Received November 9, 1769.

VI. *An Account of the Reſult of ſome Attempts made to aſcertain the Temperature of the Sea in great Depths, near the Coaſts of* Lapland *and* Norway ; *as alſo ſome Anecdotes, collected in the former. By* Charles Douglas *Eſquire*, F. R. S. *then Captain of his Majeſty's Ship the* Emerald, Anno 1769.

Read Feb. 8, 1770.

MAY the 12th, 1769, between the iſlands of Surey and Hammerfeſt, in Lapland, in the latitude of 7° 40′, between the hours of 6 and 9 p. m. the thermometer ſtood in the open air at 27, in the ſea at the ſurface 36, and in three ſeveral depths, from 87 to 78 fathoms at the bottom, as often tried, at 39.

May 17th, in nearly the ſame place, the thermometer having at noon ſtood in the open air at 44, ſtood between 7 and 9 p. m. at 38, at the ſurface 37 ; and at the bottom in the depths of 86 and 90 fathoms, having been twice tried, at 39.

May 22d, in lat. 70° 32′, between the iſland of Hammerfeſt and the main land of Finmark, about 7 p. m.

7 p. m. the thermometer ſtood at 40, in the open air, in the ſea at the ſurface at 37; and at the bottom in 80 fathoms depth, at 39.

June 29th in the afternoon, between the iſland of Maggeroe and the main land of Lapland, in lat. 70° 54′, the thermometer ſtood in the open air at 47 in the ſea, at the ſurface at 44, and in 98 fathoms water, at the ground at 40.

July 7th at ſea, about 6 leagues diſtance from the iſland of Tromſound, in the lat. of 70° 45′, the thermometer in the open air at 46, in the ſea at the ſurface 46, and at the bottom 70 fathoms deep 44.

July 8th, in lat. 68° 43′, at the diſtance of 12 or 14 leagues from the iſland of Lofoot, in the province of Norland, the thermometer ſtood in the open air at 46, in the ſea at the ſurface 47, 260 fathoms below the ſurface, but not at the bottom, at 52: and 100 fathoms below the ſurface at 46.

July 9th, in lat. 65° 25′, the thermometer in the open air at 48, in the ſea at the ſurface 48—210 fathoms deep upon the ground at 48: and 100 fathoms below the ſurface at 46. N. B. The ſhip was then by reckoning about 20 or 25 leagues from the neareſt part of Norway.

July 10th, in lat. 64° 40′, about 30 leagues from the coaſt of Norway, the thermometer in the open air, and in the ſea at the ſurface at 52, at the ground in 141 fathom water, at 46 and 75 fathoms below the ſurface at 45.

The foregoing thermometrical experiments, made in deep water, were effected by means of a tin cylinder, containing a large quart, with an apparatus therein,

therein, ſo contrived, as to keep the thermometer ſtanding upright in the middle thereof, without touching its ſides: thus encloſed in a caſe, filled with water from along-ſide, and covered with a cap, ſo as to be perfectly water-tight, I ſunk it with the deep-ſea ſounding-lead; letting it hang juſt clear of the ground for the ſpace of half an hour, and then had it hauled up as briſkly as poſſible, and the caſe being inſtantly opened, I inſpected the thermometer. I found the inconvenience however of making the experiment in this way, becauſe of the length of time thereto neceſſary; wherefore I made a very ſmall hole in each end of the cylinder, whereby to let the water in and the air out, and ſent it down empty, to the end that it might fill as far below the ſurface as poſſible, ſuffering it however always to hang a few minutes, that it might ſurely be full before I cauſed the boat's crew to begin hauling it up. The lead, with this apparatus faſtened to the line a little above it, ſunk 260 fathoms in 3 ½ minutes, and was hauled up in 13 ½.

During my ſtay in Lapland, I made all the enquiry poſſible as to the exiſtence of the aquatic animals, called Kraakens, whoſe dimenſions (according to Pontoppidan) appear to me to be far beyond the ſcale of nature; but I never met with any perſon who had either talked with, or heard of, any one living, who had ſeen any ſuch monſters; on the contrary, the moſt intelligent ſaid, they believed ſuch never exiſted otherwiſe than in imagination. But with regard to the Stoor Worms (which I have oftener heard called Sea Worms by the Norwegians), thoſe who totally diſcredited the exiſtence of the Kraakens

told me, they believed them really to exiſt: and a few days before I left the North Cape, the Daniſh miſſionary of Porſanger diſtrict did me the favour, cloſely to interrogate the maſter of a Norwegian veſſel, who appeared to me to be by much the moſt knowing man in his ſtation I had met with in Lapland, as to thoſe ſtupendous worms, as they are called. He ſaid, that about ſix years before, he had ſeen three of them at once off Bergen, floating upon the ſurface of the ſea, twelve parts of the back of the largeſt appearing above water; each part being in length about ſix feet, with the intervals of the ſame length, ſo that upon the whole he judged the animal could not be leſs than twenty-five fathoms long, and about one in thickneſs. He did not pretend to aſcertain the dimenſions of the other two, further than their being ſmaller than the one thus imperfectly deſcribed, and added, that four years before he ſaw thoſe laſt, he had (near the ſame coaſt) ſeen a large one, but could ſay nothing particular as to its ſize. What degree of credit is due to this man's account, I ſubmit to the judgement of the learned Society.

After much enquiry, I could learn nothing ſatisfactory touching the famous Whirlpool (called by the Norwegians and Dutch the Maal Stroom) lying between the iſlands of Lofoot, until I met with this intelligent perſon, who gave me ſome account thereof, in ſubſtance as follows; viz. That at high water it is perfectly ſmooth and ſafe to paſs over; but as the tide, either ebb or flood, gathers ſtrength, it becomes in proportion exceedingly agitated and dangerous, which extreme agitation and whirling, I preſume, muſt be owing to the unevenneſs of the rocky bottom,

over

over which the current rolls with vaſt rapidity, being confined in a narrow paſſage; for this Norwegian told me, that at very low water, ſharp pointed rocks, reaching then above the ſurface, have been ſeen between the iſlands above-mentioned. No wonder then, that ſuch veſſels may have been turned upſide down, as may have been drawn by the tide, in its moſt rapid ſtate, into this gulph. The ſimple agitation of the water would ſufficiently account indeed for the loſs of open boats. Imperfect as it is, in my humble opinion, this account, if true, which I believe it to be, unravels in ſome meaſure, the myſtery of the Norwegian whirlpool; which I however regret, not having myſelf, conſiſtently with my orders, had it in my power minutely to examine.

The foregoing is, with great deference and reſpect, preſented, by the Royal Society's

Moſt humble

and moſt obedient ſervant,

Cha. Douglas.

N. B. The thermometrical experiments in queſtion were made at the ſuggeſtion of Mr. Wilſon, Profeſſor of Aſtronomy at Glaſgow, with a thermometer of his making.

OBSERVATIONS of the TEMPERATURE of the WEATHER, Taken on board his Majeſty's Ship the Emerald, in LAPLAND, with a Thermometer upon Fahrenheit's Scale, Anno 1769.

South Eaſt of Maggeroe Iſland, in Lat. 71° 00′. — At Sea. — In Hammerfoſt Harbour, in Lat. 70° 40′.

	April						May																							
Hours	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1 *p.m.*	48	47	45	49	51	49	40	24	24	24	23	30	31	34	30	44	41	34	38	42	32	34	44	44	44	42	44	48	32	39	38	39	39
2							39	23			25		30	32																			
3		46				48		22			27			31		42															38		
4	47		44	48	49		38				29		29	30																39			
5							36		25	23	26	28			29	38	40		39	40			42					46					
6		44	43			47		23		22	25							30				32				40	42			42			40
7	45			47	47		32	22					28	29				27					38	40	42								
8						38																						44	34		40		
9		41	41	46	46		31		29	19			28		36																	39	
10	40						28	21		16	24	26							37			30					44			44			41
11		39			37	37	27	20		15			26		28		39																
12	38		40	39						19								30		38	30		38			38		40	40				
1 *a.m.*		37			36				33										36								46			42	40		
2				38		38			32																				42				
3	39		48				28		28			25	27												40								
4					39				26	20	22						38			36						39		38	42				40
5		38		39		39		23		21					29	38			38			31	40				48						
6	40		41		40		26	26		22	25	26		29	30			31						42					40				
7						41			28	23	24		28			39				34		32				40				40			
8		41		41			24						29				36		40			33	42					34				39	39
9	43		46		45	45	23		26	24	25	28	30		32	40				32	31	34	44						40				
10				44			22	25	25		26							32					46		41	42		32					38
11	47	44	48	48	49	47	23				28	30		30	34		33		42		32	38	47	46			50				39		
12		45		50	4	49	24		24		30	32	32		38	41		36	44		33	44	45			44			39	32			