7
14.	185. 6. 0	184. 47. 0	+ 19. 0
16.	185. 0. 32	184. 55. 30	+ 5. 2
17.	184. 14. 25	184. 55. 30	— 41. 5
18.	184. 25. 15	184. 55. 30	— 30. 15
19.	184. 17. 50	184. 55. 30	— 37. 40
20.	184. 21. 50	184. 55. 30	— 33. 40
Febru. 13.	185. 47. 0	185. 27. 30	+ 19. 30
15.	186. 45. 19	186. 12. 0	+ 33. 19
16.	187. 15. 5	186. 24. 15	+ 50. 50
20.	187. 7. 5	188. 10. 0	— 62. 55
March 3.	188. 58. 15	187. 56. 15	+ 62. 0
4.	190. 44. 5	189. 42. 0	+ 62. 5
17.	189. 40. 5	189. 13. 0	+ 27. 5
18.	188. 18. 57	188. 15. 0	+ 3. 57
22.	186. 49. 0	186. 28. 0	+ 21. 0

When the obſervations were taken on the 6th and 7th of October, the moon was on the eaſt ſide of the ſun, and the mean of the two errors is 66′ 22″½ in defect: when thoſe of the 22d and 23d were taken, the moon was weſt of the ſun, and the mean of the two errors is 26′ 59″½ in exceſs; the mean of the two means is 19′ 41″½ in defect, which I ſuppoſe to have been the real error of that point of the chart which the ſhip was in on the 14th of October, at noon, the day on which the full moon happened.

On the 1ſt and 3d of November, the moon being then on the eaſt ſide of the ſun, the apparent errors of the chart are 47′ 4″, and 28′ 48″ in defect; the mean of them is 37′ 56″; and the mean of this mean, and that which happened when the moon was weſt of the ſun, (26′ 59″½ in exceſs) is 5′ 28″ in defect, for the error of the chart at the point which the ſhip was in on the 29th of October, at noon, the day which the new moon happened on.

At the time when the obſervations were taken on the 17th, 19th, 21ſt, and 23d of November the moon was again weſt of the ſun, and the mean of the four errors, as they ſtand in the table, is 54′ 42″ in exceſs; and the mean of this quantity, and 37′ 56″ in defect, the mean error when the moon was eaſt of the ſun, is 8′ 23″ in exceſs, which may be taken for the real error of that point of the chart which the ſhip was in on the 13th of November, the day of the full moon.

On the 1ſt, 3d, 4th, 5th, 6th, 7th and 8th of December, the moon being then eaſt of the ſun, the errors are 22′ 5″, 37′ 39″, 33′ 15″, and 32′ 30″ in defect, and 30′ 38″, and 14′ 26″ in exceſs: the mean of them is 16′ 20″ in defect; and the mean of this and 54′ 42″, the error in exceſs when the moon was weſt of the ſun, is 19′ 10″ in exceſs, which I ſhall take for the real error of the chart at the point which the ſhip was in on the 27th of November, at noon, the day which the new moon happened on.

December the 17th, 20th and 22d, the moon was weſt of the ſun, and the mean of the three errors as appears from the table, is 53′ 42″ in exceſs: the mean of this and 16′ 20″ in defect, the error when the moon was eaſt of the ſun, is 18′ 41″ in exceſs; and this I ſuppoſe to be the error of the chart at the point which the ſhip was in on the 12th of December, at noon, the day of the full moon.

The errors, when the obſervations were made on the 1ſt and 3d of January, 1770, appear to be 85′ 6″, and 26′ 7″ in defect, and the mean of them is 55′ 36″ in defect: the moon was at this time on the eaſtern ſide of the ſun; and the mean of this mean and 53′ 42″ in exceſs, the apparent error when the moon was weſt of the ſun, is 0′ 57″ in defect, the real error of the chart at the point the ſhip was in on the 27th of December, the day of the new moon.

The errors on the 14th and 16th of January are 19′ 00″ and 5′ 2″ in defect; and on the 17th, 18th, 19th, and 20th, the errors are 41′ 5″, 30′ 15″, 37′ 40″, and 33′ 40″ in exceſs; the mean of theſe ſix is 19′ 46″ in exceſs: and the mean of this mean, and that of the errors when the moon was eaſt of the ſun is 17′ 55″ in defect; and this I take to be the error of the chart at the point the ſhip was in on the 11th of January at noon, the day of the full moon.

It is much to be regretted that no obſervations were made while the moon was on the eaſt ſide of the ſun, between the 26th of January, 1770, and the 9th of February following; as, by this defect, we loſe the opportunity of determining the errors of the chart at the points the ſhip was in on theſe two days. Beſide, as the ſhip was at anchor in Queen Charlotte's Sound on the former of them, it is highly probable ſuch obſervations would have wholly removed, or, at leaſt, greatly leſſened the error which *now* evidently exiſts in the chart at that place, and thoſe which lie in the neighbourhood of it.

The

The mean error of the chart, according to the obſervations which were made on the 13th, 15th, 16th and 20th of February, at which time the moon was on the weſt ſide of the ſun, is 10′ 11″ in defect: and the mean error of it which reſults from the obſervations made on the 3d and 4th of March, when the moon was eaſt of the ſun, is 62′ 3″ in defect; conſequently, the real error of the chart at the point the ſhip was in on the 25th of February, the day which the new moon happened on, is 36′ 7″ in defect.

On the 17th, 18th, and 22d of March, the moon being then weſt of the ſun, the errors of the chart appear to be 27′ 5″, 3′ 57″, and 21′ 0″ in defect; and the mean of them is 17′ 21″ in defect: the mean of this mean and that which reſulted from the obſervations made when the moon was eaſt of the ſun, is 39′ 42″ in defect; and may be taken for the error of that point of the chart which the ſhip was in on the 11th of March, at noon, the day when the full moon happened.

The errors of the chart being determined, in this manner, for the points which the ſhip was in on the noons of the days when the new and full moons happened; theſe places were found in the ſame manner as thoſe which the ſhip was in at the times when the obſervations were made: and the places are diſtinguiſhed by a croſs (×) and the day of the month. The errors of the chart, at thoſe points which the ſhip was in on the intermediate days at noon, were derived from thoſe, by ſuppoſing that a proportional part of the variation of the error between each ſemi-lunation, happened every day that the ſhip was under ſail: and theſe errors are contained in the following table.

1769.	Errors of the Chart.	1769.	Errors of the Chart.	1770.	Errors of the Chart.	1770.	Errors of the Chart.
	′ ″		′ ″		′ ″		′ ″
Octo. 6.	+ 19. 41	Nov. 19.	— 13. 2	Jan. 2.	+ 7. 45	Feb. 14.	+ 27. 30
—— 7.	+ 19. 41	—— 20.	— 13. 48	—— 3.	+ 8. 53	—— 15.	+ 28. 17
—— 8.	+ 19. 41	—— 21.	— 14. 34	—— 4.	+ 10. 1	—— 16.	+ 29. 4
—— 9.	+ 19. 41	—— 22.	— 15. 20	—— 5.	+ 11. 9	—— 17.	+ 29. 51
—— 10.	+ 19. 41	—— 23.	— 16. 6	—— 6.	+ 12. 17	—— 18.	+ 30. 38
—— 11.	+ 19. 41	—— 24.	— 16. 52	—— 7.	+ 13. 25	—— 19.	+ 31. 25
—— 12.	+ 19. 41	—— 25.	— 17. 38	—— 8.	+ 14. 33	—— 20.	+ 32. 12
—— 13.	+ 19. 41	—— 26.	— 18. 24	—— 9.	+ 15. 41	—— 21.	+ 32. 59
* 14.	+ 19. 41	* 27.	— 19. 10	—— 10.	+ 16. 48	—— 22.	+ 33. 46
—— 15.	+ 18. 7	—— 28.	— 19. 7	* 11.	+ 17. 55	—— 23.	+ 34. 33
—— 16.	+ 16. 33	—— 29.	— 19. 4	—— 12.	+ 18. 43	—— 24.	+ 35. 20
—— 17.	+ 14. 58	—— 30.	— 19. 1	—— 13.	+ 19. 31	* 25.	+ 36. 7
—— 18.	+ 13. 23	Dec. 1.	— 18. 58	—— 14.	+ 20. 19	—— 26.	+ 36. 22
—— 19.	+ 11. 48	—— 2.	In the Bay of Islands.	—— 15.	+ 21. 7	—— 27.	+ 36. 37
—— 20.	+ 10. 13	—— 3.		—— 16.		—— 28.	+ 36. 52
—— 21.	+ 8. 38	—— 4.		—— 17.		Mar. 1.	+ 37. 7
—— 22.	+ 7. 3	—— 5.	— 18. 55	—— 18.		—— 2.	+ 37. 22
—— 23.	+ 5. 28	—— 6.	— 18. 53	—— 19.		—— 3.	+ 37. 38
—— 24.	In Taiaga Bay.	—— 7.	— 18. 51	—— 20.		—— 4.	+ 37. 54
—— 25.		—— 8.	— 18. 49	—— 21.		—— 5.	+ 38. 10
—— 26.		—— 9.	— 18. 47	—— 22.		—— 6.	+ 38. 26
—— 27.		—— 10.	— 18. 45	—— 23.		—— 7.	+ 38. 42
—— 28.		—— 11.	— 18. 43	—— 24.		—— 8.	+ 38. 57
* 29.	+ 5. 28	* 12.	— 18. 41	—— 25.		—— 9.	+ 39. 12
—— 30.	+ 2. 42	—— 13.	— 17. 23	—— 26.		—— 10.	+ 39. 27
—— 31.	+ 0. 4	—— 14.	— 16. 5	—— 27.		—— 11.	+ 39. 42
Nov. 1.	— 2. 50	—— 15.	— 14. 47	—— 28.		—— 12.	+ 39
—— 2.	— 5. 36	—— 16.	— 15. 29	—— 29.		—— 13.	+ 38
—— 3.	— 8. 22	—— 17.	— 12. 11	—— 30.		—— 14.	+ 37
—— 4.	At anchor in Mercury Bay.	—— 18.	— 10. 53	—— 31.		—— 15.	+ 36
—— 5.		—— 19.	— 9. 35	Feb. 1.		—— 16.	+ 35
—— 6.		—— 20.	— 8 16	—— 2.		—— 17.	+ 34
—— 7.		—— 21.	— 6 57	—— 3.		—— 18.	+ 33
—— 8.		—— 22.	— 5. 38	—— 4.		—— 19.	+ 32
—— 9.		—— 23.	— 4. 19	—— 5.		—— 20.	+ 31
—— 10.		—— 24.	— 3. 0	—— 6.		—— 21.	+ 30
—— 11.		—— 25.	— 1. 41	—— 7.	+ 21. 55	—— 22.	+ 29
—— 12.		—— 26.	— 0. 22	—— 8.	+ 22. 43	—— 23.	+ 28
* 13.	— 8. 23	* 27.	+ 0. 57	—— 9.	+ 23. 31	—— 24.	+ 27
—— 14.	— 9. 10	—— 28.	+ 2. 5	—— 10.	+ 24. 19	—— 25.	+ 26
—— 15.	— 9. 57	—— 29.	+ 3. 13	—— 11.	+ 25. 7	—— 26.	+ 25
—— 16.	— 10. 44	—— 30.	+ 4. 21	—— 12.	+ 25. 55	—— 27.	+ 24
—— 17.	— 11. 30	—— 31.	+ 5. 29	—— 13.	+ 26. 43		
—— 18.	— 12. 16	Jan. 1.	+ 6. 37				

At anchor in Queen Charlotte's Sound.

The days of the full and change are marked with asterisks in this table.

I ſhall now ſhew the uſe of the foregoing table, by deducing the ſituations of ſome of the principal points, harbours, and iſlands, which are on the coaſt of New Zealand from the chart, and the bearings and diſtances which I find in the journals, by means of it.

YOUNG NICK'S HEAD, the firſt point of land they ſaw, is in latitude 38° 43′ ſouth, and longitude 181° 38′ weſt by the chart: the error of that part of the chart is 19′ 41″ in defect; and, conſequently, the longitude of Young Nick's Head is 181° 57′ 41″ W. according to this mode of determining its ſituation. But it is remarkable that all the journals concur in ſaying that this Point bore N. 10°, or 11° W. at noon, on the 11th of October, 1769, and Captain Cook adds, "it was diſtant 3 or 4 leagues, and that Table Cape bore due ſouth." The journals vary in their accounts of the latitude obſerved that day, from 39° 13′ to 39° 16′ ſouth; but Mr. Green's meridional altitude of the ſun's L. L. when properly worked, gives the latitude of the ſhip 39° 15′ S. and the point of the chart where that parallel croſſes the track is in longitude 181° 41′ 30″ W. The above-mentioned bearing and diſtance gives 11¼ difference of latitude, and 3′ 12″ difference of longitude; ſo that, according to theſe data, the latitude of Young Nick's Head, is 39° 3¼ S. and its longitude, by the chart, 181° 44′ 42″ weſt; and if to this there be added 19′ 41″, the error of the chart in this part of it, the true longitude of this Point will be 182° 4′ 23″ W. It may appear extraordinary to reject an obſervation againſt which no complaint is made by the obſerver; but I am nevertheleſs of opinion, that a miſtake of 20 minutes has been committed in this; and that, inſtead of the meridional altitude being 57° 59′, it ought to have been 58° 19′, and the latitude 38° 55′; in which caſe it would agree very well, not only with the chart, but with the obſervations which were made on the ſubſequent days alſo, which, at preſent, it will not do.

The obſerved latitude was 39° 21′⅔ S. on the 12th, at noon; at which time TABLE CAPE bore N. 20° E. diſtant 4 leagues; and the Iſland of PORTLAND bore ſouth 70° W. diſtant about 3 miles. Hence, Table Cape appears to have been 15′ to the northward, and 7′ in lon-

gitude to the eaſtward of the ſhip, at that time: the latitude of Table Cape is, therefore, 39° 6′⅔ S. And as the parallel of 39° 21′⅔ cuts the tract in longitude 181° 45′ weſt, the longitude of the Cape (adding 19′ 41″ for the error of the chart) will be 181° 57′ 41″ W. The bearing and diſtance of the Iſland of Portland, places it 1′ to the ſouthward, and 3′ 36″, in longitude, to the weſtward of the ſhip. It is therefore in the latitude of 39° 22′⅔ ſouth, and (making the ſame allowance for the error of the chart) in 182° 8′ 17″ W. longitude.

On the 15th, at noon, the obſerved latitude was 39° 48′⅔ ſouth, and the longitude of the point where this parallel cuts the track on the chart, is 182° 27′ W. At this time CAPE KIDNAPPERS, bore N. 9° E. and was diſtant 6 miles. Hence, the Cape was 5′ 56″ north, and 1′ 12″ in longitude eaſt of the ſhip; and conſequently, adding 18′ 7″ for the error of the chart in longitude, is in latitude 39° 42′ 44″ ſouth, and longitude 182° 43′ 55″ W.

On the 16th, at noon, the obſerved latitude was 40° 32′¼ ſouth, and the longitude of the point on the chart where this parallel cuts the track is 182° 51′ 45″ W. CAPE TURNAGAIN now bore due weſt, and was 2 miles from the ſhip: conſequently, allowing 16′ 33″ for the error of the chart, the longitude of this Cape is 183° 10′ 58″ W. Its latitude is that of the ſhip.

The obſerved latitude was 39° 51′½ ſouth, at noon, on the 17th; and the longitude by the chart, determined in the uſual manner, was 182° 16′ W. After this they ran weſt 9¼ miles, and W. N. W. 3¼ miles, and then Cape Kidnappers bore N. 33° weſt, and was diſtant 5 or 6 miles. From theſe data, I conclude that the Cape was 6′ 28″ north, and 21′ 24″ in longitude weſt of the ſhip at noon. Hence, therefore, the latitude of the Cape is 39° 45′ 2″ S. and its longitude, allowing 14′ 58″ for the error of the chart, 182° 52′ 22″ W. The mean of this determination and the former, gives latitude 39° 43′ 53″ S. and longitude 182° 48′ 8″ W. But I think the firſt determination is rather more to be depended

depended on, as the ſhip was much nearer the Cape when the obſervations were made.

The obſerved latitude was 39° 34′ 15″ S. on the 18th, at noon, and the longitude of the ſhip, according to the chart, 182° 7′ 45″ W. The Iſle of Portland now bore N. E. ½ E. and was diſtant 4 leagues: conſequently Portland was 7′ 37″ north of the ſhip, and 12′ eaſt of it in longitude; and hence the latitude of Portland is 39° 26′ 38″ ſouth; and, allowing 13′ 23″ for the error of the chart, in longitude 182° 9′ 8″ W. The mean of this and the former determination, places Portland in latitude 39° 24′ 39″ ſouth, and longitude 182° 8′ 42″ W. I think the former determination ought, in ſome meaſure, to have the preference, for the ſame reaſon that I gave the preference to the firſt determination of Cape Kidnappers.

On the 19th, at noon, the latitude of the ſhip was 38° 45′ S. by obſervation; and the longitude of its place on the chart 181° 24′ 40″ W. Young Nick's Head now bore due weſt, and was diſtant "near 4 leagues." Hence the latitude of this headland is the ſame with that of the ſhip, and its longitude, reckoning the error of the chart to be 11′ 48″, is 181° 50′ 40″ W. The great diſagreement which there is between this determination, and that which I derived from the obſervation made on the 11th of October, at noon, as well as between Captain Cook's chart and it, renders my ſuppoſition that Mr. Green either read off, or wrote down his obſervation of that day 20′ too little: and if that was the caſe, and the latitude no more than 38° 55′ S. the latitude of the headland will then be only 39° 43′ 45″ S. and its longitude 181° 55′ 52″ W.; the longitude of the point on the chart where the parallel of 38° 55′ cuts the track being only 181° 33′ W.

Captain Cook ſays he found the latitude of Tolaga Bay, in which place they anchored on the 23d, at noon, to be 38° 22′ 24″ N. by means of the meridional zenith diſtance of the ſun, on the 24th, taken with the aſtronomical quadrant. The longitude of the ſhip at anchor, according to the

the chart was 181° 16′ 30″ W.; to which if we add 5′ 28″ for the error of the chart at that place, it will give 181° 21′ 58″ W. for the true longitude of Tolaga Bay.

The obſerved latitude was 37° 48′¼ S. on the 30th, at noon, and the ſhip's place on the chart, determined in the uſual manner, 180° 59′ 15″ W. At this time the ſmall iſland which lies rather more than a mile due eaſt from the moſt eaſterly point of New Zealand bore N. 16° eaſt, and was 4 miles from the ſhip. This iſland is, therefore, 3′ 50″ to the north of the ſituation of the ſhip at noon, and 1′ 24″ to the eaſtward of it in longitude: conſequently, the latitude of this iſland is 37° 44′ 25″ ſouth, which is alſo the latitude of the EAST CAPE, and the longitude of the Cape will be, as near as poſſible, the ſame with the longitude of the ſhip; which, by adding 2′ 42″ for the error of the chart, will be 181° 1′ 57″ W.

On the 31ſt, at noon, CAPE RUNAWAY bore S. 81° eaſt, and was diſtant about 3 miles. The latitude of the ſhip was then 37° 29′⅔ S. by obſervation; from which it appears, that the latitude of Cape Runaway is 37° 30′⅓ S: but its longitude cannot be determined with any preciſion, becauſe no means offered themſelves of finding the point of the track which the ſhip was in at that time.

They anchored in MERCURY BAY on the 3d of November, in the evening; and found the latitude, juſt within the ſouth point of it, 36° 48′ S. by means of the aſtronomical quadrant. According to the chart, the longitude of this point is 184° 2′ W. But the error of the chart being here 8′ 22″ in exceſs, the true longitude of this point is 183° 53′ 38″ W.

On the 18th of November, at noon, the latitude of the ſhip was 36° 28′⅖ S. by obſervation, and its longitude on the chart 184° 28′ 30″ W. CAPE COLVILLE bore N. 48° E. and was diſtant 5½ miles; conſequently, the latitude of this Cape is 36° 24′¼ ſouth, and its longitude,

tude, allowing the error of the chart to be 12′ 16″ in excefs, is 184° 11′ 8″ W.

POINT RODNEY bore W. N. W. at noon, on the 24th, and was diſtant 2 miles: the latitude obſerved was 36° 16′ ¾ ſouth, and the longitude on the chart 184° 48′ 15″ weſt, conſequently, the latitude of Point Rodney is 36° 16′ ſouth, and its longitude, ſuppoſing the error of this point of the chart to be 16′ 52″ in excefs, 184° 33′ 41″ W.

BREAM HEAD bore due ſouth, on the 25th, at noon, and was diſtant 10 miles; conſequently, as the obſerved latitude was 35° 35′ 15″ ſouth, that of Bream Head is 35° 45″ 15″ S. The longitude of the ſhip, at noon, was 185° 6′ 15″ W. by the chart, and the error for that day being 17′ 38″ in excefs, the true longitude of the ſhip, as well as the headland, is 184° 48′ 37″ W.

On the 26th, at noon, CAPE BRETT was due weſt 4 or 5 miles: the latitude obſerved was 35° 10′ ſouth, and the longitude of the ſhip, on the chart, 185° 16′ 15″ W. The error of the chart was that day 18′ 24″ in excefs; and from hence, I judge that the latitude of Cape Brett is 35° 10′ ſouth, and its longitude 185° 3′ 21″.

The obſerved latitude of the ſhip was 34° 54′ 10″ ſouth, on the 27th, at noon, and its longitude, on the chart, 185° 43′ 0″ W. CAVALLE ISLES bore S. W. by S. and was diſtant 4 miles: theſe Iſlands were, therefore, 3′ 20″ ſouth, and 1′ 30″ in longitude weſt of the ſhip; and, conſequently, are in the latitude of 34° 57′ 30″ ſouth, and longitude 185° 25′ 20″ weſt, the error of the chart being, that day, 19′ 10″ in excefs, and one of the radical ones.

December the 6th, at noon, Cape Brett bore S. S. E. ½ E. and was diſtant 10 miles; conſequently, the Cape was 8′ 50″ ſouth of the ſhip, and 5′ 45″ eaſt of it in longitude. The obſerved latitude of the ſhip was 34° 58′ 30″ ſouth, and its longitude, on the chart, 185° 30′ 30″ W.

Hence, as the error of this part of the chart is 18′ 53″ in excefs, the longitude of Cape Brett will be 185° 5′ 52″ weft, and its latitude 35° 7′ 20″ fouth. The mean of this determination, and that on the 26th of November, places Cape Brett in latitude 35° 8′ 40″ fouth, and longitude 185° 4′ 37″ W.

On the 17th of December, at noon, the NORTH CAPE bore S. 45° W. and was diftant 3 miles; of courfe, it was 2′ 7″ fouth of the fhip, and 2′ 36″ to the weft of it in longitude: the obferved latitude was 34° 19′ 50″ fouth, and the longitude, by the chart, 186° 50′ 45″ weft; confequently, as the error of the chart was then 12′ 11″ in excefs, the Cape is fituated in 34° 21′ 57″ fouth latitude, and 186° 41′ 10″ weft longitude.

On the 24th, at noon, the THREE KINGS bore S. S. E. and was diftant about 8 leagues. The fhip was obferved to be in 33° 49′ fouth latitude, and, by the chart, in 187° 44′ 30″ of weft longitude: and, as the error of the chart is here 3′ 00″ in excefs, the latitude of the Three Kings will be 34° 11′ fouth, and its longitude 187° 30′ 24″ weft.

On the 25th, at noon, the Three Kings bore N. 82° eaft, and was diftant about 6 leagues: hence, the ifland was 2′ 30″ north of the fhip, and eaft of it, in longitude, 21′ 30″. The obferved latitude was 34° 12′ fouth, and the longitude, by the chart, 188° 2′ 30″ W.; the error of which was, this day, 1′ 41″ in excefs: confequently, the latitude of the Three Kings will be 34° 9′ 30″ fouth, and its longitude 187° 39′ 20″ weft. The mean of the two determinations is 34° 10′ 15″ S. and 187° 34′ 52″ W.

On the 31ft, at noon, CAPE MARIA VAN DIEMAN bore N. E. by north, and was diftant about 5 leagues: it was, therefore, 12′ 28″ north of the fhip, and 10′ 6″ in longitude eaft of it. The obferved latitude of the fhip was 34° 41′ 45″ fouth, and its longitude, by the chart, 187° 18′ W. Hence, the latitude of Cape Maria Van Dieman is 34° 29′ 17″ fouth, and its longitude (the error of the chart being 5′ 29″ in defect) 187° 13′ 23″ W.

At

At noon on the 1ſt of January, 1770, Cape Maria Van Dieman bore N. 31° E. and was diſtant 4½ leagues: the Cape was, therefore, 11′ 34″ north of the ſhip, and 8′ 27″ in longitude eaſt of it. The obſerved latitude of the ſhip was 34° 37′ ſouth, and its longitude, on the chart 187° 22′ 30″ weſt: the latitude of the Cape will, therefore, be 34° 25′ 26″ ſouth, and its longitude (the error of the chart being 6′ 37′) 187° 20′ 40″ W. The mean of the two determinations makes the Cape in 34° 27′ 22″ of ſouth latitude, and 187° 17′ 1″ weſt longitude.

On the 13th, at noon, CAPE EGMONT bore N. E. and was diſtant about 4 leagues: the Cape was, therefore, 8′ 30″ north of the ſhip, and 11′ 00″ eaſt of it in longitude; and as the ſhip was obſerved to be in the latitude of 39° 31′ 50″ ſouth, and, by the chart, in 185° 39′ 0″ weſt; the latitude of the Cape will be 39° 23′ 20″ ſouth, and its longitude, allowing 19′ 31″ for the error of the chart, 185° 47′ 31″ weſt.

January the 15th, they anchored in QUEEN CHARLOTTE'S SOUND, and found the latitude, by means of the aſtronomical quadrant, 41° 5′ 32″ S. The longitude of the point where they anchored is 184° 55′ 30″ weſt, by the chart; which, as the error was 21′ 7″ in defect on the day they anchored, will give 185° 16′ 37″ weſt, for the true longitude of the Sound.

CAPE KOAMAROO bears N. 86° E. from the place where the ſhip anchored in Queen Charlotte's Sound, and was diſtant from it 3½ leagues. This Cape, therefore, is 0′ 44″ north of the anchoring place, and 13′ 40″ eaſt of it; and of courſe, is in latitude 41° 4′ 48″ S. and longitude 185° 2′ 57″ E.

February the 7th, at noon, the obſerved latitude of the ſhip was 41° 26′ 30″ ſouth, and its longitude, by the chart, 184° 42′ W. CAPE PALLISER bore S. 79° E. and was diſtant 12 leagues. Cape Koamaroo bore N. ½ E. and was diſtant 7 or 8 leagues; and CAPE TEERA-WITTEE bore N. 62° E. diſtant 5 leagues. Hence it will be found, that Cape Palliſer

Palliſer was 6′ 52″ ſouth of the ſhip, and 46′ 50″ eaſt of it in longitude; that Cape Koamaroo was 21′ 53″ north of the ſhip, and 2′ 51″ eaſt of it in longitude; and that Cape Teera-wittee was 7′ 2″ north of the ſhip, and 17′ 34″ eaſt of it in longitude; conſequently, the latitudes of theſe three Capes are 41° 33′ 22″ ſouth, 41° 4′ 37″ ſouth, and 41° 19′ 28″ ſouth, reſpectively: and their longitudes, the error of the chart being 21′ 55″ in defect, 184° 17′ 5″ weſt, 185° 1′ 4″ weſt; and 184° 46′ 21″ weſt.

On the 9th, at noon, Cape Turnagain bore N. by E. and was diſtant about 7 leagues: the Cape was, therefore, 20′ 36″ north of the ſhip, and 5′ 24″ eaſt of it in longitude. The obſerved latitude of the ſhip was 40° 55′ 50″ ſouth, and its longitude, by the chart, was 183° 6′ 30″ weſt: conſequently, the latitude of the Cape will be 40° 35′ 14″ ſouth, and its longitude 183° 24′ 37″ weſt, the error of the chart being 23′ 31″ in defect. I have made out the ſituation of Cape Turnagain from theſe data, to try how near the two determinations would agree; but this laſt is far leſs to be depended on than the former, owing to the great diſtance which the ſhip was from the Cape when the bearing of it was taken.

I can meet with no datum, in any of the journals, which will aſſiſt me in determining the ſituation of CAPE CAMPBEL, the point of land which forms the weſtern boundary of the ſouth-eaſt entrance of COOK STRAITS, except that it is ſaid by Captain Cook to lie S. by W. diſtant 12 or 13 leagues from Cape Koamaroo; and from which it follows, that Cape Campbel lies 36′ to the ſouthward, and 1′ 33″ in longitude to the weſtward of Cape Koamaroo; and, conſequently, is in 41° 40′ 48″ ſouth latitude, and 185° 4′ 30″ weſt longitude.

On the 12th of February, at noon, Cape Palliſer bore due north, and was diſtant 5 leagues. The obſerved latitude that day was 41° 51′ 24″ S.; and, conſequently, the latitude of Cape Palliſer is 41° 36′ 24″ S. The longitude of the ſhip was that day 184° 0′ 30″ W. by the chart, and as the error was then 25′ 55″ in defect, the longitude will

will be 184° 26′ 25″ W. The mean of the two determinations of Cape Palliſer is 41° 34′ 53″ S. and 184° 21′ 45″ W.

February the 16th, at noon, the obſerved latitude was 43° 16′ ſouth, and the longitude, by the chart, 186° 11′ W. The northern point of Banks's Iſland bore S. W. by S. ¼ weſt, and was diſtant 8 leagues: conſequently, this point was 17′ 47″ ſouth of the ſhip, and 22′ 18″ weſt of it in longitude; and, the error of the chart being here 29′ 4″ in defect, the latitude of the north point of Banks's Iſland will be 43° 33′ 47″ ſouth, and its longitude 187° 2′ 22″ W.

The 17th, at noon, the ſouth point of BANKS's ISLAND bore due north, and was diſtant 5 leagues: the latitude obſerved that day was 44° 7′ 15″ S. and the longitude, by the chart, 186° 20′ 00″ W. Hence, as the error of the chart is here 29′ 51″ in defect, the latitude of the ſouth point of Banks's Iſland is 43° 52′ 15″ ſouth, and the longitude of the ſame point 186° 49′ 51″ W. It appears to me, that there has been ſome inaccuracy in lying down the track of the ſhip in this place; but I did not think it prudent to make any alterations in it.

At noon, on the 24th, the obſerved latitude was 45° 19′⅔ S. and longitude, by the chart, 188° 19′ 30″ W. which, corrected for the error of this day, is 188° 54′ 50″ W. The ſhip ran S. 39° W. 18⅜ miles, S. 50° W. 18⅜ miles, S. 16° W. 4¾ miles, and S. 28° W. 4¾ miles, to 8 o'clock in the evening; and then CAPE SAUNDERS bore S. 61° W. and was diſtant about 6 miles. Hence Cape Saunders lies 38′ 5″ to the ſouthward, and 49′ 6″, in longitude, to the weſtward of the ſhip's ſituation at noon; and, conſequently, is in latitude 45° 57′¾ S. and longitude 189° 43′ 56″ W.

March the 9th, at noon, the ſhip was in latitude 47° 25′ 10″ S. by obſervation, and longitude 191° 43′ 45″ W. by the chart; which, as the correction was then 39′ 12″, is 192° 22′ 57″ W. true. The SOUTH CAPE bore N. W. by W. and was diſtant 5 leagues; conſequently, the latitude of the South Cape is 47° 16′ 50″ ſouth, and its longitude 192° 39′ 51″ W.

On the 11th, at noon, SOLANDER'S ISLAND bore S. 59° W. and was diſtant 5 leagues; conſequently, the iſland was 7′ 43″ to the ſouthward of the ſhip, and 18′ 42″, in longitude, to the weſtward of it. The latitude obſerved was 46° 24′ ſouth, and the longitude, by the chart, 192° 28′ W.; and, as the error of the chart was at this time 39′ 42″, the true longitude of the ſhip at noon, was 193° 7′ 42″ W. The longitude of Solander's Iſland is, therefore, 193° 26′ 24″ weſt, and its latitude 46° 31′ ¼ S.

At noon on the 13th, the obſerved latitude was 46° 00′ ſouth, and the longitude, by the chart, 193° 49′ 30″ weſt; after which the ſhip ran north 60° E. 12¾ miles, N. 37° E. 5½ miles, N. 15° E. 2¾ miles, S. 75° E. 5 miles, and N. 26° E. 9 miles, to ſun-ſet; and then the WEST CAPE bore due ſouth, and was diſtant 5 or 6 leagues. Hence, the Cape is 3′ 28″ north of the ſhip's ſituation at noon, and 33′ 42″, in longitude, eaſt of it: and, as the error of the chart is here 38′ in defect, the true longitude of the Cape is 193° 53′ 48″ weſt, and its latitude 45° 56′ 13″ ſouth.

March the 23d, the obſerved latitude was 40° 38′ 20″ ſouth, and the longitude, by the chart, 186° 24′ W. CAPE FAREWELL bore N. 80° E, diſtant 7 leagues; and ROCKY POINT bore S. 18° W. diſtant 6 leagues. Hence, the former of theſe points was 3′ 38″ N. of the ſhip, and 27′ 27″ E. of it, in longitude; and the latter was 17′ 7″ S. of the ſhip, and 7′ 21″ W. of it, in longitude. The error of the chart was here 28′ in defect; conſequently, the longitudes of theſe two points are 186° 24′ 33″ weſt, and 186° 59′ 21″ W. Their latitudes are 40° 34′ 42″ ſouth, and 40° 55′ 27″ ſouth.

At noon, on the 26th, STEPHEN'S ISLAND bore S. E. and was diſtant 4 or 5 miles; this iſland was, therefore, 3′ 11″ S. of the ſhip, and 4′ 10″ E. of it in longitude. The obſerved latitude of the ſhip was 40° 32′ 15″ ſouth, and its longitude, by the chart, 185° 16′ 15″ weſt; the latitude of Stephen's Iſland is, therefore, 40° 35′ 26″ ſouth, and its longitude

longitude 185° 37′ 5″ weſt, the error of the chart being 25′ in defect: CAPE STEPHENS lies S. W. 2 miles from Stephen's Iſland; and, conſequently, is in latitude 40° 36′ 50″ ſouth, and longitude 185° 38′ 57″ W.

In going into ADMIRALTY BAY, POINT JACKSON was in one with Cape Koamaroo, when they bore S. 40° E. Captain Cook, in his account of Queen Charlotte's Sound, ſays, they are 9 miles aſunder: conſequently, Point Jackſon lies 6′ 53″ to the northward, and 7′ 40″, in longitude, to the weſtward of Cape Koamaroo; and, therefore, is in latitude 40° 57′ 55″ ſouth, and in longitude 185° 10′ 37″ W. of Greenwich. I uſe the firſt determination of Cape Koamaroo.

Captain Cook took his departure from Cape Farewell, in New Zealand, on the 31ſt of March, 1770, reckoning it to lie in 40° 33′ S. latitude, and 185° 58′ W. longitude from the meridian of Greenwich: but as I have already ſhewn, that the longitude of that point is 186° 24′ 33″ W. he muſt have ſet out with an error in his account of longitude of 26′ 33″ in defect. They made the land of NEW HOLLAND on the 18thof April, and on the 19th, at noon, the longitude of the ſhip was 210° 22′ W. by this reckoning, and 210° 25′ W. by the Captain's chart of the eaſtern coaſt of that iſland, which is annexed to this work; ſo that it is plain he lay that part of the coaſt down, which he ſaw firſt, agreeable to his reckoning when he arrived on it. Indeed, the obſervations which were made on the 16th, 19th and 20th of April, did not authoriſe him to make any very conſiderable correction of it; but it is very clear, from the ſubſequent obſervations, that thoſe gave the longitude of the ſhip too little. What the error of the reckoning really was, I ſhall now endeavour to determine: premiſing, that the error of this part of the chart muſt be the error of the reckoning, for the reaſons given above.

Having marked the places on the chart which the ſhip was in when the ſeveral obſervations were made, found the longitudes of theſe places, and taken the differences between them and the mean reſult of the obſervations which were made at each place, as was done on the coaſt of New Zealand, I arranged them in a table, as follows:

1770.	Longitude by Observation.	Longitude by the Chart.	Errors of the Chart.	1770.	Longitude by Observation.	Longitude by the Chart.	Errors of the Chart.
	° ′ ″	° ′ ″	′ ″		° ′ ″	° ′ ″	′ ″
☽ Apr. 16.	207. 47. 27½	208. 18. 0*	− 30. 32½	♂ May 29.	211. 7. 35	210. 21. 45	+ 45. 50
♃ — 19.	209. 58. 37½	209. 51. 0	+ 7. 37½	♂ June 12.	214. 9. 40	214. 40. 30	− 30. 50
♀ — 20.	209. 14. 24	209. 35. 0	− 20. 36	☉ July 15.	213. 28. 20	214. 52. 30	− 84. 10
♂ May 1.	209. 11. 40	208. 40. 30	+ 31. 10	☽ — 16.	214. 37. 45	214. 52. 30	− 14. 45
☿ — 2.	210. 20. 27	208. 40. 30	+ 99. 57	♃ — 26.	215. 6 50	214. 52. 30	+ 14. 20
♃ — 3.	209. 18. 22½	208. 40. 30	+ 37. 52½	☽ Aug. 13.	213. 59. 45	214. 49. 30	− 49. 45
♀ — 4.	208. 50. 15	208. 40. 30	+ 9. 45	♂ — 14.	214. 57. 45	215. 46. 00	− 48. 15
☽ — 14.	205. 41. 15	206. 27. 15	− 46. 0	☿ — 15.	215. 44. 35	216. 24. 00	− 39. 25
♂ — 15.	205. 21. 0	206. 21. 00	− 60. 0	♀ — 24.	219. 18. 40	219. 24. 0	− 5. 20
☿ — 16.	204. 29. 55	206. 36. 30	−126. 35	♄ — 25.	219. 11. 30	219. 50. 30	− 39. 0
♃ — 17.	206. 56. 50	206. 43. 30	+ 13. 20	☉ — 26.	219. 57. 0	220. 26. 30*	− 29. 30
♄ — 19.	206. 29. 25	206. 43. 30	− 14. 5	☿ — 29.	221. 29. 10	221. 56. 0*	− 26. 50

* These longitudes are from Captain Cook's reckoning, which is a continuation of the reckoning he had kept on the chart

From this table, I find that the mean error of the chart, according to the observations which were made on the 16th, 19th and 20th of April, when the moon was on the west side of the sun, is 14′ 30″ in excess. But, from the observations which were made on the 1st, 2d, 3d, and 4th of May*, when the moon was east of the sun, the error is 44′ 41″ in defect: the mean of the two is 15′ 6″ in defect: which, I shall suppose, as usual, was the real error of the chart at that point which the ship was in on the 25th of April, the day on which the new moon happened. And this must have been nearly the error of the reckoning when they arrived on the coast; which being very little different from that which Captain Cook set out with from New Zealand, it is evident they had been very little disturbed by currents in their passage from that place.

When the observations of the 14th, 15th, 16th, 17th, and 19th of May were made, the moon was again on the west side of the sun, and the mean of the errors is 46′ 40″ in excess: the mean of this mean, and the mean of the errors when the moon was east of the sun, is 1′ 00″ in excess, which may be taken for the error of that point of the chart which the ship was in on the 9th of May, when it was full moon.

* The ship was at anchor in Botany Bay when these four observations were made.

According

According to the obſervation which was made on the 29th of May, when the moon was again on the eaſt ſide of the ſun, the error of the chart was 45′ 50″ in defect: and the mean of this, and the error when the moon was weſt of the ſun, is 0′ 25″ in exceſs; which I take for the error of that point of the chart the ſhip was in on the 24 of May, when it was new moon.

By the obſervation of the 12th of June, when the moon was weſt of the ſun, the error of the chart is 30′ 50″ in exceſs: and the mean of this and the error of the 29th of May, is 7′ 30″ in defect; which is the error of that point of the chart the ſhip was in on the 7th of June, the day of the full moon.

On the 15th and 16th of July, the moon being weſt of the ſun, the errors of the chart appear to be 84′ 10″ and 14′ 45″ in exceſs; and the mean of them is 49′ 28″: but on the 26th of July, when the moon was on the eaſt ſide of the ſun, the error appears to be 14′ 20″ in defect: the mean of the two is 17′ 34″ in exceſs. As theſe obſervations were taken while the ſhip was in Endeavour River, and when the moon was on different ſides of the ſun, the mean of them, which is 214° 34′ 56″ W. ought to be the true longitude of that place: but it will appear hereafter, that there is great reaſon to believe the obſervation of the 15th was much more in defect than that of the 26th errs in exceſs, and that the real error of the chart, at this place, is about 2′ 30″ in exceſs.

When the obſervations of the 13th, 14th, and 15th of Auguſt were taken, the moon was weſt of the ſun, and the mean of the errors of the chart is 45′ 48″ in exceſs: the mean of this mean, and the error on the 26th of July, is 15′ 44″ in exceſs; and this is the error of that point of the chart which the ſhip was in on the 6th of Auguſt, when it was full moon. But as they were, at this time, not out of ſight of Endeavour River, and could not poſſibly have altered the error of the chart ſo much as this ſeems to require, I have ventured to leſſen

this error in the following table, and to make it correſpond more with that which was found while the ſhip was in the river.

The mean of the errors which reſult from the obſervations of the 24th, 25th, 26th, and 29th of Auguſt, is 25′ 10″ in exceſs, and the mean of this mean, and 45′ 48″, the error when the moon was on the weſt ſide of the ſun, is 35′ 29″ in exceſs; and this may be taken for the error of the chart on the 20th of Auguſt, the day on which the moon changed.

When the obſervations where made on the 9th of September, Captain Cook's reckoning gave 232° 42′ W. for the longitude of the ſhip; the mean reſult of the obſervations of that day, is 232° 46′ 37″½ W.: the apparent error of the reckoning is, therefore, 4′ 37″½ in defect. The reckoning gave 233° 9′ W. when the obſervations were made on the 10th, and 233° 21′ W. when thoſe of the 11th were taken; and as the mean reſults of the obſervations on theſe two days were 233° 9′ 55″ W. and 232° 42′ 20″, the two errors will be 0′ 55″ in defect, and 38′ 40″ in exceſs: the mean of the three is 11′ 2″½ in exceſs; and the mean of this and 25′ 10″, the error, when the moon was on the other ſide of the ſun, is 18′ 6″, the error of the reckoning on the 4th of September, the day on which the moon was full.

From theſe data, I derive the following table of errors, for every day the ſhip was under way on the coaſt of New Holland, in the ſame manner that the table for New Zealand was derived.

1770.		Errors of the Chart. ′ ″
April	19.	+ 25. 36
	20.	+ 23. 51
	21.	+ 22. 6
	22.	+ 20. 21
	23.	+ 18. 36
	24.	+ 16. 51
*	25.	+ 15. 6
	26.	+ 13. 19
	27.	+ 11. 32
	28.	+ 9. 45
	29.	+ 7. 58
	30.	
May	1.	
	2.	In Botany
	3.	Bay.
	4.	
	5.	+ 6. 11
	6.	+ 4. 24
	7.	+ 2. 36
	8.	+ 0. 48
*	9.	— 1. 0.

1770.		Errors of the Chart. ′ ″
May	10.	— 0. 58
	11.	— 0. 56
	12.	— 0. 54
	13.	— 0. 52
	14.	— 0. 50
	15.	— 0. 48
	16.	— 0. 46
	17.	— 0. 44
	18.	— 0. 42
	19.	— 0. 40
	20.	— 0. 37
	21.	— 0. 34
	22.	— 0. 31
	23.	— 0. 28
*	24.	— 0. 25
	25.	+ 0. 9
	26	+ 0. 43
	27.	+ 1. 17
	28.	+ 1. 51
	29.	+ 2. 25
	30.	+ 2. 59

1770.		Errors of the Chart. ′ ″
May	31.	+ 3. 33
June	1.	+ 4. 7
	2.	+ 4. 41
	3.	+ 5. 15
	4.	+ 5. 49
	5.	+ 6. 23
	6.	+ 6. 57
*	7.	+ 7. 30
	8.	+ 6. 5
	9.	+ 4. 40
	10.	+ 3. 14
	11.	+ 1. 48
	12.	+ 0. 22
	13.	— 1. 4
*	14.	— 2. 30
The ſhip was in Endeavour River from this time to Auguſt the 4th.		

1770.		Errors of the Chart. ′ ″
Auguſt	5.	— 3. 0
	6.	— 3. 30
	7.	— 4. 0
	8.	— 4. 30
	9.	— 5. 0
	10.	— 5. 30
	11.	— 8. 30
	12.	— 11. 30
	13.	— 14. 30
	14.	— 17. 30
	15.	— 20. 30
	16.	— 23. 30
	17.	— 26. 30
	18.	— 29. 30
	19.	— 32. 30
*	20.	— 35. 29
	21.	— 34. 19
	22.	— 33. 9
	23.	— 31. 59
	24.	— 30. 49
	25.	— 29. 39

I have already ſhewn that the longitude of the ſhip on the 19th of April, at noon, was 210° 25′ W. according to the chart. By the table, the error of the chart is 25′ 36″ in defect at that place: conſequently, the true longitude of the ſhip, that day at noon, was 210° 50′ 36″ weſt; and the obſerved latitude was 37° 50′ S. They had run N. 55° E. 5¼ miles, N. 66° E. 8 miles, and N. 78° E. 4½ miles from 8 o'clock in the morning, at which time POINT HICKS bore W. ¼ S. and was diſtant 5 leagues. Hence, Point Hicks was 8¼ miles to the ſouthward, and 39′ in longitude to the weſtward of the ſhip's ſituation at noon; and, therefore, is in latitude 37° 58′¼ S. and longitude 211° 29′ 36″ W.

The ſame day at noon, the Ram-Head bore N. 20° eaſt, and was diſtant 4 leagues: it was, therefore, 11′ 16″ to the north, and 5′ 12″ in longitude to the weſt of the ſhip; and, conſequently, is in the latitude of 37° 38′ 44″ ſouth, and longitude 210° 45′ 24″ W.

Reckoning

Reckoning ſtill from the ſame ſituation, they ran eaſt 11 miles, and N. 33° E. 22¾ miles until 6 o'clock, and then CAPE HOWE bore due weſt 2 leagues. From hence it appears, that Cape Howe was 18′ 45″ to the northward, and 21′ 33″ in longitude to the eaſtward of the ſhip's ſituation at noon; and, conſequently, is in latitude 37° 31′ 15″ S. and longitude 210° 29′ 3″ W. of Greenwich.

The longitude of the ſhip at noon, on the 24th, was 208° 51′ W. by the chart, which, by the table, is 209° 7′ 51″ weſt; and the obſerved latitude was 35° 10′½ S. At this time CAPE ST. GEORGE bore due weſt, and was diſtant 19 miles; conſequently, Cape St. George is in latitude 35° 10′ 30″ S. and longitude 209° 31′ 3″ W.

On the 27th, at noon, the obſerved latitude was 34° 21¾ S. and the longitude, by the chart, 208° 42′ W. that is, 208° 53′ 32″ W. true. At this time RED POINT bore S. 27° W. and was diſtant 3 leagues; conſequently, the latitude of Red Point is 34° 29′¾ S. and its longitude 208° 58′ 27″ W.

According to the chart, the longitude of BOTANY BAY is 208° 40′ 30″ weſt, and the error of the chart in that place, is 7′ 58″ in defect; conſequently, the longitude of this Bay is 208° 48′ 28″. The obſerved latitude is 34° 6′ S. The obſervation was made on ſhore, juſt within Point Solander.

May the 7th, at noon, CAPE THREE POINTS bore S. W. diſtant 5 leagues. The latitude was obſerved to be 33° 21′ 30″ S. and the ſhip's place on the chart, was 208° 19′ W. which, as the error here is 2′ 36″ in exceſs, is 208° 21′ 36″ W. true: and, conſequently, the latitude of Cape Three Points is 33° 32′ 6″ ſouth, and its longitude 208° 34′ 21″ W.

On the 10th, at noon, the obſerved latitude was 32° 53′ 30″ ſouth, and the longitude, by the chart, 208° 2′ 45″ W. or 208° 1′ 47″ true, becauſe the error is here 58″ in exceſs. They ran N. 53° E. 7 miles, and

N. 59°

N. 59° E. 8½ miles, and then had POINT STEPHENS due weſt of them, and diſtant 1 mile. Hence, Point Stephens was 8′ 30″ north of the ſhip's ſituation at noon, and 13′ 48″ in longitude eaſt of it; and, conſequently, is in latitude 32° 45′ S. and longitude 207° 48′ W.

The 13th, at noon, SMOKY CAPE bore S.W. and was diſtant 4 leagues. The latitude obſerved that day was 30° 43′ S. and the longitude on the chart, 206° 46′ weſt, which is 206° 45′ 8″ true: conſequently, the latitude of Smoky Cape is 30° 54′ 18″ ſouth, and its longitude 206° 58′ 20″ W.

May the 15th, at noon, CAPE BYRON bore N. W. by W. and was diſtant 3 miles. The latitude of the ſhip was 28° 40′ S. and its longitude, by the chart, 206° 26′ weſt, which is 206° 25′ 12″ true: conſequently, the latitude of Cape Byron is 28° 38′ 20″ S. and its longitude 206° 28′ 2″ W.

POINT DANGER bears N. E. by E. from Mount Warning, and N. 2° E. from Cape Byron, from which it is diſtant 30 miles. Its latitude is, therefore, 28° 8′ 22″ ſouth, and its longitude 206° 26′ 50″ W.

May the 16th, at noon, the latitude of the ſhip was obſerved to be 27° 48′ 20″ ſouth, and its longitude was 206° 27′ W. by the chart; that is, 206° 26′ 14″ true. At this time the point which is immediately to the ſouthward of CAPE MORTON, bore due north; and, conſequently, is in the ſame longitude that the ſhip was then in; but there are no data in the Journals from which the latitude of this point can be determined better than it can be done by the chart. This Point and Point Danger, are ſo nearly on the ſame meridian, that it is impoſſible to ſay, with certainty, which of them forms the moſt eaſterly Cape of New Holland.

CAPE MORTON bears N. ¼ W. from the point which I have here been ſpeaking of: but I can meet with no other datum in the journals which relates to it.

May the 20th, at noon, the obſerved latitude was 24° 26′ ſouth, and the longitude, by the chart, 206° 45′ weſt, which makes 206° 44′ 23″ true. SANDY CAPE bore S. ¾ W. and was diſtant 20 miles. The latitude of this Cape is, therefore, 24° 45′ 48″ ſouth, and its longitude is 206° 47′ 38″ W.

The longitude of Buſtard Bay, in which they were at anchor on the 23d, at noon, is 208° 22′ ½ W. by the chart; which, as the error of the chart is there 28″ in exceſs, is 208° 22′ W. true.

On the 24th, at noon, the obſerved latitude was 23° 51′ 45″ ſouth, and the longitude, by the chart, 208° 36′ weſt, or 208° 35′ 35″ true. At this time the NORTH HEAD of Buſtard Bay bore S. 62° E. and was diſtant 10 miles. Hence, the latitude of the North Head is 23° 56′ 27″ ſouth, and its longitude is 208° 25′ 55″ W.

At noon, on the 25th, CAPE CAPRICORN bore S. 60° E. and was diſtant 2 leagues. The obſerved latitude of the ſhip was 23° 23′ 40″ ſouth, and the longitude, on the chart, 209° 0′ weſt, which is the true longitude, becauſe the error of the chart is there nothing. Hence, the latitude of Cape Capricorn is 23° 26′ 40″ ſouth, and its longitude is 208° 54′ 20″ W.

On the 27th, at noon, CAPE MANIFOLD bore N. N. W. and was diſtant 10 miles. The latitude, by obſervation, was 22° 53′ 20″ ſouth, and the longitude, by the chart, 209° 18′ weſt, which, as the error of the chart is here 1′ 17″ in defect, is 209° 19′ 17″ true: hence, the latitude of Cape Manifold is 22° 44′ 5″ ſouth, and its longitude is 209° 23′ 27″ W.

At noon, on the 28th, CAPE TOWNSHEND bore S. 74° E. and was diſtant from the ſhip 13 miles. The latitude obſerved, was 22° 7′ 48″ ſouth, and the longitude, by the chart, 210° 3′ weſt, which, adding 1′ 51″ for the error of the chart, is 210° 4′ 51″; conſequently, Cape Townſhend is in latitude 22° 11′ 23″ ſouth, and longitude 209° 57′ 30″ W.

The

The latitude obſerved while the ſhip was at anchor in THIRSTY SOUND was 22° 5′ 30″ ſouth, and the longitude is 210° 21′ W. by the chart: to this 2′ 59″ muſt be added for the error, and it will give 210° 23 59″ W. for the longitude of this Sound.

June the 1ſt, at noon, CAPE PALMERSTON bore W. by N. and was diſtant 3 leagues. The obſerved latitude was 21° 29′ 20″ ſouth, and the longitude, by the chart, 210° 48′ 30″ W.: if to this 4′ 7″ be added for the error, the true longitude of the ſhip will be 210° 52′ 37″ W.; conſequently, the latitude of Cape Palmerſton is 21° 27′ 35″ ſouth, and its longitude 211° 2′ 5″ W.

CAPE HILSBOROUGH bore W. ½ N. on the 2d, at noon, and was diſtant 7 miles. The obſerved latitude was 20° 55′ 40″ S. and the longitude, by the chart, 211° 16′ W. which, as the error is here 4′ 41″ in defect, is 211° 20′ 41′ true. Hence Cape Hilſborough is in 20° 55′ S. latitude, and 211° 28′ 8″ W. longitude.

CAPE CONWAY, bore S. 19° weſt, and was diſtant 4 miles on the 3d of June, at noon. The latitude was 20° 26′ 24″ ſouth, by obſervation, and the longitude 211° 27′ W. by the chart; that is, as the error is here 5′ 15″ in defect, 211° 32′ 15″ true: conſequently, the latitude of Cape Conway is 20° 30′ 10″ S. and its longitude 211° 33′ 42″ W.

On the 4th, at noon, CAPE GLOUCESTER bore S. 63° E. and was diſtant 7½ leagues. The obſerved latitude was 19° 47′ 30″ S. and the longitude, by the chart, 212° 10′ W. which being increaſed by 5′ 49″, the error of the chart in this place, gives 212° 15′ 49″ W. for the true longitude of the ſhip, at noon. Hence, the latitude of Cape Glouceſter will be found 19° 57′ 43″ S. and its longitude 211° 54′ 30″ W.

HOLBOURN ISLE lies N. by W. ½ W. from Cape Glouceſter, and is 5 or 6 leagues from it.

On the 6th, at noon, CAPE CLEVELAND bore S. ½ E. and MAGNETICAL ISLAND S. W. by S. ½ weſt; each of them being about 2 leagues diſtant: conſequently, Cape Cleveland was 5′ 58″ to the ſouthward, and 0′ 37″ in longitude to the eaſtward of the ſituation of the ſhip; and Magnetical Iſland was 4′ 38″ ſouth, and 4′ 0″ in longitude, weſt of it. The latitude of the ſhip was 18° 59′½ S. by obſervation, and its longitude, by the chart, 213° 18′ weſt, or 213° 24′ 57″ true. Hence, the latitude of Cape Cleveland is 20° 5′ 28″ S. and its longitude 213° 24′ 20″ weſt; and the latitude of Magnetical Iſland is 20° 4′ 8″ S. and its longitude 213° 28′ 57″ W.

June the 8th, at noon, the latitude, by obſervation, was, 17° 59′ ſouth, and the longitude by the chart, 213° 58′ 30″ W. which, as the error of the chart is here 6′ 5″ in defect, is 214° 4′ 35″ true. CAPE SANDWICH bore S. by E. ½ E. diſtant 19 miles, and DUNK ISLE due weſt, diſtant 2 miles. Hence, the latitudes of theſe two places are, 18° 17′ 11″ S. and 17° 59′ ſouth; and their longitudes are 213° 58′ 47″ W. and 214° 6′ 41″ W.

On the 9th, at noon, they were a-breaſt of CAPE GRAFTON, which bore weſt, and they were about a mile from it. The latitude obſerved was 16° 53′½ S. which, of courſe, is the latitude of Cape Grafton; and the longitude, by the chart, was 214° 11′ 30″ W. which as the error is here 4′ 40″ in defect, is 214° 16′ 10″ true; conſequently, the longitude of Cape Grafton is 214° 17′¼ W.

From this place to ENDEAVOUR RIVER the journals afford no data by which the ſituation of any point of land can be determined better than by the chart, and allowing the proper error. They had, indeed, ſomething elſe to attend to, for on the 11th, in the evening, the ſhip ran a-ground on a ledge of Coral Rocks, and lay there until the following evening; and when they got her off, they found her ſo much damaged that it was with the utmoſt difficulty and fatigue they got her into that place, where they lay her a-ground and repaired her in the beſt manner they were able. They lay in Endeavour River, from the

the 17th of June to the 4th of Auguſt; and during that interval, many obſervations were made for determining the ſituation of the place: but, owing to Mr. Green's bad health at that time, not under all the advantages which might have been taken, I ſhall, however, make the moſt of them to the beſt of my judgment.

For the LATITUDE.

			° ′ ″		° ′ ″	
June 20th.	Meridian Altitude ⊙'s L. L.		50 54	Latitude,	15 27 15	South.
22d.	Meridian Altitude ⊙'s L. L.		50 55	Latitude,	15 26 30	
24th.	Meridian Altitude ⊙'s L. L.		50 54	Latitude,	15 27 12	
26th.	Meridian Altitude ⊙'s L. L.		50 57	Latitude,	15 27 00	
28th.	Meridian Altitude ⊙'s L. L.		51 2	Latitude,	15 27 30	
July 1ſt.	Meridian Altitude ⊙'s L. L.		51 13	Latitude,	15 27 40	
	Latitude of Endeavour River	- - - -			15 27 11	South.

For the LONGITUDE.

The firſt Satellite of Jupiter was obſerved to emerge at Greenwich on the 13th of July, at 9ʰ 5′ 7″, and on the 5th of Auguſt, at 9ʰ 19′ 41″ apparent time, with the ſix-feet reflector. Dr. Maſkelyne has found by experience, that the emerſions of this ſatellite are ſeen about 20″ ſooner with the ſix-feet reflector than they are with the two-feet ones, which, Mr. Green and Captain Cook uſed: therefore, thoſe two emerſions would have happened at 9ʰ 5′ 27″, and 9ʰ 20′ 1″ apparent time, reſpectively, if they had been obſerved with ſuch a teleſcope as they made uſe of. Theſe two emerſions are put down in the Nautical Almanac at 9ʰ 5′ 9″ and 9ʰ 19′ 41″ apparent time; from which it appears, that the eclipſes of Jupiter's firſt ſatellite are put down ſooner by 18 or 20 ſeconds in the Nautical Almanac about that time, than they could be ſeen with a two-feet reflecting teleſcope. I have not made any uſe of the emerſion of the firſt ſatellite which was obſerved at Greenwich on the 11th of June, becauſe Jupiter had not paſſed his oppoſition to the ſun quite 36 hours when the obſervation was made, which ſeems to have affected it very materially. Having determined the errors of the numbers in the Nautical Almanac, about the time when the obſervations were made at Endeavour River, the longitude of that place may be determined from them as follows:

		h ′ ″		
Time of emerſion in the Nautical Almanac	June 29th,	5 17 25		
Add for the error of computation —— ——		19		
Apparent time of the emerſion at Greenwich	June 29th,	5 17 44		
Time obſerved by Mr. Green at Endeavour River	June 28th,	14 58 49		
Longitude of Endeavour River, weſt ——		14 18 55		
Apparent time of emerſion at Greenwich	June 29th,	5 17 44		
Time obſerved by Capt. Cook at Endeavour River	June 28th,	14 59 18		
Longitude of Endeavour River, weſt —— ——		14 18 26		
Time of emerſion in the Nautical Almanac	July 16th,	22 2 22		
Add for the error of computation —— ——		19		
Apparent time of the emerſion at Greenwich	July 16th,	22 2 41		
Time obſerved by Mr. Green at Endeavour River	July 16th,	7 39 51		
Longitude of Endeavour River, weſt ——		14 22 50		
Apparent time of the Emerſion at Greenwich	July 16th,	22 2 41		
Time obſerved by Captain Cook at Endeavour River		7 41 31		
Longitude of Endeavour River, weſt ——		14 21 10		
			° ′ ″	
The mean of the four is —— ——		14 20 20¼	= 215 5 4	W.
The lunar obſervations (ſee page 129) gave ——			214 34 56	W.
The mean of the two means is —— —— ——			214 50 00	W.
By the chart it is —— —— —— —— ——			214 52 30	W.
Error of the chart at Endeavour River, too much —— ——			2 30	

On the 6th, at noon, the obſerved latitude of the ſhip was 15° 17′½ S. and the longitude, by the chart, 214° 33′ weſt, which, allowing the error, 3′ 30″ in exceſs, is 214° 29′ 30″ W. At this time CAPE BEDFORD bore W.N.W.½W. and was diſtant 5 leagues. Cape Bedford, therefore, lies in 15° 13′ 9″ S. latitude, and 214° 44′ 21″ W. longitude. On the 8th, at noon, the obſerved latitude was 15° 10′ S. and the longitude, by the chart, 214° 36′ weſt, or 214° 31′ 30″ corrected. At this time, Cape Bedford bore W.S.W. and was diſtant 3 leagues and a half, which places the Cape in 15° 14′ S. latitude, and 214° 41′ 35″ W. longitude. The mean of the two determinations, is 15° 13′ 35″ S. and 214° 43′ W.

CAPE

CAPE FLATTERY bore S. S. W. and was diſtant 2 leagues on the 10th, at noon, when the obſerved latitude was 14° 51′ 30″ S. and the longitude, by the chart, 214° 42′ weſt, which is 214° 36′ 30″ weſt true. Hence, the latitude of Cape Flattery is 14° 57′ 3″ S. and its longitude, 214° 38′ 54″ W.

From this time to the 21ſt, at noon, the journals afford no aſſiſtance for determining the ſituations of the land better than the chart will do it, when the proper error is allowed: but that day, the obſerved latitude was 10° 38′ 15″ S. and the longitude, by the chart, 218° 18′ W. which, as the error here is 34′ 19″ in exceſs, is 217° 43′ 41″ weſt true. At this time, YORK CAPE, or the moſt northerly point of New Holland, bore S. 88° W. and was diſtant 3 or 4 miles: conſequently, York Cape is in latitude 10° 38′ 20″ S. and longitude 217° 47′ 40″ W.

After Captain Cook paſſed York Cape, he took up his numerical reckoning again, ſuppoſing that point to be ſituated as he has placed it on the chart; ſo that he ſet out with the error of that point in his reckoning, let it be what it will. The following table, exhibits the ſhip's place every day at noon, from her quitting the chart to her arrival in the Straits of Sunda, both according to the Captain's reckoning; and according to that reckoning after it has been corrected by the numbers which ſtand in the fourth column: theſe numbers being derived in the uſual manner, except that the error on the 1ſt of October, was determined from the bearings and diſtances of Cracatoa and Prince's Iſland, that day at noon, and the known longitudes of theſe places.

1770.	Latitude of the Ship South.	Longit. by Account. West.	Error of Account.	Corrected Longitude. West.	Remarks.
	° ′	° ′	° ′	° ′	
♄ Aug. 25.	10. 18	219. 39	30	219. 9	
☉ —— 20.	10. 10½	220. 12	— 28	219. 44	
☽ —— 27.	9. 56	221. 0	— 27	220. 33	
♂ —— 28.	8. 51⅔	221. 27	— 26	221. 1	
☿ —— 29.	8. 18⅓	221. 44	— 25	221. 19	The Iſland of St. Bartolomeo N. 74° E. diſtant 20 miles.
♃ —— 30.	8. 37	222. 34	— 24	222. 10	
♀ —— 31.	8. 11⅔		— 23		The ſhip 10 miles north of the log.
♄ Sept. 1.	7. 39	222. 42	— 22	222. 20	
☉ —— 2.	7. 14	222. 30	— 20	222. 10	
☽ —— 3.	6. 15½		— 19		
♂ —— 4.	6. 43¾	223 51	— 18	223. 33	
☿ —— 5.	7. 23¾	225. 41	— 17	225. 24	Saw land, which they ſuppoſed was the Arrou Iſlands.
♃ —— 6.	8. 14⅞	227. 47	— 16	227. 31	
♀ —— 7.	9. 35½	229. 34	— 16	229. 18	
♄ —— 8.	9. 35⅚	231. 17	— 15	231. 2	The ſhip 6′ ſouth of the log.
☉ —— 9.	9. 43	232. 7	— 14	231. 53	The ſhip 10′ ſouth of the log.
☽ —— 10.	10. 0	233. 27	— 13	233. 14	The ſhip 15′ ſouth of the log.
♂ —— 11.	9. 35¾	233. 54	— 12	233. 42	
☿ —— 12.	9. 35⅞	234. 12	— 11	234. 1	
♃ —— 13.	9. 45	234. 12	— 10½	234. 1½	
♀ —— 14.	9. 54⅛		— 10		
♄ —— 15.	10. 1		— 9		South end of Timor S. W. by W. diſtant 3 leagues
☉ —— 16.	10. 23	235. 57	— 8	235. 49	South end of Timor N. N. W. diſtant 5 or 6 leagues
☽ —— 17.	10. 27	237. 31	— 7	237. 24	Savu, S. W. by S. diſtant from the ſhore 1 mile.
♂ —— 18.					
☿ —— 19.					At anchor in Seba Bay, in the Iſland of Savu.
♃ —— 20.					
♀ —— 21,	10. 33		— 6		
♄ —— 22.	10. 9	238. 56	— 5½	238. 50½	
☉ —— 23.	11. 10	240. 38	— 5	240. 33	
☽ —— 24.	11. 5½	242. 23	— 4	242. 19	
♂ —— 25.	11. 12⅔	244. 30	— 3	244. 27	
☿ —— 26.	11. 10	246. 31	— 2	246. 29	
♃ —— 27.	10. 46	249 52	— 1	249. 51	The ſhip 25′ north of the log.
♀ —— 28.	10. 50	252. 11	— 0½	252. 10½	
♄ —— 29.	9. 31	254. 10	0	254. 10	
☉ —— 30.	7. 34	255. 13	+ 1	255. 14	
☽ Oct. 1.	6. 29	254. 44	+ 2	254. 46	The Iſland of Cracatoa, N. 40° E. diſtant 7 leagues, and Prince's Iſland, S. 21 E. diſtant 3 leagues.

On the 29th of Auguſt, at noon, the Iſland of St. Bartolomeo, on the coaſt of New Guinea, bore N. 74° E. and was diſtant 20 miles, conſequently, the true latitude and longitude of the ſhip, as appears from the table, being 8° 18′ 20″ S. and 221° 19′ W. reſpectively, the latitude of that iſland will be 8° 12′ 50″ S. and its longitude 221° 0′ W.

On the 30th of Auguſt, at noon, the latitude of the ſhip was obſerved to be 8° 37′ ſouth; and its longitude, as appears from the table, was 222° 10′ W. From this time they ran N. 66° W. 4 miles, and N. 88° W. 21½ miles to 6 o'clock in the evening, when POINT ST. AUGUSTINE, or WALSCHE CAPE bore due north, and was diſtant about 4 leagues. Hence, the latitude of this point of land is 8° 23′ S. and its longitude 222° 35′ W.

It is neceſſary to remark here, that the bearing of Cape Walſche, which is put down with the obſervations of the 29th of Auguſt, 1770, (ſee p. 57) is copied literally from Mr. Green's memorandum-book, in which the obſervations appear to have been written down at the time they were taken. The preceding bearings of that point are taken from Captain Cook's journal: both cannot be right, becauſe they are on different days. I am rather inclined to think that Mr. Green miſtook ſome other point for Cape Walſche, and that Captain Cook is right; becauſe, if Mr. Green had been right, Captain Cook could not have ſeen any part of the land the next day in the poſition which he did.

I muſt take this opportunity of obſerving, likewiſe, that the meridional altitudes of the ſun's lower limb, which are put down to the 3d and 4th of September, 1770, on the ſame page, are copied from Mr. Green's book; but I now find it pretty certain that they are each of them a degree too little; in conſequence of which, the latitudes of theſe days are a degree too great. The latitudes ought undoubtedly to be 6° 15′¼ S. and 6° 43′¼ S. as Captain Cook has them, and as they ſtand in the foregoing table.

At 5 o'clock on the 5th of September, in the morning, land, which they took to be one of the ARROU Iſlands, bore due north, and was diſtant 2 or 3 leagues. From this time to noon, they ran S. 70° W. 35° ½ miles, when they were in latitude 7° 23′¼ S. and longitude 225° 24′ W. Hence, this land will be found to lie in the latitude of 7° 3′½ S. and longitude 224° 51′ W.

At noon, on the 6th, they ſaw land, which bore from north to weſt, and was diſtant 5 or 6 leagues. From hence the middle of this land bore north weſt, and was 12 miles to the north of the ſhip, and as many in longitude weſt of it; conſequently, as the latitude of the ſhip was then 8° 15′ ſouth, and its longitude 227° 31′ weſt, the latitude of this land muſt be 8° 3′ ſouth, and its longitude 227° 43′ weſt. Captain Cook entertained no doubt of this being the iſland called TIMOR LAUT.

On the 15th, at noon, the ſouth end of TIMOR bore S. W. by W. and was diſtant 3 leagues. The latitude of the ſhip was then 10° 1′ S.: conſequently, the latitude of the ſouth end of Timor is 10° 6′ S. On the 16th, at noon, the latitude of the ſhip was 10° 23′ ſouth, and its longitude 235° 49′ W. The ſouth end of Timor bore N. N. W. and was diſtant 5 or 6 leagues: hence, the latitude of the ſouth end of Timor is 10° 7′¾ ſouth, and its longitude 235° 55′ 24″ W. The mean of the two latitudes is 10° 6′ 52″ S.

On the 17th, at noon, the iſland of SAVU bore S. W. by S. and they were about a mile from the ſhore. The ſhip was then in 10° 27′ ſouth latitude, and 237° 24′ weſt longitude: conſequently, the N. E. ſide of this iſland is in 10° 28′ S. latitude, and longitude 237° 25′ weſt of Greenwich.

From this time nothing material to my purpoſe occurred until the 1ſt of October; on which day, at noon, the iſland of CRACATOA bore N. 40° E. and the middle of PRINCES ISLAND S. 21° eaſt, from which, the latitude of the ſhip, and the known ſituations of theſe two

two iſlands*, I infer, that the true longitude of the ſhip was 254° 46′ W; and, as Captain Cook's reckoning gave 254° 44′ weſt; I conclude, that the error of his reckoning was then 2 minutes in defect. Captain Cook ſays, he allowed 20 miles each day during the paſſage from Savu to Java-Head for the effects of a weſterly current, which he ſuppoſed runs very ſtrong at this time of the year, and found it to anſwer very well.

From this time to that of their arrival at BATAVIA, the journals afford no data to determine any thing from to the purpoſe; nor after they left that place until they took their departure from JAVA HEAD, on their return home, by the Cape of Good Hope; from which time I ſhall endeavour to inveſtigate the rout they took as follows:

When the obſervations were made on the 6th of February, the longitude by account was 85° 56′ 18″ E. and it was 83° 39′ 24″ E. when the obſervations were made on the 7th: the mean reſults of the obſervations of theſe two days are 83° 57′ E. and 81° 28′ 19″ E. the errors of the reckoning appear, therefore, to be 1° 59′ 18″, and 2° 11′ 5″ in exceſs; and the mean of them is 2° 5′ 12″ in exceſs. The moon was now weſt of the ſun.

On the 20th, 21ſt, 22d, 23d, and 24th, the moon was eaſt of the ſun; and the longitude by account, when the obſervations of theſe days were made, were 59° 32′ 36″ eaſt, 57° 8′ 30″ eaſt, 54° 49′ 18″ eaſt, 52° 48′ 30″ eaſt, and 50° 40′ 18″ eaſt. The mean reſults of the obſervations are 55° 27′ 15″ eaſt, 53° 3′ 8″ eaſt, 50° 25′ 10″ eaſt, 47° 54′ 55′ eaſt, and 45° 8′ 30″ eaſt: conſequently, the errors of the reckoning will be 4° 5′ 31″, 4° 5′ 22″, 4° 24′ 8″, 4° 53′ 35″ and 5° 33′ 48″ in exceſs; of which the mean is 4° 36′ 20 in exceſs, and the mean of this and 2° 5′ 12″, the error when the moon was weſt of the ſun, is 3° 20′ 46″ in exceſs; and which I ſuppoſe was the error of the reckoning on the 14th of February, when the new-moon happened.

* I ſuppoſe Cracatoa to be in latitude 6° 6′ ſouth, and longitude 254° 24′ weſt, and Princes Iſland to be in latitude 6° 36′¼ ſouth, and longitude 205° 44¼ weſt.

The

The moon was again weſt of the ſun when the obſervations were made on the 7th, 8th, and 10th of March; and the mean reſults of theſe obſervations are 27° 31′ 0″ eaſt, 28° 0′ 35″ eaſt, and 28° 25′ 50″ E. on the 7th, 24° 11′ 5″ E. on the 8th, and 21° 30′ 20″ E. on the 10th. The longitudes of the ſhip, according to Captain Cook's reckoning, at theſe times, were 38° 3′ 42″ eaſt, 37° 57′ 15″ eaſt, 37° 55′ 30″ eaſt, 35° 24′ 24″ eaſt, and 33° 49′ 48″ eaſt: conſequently, the ſeveral errors appear to be 10° 32′ 42″, 9° 57′ 12″, 9° 29′ 40″, 11° 13′ 19″, and 12° 19′ 28″ in exceſs. The mean of the whole is 10° 42′ 28″ in exceſs; and the mean of this and 4° 36′ 20″, the apparent error when the moon was eaſt of the ſun, is 7° 39′ 24″ in exceſs, which muſt have been the error of the reckoning, on the 1ſt of March, at noon, when the moon was at the full.

On the 13th of March, at noon, the longitude of the ſhip, by account, was 31° 16′ E. and the Cape of Good Hope bore S. E. and was diſtant 4 leagues: hence, the longitude of the Cape was 31° 26′ 18″ eaſt, according to the reckoning: but the true longitude of the Cape is known to be 18° 23′ 15″ eaſt; conſequently, the error of the reckoning was now 13° 3′ 3″ in exceſs. From theſe data, I have conſtructed the following table, which exhibits the place of the ſhip every day at noon, during her paſſage from Java Head to the Cape of Good Hope, by Captain Cook's reckoning; the error of his reckoning according to the obſervations, and the place of the ſhip corrected by that error.

1771.	Latitude of the Ship. S.	Longit. of the Ship by Account. East.	Error of the Reckoning.	True Longitude of the Ship. East.	Remarks.
	° ′	° ′	° ′	° ′	
☿ Jan. 16.	6. 45	104. 43	— 0. 0	104. 43	Java Head S. E. by S. dist. 2 leagues.
♃ —— 17.	7. 32	104. 25	— 0. 3	104. 22	
♀ —— 18.	7. 55	104. 6	— 0. 6	104. 0	
♄ —— 19.	8. 48	104. 9	— 0. 10	103. 59	
☉ —— 20.	9. 14	103. 45	— 0. 14	103. 31	
☽ —— 21.	9. 46	102. 55	— 0. 18	102. 37	
♂ —— 22.	9. 29	102. 52	— 0. 24	102. 28	
☿ —— 23.	9. 30	103. 10	— 0. 30	102. 40	
♃ —— 24.	9. 34	103. 10	— 0. 36	102. 34	
♀ —— 25.	9. 44	103. 16	— 0. 42	102. 34	
♄ —— 26.	9. 56	103. 28	— 0. 48	102. 40	
☉ —— 27.	10. 12	103. 19	— 0. 54	102. 25	
☽ —— 28.	11. 0	102. 33	— 1. 0	101. 33	
♂ —— 29.	11. 57	101. 45	— 1. 6	100. 39	
☿ —— 30.	12. 48	101. 1	— 1. 12	99. 49	
♃ —— 31.	13. 42	100. 5	— 1. 18	98. 47	
♀ Feb. 1.	14. 44	98. 20	— 1. 24	96. 56	
♄ —— 2.	15. 48	95. 44	— 1. 30	94. 14	
☉ —— 3.	16. 40	93. 44	— 1. 36	92. 8	
☽ —— 4.	17. 30	91. 28	— 1. 42	89. 46	
♂ —— 5.	18. 6	89. 6	— 1. 48	87. 18	
☿ —— 6.	18. 30	87. 32	— 1. 54	85. 38	
♃ —— 7.	18. 58	85. 40	— 2. 0	83. 40	
♀ —— 8.	19. 24	83. 20	— 2. 8	81. 12	
♄ —— 9.	19. 58		— 2. 18		
☉ —— 10.	20. 28	80. 58	— 2. 29	78. 29	
☽ —— 11.	20. 58	78. 48	— 2. 42	76. 6	
♂ —— 12.	21. 25	77. 24	— 2. 54	74. 30	
☿ —— 13.	21. 51	75. 55	— 3. 7	72. 48	
♃ —— 14.	22. 21	74. 7	— 3. 21	70. 46	
♀ —— 15.	22. 40	71. 55	— 3. 35	68. 20	
♄ —— 16.	22. 52	69. 50	— 3. 49	66. 1	
☉ —— 17.	23. 20	67. 2	— 4. 6	62. 56	
☽ —— 18.	23. 57	64. 24	— 4. 23	60. 1	
♂ —— 19.	24. 26	62. 5	— 4. 39	57. 26	
☿ —— 20.	24. 57	59. 49	— 4. 56	54. 53	
♃ —— 21.	25. 21	57. 31	— 5. 13	52. 18	
♀ —— 22.	26. 5	55. 11	— 5. 30	49. 41	Ship south of the Account.
♄ —— 23.	26. 59	53. 4	— 5. 47	47. 17	Ditto.
☉ —— 24.	27. 45	51. 3	— 6. 4	44. 59	Ditto.
☽ —— 25.	28. 49	49. 4	— 6. 21	42. 43	
♂ —— 26.	29. 6	46. 46	— 6. 39	40. 7	
☿ —— 27.	29. 30	44. 45	— 6. 58	37. 47	
♃ —— 28.	29. 37	43. 5	— 7. 18	35. 47	
♀ March 1.	29. 41	41. 44	— 7. 39	34. 5	
♄ —— 2.	30. 21	40. 24	— 8. 2	32. 22	
☉ —— 3.	31. 1	39. 8	— 8. 26	30. 42	
☽ —— 4.	31. 34	37. 34	— 8. 52	28. 42	
♂ —— 5.	31. 52	37. 14	— 9. 20	27. 54	
☿ —— 6.	32. 4	38. 34	— 9. 48	28. 46	Ship 90 miles S. of Account in 2 Days

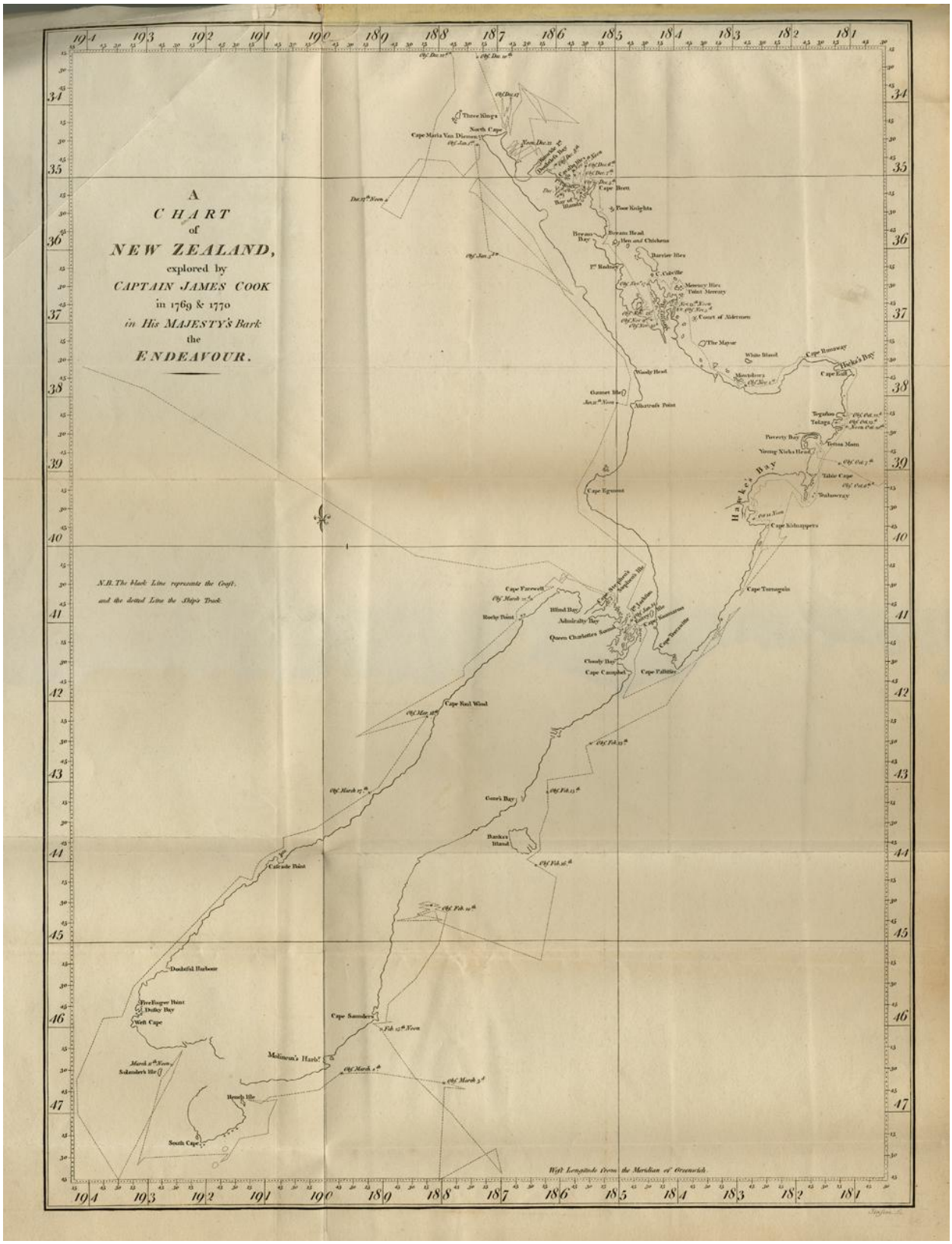
1771.	Latitude of the Ship S.	Longit. of the Ship by Account. East.	Error of the Reckoning.	True Longitude of the Ship. East.	Remarks.
	° ′	° ′	° ′	′ ″	
4 March 7.	32. 54	38. 16	— 10. 16	28. 0	
♀ —— 8.	34. 18	37. 47	— 10. 45	27. 2	Ship 93 miles S. of Acct. in 2 Days.
♄ —— 9.	35. 44	35. 17	— 11. 15	24. 2	Ship 46 miles S. of Account.
☉ —— 10.	34. 52	34. 58	— 11. 45	23. 13	Ship 14 miles N. of Account.
☽ —— 11.	34. 45	33. 35	— 12. 15	21. 20	Land due North, dist. 5 leagues.
♂ —— 12.	34. 58	32. 52	— 12. 41	20. 11	Cape La Aguilhas N. E. by N. 4 lea.
☿ —— 13.	34. 15	31. 16	— 13. 3	18. 13	The Cape of Good Hope S.E. dist. 4 lea.

I have been very particular in the construction of this table; because I wished to shew the strength, direction, and extent of the very extraordinary currents, by which the ship was affected, in its run from Java Head to the Cape of Good Hope, in the fullest and most exact manner that my materials would admit of. In order to this, I have not contented myself with allowing a proportional part of the variation in the error between each semi-lunation to have happened each day; but have augmented or diminished the daily allowance, in the proportion which the increasing or decreasing velocity of the current seems to require. The observations appear to me, to have been very well made; and I have no doubt, but that the table exhibits the true place of the ship, in longitude, each day at noon, notwithstanding the prodigious force of the current, within less than half a degree.

They made the land of Africa on the 5th of March, at 5 o'clock in the morning, and at noon it bore from N. E. by N. to W. S. W. and was distant about 4 leagues. The latitude of the ship was then, according to the table, 31° 52′ south, and its longitude 27° 54′ E.; so that this part of the coast of Africa is in latitude 31° 43′ south, and longitude 27° 45′ east; but the violence of the current renders it impossible to determine any thing of this nature with precision, and therefore I shall not attempt any thing farther.

THE END.


A
CHART
of the
Eastern Coast
of
NEW HOLLAND,
Discovered & Explored
in
1770,
By CAPTAIN JAMES COOK,
Commander of his MAJESTY'S
Bark, Endeavour.


A
CHART
of
NEW ZEALAND,
explored by
CAPTAIN JAMES COOK
in 1769 & 1770
in His MAJESTY'S Bark
the
ENDEAVOUR.
N.B. The black Line represents the Coast,
and the dotted Line the Ship's Track.
Three Kings
North Cape
Cape Maria Van Diemen
Cape Brett
Poor Knights
Bream Bay
Bream Head
Hen and Chickens
Barrier Hies
Cape Colville
Mercury Hies
Court of Aldermen
The Mayor
White Island
Cape Runaway
Hicks's Bay
Cape East
Woody Head
Gannet Ile
Albatross Point
Tegadoo
Tolaga
Poverty Bay
Young Nicks Head
Table Cape
Hawke's Bay
Cape Egmont
Cape Kidnappers
Cape Turnagain
Cape Farewell
Blind Bay
Rocky Point
Admiralty Bay
Queen Charlotte Sound
Cape Koamaroo
Cape Terawite
Cloudy Bay
Cape Campbell
Cape Palliser
Cape Foul Wind
Cook's Bay
Bankes Island
Cape Saunders
Molineux's Harb.r
Dusky Bay
Five Finger Point
West Cape
Sokander's Ile
Breach Ile
South Cape
West Longitude from the Meridian of Greenwich

Thumbs.db