Received January 25, 1770.

XIII. *Journal of a Voyage, made by Order of the* Royal Society, *to* Churchill River, *on the North-weſt Coaſt of* Hudſon's Bay; *of Thirteen Months Reſidence in that Country; and of the Voyage back to* England; *in the Years* 1768 *and* 1769: *By* William Wales.

Read March 8 and 15, 1770.

*** It muſt be obſerved, that the Aſtronomical, and not the Nautical Day, is every where to be underſtood in the following Journal.

1768.

☉ May 29th. HAVING ſettled all my affairs in London; about 22 hours I ſet off for Greenwich, where I received my inſtructions from the Rev. Mr. Maſkelyne, his Majeſty's Royal Aſtronomer.

☽ the 30th. About 2 hours went on board a Graveſend boat; got to that place about 7, and went directly on board the ſhip. A. M. delivered my inſtructions to Mr. Dymond, for him to copy, according to Mr. Maſkelyne's directions.

♂ the

♂ the 31ſt. About 2 hours weighed, and the wind being contrary, we tided it all the way from that place to Yarmouth road; where we arrived, and came to an anchor, about 20 h. on ♄, June the 4th.

We lay in Yarmouth Road until the 7th, when we unmoored, and came to an anchor in Cairſtown harbour on ☉, the 12th, about 14 hours; having had ſtrong gales, and thick weather, with drizzling rain almoſt all the time.

We lay in this place, and in the road, till ♃, the 23d, taking in ballaſt and live ſtock; having for the moſt part naſty thick, and cold fogs: About 16 hours the commodore made the ſignal to un-moor, and about 18 h. we got under way, and ſtood through Hoy-ſound. At 20 h. Hoy-head bore S. E. by compaſs, diſt. about 4 miles. At noon I obſerved the ſun's meridian altitude to be 54° 10′ ¼, whence the true lat. of the ſhip was 59° 3′ ¾; the courſe by compaſs ſince 20 h. was W. N. W. at the rate of 4 6/7 miles per hour. Hence the lat. of Hoy-head is 59° 2′ N. and if we account its long. weſt of Greenwich 3° 20′. the long. of the ſhip at this time was 4° 5′ W.

♀ the 24th. From the run and courſe of the ſhip, and different bearings therefrom, I deduced the latitudes of the following places, and their longitudes from the head of Hoy as annexed.

Skerry	lat.	59°	12′	¼	N.	long.	0°	56′	¼ W.
Stack of Skerry		59	7	¾	N.		1	3	W.
Eaſt Barra		59	7	½	N.		2	24	½ W.
Weſt Barra		59	5		N.		2	40	W.

♅ June

♃ June 29th. Being by account in long. 19° 40 W. and by a tolerable obſervation this day at noon in lat. 56° 57′ 20″ N. I took the following obſervations to aſcertain the time by Mr. Dymond's watch.

Time per watch.			Alt. ☉'s L. L.	
4h	58′	14′	27°	55¼
5	2	55		21
	3	41		15¼
	4	27		9
	5	16		0¾

The quadrant was truly adjuſted, and the height of the eye above the water about 12 feet. Hence I infer that the watch was too faſt for apparent time 3′ 53″.

At 13h 5′ the eclipſe of the moon was conſiderably begun; I eſtimated it about 3 digits.

At 14h 11′ I judged the beginning of total darkneſs happened; but clouds rendered it a little uncertain 14 11 0

Watch too faſt 3 53

Beginning of total darkneſs obſerved 14 7 7

Time at Greenwich by ſtrict calculation 15 13 50

Long. Weſt = 16 40¾ = 1 6 43

This muſt be conſiderably too little. Indeed I am of opinion my reckoning is ſo, as we have, theſe two laſt days, had a great ſwell from the eaſtward, which I have not ſkill enough in navigation to allow for.

♃ the 30th. By comparing Mr. Dymond's watch with Captain Richards's, which he ſays goes very exactly, I find that Mr. Dymond's has gained at the rate of 9′ ½ per day; and therefore 3′ 38″ muſt be taken

from the time of the obſervation, more than I yeſterday allowed, which will make the long. of the ſhip at 5 h. yeſterday 17° 35′ ¼; but this is undoubtedly too ſmall, a circumſtance which I cannot account for.

♂ July 5th. Being by account in long. 45° ¼ W. and by obſervation in Lat. 57° 43′ N. I made the following obſervations for determining the long. of the ſhip. Mr. Dymond obſerved the altitudes of the ſun, and Capt. Richards thoſe of the moon.

Diſt. ☽ & ☉ neareſt limb.	Alt. of ☉ L. L.	Alt. of ☽ L. L.
99° 30	40 41	22 57
29	41 11	22 37
25¾	41 52	21 55
23¾	42 4	21 37
23	42 20	22 24

There muſt be ſubtracted from the diſtances 48′ for the error of the quadrant: the other quadrants were right; but 3′ muſt be ſubtracted for the dip of the horizon.

The long. of the ſhip according to theſe obſervations will be found 47° 47′ ¾ W.

I did not make uſe of the teleſcope when I made theſe obſervations, as its field is too ſmall to uſe when the ſhip has much motion, which was the caſe at this time.

We were certain that we were now well a-breaſt of cape Farewell; having the two preceding days paſſed ſeveral pieces of drift-wood. This is alſo ſtrongly corroborated by the preceding obſervations.

♃ the 6th. About 4 h. we paſſed another large piece of drift-wood, which was the laſt we ſaw.

☉ the 10th. About 22 h. the lat. of the ſhip being 57° 58′ N. and long. (reckoned from the obſervation of the 5th) 51° 20′ W. I made the following

ing obſervations for determining the variation of the needle.

Alt. ☉ L.L.	Arim.
49° 51′	81 37
50 36	83 0

3′ 18″ muſt be ſubtracted from the ☉'s alt. for the dip of the horizon.

From the firſt obſervation the variation comes out 31° 33′, and from the ſecond 30° 2′; and the mean of both is 30° 47′ ½ weſterly.

♄ the 16th. The former part of theſe 24 hours we ran through ſeveral very ſtrong replings of the tide, which made us ſuſpect that we might be nearer the entrance of the Straights than our accounts ſhewed us to be; and therefore about 11 h. the whole fleet brought to, as the fog was exceeding thick. We now compared all our reckonings, and alſo with the commodore and brig's people, and found them all to agree very near: mine, which was about long. 61° W. being the headmoſt.

About 16 h. we ſaw the firſt iſle of ice; but it was at too great a diſtance for me to give any farther account of it.

☽ July the 18th. This day, and yeſterday, we have run through ſeveral very ſtrong riplings of tide; and have paſſed by many iſlands of ice; but their diſtance, and the thickneſs of the fog, rendered it impoſſible for me to give any account of them.

♂ the 19th. Paſſed within a cable's length of a very large iſland of ice, or rather frozen ſnow, for it appeared to me to be nothing elſe. It was about as high out of the water as our main-top, and was adorned both on its top and ſides with ſpires; and indented

indented in the moſt romantic manner that can be imagined.

♃ the 21ſt. At noon the fog was ſo thick that we could ſcarce ſee a man on the forecaſtle, and hearing two guns at ſome diſtance (the ſignal for bringing to) we hauled our courſes. About half an hour afterwards, we fired a gun; but having no anſwer, we tacked, and ſet our courſes, fore, and mizen ſtays; apprehending that the ſignal at noon was to tack, and that we miſſed one gun.

All the afternoon we fired guns at ſhort intervals, but could hear no anſwer. At 7 there came on a ſtrong gale, which with the riplings we were continually running through, made a very rough ſea, the waves beating continually over the quarter deck: and if we add to theſe, the thickneſs of the fog, and the great number of ice iſlands we were amongſt, our ſituation muſt be allowed to have been truly dangerous: we weathered one iſland in the morning, but by about three or four times the ſhip's length, and though ſo very near, we could not ſee its top for the fog.

♄ July the 23d. About ½ paſt 2, we made the iſland of Reſolution. which forms the north ſhore, at the entrance of Hudſon's Straits, bearing from us N. W. b. W. It lies, by my account, in lat. 60° 29′ ½ N. and long. 65° 9′ W.

☉ the 24th. This afternoon, being in lat. 61° 55 ½ N. and long. (by account) 67° 46′, I made the following obſervations for determining the variation of the needle.

Alt. ⊙ L. L.	Azimuth.		Alt. ⊙ L. L.	Azimuth.		Dip
29 50½	67 30	variat.	25 10	55 20	variat.	3′ 18″.
29 13	64 20	38° 44′	24 34	54 40	40° 52′	
28 58	63 35		24 8	52 30		
			23 50	51 45		

Hence the mean of both gives the variation 39° 48′ W.

About 10 there came along ſide of us a boat, with ſeveral Eſkimaux women, and two or three boys; but no men. They traded with the people ſome of their cloaths, and a few toys of their own making; ſuch as models of their bows, harpoons, &c. but I ſaw nothing elſe that they had to trade; nor had they any weapons, either of offence or defence, along with them. The boat is ſo well deſcribed and delineated in Crantz's hiſtory of Greenland, that it is entirely needleſs to attempt it here.

This morning we ſaw the other ſhips under the land, bearing from us N. N. E. and whom we joined about noon.

The north ſhore of theſe ſtraits ſeems to be a chain of broken iſlands, or rather, large, bare rocks; one riſing, as it were, in perſpective above another. But I cannot help obſerving, that from the accounts of authors, I expected to have found them entirely covered with ice and ſnow; whereas I found them entirely bare, except in ſome very deep vallies. I apprehend, however, that this had not long been the caſe, as the water every where kept continually tumbling down the rocks in prodigious torrents.

July the 25th. This afternoon I told 32 iſlands of ice as I ſtood on the quarter-deck. This number

is

is about double of what I have ever ſeen before, at one time.

The manner in which theſe iſlands are formed has been matter of much diſpute; and various, indeed, have been the conjectures of ſeemingly very learned authors concerning them. But I cannot, however, help thinking, that the cauſe and manner of their formation might very eaſily be made out from a few principles; and theſe facts, obvious to every one who viſits theſe Straits. But as this would lead me to controvert the opinions of ſeveral Gentlemen, who in all probability, are much more converſant in theſe things than I can pretend to be, I ſhall only here put down thoſe circumſtances; and leave it to every perſon to form his own judgment of the matter.

1ſt. The northern ſhore of theſe Straits, as it is uſually called, is one continued chain of ſmall iſlands; which form almoſt an infinite number of little bays, and inlets. 2d. The rocks which form the ſhores, are very high; and in moſt places almoſt perpendicular. 3d. The water is very deep cloſe to the ſhore, in moſt places 60 or 70, and in ſeveral 120 fathoms, and upwards. 4th. The tides riſe here ſometimes upwards of 6 fathoms, and ſet through theſe Straits with great velocity, and almoſt in all directions. 5th. There fall, during the winter ſeaſon, vaſt quantities of ſnow, and at this time the froſts are alſo very intenſe. 6th. The wind blows from the northern quarter, at leaſt, three quarters of the year. 7th. During the months of June and July, the vaſt quantities of ſnow, which lie expoſed to the ſun, melt very faſt, and the water running into thoſe bays and inlets, muſt cauſe a ſtrong current to ſet off

from the ſhore. 8th. There are no ice mountains any where on thoſe ſhores. 9th. Theſe iſlands come not from Greenland; but are continually ſeen to ſet that way, until they get out of theſe Straits; after which their courſe becomes more ſoutherly. Laſtly, they are not ice, but ſnow frozen. Theſe circumſtances, which are atteſtable by too great a cloud of witneſſes to be diſputed, will, I apprehend, form ſufficient data, whereby to give a very ſatiſfactory anſwer to the problem in queſtion.

This day, as I was obſerving the ſun's meridional altitude, there came along ſide of us three Eſkimaux in their canoes, or, as they term them, Kiacks, but who had very little to trade, except toys. None of theſe had along with them any weapon that I ſaw, except a kind of dart, evidently conſtructed for ſea purpoſes, as it had a buoy fixed to it, made of a large bladder blown up.

The men have on their legs a pair of boots, made of ſeal ſkin, and ſoled with that of a ſea horſe; theſe come barely up to their knees; and above theſe they have breeches made of ſeal, or deer ſkin, much in the form of our ſeamens ſhort trouſers. The remaining part of their cloathing is all in one piece, much in the form of an Engliſh ſhift; only it comes but juſt below the waiſt-band of their breeches, and has a hood to it, like that of a woman's cloak, which ſerves inſtead of a cap. Over theſe they have a kind of foul-weather jacket, made of the ſame leather with the legs of their boots, which they faſten very tightly about their necks and wriſts; and when they are in their Kiacks (which alſo are extremely well deſcribed by Mr. Crantz) are likewiſe faſtened

faſtened in ſuch a manner round the circular hole which admits the man's body, that not the leaſt drop of water can get into it, either from rain or the ſpray of the ſea.

The dreſs of the women differs not from that of the men, excepting that they have long tails to their waiſtcoats behind, which reach quite down to their heels; and their boots come up quite to their hips, which are there very wide, and made to ſtand off from their hips with a ſtrong bow of whalebone, for the convenience of putting their children in. I ſaw one woman with a child in each boot top.

As to their perſons, they ſeem to be low; but pretty broad built, and inclined to be fat: their hands remarkably ſmall; their faces very broad and flat; very little mouths, and their lips not remarkably thick; their noſes ſmall, and inclined to what is generally termed bottled; their eyes are black as jet, and their eye-lids ſo encumbered with fat, that they ſeem as if they opened them with difficulty; their hair is black, long, and ſtraight; and notwithſtanding that they ſeem encumbered with a ſuperfluity of fleſh, they are remarkably briſk and active; more eſpecially in the management of their Kiacks, which exceeds every thing of the kind that I have ſeen. All I can ſay with regard to their diſpoſition is, that if they really deſerve the character which authors have given of them, they are the moſt complete hypocrites that nature ever formed *.

* It may not be amiſs to obſerve here, that I have had, whilſt at Churchill, an exceeding good opportunity of learning the diſpoſition of thoſe people; as there are ſeveral of them come

♂ July 26th. This evening I obſerved the moon's meridional altitude 2° 35′ alt. of the eye 12 feet.

A little before noon the following obſervations were made for determining the magnetical variation :

⊙'s Alt. L. Limb.		Azimuth	
37	2¼	75° 25′	from a mean of 3 obſervations by the chief mate.
39	52½	89 50	from a mean of 4 obſervations by myſelf.
41	3	2 42	from a mean of 5 obſervations by Mr. Dymond.

almoſt every year, by their own free will, to reſide at the factory; and can with truth aver, that never people leſs deſerved the epithets of "treacherous, cruel, fawning, and ſuſpicious;" the contrary of which is remarkably true in every particular. They are open, generous, and unſuſpecting; addicted too much (it muſt be owned) to paſſion, and too apt to revenge what they think an injury, if an opportunity offers at that moment; but are almoſt inſtantly cool, without requiring any acknowledgement on your part (which they account, ſhameful), and I verily believe, never remember the circumſtance afterwards. Mr. Ellis obſerves, "That they are apt to pilfer from ſtrangers, eaſily encouraged to a degree of boldneſs; but as eaſily frightened." Now I cannot help thinking that he would have conveyed a much better idea of them if he had expreſſed himſelf thus: They are bold and enterprizing even to enthuſiaſm, whilſt there is a probability of ſucceſs crowning their endeavours; but wiſe enough to deſiſt, when inevitable deſtruction ſtares them in the face.

Perhaps few people have a greater genius for arts, which ſhews itſelf in every one of their implements, but particularly in their boats, harpoons, darts, bows and ſnow-eyes, which laſt are moſt excellently contrived for preſerving the eyes from the effect of the ſnow in the ſpring. But a volume might be written on theſe ſubjects, and perhaps not unentertaining.

The

The height of the eye about 12 feet. Lat. 62° 12′ N. And by calculating theſe three ſets ſeparately, and taking a mean of the three reſults, the variation will come out = 44° ¾.

It may perhaps be worthy of remark, that the iſland of God's Mercies, or, as ſome call it, the Upper Savage Iſland, lies in the mouth of an inlet, running northward; out of which come the greater part of thoſe iſlands of ice, which are ſo much taken notice of in theſe parts. I have been told by gentlemen in the Hudſon's Bay ſervice, that ſome of their ſhips have formerly been driven by the ice into this inlet, where they found a fine open ſea, without any bounds that they could ſee to the northward. This inlet is called the North-Bay.

I beg leave likewiſe to mention what I apprehend to be a miſtake in Crantz's hiſtory of Greenland, where he ſays that thoſe pieces of ice which are of a vitriol colour are ſalt, and conſiſt of ſalt water frozen to ice; but I can, from my own experience, aſſert, that when the ſalt water, which they catch by the ſea waſhing over them, is wiped clean off, they are entirely freſh. I will not take upon me to ſay that they are not made from ſalt water; but if they are, it muſt have depoſited all its ſalts before it was frozen to ice.

♀ July 27. This evening I told 58 iſlands of ice, all going directly acroſs the Straits from the mouth of the above-mentioned inlet, at the rate of ſeveral miles per hour.

From this one circumſtance, we have an irrefragable argument to prove the impoſſibility of Capt. Middleton's hypotheſis, relating to the very ſlow pro-

greſſive motion of theſe iſlands, and the long time which, he thinks, they take up in diſſolving. For, admitting his hypotheſis to be true, and that there were no other iſlands of ice but what came out of this bay; not only Hudſon's Straits, but even all the adjacent ſea would in a very few years be ſo entirely choaked up with them, that it would be impoſſible to force a ſhip amongſt them, could a maſter of one be found ſo imprudent as to venture; which muſt be inevitable deſtruction. The truth is, their motion and diſſolution are apparently ſo very quick, that I am of opinion it muſt be a pretty large iſland which is not diſſolved in one ſummer. How Capt. Middleton could drop into ſuch a palpable miſtake, is very difficult to ſay: he moſt certainly had as great an opportunity of informing himſelf of the truth of what he wrote on this ſubject, as any perſon whatever; and in this caſe had not the leaſt inducement, whatever he might be thought to have in others, to ſpeak contrary to his knowledge.

♀ July 29th. At 15 h. we hauled the wind to the ſouthward, the ice being quite thick a-head of us. At 19 h. hauled the wind to the N. W. and ſtood through the ledge of ice, as, for aught that appeared to the contrary, it might reach quite to Cape Walſingham, which now bore S. W. It conſiſted of large pieces cloſe jambed together: in the place where we attempted to paſs through, it was not quite ſo cloſe. It is really very curious to ſee a ſhip working amongſt ice. Every man on board has his place aſſigned him; and the captain takes his in the moſt convenient one for ſeeing when the ſhip approaches very near the piece of ice which is directly a-head of her, which

which he has no ſooner announced, but the ſhip is moving in a quite contrary direction to what it was before, whereby it avoids ſtriking the piece of ice, or at leaſt, ſtriking of it with that force which it would otherwiſe have done. In this manner they turned the ſhip ſeveral times in a minute; the wind blowing a ſtrong gale all the time.

A little before noon, being in lat. 62° 48′ N. and Cape Walſingham bearing S. W. by S. I made the following obſervations for determining the magnetical variations.

Alt. ⊙ L. L.	Azimuth.	Variat. W.
33° 48′	63° 40′	
34 6	68 37	37° 19′
34 39	68 30	
34 54	70 30	
35 6	72 10	39° 6′
35 11	71 0	
35 18	72 30	
— 22	70 32	39° 18′
— 30	74 30	

The alt. of the eye was 12 feet, and the mean of theſe three reſults gives 38° 34′ for the variation required. But it may be neceſſary to remark, that the very great motion which the ſhip had at the time, renders the obſervations dubious.

♄ July 30th. This evening I ſtaid upon deck till after midnight, in hopes to have obſerved the ☽'s diſtance from a ſtar; but, after trying for near an hour, I was obliged to give it up, on account of the twilights, which are amazingly bright in theſe high latitudes. There is another great inconvenience which attends obſervations of this kind here, viz. a

red hazineſs round the horizon, to a conſiderable height, rendering the ſtars very dim; but at the ſame time large, ſomething like the nucleus of a comet. I have been diſappointed by one or other of theſe, two or three times before; but this is the more vexatious, as we are now amongſt many iſlands, headlands, &c. whoſe longitudes are entirely unknown, and on which account an obſervation would have been ſingularly uſeful.

From this time to ☿, Auguſt 5th, no circumſtance material happened; but on that day I got the following obſervations for determining the longitude of the ſhip.

Diſt. ☽ & ⊙'s neareſt Limb.	Alt. ⊙ L.L.	Alt. ☽'s Cent.	Adjuſt. Quad.
73° 36′	33° 47′	48° 0′	2½+
34	34 9	47 50	2 +
32½	22	47 23	3 +
32	35	47 5	3 +
32	48	46 57	2½+
32	35 2	46 55	5)13(=2 36+
31	14	46 40	
30	21	46 35	
29½	32	46 23	
29	40	46 20	

Lat. 60° 46′½ N.

Theſe obſervations give the longit. of the ſhip W. 92°.

*** N. B. The height of the eye above the water was 12 feet.

♄ Auguſt

☽ Auguſt 6th. Mr. Dymond obſerved the following diſtances of the ſun and moon, which I have taken the liberty to tranſcribe, and calculate by Mr. Dunthorne's method.

☽ à ⊙	Alt. ⊙ L.L.	Alt. ☽ Cent.
60 56½	26 9	55 2
56	30	4
55	42	4
54	27 00	5
54	12	5
54	20	7
52½	40	5

There are no adjuſtments to be allowed; the height of the eye above the water was twelve feet: and the longitude of the ſhip, hence deduced, is 94° 2′ ¾; latit. = 59° 28′ N.

The longit. of the ſhip at noon was, according to my obſervation of the 5th, 93° 50′ } Weſt.
Mr. Dymond's of this day, 94 21 }

⊙ Auguſt 7th. About 5 ſaw the low land of Cape Churchill, bearing from the S. to S. W. b. S. but the hazineſs of the horizon made the land put on a different appearance every 4′ or 5′. I cannot help taking notice of one circumſtance, as it appears to me a very remarkable one. Though we ſaw the land extreamly plain from off the quarter deck, and, as it were, lifted up in the haze, in the ſame manner as the ice had always done; yet the man at the maſt head declared he could ſee nothing of it. This appeared ſo extraordinary to me, that I went to the main-top-maſt-head myſelf to be ſatisfied of the truth thereof; and though I could ſee it very plain both before I went up, and after I came down, yet could I ſee nothing like the appearance of land when I was there. I had often admired the ſingular ap-

pearance of the ice in theſe parts, which I have ſeen lifted up 2° or 3° at a diſtance of 8 or 10 miles, although when we have come to it, we have found it ſcarcely higher than the ſurface of the water.

At 21 h. we fired a gun, and thought we heard one in anſwer to it; which, if true, muſt have been from the factory.

♑ Auguſt 8th. We ſaw the flag-ſtaff of the factory, with the colours on it, bearing S. W. by W. but loſt it again in the haze a few minutes afterwards. At 3 we ſaw the factory-land, and the flag-ſtaff very plain, S. W. b. W. At 4 made the appointed ſignal, which was properly anſwered; after which, we bore away directly for the mouth of the river, and at 5 anchored, there being little wind, and the ebb tide was running out very ſtrong. At this time Cape Merry bore S. W. and Eſkimaux Point N. W. b. W. from whence, and the run of the ſhip ſince noon, I infer that the latit. of the factory is 58° 59′ N. and by Mr. Dymond's obſervation in 95° 33′ W. or, according to mine, 95° 2′ W.

A little before noon we weighed, and worked up the river to the uſual place where the ſhip lies, where, about two the 9th, ſhe was ſafe moored.

♆ the 10th, we went on ſhore, for the firſt time. We were met on the beach by Captain Richards, who went with us up to the factory, and introduced us, in form, to the governor, Mr. Moſes Norton, who, as well as Mr. Fowler, the perſon who ſucceeded him, behaved to us with great civility, and kindneſs. After breakfaſt, the ſurgeon of the factory was ſo kind as to walk with us ſeveral miles, to ſhew us the country.

The

The ſoil, as far as we went, conſiſted entirely of high bare rocks, or looſe gravel: amongſt the latter, there ſhoots up, in the lower places, many dwarf willows, and birch; in the higher ones ſome ſmall gooſberry buſhes; but theſe do not grow upright as in England, but creep along the gravel like the bramble brier. I ſaw beſides theſe ſome ſtrawberries, many cranberries, and a few bilberries; but none of theſe were yet ripe, except a few of the laſt. I likewiſe ſaw ſome few plants creeping amongſt the moſs; but none that I knew, except the dandelion and ſmall yarrow.

I ſaw ſome wild ducks and curlews, but could handle none of them; we ſhot a few birds, much about the ſize, colour, and make of a woodcock: theſe they call here ſtone-plover. I ſaw another bird, not much unlike a quail, which they call here the whale-bird, from its feeding on the offal of thoſe fiſh after the oil is boiled out of it. Beſides thoſe, I ſaw many, and great variety, of the gull, or ſea-mew kind; and alſo of ſmall birds, like our linnets, larks, &c. But the moſt extraordinary bird that I have yet met with is (I know not for what reaſons) called a man-of-war, and feeds on the excrements of other birds; its way of coming at its food is alſo a little extraordinary; he purſues the bird which he pitches on for his ſupply, until fear makes it void what he wants, and ſo ſoon as this happens, he catches the morſel in his mouth; after which he leaves that bird and purſues another.

I found here three very troubleſome inſects. The firſt is the moſchetto, too common in all parts of America, and too well known, to need deſcribing here.

here. The ſecond is a very ſmall flie, called (I ſuppoſe on account of its ſmallneſs) the ſand-flie. Theſe in a hot calm day are intolerably troubleſome: there are continually millions of them about one's face and eyes, ſo that it is impoſſible either to ſpeak, breathe, or look, without having one's mouth, noſe, or eyes full of them. One comfortable circumſtance is, that the leaſt breath of wind diſperſes them in an inſtant. The third inſect is much like the large fleſh-flie in England; but, at leaſt three times as large: theſe, from what part ever they fix their teeth, are ſure to carry a piece away with them, an inſtance of which I have frequently ſeen and experienced.

Auguſt 11th, 12th, 13th, 15th, 16th, 17th, and 18th, we got on ſhore the obſervatory and inſtruments; but the people were all ſo buſy unloading the ſhip, and repairing the quay, craft, &c. that we could not begin to put any part of the obſervatory up.

On the 16th, I went with Mr. Fowler about ten miles up the country, which, as far as we went, was nothing but banks of looſe gravel, bare rocks, or marſhes, which are over-flowed by the ſpring tides, and do not get dry before they return, and overflow them again. Our errand was, to ſee if we could not find ſome land likely to produce corn; and in all that extent we did not find one acre, which, in my opinion, was likely to do it. In ſome of the marſhes the graſs is very long, and with much labour they cut and dry as much hay as keeps three horſes, two cows, a bull, and two or three goats, the whole winter. I ſaw many acres of land covered with fir-trees, ſome of which might be perhaps about 20 feet high: theſe grow

chiefly on the borders of the marſh-lands, or, which is the ſame thing, round the ſkirts of the rockey parts. I ſaw no other wood, of any kind, that would bear the name of trees; but, except where the rocks are entirely bare, or where the ground is covered with water every tide, it is entirely covered with low buſh-wood, after we get a few miles from the factory. Theſe ſhrubs conſiſt of willows of many kinds, birch, juniper, gooſeberry, and black currants. I ſaw ſeveral plants, very different from any which I have ever ſeen in England; but am not botaniſt enough to claſs, or even give a tolerable deſcription of them *.

Auguſt the 19th and 20th. We laid the foundation of the obſervatory in its proper place and poſition, which was on the S. E. baſtion, the higher and lower obſervatories nearly N. N. E. and S. S. W. of each other reſpectively. This place and poſition, though inconvenient in ſome reſpects, were, in my opinion, the moſt eligible for our purpoſe. We alſo got up the ſides thereof, and fixed up a ſtiff plank of dry Engliſh oak to ſcrew the clock to; this plank was about 5 ½ feet out of the ground, 4 feet in it, 16 inches broad, and 4 ½ thick, and ſupported with ſpurs to make it ſteady. There was likewiſe placed at the foot of it, in the moſt ſolid manner poſſible, a ſtone of about a quarter of a ton weight, with a flat ſurface, to ſet the bottom of the clock-caſe on; ſo that the clock ſtood entirely independent of the obſervatory.

* I have brought ſome of them home with me in the beſt manner I could; but imagine they are not worth notice, on account of my want of experience in drying them.

The

The 22d and 23d, the people were allowed to write to their friends in England, ſo I employed myſelf to the ſame purpoſe.

The 24th, 25th, 26th, and 27th. The carpenters were employed in making us bed-places, &c. having hitherto had no where to lie but on the floor.

The 29th, 30th, and 31ſt, were employed on the obſervatory; we got on the circular parts and roof of each. On the 31ſt the ſhip ſailed for England.

September 1ſt, 2d, 3d, 5th, 6th, and 7th. We were employed in finiſhing the obſervatory. On the 8th we ſet up the two clocks. This morning the ſnow was about two inches deep on the plains. The 9th, put up the ſtove in the obſervatory, the two thermometers, and repaired ſuch parts as had been broken in the carriage. ♄ the 10th, we filled the barometer, and put it up; we alſo took out the quadrant, which we found much tarniſhed, eſpecially the arc, and adjuſted it ready for obſervation.

☽ Sept. 12th. I found that the roof of the obſervatory would not permit us to take zenith diſtances of any ſtars on the arch of exceſs of the quadrant, without moving it farther to the ſouthward; and as I could not hit on any method of determining the error of the line of collimation, which to me appeared ſatisfactory, except by obſervations of ſtars near the zenith, I reſolved to take up the floor of the obſervatory, and remove the piles on which the quadrant ſtood farther ſouth; and which, with the aſſiſtance of the houſe carpenter, I effected on the 16th, ſo as anſwer our purpoſe completely.

From this time to Auguſt the 28th, 1769, I kept no journal, except of the weather; the original of which

which has been given in to the Royal Society; and which is, in reality, the only thing we have to keep a journal of here in the winter ſeaſon; and therefore, what I have farther to offer is in ſhort memorandums, which I made when the circumſtance mentioned occurred to me; but as they will ſcarcely appear intelligible, in that form, to any but myſelf, I ſhall endeavour to throw it into a ſort of hiſtorical account of the ſeaſons, and manner of living, in that part of the world.

We arrived at Churchill juſt in the height of what is called the ſmall bird ſeaſon, which conſiſts of young geeſe, ducks, curlews, plover, &c. This begins about the latter end of July, and laſts till the beginning of September, when the greater part of theſe birds leave that part of the country. The geeſe then begin to go faſt to the ſouthward, and continue to do ſo until the beginning of October. This is called the autumnal gooſe-ſeaſon, in which every perſon, both native and European, that can be ſpared, is employed; but they ſeldom kill more geeſe at this time than they can conſume freſh.

By the middle of October the ground is generally covered with ſnow. The partridges then begin to be very plentiful; and as ſoon as that happens, the hunters repair to ſuch places as they think moſt probable to meet with plenty of game in. The Engliſh generally go out in parties of three or four, taking with them their guns, a kettle, a few blankets, a buffalo, or beaver ſkin coverlid, and a covering for their tent; which is made of deers ſkins, dreſſed by the natives, and ſewed together, ſo as to make it of a proper form and ſize. In pitching their tents, they have an eye

likewiſe to their own convenience with reſpect to ſhelter from the winds, and getting of fire-wood; which, it will eaſily be imagined, makes a conſiderable article here in the neceſſaries of life: I mean at this ſeaſon of the year.

Much about this time, likewiſe, we who ſtayed at the factory began to put on our winter rigging; the principle part of which was our toggy, made of beaver ſkins: in making of which, the perſon's ſhape, who is to wear it, is no farther conſulted, than that it may be wide enough, and ſo long that it may reach nearly to his feet. A pair of mittens and a cap, of the ſame, are all the extraordinary dreſs that are worn by thoſe who ſtay at the factory, unleſs we add a pair of ſpatter-daſhes, made of broad cloth, which we wear over our common ſtockings, and two or three pair of woollen ſocks, which we have on our feet. Thoſe who go out add to the fur part of their dreſs a beaver ſkin cap, which comes down, ſo as to cover their neck and ſhoulders, and alſo a neckcloth, or cravat made of a white fox's ſkin, or, which is much more complete, the tails of two of theſe animals ſewed together at the ſtump-ends, which are full as long and thick as thoſe of the Lincolnſhire weathers before they are ſhorn. Beſide theſe, they have ſhoes of ſoft-tanned mooſe ſkin, and a pair of ſnow-ſhoes about 4 feet, or 4 ½ feet long. Moſt of theſe articles of dreſs I was furniſhed with by the honourable Hudſon's Bay company; but my cheſt was broken open, after the ſhip came up the river, and every article, except the ſnow ſhoes, taken away by the officers of the cuſtoms. And though there was not one thing which

was not an article of dreſs; and though a petition was preferred to the Commiſſioners, in favour of Mr. Dymond and myſelf, yet, for ſome reaſon or other, they could not be reſtored.

But, to return to Hudſon's Bay. November the 6th, the river, which is very rapid, and about a mile over at its mouth, was frozen faſt over from ſide to ſide, ſo that the people walked acroſs it to their tents: alſo the ſame morning, a half pint glaſs of Britiſh brandy was frozen ſolid in the obſervatory. Not a bird of any kind was now to be ſeen at the factory, except now and then a ſolitary crow, or a very ſmall bird about the ſize of a wren; but our hunters brought us home every week plenty of partridges and rabbets, and ſome hares; all of which are white in the winter ſeaſon; and the legs and claws of the partridges are covered with feathers, in the ſame manner as the other parts of their bodies. We now killed two or three hogs which captain Richards had been ſo kind to leave with the governor, which before they were well opened, and cut into joints, were froze like a piece of ice, ſo that we had nothing to do but hang them up in a place where they would remain in that ſtate, and uſe them when we thought proper. We uſed ſome of theſe, I believe. in the month of May, which were as ſweet as they were the moment they were killed, and much more tender and delicate. One thing however muſt be obſerved, that if you roaſt them on a ſpit, or cut them in any manner whilſt roaſting, all the gravy will run out immediately.

In the fore end of December, I went to one of the hunters tents, where I ſtayed near a week. When

I was there, I was told by one of the people, that they had a ſpring very near them, which was not yet frozen over, notwithſtanding the ſea was frozen up as far as we could ſee, and the ice in the river was 4 or 5 feet thick. I went to ſee it; but that morning the froſt had been ſo very intenſe, that it was frozen over about an inch thick; when we broke the ice, the water was ſo ſhallow, that we raiſed all the mud from the bottom; and yet other ſprings, that were at leaſt ſix times its depth, had been frozen quite dry ſeveral weeks.

In the month of January, 1769, the cold began to be extremely intenſe: even in our little cabbin, which was ſcarcely three yards ſquare, and in which we conſtantly kept a very large fire; it had ſuch an effect, that the little alarm clock would not go without an additional weight, and often not with that. The head of my bed-place, for want of knowing better, went againſt one of the outſide walls of the houſe; and notwithſtanding they were of ſtone, near three feet thick, and lined with inch boards, ſupported at leaſt three inches from the walls, my bedding was frozen to the boards every morning; and before the end of February, theſe boards were covered with ice almoſt half as thick as themſelves. Towards the latter end of January, when the cold was ſo very intenſe, I carried a half-pint of brandy, perfectly fluid, into the open air, and in leſs than two minutes it was as thick as treacle; in about five, it had a very ſtrong ice on the top; and I verily believe that in an hour's time it would have been nearly ſolid. About the beginning of December we began to uſe ſpirits of wine for the plumb-line of the quadrant, which

which would have been evaporated to about half the quantity in a fornight's time, the ſpirituous part ſhooting up the plumb-line, and ſides of the glaſs like coral; but perfectly white. What remained would then freeze, but not before. At the beginning of the winter I hung a ſmall vial with about a tea-ſpoonful of proof ſpirits of wine by the thermometer, on the outſide of the obſervatory, and when I had well corked it up, dropped ſome water on the cork, which was inſtantly frozen to ice, and thereby ſealed the vial, in a manner hermetically. This, though it hung all the winter, never froze; nor, that I could perceive, altered its fluidity in the leaſt.

It was now almoſt impoſſible to ſleep an hour together, more eſpecially on very cold nights, without being awakened by the cracking of the beams in the houſe, which were rent by the prodigious expanſive power of the froſt. It was very eaſy to miſtake them for the guns on the top of the houſe, which are three pounders. But thoſe are nothing to what we frequently hear from the rocks up the country, and along the coaſt; theſe often burſting with a report equal to that of many heavy artillery fired together, and the ſplinters are thrown to an amazing diſtance.

On Sunday, March 19th, it thawed in the ſun, for the firſt time, and on the 26th it thawed in reality. The yard of the factory was that day almoſt covered with water. After this, it continued to thaw every day about noon when the ſun was out; and by the 23d of April, the ground was in many places bare. On the 26th it rained very faſt, almoſt the whole night, which was the firſt rain we had after October the 3d, 1768. It was really ſurprizing next morning

ing to ſee what an alteration it had made in the appearance of the country. We had now alternately ſnow and rain, froſts and thaws, as in England; the graſs began to ſpring up very faſt in the bare places, and the gooſeberry buſhes to put out buds: in ſhort, we began to have ſome appearance of ſpring.

The latter end of April, the hunters began to come home from the partridge tents, in order to prepare for the ſpring gooſe ſeaſon, which is always expected to begin about that time; and is, in truth, the harveſt to this part of the world. They not only kill, ſo as to keep the whole factory in freſh geeſe for near a month, but to ſalt as many as afterwards make no inconſiderable part of the year's proviſion. There are various ſorts of the geeſe, as the grey-gooſe, the way-way, the brant, the dunter, and ſeveral more, which I cannot now recollect. The gander of the dunter kind is, in my opinion, one of the moſt beautiful feathered birds that I have ever ſeen, their colours being more bright and vivid than thoſe of the parrot, and far more various.

Toward the latter end of May, the country began to be really agreeable; the weather being neither too hot, nor ſo cold, but that one might walk any where without being troubled with any diſagreeable ſenſation; and the dandelion, having grown pretty luxuriant, made moſt excellent ſallad to our roaſt geeſe.

On June 16th, the ice of the river broke up, and went to ſea; we now ſet our nets, and caught great plenty of fine ſalmon; I have known upwards of 90 catched in one tide. We had beſide, fiſhermen up the river, who brought us down plenty of pyke, mathoy,

mathoy, and tittymeg; theſe two laſt being fiſh peculiar to this country, and both very good. But, in enumerating the fiſh, I muſt not omit the kepling, which comes about the middle of July. This fiſh is nearly of the ſize of a ſmelt, and has exactly the ſame ſmell; but its back is much darker, and it is not quite ſo thick as a ſmelt in proportion to its length, more eſpecially toward the head: according to my opinion, it exceeds, in point of delicacy, every other fiſh whatever, and is in ſuch plenty, that they are thrown up, and left on the ſhore by the ſurf of the ſea; but then it muſt be owned that this rarity can never be had above a fortnight in a year, and ſometimes not ſo long. This fiſh is well known on the banks of Newfoundland.

About the beginning of July we likewiſe got plenty of very fine radiſhes; and the tops of our turnips began to grow large enough to boil for greens to our beef and ſalt geeſe. Moreover, towards the middle, we had very fine lettuce, ſo that if the muſchettos had not paid us a viſit about the beginning of the month likewiſe, the two or three laſt months would have been extremely agreeable; but, taking altogether, I cannot help thinking that the winter is the more agreeable part of the year.

I ſhall here add ſuch remarks as I have been able to make, relative to the natural hiſtory of the country; its inhabitants, ſoil, air, produce, &c. And firſt with reſpect to the inhabitants: They are of a middle ſize, but rather tall than otherwiſe; very ſpare and thin: I never ſaw one, either man or woman, inclined to be fleſhy; of a copper colour, wide mouths, thick lipped, and have long, ſtraight, black hair; of which

they

they are immoderately fond, and would not have it cut, except on the death of a friend, for any thing that you can give them: their eyes are black, and the moſt beautiful that I ever ſaw. The reſt of their features vary as thoſe of Europeans do. Their diſpoſition ſeems to be of the melancholic kind; good-natured, friendly, and hoſpitable to one another, and to the Europeans; and I believe the moſt honeſt creatures that are any were to be met with. They do not readily forget an injury; but will never revenge it when they are ſober. They have no laws whereby to regulate their conduct, except that of reaſon; which, in their ſober moments, they are ſeldom known to tranſgreſs. They converſe extremely well on ſubjects which they underſtand, and are remarkably clever in repartees; but ſeem to have very little genius for arts or ſcience. They lead an erratic life, living in tents, as all people muſt do, whoſe ſubſiſtence depends entirely on hunting.

They are not without ſome notion of religion, but it is a very limited one. They acknowledge two Beings; one the author of all good, the other of all evil. The former they call Ukkemah, which appellation they give alſo to their chiefs; and the latter they call Wittikah. They pay ſome ſort of adoration to both, though it is difficult to ſay what. Their opinion of the origin of mankind is, that Ukkemah made the firſt men and women out of the earth, three in number of each; that thoſe, whom we Europeans ſprang from, were made from a whiter earth than what their progenitors were, and that there was one pair of ſtill blacker earth than they. They have likewiſe

likewiſe an imperfect traditional account of the deluge; only they ſubſtitute a beaver for the dove.

With reſpect to the ſoil and its produce of the vegetable kind, I can add very little to what I ſaid on my firſt coming on ſhore. As to corn, I am well convinced, that about Churchill it will produce none, except oats: thoſe, from a trial which I have ſeen, I believe might be brought to ſome tolerable degree of perfection in time, and with proper culture. Its internal contents are, I believe, chiefly rocks; there are, however, many of them marble, and ſome very fine. I have alſo ſpecimens of copper, copper ore, mundic, ſpars, talk (different from the Muſcovite), and ſeveral pyrites; for the greater part of which, I am indebted to Mr. Jacobs, chief, and Mr. Hutchins, ſurgeon at York Fort; from whom I received many favours.

The air in this country is very ſeldom, if ever, clear for twenty-four hours together; but we were not ſo much troubled with fogs as I expected we ſhould be, from the accounts which I had read of the country, and from what we experienced in our voyage out: but in this point, as well as every other which reſpects the weather, the journal which we kept will, I preſume, be moſt ſatisfactory.

I have before mentioned the haze which is continually found near the horizon here. This, I apprehend, is the cauſe why the ſun's riſing is always preceded by two long ſtreams of red light, one on each ſide of him, and about 20° diſtant therefrom. Theſe riſe as the ſun riſes; and as they grow longer, begin to be inflected towards each other, till they meet directly over the ſun, juſt as he riſes, forming there a kind of parhelion, or mock-ſun. Theſe two

ſtreams of light ſeem to have their ſource in two other parhelia, which riſe with the true ſun; and in the winter ſeaſon, when the ſun never riſes out of the above-mentioned haze, all three accompany him the whole day, and ſet with him, in the ſame manner that they roſe. I have, once or twice, ſeen a fourth parhelion directly under the true ſun; but this is not common.

The aurora-borealis, which has been repreſented as very extraordinary in thoſe parts, bears, in my opinion, no compariſon to what I have ſeen in the north parts of England. It is always of the ſame form here, and conſiſts of a narrow, ſteady ſtream of a pale ſtraw-coloured light, which riſes out of the horizon, about E. S. E. and extends itſelf through the zenith, and vaniſhes near the horizon, about the W. N. W. It has very ſeldom any motion at all; and when it has, it is only a ſmall tremulous one on the two borders.

I ſhall now reſume my journal. Monday, Auguſt 28, we took down the inſtruments, packed them up, and put them on board the ſhip, expecting to have ſailed the next day; but unforeſeen accidents detained the captain until ♄ September the 2d, when we took leave of the governor and officers of the factory, and came on board the ſhip. We were after this detained by contrary winds until the 7th; on which day, about 15^h we ſaw the comet, which was obſerved this year in England, in a right line between ζ Orionis and Procyon; and alſo in a right line with Aldebaran, and α Orionis; but below both. About 18^h we ſailed out of the river with a fine breeze from the weſt; and at noon I obſerved, with great care, the ſun's meridional altitude

to

to be 36° 2′ ¼; from whence the latit. of the ſhip is 59° 12′ ¼ and that of the factory 58° 55′ ½.

The prodigious difference between the latitude of Churchill factory, as laid down from obſervations made by Hadley's quadrant, and that deduced from the obſervations made with our aſtronomical quadrant on ſhore, has often employed my moſt ſerious attention; but I cannot think on any probable cauſe for ſuch difference, unleſs it lie in the very great refractive power of the air in theſe parts. I have mentioned how the ice and land appear to be lifted up, when we ſtand on the ſhip's deck: and if the viſible horizon be lifted up in like manner, it muſt make its apparent diſtance from the ſun, or, which is the ſame thing, the ſun's apparent altitude leſs than it otherwiſe would be; and conſequently, the latitude greater than the truth; and alſo greater than it will be ſhewn by a land quadrant, which depends not on the horizon, agreeable to what we find it in the caſe before us *.

* Having mentioned this circumſtance to the reverend Mr. Maſkelyne, it immediately occurred to him, that the longitude deduced from obſervations of the ☽'s diſtance from the ſun or a ſtar, would be conſiderably affected by this cauſe, as not only the altitudes of the ☉, from whence the time at the ſhip is found; but alſo the latitude of the ſhip, found by an obſervation of the ſun's meridional altitude, or otherwiſe, will conſpire to encreaſe the ſun's diſtance from the meridian, or angle at the pole.

I have therefore recomputed the longitude from my obſervation of the moon's diſtance from the ſun, taken Auguſt the 5th, 1768, on a ſuppoſition that the mean error in any altitude taken by Hadley's quadrant, ariſing from this cauſe, is 10 minutes; and find that, on ſuch a ſuppoſition, which it muſt be allowed appear to be extremely well founded, the longitude will be 11′ ¼

♀ September the 8th. About $14^h \frac{1}{2}$ I ſaw the comet again, in a right line with Saturn, and β Canis minoris; and alſo in a right line with Capella, and γ Geminorum. Its tail paſſed directly over ε Orionis and might be traced about as far beyond it, as that ſtar was from the head of the comet,

☉ September the 10th. At 16^h the comet was in a right line with Caſtor and Procyon; and about 5° or 6° below the latter. This was the laſt time I ſaw it.

☿ September the 20th. Being in latit. 61° 13′ ½, and Cape Reſolution E. b. S. I made the following obſervations for determining the longit. of the ſhip.

Diſt. ☽ & ☉ near. limbs.	Alt. ☉'s lr. limb.	Alt. ☽'s l. limb.	N. B. 1 ½ muſt be ſubtracted from the ſun's alt. for the error of the quadrant, and 3 ½ from both the ☉ and ☽'s altitudes for the dip of the horizon; and then the longit. of the ſhip will come out 66° 10′ W. By account, it is 65° 30′ ½.
105° 52′ ½	17° 39′	35° 42	
50	17 50	30	
49	17 58	28	
47	18 6	12	

Before I quit this part of the world, I cannot help obſerving, that I have had abundant reaſon, in my voyage home through Hudſon's Straits, and the adjacent Seas, to reſt ſatisfied with having ventured my opinion in reſpect to the quick motion, or ſwift diſſolution, of the ice iſlands. For, ſince we left the Straits, we have not ſeen one; and though we were

leſs than what I found it at the time when I made the obſervation, and therefore the longitude of Churchill will in this caſe be only 94° 50′ ¾ W. And by making a ſimilar correction of 15′ to Mr. Dymond's obſervation of the 6th, it will give the longitude of Churchill 95° 18′ W.

becalmed,

becalmed, and much troubled with contrary winds, ſo that we lay beating from ſide to ſide about nine days in the Straits, yet we did not ſee twenty iſlands the whole time, and theſe none of them very large. Whereas, was captain Middleton's hypotheſis true, and they were ſome hundred of years diſſolving, and traveling into the latitude of 50°, they could not have got by this time quite out of Hudſon's Straits, much more out of the Straits of Davis.

We were, by my account, abreaſt of Cape Farewell on the 26th; about which time we were taken with very rough, and contrary winds, with which we were troubled almoſt all the way till we got abreaſt of Ireland.

♄ October the 7th, P. M. being by account in long. 18° 57′ W. or by my laſt obſervation in long. 19° 38′, and lat. 52° 10′ N. I had the following obſervations for determining the longit. of the ſhip.

Diſt. ☽ & ☉ neareſt L's.	Mr. Wood ☉'s L. L.	J. D. ☽'s Cent.
86° 6′	17° 2	10° 39
8	16 40	10 57
8½	16 30	11 8
10	16 3	11 27
10	15 50	11 38

1′ muſt be ſubtracted from the diſtances, 3′ from the ☽'s alt.; but ○ from the ſun's, for the errors of the quadrants; and 3′ 34″ from the ☉'s alt. and 3′ 18″ from the ☽'s for the dip of the horizon. The long. from theſe obſervations comes out = 18° 59′½ W.

☽ October the 9th. About 20 h we ſtruck ſoundings in 87 fathom water: the bottom fine white ſand. The 10th at 21 h made the Scilly light-houſe from the maſt-head; and at noon it bore directly north, by true card; the ſhip being in long. 5° 40′ W. by my

my account, in 5° 42′ ½ by my laſt obſervation, and in 6° 21′ by the former.

☿ October the 11th, latit. 49° 45′ N. I obſerved the following diſtances of the ☽ 's neareſt limb from α Aquilæ.

Time by the Watch.	Diſt. ☽ à α Aquilæ.	Alt. ☽'s center.
8h 54¾	40 55½	33 46
59	58	33 45
9 1½	59½	33 38
4¼	41 0	34

Subtract 48″ from the diſtances for the error of the quadrant; and 3½ from the ☽ 's alt. for the dip of the horizon. The watch went, as truly as it could well be regulated, to mean time.

Time by the Watch.	Alt. ☉'s L. L.
20 50	20 4½
54	8
54¾	12
56	26½
56¼	28¾

The error of the quadrant in theſe obſervations is — 48″, the dip of the horizon 3′ 34″, and the lat. of the ſhip 49° 33′, 3: and the watch will be found too ſlow for apparent time by 2′ 56″. The long. of the ſhip when I took the altitudes for determining the time was by account 4° 34′, by my firſt obſervation 5° 15′, and by the ſecond 4 36 ½ W. and it will be found by this laſt 4° 55′ W.

At noon the Lizard light-houſes bore N. E. by N. diſt. by eſtimation about eight miles; and from hence I infer that its longitude weſt from Greenwich is, by account, 4° 27′. By my firſt obſervation 5° 8′, by the ſecond 4 29 ½, and by the laſt 4° 48′. The true longitude of this place as determined by Mr. Bradley's obſervations made there (vid. preface to the Nautical Almanack of 1771) is 5° 15′ W. and therefore the greateſt error that I have committed in theſe obſervations is 45′ ½, and the mean of the three differs no more than 26′ ½ from the truth; but I apprehend

apprehend the greateſt error will be thought of very little conſequence in the practice of navigation.

I here cloſed my account of the ſhip's way; but the evening of the 12th proving very fine, and having an opportunity of obſerving the ☽'s diſtance from Aldebaran to the eaſt, and from α Aquilæ to the weſt of her; I took the following ones, as they may be of uſe, if compared together, to ſhew what degree of accuracy theſe obſervations will admit of.

Time by the Watch.	☽'s fartheſt L. à Aldeb.	Alt. of ☽ L. L.	Time by the Watch.	☽'s neareſt L. à α Aquil.	Alt. of ☽ L. L.
9h 57′	80° 19′	39° 9′	10h 13′	51° 57′	38° 55
10 6¼	80 14½	7	10 19¾	52 0½	47
10 8¼	80 12	6	10 22¼	52 1	43

The latit. of the ſhip at this time was 49° 34′ N. The error of the quadrant with which the diſtances were taken was—1′, and the dip of the horizon 3 ½. The obſervations of Aldebaran give the longitude of the ſhip 4° 10′ W. and thoſe of α Aquilæ 3° 43′ ½; but I would not be underſtood to mean that either of thoſe is the long. of the ſhip, becauſe I had no opportunity of finding the error of the watch.

On the 13th the captain, finding that he gained nothing by beating in the Channel, took a pilot on board for Plymouth; and on the 14th, about one o'clock, we came to an anchor in Hamoze. On the 16th, finding the eaſterly winds ſtill likely to continue, Mr. Dymond and myſelf took places in the ſtage, and arrived in London on the 19th about 9 in the evening.

I flatter myſelf that no gentleman will think that I have laid the preceding remarks before this learned Society,

Society, under a preſumption that they can, in any reſpect, merit their notice. There are many of them on ſubjects which I am but little acquainted with: theſe were made only for my own amuſement, and are now ſubmitted to the Royal Society, at their command, and under a thorough conviction that they will be read with thoſe candid allowances, which, I am well convinced, they ſtand much in need of. At the ſame time, I ſincerely declare, that it would give me the higheſt ſatisfaction if they ſhould be found to contain one uſeful hint, or be conducive of pleaſure to any perſon whatſoever.

I ſhall conclude the whole with the latitudes and longitudes of the following places, which are all that I had an opportunity of determining with any tolerable degree of accuracy: and theſe all depend, more or leſs, on the ſhip's run; ſome of them for conſiderable diſtances. But they are done with care, and all the accuracy that I was capable of. Thoſe that are marked thus (:) are leſs certain than the others.

Names of Places.	Latit. N.	Long. W.
Cape Reſolution,	61° 29′	65° 16
Button's Iſles,		65 20:
Saddle-back Iſland,	62 7	68 13
Iſland of God's Mercies, or Upper Savage Iſland,	62 32½	70 48½
Cape Charles,	62 46½	74 15
Saliſbury Iſland,	63 29	76 47:
Cape Walſingham,	62 39	77 48
Cape Diggs,	62 41	78 50
North End of Manſell Iſland,	62 38½	80 33
Cape Pembroke,	62 57:	82 0:

XIV. *Obſer-*