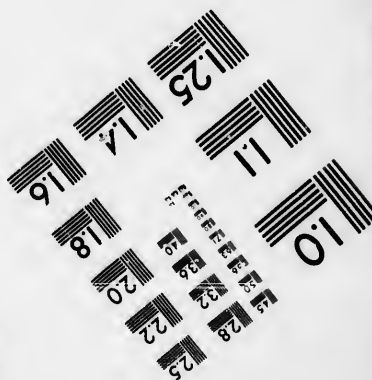
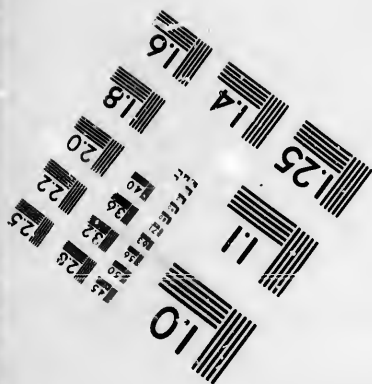
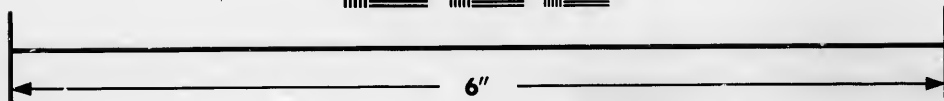
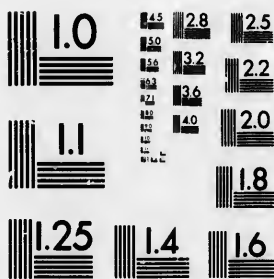


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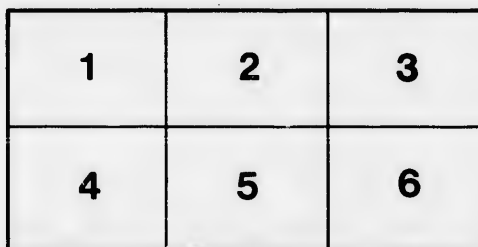
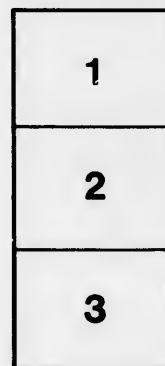
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FRONTISPIECE

Vol. I.



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102.L.

TO
THE ROYAL ACADEMIES
OF SCIENCES

OF
STOCKHOLM, UPSAL, AND LUND,
IN SWEDEN,

AND OF
DRONTHEIM IN NORWAY,

THIS VOLUME IS DEDICATED,
AS A GRATEFUL ACKNOWLEDGEMENT
OF THE UNCOMMON INSTRUCTION RECEIVED,
AS WELL FROM THEIR PRIVATE CORRESPONDENCE
AS THEIR PUBLIC LABORS,

BY HIM, WHO HAS (BY THEIR PARTIALITY)
THE HONOR OF SUBSCRIBING HIMSELF

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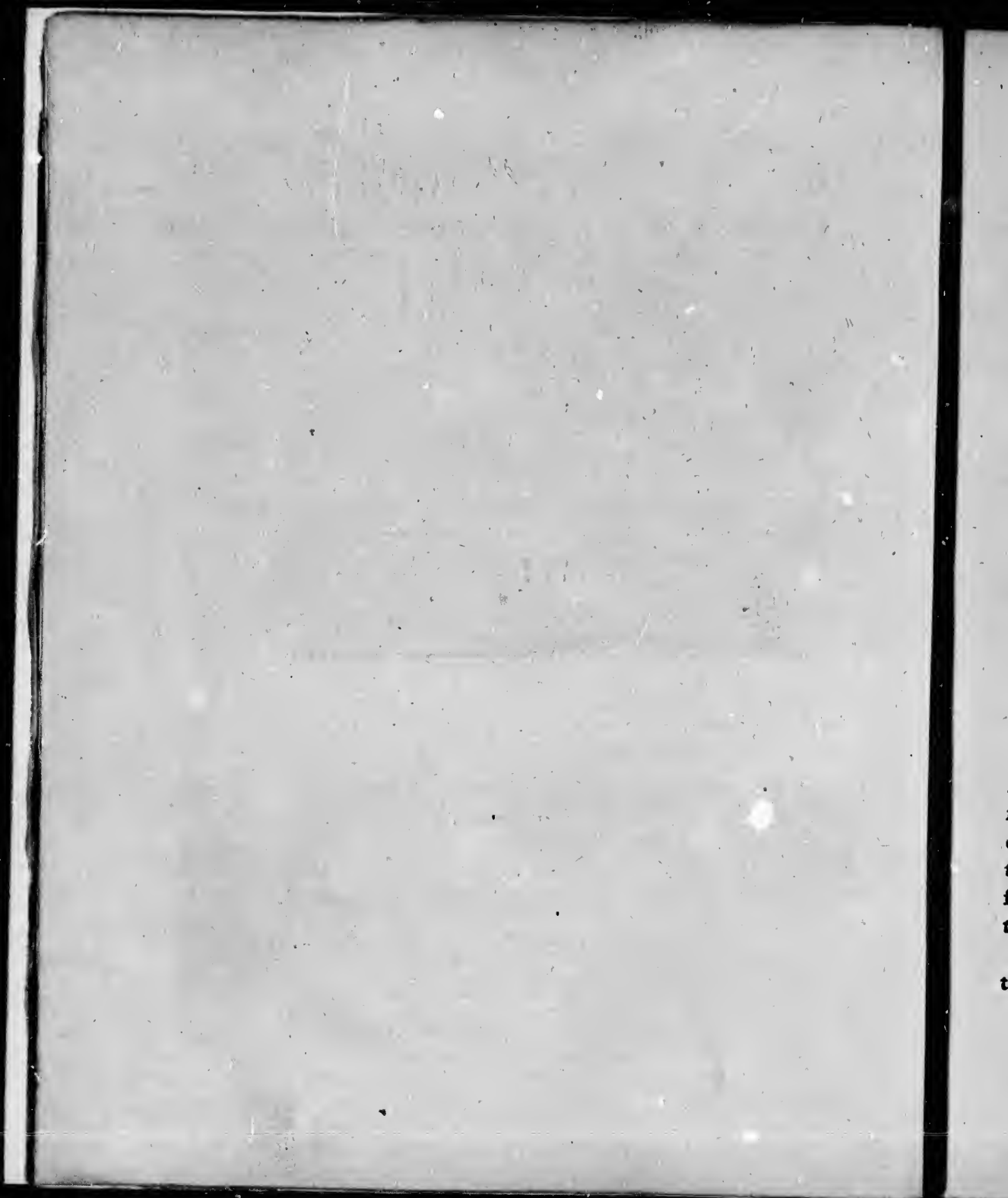
AND DEVOTED HUMBLE SERVANT,

DOWNING,
MARCH 1, 1788.

THOMAS PENNANT,

LL.D. F.R.S. F.S. NAT. HIST. and
ANTIQ. EDINBURGH and PERTH,
and F.S. RURAL OECON. of ODIHAM.

1788



ADVERTISEMENT.

THIS Work was begun a great number of years past, when the empire of *Great Britain* was entire, and possessed the northern part of the New World with envied splendor. At that period I formed a design of collecting materials for a partial History of its Animals; and with true pains, by various correspondences, made far greater progress in my plan than my most sanguine expectations had framed. Above a century ago, an illustrious predecessor in the line of Natural History, who as greatly exceeded me in abilities, as he did in zeal, meditated a voyage to the New World, in pursuance of a similar design. The gentleman alluded to was FRANCIS WILLUGHBY, Esq; who died in 1672, on the point of putting his design in execution. Emulous of so illustrious an example, I took up the object of his pursuit; but my many relative duties forbade me from carrying it to the length conceived by that great and good man. What he would have performed, from an actual inspection in the native country of the several subjects under consideration, I must content myself to do, in a less perfect manner, from preserved specimens transmitted to me; and offer to the world their Natural History, taken from gentlemen or writers who have paid no small attention to their manners.

Let me repeat, that this Work was designed as a sketch of the Zoology of *North America*. I thought I had a right to the attempt,

A D V E R T I S E M E N T.

attempt, at a time I had the honor of calling myself a fellow-subject with that respectable part of our former great empire ; but when the fatal and humiliating hour arrived, which deprived *Britain* of power, strength, and glory, I felt the mortification which must strike every feeling individual at losing his little share in the boast of ruling over half of the *New World*. I could no longer support my clame of entitling myself its humble Zoologist : yet, unwilling to fling away all my labors, do now deliver them to the Public under the title of the *ARCTIC ZOOLOGY*. I added to them a description of the Quadrupeds and Birds of the north of *Europe* and of *Asia*, from latitude 60 to the farthest known parts of the *Arctic* World, together with those of *Kamtshatka*, and the parts of *America* visited in the last voyage of the illustrious *Cook*. These additional parts I have flung into the form of an Appendix to each genus, and distinguished by a *feur de lis* ; and the species by literal instead of numeral marks, which distinguish those of *North America*. These will, in a great measure, shew the dilatation of Quadrupeds and Birds, and the migrations of the feathered tribe, within part of the northern hemisphere.

I have, whenever I could get information, given their respective residences, as well as migrations to far more northern parts, to shew to what very remote places the Author of Nature hath impelled them to retire, to breed in security. This wise provision preserves the species entire, and enables them to return by myriads, to contribute to the food or luxuries of southern climates. Whatever is wanting in the *American* part, I may foresee, will in time be amply supplied. The powers of literature already begin to arise. Two volumes of *Memoirs* have already appeared, which do infinite honor to the Academy which gave them

A D V E R T I S E M E N T .

them birth. The labors of the Reverend Mr. *Manasseh Cuttler*, Professor *Williams*, and Mr. *Alexander*, have been of no small utility to some of the following pages.

To enlarge the *American Zoology* as much as possible, I have in the late Supplement flung the Reptiles and the Fishes of the northern part of that vast continent into a systematic form; and, by permission of Mr. *Benjamin White*, have added, from the labors of the learned *John Reinhold Forster*, the Catalogue of the Insects of *North America*. How small a part is this of the Zoology of our lost dominions! May what I have done be an inducement for some learned native to resume the subject! and I shall without envy see my trivial labors lost in the immensity of new discoveries. Vain thought! for ages must pass, ere the necessary perfection can be given, ere the animated nature which fills the space between the *Atlantic* and *Pacific* oceans can be investigated. Ages must pass, before new colonization can push its progress westward: and even then, civilization, ease, and luxury, must take place, ere these studies, in which use and amusement are so intimately blended, can be carried into full effect.

But in the interim, let the *American* philosopher do what is in his power; let him search the ill-explored seas, lakes, rivers, and forests of his country; and his labors will be amply repayed. The tract between the *Allegany* or *Apalachian* chain and the ocean, will for the present be ample field for the most adventurous naturalist. Let me entreat him to be expeditious, that I may have some chance of receiving the pleasure of knowing that I could animate any one to these laudable pursuits. But my electrical fire is too weak to be felt at such a distance: I want the potent emanations of a *LINNÆUS*, which dart from pole to pole.

A D V E R T I S E M E N T.

pole. My faculty has been various: in a few instances I may have been fortunate enough to have met with, at home and abroad, some excellent conductors, which have caught and carried on the impulsive stroke; which have at least roused Natural History from the palsied state into which it was falling, on the loss of its illustrious support.

I must reckon among my most valued correspondents on the New Continent, Doctor ALEXANDER GARDEN*, who, by his long residence in *South Carolina*, was enabled to communicate to me variety of curious remarks and subjects, as will appear in the following pages.

To the rich museum of *American Birds*, preserved by Mrs. ANNA BLACKBURN, of *Orford*, near *Warrington*, I am indebted for the opportunity of describing almost every one known in the provinces of *Jersey*, *New York*, and *Connecticut*. They were sent over to that Lady by her brother, the late Mr. *Ashton Blackburn*; who added to the skill and zeal of a sportsman, the most pertinent remarks on the specimens he collected for his worthy and philosophical sister.

In the foremost rank of the philosophers of the Old Continent, from whose correspondence I have benefited, I must place Doctor PETER SIM. PALLAS, at present Professor of Natural History in the service of the illustrious EMPRESS of *Russia*: he not only favored me with the fullest remarks on the Zoological part of that vast empire, most of which he formed from actual travel and observation, but collected for my use various other remarks from the manuscripts of his predecessors; especially what related to *Kamtschatka* from those of STELLER; which

* Now resident in *London*.

have

A D V E R T I S E M E N T.

have assisted me in the history of parts hitherto but very slightly understood.

From the correspondency and labors of Mr. EBERH. AUG. WILLIAM ZIMMERMAN, Professor of Mathematics at *Brunswick*, I have met with most uncommon instruction. His *Specimen Zoologiae Geographicae Quadrupedum* * is a work which gives a full view of the class of Quadrupeds, and the progress they have made in spreading over the face of the earth, according to climates and latitudes. Their limits are described, in general, with uncommon accuracy. Much is said of the climates themselves; of the varieties of mankind; of the effects of heat and cold on them and other animals. A most curious map is joined to the work, in which is given the name of every animal in its proper climate; so that a view of the whole Quadruped creation is placed before one's eyes, in a manner perfectly new and instructive †.

To the following foreigners, distinguished for their literary knowledge, I must pay my best acknowledgement for variety of most useful communications: Mr. SAMUEL OEDMAN of *Werm-don* near *Stockholm* has with the utmost liberality spontaneously sent to me a number of valuable remarks on the Quadrupeds,

* A quarto in *Latin*, containing 685 pages, printed at *Leyden*, 1777; sold in *London*, by Mr. Faden, Geographer, *St. Martin's Lane*.

† A new edition of the map has been lately published by the learned Author; the geographical part is corrected according to the late voyages of Captain Cook, and great additions made to the zoological part. An explanation is given, in the third volume of the *Zoologia Geographica*, lately published in *German* by the Author.

A D V E R T I S E M E N T.

Birds, and Trees of *Sweden*, which the reader will find the benefit of in the course of this volume.

I must by no means be silent respecting the instructive favors I have received from Doctor CHARLES P. THUNBERG, of *Upsal*; Doctor ANDERS SPARMAN, of *Stockholm*; Mr. AND. J. RETZIUS, Professor of Natural History at *Lund*; and the late Mr. OTHO MULLER, Author of the *Zoologia Danica*, of *Copenhagen*; and let me add my great obligations to the labors of the Reverend Mr. OTTO FABRICIUS, for his most finished *Fauna of Greenland*.

To many of my countrymen my best acknowledgements are due for literary assistances. Sir JOSEPH BANKS, Baronet, will, I hope, accept my thanks for the free admittance to those parts of his cabinet which more immediately related to the subjects of the following sheets.

To the late Sir ASHTON LEVER, Knight, I was highly indebted, for the more intimate and closer examination of his treasures than was allowed to the common visitors of his most magnificent museum. His zeal in collecting was equalled by his success: his reward inadequate to his merit: no one ever offered such instructive riches to the lovers of Natural History, and none met with equal neglect. No kingdom ever possessed from his labors such advantages; and I believe no kingdom ever reaped less advantage from them.

To the late Mr. THOMAS HUTCHINS, a gentleman greatly distinguished for his philosophical enquiries, I was unspeakably obliged for his judicious remarks made during sixteen years residence

A D V E R T I S E M E N T.

sidence in *Hudson's Bay*, of which he most liberally indulged me with the perusal.

To Mr. SAMUEL HEARNE, the great explorer by land of the *Icy Sea*, I cannot but send my most particular thanks, for his liberal communication of many zoological remarks, made by him on the bold and fatiguing adventure he undertook from *Hudson's Bay* to the *ne plus ultra* of the north on that side.

Mr. ANDREW GRAHAM, long a resident in *Hudson's Bay*, obliged me with numbers of observations on the country, and the use of multitudes of specimens of animals transmitted by him to the late Museum of the Royal Society, at the instance of that liberal patron of science, my respected friend the Honorable DAINES BARRINGTON.

The Reverend Mr. WILLIAM COXE enriched me with numbers of observations collected in his well-known travels, or translated for my use from the several authors who have treated of the Antiquities or Natural History of the north.

Let me close the list with acknowledging the great assistance I have found in the Synopsis of Birds by Mr. JOHN LATHAM; a work now brought to a conclusion, and which contains a far greater number of descriptions than any which has gone before. This is owing not only to the assiduity of the Author, but also to the peculiar spirit of the *English* nation, which has, in its voyages to the most remote and most opposite parts of the globe, payed attention to every branch of science. Let me add also, that most comprehensive work of his, the *Index Ornithologicus*. The advantages are pointed out by the able pen of the Reverend

A D V E R T I S E M E N T.

DoctOR DOUGLAS *, in his Introduction to the last Voyage of our great navigator, published (under the auspices of the Lords of the Admiralty) in a manner which reflects honor on our country in general, and will prove a most lasting monument to the memory of the great Officer who so unfortunately perished by savage hands, and his two able consorts, who at length sunk beneath the pressure of fatigue, in carrying the glory of discovery far beyond the attempts of every preceding adventurer.

I have been often reproached for not giving a map with the *Arctic Zoology*. The reader is now presented with two, which were given with the Supplement to the first edition. These were done by that excellent artist Mr. *William Palmer*, the engraver of those in Captain COOK's last voyage; and of an admirable map of the *American* and *Asiatic* part, formed by the much lamented, the late Captain JAMES KING. These maps have been the foundation of mine; with certain additions from that which illustrates the voyage of Lord MULGRAVE towards the north pole. I have taken the liberty of making some slight alterations; and have made the addition of several names, peculiarly adapted to the work they are designed to explain. In the present edition the map of *North America* has received considerable improvements on the western side. I am much obliged to Captain *Abraham Dixon* for his valuable corrections; for he has given the recent discoveries made by himself, Captain *Meares*, and Captain *Duncan*. The coast from the *Icy Cape* to the mouth of the *Copper Mine River*, is laid down from imagination, and the same from thence to

* Who now worthily fills the See of *Salisbury*.

Greenland,

A D V E R T I S E M E N T.

Greenland, except in a few places where it had been slightly seen by navigators. A little to the east of the *Copper Mine River*, the sea is made to advance somewhat more inland, on a conjecture of Mr. *Hearne's*, that a river which falls into the *Copper Mine River* from the east, is much nearer to the sea than the mouth of the *Copper River* itself. I have been obliged to go far lower than lat. 60, to which I professedly designed to limit my northern enquiries: but had I, in my maps, rigidly adhered to that intention, I must have omitted great part of *America*, the glorious field of the discoveries of our immortal Cook. Those of the *Russians* are attended to, and nothing neglected that could fling light on the attempts of this busy age.

DOWNING,
March 1, 1792.

THOMAS PENNANT.

PLATES.

P L A T E S.

F RONTISPIECE, a winter scene in *Lapland*, with *Aurora Borealis*: the ARCTIC FOX, ERMINE, SNOWY OWL, and WHITE GROUS.

Tab. I.	The Caves of <i>Causse</i> in <i>Murray</i>	—	—	XXIV
II.	Rocks of singular forms near <i>Sandside</i>	—	—	XXVI
III.	The <i>Doreholm</i> , a small isle, one of the <i>Schetlands</i> , perforated with a vast arch	—	—	XXXVI
IV.	Bird-catching in one of the <i>Orkney</i> isles	—	—	XL
V.	Antiquities	—	—	XLIV

- N^o I. A Burgh of the smallest kind, with a single cell.
 II. The Burgh of *Culswick* in *Schetland*, and a section of the wall.
 III. The Burgh of *Burrowsfirth* on *Helinfa Voe*, a holme or small isle among the *Schetlands*. It contains eleven cells.
 IV. Burgh of *Snaburgh* in *Unst*, one of the *Schetlands*.
 V. Burgh of *Hagseter*.
 VI. Roman camp in *Fetlar*.

For the drawings from which these Antiquities were engraven, I am indebted to the Reverend Mr. *Low*, Minister of *Birsa* in *Orkney*, who, at my request, made the voyage of the *Orkney* and *Schetland* isles in 1778. He hath prepared his journal for the press: it is to be hoped, that the liberality of the public will enable him to give this addition to my labors, which will complete the account of the northern part of the *British* dominions.

Tab. VI.	The Bow described p. ccxxxix. The place it came from is uncertain; but doubtlessly from the part of the western coast of <i>America</i> frequented by the			
	WALRUS	—	—	— CCXXXIX

I N T R O -

INTRODUCTION

TO THE

ARCTIC ZOOLOGY.

THE SECOND EDITION.

LONDON:

PRINTED FOR ROBERT FAULDER, NEW BOND STREET.

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ANTHROPOLOGY

1880

ARCTIC EXPLORATION

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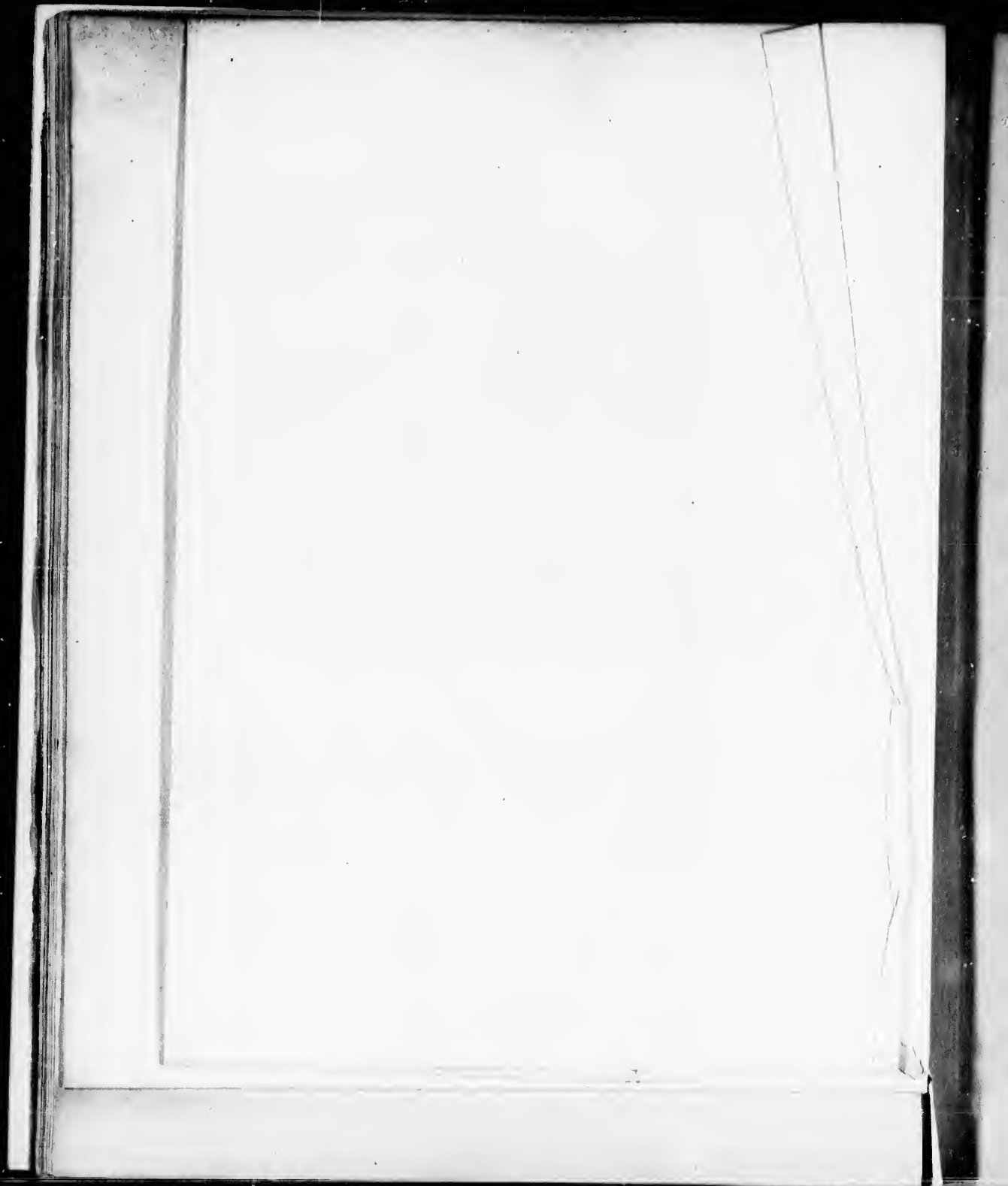
THE ARCTIC EXPLORATION

1880

1880

THE ARCTIC EXPLORATION

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INTRODUCTION.

OF THE ARCTIC WORLD.

A KNOWLEDGE of the geography, climate, and soil, and a general view of the productions of the countries, whose Zoological History is to be treated of, are points so necessary, that no apology need be made for introducing them into a prefatory discourse.

It is worthy human curiosity to trace the gradual increase of the animal world, from the scanty pittance given to the rocks of *Spitzbergen*, to the swarms of beings which enliven the vegetating plains of *Senegal*: to point out the causes of the local niggardness of certain places, and the prodigious plenty in others. The Botanist should attend the fancied voyage I am about to take, to explain the scanty herbage of the *Arctic* regions; or, should I at any time hereafter descend into the lower latitudes, to investigate the luxuriancy of plants in the warmer climates.

The Fossilist should join company, and point the variations of primæval creation, from the solid rock of *Spitzbergen* through all the degrees of terrestrial matter: the steps it makes to perfection, from the vilest earth to the precious diamond of *Golconda*. The changes in the face of the globe should be attended to; the destructions by volcanoes; the ravages of the sea on some coasts, and the recompence it may have made to others, by the retreat of its waters.



Engraved by W. Palmer in London

PENNANT'S ARCTIC ZOOLOGY.



The pursuit of these enquiries will also have a farther and more important object. History should be called in, and a brief account given of the population of the more remote countries—the motives which induced mankind to seek retreats in climates seemingly destitute of incitements to migration. Particular attention should be paid to the means of peopling the new world, and of stocking it with animals, to contribute to the support of mankind, after the first colonization—the increase of those animals, and their cessation, and giving place in a certain latitude to genera entirely different.

Here the fine study of Geography should step in to our assistance. The outline of the terrestrial globe should be traced; the several approximations between part and part should be attended to; the nature of the oceans observed; the various islands pointed out, as the steps, the baiting-places where mankind might have rested in its passage from an over-charged continent.

The manners of the people ought not less to be attended to; and their changes, both mental and corporeal, by comparison of the present state of remote people with nations with whom they had common ancestors, and who may have been discovered still to retain their primæval feats. Some leading customs may still have been preserved in both; or some monuments of antiquity, proofs of congenial habitudes, possibly no longer extant in the savage than in the cultivated branches of the common stock.

STREIGHTS OF
DOVER.

Let me take my departure northward, from the narrow streights of *Dover*, the site of the isthmus of the once peninsulated *Britain*. No certain cause can be given for the mighty convulsion which tore us from the continent: whether it was rent by an earthquake, or whether it was worn through by the continual dashing of the waters, no *Pythagoras* is left to solve the *Fortuna locorum*:

Vidi ego, quod fuerat quondam solidissima tellus
Esse fretum.

But it is most probable, that the great philosopher alluded to the partial destruction of the *Atlantica insula*, mentioned by *Plato* as a distant tra-
tion

tion in his days *. It was effected by an earthquake and a deluge, which might have rent asunder the narrow isthmus in question, and left *Britain*, large as it seems at present, the mere wreck of its original size †. The *Scilly* isles, the *Hebrides*, *Orknies*, *Scetlands*, and perhaps the *Feroe* islands, may possibly be no more than fragments of the once far-extended region. I have no quarrel about the word *island*. The little isthmus, compared to the whole, might have been a junction never attended to in the limited navigations of very early times. The peninsula had never been wholly explored, and it passed with the ancients for a genuine island. The correspondence of strata on part of the opposite shores of *Britain* and *France*, leaves no room to doubt but that they were once united. The chalky cliffs of *Blanc-nez*, between *Calais* and *Bologne*, and those to the westward of *Dover*, exactly tally: the last are vast and continued; the former short, and the termination of the immense bed. Between *Bologne* and *Folkstone* (about six miles from the latter) is another memorial of the junction of the two countries; a narrow submarine hill, called the *Rip-raps*, about a quarter of a mile broad, and ten miles long, extending eastwards towards the *Goodwin* Sands. Its materials are boulder-stones, adventitious to many strata. The depth of water on it, in very low spring-tides, is only fourteen feet. The fishermen from *Folkstone* have often touched it with a fifteen feet oar; so that it is justly the dread of navigators. Many a tall ship has perished on it, and sunk instantly into twenty-one fathoms water. In *July* 1782, the *Belleisle* of sixty-four guns struck, and lay on it during three hours; but, by starting her beer and water, got clear off.

These celebrated streights are only twenty-one miles wide in the narrowest part. From the pier at *Dover* to that at *Calais* is twenty-four. It is conjectured, that their breadth lessens, and that they are two miles narrower than they were in antient times. An accurate observer of fifty years, remarks to me, that the encreased height of water, from a decrease of breadth, has been apparent even in that space. The depth of the

* *Plato* died about the year 347 before CHRIST, aged 81. *Pythagoras*, about 497, aged 90.

† See this opinion farther discussed by *Mr. Somner*, *Ph. Transf. Abridg.* iv. 230.

CHALKY STRATA.

RIP-RAPS.

WIDTH OF THE
STREIGHTS.

channel, at a medium, in highest spring-tides, is about twenty-five fathoms. The bottom, either coarse sand or rugged scars, which have for ages unknown resisted the attrition of the currents. From the streights, both eastward and westward, is a gradual increase of depth thorough the channel to a hundred fathoms, till soundings are totally lost or unattended to.

DEPTH.

The spring-tides in the streights rise, on an average, twenty-four feet; the neap-tides fifteen. The tide flows from the *German sea*, passes the streights, and meets, with a great rippling, the western tide from the ocean, between *Fairleigh*, near *Hastings*, and *Bologne**; a proof, that if the separation of the land was effected by the seas, it must have been by the overpowering weight of thote of the north.

BRITAIN,
WHENCE
PEOPLED.

It is most certain, that *Britain* was peopled from *Gaul*. Similar customs, as far as can be collected, evince this fact. The period is beyond the reach of history.

Beyond the measure vast of thought,
The works, the wizard TIME hath wrought!
The *Gaul*, it's held of antique story,
Saw *Britain* link'd to his now adverse strand;
No sea between, nor cliff sublime and hoary,
He pass'd with unwet feet through all our land.
To the blown *Baltic* then, they say,
The wild waves found another way, &c.

COLLINS'S *Ode to Liberty*.

If, after the event by which our island was torn from the continent, the migration over so narrow a streight might, in the earlier ages, have been very readily effected in the *vitilia navigia* or coracles, or the *monoxyla* or canoes in use in the remote periods; yet the numerous species of *Quadrupeds* never could have swam into our island, even over such a contracted water, which at all times must have been possessed by tides so rapid, as to baffle their utmost efforts: their passage, therefore, must have been

* All the intelligence respecting the tides, &c. in these parts, I received from Mr. *James Hammond* of the custom-house, *Dover*, and Mr. *William Cowly*, a veteran pilot of the same place.

over

E N G L A N D.

over the antient isthmus; for it is contrary to common sense to suppose, that our ancestors would have been at the trouble of transporting such guests as wolves and bears, and the numerous train of lesser rapacious animals, even had it been practicable for them to have introduced the domestic and useful species.

Would they on board or Bears or Lynxes take,
Feed the She-adder, and the brooding Snake?

PRIOR.

Men and beasts found their way into *Great Britain* from the same quarter. We have no Quadrupeds but what are also found in *France*; and among our lost animals may be reckoned the URUS*, WOLF, BEAR, WILD BOAR, and BEAVER, all which were once common to both countries. The *Urus* continued among us in a state of nature as late at least as the year 1466 †: and I have seen some of their descendants, scarcely to be called tame, in confinement in the parks of *Drumlanrig* and *Chillingham* ‡. The *Caledonian* Bears were exported to *Rome*, and esteemed for their fierceness §, They continued in *Scotland* till the year 1057. They existed in *Wales*, perhaps, till the same period; for our antient laws ranked them among the beasts of chase ||. Wolves infested even the middle counties of *England* as late as the year 1281, and continued their ravages in *North Britain* in the reign of Queen *Elizabeth*; nor were they wholly extirpated till the year 1680. The Wild Boars were common in the neighborhood of *London* in the reign of *Henry II.* and continued in our kingdom, in a wild state, till 1577: they were then only to be found in the woods of Lord *Latimer*, who, we are informed by Doctor *Mouset*, took great delight in their chase ¶. Let me add, from the same authority, that Roebucks

QUADRUPEDA

* The Quadrupeds, Birds, &c. printed in small capitals, are described in the *Zoology* of this Work. The Quadrupeds in the common type are referred to my *History of Quadrupeds*, 2 vol. 4to.

† Six Wild Bulls were used at the installation feast of *George Nevil*, archbishop of *York*. *Leland's Collect.* vi. 2.

‡ *Tours in Scotland.*

§ *Martial. Plutarch.*

|| *Raii Syn. Quad.* 214.

¶ *Health's Improvement.*

were

were found at the same period in *Wales*, and among the *Cheviot hills*; they are now confined to the Highlands of *Scotland*. Finally, Beavers inhabited *Wales* in 1188, when our historian, *Giraldus*, made his progress through the principality. Every one of these animals are at this time to be found in *France*, the *Urus* excepted. *Theodebert*, king of *France*, perished in the chase of one about the year 548 *; but it is probable that the species must have existed in that vast kingdom long after that event.

The ELK, N° 3; Genet, *Hist. Quad.* N° 224; LYNX, N° 150; Fat Dormouse, N° 287; Garden Dormouse, N° 288; and the Bats *Serotine*, *Pipistrelle*, and *Barbastelle*, N° 408, 409, 410, either never reached our island, or if they did, perished so early, that even their very names in the *British* tongue, have perished with them. The *Ibex*, N° 13, and the *Cbamois*, N° 17, inhabitants only of the remote *Gaulish Alps* and *Pyreneans*, probably never reached us. *France*, therefore, possesses forty-nine species of Quadrupeds; we only thirty-nine. I exclude two species of Seals † in both reckonings; being animals which had at all times powers of making themselves inhabitants of the coasts of each kingdom.

BIRDS.

Birds, which have the ready means of waiving themselves from place to place, have notwithstanding, in numbers of instances, their limits. Climate confines some within certain bounds, and particular sorts of food induce others to remain within countries not very remote from us; yet, by wonderful instinct, birds will follow cultivation, and make themselves denizens of new regions. The CROSS-BILL has followed the apple into *England*. *Glenco*, in the Highlands of *Scotland*, never knew the Partridge, till its farmers of late years introduced corn into their lands: nor did Sparrows ever appear in *Siberia*, till after the *Russians* had made arable the vast wastes of those parts of their dominions. Finally, the RICE BUNTINGS, natives of *Cuba*, after the planting of rice in the *Carolinas*, annually

* *Ecole de la Chasse*, clxi.

† The Common Seal, is common to the ocean and *Mediterranean* sea. Possibly the *Mediterranean* Seal, *Hist. Quad.* N° 376, may be so likewise.

quit the island in myriads, and fly over sea and land, to partake of a harvest introduced there from the distant *India*.

FRANCE, as it exceeds in variation of climate, so it exceeds us in the number of species of birds. We can boast of only one hundred and thirty-one kinds of land-birds, and one hundred and twenty-one of water-fowl. *France*, on the contrary, has one hundred and fifty-six of the first, and one hundred and thirteen of the last. This computation may not be quite accurate; for no one has as yet attempted its *Fauna*, which must be very numerous, in a kingdom which extends from *Calais*, in about lat. 51, to *Collioure* in the south of *Roussillon*, on the *Mediterranean* sea, in about lat. 42. The northern parts possess the birds in common with *England*: and in all probability the provinces in the *Mediterranean* annually are visited by various species from northern *Africa*.

Stupendous and precipitous ranges of chalky cliffs attend the coast, from *Dover* eastward, and, from their color, gave the name of *Albion* to our island. Beneath one of them anchored *Cesar*, fifty-five years before CHRIST, and so near as to be capable of being annoyed by the darts of the *Britons*. After weighing anchor, he sailed up a bay, now occupied by meadows, and landed at *Rutupium*, *Richborough*, opposite to the present *Sandwich*. The walls of the former still evince its antient strength; and the vestiges of a quay, now bounded by a ditch, point out the anchorage of the *Roman* commerce. The adjacent *Tbanet*, the *Tbanatos* of the antients, at present indistinguishable from the main land, was in old times an island, separated by a deep channel, from a mile and a half to four miles in width, the site of *Roman* settlements; and, in 449, celebrated for having been the first landing-place of the invading *Saxons*; to whom it was assigned as a place of security by the imprudent *Vortigern*. But such a change has time effected, that *Tbanet* no more exists as an island; and the *Britanniarum Portus*, in which rode the *Roman* navies, is now filled with marshy meads.

After passing the lofty chalky promontory, the *North Foreland*, opens the estuary of the *Thames*, bounded on each side by low shores, and its channels divided by numerous sand-banks; securely passed, by reason of the

COASTS OF BRITAIN.

SUFFOLK AND
NORFOLK.

the perfection of navigation, by thousands of ships frequenting annually *London*, our emporium, envied nearly to impending decline.

On the projecting coasts of *Suffolk* and *Norfolk*, arise, in certain intervals, eminences of different matter. *Loamy* cliffs appear about *Leostoffe*, *Dunwich*, &c. The *Crag-pits* about *Woodbridge*, are prodigious pits of sea-shells, many of them perfect and quite solid; an inexhaustible fund of manure for arable lands. About *Yarmouth*, and from thence beyond *Wintertonefs*, the coast is low, flat, and composed of shingle, backed by sand. From *Hapsburgh* to *Cromer* are a range of lofty clayey precipices, rising from the height of forty to a hundred feet perpendicular; a prey to the ocean, which has effected great changes in these parts. About *Sberingham* and *Cley*, it rises into pretty and gentle hills, sloping down into a rough shore, of little rocks and stones. At *Holkham*, *Wells*, and *Wareham*, the sandy shores terminate in little hillocks of sand, kept together by the *Arundo Arenaria*, or *Bent*, the great preservative against the inundations of sand, which would otherwise destroy whole tracts of country, and in particular soon render useless the range of salt-marshes which these are backed with. *Hunstanton* cliff rises a distinguished feature in this flat tract. The surface is the usual vegetable mould, about a foot deep; beneath that are two feet of small broken pieces of chalk: the solid stratum of the same, after having been lost for numbers of miles, here again makes its appearance, and forms a solid bed thirty feet in thickness, resting on a hard red stone four feet deep, which is often ground and made into a red paint. Seven feet of loose friable dirty yellow stone succeeds, placed on a base of iron-colored plumb-pudding-stone, projecting into the sea, with vast fragments scattered over the beach. This cliff is about eighty feet high, lies on the entrance of the washes, the *Metaris Estuarium* of *Ptolemy*. From hence, all the coast by *Snettisham* to *Lynn* is low, flat, and shingly.

From *Holm*, the northern promontory of *Norfolk*, the sea advances deeply westward, and forms the great bay called the *Washes*, filled with vast sand-banks, the summits of which are dry at low water; but the intervening channels are the means of prodigious commerce to *Lynn* in *Norfolk*, seated on the *Ouze*, which is circulated into the very inland parts

parts of our island, through the various rivers which fall into its long course. *Lynn* is mentioned in the *Doomsday Book*; but became considerable for its commerce with *Norway* as early as the year 1284.

The opposite shore is that of *Lincolnshire*. Its great commercial town, *Boston*, stands on the *Witham*, a few miles from the head of the bay. LINCOLNSHIRE. Spring-tides rise at the quay fourteen feet, and convey there vessels of above a hundred tons; but greater ships lie at the *Scap*, the opening of the estuary. Such is the case at *Lynn*; for the sluggish rivers of these tame tracts want force to form a depth of water.

Lincolnshire, and part of six other counties, are the *Pais-bas*, the *Low Countries of Britain*; the former bounded on the western part by a range of elevated land, which, in this humble county, overlooks, as the *Alps* would the ocean, the remaining part. This very extensive tract, from the *Scap* to the northern headland opposite to *Hull*, presents to the sea a bow-like and almost unindented front; and so low as to be visible from sea only at a small distance; and churches, instead of hills, are the only landmarks to seamen, among which the beautiful steeple of *Boston* is particularly distinguished. The whole coast is fronted with salt-marshes or sand-hills, and secured by artificial banks against the fury of the sea. Old *Holinshed* gives a long list of ports on this now inhospitable coast. *Waynfleet*, once a noted haven, is at present a mere creek. *Skegness*, once a large walled town, with a good harbour, is now an inconsiderable place a mile from the sea: and the port of *Grimsby*, which in the time of *Edward III.* furnished him with eleven ships, is now totally choaked with sand.

The *Great Level*, which comprehends *Holland* in this county, with part of *Northamptonshire*, *Norfolk*, *Suffolk*, *Cambridge*, and *Huntingdon*, a tract of sixty computed miles in length, and forty in breadth, had been originally a wooded country. Whole forests of firs and oaks have been found in digging, far beneath the moor, on the solid ground; oaks fifteen feet in girth, and sixteen yards long, mostly burnt at the bottoms, the ancient method of falling them: multitudes of others entirely rooted up, as appears, by the force of the sea bursting in and overwhelming this whole tract, and covering it with *silt*, or the mud which it carried with it from
C
time

time to time. *Ovid's* beautiful account of the deluge was here verified; for under *Conington Down*, in *Huntingdonshire*, was found the skeleton of a whale near twenty feet long, which had once swam secure to this distance from its native residence.

Et modo quâ graciles gramen carpere capellæ,
Nunc ibi deformes ponunt sua corpora phocæ.

———— sylvæque tenent delphines, et altis

Incurfant ramis, agitataque robora pulsant.

In process of time this tract underwent another revolution. The *silt* or mud gained so considerably as to leave vast spaces dry, and other parts so shallow as to encourage the *Romans* to regain these fertilized countries from the sea. Those sensible and indefatigable people first taught us the art of embanking, and recovered the valuable lands we now possess. It was the complaint of *Galgacus*, that they exhausted the strength of the *Britons*, *in sylvis et paludibus emuniendis* *, 'in clearing woods and draining marshes.' After the *Romans* deserted our island, another change took place. Neglect of their labors succeeded: the drains were no longer kept open, and the whole became fen and shallow lake, resembling the present east fen; the haunt of myriads of water-fowl, or the retreat of banditti. *Ely* and many little tracts which had the advantage of elevation, were at that period literally islands. Several of these in early times became the retreat of religious. *Ely*, *Torney*, *Ramsay*, *Spiney*, and others, rose into celebrated abbies, and by the industry of their inhabitants first began to restore the works of the *Romans*. The country above *Torney* is represented by an old historian † as a paradise. Constant visitations, founded on wholesome laws, preserved this vast recovered country: but on the rapid and rapacious dissolution, the removal of numbers of the inhabitants, and the neglect of the laws of the *Sewers*, the drains were filled, the cultivated land overflowed, and the country again reduced to a useless morass ‡.

* *Vita Agricolaë.*

† *Malmesbury*, lib. iv. 294.

‡ Compare Sir *W. Dugdale's* maps of this tract, in its morassy and drained state. *Hist. Embank.* p. 375. 416.

In the twentieth of *Elizabeth* the state of the country was taken into consideration *; no great matters were done till the time of *Francis*, and *William* his son, earls of *Bedford*, who attempted this *Herculean* work, and reclaimed this vast tract of more than three hundred thousand acres; and the last received, under sanction of parlement, the just reward of ninety thousand acres. I speak not of the reliques of the antient banks which I have seen in *Holland* in *Lincolnshire*, now remote from the sea, nor yet of the *Roman* tumuli, the coins, and other evidences of the residence of that nation in these parts; they would swell a mere preface to too great a length: and, it is to be hoped, will be undertaken by the pen of some native, who will perform it from his actual survey.

The vast fenny tracts of these counties were in old times the haunts of multitudes of water-fowl; but the happy change, by attention to draining, has substituted in their place thousands of sheep; or, instead of reeds, made those tracts laugh with corn. The CRANE, which once abounded in these parts, has even deserted our island. The Common WILD DUCK still breeds in multitudes in the unreclaimed parts; and thousands are sent annually to the *London* markets, from the numerous decoys. The GREY LAG GOOSE, the origin of the Tame, breeds here, and is resident the whole year: a few others of the Duck kind breed here. RUFFS, RED-SHANKS, LAPWINGS, RED-BREASTED GODWITS, and WHIMBRELS, are found here during summer; but, with their young, in autumn, disperse about the island. The SHORT-EARED OWL migrates here with the WOODCOCK, and is a welcome guest to the farmer, by clearing the fields of mice. KNOTS swarm on the coasts in winter: are taken in numbers in nets: yet none are seen during summer †. The most distant north is probably the retreat of the multitude of water-fowl of each order which stock our shores, driven southward by the extreme cold: most of them regularly, others, whose nature enables them to brave the usual winters of the

* *Hist. Embank.* p. 375.

† See *Tour* in *Scotland*, 1769; *Lincolnshire*, where the fen birds are enumerated.

frigid zone, are with us only accidental guests, and in seasons when the frost rages in their native land with unusual severity.

On *Christmas* day of the severe winter of 1785, Doctor *Aikin* observed numbers of flocks of a certain species of Duck flying southward off the coast near *Yarmouth*. Each flock consisted of a party from ten to sixty. No sooner did one disappear but another succeeded, and so they continued as long as he looked on, which was above two hours: probably, they continued the whole day. They kept at about the distance of five hundred yards from the shore, so that the species was not to be ascertained. About the same day in 1786, Doctor *Aikin* observed only one flock, keeping the same course and the same distance. The mildness of the season (for on that difference depends the migration of the feathered tribe) made it unnecessary for them to seek more genial climates.

In the latitude of *Boston*, or about *lat. 53*, the following remark may be made on the vegetable creation:—A line may be drawn to the opposite part of the kingdom, which will comprehend a small portion of the north of *Norfolk*, the greatest part of *Lincolnshire*, *Nottinghamshire*, *Derbyshire*, the moorlands of *Staffordshire*, all *Cheshire*, *Flinshire*, *Denbighshire*, *Caernarvonshire*, and *Anglesey*. Beyond this line, nature hath allotted to the northern part of these kingdoms certain plants, of which an enumeration will be given in the Appendix, and which are rarely or never found to transgress that line to the south.

From *Clea Ness*, the land retires westward, and, with the opposite shore of *Yorkshire*, bounds the great estuary of the *Humber*, which, winding deep into the country, is the receptacle of the *Trent*, and all the considerable rivers of that vast province; some of which arise in its most remote parts. All these coasts of *Lincolnshire* are flat, and have been gained from the sea. *Barton* and *Barrow* have not at present the least appearance of ports; yet by *Holinshed* were stiled good ones*. Similar accidents have befallen the upper part of the low tract of *Holdernefs*, which faces the congruent shores. *Hedon*, a few miles below *Hull*, several hundred years ago a port

* *Defer. Britain*, 108.

of great commerce, is now a mile and a half from the water, and has long given way to the rising fortune of the latter (a creation of *Edward I.* in 1296) on account of the excellency of its port. But in return, the sea has made most ample reprisals on the lands of this hundred: the site, and even the very names of several places, once towns of note upon the *Humber*, are now only recorded in history: and *Ravensper* was at one time a rival to *Hull**; and a port so very considerable in 1332, that *Edward Baliol* and the confederated *English* barons sailed from hence with a great fleet to invade *Scotland*; and *Henry IV.* in 1399, made choice of this port to land at, to effect the deposal of *Richard II.* yet the whole of it has long since been devoured by the merciless ocean: extensive sands, dry at low water, are to be seen in their stead; except *Sunk Island*, which, till about the year 1666, appeared among them like an elevated shoal, at which period it was regained, by embankments, from the sea; and now forms a considerable estate, probably restored to its pristine condition.

Spurn Head, the *Ocelum Promontorium* of *Ptolemy*, terminates this side of the *Humber*, at present in form of a sickle, near which the wind-bound ships anchor securely. The place on which the lighthouses stand is a vast beach near two miles long, mixed with sand-hills flung up by the sea within the last seventy years.

SPURN HEAD.

The land from hence for some miles is composed of very lofty cliffs of brown clay, perpetually preyed on by the fury of the *German* sea, which devours whole acres at a time, and exposes on the shores considerable quantities of beautiful amber. Fine wheat grows on the clay, even to the edge of the cliffs. A country of the same fertility reaches from *Kilnsey*, near this place, as far as the village of *Sprottly*, extending, in a waved form, for numbers of miles; and, when I saw it, richly clothed with wheat and beans.

AMBER.

From near *Kilnsey* the land bends very gently inward, as far as the great promontory of *Flamborough*; and is a continuance of high clayey cliff, till about the village of *Hornsey*. Near it is a mere, noted for its Eels and

* *Madox. Ant. Exch.* i. 422.

Pikes

Pikes, at present separated from the sea by so small a space as to render its speedy destruction very probable. A street, called *Hornsey Beck*, has long since been swallowed: and of *Hide*, a neighbouring town, only the tradition is left.

BRIDLINGTON
PAX.

The country grows considerably lower; and, near the base of the promontory, retires so far in as to form *Bridlington bay*, antiently called *Gabrantovicorum Sinus*, to which the Geographer adds $\text{Ευλιμειν}\text{ος}$, on account of the excellency and safety of its port, where vessels ride in full security under the shelter of the lofty head-land. *Smitbie* sand, the only one between *Flamborough* and *Spurn Head*, stretches across the entrance into *Bridlington bay*, and, in hard gales from the South and South-east, adds to the security of that noble asylum for the coasting vessels. *Sureby*, an adjacent village, seems no more than a translation from the old appellation. The *Romans*, in all probability, had a naval station here; for here ends the road, visible in many places between this place and *York*, and named, from its founders, the *Roman ridge*.

FLAMBOURGH
HEAD.

The head is formed of lime-stone, of a snowy whiteness*, of a stupendous height, and vast magnificence, visible far at sea. If we may depend on *Richard of Cirencester*, the *Romans* named it *Brigantum Extrema*, and the bay *Portus Felix*. The *Saxons* styled the cape *Fleamburg*, perhaps from the lights which directed the great *Ida*, founder of the *Northumberland* kingdom, to land here, in 547, with a great body of their countrymen.

* Soft near the top, and of a crumbling quality when exposed long to the frost. At the foot of the cliff it is hard, solid, and smooth. Boats are employed every summer in carrying great quantities to *Sunderland*, where it is burnt into excellent lime. Most of the lime-stone used at *Scarborough* is made from stones flung up by the sea. It may be remarked, that whatsoever degree of hardness any lime-stone possesses in the quarry, the mortar made from it, by proper management, may be made as hard, but by no means harder. Most of the houses in and about *London* are built with lime made of chalk; hence the many miserable casualties there, by the fall of houses. The workmen, sensible of the weakness of that kind of mortar, endeavour to keep the walls together by lodging frames of timber in them; which being consumed in cases of fire, the whole building tumbles suddenly, and renders all attempts to extinguish the fire very dangerous.—*Mr. Travis*.

The

The vast height of the precipices, and the amazing grandeur of the caverns which open on the north side, giving wide and solemn admission, through most exalted arches, into the body of the mountain; together with the gradual decline of light, the deep silence of the place unless interrupted by the striking of the oar, the collision of a swelling wave against the sides, or the loud flutter of the pigeons affrighted from their nests in the distant roof, afford pleasures of scenery which such formations as this alone can yield. These also are wonderfully diversified. In some parts the caverns penetrate far, and end in darknes; in others are pervious, and give a romantic passage by another opening equally superb. Many of the rocks are insulated, of a pyramidal form, and soar to a great height. The bases of most are solid; but in some pierced through and arched. All are covered with the dung of the innumerable flocks of migratory birds, which resort here annually to breed, and fill every little projection, every hole, which will give them leave to rest. Multitudes were swimming about; others swarmed in the air, and stunned us with the variety of their croaks and screams. KITTIWAKES and HERRING GULLS, GUILLEMOTS and Black GUILLEMOTS, AUKS, PUFFINS, SHAGS, and CORVORANTS, are among the species which resort hither. The notes of all sea-fowl are most harsh and inharmonious. I have often rested under rocks like these, attentive to the various sounds over my head; which, mixed with the deep roar of the waves slowly swelling, and retiring from the vast caverns beneath, have produced a fine effect. The sharp voice of the GULLS, the frequent chatter of the GUILLEMOTS, the loud notes of the AUKS, the scream of the HERONS, together with the deep periodical croak of the CORVORANTS, which serves as a basis to the rest, have often furnished me with a concert, which, joined to the wild scenery surrounding me, afforded in an high degree that species of pleasure which results from the novelty and the gloomy majesty of the entertainment.

At *Flamborough* head commence the hard or rocky coasts of this side of *Great Britain*, which continue, with the interruption of a few sandy bays and low land, to the extremity of the kingdom. It often happens, that the bottom of the sea partakes of the nature of the neighboring element:

thus,

ROCKY COASTS
BEGIN.

The

thus, about *Flamborough* head, and a few miles to the northward (in places) the shores are rocky, and the haunts of lobsters and other crustaceous animals. From these strata a tract of fine sand, from one to five miles in breadth, extends sloping eastward, and from its edge to that of the *Dogger-bank* is a deep bottom, rugged, rocky, and cavernous, and in most parts overgrown with corallines and submarine plants.

This disposition of shore gives to the inhabitants of this coast the advantageous fishery which they possess; for the shore on one hand, and the edges of the *Dogger-bank* on the other, like the sides of a decoy, give a direction to the immense shoals of the Cod genus, which annually migrate from the northern ocean, to visit, reside, and spawn, in the parts adjacent to our coasts. They find plenty of food from the plants of the rocks, and the worms of the sand, and secure shelter for their spawn in the cavernous part of the scarry bottom. It is in the channel between the banks and the shores, in which the Cod are taken, or in the hollows between the *Doggers* and *Well-bank*; for they do not like the agitation of the water on the shallows. On the contrary, the SKATES, the Holibuts, Flounders, and other flat fish, bury themselves in the sand, and secure themselves from the turbulence of the waves.

HADDOCKS.

An amazing shoal of Haddocks visit this coast periodically, generally about the tenth of *December*, and continue there all *January*. They extend from the shore near five miles in breadth, and packed as close as they can swim; and in length from *Flamborough* head to *Tinmouth* castle, perhaps to *Berwick*. Their inner edge is only a mile from the shore. They are entirely taken by the hook, the use of the net being prohibited, much to the injury of this species of commerce. An army of a small species of Shark, the PICKED, *Br. Zool.* iii. N° 40, flanks the outside of this shoal to prey upon it; for when the fishermen cast their lines beyond, they never catch any but those voracious fish*.

* Consult vol. iii. of the *Br. Zoology* for an account of the fish on this coast: also the *Tour in Scotland*, 1769. To Mr. *Travis*, Surgeon in *Scarborough*, I am indebted for the most curious articles.

Between

Between *Flamborough* head and *Scarborough* projects *Filey Brig*, a ledge of rocks running far into the sea, the cause of frequent shipwrecks. *Scarborough* castle, seated on a vast rock projecting into the water, succeeds. The spring-tides, at the time of the equinoxes, rise here twenty-four feet; but at other times only twenty: the neap-tides from twelve to sixteen. Then *Whitby*, noted for its neighboring allum-works, and more for its fine harbour, the only one on the whole coast: the admittance into which is a narrow channel between two high hills: it expands largely within, and is kept clean by the river *Esk*. From hence to the mouth of the *Tees*, the boundary between this county and that of *Durham*, is a high and rude coast, indented with many bays, and varied with little fishing villages, built strangely among the cliffs, filling every projecting ledge, in the same manner with those of the peasants in the picturesque and rocky parts of *China*.

The *Tees*, the northern limit of this great county, opens with a wide mouth and mudded bottom into the sea. This was the *Dunum Estuarium* of *Ptolemy*; and serves as a brief entrance for navigators into the country. Almost all the northern rivers descend with a rapid course, from their mountainous rise and supply; and afford but a short navigation. From hence the lead of the mineral parts of *Durham*, and the corn of its more level parts, are imported. In the mud of this estuary, more particularly, abounds the *Myxine Glutinosa* of *Linnaeus*, the *Hag* of the neighboring fishermen; a worm, which enters the mouths of the fish taken on hooks, that remain a tide under water, and devours the whole, leaving only the skin and bones. This also is the worm which converts water into a sort of glue.

From *Seaton Snook*, in the bishoprick of *Durham*, to *Hartlepool*, is a series of sand-banks, and the shore a long-continued sandy shallow. From the *Ness Point* of *Hartlepool* to *Blackballs* is a rocky lime-stone coast, with frequent intervals of sand-bank, and a stony beach; but *Sebam* and *Hartlepool* is so very rugged, that no enemy could land, or even stand off the shore, without the most imminent danger: in particular, the coasts about *Hawthorn Hive* are bold, excavated, and formed into grotesque figures,

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for

FILEY BRIG.

TEES.

DURHAM.

Between

NORTHUMBER-
LAND.

for several miles, and the coasts rough with a broken and heavy sea, by reason of the hidden rocks and spits of sands which run out far from land. From *Sebam* to *Sunderland* are sand-hills and shallow sandy beaches. From *Weremouth* to near *Cleaddon*, low rocks of lime-stone form the coast, here and there intersected with sand-hills and stony beaches. From thence to the mouth of the *Tyne*, and even to *Dunstanbrough* in *Northumberland*, the shore is sandy, and the land in a few places rocky; but from thence to *Bamborough*, the coasts are high and rocky, in many places run far into the sea, and at low tides shew their heads above water.

Bamborough castle stands on the last of the range of rocky cliffs. This fortress was founded by the *Saxon* monarch *Ida*. After various fortunes, it has proved in its dismantled state of more use to mankind than when it boasted some potent lord and fierce warders. A charitable prelate of the see of *Durham* purchased the estate, and left it for the use of the distressed seamen who might suffer shipwreck on this dangerous coast, and to unconfined charitable purposes, at the discretion of certain trustees. The poor are, in the dearest seasons, supplied with corn at a cheap rate; the wrecked, found senseless and benumbed with cold, are taken instantly into these hospitable walls, and restored to life by the assistance of food, medicine, and warm beds; and if the ship is capable of relief, that also is saved, by means of machines always ready for the purpose*.

FARN ISLES.

The *Farn islands*, or rather rocks, form a group at no great distance from shore; the nearest a mile and sixty-eight chains; the farthest about seven. These probably, at some remote period, have been convulsed from the land, but now divided from it by a furious tide, rushing through a channel from five to twelve fathoms in depth. The original sea, to the east of the *Staples*, the remotest rocks, suddenly deepens to forty or fifty†. *St. Cutbert* first made these rocks of note: he occasionally made the largest of them the seat of his devotion and seclusion from the world; expelling, says superstition, the malignant spirits, the pre-occupants.

* *Tour in Scotland*, 1769; and fuller in Mr. *Hutchinson's Northumberland*, ii. 176.

† *Adair. Hammond. Thompson.*

Some remains of a chapel are still to be seen on it. For ages past, the sole tenants are a few cows, wafted over from the main land in the little cobs, or boats of the country; and the EIDER DUCKS, still distinguished here by the name of the Saint. Numberless sea-fowls, and of great variety of kinds, possess the remoter rocks, on which they find a more secure retreat than on the low-cliffed shores. To most of the marine feathered tribe the whole coast from *Flamborough* head to that of *St. Ebb's* is inhospitable. They seek the loftiest promontories. Where you hear of the haunts of the RAZOR-BILLS and GUILLEMOTS, CORVORANTS and SHAGS, you may be well assured, that the cliffs soar to a distinguished height. Where those are wanting, they retire to sea-girt rocks, as spots the least accessible to mankind. The five species of AUKS and GUILLEMOTS appear in spring, and vanish in autumn: the other birds preserve their native haunts, or spread along the neighboring shores.

From *Bamborough* to the mouth of the *Tweed* is a sandy shore, narrowing as it approaches our sister kingdom. *Lindesfarn*, or the *Holy Island*, with its ruined cathedral and castle, lie remote from coast, accessible at every recess of tide, and possibly divided from *Northumberland* by the power of the waves in distant ages. The tides do not swell over this tract in the usual manner of apparent flowing and gradual approach; but ooze gently out of every part of the sand, which at first appears a quaggy extent, then, to the terror of the traveller, surrounds him with a shining plain of smooth unruffled water, reflecting the varied landscapes of the adjoining shores*.

The *Tweed*, the ancient *Alaunus*, a narrow geographical boundary between us and our fellow-subjects the *Scottish* nation, next succeeds. After a short continuance of low land, *St. Ebb's head*, a lofty promontory, projects into the sea (frequented in the season by RAZOR-BILLS, GUILLEMOTS, and all the birds of the *Bass*, excepting the GANNET) and its lower part is hollowed into most august caverns. This, with *Fifeness*, about thirty miles distant, forms the entrance into that magnificent estuary the firth of FIRTH OF FORTH.

SCOTLAND.

ST. EBB'S HEAD.

FIRTH OF FORTH.

* Mr. *Hutchinson*, ii. 151.

Forth, which extends inland sixty miles; and, with the canal from *Carron* to the firth of *Clyde*, intirely insulates the antient *Caledonia*. The isle of *May* appears near the northern side of the entrance; the vast towering rock, the *Bass*, lies near the southern. This lofty island is the summer resort of birds innumerable, which, after discharging the first duty of nature, seek, with their young, other shores or other climates. This is one of the few spots in the northern hemisphere on which the GANNETS nestle. Their size, their snowy plumage, their easy flight, and their precipitate plunge after their prey, distinguish them at once from all the rest of the feathered tenants of the isle, the CORVORANTS and AUKS, the flights of whom are rapid, and the GULLS, which move with sluggish wing.

Near the *Bass* the entrance narrows, then opens, and bending inwards, forms on each side a noble bay. The *Firth* contracts to a very narrow streight at *Queensferry*; then winds beautifully, till it terminates beyond *Alloa*, in the river to which it owes its name. The coasts are low, in part rocky, in part a pleasant beach; but every where of matchless beauty and population. *Edinburgh*, the capital, rises with true grandeur near the shore, with its port, the great emporium, *Leith*, beneath, where the spring-tides sometimes rise fifteen and sixteen feet, and to seventeen or eighteen when the water is forced up the firth by a violent wind from the north-east. Almost every league of this great estuary is terminated with towns or villages, the effects of trade and industry. The elegant description of the coast of *Fife*, left us by *Johnston**, is far from being exaggerated; and may, with equal justice, be applied to each shore.

FIFESHIRE, bounded by the firths of *Forth* and *Tay*, projects far into the sea; a country flourishing by its industry, and happy in numbers of ports, natural, artificial, or improved. Coal and lime, the native productions of the county, are exported in vast quantities. Excepting the unimportant colliery in *Sutherland*, those at *Largo Wood*, midway between the bay and *St. Andrews*, are the last on this side of *North Britain*. The coasts in general of this vast province are rocky and precipitous; but

COAL,
ITS EXTENT.

* See *Tour in Scotland*, 1772. part ii. p. 212.

far from being lofty. The bays, particularly the beautiful one of *Largo*, are finely bounded by gravelly or sandy shores; and the land, in most parts, rises high to the middle of the county. Towards the northern end, the river *Edin*, and its little bay, by similarity of sound point out the *Tinna* of the old geographer.

The estuary of the *Tay* limits the north of *Fife*shire. Before the mouth extends the sand retaining the *British* name of *Aber-tay*, or the place where the *Tay* discharges itself into the sea. The *Romans* preserved the antient name, and Latinized it into *Tava*. The entrance, at *Brough-tay* castle, is about three quarters of a mile wide; after which it expands, and goes about fourteen miles up the country before it assumes the form of a river. At the recess of the tides there appears a vast extent of sands, and a very shallow channel; but the high tides waft, even as high as *Perth*, vessels of a hundred and twenty tons. The shores are low, and the ground rises gently inland on the southern side: on the north it continues low, till it arrives at the foot of the *Grampian* hills, many miles distant. In some remote age the sea extended on the north side far beyond its present bounds. At a considerable distance above the flourishing port of *Dundee*, and remote inland, anchors have been found deep in the soil*. When these parts were deserted by the sea, it is probable that some opposite country was devoured by an inundation, which occasioned this partial desertion.

From thence to *Aberbrothick*, in the shire of *Angus*, noted for the venerable remains of its abbey, is a low and sandy shore. From *Aberbrothick* almost to *Montrose*, arises a bold rocky coast, lofty and precipitous, except where interrupted by the beautiful semicircular bay of *Lunan*. Several of the cliffs are penetrated by most amazing caverns; some open into the sea with a narrow entrance, and internally instantly rise into high and spacious vaults, and so extensively meandering, that no one as yet has had the courage to explore the end. The entrance of others shame the work of art in the noblest of the *Gothic* cathedrals. A magnificent portal appears divided in the middle by a great column, the basis of which sinks

* *Douglas's East Coast of Scotland*, 14.

deep in the water. Thus the voyager may pass on one side in his boat, survey the wonders within, and return by the opposite side.

The cavern called the *Geylit-pot*, almost realises in form a fable in the *Persian Tales*. The hardy adventurer may make a long subterraneous voyage, with a picturesque scenery of rock above and on every side. He may be rowed in this solemn scene till he finds himself suddenly restored to the light of the heavens: he finds himself in a circular chafin, open to the day, with a narrow bottom and extensive top, widening at the margin to the diameter of two hundred feet. On attaining the summit, he finds himself at a distance from the sea, amidst corn-fields or verdant pastures, with a fine view of the country, and a gentleman's seat near to the place from which he had emerged. Such may be the amusement of the curious in summer calms! but when the storms are directed from the east, the view from the edge of this hollow is tremendous; for, from the height of above three hundred feet, they may look down on the furious waves, whitened with foam, and swelling from their confined passage.

Peninsulated rocks often jut from the face of the cliffs, precipitous on their sides, and washed by a great depth of water. The isthmus which joins them to the land, is often so extremely narrow as to render it impassable for more than two or three persons abreast; but the tops spread into verdant areas, containing vestiges of rude fortifications, in antient and barbarous times the retreat of the neighboring inhabitants from the rage of a potent invader*.

MONTROSE.

Montrose, peninsulated by the sea, and the basin its beautiful harbour, stands on a bed of sand and gravel. The tide rushing furiously through a narrow entrance twice in twenty-four hours, fills the port with a depth of water sufficient to bring in vessels of large burden. Unfortunately, at the ebb they must lie dry; for none exceeding sixty tons can at that period float, and those only in the channel of the *South Esk*, which, near *Montrose*, discharges itself into the sea.

A sandy coast is continued for a small distance from *Montrose*. Rude

* These descriptions borrowed from my own *Tours*.

rocky

rocky cliffs re-commence in the county of *Merns*, and front the ocean. Among the highest is *Fowls-beugh*, noted for the resort of multitudes of sea-birds. *Bervie* and *Stonehive* are two small ports overhung with rocks; and on the summit of a most exalted one, are the vast ruins of *Dunnoter*, once the property of the warlike family of the *Keiths*. The rocks adjacent to it, like the preceding, assume various and grotesque forms.

A little farther the antient *Deva*, or *Dee*, opens into the sea, after forming a harbour to the fine and flourishing town of *Aberdeen*. A sandy coast continues for numbers of miles, part of which is so moveable as almost totally to have overwhelmed the parish of *Furvie*: two farms only exist, out of an estate, in 1600, valued at five hundred pounds a year.

A majestic rocky coast appears again. The *Bullers* of *Buchan*, and the noble arched rock, so finely represented by the pencil of the Reverend Mr. *Cordiner**, are justly esteemed the wonders of this country. The former is an amazing harbour, with an entrance through a most august arch of great height and length. The inside is a secure basin, environed on every side by mural rocks: the whole projects far from the main land, and is bounded on each side by deep creeks; so that the traveller who chuses to walk round the narrow battlements, ought first to be well assured of the strength of his head.

A little farther is *Peterhead*, the most eastern port of *Scotland*, the common retreat of wind-bound ships; and a port which fully merits the attention of government, to render it more secure. *Kinnaird-head*, the *Taizalum promontorium*, lies a little farther north, and, with the north-eastern extremity of *Cathness*, forms the firth of *Murray*, the *Tua Æstuarium*, a bay of vast extent. *Troup-head* is another vast cape, to the west of the former. The caverns and rocks of that promontory yield to none in magnificence and singularity of shape: of the latter, some emulate the form of lofty towers, others of inclining pyramids with central arches, pervious to boats. The figures of these are the effect of chance, and owing to the collision of the waves, which wearing away the earth and

BULLERS OF
BUCHAN.

PETERHEAD.

CAVERNS AND
SINGULAR ROCKS.

HOW FORMED.

* *Antiquities and Scenery of Scotland*, letter vi. plates ii. iii.

crumbly

rocky

crumbly parts, leave them the just subjects of our admiration. Sea-plants, shells, and various sorts of marine exanguious animals, cloath their bases, washed by a deep and clear sea; and their summits resound with the various clang of the feathered tribe.

From hence the bay is bounded on the south by the extensive and rich plains of *Murray*. The shore wants not its wild beauties. The view of the noble cavern, called the rocks of *Cauſſie*, on the shore between *Burgh-head* and *Loſſie* mouth, drawn by Mr. *Cordiner*, fully evinces the assertion. The bottom of the bay closes with the firth of *Inverness*, from whence to the *Atlantic* ocean is a chain of rivers, lakes, and bays, with the interruption only of two miles of land between *Loch-oich* and *Loch-lochy*. Unite those two lakes by a canal, and the rest of *North Britain* would be completely insulated.

To the north the firth of *Cromartie*, and the firth of *Tayne*, the *Vara Æstuarium*, penetrate deep into the land. From *Dornoch*, the coast of *Sutherland* is low and sandy, except in a few places: one, at the water of *Brora*, is distinguished by the beauty of the rocky scenery; in the midst of which the river precipitates itself into the sea, down a lofty precipice. The *Scottish Alps*, which heretofore kept remote from the shore, now approach very near; and at the great promontory, the *Ripa Alta* of *Ptolemy*, the *Ord*, i. e. *Aird* of *Cathness*, or the *Height* of *Cathness*, terminate in a most sublime and abrupt manner in the sea. The upper part is covered with gloomy heath; the lower is a stupendous precipice, excavated into vast caverns, the haunt of Seals and different sea-fowl. On the eastern side of the kingdom, this is the striking termination of the vast mountains of *Scotland*, which form its *Highlands*, the habitation of the original inhabitants, driven from their antient seats by the ancestors of *Lowland Scots*, descendants of *Saxons*, *French*, and *Normans*, congenerous with the *English*, yet absurdly and invidiously distinguished from them. Language, as well as striking natural boundaries, mark their place. Their mountains face on the west the *Atlantic* ocean; wind along the west of *Cathness*; among which *Morvern* and *Scaraben*, *Ben-Hop* and *Ben-Lugal*, arise pre-eminent. *Sutherland* is entirely *Alpine*, as are *Ross-shire* and *Inverness-shire*.

ORD OF CATH-
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HIGHLAND ALPS.

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CAVES OF CAUSSIE.

Ch. Davidson pinx.



J. Mackenzie del.

p. XVIII

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shire. Their *Summa Alpes* are, *Meal Fourvonnich*, the *Coryarich*, *Benevish*, and *Benevish* near *Fort William*; the last of which is reported to be fourteen hundred and fifty yards in height. Great part of *Aberdeenshire* lies in this tract. It boasts of another *Morvern*, soaring far beyond the others: this is in the centre of the *Grampian bills*, and perhaps the highest from the sea of any in *Great Britain*. They again comprehend the eastern part of *Pertshire*, and finish on the magnificent shores of *Loch-tomond*, on the western side of which *Ben-tomond* rises, distinguished among its fellows. From hence the rest of *North Britain* forms a chain of humbler hills; but in *Cumberland*, part of *Westmoreland*, *Yorkshire*, *Lancashire*, and *Derbyshire*, the *Alps* resume their former majesty. A tedious and tame interval succeeds. The long sublime tract of *Wales* arises, the antient possession of the antient *British* race. From the *Ord*, the great mountains recede inland, and leave a vast flat between their bases and the sea, fronting the waves with a series of lofty rocky precipices, as far as the little creek of *Staxigo*; the whole a bold, but most inhospitable shore for shipping. *Wick* and *Staxigo* have indeed their creeks, or rather chafms, which open between the cliffs, and may accidentally prove a retreat, unless in an eastern gale.

Sinclair and *Freswick* bays are sandy, and afford safe anchorage: from the last the country rises into lofty cliffs, many composed of small strata of stones, as regular as a mason could lay them; and before them rise insulated stacks or columns of similar materials, some hollowed into arches; others, pillar-like, aspire in heights equal to the land*. These are animated with birds. All their œconomy may be viewed with ease from the neighboring cliffs; their loves, incubation, exclusion, and nutrition. I propose, as examples of magnificent views, *Boddam* castle, *Dunby-head*, and *Finlater* castle, in the Reverend Mr. *Cordiner's* Views in *North Britain*; the *Bullers* of *Buchan*, the perforated rock near them, the perforated pyramid near *Banff*, and the insulated column off *Catbness*, in his Letters on the Scenery and Antiquities of the North of *Scotland*.

* See Mr. *Cordiner's* beautiful view of a stack of this kind, tab. xv.

E

Dunsty-head,

ENGLISH.

CAMBRIAN.

DUNGSBY-HEAD. *Dungby-head*, the antient *Berubium*, terminates the eastern side of this kingdom, as *Far-out-head*, the old *Tarvedum*, does the western. *Strathy-head*, the *Vervedrum* of *Ptolemy*, lies intermediate. The whole tract faces the north, and consists of various noted headlands, giving shelter to numerous bays, many of which penetrate deep into the country. Let me make this general remark,—that nature hath, with a niggardly hand, dealt out her harbours to the eastern coasts of the *British* isles; but shewn a profusion on their western sides. What numberless lochs, with great depth of water, wind into the western counties of *Scotland*, overshadowed and sheltered by lofty mountains! and what multitudes of noble harbours do the western provinces of *Ireland* open into the immense *Atlantic* ocean! A few estuaries, such as the *Humber* and *Tinmouth*, open into the land of *England*; and what are called *firths* in *Scotland*, distantly placed by nature, are the only ports of the eastern coasts.

**GERMAN OR
NORTH SEA.**

The sea which washes the shores of *Britain*, which have passed under my review, was originally called, by one of the antients*, *Oceanus Britannicus*, forming part of that vast expanse which surrounds our islands. *Pliny* confined that title to the space between the mouth of the *Rhine* and that of the *Seine*; and bestowed on this sea the name of *Septentrionalis* †; and *Ptolemy* called it *Germanicus*: both which it still retains. Its northern extremity lies between *Dungby-head*, in lat. 58, 35 north, and the same latitude in the south of *Norway*. Before the separation of *Britain* from *Gaul* it could only be considered as a vast bay; but that period is beyond the commencement of record. The tides flow into it from the north-east to the south-west, according to the direction of the coast; but in mid-sea the reflux sets to the north, to discharge itself through the great channel between the *Scherland* isles and *Norway* ‡. The depth of water, at highest spring-tides, in the streights of *Dover*, is twenty-five fathoms: it deepens to thirty-one, between *Lowstoft* and the mouth of the *Maes*: between the *Wells-bank* and *Doggers-bank* gains, in one place only, a few fathoms. Beyond the *Dogger* it deepens from forty-eight to seventy-two: between

**TIDES, THEIR
DIRECTION;**

DEPTHS.

* *Mela*.

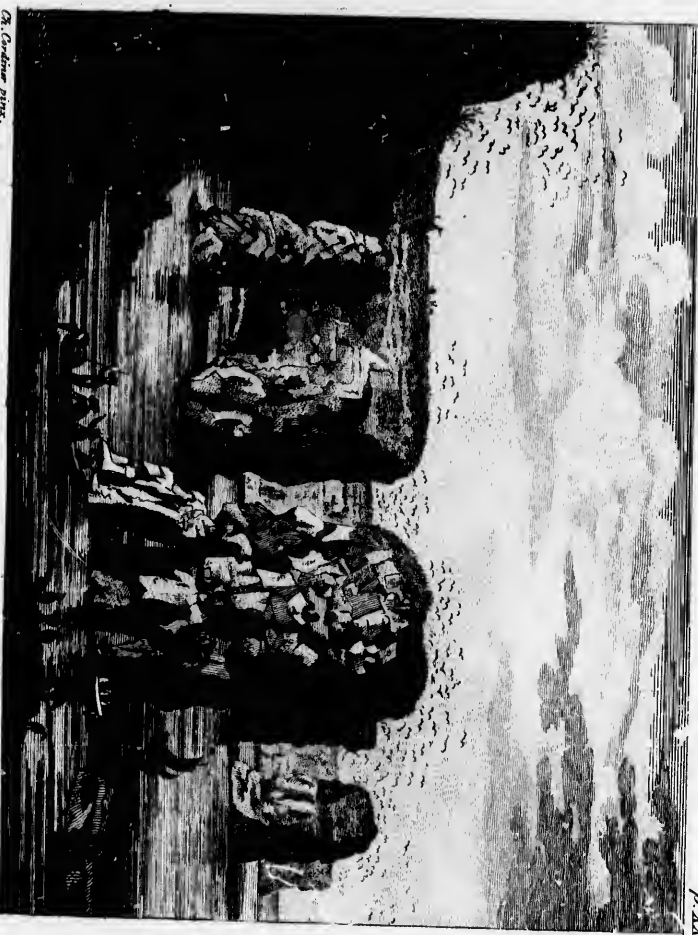
† *Plin.* lib. iv. c. 19.

‡ *Mr. William Ferguson*.

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Buchan-nefs and *Schutnefs* in *Norway*, within the *Buchan-deeps*, it has from eighty-six to a hundred fathoms; then decreases, towards the *Orkney* and *Schetland* ifles, from seventy-five to forty; but between the *Schetlands* and *Bergen*, the northern end of this fea, the depth is from a hundred and twenty to a hundred and fifty fathoms.

The coasts from *Dungby-bead* to *Flamborough-bead* are bold and high, and may be feen at fea from feven to fourteen leagues: from the laft to *Spurn-bead* is alfo a clear coast; but the reft of the coast of *Norfolk* and *Suffolk* is low, vifible at fmall diftance, and rendered dangerous by the number of fand-banks projecting far to fea. After paffing the *Spurn-bead*, navigators fteer between the inner and outer *Doufings*, for the floating light kept on board a fmall vefel (conftituted for that purpofe) always anchored at the inner edge of a fand called *Dogfon's Shoal*, about eight leagues from the coast of *Lincolnfhire*, in about fifteen fathom water. From thence they make for *Cromer* in *Norfolk*; and from that point, till they arrive at the *Nore*, their track is all the way through a number of narrow channels near the moft dangerous fands: to which, if we add foggy weather, dark nights, ftorms, contrary winds, and very near adjacent lee-ftores, it may be very fairly reckoned the moft dangerous of the much-frequented navigations in the world.

In thefe fea, off the coast of *Norfolk*, *James II.* when duke of *York*, had the ill fortune to efcape fhipwreck, to have clofed a life of glory, and to have prevented the calamities which befel himfelf, his pofterity, and kingdoms, which a conduct of which he had begun to give fymptoms, brought upon them. In the fort of exile he was obliged to take to *Scotland*, on *May 5th*, 1682, his frigate ftruck on the *Lemon* and *Ore*, two dreadful fands off *Winterton-nefs*. His Highnefs, with fome few, were preferved: feveral people of quality perifhed. Malevolence fays, that the duke called out to fave his dogs, his priefts, and his favorite, the lord, afterwards duke of *Marlborough*. His Highnefs certainly had not the gift of prefcience, or he would not have clafled in his faving orders his grace with the moft faithful of animals. His Highnefs fhewed on this occafion his ufual intrepidity. A medal was ftruck of a finking fhip, with the

motto *Impavidum feriant*. The heroism and loyalty of the common men who were left behind, had the fullest claim to every honor. On seeing their popular and beloved commander out of danger, they gave three loud cheers, and on the third sunk exulting to the bottom.

SAND-BANKS.

But fortunately, to the north of these, this sea is much more remarkable for sand-banks of utility than of danger, and would never have been observed but for the multitudes of fishes which, at different seasons, according to their species, resort to their sides, from the great northern deeps, either for the sake of variety of food which they yield, or to deposit their spawn in security. The first to be taken notice of does not come within the description, yet should not be passed over in silence, as it comes within the natural history of the *North* sea. An anonymous sand runs across the channel between *Buchan-nefs* and the north end of *Futs-riff*: the least depth of water over it is forty fathoms; so that it would scarcely be thought of, did not the water suddenly deepen again, and form that place which is styled the *Buchan-deeps*.

LONG FORTYS.

The *Long Bank*, or the *Long Fortys*, bears E. S. E. from *Buchan-nefs*, about forty-five miles distant, and extends southward as far as opposite to *Newcastle*; is about fifty leagues in length, and seven in breadth; and has on it from thirty-two to forty-five fathoms of water. The ground is a coarse gravel, mixed with marine plants, and is esteemed a good fishing bank.

The *Mar Bank* lies between the former and the shore opposite to *Berwick*; is oval, about fifteen miles long, and has about twenty-six fathom of water, and round it about forty.

MONTROSE PITS.

The bank called *Montrose Pits* lies a little to the east of the middle of the *Long Fortys*. It is about fifty miles long, and most remarkable for five great pits or hollows, from three to four miles in diameter: on their edges is only forty fathom water; yet they suddenly deepen to seventy, and even a hundred fathom, on a soft muddy bottom: the margins on the contrary are gravelly. I enquired whether the surface of this wonderful bank appeared in any way agitated, as I had suspicion that the pits might have been productive of whirlpools; but was informed, that the sea there exhibited no uncommon appearance.

The

The noted *Doggers Bank* next succeeds. It commences at the distance of twelve leagues from *Flamborough-head*, and extends across the sea, nearly east, above seventy-two leagues, joining *Horn-riff*, a very narrow strip of sand which ends on the coast of *Jutland*. The greatest breadth is twenty leagues; and in parts it has only on it ten or eleven fathoms of water, in others twenty-four or five. To the south of the *Dogger* is a vast extent of sand-bank, named, in different parts, the *Well Bank*, the *Swart Bank*, and the *Brown Bank*, all covered with sufficient depth of water; but between them and the *British* coasts are the *Ore* and the *Lemon*, dreaded by mariners, and numbers of others infamous for shipwrecks. The channel between the *Dogger Bank* and the *Well Bank* deepens even to forty fathoms. This hollow is called the *Silver Pits*, and is noted for the cod-fishery which supplies the *London* markets. The cod-fish love the deeps: the flat-fish the shallows. I will not repeat what I have, in another place, so amply treated of*. I must only lament, that the fisheries of this bank are only subservient to the purposes of luxury. Was (according to the plan of my humane friend, Mr. *Travis* of *Scarborough*) a canal formed from any part of the neighboring coast to that at *Leeds*, thousands of manufacturers would receive a cheap and wholesome food; insurrections in times of scarcity of grain be prevented; our manufactures worked at an easy rate; and our rivals in trade thereby underfold.

In the late fatal war, when *Britain* had all *Europe* to contend with, as secret or open enemies, aiding the defection of its own long-fostered children, the *Dutch* drew on themselves an indignation which perhaps it might have been prudent to suppress. The states exerted their reliques of naval life; which emitted its last sparks on *August* 5th, 1781, off the *Dogger Bank*. Our gallant veteran, vice-admiral *Hyde Parker*, commanded our little fleet of six ships of the line, opposed to eight two-deckers commanded by admiral *Zoutman*. The *Dutch*, disused to arms for a long series of years, collected their antient valour: neither the *British* nor *Belgic* lion

* See *Br. Zool.* iii. Articles Haddock, Ling, and Turbot.

seemed

DOGGER'S BANK.

WELL BANK.

SEA FIGHT OFF
THE DOGGER
BANK IN 1781.

The

seemed to have degenerated: the *Dutch* lost one ship of the line, sent to the bottom. The rest sought the safety of the *Texel*, and never more vindicated the dominion of the sea.

I have, to the best of my abilities, enuinerated the *British* fish, in the third volume of the *British Zoology*. The *Faunula* which I have prefixed to Mr. *Lightfoot's Flora Scotica*, contains those which frequent the northern coasts of *Great Britain*; in which will be found wanting many of those of *South Britain*. The Reverend Mr. *LIGHTFOOT*, in that work, hath given a most elaborate account of the submarine plants of our northern sea.

CALEDONIAN
OCEAN.

I will now pursue my voyage from the extreme shores of *North Britain* through a new ocean. Here commences the *Oceanus Caledonius*, or *Deucalidonus*, of *Ptolemy*; a vast expanse, extending to the west as far as *Greenland*, and to the extreme north. This I should call the *NORTHERN OCEAN*, distinguishing its parts by other names suitable to the coasts. From *Dungby-head* the *Orkney* islands appear spreading along the horizon, and yield a most charming prospect. Some of them are so near as distinctly to exhibit the rocky fronts of those bold promontories which sustain the weight of the vast currents from the *Atlantic*. Others shew more faint: their distances finely expressed as they retire from the eye, until the mountains of the more remote have scarcely a deeper azure than the sky, and are hardly discernible rising over the surface of the ocean*.

ORKNEY
ISLANDS.

STROMA.

Between these and the main land, about two miles from the *Cathness* shore, lies *Stroma*, the *Ocetis* of *Ptolemy*, a little island, an appertenance to that country, fertile by the manual labor of about thirty families; pleasant, and lofty enough for the resort of the Auk tribe. The noted mummies are now lost, occasioned by the doors of the caverns in which they were deposited being broken down, and admision given to cattle, which have trampled them to pieces. This catacomb stands on a neck of land

* Mr. *Cordiner's* elegant description, p. 85.

bounded by the sea on three sides. The salt air and spray expels all insects, and is the only preservation the bodies have; some of which had been lodged here a great number of years. In many of the isles, the inhabitants use no other method for preserving their meat from putrefaction than hanging it in caves of the sea, and the method is vindicated by the success.

This island lies in the *Pentland Firth*, noted for the violence of the tides; tremendous to the sight, but dangerous only when passed at improper times. They set in from the north-west: the flood, on the contrary, on the coasts of *Lewis*, pours in from the south*. The tide of flood upon *Stroma* (and other islands similarly situated in mid-stream) divides or splits before it reaches it. A current runs with great violence on both sides, then unites, at some distance from the opposite end, and forms a single current, running at spring-tides at the rate of nine knots an hour; at neap, at that of three only. The space between the dividing tides, at different ends of an island, is quite stagnant, and is called the eddy. Some of them are a mile or two long, and give room for a ship to tack to and fro, till the tides are so far spent as to permit it to pursue its voyage.

The most boisterous parts of the streams are at the extremities of the island, and a little beyond the top of the eddy, where they unite. The collision of these opposite streams excite a circular motion, and, when the tide is very strong, occasion whirlpools in form of an inverted bell, the largest diameter of which may be about three feet. In spring-tides they have force enough to turn a vessel round, but not to do any damage: but there have been instances of small boats being swallowed up. These whirlpools are largest when first formed; are carried away with the stream, and disappear, but are quickly followed by others. The spiral motion or suction does not extend far beyond the cavity: a boat may pass within twenty yards of these whirlpools with safety. Fishermen who happen to find themselves within a dangerous distance, sling in an oar, or any bulky

TIDES.

THE SWELCHIE
OF STROMA.* Mackenzie's *Charts of the Orkneys*, p. 4, 5.

body,

ROUFS.

body, which breaks the continuity of the surface, and interrupts the vertiginous motion, and forces the water to rush suddenly in on all sides and fill up the cavity. In stormy weather, the waves themselves destroy this phenomenon. A funk rock near the concourse of these rapid tides occasions a most dreadful appearance. The stream meeting with an interruption, falls over with great violence, reaches the bottom, and brings up with it sand, shells, fishes, or whatsoever else it meets with; which, with boats, or whatsoever it happens to meet, is whirled from the centre of the eruption towards the circumference with amazing velocity, and the troubled surface boils and bubbles like a great cauldron, then darts off with a succession of whirlpools from successive ebullitions. These are called *Roufs*, and are attended with the utmost danger to small boats, which are agitated to such a degree, that (even should they not be overfet) the men are flung out of them, to perish without any chance of redemption. It is during the ebb that they are tremendous, and most so in that of a spring-tide with a west wind, and that in the calmest weather; for during flood they are passed with the greatest safety. Vessels in a calm are never in danger of touching on an island or visible rock, when they get into a current, but are always carried safe from all danger.

SWONA.

Swona, a little island, the most southern of the *Orknies*, is about four miles beyond *Stroma*, and is noted for its tremendous streams, and in particular the whirlpools called the *Wells* of *Swona*, which in a higher degree exhibit all the appearances of the former. What contributes to encrease the rage of the tides, besides their confinement between so many islands, is the irregular position of the sounds, and their little depth of water. The same shallowness extends to every side of the *Orknies*; an evidence that they had once been part of the mother isle, rent from it by some mighty convulsion. The middle of the channel, between *Stroma* and the main land, has only ten fathom water: the greatest depth around that island is only eighteen. The sounds are from three to forty-six fathom deep: the greater depths are between *South Ronaldsha* and *South Wales*; for in general the other sounds are only from three to thirteen; and

DEPTH OF
WATER.

and the circumambient depth of the whole group very rarely exceeds twenty-five.

About these islands commences a decrease of the tides. They lie in a great ocean, in which the waters have room to expand; therefore never experience that height of flood which is constant in the contracted seas. Here ordinary spring-tides do not exceed eight feet; and very extraordinary spring-tides fourteen, even when acted on by the violence of the winds*.

The time of the discovery and population of the *Orknies* is unknown. Probably it was very early; for we are told that they owe their name to the *Greeks*.

Orcades has memorant dictas a nomine *Græco* †

Mela and *Pliny* take notice of them; and the last describes their number and clustered form with much accuracy ‡. The fleet of *Agricola* sailed round them, and made a conquest of them; but the *Romans* probably never retained any part of *Caledonia*. I found no marks of them beyond *Orrea* or *Inchtutbel* §, excepting at *Fortingal* || in *Breadalbine*, where there is a small camp, possibly no more than a temporary advanced post. Notwithstanding this, they must have had, by means of shipping, a communicated knowledge of the coasts of *North Britain* even to the *Orcades*. *Ptolemy* hath, from information collected by those means, given the names of every nation, considerable river, and head-land, on the eastern, northern, and western coast. But the *Romans* had forgotten the navigation of these seas, otherwise the poet would never have celebrated the courage of his countrymen, in sailing in pursuit of the plundering *Saxons* through *unknown freights*, and a naval victory obtained off these islands by the forces sent to the relief of the distressed *Britens* by *Honorius*,

Quid Sidera profunt?

Ignotumque fretum? Maderunt *Saxone* fuso
Orcades ¶.

* *Murdoch Mackenzie*. † *Claudian*. ‡ *Mela*, lib. iii. c. 6. *Plin.* lib. iv. c. 16.
§ *Four Scotl.* 1772. p. 70. || Same, p. 25. ¶ *Claudian*, de iv. *Cons. Honorii*.

LANGUAGE.

ROCKS OF THE
ORKNIES.

BIRDS.

The *Orkney* isles in after times became possessed by the *Picts*; and again by the *Scots*. The latter gave way to the *Norwegian* pirates, who were subdued by *Harold Harfargre* about the year 875*, and the islands united to the crown of *Norway*. They remained under the *Norwegians* till the year 1263, accepted their laws, and used their language. The *Norse*, or *Norwegian* language was generally used in the *Orkney* and *Schetland* islands even to the last century: but, except in *Foula*, where a few words are still known by the aged people, it is quite lost. The *English* tongue, with a *Norwegian* accent, is that of the islands; but the appearance of the people, their manners and genius, evidently shew their northern origin. The islands vary in their form and height. Great part of *Hoy* is mountainous and lofty. The noted land-mark, the hill of *Hoy*, is said to be five hundred and forty yards high. The sides of all these hills are covered with long heath, in which breed multitudes of CURLEWS, GREEN PLOVERS, REDSHANKS, and other Waders. The SHORT-EARED OWL is also very frequent here, and nestles in the ground. It is probable that it is from hence, as well as from *Norway*, that it migrates, in the beginning of winter, to the more southern parts of *Britain*. Most of the Waders migrate; but they must receive considerable reinforcements from the most distant parts of the north, to fill the numbers which cover our shores. The cliffs are of a most stupendous height, and quite mural to the very sea. The *Berry Head* is an exalted precipice, with an august cave at the bottom, opening into the sea. The ERN EAGLES possess, by distant pairs, the upper part of the rocks: neither these nor any other Falcons will bear society; but, as *Pliny* elegantly expresses it, *Adultos persequitur parens et longè fugat, æmulus scilicet rapinæ. Et alioquin unum par aquilarum magno ad populandum tractu, ut satiatur, indiget* †. AUKS, CORVRANTS, and all the tribes which love exalted situations, breed by thousands in the other parts. The TYSTE, or BLACK GUILLEMOT, secures itself in a crack in the rock, or by scraping a burrow in the little earth it may find; there it lays a single egg, of a dirty olive blotched with a

* *Torfæus Rer. Orcad. lib. i. c. 3. p. 10.*† *Hist. Nat. lib. x. c. 3.*

darker.

S C H E T L A N D.

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darker. This species never migrates from the *Orknies*. The FOOLISH GUILLEMOT continues till *November*. The LITTLE AUK, a rare bird in other parts of *Britain*, breeds in the holes of the lofty precipices. And the LYRE, or the SHEERWATER, burrows in the earth among the rocks of *Hoy* and *Eda*, and forms an article of commerce with its feathers, and of food with its flesh, which is salted and kept for the provision of the winter. In that season they are seen skimming the ocean at most surprising distances from land. The STORMY PETREL breeds frequently among the loose stones; then takes to sea and affrights the superstitious sailor with its appearance. WOODCOCKS scarcely ever appear here. FIELDFARES make this a short baiting-place: and the SNOW BUNTING often alights and covers whole tracts of country, driven by the frost from the farthest north.

A few WILD SWANS breed in some lochs in *Mainland*; but the greatest part of these birds, all the BERNACLES, BRENT GEESE, and several other palmated birds, retire in the spring to more northern latitudes. But to the SWALLOW-TAILED DUCK, the PINTAIL, and a few others, this is a warm climate; for they retire here to pass their winters in the sheltered bays. Any other remarks may be intermixed with those on *Schetland*; for there is great similarity of subjects in both the groups.

The last lie about sixty miles to the north-east of the most northern *Orkney*. Midway is *Fair Island*, a spot about three miles long, with high and rocky shores, inhabited by about a hundred and seventy people: an industrious race; the men fishers; the women knitters and spinners. The depth of water round varies to twenty-six fathoms. The tide divides at the north end, runs with great velocity, and forms on the east side a considerable eddy.

Schetland consists of several islands. *Mainland*, the principal, extends from south to north twenty-eight leagues, and is most singularly formed; consisting of an infinite number of *peninsulæ* connected by very narrow isthmuses. That called *Mavisgrind*, which unites the parish of *North Mave*, is only eighty yards broad. But the irregular shape of this island occasions it to abound with the finest and most secure ports, called here

FAIR ISLE.

SCHE TL AN D.

voes; a most providential dispensation in a sea which swarms with fishes of the most general use, otherwise there would be no retreat for the vessels employed in a commerce of such benefit to mankind. The adjacent islands are in general so near to the mother island, and their headlands point so exactly to its corresponding capes, that it is highly probable that they once made a part of the *Mainland*. The rocks and stacks assume great variety of forms, such as steeples and Gothic cathedrals rising out of the water, fleets of ships, and other fancied shapes. The *Doreholm*, in the parish of *North Moven*, is very singular: part is rounded, the rest seems a ruin, composed of a single thin fragment of rock, with a magnificent arch within, seventy feet in height.

To use the words of Captain *Thomas Preston*, to whom we are indebted for an excellent chart of this group; 'the land is wild, barren, and mountainous; nor is there so much as a bush or a tree to be seen. The shores are difficult, and in many parts inaccessible; rude, steep, and iron-like; the sight of which strikes the mind with dread and horror; and such monstrous precipices and hideous rocks as bring all *Brobdingnag* before your thoughts. These islands lie between lat. 60 to 61. In winter the sun sets soon after it rises, and in summer rises soon after it sets; so that in that season the nights are almost as light as the day; as on the contrary, in *December* the day is nearly as dark as the night. About the solstice, we see every night the *aurora borealis*, or, as they are called by the natives, the *merry dancers*, which spread a broad glaring appearance over the whole northern hemisphere*.

LENGTH OF
DAYS.

AURORA BORE-
ALIS.

They are the constant attendants of the clear evenings in all these northern islands, and prove great reliefs amidst the gloom of the long winter nights. They commonly appear at twilight near the horizon, of a dun color, approaching to yellow: sometimes continuing in that state for several hours without any sensible motion; after which they break out into streams of stronger light, spreading into columns, and altering slowly into ten thousand different shapes, varying their colors from all the tints of yellow to the obscurest russet. They often cover the whole hemisphere,

* *Phil. Trans. abr. xi. 1328.*

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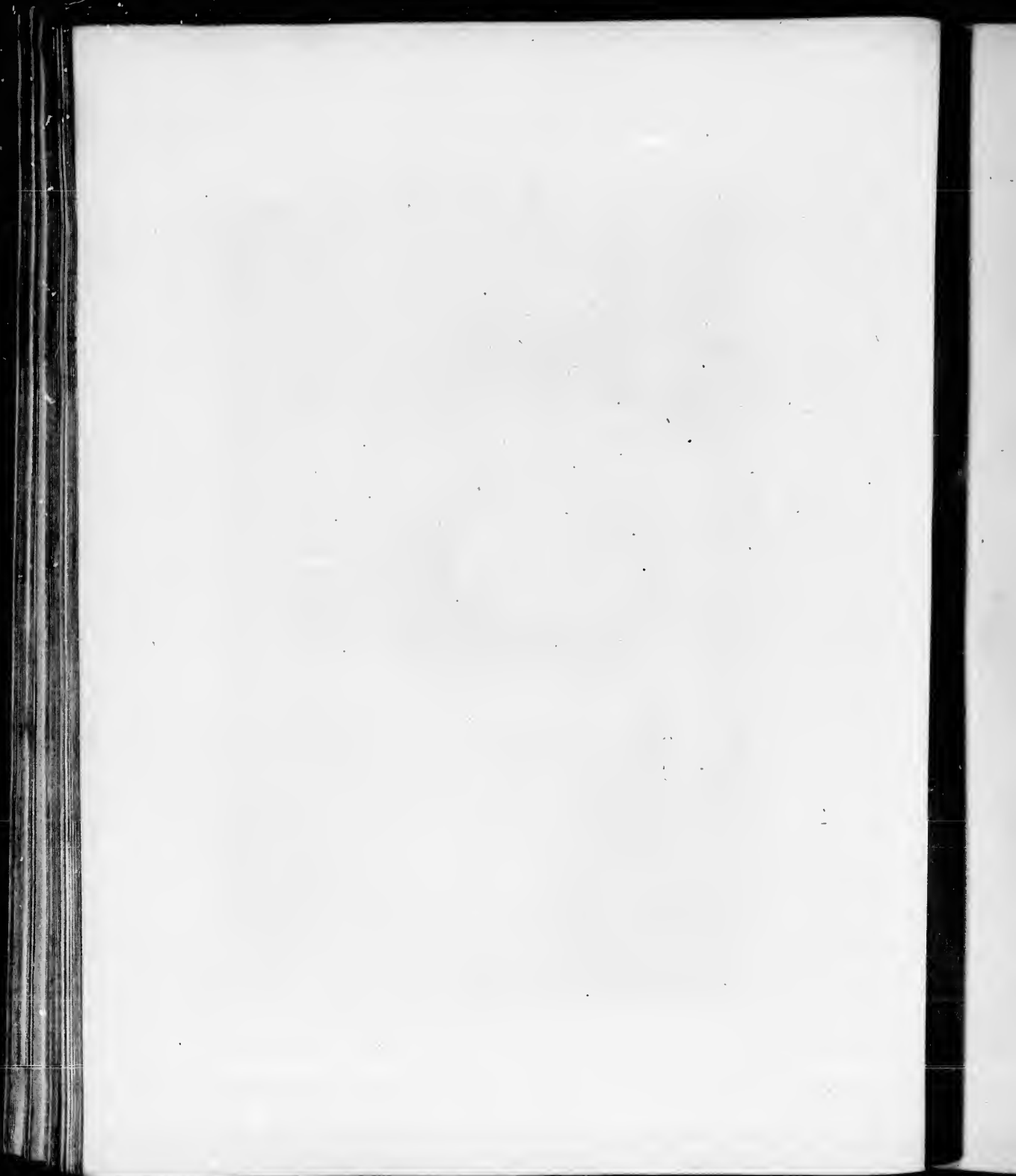


J. Lowmyer

J. Mayall & Co.

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and then make the most brilliant appearance. Their motions at these times are most amazingly quick; and they astonish the spectator with the rapid change of their form. They break out in places where none were seen before, skimming briskly along the heavens: are suddenly extinguished, and leave behind an uniform dusky tract. This again is brilliantly illuminated in the same manner, and as suddenly left a dull blank. In certain nights they assume the appearance of vast columns, on one side of the deepest yellow, on the other declining away till it becomes undistinguished from the sky. They have generally a strong tremulous motion from end to end, which continues till the whole vanishes. In a word, we, who only see the extremities of these northern phænomena, have but a faint idea of their splendor, and their motions. According to the state of the atmosphere they differ in colors. They often put on the color of blood, and make a most dreadful appearance. The rustic sages become prophetic, and terrify the gazing spectators with the dread of war, pestilence, and famine. This superstition was not peculiar to the northern islands; nor are these appearances of recent date. The ancients called them *Chafmata*, and *Trabes*, and *Bolides*, according to their forms or colors*. In old times they were extremely rare, and on that account were the more taken notice of. From the days of *Plutarch* to those of our sage historian *Sir Richard Baker*, they were supposed to have been portentous of great events: and timid imagination shaped them into aerial conflicts.

Fierce fiery warriors fight upon the clouds
In ranks and squadrons and right form of war.

After, I suppose, a very long intermission, they appeared with great brilliancy in *England*, on *March* 6th, 1715-16. The philosophers paid a proper attention †. The vulgar considered them as marking the introduction of a foreign race of princes.

The great *Gassendus* observed the *aurora borealis*, in 1621, near to *Asia*,

* *Aristot. Meteorolog.* lib. i. c. 5. *Plin. Nat. Hist.* lib. ii. c. 26.

† See various accounts of them in the *Phil. Trans. abr.* iv. part ii. 138.

in *Provence* *. But they had been long before seen in *Greenland*, and are well described by the author of the *Speculum Regale*; of whom we know no more than that he was a person of distinction in the *Norwegian* court, about the latter end of the thirteenth century, or beginning of the fourteenth, and resided as far north as *Helgeland*. The novelty is now ceased, and their cause perhaps properly attributed to the greater abundance of electrical matter.

STORMS.

The tempests which reign over these islands during winter is astonishing. The cold is moderate; the fogs great and frequent; but the storms agitate the water even to the bottom of these comparatively shallow seas.

HERRINGS.

The fish seek the bottom of the great deeps: and the Herrings, which appear off the *Schetlands* in amazing columns in *June*, perform the circuit of our island, and retire beyond the knowledge of man. When the main body of these fish approaches from the north, it alters the very appearance of the ocean. It is divided into columns of five or six miles in length, and three or four in breadth, and they drive the water before them with a sort of rippling current. Sometimes they sink for a small space, then rise again; and in bright weather reflect a variety of splendid colors, like a field of most precious gems. Birds and fish of prey attend and mark their progress. The Whales of several kinds keep on the outside, and, deliberately opening their vast mouths, take them in by hundreds. Gannets and Gulls dart down upon them; and the diving tribe aid their persecution, with the cetaceous fishes †. Mankind joins in the chase; for this useful species gives food to millions, mediately and immediately. *Dutch, French, Flemings, Danes, and English*, rendezvous in *Brassa* found to meet these treasures of the ocean: and return to distribute their booty even to the distant *Antilles*.

COD-FISH.

Cod, Ling, and *Torsk* ‡, furnish cargoes to other adventurers. I wish I could speak with the same satisfaction of this as of the free fishery of the Herring; but in these distant islands, the hand of oppression reigns un-

* *Physica*, sect. 3. lib. ii. c. 7.
for the history of the Herring:

† See my *Voy. to the Hebrides*, and *Br. Zool.* iii,
‡ *Br. Zool.* iii. N° 89.

controlled. The poor vassals (in defiance of laws still kept in bondage) are compelled to slave, and hazard their lives in the capture, to deliver their fish to their lords for a trifling sum, who sell them to adventurers from different parts at a high price.

Among other scarcer fishes the *OPAHI* is found in abundance. It seems a fish of the north as well as the *Torsk*; the last is not found south of the *Orknies*; the former extends even to the banks of *Newfoundland*.

OPAHI.

The *chimæra monstrosa* of *Linnaeus* has been taken off the *Scetland* islands a few years ago. It is a most singular fish; and is common to these and the *Norwegian* seas, where the *Danes* call it *Sölvebaen*, and *Havkat*. It is found from the *Sound* to *Drontheim*, perhaps *Iceland*, for the *Icelanders* have a name for it, *Geirnytt*. It grows to the length of two feet and a half. The reader will find it well figured in *Mr. Ascanius's Icones*, tab. xv; in the *Alta Nidrosiana*, 11, tab. 5, 6; and in *Clusius's Exotics*, 137. A drawing of that taken on our coasts, by my friend *Mr. George Paton*, of *Edinburgh*, was with his usual kindness communicated to me.

A fine specimen of the *Asterias caput medusæ*, *Br. Zool.* iv. N° 73, was taken *Oct.* 1785 off *Lunna*, one of the *Scetland* isles, and when fresh was of a most vivid orange color.

The *Asterias Equestris* of *LINNÆUS*, figured in *Linckius*, tab. xii. fig. 21, was lately discovered by the Reverend *Mr. Cordiner*, in the sea near *Banff*. It consisted of five short thick rays. Those, and the upper part of the center, covered with large obtuse papillæ, longest on the sides of the rays. The color deep brown. Its diameter, from the tip of one ray to that of another, nine inches.

The birds of these islands are the same with those of the *Orknies*, except the *Skua*, which breeds only in *Foula* and *Unst*. Among the few land-birds which migrate to them in summer, is the *Golden-crested Wren*. Its shortest flight must be sixty miles, except it should rest midway on *Fair Island*; a surprising flight for so diminutive a bird!

BIRDS.

Multitudes of the inhabitants of each cluster of islands feed, during the season, on the eggs of the birds of the cliffs. The method of taking them is so very hazardous, as to convince one of the extremity to which the

FOWLING.

poor.

poor people are driven for want of food. *Copinsba, Hunda, Hoy, Foula,* and *Nofs-bead*, are the most celebrated rocks; and the neighboring natives the most expert climbers and adventurers after the game of the precipice. The height of some is above fifty fathoms; their faces roughened with shelves or ledges, sufficient only for the birds to rest and lay their eggs. To these the dauntless fowlers will ascend, pass intrepidly from one to the other, collect the eggs and birds, and descend with the same indifference. In most places, the attempt is made from above: they are lowered from the slope contiguous to the brink, by a rope, sometimes made of straw, sometimes of the bristles of the hog: they prefer the last, even to ropes of hemp, as it is not liable to be cut by the sharpness of the rocks; the former is apt to untwist. They trust themselves to a single assistant, who lets his companion down, and holds the rope, depending on his strength alone; which often fails, and the adventurer is sure to be dashed to pieces, or drowned in the subjacent sea. The rope is often shifted from place to place, with the impending weight of the fowler and his booty. The person above receives signals for the purpose, his associate being far out of sight; who, during the operation, by help of a staff, springs from the face of the rocks, to avoid injury from the projecting parts.

In *Foula*, they will trust to a small stake driven into the ground, or to a small dagger, which the natives usually carry about them; and which they will stick into the ground, and, twisting round it a fishing cord, descend by that to climbing-places, and, after finishing their business, swarm up by it without fear. Few who make a practice of this come to a natural death. They have a common saying, 'Such a one's *Gutcher* went over the *Sneak*; and my father went over the *Sneak* too.' It is a pity that the old *Norwegian* law was not here in force. It considered this kind of death as a species of suicide. The next of kin (in case the body could be seen) was directed to go the same way; if he refused, the corpse was not to be admitted into holy ground*.

But the most singular species of fowling is on the holm of *Nofs*, a vast

* *Debes, Hist. Ferroe Isles, 154.*

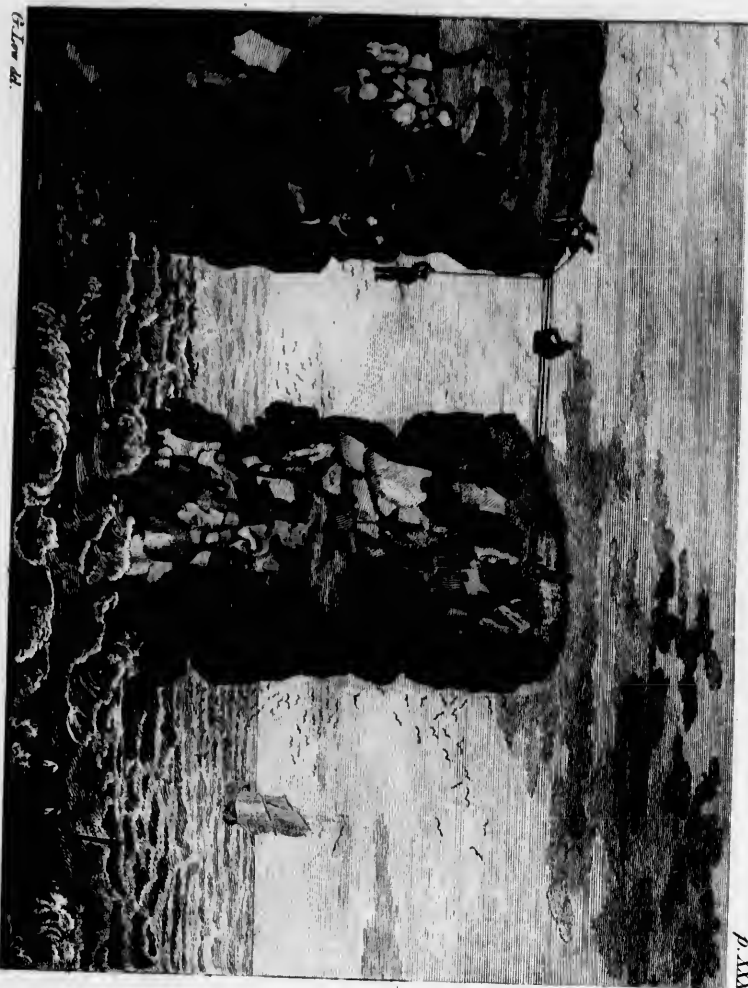
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BIRD CATCHING AT ORKNEY.



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L. Marshall sc.

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rock severed from the isle of *Noss* by some unknown convulsion, and only about sixteen fathoms distant. It is of the same stupendous height as the opposite precipice*, with a raging sea between; so that the intervening chasm is of matchless horror. Some adventurous climber has reached the rock in a boat, gained the height, and fastened several stakes on the small portion of earth which is to be found on the top: correspondent stakes are placed on the edge of the correspondent cliffs. A rope is fixed to the stakes on both sides, along which a machine, called a cradle, is contrived to slide; and, by the help of a small parallel cord fastened in like manner, the adventurer wafts himself over, and returns with his booty, which is the eggs or young of the **BLACK-BACKED GULL** and the **HERRING GULL**.

The number of wild **QUADRUPEDS** which have reached the *Orkney* and *Scetland* islands are only five; the Otter, Brown Rat, Common Mouse, Fetid Shrew, and Bat. Rabbits are not of *British* origin, but naturalized in every part. In the sandy isles of *Orkney*, they are found in myriads, and their skins are a great article of commerce; but the injury they do in setting the unstable soil in motion, greatly counter-vailes the profit.

In many parts of these islands are evident marks of their having been a wooded country. In the parish of *St. Andrew* in the *Orkneys*, in *North Maben*, and even in *Foula* in the *Scetlands*, often large tracts are discovered filled with the remains of large trees, which are usually found after some violent tempest hath blown away the incumbent strata of sand or gravel with which they have been covered. They are lodged in a morassy ground, and often ten feet beneath the peat. Some stand in the position in which they grew; others lie horizontally, and all the same way, as if they had either been blown down, or overturned by a partial deluge. Yet at present no kind of wood can be made to grow; and even the lowest and most common shrub is cultivated with the greatest difficulty. The hazel, the herbaceous, reticulated, creeping, and common willow, are the only shrubs of the island, and those are scattered with a sparing hand.

* 480 feet.

I shall, in another place, consider the decrease of vegetation in this northern progress.

The great quantity of turf which Providence hath bestowed on all these islands, excepting *Sanda*, is another proof of the abundance of trees and other vegetables, long since lost from the surface. The application of this *humus vegetabilis* for the purpose of fuel, is said to have been first taught the natives by *Einar*, a *Norwegian*, furnished, from that circumstance, *Torf-einar*, *Einar de Cespite**. Had he lived in *Greece*, he could not have escaped deification for so useful a discovery.

ANTIQUITIES. Before I quit the last of *British* isles, I shall, as supplemental to the antiquities mentioned in my *Tours in Scotland*, give a brief account of others found in these groups.

BURGH AND
DUNS.

The *Orknies*, the *Scotlands*, *Cathness*, *Sutherland*, and *Ross-shire*, with the *Hebrides*, were, for centuries, possessed by the *Norwegians*; and, in many instances, they adopted their customs. Of the ancient monuments still remaining, several are common to *Scandinavia* and the old inhabitants of *Britain*: others seem peculiar to their northern conquerors. Among those are the circular buildings, known by the names of *PiPis* houses, *Burghs*, and *Duns*: the first are of more modern date, and to be exploded, as they never were the work of the *PiPs*; the second are assuredly right, and point out the founders, who at the same time bestowed on them their natal name of *Berg*, a defence or castle †, a *Sueo-Gothic* word; and the *Highlanders* universally apply to these places the *Celtic* name *Dun*, signifying a hill defended by a tower ‡. This also furnishes the proof of their use, was there no other to be discovered. They are confined to the counties once subject to the crown of *Norway*. With few exceptions, they are built within sight of the sea, and one or more within sight of the other; so that on a signal by fire, by flag, or by trumpet, they could give notice of approaching danger, and yield a mutual succour. In the *Scotland* and *Orkney* islands, they are most frequently called *Wart* or

* *Tofseus Rev. Orkad.* lib. i. c. 7. † See *Ibry Glossarium Sueo-Gothicum*, where the word is defined, *munimentum*, derived from *Berga custodiri*, or *Eyrgia claudire*.
‡ *Baxter, Gloss. Antiq. Brit.* 109.

Wardkills,

Wardbills, which shews that they were garrisoned. They had their *ward-madber* *, or watchman, a sort of centinel, who stood on the top, and challenged all who came in sight. The *gackman* † was an officer of the same kind, who not only was on the watch against surprize; but was to give notice if he saw any ships in distress. He was allowed a large horn of generous liquor, which he had always by him, to keep up his spirits ‡. Along the *Orkney* and *Schetland* shores, they almost form a chain; and by that means not only kept the natives in subjection, but were situated commodiously for covering the landing of their countrymen, who were perpetually roving on piratical expeditions. These towers were even made use of as state-prisons; for we learn from *Torsæus*, that after *Sueno* had surprized *Paul*, count of *Cathness*, he carried him into *Sutherland*, and confined him there in a *Norwegian* tower §. So much has been said on this subject by the Reverend Mr. *Cordiner* and myself, that I shall only refer to the pages, after saying, that out of our kingdom, no buildings similar to these are to be found, except in *Scandinavia*. On the mountain *Sevalberg* ¶ in *Norway* is one; the *Stir-biskop* ¶¶, at *Upsal* in *Sweden*, is another; and *Unseborg*, in the same kingdom, is a third **.

These towers vary in their inner structure; but externally are universally the same; yet some have an addition of strength on the outside. The burgh of *Culswick* in *Schetland*, notwithstanding it is built on the top of a hill, is surrounded with a dry ditch thirteen feet broad; that of *Sna-burgh* in *Unst*, has both a wet and a dry ditch; the first cut, with great labor, through the live rock. The burgh of *Moufa* is surrounded by a wall, now reduced to a heap of stones, and the inside is cylindrical, not taper, as usual with others. The burgh of *Hogfeter*, upon an isle in a loch of the same name, has also its addition of a wall; a peculiarity in a causeway, to join it to the main land, and a singular internal structure.

OF MOUSA AND
HOGSETER.

* *Ihre Gloss. Sues-Goth.* 1085.

† *Crit. Diff.* by *John Macpherson*, D. E. 325.

‡ *Torsæus Rev. Orkad.* 8.

§ *Baxter, Gloss. Antiq. Brit.* 109.

¶ Information

by letter from Mr. *Subm* of *Copenhagen*.

¶¶ *Dalbberg*, tab. 64.

** The same,

tab. 300.—For more ample accounts, see Mr. *Cordiner's Letters*, 73, 105, 118, and my *Tours in Scotland*.

Numbers of little burghs, with single cells, are scattered about these islands, in the neighborhood of the greater; and which probably were built by the poorer sort of people, in order to enjoy their protection. A multitude of places in these islands have the addition of *burgh* to their names, notwithstanding there is not a vestige of a tower near them; the materials having long since been carried away, and applied to various uses. One was, by way of pre-eminence, called *Coningburgh*, or the *burgh of the king*. I lament its loss the more, as it might have proved similar to its namesake in *Yorkshire*, and furnished additional materials to my worthy friend, *Edward King*, Esq; for his most elaborate history of *English castles* *. The plates, with explanatory accounts, shall supply what farther can elucidate these curious antiquities.

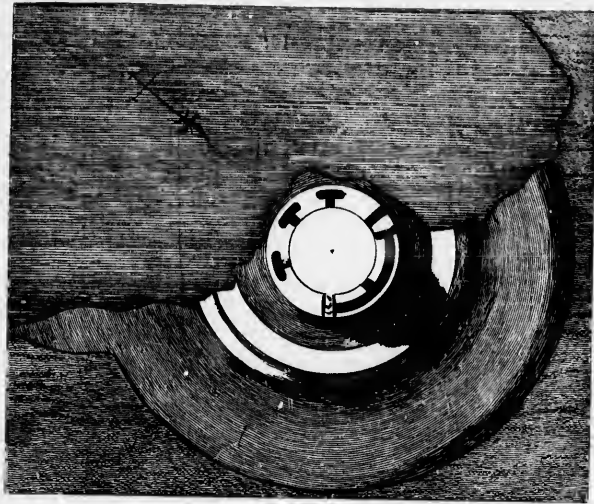
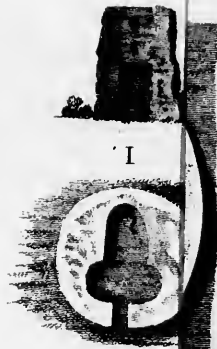
BORVE CASTLE.

After the expulsion of the *Norwegians*, the coasts of *Scotland*, which they possessed, were still protected by castles; many of which, such as *Oldwick*, exhibit very small improvements on the model left by the antient *Scandinavian* architects: a few deviated from the original manner, were square, had great thickness of wall, furnished with cells like those in the round towers or *burghs*. *Borve* castle, in *Cathness*, is a little more advanced. This was the residence of *Thorkel*, a famous freebooter in the tenth century. It is a small square building, on a rock projecting into the sea, adjoined to the main land by an isthmus not ten feet wide; and beneath the castle is a magnificent passage for boats, which pierces the rock from side to side, and is covered by a matchless natural arch.

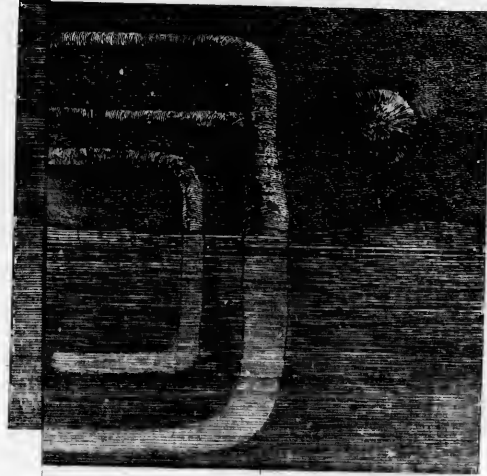
ROMAN CAMP?

I cannot but revert to the former subject, to mention the *Snaburgh* in *Tetlor*, one of the most remote of the *Schetland* isles. It is in the form of a *Roman camp*; and when entire, had in the middle a rectangular area surrounded by a wall, and that by an earthen rampart of the same figure, at some distance from it. Two sides of the walled area have the additional defence of another rampart of earth; which commences on the inside of one of the narrower sides, and, preserving the same distance from

* See his curious account of *Coningborough* castle, which he justly compares to the *Scottish Duns*; and judiciously ascribes to it a very early date. *Archæologia*, vi. 234. tab. xxiii.



Snaburgh in Unst.



the Camp in Fetlar.

Antiquities in the ORKNEY



I

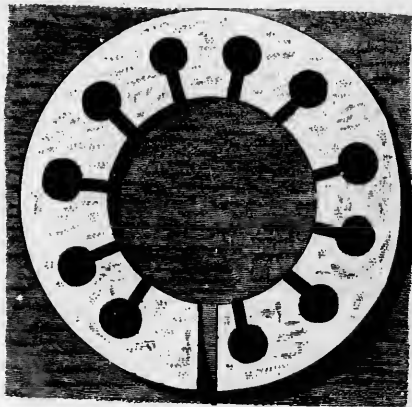


Burgh of Culswick.

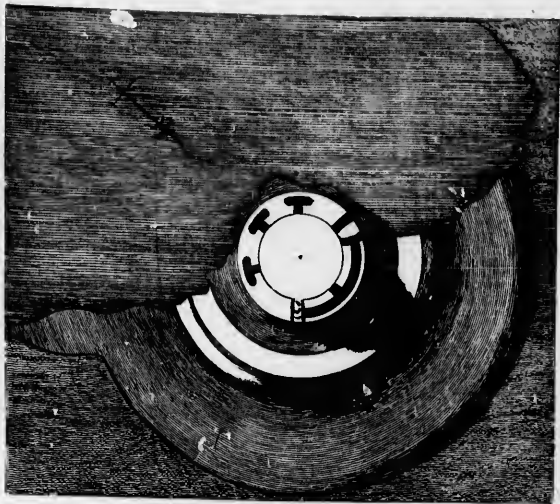


Burgh of Hoyseter.

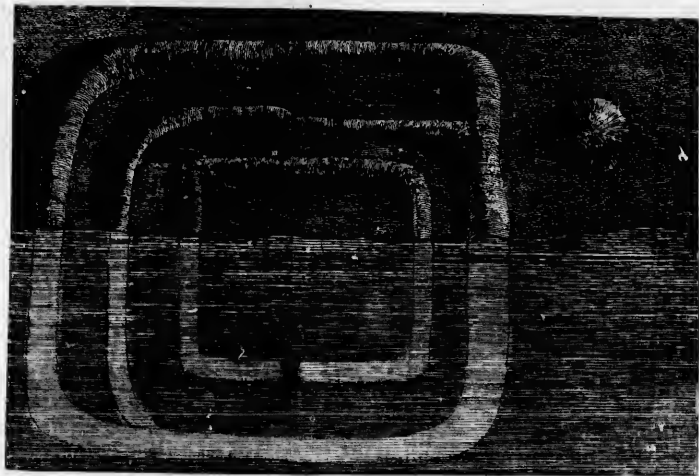
in the ORKNEY & SHETLAND *Isles.*



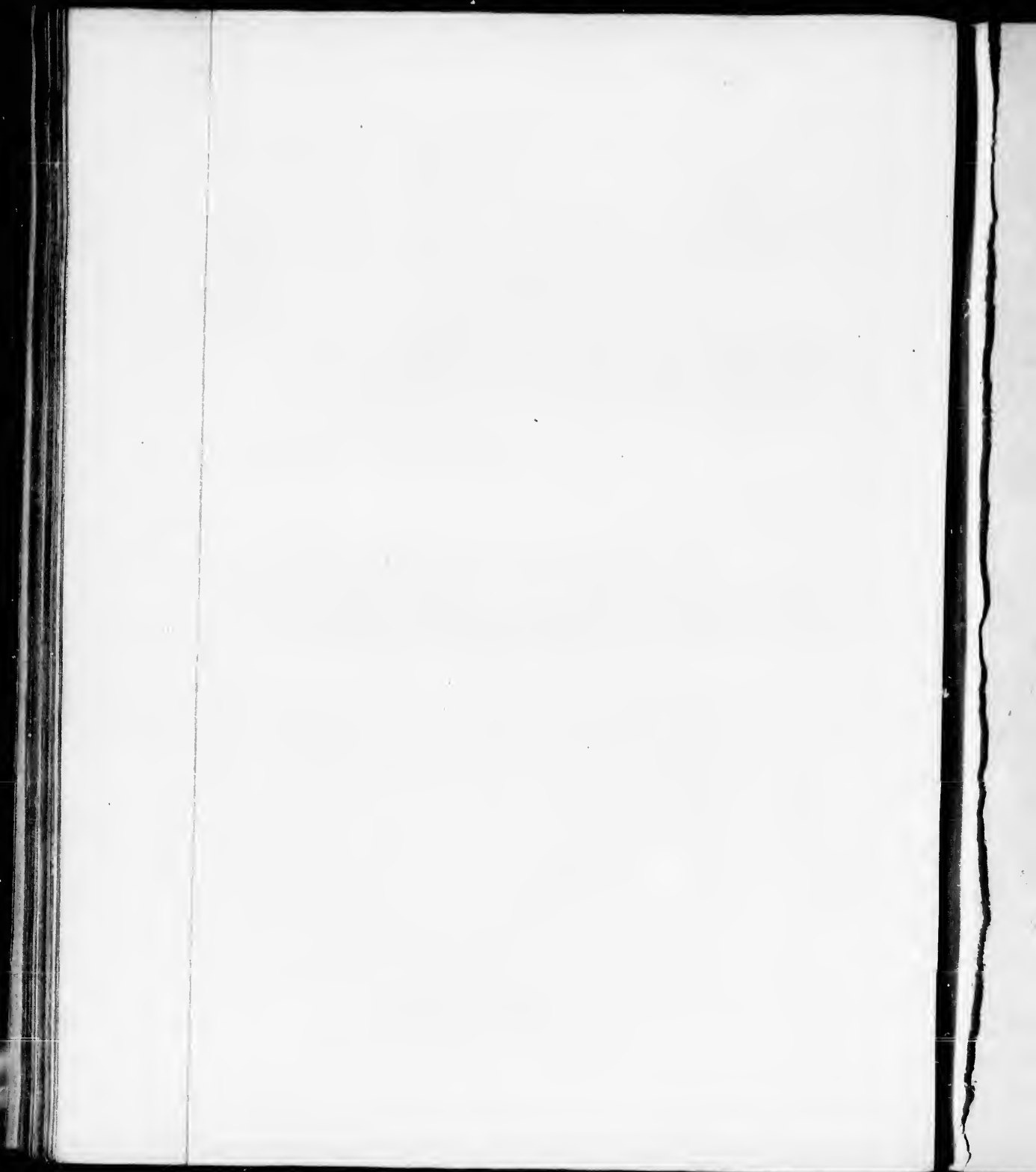
Burgh of Burra-firth.



Snaburgh in Unst.



Roman Camp in Fellaar.



the lesser area as the two other sides of the outward fence do, terminates at the latter, near an artificial well. That this was *Roman*, I greatly suspect. The care for water was a peculiar object with that wise nation; but neglected by barbarians. This is inclosed within the rampart, and at a small distance on the outside, had the protection of a mount, which once probably had its castellet, garrisoned for the further security*. The regular *portæ* are wanting; in other respects it resembles a *Roman* camp. The sea, over which it impends, has destroyed one half: the entire part is given in the plate, and the rest supplied with dotted lines.

I know but of two periods in which the *Romans* might have visited these islands: one at the time when the fleet of *Agricola* subdued the *Orknies*; the other, when the fleet of *Honorius* defeated the *Saxons* in the circumjacent seas. A copper medal of *Vespasian*, with *Judea devicta* † on the reverse, was found on the south side of *Main-land*, probably lost there by the first invaders, who might venerate *Vespasian*, under whom many of them had served, and who might naturally carry with them such honorable memorials of his reign. The only antiquities found near this place, were six pieces of brass, cast into a form the nearest resembling fetters. They were wrapped in a piece of raw hide; but we cannot pretend to say that they belonged to the occupiers of the camp.

Flint heads of arrows, flint axes, swords made of the bones of a whale, stones, beads, and antiquities, must be referred to the earliest inhabitants, at a period in which these kingdoms were on a level with the natives of new-discovered islands in the *South Sea*. Druidical circles of stones, the temples of primæval religion of our island, are not uncommon. The finest and most entire are those at *Stennis*, in one of the *Orkney* isles. The diameter of the circle is about a hundred and ten yards. The highest stone fourteen feet. The whole is singularly surrounded with a broad and deep ditch, probably to keep at a distance the unhallowed vulgar.

At the same place is a noble semicircle, consisting of four vast stones entire, and one broken. The highest are twenty feet high above ground.

* *Vegetius de re Milit.* lib. iv. c. 10.

† *Mr. Loau.*

Behind

Behind them is a mound of earth, conformable to their position. If there never was a number of stones to complete a circle, this antiquity must have been one of the kind which the learned Doctor *Borlase* calls a theatre, and supposes was designed for the exhibition of dramatical performances*. I suspect them to have been either for the purposes of religion, or judicial transactions; for the age was probably not sufficiently refined for the former amusements. Upright stones, either memorials of the dead, or victories obtained on the spot, are very numerous. The most remarkable is the stone of *Sator*, in the isle of *Eda*. It is a flag, fifteen feet high, five and a half broad, and only nine inches thick. Its story is quite unknown; but it probably rests over a hero of that name. Notwithstanding the long residence of the *Norwegians* in these islands, I find only one stone with a *Runic* inscription, which runs along the sides. The rest of the stone is plain, and destitute of the sculptures so frequent on those found in *Scandinavia*.

PLAIN COLUMNS.

SCULPTURED
COLUMNS.

In the wall of the church at *Sandness*, is a stone with three circles, a semicircle, and a square figure, engraven on it. This is the only one which bears any resemblance to the elegant carved columns at *Meigle* and *Glames*, and which extend, after a very long interval, as far as the churchyard of *Far*, on the extreme northern coast of *Cathness*. Several of these have been before attended to. I can only remark, that they are extremely local, and were, by their similarity, only the work of a short period. We imagine that the first, about which we can form any conjecture, was erected in 994, on the defeat of *Canus*, the *Dane*: the last in 1034, on the murder of *Malcolm* the Second.

SEPOLCHRAL
ANTIQUITIES.

CIRCULAR.

In the isle of *Unst* are two singular circles, near each other. The largest is fifty feet in diameter, to the outmost ring; for it consists of three, concentric; the outmost is formed of small stones, the two inner of earth; through all of which is a single narrow entrance to a tumulus which rises in the centre. The other circle is only twenty-two feet in diameter, and has only two rings, formed of earth: in the centre is a barrow, the sides of

* *Antiq. Cornwall*, 195.

which

which are fenced with stones. No marks of their having been places of interment have been found, yet most probably that was their use.

The links or sands of *Skail*, in *Sandwich*, one of the *Orknies*, abound in round *barrows*. Some are formed of earth alone, others of stone covered with earth. In the former was found a coffin, made of six flat stones. They are too short to receive a body at full length: the skeletons found in them lie with the knees pressed to the breast, and the legs doubled along the thighs. A bag, made of rushes, has been found at the feet of some of these skeletons, containing the bones, most probably, of another of the family. In one were to be seen multitudes of small beetles. Whether they were placed there by design, or lodged there by accident, I will not determine; but, as I have discovered similar insects in the bag which inclosed the sacred *Ibis*, we may suppose that the *Egyptians*, and the nation to whom these *tumuli* did belong, might have had the same superstition respecting them. On some of the corpses interred in this island, the mode of burning was observed. The ashes, deposited in an urn which was covered on the top with a flat stone, have been found in the cell of one of the barrows. This coffin or cell was placed on the ground, then covered with a heap of stones, and that again cased with earth and fods. Both barrow and contents evince them to be of a different age from the former. These *tumuli* were in the nature of family vaults: in them have been found two tiers of coffins*. It is probable, that on the death of any one of the family, the tumulus was opened, and the body interred near its kindred bones.

The violence of the winds have, by blowing away the sands in a certain part of *Westra*, one of the *Seberlands*, discovered an extensive burying-place, once covered with the thickness of twenty feet. This seems to have belonged to different nations. One is marked by the *tumuli* consisting of stones and rubbish; some rounded, others flat at top like truncated cones. Near them are multitudes of graves, which are discoverable only by one, two, three, four, and sometimes even more short upright

BARROWS.

GRAVES OF
WESTRA.

* See Mr. Low's account, and plate, *Archæologia*, iii. 276. tab. xiii.

stones,

stones, set in the level sand. The corpse was interred a few feet deep, and covered with a layer of fine clay, to keep the sand from touching it. Not only human bones, but those of oxen, horses, dogs, and sheep, have been found in these graves. Besides, were several sorts of warlike instruments, battle-axes, two-handed swords, broad-swords, brazen daggers and scull-caps, and swords made of the bones of the whale: knives and combs: beads, broches, and chains of ornament: a metal spoon, and a neat glass cup greatly corroded: small flat circular pieces of marble: stones shaped like whetstones, and spherical stones perforated, such as were in former use in *Scotland* for turning of spindles: but the most singular thing was a thigh-bone closely incircled by a ring of gold. The tumuli seem to have been the places of sepulture of the inhabitants of the isles: the graves, those of some foreign nation who had landed here, had a conflict, and proved victorious. I found my conjecture on the arms and other matters found in them. The brazen were *Norwegian**, the iron belonging to the natives; but the weapons of conquerors and conquered were, with ceremonies resembling those at the funeral of *Pallas*, flung into the graves of the victorious party.

Hinc alii spolia occisis direpta *Latinis*
 Conjiciunt igni, galeas ensesque decoros,
 Frenaque, ferventesque rotas; pars munera nota,
 Ipsorum clypeos; et non felicia tela:
 Multa boum circa mastantur corpora morti.

IN SCANDINAVIA. The antiquities of this class found in *Scandinavia* are very numerous, and of a magnitude which evince the extreme population of the country. I discover only three kinds. The first may be exemplified in the vast rounded earthen tumulus in *Smaland*, with a rude monumental upright stone at top; and near it a spherical stone, beautifully carved, flung up in honor of *Ingo* King of *Sweden*, in the latter end of the ninth century †: others in honor of *Humblus*, and *Laudur* brother to King *Angantyr*; the

* *Wormii Mon. Dan.* 50. *Dalhberg Suecia Antiqua, et Hodierna*, tab. 314.
 † *Dahlberg Suecia Antiqua*, tab. 322.

last surrounded at its base with a circle of rude stones *. The *Rambora Rolle* is a mount of earth, with three upright pillars, placed so as to form a triangular space †. Other *tumuli* consist entirely of vast heaps of stones. Several of the sepulchral memorials are formed of stones disposed in a circular form: some of low stones, like that of the *Danish King Harald Hyldeland*, placed round the edge of the flat area of a low mount. He was slain in battle by *Ringo King of Sweden* ‡, who paid him all funeral honors, burnt his body with great pomp, and placed around his tumulus the numerous bodies of his faithful followers who were slain around their prince; and their places of rest are marked by multitudes of small earthen barrows, with a single stone at the top of each. On the regal mount is a flat stone, with five hollows in it, basins to receive the blood of the victims §. Others consist of small stones with *meini-berion*, as the *Welsh* style them, lofty rude pillars, intermixed. In some the lesser stones depart from the circular form, are oval or oblong: their edges are often contiguous, and those parts are often marked with a lofty pillar §. Two pillars are sometimes found, with an enormous stone set from top to top, so as to form the resemblance of a gateway ¶. Columns of great height are also found, surrounded at their base with two circles of small stones **. Finally, the stones are disposed so as to form wedges, squares, long rows, as well as circles. The first denoted that armies of foot and horse had prevailed: the second, troops of warriors: the third, duels of champions: and the last, the burials of families ††. Multitudes of single obelisks are scattered over the country: some quite plain; others inscribed with *Runic* characters, memorial of the dead, intermixed with well-fancied ornaments ††.

I must here mention the famous tomb found at *Kivike*, a parish of

* *Dahlberg Suecia Antiqua*, tab. 315. † The same, 323. ‡ *Saxo Gramm.* 147.
 § *Dahlberg*, tab. 315. § The same, and tab. 281. ¶ *Olaus Magnus.* ** *Wormii Mon. Dan.* p. 63.

†† I do not well understand some of these distinctions; but give them from *Olaus Magnus*, lib. i. c. 18. Most of them are exemplified at *Finsta* in *Sweden*. See *Dahlberg*, tab. 104, and *Perinckioeld Monum. Sueso-Goth.* p. 216.

†† *Wormii Monum. Dan.* 64, & passim.

R U N I C I N V O C A T I O N .

Schonon in *Sweden*, in the centre of a vast tumulus of round stones; its length was about seven *Swedish* yards, its breadth, two. It was oblong, and consisted of several flat stones, the inside of which was carved with figures of men and animals, and the weapons of the age, axes and spears heads. A figure was placed in a triumphal car: cornets seemed founding: captives with their hands bound behind, guarded by armed men; and figures, supposed to be female, formed part of the conquered people. It is supposed that the *Roman* fleet made an accidental descent here, had a successful skirmish with the natives, might have lost their leader, and left this mark of their victory amidst the barbarous conquered. The tomb had been broken open by the country people, and whatsoever it might have contained was stolen away and lost*.

In many of the *tumuli* are found the weapons and other matters which had been deposited with the burnt bones of the deceased. In those of the earliest ages are the stone weapons, such as axes and spears heads made of flint. In others have been met with a small lamp, a key, and swords of brass of the same form with some of the *Roman* swords †. A superstition attending the swords was singular: those of highest temper were supposed to have been made by *Duergi*, *dwarfs* or fairies, and were thought to have been irresistible. The reader will not be displeased with the elegant version ‡ of a *Runic* poem, describing the incantations of a fair heroine, to obtain the magical sword out of the tomb of her deceased father.

The *Runic* INVOCATION of HERVOR, the Daughter of ANGANTYR,
Who demands, at her Father's Tomb, a certain Sword,
called *Tirfing*, which was buried with him.

H E R V O R .

Awake, *Agantyr*! To thy tomb,
With sleep-expelling charms, I come.
Break thy drowsy fetters, break!
'Tis *Hervor* calls—Awake! awake!

Tirfing, made by fairy hands,
Hervor from thy tomb demands.
Herwardur, *Hiorwardur*, hear!
Lift, oh lift, my father dear!

* See *M. Forstenius's* curious dissertation on this antiquity; printed at *Lund*. 1740.

† *Dalberg*, tab. 314.

‡ By my friend, the Reverend Mr. *Williams* of *Vron*.

R U N I C I N V O C A T I O N .

39

Each from his silent tomb I call ;
 Ghosts of the dead, awaken all !
 With helmet, shield, and coat of mail,
 With sword and spear, I bid ye hail !
 Where twisted roots of oak abound,
 And undermine the hollow ground,
 Each from his narrow cell I call !
 Ghosts of the dead, awaken all !
 In what darksome cavern deep,
 Do the sons of *Angrym* sleep ?
 Dust and ashes tho' ye be,
 Sons of *Angrym*, answer me.
 Lift'ning in your clay-cold beds,
 Sons of *Eyvor*, lift your heads.
 Rise, *Hiorvardur*, rise and speak ;
Hiorvardur, thy long silence break.
 Dust and ashes tho' ye be,
 One and all, oh answer me.
 Never, oh never may ye rest ;
 But rot and putrefy unblest'd,
 If ye refuse the magic blade,
 And belt, by fairy fingers made !

A N G A N T Y R .

Cease, oh daughter, cease to call me ;
 Didst thou know what will befall thee,
 Thou hadst never hither sped,
 With Runic spells to wake the dead :
 Thou, that in evil hour art come
 To brave the terrors of the tomb.
 Nor friend, nor weeping father, gave
Angantyr's reliques to the grave ;
 And *Tirfing*, that all-conquering sword,
 No longer calls *Angantyr* lord.
 A living warrior wears it now——

H E R V O R .

'Tis false, *Angantyr* ; only thou.
 So may great *Odin* ever keep
 In peace the turf where thou dost sleep ;

As *Tirfing* still beside thee lies,
 Th' attendant of thy obsequies !
 My just inheritance I claim ;
 Conjure thee by a daughter's name,
 Thy only child !

A N G A N T Y R .

Too well I knew
 Thou wouldst demand what thou shalt rue.
 By *Tirfing's* fatal point shall die
 The bravest of thy progeny.
 A warlike son shall *Herwor* bear,
Herwor's pride, and *Tirfing's* heir ;
 Already, daughter, I foresee
Heidrek the hero's name will be :
 To him, the young, the bold, the strong,
Tirfing hereafter will belong.

H E R V O R .

Ne'er shall my enchantments cease,
 Nor you, ye spirits, rest in peace,
 Until ye grant what I demand,
 And *Tirfing* glitters in my hand.

A N G A N T Y R .

Oh Virgin, more than woman bold !
 Of warlike mien, and manly mould !
 What has induc'd thy feet to tread
 The gloomy mansions of the dead,
 At this lone hour, devoid of fear,
 With sword, and shield, and magic spear ?

H E R V O R .

The cause thou know'st, why to thy tomb
 I've wander'd thro' the midnight gloom :
 Yield then the Fairies work divine ;
 Thou art no father elfe of mine ;
 But goblin damn'd.

A N G A N T Y R .

Then hear me, Maid,
 That art not ev'n of death afraid !

H 2

Hjalmar's

R U N I C I N V O C A T I O N .

Hialmar's bane thou shalt command ;
The fatal sword is in my hand :
But see the flames that round it rise !
Dost thou the furious fire despise ?

H E R V O R .

Yes ; I dare seize, amidst the fire,
The object of my soul's desire ;
Nor do these eyes behold with dread,
The flame that plays around the dead.

A N G A N T Y R .

Rash Maid ! will nothing then control
The purpose of thy daring soul ?
But hold—ere thou shouldst fall a prey
To these fierce flames that round it play,
The sword from out the tomb I'll bring ;
Go, and the song of triumph sing.

H E R V O R .

Offspring of kings ! I know thee now,
And thus before thy presence bow ;
Father, Hero, Prince, and Friend !
To thee my grateful knees I bend.
Not half so happy had I been,
Tho' *Scandinavia* hail'd me queen.

A N G A N T Y R .

How art thou to thy int'rest blind,
Weak woman, tho' of dauntless mind !
Tirfing, the object of thy joy,
Thy future offspring shall destroy.

I shall just mention, that the antient *Scandinavians* had also their *Cromlechs* *. I can trace but one instance, and that on the top of a tumulus in *Zeland* ; which, with two other barrows, is included in a square of stones.

Circles, for the purpose of religious rites, were not wanting here. The *Ettestupa*, or circle of lofty rude columns in *West Gotbland*, was celebrated

* *Wormii Mon. Dan.* p. 8.

H E R V O R .

My seamen call ; I must away :
Adieu, O King ! I cannot stay.
Fate, do thy worst ! in times to come
Be what it may, my children's doom !

A N G A N T Y R .

Take then, and keep *Hialmar's* bane,
Dy'd in the blood of heroes slain.
Long shall the fatal pledge be thine,
Hervor, if truly I divine ;
The fell, devouring, poison'd blade,
For death and for destruction made.

H E R V O R .

With joy the two-edg'd sword I take,
Nor reck the havock it will make ;
Possessing which, I little rue
Whate'er my frantic sons may do.

A N G A N T Y R .

Daughter, farewell ! as thou dost live,
To thee the death of twelve I give :
To thee, O maid of warlike mind,
What *Angrym's* sons have left behind.

H E R V O R .

Angantyr, rest in peace ! and all
Ye ghosts, who have obey'd my call ;
Rest in your mould'ring vaults below !
While from this house of death I go,
Where, bursting from the vap'rous ground,
Meteors shoot, and blaze around.

for the sacrifices of the heathens * ; and the great stones at *Finstad*, disposed in form of a cell, and called *St. Birgitta's Oratory* †, was no other than a temple of worship, analogous, probably, to that of the Druids.

The next step is to

T H E F E R O E I S L A N D S,

FEROE ISLES.

A group about two hundred and ten miles to the north-west of the northern *Schetland*, between lat. 61, 15. and 62, 30. There are seventeen which are habitable, each of which is a lofty mountain arising out of the waves, divided from the others by deep and rapid currents. Some of them are deeply indented with secure harbours ; providence seeming to have favored mankind with the safest retreats in the most boisterous seas. All are very steep, and most of them faced with most tremendous precipices. These islands have been evidently *vulcanic*, and produce many substances in common with *Iceland*, such as very beautiful zeolites both crystallized and sheafy, most elegant calcedonies tuberosc and mixed with lava and tufa ; also stratified calcedonies, disposed in white semipellucid and yellowish opaque broad layers. They are often found mixed with *lava*, and of later creation, and supposed by *M. Bergman* to have been deposited by the *Geysers*, or heated waters of the vulcanoes. The surface of the mountains consists of a shallow soil of remarkable fertility ; for barley, the only corn sown here, yields above twenty for one ; and the grass affords abundant pasturage for sheep. The exports are salted mutton and tallow, goose quilts, feathers, and Eider down ; and, by the industry of the inhabitants, knit woollen waistcoats, caps, and stockings. No trees beyond the size of juniper, or stunted willows, will grow here : nor are any wild quadrupeds to be met with, except rats and mice, originally escaped from the shipping.

The list of land birds is very small :—The CINEREOUS EAGLE ; the LANNER ; the SPARROW HAWK † ; a species of OWL ; the RAVEN ; and HOODED CROW, are the pernicious species. Ravens were so destructive to the Lambs and Sheep, that in old times every boatman was obliged to bring into the sessions-house, on *St. Olaus's* day, the beak of one of those

LAND BIRDS.

* *Dalberg*, tab. 280.

† The same, 105.

‡ These on the authority of *Mr. Debes*, who wrote the history of these isles in 1670.

birds,

birds, or pay one skin, which was called the *Raven-fine*, in case of neglect. The remaining land fowl are WILD PIGEONS and STARES, WHITE WAGTAILS, WRENS, and sometimes the SWALLOW. The SNOW BUNTING only rests here in spring, on its passage northward. The HERON is sometimes met with. The SPOON-BILL is Common*. The SEA PIE, WATER RAIL, and LAFWING, are seen here. The birds of the rocks, such as PUFFINS, RAZOR BILLS, and LITTLE AUKS, FOOLISH and BLACK GUILLEMOTS, swarm here; and the *Geyir-fugl*, or GREAT AUK, at certain periods visits these islands. The last, by reason of its short wing incapable of flight, nestles at the foot of the cliffs. The SKUA, ARCTIC, BLACK-BACKED, and HERRING GULLS, FULMARS, MANKS, STORMY PETRELS, IMBER and NORTHERN DIVERS, Wild SWANS and GEESE, (the SWANS only vernal passengers towards the north) EIDER DUCKS, HAVELDA or LONG-TAILED DUCKS, CORVORANTS, and the SULA GANNET, form the sum of the palmated fowl of these inhospitable spots.

FOWLING.

The manner of fowling is so very strange and hazardous that the description should by no means be omitted. Necessity compels mankind to wonderful attempts. The cliffs which contain the objects of their search are often two hundred fathoms in height, and are attempted from above and below. In the first case, the fowlers provide themselves with a rope eighty or a hundred fathoms in length. The fowler fastens one end about his waist and between his legs, recommends himself to the protection of the Almighty, and is lowered down by six others, who place a piece of timber on the margin of the rock, to prevent the rope from wearing against the sharp edge. They have besides a small line fastened to the body of the adventurer, by which he gives signals that they may lower or raise him, or shift him from place to place. The last operation is attended with great danger, by the loosening of the stones, which often fall on his head, and would infallibly destroy him, was it not protected by a strong thick cap; but even that is found unequal to save him against the weight of the larger fragments of rock. The dexterity of the fowlers is amazing; they will place their feet against the front of the precipice, and dart themselves

FROM ABOVE.

* *Brunnich*, p. 46.

some fathoms from it, with a cool eye survey the places where the birds nestle, and again shoot into their haunts. In some places the birds lodge in deep recesses. The fowler will alight there, disengage himself from the rope, fix it to a stone, and at his leisure collect the booty, fasten it to his girdle, and resume his pendulous seat. At times he will again spring from the rock, and in that attitude, with a fowling net placed at the end of a staff, catch the old birds which are flying to and from their retreats. When he hath finished his dreadful employ, he gives a signal to his friends above, who pull him up, and share the hard-earned profit. The feathers are preserved for exportation: the flesh is partly eaten fresh, but the greater portion dried for winter's provision.

The fowling from below has its share of danger. The party goes on the expedition in a boat; and when it has attained the base of the precipice, one of the most daring, having fastened a rope about his waist, and furnished himself with a long pole with an iron hook at one end, either climbs, or is thrust up by his companions, who place a pole under his breech, to the next footing spot he can reach*. He, by means of the rope, brings up one of the boats crew; the rest are drawn up in the same manner, and each is furnished with his rope and fowling-staff. They then continue their progress upwards in the same manner, till they arrive at the region of birds; and wander about the face of the cliff in search of them. They then act in pairs; one fastens himself to the end of his associate's rope, and, in places where birds have nested beneath his footing, he permits himself to be lowered down, depending for his security to the strength of his companion, who is to haul him up again; but it sometimes happens that the person above is overpowered by the weight, and both inevitably perish. They sling the fowl down to the boat, which attends their motions, and receives the booty. They often pass seven or eight days in this tremendous employ, and lodge in the crannies which they find in the face of the precipice.

FROM BELOW.

The sea which surrounds these islands is extremely turbulent. The tides

* In *Pontoppidan's Hist. Norway*, ii. 61. is a plate expressive of this manner of fowling.

tides vary greatly on the western and eastern sides. On the first, where is received the uninterrupted flood of the ocean from the remote *Greenland*, the tide rises seven fathoms: on the eastern side it rises only three. Dreadful whirlwinds, called by the *Danes, oes*, agitate the sea to a strange degree; catch up a vast quantity of water, so as to leave a great temporary chasm in the spot on which it falls, and carries away with it, to an amazing distance, any fishes which may happen to be within reach of its fury. Thus great shoals of Herrings have been found on the highest mountains of *Feroe*. It is equally restless on land, tearing up trees, stones, and animals, and carrying them to very distant places. We must no longer laugh at the good archbishop*, who gravely tells us, that at times, the Rats called *Lemming* are poured down from the clouds in great showers on the *Alps of Norway*. We assent to the fact; but must solve the phenomenon by ascribing it to a whirlwind, as he does in one place; yet immediately supposes they may be bred in the upper regions *out of feculent matter*.

Among the numerous whirlpools of these seas, that of *Suderoe*, near the island of the same name, is the most noted. It is occasioned by a crater, sixty-one fathoms in depth in the centre, and from fifty to fifty-five on the sides. The water forms four fierce circumgyrations. The point they begin at is on the side of a large basin, where commences a range of rocks running spirally, and terminating at the verge of the crater. This range is extremely rugged, and covered with water from the depth of twelve to eight fathoms only. It forms four equidistant wreaths, with a channel from thirty-five to twenty fathoms in depth between each. On the outside, beyond that depth, the sea suddenly sinks to eighty and ninety. On the south border of the basin is a lofty rock, called *Sumboe Munk*, noted for the multitude of birds which frequent it. On one side, the water is only three or four fathoms deep; on the other fifteen. The danger at most times, especially in storms, is very great. Ships are irresistibly drawn in: the rudder loses its power, and the waves beat as high as the masts; so that an escape is almost miraculous: yet at the reflux, and in very still

* *Olaus Magnus*, Archb. of *Upsal*.

weather,

I C E L A N D.

LVII

weather, the inhabitants will venture in boats, for the sake of fishing. Mr. *Debes* omits the times of greatest danger. It is to be hoped that attention will be paid to the various periodical appearances of a phenomenon, the cause of which is very satisfactorily explained by the worthy pastor*.

Mankind found their way to these islands some time before the discovery of *Iceland*. *Naddodd*, a *Norwegian* pirate, had retired here, as the only place of security he could find †. About this time, *Harold Harfagre* possessed himself of *Norway*, and flung off the *Danish* yoke. A party was formed against him; but it was soon subdued, and the malecontents quitting the kingdom, retired to the *Hebrides*, *Orknies*, *Schetland*, and *Feroe*, and gave rise to the *Norwegian* reign in all those islands.

From the *Feroe* islands, the hardy *Scandinavians* made the next step, in their northern migrations, to

I C E L A N D.

ICELAND.

I must premise, that there is the highest probability that this island was discovered in an age most remote to theirs: and that it was the *Thule* of *Pytheas*, an illustrious *Marseillian*, at least cotemporary with *Aristotle* †, and who pushed his discoveries towards the north, as his countryman *Euthymenes* did beyond the line. *Pytheas* arrived at *Thule*, an island, says he, six days sailing northward from *Britain*, where, he informs us, was continual day and night for six months alternately §. In the first he is very accurate. A vessel from *Yarmouth* was about two years ago exactly that time in its voyage from the *Orknies* to *Iceland*, but with a fair wind it may be done in eight and forty hours. So circumstanced, there are many parts of *Britain*, far more south than the *Orknies*, from which the voyage might be performed in the time mentioned by *Pytheas*. He does not exactly hit on the length of day and night; but he could have been at no other, at that distance

* See his plan, p. 52.

† *Island's Landnamabok*, 5.

‡ The works of

Pytheas had been read by *Dicæarchus*, a disciple of *Aristotle*. See *Strabo*, lib. ii. p. 163.

§ *Plin.* lib. ii. c. 75.

from *Britain*, but *Iceland*, in which there was a most remarkable absence of light. As to *Naddodd*, in 861, he was accidentally driven by a tempest to the eastern side of *Iceland*, to a place now called *Reidarfall*. He found the country covered with snow, and therefore named it *Snæland*; yet he returned home full of its praises. Soon after, *Gardar*, a *Swede*, experienced the same fortune. On a voyage to the *Hebrides*, he was tempest-driven to the same island; on which, by the advice of his mother, who was a sort of diviner, he landed at *Horn*. At this period *Iceland* was clothed with wood from the shore to the very tops of the mountains. He wintered there, and likewise returned full of its praises*.

FLOKE, a celebrated pirate, was the next adventurer. He took with him three Ravens, and, like another *Noah*, made them the augury of the land. Before he sailed, he performed a great sacrifice for the success, upon a vast pile of stones, which he raised for the purpose. This points out another origin of the vast tumuli we so frequently see. He made the *Schetland* and the *Feroe* isles his first steps; and loosed from the last for *Iceland*, the nearest point of which is about five hundred and forty miles distant. His first Raven returned to *Feroe*: the second flew back to the ship: the third directed him to the wished-for land †. He wintered there. The cattle he brought with him perished through want. The spring proved unusually cold, and the sea appeared full of ice; for which reason he bestowed on the island the name it at present bears. *Floke* grew discontented with his voyage: and returned full of dispraises of the country. This did not discourage other adventurers, all of them *Scandinavians*, thrust out of the exuberant northern hive. The rest of the world, which their countrymen ravaged, was assuredly too small for them, otherwise they never would have colonized almost the most wretched spot in the northern hemisphere. Ambition possibly actuated the leaders, who might think it

Better to reign in hell than serve in heaven.

* *Iceland's Landnamabok*, p. 7.

† Same, p. 8. *Torfæus. Hist. Norveg.* ii. 97.

Colony after colony arrived. They confederated, and formed a republic, which existed near four hundred years; but with as many feuds and slaughters as could happen in a climate where luxury might pamper and corrupt the inhabitants. In 1261, wearied with their dissensions, they voluntarily re-united themselves to their mother-country, *Norway*, under the reign of its monarch *Haquin*. It is remarkable, that the poetic genius of their aboriginal country flourished with equal sublimity in every climate. The *Scalds*, or bards, retained their fire in the inhospitable climate of *Iceland*, as vigorously as when they attended on their chieftains to the mild air of *Spain*, or *Sicily*, and sung their valiant deeds.

Every thing which furnished topics to the poets of other countries, was, in the most remote period, wanting here. Groves, verdant meadows, purling streams, and gentle zephyrs, were totally unknown; and in their stead, stunted shrubs, a thin herbage, rude torrents, and fierce gales, reign in every part. We admit the apology of the learned *Torfæus* for the present state of his country*. Violent tempests might cover whole tracts with the unstable sand, eruptions of water from the mountains desolate some parts, earthquakes bury vast extents of fertile land with fragments of rocks, and inundations of the sea change the face of others. But soft scenery was not requisite to inspire poets who were to sing only the preparations for warlike exploits, the slaughter of a battle, the deeds of their heroes, and the magic solemnities of superstitions.

The island, at present, exhibits to the traveller amazing slopes of lava, which once streamed from the vulcanoes, and terminated in the sea. Such is the appearance, about three miles from *Hafnaisfird*, in lat. 64. 4. of vast masses of lava piled to a mountainous height upon each other, broken, vitrified, sharp, rude, and black. In parts, sandy tracts intervene: in others, a soil peculiar to the place, a tufa, originated from the violent eruptions of impure water which rush from the mountains, attendant on the fiery eruptions. Vallies composed of a very thin soil, afford grass for a numerous breed of cattle and sheep. Here is found variety of species of the best grasses; of the *aira*, *poa*, *festuca*, and *carex*. Part is harvested against winter; but not in such plenty, but that the farmer is obliged

* *Hist. Norweg.* i. 12.

often to feed his stock with the wolf-fish, or the heads of cod-fish beaten small, and mixed with a quarter part of hay. To what food will not necessity compel both man and beast to recur!

Snow does not lie here so long or so deep as might be expected in this high latitude: but this may be explained from the subterraneous fires, which pervade, possibly, all parts of the island.

WOODS LONG
LOST.

DRIFT-WOOD.

The woods of *Iceland* have long since vanished, unless we except a few stunted birch, scarcely ten feet high, and four inches in diameter; and a few species of willow, so small and so rare as scarcely to be of use to the inhabitants. But they are abundantly supplied with drift-wood from *Europe* and *America*, as appears by the species found on the shores, especially on all the northern coast, as *Langanes* on the north-east, and *Hornstrandt* on the north-west. That woods were found here in very remote periods, is very evident, from the quantity of *suturbrand* met with in several parts; which still retains traces of its vegetable origin; the marks of branches, and circles of the annual growth of the wood: some pieces are even capable of being planed. It is found in the fissures of the rocks, much compressed by their weight, and in pieces sometimes big enough to make a middle-sized table. This is sometimes used as fuel; but the want of it is supplied, in some measure, by the drift-wood, by peat, and by several strange substitutes, the effect of necessity. Smiths prefer the *suturbrand* to sea-coal in their business. The beds of this fossil strongly refute the notion of *Iceland* having been entirely formed by volcanic violence, since the original creation; and raised out of the sea in later times, as others have been known to have done. *Delos* and *Rhodos*, in very remote ages; *Tbera*, the modern *Santorini*, and *Tberasia*, in the 135th *Olympiad*; *Thia*, in the time of *Pliny**; and in the beginning of this century another sprung from the sea, by the force of subterraneous fires, near to *Santorini*†: and, while I am now writing, an island is forming by the same cause, not remote from the *Reickenes*, part of the very island in question. But these *sutur* or *sorte brands* are certainly the remains of ancient forests, overturned and buried by earthquakes, after the golden age

* *Hist. Nat.* lib. ii. c. 87.
v. 196, &c.

† Most admirably described in the *Pb. Transf. Abridg.*

of the island. Let me add to this another proof, from the number of its vegetables: there being found on it not fewer than three hundred and nine perfect, and two hundred and thirty-three cryptogamous plants. On the isle of *Ascension*, which is totally and aboriginally volcanic, a *Flora* of not more than seven plants is to be seen*.

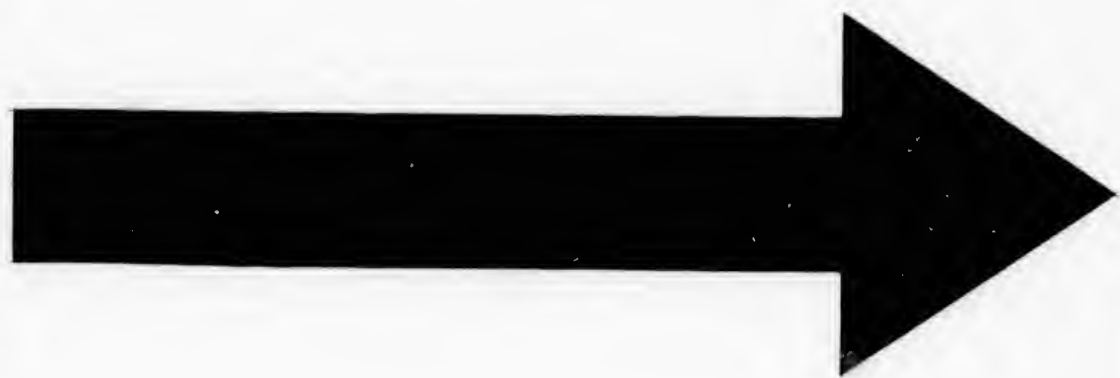
PLANTS, NUM-
BER OF.

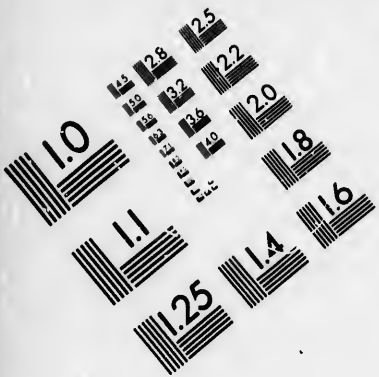
THIS vast island extends from 63. 15. to about 67. 18. north latitude: is reckoned to be five hundred and sixty *English* miles long, and about two hundred and fifty broad †. It has a rugged coast, indented deeply with secure bays; but faced with very few isles. It lies in the *Hyperborean* ocean, divided from *Greenland* by a streight about three hundred *English* miles broad, reckoning from *Huitferk* in *Greenland* to *Snæfiell-nes* in *Iceland* ‡. The whole is traversed with great ridges of mountains; some naked, and usually free from snow, by reason of the saline and sulphurous particles with which they abound. Others, called *Jokkuler*, are cased with eternal ice and snow; and are the *glacieres* of *Iceland*. Of these, *Snæfiell Jokkul*, which hangs over the sea in the south-west part of the island, is far the highest §. Out of these, at different periods, have been tremendous eruptions of fire and water, the burst of which is attended with a most terrific noise: flames and balls of fire issue out with the smoke: and showers of stones are vomited up; of which there has been an instance of one weighing near three hundred pounds being flung to the distance of four miles. The heights of few of the mountains have been taken; but that of the *Hecla-fjall* is not far short of seventeen hundred yards. Of this species of mountain, *Hecla* has been most celebrated, standing within sight of the numerous shipping which for ages have frequented this island: the records of *Iceland* enumerate ten of its eruptions since the arrival of the *Norwegians*. It was the hell of the northern nations; but they seem divided in their opinions, whether the pains of the damned arose from fire, or, what was more tremendous to the natives of these countries, from the cold §.

HECLA.

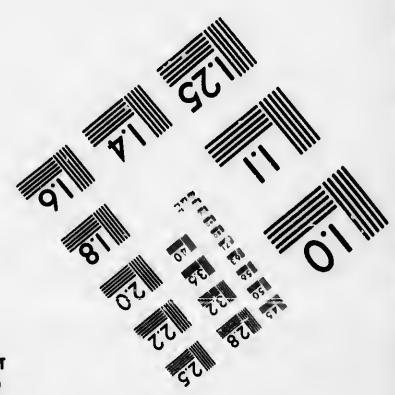
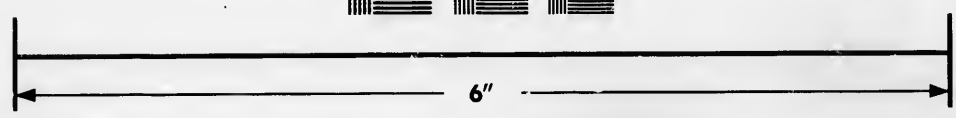
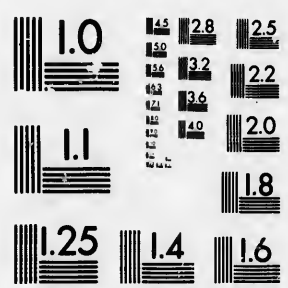
To bathe in fiery floods, or to reside
In thrilling regions of thick-ribbed ice.

* *Osbeck's Voy.* ii. 98. *Forster's Voy.* ii. 575; 576. † *Mallet*, i. 15.
‡ *Mr. Thorkelin*. § See *Olaffen*, i. tab. xvii. § *Bartholinus de Contemptu Mortis*, 359.
Hecla





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ERUPTIONS OF
HECLA.

Hecla has been known to have had only ten eruptions between the years 1104 and 1693; from the last period it remained quiescent till the year 1766, when it burst out in flames and *lava*. It emitted flames in 1771 and 1772; but did not overflow with *stemma*, or a stone flood. But other volcanoes have, in the present century, proved the spiracles to the internal fires of *Iceland*. Fiery eruptions are not confined to the mountains. A few years ago they burst out of the sulphureous soil of the low parts of *Skaf-tafeld Syffel* or province; and the lava had overflowed the country for the space of thirty miles, and at last reached the sea, destroying every thing in its progress. It dried up the rivers, and filled their beds with lava. Moors in some places stopped its course; but it totally changed their nature. It had taken to the deserts of the same province, and began to spread to the east, or *Mulê Syffel*, the most populous and fruitful part of the island; nor were there any signs of its ceasing at the time when this account was sent to me*.

HECLA PROVED
TO BE HELL.

The author of the *Speculum Regale* contends strongly, that *Hecla* ought to have the honor of being the seat of the damned, in opposition to *Ætna*; which he clearly proves by these arguments: ‘ De flammis *Ætnæis* famâ
 ‘ percepi quod admodum furent; hæ vero et lignum comburunt et ter-
 ‘ ram. Jam in Dialogo sancti GREGORII perhibetur in SICILIA, igneque
 ‘ ibidem ardente, pœnarum locum esse; in igne vero, qui in ISLANDIA
 ‘ flagrat, multo majore verisimilitudine concludi posse reor certum pœ-
 ‘ narum locum esse. Ignis enim SICILIÆ, cum terram et ligna consu-
 ‘ mat, vivas res sibi in alimentum convertit: lignum quippe vitam habet,
 ‘ utpote quod crescat, virentiaque folia emittat; ac tandem mori inci-
 ‘ piens, flaccescat et arefcatur: quamdiu autem viret, vivum dici meretur;
 ‘ et ubi flaccescit, in extremis agere. Vitam autem terræ non de nihilo
 ‘ tribues, cum insignem fructuum copiam proferat, quibus decidentibus et
 ‘ putrefactis, novos iterum fructus producit; neque minus eapropter vi-
 ‘ vere dicenda est, quod ex ipsa factæ sint omnes creaturæ corporeæ. Ho-
 ‘ rum utrumque, lignum nempe et terram, ignis SICILIÆ comburit, iisque

* See the account of this dreadful calamity in the Appendix.

alitur. Ignis autem ISLANDIÆ ligna terramve, quamvis in eum conjiciantur, non comburit; lapides autem et durissima saxa, ut suum alimentum, consumit, iisque nutritur non secus ac ignis communis aridis lignis. Nec tam dura cautes aut lapis invenitur, quin ceræ ad instar liquefiant, ac deinde, pinguis olei more, flammam concipiant; ligna vero injecta dictus ignis exterius tantum adurit, penitus nunquam consumit. *Idcirco quoniam hic ignis inanimatis solum creaturis, cujusmodi lapides et saxa esse novimus, amat accendi, et rebus, quæ a communi igne solent consumi, nutrirî recusat, mortuus jure dici meretur; ideoque de ipso, potius quam aliis, verisimiliter concluditur, quod sit ignis infernalis, cum mortuæ sint omnes res quas infernus habet.*

The mountains of *Iceland* are of two kinds, primitive and posterior; the first consist of strata, usually regularly, but sometimes confused, laid on each other. They are formed of different sorts of stone, without the least symptom of fire. Some are composed of different sorts of *saxum arena-rium*, or sand, or free stone; petrosilex, or chert, flaty or fissile stone, and various kinds of earths, and boles, and *seatitæ*; different sorts of *breccia*, or conglomerated stones; jaspers of different kinds; refracting *spatium*, or what is usually called *Iceland* crystal; the common rhomboid *spatium*; chalcedonies, stratified and botryoid; zeolites of the most elegant kinds; crystals, and various other substances that have no relation to volcanoes.

The *Snæfiell Jökul* is far the loftiest of the icy mountains, being about two thousand two hundred and eighty-seven yards high. From the summit is a tremendous prospect of *vulcanic* remains, even as far as the eye can reach. The *Snæfiell-nes*, or cape which darts from it, towers to about the height of three or four hundred fathoms.

By the great map of *Iceland*, made by the direction of the king of *Denmark*, and completed in 1734, by *Cnopf*, military surveyor, it appears that some of the jökuls, or mountains, covered with ice, have been swallowed up by the convulsions of the earth, in very distant periods. Those of *Breidamerkar* and *Skeida*, in *Skafisfield Syffel*, are given as instances.

Probably the great *vatus*, or lakes, with which *Iceland* abounds, may have been once the site of such sinkings of mountains. The ingenious
Mr.

MOUNTAINS OF
ICELAND.

SNÆFIËLL
JÖKKUL.

JÖKKULS OFTEN
SWALLOWED UP.

Mr. *Whitehurst* records several instances in other parts of the world *. In the island in question, that vast lake *Myvatn* may have been one; its bottom is entirely formed of *lava*, divided by deep cracks, which give shelter during winter to the abundance of trouts this lake is stocked with. It is only five fathoms deep, but originally was of a vast depth. In 1728 it was nearly filled by an eruption of the great mountain *Krafte*: the fiery stream took its course toward *Myvatn*, ran into it with a horrible crackling and hissing; and this phænomenon continued till 1730, when it ceased, being by that time exhausted.

ROCKS OF
DRANGO.

Hornstrand, or the coast by the *North Cape*, is very high; from three to four hundred fathoms. The fine rocks of *Drango* are most picturesque stacks, seven in number, of a pyramidal shape, rising out of the sea at a small distance from the cliffs; four are of a vast height, and form a most magnificent scenery.

Solvabamar is a tremendous range of volcanic rocks, composed entirely of flags, and the front covered in the season with sea fowl. It is endless to name all the places which bear the marks of fire, in various forms, either by being vitrified, changed to a fiery color, ragged, and black; or bear the marks of having run in a smooth sloping course for miles to the sea, and hardened into memorials of the horrible phænomenon.

LAVA.

The island produces most sorts of the lava which other volcanic places have thrown up; the dark grey perforated kind, similar to the toadstone of *Derbyshire*; the *Iceland* agate, or *pumex vitreus*, both the *niger* and *viridis*: some have conjectured this to have been the *lapis obsidianus* of the ancients, which they formed into statues †. The finest I ever saw was brought from *Vulcano*, off the coast of *Sicily*, but it seems very ill calculated for sculpture. The *pumex vulcani* is also found here, the *cinerarius*, and the *arenaceus*. Besides the *saturbrand*, jet is found here in quantity.

ORES.

Certain iron ores are found in different parts; and that elegant copper ore, the *malachites*, with a naturally polished green surface, rising into tubera, is not unfrequent. *Horrebow* speaks of native silver; but the mine-

* *Whitehurst* on the Earth, second edit. 71, 72. † *Plinii, Hist. Nat. lib. xxxvi. c. 26.*

ral wealth of the island will probably be long latent. The slavery under which the poor natives labor, will ever discourage them from effecting a discovery, of which others are to reap the advantage.

A stratum of sulphur is found near *Myvatn*, from nine inches to two feet in thickness; it is partly of a lemon colour, and partly of a deep orange. Immediately over the sulphur is a blue earth; above that a vitriolic and aluminous earth; and beneath the sulphur a stratum of reddish bole. This sulphur has been worked and refined by the commercial company of *Copenhagen*. Semipellucid, and I think genuine native sulphurs, are unknown in *Iceland*. The sulphur mines in *Guldbringa Syffel* are by no means inferior to these.

SULPHUR.

BASALTES, in variety of forms or degrees of crystallization, are found in many parts of *Iceland*, from a cracked surface, to a completion of the columnar shape. The most curious are those in *Bœula*, the highest mountain in *Borgar-ford Syffel*. This is of a grey color

BASALTES.

THE FOUNTAINS of many of the vallies are of a most extraordinary nature; are called *Hærs*, and form at times *jets d'eaux* of scalding water, ninety-four feet high, and thirty in diameter, creating the most magnificent *gerbes* in nature! especially when backed by the setting sun. They arise out of cylindrical tubes of unknown depths: near the surface they expand into apertures of a funnel shape, and the mouths spread into large extent of stalactitical matter, formed of successive scaly concentric undulations. The playing of these stupendous spouts is foretold by noises roaring like the cataract of *Niagara*. The cylinder begins to fill: it rises gradually to the surface, and gradually encreases its height, smoking amazingly, and flinging up great stones. After attaining its greatest height, it gradually sinks till it totally disappears. Boiling *jets d'eaux*, and boiling springs, are frequent in most parts of the island. In many parts they are applied to the culinary uses of the natives. The most capital is that which is called *Geyser*, in a plain rising into small hills, and in the midst of an amphitheatre, bounded by the most magnificent and various-shaped icy mountains; among which the three-headed *Hecla* soars pre-eminent.

HÆRS, OR BOILING JETS D'EAUX.

K

Hueravalle

Hueravalle is spoken of by *Olassen* as the most surprising collection of boiling water, or *jets d'eaux*, in the island. The mountain grass grows in plenty near them; and not far from the burning *bugel* or tumulus, formed round one of these jets, is a lake in which swans were swimming; and in a small spring were several trouts: so near to each other is the cold and the boiling water. Eastward and southward are great tracts of *Kiol-braun*, or tracts covered with vast masses of *lava*. *Hueravalle* takes its name from *huerfva*, to whirl round; *wadirbwirfel* signifies a whirlwind, and *wattanwirfel* a whirlpool. Among the many springs near *Skallbolt*, which are called *zuallen*, two are very particular: one is on the west side, the other on the east side: the *Icelanders* boil their milk, and dress their meat, by their assistance; and they use them also for washing and fulling. They even calcine with them the dry bones of oxen or sheep.

The burning fountains have been taken notice of (p. 146.) by the author of the *Speculum Regale*.

IN THE SEA.

These *Huers* are not confined to the land. They rise in the very sea, and form scalding fountains amidst the waves. Their farthest distance from the land is unknown; but the new volcanic isle, twelve miles off the point of *Reickenes*, emitting fire and smoke, proves that the subterraneous fires and waters extend to that space; for those awful effects arise from the united fury of these two elements*. The depth of water between this new creation and the *Geir-fugl Skier*, is forty-four fathoms; ten leagues to the west, two hundred and five: and the bottom composed of black sand †; doubtless no other than the *Pumex arenaceus*, the frequent evomition of *vulcanoes*. How much past human comprehension must the powers have been, that could force up materials for an island, even from the medium depth I have given! and how deep beneath the bottom of the ocean must have been the causes which could supply stone, or pumice, or lava, to fill the space which this island occupies, many miles in circumference, and possibly above a hundred fathoms in depth!

* See Mr. *Whitehurst's* Theory. au Nord, par M. de *Kerguelin*, 69.

† Sable noir comme la poudre a canon. *Voyage*

If some islands spring out of these seas, others are swallowed by the force of earthquakes. Their foundations are undermined by the fury of the subterraneous elements, which carries off the materials of their basis, and discharges it in lava, or different forms, through the vulcanic *spiracula*. The earthquakes shatter the crust on which they stand, and they tumble into the great abyss. Such was the fate of the nine isles of *Gouberman*, which lay about four leagues from *Sandanesfs*, between *Patricxford* and *Cap Nort*, all which suddenly disappeared. Their names still exist in several maps; but their place is only distinguishable by the superior depth of water in the spot on which they stood *.

The number of inhabitants in *Iceland* is at present computed not to exceed forty-two thousand, as I have been assured by Mr. *Tborkelin*, a most amiable and learned native of the island in question, now on his travels in *England*. When Mr. *Von Troil* visited *Iceland* in 1772, the inhabitants were estimated at sixty thousand, but their numbers were rapidly decreasing. How rapid has been the progress towards the extinction of this unhappy people! Considering the ungenial surface of this vast island, probably the number is equal to the means of support. Writers apologize for the fewness of inhabitants, by attributing it to the almost depopulation of the place by the *sorte diod*, or black death, a pestilence which commenced in *Cathay*, or *China*, in 1346, spread over all *Asia*, and *Africa*, reached the south of *Europe* in 1347, and in 1348 spread itself over *Britain*, *Germany*, and northern *Europe*, even to the extremity of the inhabited north. The small-pox, and other epidemics, are mentioned as contributing to thin the island. During the time of the plague, tradition relates, in terms most graphically horrid, that the persons who escaped to the mountains, saw the whole low country covered with a thick pestiferous fog. Besides the dearth of food in this rude island, other causes contribute to prevent the increase of inhabitants. Necessity forces

PEOPLE, NUMBER
OF.

PESTILENCE.

* *Voyage au Nord*, par M. de Kerguelin, 65, 66.

the men to seek from the sea subsistence, denied by their niggardly land. Constant wet, cold, and hard labor, abridge the days of thousands; and that labor is increased tenfold, to supply the rapacity of their masters. Incredible as it may seem, a late king of *Denmark* sold the whole island, and its inhabitants, to a company of merchants, for the annual rent of one thousand pounds. This company enslave the poor natives; who are bound to sell their fish, the staple of the island, at a low price to these monopolizers; who, dreading resistance, even have taken from them the use of fire-arms! Here is given a stronger cause of depopulation, perhaps, than the others; for *Hymen* can have but faint votaries in the land from whence liberty is banished. But for these causes, here ought to be found the genuine species of the *Norman* race, unmixed with foreign blood; as must be the case with every place remote from the rest of the world. Here are to be sought the antient customs and diet of their original stock, which are now probably worn out in the land of their distant ancestors. The luxury of food has so little crept in among them, that their meat and drink in general is peculiar to themselves; and much of the former composed of herbs neglected in other places.

DRESS.

The dress of the natives seems unchanged for a very considerable time: that of the men is simple, not unlike that of the *Norwegian* peasants*; that of the females is graceful, elegant, and peculiar to them, and perhaps some very old-fashioned *Norwegian* lady. They ornament themselves with silver chains and rich plates of silver, beautifully wrought. On their head is a lofty slender dress, not unlike a *Phrygian* bonnet. I cannot compare this to any antient *European* fashion. *Isabel* of *France*, queen to *Edward II.* wore a head-dress of an enormous height, of a slender conic form †; but which, for want of the flexure at top, gave place in elegance to the taste of the *Icelandic* fair.

Mr. *Troil* awakens our curiosity about the *Icelandic* antiquities; speaks of castles, and heathen temples, and burying-places, and upright stones,

* See *Olassen*, i. tab. iii. *Pontoppidan*, ii. tab. p. 272.

† *Montfaucon. Monum. de la Monarchie Fr.* ii. tab. xlii.

and

and mounts. Of the first I am solicitous to gain some further knowledge, for possibly they might direct to the origin of the round buildings in the *Hebrides, Orknies, Schetland*, and the north of *Scotland**: others seem to me the various *Scandinavian* antiquities, admirably exemplified in Baron *Dahlberg's Succia Antiqua et Moderna*.

The species of quadrupeds of this island are very few. Small horses of a hardy kind; cows in great abundance, and mostly hornless, the flesh and hides of which are considerable articles of exportation. Sheep are met with in great flocks in every farm; the wool is manufactured at home, the meat salted, and, with the skins, much of it is sold to the Company, at the twenty-two ports allotted for the purposes of traffic. It is remarkable, that the climate disposes their horns to grow very large, and even to exceed the number of those of the sheep of other countries; examples of three, four, and five, being extremely frequent. Goats and swine are very scarce; the first, for want of shrubs to browse, the last through deficiency of their usual food, and the supply which the farm-yards of other countries afford.

The dogs are sharp-nosed, have short and sharp upright ears, bushy tails, and are full of hair. Here are domestic cats; but numbers are grown wild, and multiply among the rocks, so as to become noxious. The reader need not be reminded, that these, and every species of domestic animals, were originally introduced into *Iceland* by the *Norwegians*.

An attempt has been made to introduce the REIN DEER. Those which survived the voyage have bred frequently. There can be little doubt of their succeeding, as *Iceland* has, in common with *Lapland*, most of the plants for their summer food †, and abundance of the Rein Deer *lichen* for their winter provision.

RATS and MICE seem to have been involuntarily transported. Both the domestic species are found here; and the white variety of the Mouse, called in the *Icelandic, Skogar Mys*, is common in the bushes. I suspect that there is a native species, allied, as Doctor PALLAS imagines, to the *Cœco-*

DOMESTIC QUADRUPEDS.

RATS.

* *Voy. Hebrides.*

† *Confer. Olaffen. ii. 234. and Aman. Acad. iv. 151.*

NOMIC;

NOMIC; for, like that, it lays in a great magazine of berries by way of winter-stores. This species is particularly plentiful in the wood of *Husafels*. In a country where berries are but thinly dispersed, these little animals are obliged to cross rivers to make their distant forages. In their return with the booty to their magazines, they are obliged to repass the stream; of which Mr. *Olassen* gives the following account:—"The party, which consists of from six to ten, select a flat piece of dried cow-dung, on which they place the berries in a heap in the middle; then, by their united force, bring it to the water's edge, and after launching it, embark, and place themselves round the heap, with their heads joined over it, and their backs to the water, their tails pendent in the stream, serving the purpose of rudders*." When I consider the wonderful sagacity of Beavers, and think of the management of the Squirrel, which, in cases of similar necessity, make a piece of bark their boat, and tail their sail †, I no longer hesitate to credit the relation.

FOXES.

The COMMON FOX, and the ARCTIC, are frequent; are proscribed, and killed for the sake of a reward, in order to prevent the havock they would make among the sheep.

BEARS.

The POLAR BEAR is often transported from *Greenland*, on the islands of ice; but no sooner is its landing discovered, than a general alarm is spread, and pursuit made till it is destroyed. The *Icelanders* are very intrepid in their attack on this animal; and a single man, armed only with a spear, frequently enters the lists with this tremendous beast, and never fails of victory. A person who lived near *Langenefs*, the extreme northern point, where the Bears most frequently land, is still celebrated for having slain not fewer than twenty in single combat. There is a reward for every skin, which must be delivered to the next magistrate.

The COMMON BAT, A. is sometimes found in this island, and finishes the list of the land-animals of the country.

The amphibious quadrupeds, or Seals, are very numerous. *Iceland*, being blessed with domestic animals, has less use of this race than other

* *Olassen*, as related to him.

† *Linnaeus, Klein, Rzaczinski, Schaffer.*

Arctic countries; yet they are of considerable advantage. The skins are used for cloathing; a good one is equal in value to the skin of a sheep, or the hide of a cow; and the fat supplies the lamps in the long nights with oil. The Common, during winter, is excessively fat, and will yield sixty pounds.

The *Icelanders* have two species of native Seals: the COMMON, called by them *Land-Selur*, because it keeps near the coast; the other, the GREAT, or *Ut-Selur*. They are taken in nets placed in the creeks and narrow bays, which they pass through to get on shore. When it begins to grow dark the hunters make a fire, and sling into it the shavings of horns, or any thing that smells strong; this allures the Seals, who strike into the nets, and are taken. At other times, a *koder* or lure is tied to a rope, and placed before the nets; to which the Seals, supposing it to be some strange animal, will eagerly swim, and strike into the nets, paying with their lives for their curiosity. This carries them sometimes so far, that they will stray to a considerable distance inland, attracted by a candle, or the fire in a smith's forge. If they are taken young, they are capable of being tamed: they will follow their master, and come to him like a dog, when called by the name which is given them. The *Icelanders* have a strange superstition about these animals: they believe they resemble the human species more than any other, and that they are the offspring of *Pharaoh* and his host, who were converted into Seals when they were overwhelmed in the *Red Sea*.

Other species of Seals are migratory. Among them is the HARP, or *Vade-Selur*. These quit the seas of *Iceland*, in *March*, and swim through the straits of *Davies*, by some unknown opening, to the farthest north; bring forth their young, and return, by the north of *Greenland*, in *May*, extremely lean, to the north of *Iceland*; continue their route, and return to that island about *Christmas*, chiefly upon the drift-ice, on which they are either shot or harpooned. The HOODED SEAL, or *Bladru Seal*, is rarely taken here. The WALRUS, or *Rost-unger*, is sometimes wafted here from *Greenland* on the ice.

SEALS.

It

BIRDS.

It cannot be expected, that many of the feathered tribe should inhabit an island so very severe in its climate, and so remote from the more southern continent and islands. It is, like all other *Arctic* countries, the asylum to water-fowl, to breed and educate their young; but, being an inhabited place, fewer resort here than to the untrodden wastes of the more distant north. The GULAND DUCK may possibly be a local bird. The rest, whether land or water, are common to *Norway*, and many other parts of *Europe*. The GREAT AUKS, are found here in greater numbers than elsewhere: they inhabit and breed on the rocks, called from them *Geir-fugl Skier*, off the point of *Rækenes*, the most southern part of the island. Notwithstanding they are surrounded with a swelling sea, and tremendous breakers, the *Icelanders* venture there annually, in order to collect the eggs, to contribute to the provision of the year. I can only reckon sixteen land-birds*: twenty cloven-footed water-fowl; four with pinnated feet, and forty-three with webbed feet, natives or frequenters of the island. I have omitted, in the Zoological part, the LESSER GUILLEMOT, *Br. Zool.* ii. N° 235, which is a native of *Iceland*, and called there *Ringuia*. It ought to have had a place in an appendage to the Guillemots, p. 517 of the first edition.

The Raven holds the first rank among the land-birds in the *Scandinavian* mythology. We see the use made of them by the chieftain *Floke*. The Bards, in their songs, give them the classical attribute of the power of presage. Thus they make *Thromundr* and *Thorbiorn*, before a feudal battle, explain the foreboding voice of this bird, and its interest in the field of battle †.

* Sea Eagle,
Cinereous Eagle,
Iceland Falcon,
Gyrfalcon,
Lanner,
Short-ear'd Owl || ?

Raven,
White Grouse,
Hazel Grouse ?
Stare,
Red-wing Thrush,

Lesser Field-Lark,
Snow Bunting,
White Wagtail,
Wheat-ear,
Wren,

All described in the Zoological part.

† *Iceland's Landnamabok*, 172.

|| *Olaffen*, ii. tab. xlvi. gives the figure of an Owl resembling this species.

THR. Hark !

THR.

Hark! the Raven's croak I hear,
Lo! the bird of Fate is near.
In the dawn, with dusky wings,
Hoarse the song of death she sings.

Thus in days of yore she sang,
When the din of battle rang;
When the hour of death drew nigh,
And mighty chiefs were doom'd to die.

THOR.

The Raven croaks: the warriors slain,
With blood her dusky wings distain;
Tir'd her morning prey she seeks,
And with blood and carnage reeks.

Thus, perch'd upon an aged oak,
The boding bird was heard to croak;
When all the plain with blood was spread,
Thirsting for the mighty dead.

R. W.

The Raven had still higher honors in the northern nations. It was sacred to *Odin*, the hero and god of the north. On the sacred flag of the *Danes* was embroidered this bird. *Odin* was said to have been always attended by two, which sat on his shoulders; whence he was called the *God of Ravens*: one was styled *Huginn*, or *Thought*; the other *Muninn*, or *Memory*. They whispered in his ear all they saw or heard. In the earliest dawn, he sent them to fly round the world, and they returned before dinner, fraught with intelligence. *Odin* thus sang their importance:

Huginn and *Muninn*, my delight!
Speed thro' the world their daily flight:
From their fond lord they both are flown,
Perhaps eternally are gone.
Tho' *Huginn's* loss I should deplore
Yet *Muninn's* would afflict me more*.

R. W.

I have already spoken of the excellent Falcons of this island: let me add, that Falcons were among the animals sacrificed to *Odin* †, being birds of the first courage, and which delighted in blood.

The sea which surrounds *Iceland* is said to be more salt than usual in other countries. It leaves great saline incrustations on the rocks, which

SEA.

* *Bartholinus de Causis contemptæ Mortis, &c.* 429.
ii. 132.

† *Mallet's Northern Antiq.*

the natives scrape off and use. I can, with no certainty, give the depth of the water, except where Mr. *Kerguelin* founded, ten leagues to the west of *Geir-fugl Skier*, where he found it to be two hundred and five fathoms*. The equinoctial tides rise as high as sixteen feet: the ordinary tides twelve †. The coasts almost universally bold, those of the inlets excepted, where there appears a small strand.

BAYS FROZEN. The bays, especially those of the south, which lie under the influence of the cold of *Greenland*, are annually frozen over; that of *Patrisford* was shut up even as late as the 14th of *May* ‡: but the sea near the coasts never feels the influence of the frost. It is in those places deep, and agitated by a most turbulent motion. The dreaded ice is what floats from

FLOATING ICE. *Greenland* and *Spitzbergen*, and often fills, during the whole summer, the streight between the former and this island §, and even extends along the northern coast, covering the sea to a vast distance from land. It consists of the two species, the mountainous ice, called *Fiel-jakar*; and the smooth ice of inconsiderable thickness, styled *Hellu-is*. These arrive generally in *January*, and go away in *March*. Sometimes it does not touch the land till *April*, when it fixes for a considerable time, and brings to the *Icelanders* the most tremendous evils; a multitude of polar bears, which spread their ravages far and wide among the cattle; and a cold of incredible violence, which chills the air for many miles, and even causes the horses and sheep to drop down dead §. To this is attributed the stunted state of the miserable woods of the country; which cause must have existed from the commencement of its iron age; for there seems to have been a period in which there had been considerable wooded tracts ¶.

The bottom of the sea is probably rocky; for it abounds with greater variety of *fuci* than *Great Britain*, which give shelter to fishes innumerable; a source of wealth to the natives (were they permitted the free use) as they are of food to distant nations, the vessels of which annually resort here to fish, but without any commerce with the *Icelanders*, which is strictly

* *Voyage au Mer du Nord*, 69. † *Horrebow*, 101. ‡ *Kerguelin*, 31.
 § *Troill*, 48, 49. § *Kerguelin*, 20, 175. ¶ See p. xlv.

prohibited. In 1767, three hundred *Dutch*, and above eighty *French* doggers, of about a hundred tons each, were employed, those of each nation under the orders and protection of a frigate. They keep from four to six leagues from shore, and fish with hooks baited commonly with large mussels, in forty or fifty fathoms water. Others go to the distance of fifteen leagues, and fish in the depth of a hundred fathoms. The great capture is Cod. As soon as the fishermen take one, they cut off the head, wash, gut, and salt it in casks, with either rock-salt or that of *Lisbon*. The fishery commences in *March*, and ends in *September*. It begins at the point of *Brederwick*, and extends round the *North Cape*, by the isle of *Grim*, to the point of *Langeness*.

The *English* till of late years had entirely deserted this fishery, since they were in possession of *Newfoundland*. It had been, in very early times, the resort of our vessels, as is evident by the proclamation of *Henry V.* in order to give satisfaction for the ill conduct of some of his subjects, in 1415, on the coasts of this island *, in which he forbids them to resort to the isles of *Denmark* and *Norway*, especially to *Iceland*, otherwise than had been antiently customary. In 1429, the *English* parlement enforced this order, by making it penal for any of our subjects to trade in the *Danish* ports, except in *North Earn* or *Bergen*. At length, the *Danish* monarch wisely resolved to reserve the benefits of the fisheries to his own subjects; and in 1465 made it capital for any *Englishman* to trade in the ports of *Iceland* †. Even those of *Helgeland* and *Finmark* were shut against them, unless they were driven in by a storm. I imagine that this severity must have arisen from some glaring insolence of our countrymen. But the antient treaties were revived, which were renewable by a fresh grant every seven years ‡. In later times, even *Queen Elizabeth* deigned to ask leave of *Christian IV.* to fish in those seas; but afterwards instructed her ambassador to insist on the right of a free and universal fishery. The answer does not appear: but in the reign of her successor, we had not fewer than a hundred and fifty vessels employed in this fishery. Possibly we might

* *Rymer's Fœd.* ix. 322.

† *Ibid.* xvi. 443.

‡ *Ibid.* xv. 443.

comply with the regulations insisted on by the king of *Denmark*; or perhaps a greater indulgence was given, by reason of the marriage of *James* with his sister *Anne*. I observe, that the *Danish* prince excepts the port of *Westmory*, it being reserved for the peculiar supply of the royal court*.

There is at present a revival of the cod fishery on the coast of *Iceland*, from our kingdom. About a dozen vessels have of late sailed from the isle of *Thanet*, *Yarmouth*, and a few from other parts of *Great Britain*. They are either sloops or brigs, from fifty to eighty tons burden. A lug-sail boat, such as is used in the herring fishery, was thus equipped:—The crew consisted of five men from the town, and five more were taken in at the *Orknies*. They had twelve lines, of a hundred and twenty fathoms each, and two or three hundred hooks; six heading knives, twelve gutting, and twelve splitting knives. They take in eighteen tons of salt at *Leith*, at the rate of three tons to every thousand fish, of which six or seven thousand is a load for a vessel of this kind. They go to sea about the middle of *April*; return by the *Orknies*, to land the men; and get into their port in the latter end of *August*, or beginning of *September*.

The oppressed natives fish in the bays in boats, containing one, and never more than four men. If they venture to sea, which they seldom do to above eight miles distance, they have larger boats, manned with twelve or sixteen hands; in these they slave for the benefit of the monopolists, to whom they are compelled to sell their fish at a trifling price. How weak must be the feelings of that government which can add misery to misery; and not attempt rather to bestow comforts on subjects condemned to such a dreadful abode!

The species of fish in these seas are few; but the multitudes, under several of the most useful kinds, are amazing; those of Cod in particular. Herrings pass by this island in their annual migrations from the north, and for a short space fill every bay. Poverty and want of salt make these riches of other nations a tantalizing appearance to the unfortunate natives.

* *Cambden's Life of Queen Elizabeth*, in the *Complete Hist. of England*, ii. 550.

This

This is the most northern place in which the Herring is seen: they are not found in the shallow water of *Spitzbergen*; neither is it probable that they double *Greenland*, and retire to the frozen ocean, equally wanting in depth of water;—are they not rather lost in the vast profundity of these very VAST DEPTHS OF WATER. seas, in the depth of six hundred and eighty-three fathoms, in lat. 65, between this island and the north of *Norway*; or in the unfathomable depths a little farther north, where the water was found bottomless with seven hundred and eighty fathoms*? The other fishes of *Iceland* are in general common to *Greenland*: my remarks respecting them shall be deferred till I treat of that icy region.

In order to view the correspondent shores of the tract I have passed over, I shall return to the streights of DOVER. Calais is seated in a low wet tract; and the whole coast, from thence to the extremity of *Holland*, is sandy, and fronted with sand-hills; providentially highest in that lowest of countries, in which the strongest protection against the fury of the sea is necessary. The coast of *Flanders*, the rich bait of ambition, stained with blood, is dangerous by reason of frequent narrow sand-banks, disposed in parallel rows, according to the direction of the land. The coasts of *Holland* are also greatly infested with sands; but between them and the land is a clear channel. From between *Dunkirk* and *Calais*, even to the *Scar*, at the extremity of *Jutland*, is low land, not to be seen but at a small distance, unless at *Camperden* in *Holland*; *Heilegeland*, off the mouths of the *Elbe* and *Wefer*; and *Robsnout*, and *Hartshall*, in *Jutland*. While the opposite coasts of *England* are comparatively high, and the channel deep, these are universally obstructed with sand: the great *German* rivers bring down by their floods amazing quantities of sand and mud, the course of which is impeded at sea by the violence of the winds, blowing at south and west two-thirds of the year †. These, with the help of the tides, arrest the progress of the sand into the open sea, and form the numerous banks which, fatal as

* Lord Mulgrave's *Voyage towards the North Pole*.
improvement, 4, 5.

† Yarranton's *England's Im-*

they

they may be to mariners, are the security of *Holland*, in particular, from naval invasions.

TIDES.

The spring-tides at *Calais* rise twenty feet; at the pier head at *Dover*, to twenty-five; the cause of the variation is supposed, by Mr. *Cowley*, to be the different distances of the two piers from low-water mark, the first being half a mile, the last only a hundred yards; at *Ostend* it rises to eighteen; at *Flushing*, sixteen and a half; at *Helvoetsluys* and the *Texel*, twelve; and on the coasts of *Holstein* and *Jutland*, where the sea expands to a more considerable breadth, the tides grow more irregular, and weaken both in height and strength; at the *Elbe* they do not exceed seven or eight feet; on the coast of *Jutland* only two or three; a singular phenomenon, as they are so greatly higher on the correspondent coasts of *England*. The flood on the west coast of *Holland* sets to the northward, contrary to the course of the tides on the east coasts of *England* and *Scotland*.

ANTIENT FLANDERS AND HOLLAND.

Flanders and *Brabant* formed part of the *Gallia Belgica* of *Cesar*, and *Holland* the *Batavorum Insula*. The rivers are the *Scaldis*, *Mosa*, and *Rhenus*, the modern *Scheld*, *Maeſe*, and *Rhine*. The two first probably do not vary greatly in their discharge into the sea: the last has experienced a most considerable change. The right branch of this river runs, for some space, as it did in antient times, when it formed the lake *Flevo*, then resumed the form of a stream, and discharged itself into the sea at a place still called the *Flie-stroom*, between the isles of *Flie-landt* and *Schelling*, at the mouth of the *Zuyder-zee*. Long after that period the country was dry, firm, and well inhabited; a mighty inundation totally changed the face of it, and enlarged the *Flevo lacus* into the present *Zuyder-zee*, and broke the coast into the chain of islands which now front the shore, even as far as the mouth of the *Weſer*. The *Dutch* historians date this accident in 1421: it seems to have been the operation of a length of time; for the passage through the *Texel* was forced open in 1400, and gave rise to the prosperity of *Amsterdam* *. This country was first peopled by the *Catti*, a *German* nation; these were thinned almost to extirpation by the swarms from the great

* *Anderson's Dic.* i. 225.

northern hive, in their expeditions by land to other parts of *Europe*. For a very long space *Flanders* and *Holland* were a seat of banditti: the vast forest of *Ardennes* gave protection to them in one country; the morasses secured them in the other. Government at length took place, in *Holland* under its counts, in *Flanders* under its foresters. These provinces fell at last under the dominion of the dukes of *Burgundy*; from them to the house of *Austria* and crown of *Spain*. The revolutions from that are well known. *Holland* received its second population from *Germany*, happily (for a country whose existence depends on industry) a most industrious race. The *Rhine* annually brings down multitudes of people, to repair the loss of men occasioned by distant voyages, and by the most unwholesome colonies in the *East* and *West Indies*. *Holland* is, from its climate, unfavorable to the encrease of mankind: it cannot depend on itself for the repatriation of the loss of people, but must look elsewhere for supplies.

FLANDERS has many of the same species of animals with *Great Britain*; but, from the nature of its coast, wants most of the water-fowl, a few cloven-footed birds excepted, which breed on sandy shores. *Holland* has still fewer quadrupeds and birds. Of the quadrupeds which we want, are a few BEAVERS in the *Rhine* and *Maese*. The WOLF is common in *Flanders*, and is found in the parts of *Holland* bordering on *Germany*. Both countries have a few birds which never appear in *Britain*, except forced by the violence of weather or pursuit of some bird of prey.

The antient *Germany* next succeeds. *Holland* was a sort of neutral country, a retreat of the *German Catti*, and not *Germany* itself. As at present, the bordering parts were divided into petty states. The rivers which derive their origin far up the country, are the *Ems*, the *Wejer*, and the *Elb*, the antient *Amisus*, *Visurgis*, and *Albis*.

The coast of *Emden* is noted for the place on which commences the great turbot fishery, which supplies the market of our capital. It begins very early in *April*. The fish come to the ground from the north, and move progressively southward. Towards the latter end of *April* the fishermen lay their long lines on the coast of *Holland*; and towards the latter end of *May* they go on the *Flemish* coasts, and continue till the latter end

ANIMALS.

TURBOT FISHERY.

of *August*; about which time the turbots spread, and are caught almost half channel over. They extend even to our northern coasts, but not in numbers sufficient to encourage a stationary fishery. The *Dutch* draw from us large sums, honorably indeed; but the produce of their fisheries is in the hands of a few of our salesmen, who by help of what are called *storeboats*, which lie in the salt water off *Gravesend*, bring up to the *London* market just the quantity of the fish which they judge will be wanted; and by those means keep up the price, to the great injury of both rich and poor: the rest is suffered to be spoiled; and what might fill the hungry is flung over-board by the cruel monopolizers. Most of the plaice sold in the metropolis are also bought from the *Dutch*. It is customary for our people to purchase these fish at sea: but the *Dutch* themselves bring the turbots to *Gravesend*. It is computed that they annually import about eighty thousand in the season, which continues from *April* to *August*. The fish with which the market is supplied from *November* to *March*, is conveyed by land from *Bath* and *Bristol*. This may be hereafter treated of. The *Dutch* employ in their fishery about fifty vessels, at an average burden of sixty tons. Had the act for taxing the tonnage of these vessels past, it would have amounted to an exclusion. There is great reason to believe that our own coasts would not have furnished turbots sufficient to answer the demands of the luxury of the times; the markets would have been worse supplied; and the power of monopolizing increased manyfold, by lessening the number of fishermen. Those of *Great Britain* have every sea, in which they may by the law of nations fish, open to them. The proper bait may be purchased at home; and, provided we have sufficient quantity of fish on our coasts, and exert ourselves with the œconomy and industry of the *Dutch*, we need never fear being rivalled by them.

The bait for these fish is the lesser lamprey of the *Br. Zool.* vol. iii. N^o 2; the *petromyzon fluviatilis* of LINNÆUS. This is a small fish, yet of great importance; it is taken in amazing quantities between *Battersea Reach* and *Taplow* mills, a space of about fifty miles, and sold to the *Dutch* for the cod and other fisheries: 400,000 have been sold in one season for the purpose. The price has been forty shillings the thousand; this year the

the *Dutch* have given three pounds, and the *English* from five to eight pounds; the former having prudently contracted for three years at a certain price. Formerly the *Thames* has furnished from a million to twelve hundred thousand annually. An attempt was lately made in parlement to sling the turbot fishery entirely into *British* hands, by laying ten shillings a ton duty on every foreign vessel importing turbot into *Great Britain*: but the plan was found to be derived from selfish motives, and even on a national injustice; the far greater quantity of turbots being discovered to be taken on the coasts of *Holland* and *Flanders*, from whence the *Dutch* are supposed to import annually to the *London* markets about 80,000 fish.

Opposite to the mouth of the estuary of the *Weser* and the *Elb*, is the remnant of the *Insula, Castum Nemus*, celebrated by *Tacitus*, with his usual elegance, for the worship of *HERTHUM*, or *MOTHER Earth*, by the neighboring nations. *Est in insula oceani, CASTUM NEMUS, dicatum in eo vebiculum veste conestum, attingere uni sacerdoti concessum. Is adesse penetrati DEAM intelligit, vestamque bubus feminis multa cum veneratione prosequitur. Læti tunc dies, festa loca, quæcumque adventu hospitioque dignatur. Non bella ineunt, non arma sumunt, clausum omne ferrum. Pax et quies tunc tantum nota, tunc tantum amata, donec idem sacerdos satiatam conversatione mortalium Deam templo reddat. Mox vebiculum et vestes, et, si credere velis, numen ipsum, secreto lacu abluitur. Servi ministrant, quos statim idem lacus baurit. Arcanus hinc terror, sanctaque ignorantia, quid sit illud quod tantum perituri vident **. The worship was continued very long after that period, and the island was distinguished by the name of *Festa-land, Farria, Insula Sacra*, or *Heilgeland*, or the *Holy isle*, from the sacrifices made there to the goddess *Fosta*, or *Fofeta*, the same with *Vesta, Herthum*, or the *EARTH*. She was called by the *Scandinavians*, *Goya*. The victims to her were precipitated into a pit: if they sunk at once, the sacrifice was thought to be accepted: the reverse if they swam any time on the surface †. This island was visited, out of respect to the goddess, by

INSULA SACRA,
OR

HEILGELAND.

* *De Mor. German. c. 40.*† *Mallet's North. Antiq. Transl. i. 136.*

people of high rank. *Radbotus* I. king of the *Frisians*, was here in 690, when *Winbertus*, and other Christian missionaries, landed, overthrew the temples, and put an end to the pagan rites *. It had been an island of great extent; but by different inundations, between the years 800 and 1649, was reduced to its present contemptible size †. The great island of *Nordstrandt* (one of the *Insule Saxonum*) not remote from this, in 1634 was reduced, by the same cause, from twenty parishes to one: fifty thousand head of cattle, and between six and seven thousand souls, were swept away. Such are the calamities to which these low countries are liable.

JUTLAND.

Jutland and *Holstein*, the antient *Cimbrica Chersonesus* ‡, and *Cartris* §, terminating in the low point called the *Skagen*, or *Scaw*, stretches out in form of a peninsula, bounded by the North sea and the *Kattegate*, the oblique approach into the *Baltic*. It is a very narrow tract, and only the resting-place of birds in their way from *Scandinavia*, and the farther north, the residence of numerous species. The rich marshes, in a climate mild from its situation between two seas, afford numbers of wholesome plants, the food of a remarkably fine breed of cattle. Besides the home consumption, these provinces send out annually thirty-two thousand head. The nobility do not think it beneath them to preside over the dairy: and their number of cows is princely. *M. De Rantzau* had not fewer than six hundred milch cows.

What the extent of this country might have been in very early times is unknown: it must have been prodigiously great, otherwise it never could have poured out that amazing number of people it did, in their eruption into *France*, when they were defeated by *Marius*, in 101 before CHRIST. Their army was computed to consist of three hundred thousand fighting men (including the *Teutoni*) besides women and children. About seven years before, they had suffered a great calamity from an inundation of the sea, which had destroyed great part of their country; and compelled the survivors, then crowded in the narrow *Chersonesus*, to apply to the

CIMBERIAN
DELUGE.

* *Emmii Hist. Rer. Friz.* 129. ed *Franck.*
‡ *Ptolem.* lib. ii. c. 11.

† *Busching Geogr.* i. 157. 167.

§ *Plin. Nat. Hist.* lib. iv. c. 13.

Romans for other lands. *Tacitus* speaks of the vestiges of this once mighty people, in the lines, visible in his time, on each shore. I presume that the inundations to which this coast is subject from the sea, hath utterly destroyed every trace of them. The charts plainly point out their overwhelmed territories in *Juts-riff*, and the neighboring sand-banks. The first might have been the continuation of land from the end of *Jutland*, beginning at the *Skaw*, and running out into the North sea in form of a scythe, not very remote from land, and terminating a little south of *Bergen* in *Norway*, leaving between its banks and that kingdom a deeper channel into the *Baltic*.

The *Cimbrium Promontorium* is believed by the *Swedish* antiquaries * to be the promontory *Kullen* in *Schonon*, a little to the north-west of the *Sound*. *Kullen*, and the point of *Toreko* to the north of it, forms a fine and deep bay quite in the neighborhood of the *Sinus Codanus*.

CIMBRIUM PRO-
MONTORIUM.

The *Kattegatte* lies between part of *Jutland* and the coast of *Sweden*: the last covered with isles innumerable. It is almost closed at the extremity, by the low *Danish* islands of *Seland* and *Funen*, which had in old times been (with *Sweden*) the seat of the *Suiones*. Between the first and the coast of *Sweden*, is the famous *Sound*, the passage tributary to the *Danes* by thousands of ships. The narrowest part is three miles broad, between *Helsingour* in *Denmark* and *Helsingbourg* in *Sweden*: on the *Danish* side is ten or eleven fathom of water, on the *Swedish* twenty. The revenue it brings to the *Danes* is a hundred thousand pounds annually. The isle of *Seland* is sandy and low: the opposite coasts high and rocky. *Copenhagen*, a city of eighty thousand inhabitants, stands in that island on an edge of the *Sound*. Many of the streets have canals, which bring merchandise to the very doors; and the city is divided by the harbour into two unequal parts. These isles were of old called *Codonania* †, and gave to the *Kattegatte* the name of *Sinus Codanus*. The proper *Baltic* seems to have been the *Mare Suevicum* of the antients; and the farthest part, the

THE SOUND.

* Mr. *Retzius*. See this bay in *Lous's* Kaart over *Kattegattet*.
c. 3. 8.

† *Mela*, lib. iii.

Mare Sarmaticum, and part of the *Mare Scythicum*. As a naturalist, I must mention, that when LINNÆUS speaks of the *Mare Occidentale*, he intends the *Kattegate*. Its greatest depth is thirty-five fathoms. It decreases as it approaches the *Sound*; which begins with sixteen fathoms, and near *Copenhagen* shallows to even four, but has a much greater depth on the *Swedish* side.

VOYAGE OF THE
ROMAN FLEET.

The *Roman* fleet, under the command of *Germanicus*, sailed, according to *Pliny*, round *Germany*, and even doubled the *Cimbricum Promontorium*, and arrived at the islands which fill the bottom of the *Kattegate**: either by observation or information, the *Romans* were acquainted with twenty-three. One they called *Glessaria*, from its amber, a fossil abundant to this day on part of the south side of the *Baltic*. A *Roman* knight was employed by *Nero's* master of the gladiators, to collect, in these parts, that precious production, by which he came perfectly acquainted with this country †. I cannot suppose that the *Romans* ever settled in any part of the neighborhood, yet there was some commerce between them, either direct, or by the intervention of merchants. Many silver coins have been found at *Kivikke*, in *Schonen* in *Sweden*, of *Hadrian*, *Antoninus Pius*, *Commodus*, and *Albinus* ‡. Among the islands, *Pliny* makes *Norway* one, under the name of *Scandinavia incomperæ magnitudinis*, and *Baltia* another, *immense magnitudinis*, probably part of the same, and which might give name to the Sounds called the *Belts*, and to the *Baltic* itself. The geographer *Mela* had the justest information of this great water, which he describes with great elegance. ‘*Hac re mare (CODANUS SINUS) quod gremio mare accipitur, nunquam latè patet, nec USQUAM MARI SIMILE verum aquis passim interfluentibus ac sæpe transgressis vagum atque diffusum facie amnium spargitur, qua littora attingit, ripis contentum insularum non longè distantibus, et ubique pæne tantundem, it angustum et par FRETO curvansque se subitè, longo supercilio inflexum est.*’ The different nations which inhabited its coasts shall hereafter be mentioned.

THE BALTIC A
GULPH.

I would, like *Mela*, prefer giving to the *Baltic* the name of a gulph rather than a sea; for it wants many requisites to merit that title. It

* *Plin.* lib. ii. c. 67. lib. iv. c. 13. † *Lib.* xxxvii. c. 3. ‡ *Forssenius de Monum. Kivikenæ*, p. 27.

wants depth, having in no one place more than a hundred and ten fathoms. From the eastern mouth of the Sound to the isle of *Bornholm* it has from nine to thirty: from thence to *Stockholm*, from fifteen to fifty: and a little south of *Lindo*, sixty. It has in this course many sand-banks, but all in great depths of water. Between *Alands Haff*, amidst the great archipelago, the *Aland* isles, and the isle of *Osel* in the gulph of *Riga*, the depths are various, from sixty to a hundred and ten*. Many fresh-water lakes exceed it in that respect.

It wants tides, therefore experiences no difference of height, except when the winds are violent. At such times there is a current in and out of the *Baltic*, according to the points they blow from; which forces the water through the *Sound* with the velocity of two or three *Danish* miles in the hour. When the wind blows violently from the *German* sea, the water rises in the several *Baltic* harbours, and gives those in the western part a temporary saltness: otherwise the *Baltic* loses that other property of a sea, by reason of the want of tide, and the quantity of vast rivers it receives, which sweeten it so much as to render it, in many places, fit for domestic uses. In all the *Baltic*, *Linneus* enumerates but three *fuci* †, plants of the sea: in the gulph of *Botnia*, which is beyond the reach of salt water, not one ‡.

In the present century it has been proved by experiment, that the *Baltic* has an under current like the Streights of *Gibraltar*. An able seaman belonging to one of our frigates went in a pinnace to the middle of the channel, and was violently hurried away by a current. Soon after he sunk a bucket, with a large ball in it, to a certain depth, which gave a check to the boat's motion, and sinking it still lower and lower, was driven a-head to windward against the upper stream, which had been forced through the Sound by some strong gale. The current aloft was not above four or five feet deep; and the lower the bucket was sunk, they found the under current the stronger ||.

The fewness of species of fish in the *Baltic* is another difference be-

* *Russian* and other charts.
History Gibraltar, i. 233.

† *Flora Succ.*

‡ *Flora Lapp.*

|| *James's*

tween

DEPTH.

NO TIDES.

NOT SALT.

FEW SPECIES OF
FISH.

tween it and a genuine sea. I can enumerate only twenty* which are found in this vast extent of water: and may add one cetaceous fish, the Porpesse. No others venture beyond the narrow streights which divide the *Baltic* from the *Kattegate*; yet the great *Swedish Faunist* reckons eighty-seven belonging to his country, which is washed only by those two waters. Let me mention the Herring as a species which has from very early times enriched the neighboring cities. There was, between the years 1169 and 1203, a vast resort of *Christian* ships to fish off the isle of *Rugen*, the seat of the antient *Rugii*, insomuch that the *Danes* clothed themselves with scarlet and purple, and fine linen.

They frequented the *Livonian* and *Courland* shores in equal multitudes till the year 1313, when they drew near those of *Denmark* †. They deserted the *Baltic* for some centuries, but in 1752 began again to make their appearance there on the *Swedish* coast, and are caught among the rocks and isles (none at sea) from *Gottenbourg* to *Stromstad*, a space of thirty-five leagues, and none further north or south. In the beginning of the fishery they appeared about the end of *July*, or the beginning of *August*, but have gradually altered their season, and of late are seldom seen before the beginning of *November*: neither are they so fat as when they appeared early. In 1781, 136,649 barrels of salted herrings were exported to different ports of the *Baltic* and East sea, the *Madeiras* and *West-Indies*, and *France* and the *Mediterranean*; besides 14,542 barrels of herring oil: but the oil is of a very inferior quality to that of whale or liver oil. Formerly the *Swedes* sent great quantities of herrings to *Cork*, from whence they were reshipped to the *West-Indies* ‡. This part of the trade has entirely ceased. Possibly these new fisheries may have operated

* Porpesse,	Striated Cod-fish,	Turbot,	Herring,
Sea Lamprey,	Viviparous Blenny,	Flounder,	Sprat,
Sturgeon,	Beardless Ophidion,	Salmon,	Little Pipe-fish,
Launce,	Lump,	Gar-fish,	Shorter P.
Sword-fish,	Hornsumpa,	Smelt,	Band P.

I find that the *Afinus Callarius* is common to the *Baltic* and our seas, therefore must be added to the list of *British* fish.

† *Anderson's Dict. Commerce*, i. 102. 152.

‡ Third Report of the Committee on the *British* Fisheries, p. 314.

with

with other causes to lessen those of *Great Britain*: but I am informed that these capricious fish begin already to appear in far less quantities than usual.

The *Hornsimpa*, or *COTTUS QUADRICORNIS*, *Faun. Succ.* N° 321, and the *SYNGNATHUS TYPHLE*, or Blind Pipe-fish, N° 377, are unknown in the *British* seas: the first seems peculiar to the gulph of *Bothnia*, and is a fish of singular figure, with four flat hornlike processes on the head *.

The extent of the *Baltic* in length is very great. From *Helsingør*, where it properly begins, to *Cronstadt*, at the end of the gulph of *Finland*, is eight hundred and ten *English* sea miles. Its breadth, between *Saltwic*, in *Smaland*, and the opposite shore, two hundred and thirty-seven. The gulph of *Bothnia*, which runs due north, forms an extent almost equal to the first, being, from *Tornea* in *Lapland*, to the shore near *Dantzic*, not less than seven hundred and seventy-eight: an amazing space, to be so ill stocked with fishy inhabitants.

From the isle of *Rügen*, the course of the *Baltic* is strait and open, except where interrupted by the famous isle of *Gottland*, the place of rendezvous from whence the *Goths* made their naval excursions. In 811, on this island, was founded the famous town of *Wibsey* †, the great emporium of the north: it was, for ages, the resort of every Christian nation. The *English* long traded here, before they ventured on the distant voyage of the *Mediterranean*. It became an independent city, and made its maritime laws the standard of all *Europe* to the north of *Spain*. In 1361, *Waldemar III.* of *Denmark*, attacked, ravaged, and plundered it of immense riches; all which perished at sea after they were shipped ‡. Its present inhabitants are husbandmen and fishermen, secure from the calamities of war by the happy want of exuberant wealth.

Beyond *Stockholm* the *Baltic* divides into the gulphs of *Bothnia* and *Finland*: the first runs deeply to the north, and the country is composed chiefly of granite rock, or strewed over with detached masses of the same. Its greatest breadth is between *Gesle*, in *Gastrickland*, and *Abo*, in *Finland*, where it measures a hundred and sixty-two miles. The left breadth is

LENGTH AND
BREADTH OF THE
BALTIC;

OF THE GULPH
OF BOTHNIA.

ISLE OF GOTT-
LAND.

* *Mus. Fr. Adolph.* i. 70. tab. xxxii. fig. 4.

† *Dalberg*, book iii. tab. 263.

‡ *Hist. Abregè de Nord.* i. 206.

at *Aland* *baf*, the mouth of the gulph, reckoning from *Grifselholm* in *Sweden* to the usual landing-place, about forty *English* miles below *Abo*, where it is only twelve *Swedish* or seventy-two *English* miles broad. The depth in one place is superior to that of the *Baltic*, having been proved by sounding to be five hundred and eighty *English* feet *.

LAPLAND.

At the extremity of the gulph of *Bothnia* is *Lapland*, a country divided by the river *Tornea*, which runs navigable far up between a continued mountainous forest. It is supposed to have been peopled in the eleventh century by the *Finni*: a fact not easy to be admitted; for the *Finni*, or *Fennones*, are a brawny race, with long yellow hair, and brown irides. The *Laplanders* are, on the contrary, small in body, have short black hair, and black irides. It is certain that a party of *Fins* deserted their native country, *Finland*, in the age before mentioned, rather than relinquish the brutality of heathenism. Their offspring remain converted, and in some measure reclaimed, between *Norway* and *Sweden* †; but are a most distinct race from the *Laplanders*, who possessed their country long before. In the ninth century, the hero *Regner* slew its king or leader in battle ‡: at that period it was in a savage state; nor was its conquest attempted by *Sweden* till 1277, when *Waldemar* added it to his kingdom, and in vain attempted its conversion §. Scarcely two centuries have elapsed since it has sincerely embraced the doctrines of Christianity. In consequence of which, cultivation and civilization have so well succeeded in the southern parts, that many deserts are peopled, morasses drained, and the reason of the natives so greatly improved, that they have united with the *Swedes*, and even sent their representatives to the House of Peasants in the national diet ||. But these were at all times the most cultivated of this distinct race. They trained the Rein-deer to the sledge, domesticated it from its wild state, and made it the substitute for the cow.

BIRDS.

Their country, which penetrates even to the Northern ocean, consists of savage mountains, woods, vast marshes, rivers, and lakes, the haunts of myriads of water-fowl, which resort here in summer to breed, free

* Prof. *Retzius* of *Lund*. † *Ph. Tr. Abr.* vii. part iv. p. 44. ‡ *Hist. Abregè du Nord.* ii. 59. § The same, p. 3. || *Anderfon*, ii. 419.

from

from the disturbance of mankind. LINNÆUS, the great explorer of these deserts, my venerated example ! mentions them as exceeding in numbers the armies of *Xerxes* ; re-migrating, with him, in autumn, eight entire days and nights, to seek sustenance on the shores and waters of more favorable climates *.

Their lakes and rivers abound in fish ; yet the number of species are few. These are the Ten-spined Stickle-back, *Br. Zool.* iii. N° 130 ; Salmon, N° 143, in great abundance, which force their way to the very heads of the furious rivers of *Tornea* and *Kiemi*, to deposit their spawn ; Char, N° 149, are found in the lakes in great abundance ; and Graylings, N° 150, in the rivers ; Gwiniads, N° 152, are taken of eight or ten pounds weight ; Pikes, N° 153, sometimes eight feet long ; and Perch, N° 124, of an incredible size † ; and the *Salmo Albula*, *Faun. Succ.* N° 353, closes the list of those of the *Lapland* lakes and rivers.

But SWEDEN exceeds us in the number of fresh-water fishes. Besides those it has in common with *Great Britain*, it has,

The *lesser Lamprey*, the *Pride Lamprey*, *Eel*, *Barbot*, *Bull-head*, *Ruffe*, three-spined and ten-spined *Sticklebacks*, *Loche*, and the *Cobitis tænia* lately discovered in the *Trent* ; the *Trout*, *Char*, *Grayling*, *Gwiniad*, *Pike* (this fish has been taken in the *Wetter* lake of the weight of sixty pounds : there is a tradition that once there was one taken of the weight of a hundred and thirty pounds) ; *Carp*, *Tench*, *Bream*, *Crucian*, *Rud*, *Roach*, and the *Bleak*, all which are described in the *British Zoology*. SWEDEN has besides,

The *Sterlet*, or *acipenser ruthenus*, BLOCHE iii. 88. transported from the *Volga* into the lake *Mæler*, by *Frederic I* ; as was the *Loche*, *Cobitis Barbatula*, out of *Germany*, by the same monarch.

Blennius raninus or *Ablkussa*. *Faun. Succ.* N° 316.

Perca Lucio-perca or *Gioes*, BLOCHE ii. 58.

Cobitis fossilis, BLOCHE i. 173.

Silurus glanis, BLOCHE i. 194, or *Mabl*, the greatest of fresh-water fishes.

* *Amœn. Acad.* iv. 570. *Fl. Lap.* 273.

† *Scheffer's Lapland.*

Salmo nimba.

S. Albula, or *Sucklöja*, BLOCHE i. 141.

Cyprinus Aspius, or *Asp*, BLOCHE i. 41.

C. Idus, or *Id*, BLOCHE i. 202.

C. Ballerus, or *Blicka*, BLOCHE i. 53.

C. Grislagine, or *Staem*, BLOCHE.

C. Wimba, BLOCHE i. 31.

C. Idbarus.

C. Farenus, or *Faren*.

C. Cultratus, or *Skierknif*, BLOCHE i. 204.

C. Bjorkna.

C. Apya, or *Mud*, BLOCHE iii. 121.

Sweden wants our *Samlet*, *Barbel*, *Gudgeon*, *Chub*, *Graining*, or *Cyprinus Dobula*, BLOCHE i. 36, and *Minow*. The *Carp* is a naturalised fish, and frequently brought alive into Sweden out of Germany.

In reptiles, the same country, unenvied, exceeds us in numbers of species. Of those unknown in Britain, is the *rana rubeta*, *esculenta*, and *arbo-rea*. And that dreadful species of snake, the *coluber cherssea*, the *Asping* of the Swedes; a small species, which, like the *Prestor* of Lucan, kills by a horrible swelling of the whole human frame. Its bite is almost incurable: yet in a few instances, the juice of the leaves of the ash, used internally and externally, has been found efficacious*. This fatal species is found only in *Smoland* amidst the willows.

ALAND ISLES.

The mouth of the gulph of *Bothnia* is filled with a prodigious cluster of little islands and rocks, dangerous to mariners. *Aland* is the chief, an island of surprising rockiness, and with all the other aspects as if torn from the continent by some mighty convulsion. In this northern *Archipelago*, only junipers and other shrubs will grow. During winter it forms the most singular passage in the world. The traveller from Sweden to Finland finds an uncommon variety: in parts, a vast expanse of ice, sometimes as smooth as a mirror: at other times amidst frozen waves, according to the state in which the frost had arrested the water. When he

* Mr. Oedman.

reaches *Aland*, he finds a long extent of land and granite; he muses in the midst on *Castleholm*, the sad prison of the unfortunate *Eric XIV*, who had proposed himself the husband of our great *Elizabeth*. The rest of the way is a succession of road over island and ice, amidst the grotesque appearance of granite rock, appearing above the frost-bound water on every side, and the oddness of the road still heightened by a sky quite crimson with the *aurora borealis*.

The season of the freezing of the upper part of the *Baltic* is very uncertain, and equally so as to the duration and thickness of the ice. It rarely freezes about the *Wermdoen* isles, a little to the east of *Stockholm*, before *January*: but the bays which lie remotest from the sea, almost always before *Christmas*. About the isles of *Aland*, the water is frozen later, and the ice disappears later. In 1783, the sea was covered with ice on the 6th of *January*, and was free from ice on *April* 6th. It sometimes continues even till the middle of *May*. The persons who attend the sledges, which have such frequent occasion to pass this part of the *Baltic*, are obliged to be very exact in their remarks upon the ice. They say that when it is three *Swedish* inches thick, it will bear a man; when four, a horse: when five, a carriage. The greatest thickness is forty*: the sledge-drivers never go without a hatchet to cut the ice, and an instrument to measure the thickness †, as their safety depends on an accurate observation on that circumstance.

The gulph of *Finland* extends from thence due east, and has, on its northern coast, a chain of similar islands, and a few sprinkled over the channel. All the coast and all its isles are composed of red or grey granite; and all the coasts of *Sweden* are the same, mixed in places with sand-stones. *Finland* and *Carelia* are the bounds of the gulph on this side: *Livonia*, the granary of the north, and *Ingria*, on the other. *Finland*, especially the middle parts, is most amazingly intersected with lakes and moors; it abounds with game, and, unluckily, with fastnesses for bears, of such fierceness, that in the year 1758 they destroyed, in the parish of *Huittis*

SEASON OF
FREEZING.

GULPH OF
FINLAND.

* Mr. Oedman.

† Mr. Cox.

alone, not fewer than eight hundred and eighty-seven cattle ! These countries, with *Russia*, made part of the *European Scythia*, or *Sarmatia* ; and this part of the *Baltic* has been sometimes styled *Mare Scythicum*, and *Mare Sarmaticum* *. The gulph decreases in depth from sixty to five fathoms, as you advance towards *Cronstadt*, the great naval arsenal of *Russia*. From thence are twelve miles of shallow water to *Petersburg*, seated in *Lat. 59° 56' 23''* north, that glorious creation of PETER the GREAT ; the inlet of wealth and science into his vast dominions, before his time inaccessible to the rest of *Europe*, unless by the tedious voyage of the *White sea* ; and a country unknown, but by the report of the splendid barbarism of its tyrants. *Petersburg* was founded by him, in the midst of a vast morass, divided by the *Neva* and its branches. In 1703 here were only a few miserable huts. In less than nine years the seat of empire was transferred from the great city of *Moscow* to this late desolate spot. Above a hundred thousand lives were sacrificed to this vast work ; lost by excess labor, and the unwholesome air of the fen. It now contains a hundred and thirty thousand inhabitants. PETER was formed with a singular mixture of endowments for the purpose of civilizing a rude and barbarous people : his mind was pregnant with great designs, obstinate perseverance, and unrelenting severity in the exertion of punishment on all who dared to oppose the execution of his system for the good of the whole. A mind filled with the milkiness of human nature, would never have been able to deal with the savage uninformed *Russians*. Peter hewed his work into shape : for the last polish, Heaven formed another CATHERINE, the admiration of *Europe*, the blessing of an empire which forms at least one eleventh of the globe, extending from the northern point of *Nova Zemlja*, in the frozen latitude of near 78, to the influx of the *Terek* into the *Caspian sea*, in the warm latitude of about 43 and a half ; or, to give it the shortest breadth, from the coast of the Frozen ocean, at the extremity of the country of the *Tschutki*, lat. 73, to the mouth of the *Aimakan*, in the gulph of *Ochotz*, in lat. 54. Its length is still more prodigious, from *Petersburg* as far as the *Asiatic* side of the streights of *Bering*.

PETERSBURG.

PETER THE
GREAT.

* Ptolemy.

A fine equestrian statue of this great legislator of *Russia* has lately been erected in *Peterburg* to his memory. He is represented on a spirited courser ascending a steep rock, in the action of bestowing his blessing on his people. The pedestal is a wonderful curiosity: a stupendous mass of moor-stone or granite, found half buried in a morass eight miles from the city. It weighed fifteen hundred tons: the morass was drained, and it was brought through a road cut through a forest, with forty men on the top, four miles to the water-side, then it was conveyed in a vessel built on purpose down the *Neva* to the place of its destination*.

In the following work, I have, by the assistance of that celebrated naturalist Doctor *PALLAS*, given a description of the Quadrupeds and Birds of this vast empire, as far as was compatible with my plan, which was confined between the highest known latitudes of the northern hemisphere, and that of 60. The remainder will be comprehended in the great design formed by the Imperial Academy, and executed by professors whose glory it is to prove themselves worthy of their illustrious and munificent patroness, under whose auspices they have pervaded every part of her extensive dominions in search of useful knowledge.

To *Peterburg*, this corner of the empire, is brought, as to a vast emporium, the commerce of the most distant parts; and from hence are circulated the *European* articles to supply even the remote *China*. The place of traffic is on the *Chinese* borders, at *Kjackta*, a town without women; for none are allowed to attend their husbands. By this route the furs of *Hudson's-Bay* find their way to warm the luxurious inhabitants of *Pekin*, the animals of the neighboring *Tartary* and *Siberia* being inadequate to the increased demand. The want of a maritime intercourse is no obstacle to this enterprising nation to the carrying on a trade with *India*.

Since the beginning of the present century, about an hundred and fifty or two hundred *Indian* merchants, from the province of *Multan*, reside at *Astracan*, and carry on a great trade in precious stones; they live in a large stone caravanserni. As they die away, or incline to return home, a sup-

* Mr. Cox.

ply is sent from *India* by their chief, selected from among their young unmarried relations. — As they have no females from their own country, they keep, during their residence at *Astracan*, *Tartarian* women, but the contract is only during that time. They are a fine race of men, and are highly esteemed for the integrity of their dealings. These support the most important trade of *Astracan*, by carrying through *Astrabad* to the inland parts of the *Mogol* empire. I stray a little from my plan; but it may be excused on account of the novelty of the relation, and because it points out a more southern inland road than was known in the middle ages, when the merchants went by the way of *Bochara* and *Samarcand* to the northern cities of *India*, *Candabar* and *Cabul*.

SARMATÆ.

In my return to the *German* sea, let me review the antient inhabitants of the *Baltic*. The wandering *Sarmatæ*, of *Scythian* descent, possessed all the country from lake *Onega* to the *Vistula*; and part of the vast *Hercynian* forest, famous of old for its wild beasts, occupied most of this country. Bisons with their great manes: URI with their enormous horns, which the natives bound with silver and quaffed at their great feasts: the *Alces*, or ELK, then fabled to have jointless legs: and Wild Horses, were among the quadrupeds of this tract*. I smile at the description of certain birds of the *Hercynian* wood, whose feathers shone in the night, and often proved the guide to the bewildered traveller †. The resplendent plumage of the STRIX NYCTEA, the SNOWY OWL, might probably have struck the eye of the benighted wanderer, and given rise to the strange relation.

ENINGIA.

Eningia was the opposite shore, and the same with the modern *Finland*, inhabited by people of amazing savageness and squalid poverty; who lived by the chase, headed their arrows with bones, clothed themselves with skins, lay on the ground, and had no other shelter for their infants than a few interwoven boughs ‡. They were then, what the people of *Terra del Fuego* are now. At this very time (Mr. *Oedman* informs me)

* *Cæsar Bell. Gall.* lib. iv. *Plin.* lib. viii. c. 15.
c. 47.

‡ *Tacitus de Mor. Germ.*

† *Solinus*, c. 32. *Plin.* x.

there

there are above twenty districts, in the space between *Swedish* and *Russian Finland*, which own no master, live almost in a state of nature, and in the most deplorable manner torn by family quarrels, from the lawless state in which they live. There is no certainty respecting the *Oonæ*; islanders, who fed, as many do at present, on the eggs of wild fowl and on oats; but most probably they were the natives of the isles of *Aland*, and the adjacent archipelago; for *Mela* expressly places them opposite to the *Sarmatæ* *. We may add, that the *Hippopodæ* and *Panoti* might be the inhabitants of the northern part of the *Bothnian* gulph; the first fabled to have hoofs like horses, the last ears so large as to serve instead of cloaks. The *Hippopodæ* were certainly the same sort of people as the *Finni Lignipedes* of *Olaus*, and the *Skride Finnas* of *Obtberæ*. They wore snow-shoes, which might fairly give the idea of their being, like horses, hoofed and shod. As to the *Panoti*, they baffle my imagination.

The *Bothnian* and *Finland* gulphs seem to me to have been, in the time of *Tacitus*, part of his *Mare pigrum ac immotum*, which, with part of the *Hyperborean* ocean, really insulated *Scandinavia*, and which he places beyond the *Suiones*, or modern *Sweden*. *Pliny* gives, I suppose from the relation of *British* or other voyagers, to part of this sea, probably the most northern, the title of *Morimarusa*, or Dead Sea, and *Cronium*. The learned *Forster*, with great ingenuity, derives the word from the *Gaelic* and *Celtic* language †; the first, from the *Welsh*, *môr*, sea, and *marw*, dead; the other from the *Irish*, *muir-croinn*, the coagulated, *i. e.* *congealed sea*. *Tacitus* adds to his account, that it was believed to encircle the whole globe, and that the last light of the setting sun continued so very vivid as to obscure the stars themselves. There is not a single circumstance of exaggeration in all this: every winter the gulph is frozen, and becomes motionless. Many instances may be adduced even of the *Baltic* itself being frozen from shore to shore ‡. The stars are frequently lost in the amazing splendor and various colors of the *aurora borealis*. The *Hilleviones*, an antient people of *Sweden*, styled *Scandinavia alterum orbem terrarum*, and their descendants,

* *Mela*, lib. iii. c. viii.† *Forster's Obs.* 96.‡ *Forster's Obs.* 80.

OONÆ.

HIPPOPODÆ.

long

ANTIENT
STREIGHTS BE-
TWEEN

THE BALTIC AND
WHITE SEA.

long carolled the junction of the *Botbnian* gulph with the northern ocean, traditionally rehearsed in old *Swedish* songs. *Tacitus* uses the two last words to exprefs the world furrounded by this sea. In the days of the geographer *Mela*, there certainly was a strong tide in this upper part of the *Baltic*; for, speaking of the islands off *Finland*, he fays, “ *Quæ Sar-
“ matis adverfa funt, ob alternos accessus recurfusque pelagi, et quod spa-
“ tia queis distant, modò operiuntur undis, modò nuda funt; aliàs infulæ
“ videntur, aliàs una et continens terra.*” With propriety, therefore, in another place, does he compare it to a streight, *par freto*, notwithstanding he was ignorant of its other entrance. Doctor *Pallas* most justly ascribes the formation of not only the *Baltic*, but its former communication with the *White Sea*, to the effects of a deluge. The whole intermediate country is a proof; the foundation being what is called the old rock, and that covered with variety of matter; such as beds of pebble and gravel, and fragments of granite, torn from the great mass. Parts of the channel which formed the insulation of *Scandinavia*, are the chain of lakes, from that of *Ladoga* to the *White Sea*, such as *Onega*, and others, often connected by rivers, and lying in a low country, filled with the proofs above-mentioned. The lakes *Sig*, *Onda*, and *Wigo*, form successive links from the lake *Onega* to the *White Sea*; and the lake *Saima* almost cuts *Finland* thorough from north to south, beginning not far from lake *Onda*, and extending almost to *Wybourg* on the gulph of *Finland*, a space of forty *Swedish* or two hundred and sixty *English* miles. These were part of the bed of the streights through which the tide poured itself from the *Hyperborean* ocean, and covered, at its flux, the islands described by *Mela*. This, like the other northern seas, was annually frozen over, and no obstacle to the stocking of *Scandinavia* with quadrupeds. The fixing the period in which this passage was obstructed. An influx of ice or an earthquake, might close it up. As soon as this event took place, the *Baltic* felt the want of its usual feed: it lost the property of a sea; and, by a constant exhalation, from that time decreased in the quantity of water. Modern philosophers have proved the great loss it has sustained, and that it decreases from forty to fifty inches in a century: that, near *Pithea*,

Pithea, the gulph of *Botnia* has retired from the land half a mile in forty-five years; and near *Lulea*, a mile in twenty-eight. Notwithstanding its present state, when we consider the accounts given by the antients, the old *Swedish* traditions, and the present vestiges of the former channel, we can, without any force of fancy, give full credit to the insulated form of *Scandinavia*, given in one of *Cluverius's* maps *; which, he says, is drawn from the erroneous accounts of the antients.

The *Suiones* possessed the modern *Sweden*, and extended even to the ocean, and were a potent naval power. Their ships were so constructed, with prows at each end, that they were always ready to advance. These people, in after times, proved, under the common name of *Nortmans*, the pest and conquerors of great part of southern *Europe*; their skill in maritime affairs fitting them for distant expeditions. In the sixth century they were called *Suetbans*, and were famous for their cavalry. In their time, the *SABLE* was common in their country: *Jornandes*, therefore, observes, that notwithstanding they lived poorly, they were most richly clothed: he also informs us, that they supplied the *Romans* with these precious furs, through the means of numbers of intervening nations †. *Scandinavia*, in that period, had got the name of *Scanzia*; and as it was then called an island, and by *Jornandes* ‡, born of *Gotbic* parents, there is all the reason to imagine, that the passage into the *Hyperborean* ocean was not in his time closed.

After repassing the Sound, appear *Schonen*, *Halland*, and *Bobusland*, *Swedish* provinces, bounded by the *Kattegate*. *Schonen*, a level country totally destitute of wood, but abundant in excellent turf. *Halland*, from some similitude of sound, is supposed to have been the seat of the *Hilleviones*, a most populous nation; perhaps the same with the *Suiones* of *Tacitus*; for beyond them he places the *Sitones*, or the country of *Norway*, who were a great naval people; as the historian says that they differed not from the *Suiones*, except in being under a female government. The pro-

SUIONES.

NORWAY.

* At the end of his second vol. of *Germania Antiqua*.
Geticis, c. iii.

† The same, c. iv.

‡ *Jornandes de Reb.*

THE NAZE. montory of the *Naze*, visible at eight or ten leagues distance, with the low land of *Bevenbergen* in *Jutland*, forms the entrance into the *German sea*. The *Bommel*, and the *Drommel*, high mountains to the east of it; and the highland of *Leß*, a vast mountain, gradually rising from the shore, to the west, are noted guides to mariners. It is reasonably supposed, that *Pliny* intended this vast region by his island of *Nerigon*, from whence, says he, was a passage to *Tbule*. He speaks also of *Bergos*, which, from agreement of sound, is thought to be the present province of *Bergen*. The promontorium *Rubeas* is guessed to be the *North Cape*, between which and the *Cimbri*, *Philemon* * places the *Mare Morimarusa*, or the Dead Sea, so called from the clouded sky that usually reigned there.

NORTMANS.

Our first certain knowledge of the inhabitants of this country, was from the desolation they brought on the southern nations by their piratical invasions. Their country had, before that period, the name of *Nortmannaland*, and the inhabitants *Nortmans*; a title which included other adjacent people. *Great Britain* and *Ireland* were ravaged by them in 845; and they continued their invasion till they effected the conquest of *England*, under their leader, *Canute* the Great. They went up the *Seine* as far as *Paris*, burnt the town, and forced its weak monarch to purchase their absence at the price of fourteen thousand marks. They plundered *Spain*, and at length carried their excursions through the *Mediterranean* to *Italy*, and even into *Sicily*. They used narrow vessels, like their ancestors the *Sitones*; and, besides oars, added the improvement of two sails: and victualled them with salted provisions, biscuit, cheese, and beer. Their ships were at first small; but in after times they were large enough to hold a hundred or a hundred and twenty men. But the multitude of vessels was amazing. The fleet of *Harold Blaatand* consisted of seven hundred †. *Ringo* brought a fleet of two thousand five hundred ships against *Harold Hyldetand* king of *Denmark* ‡. The ships of the chieftains were decorated in the most superb manner; we are told that the sails were enriched with

* As quoted by *Pliny*, lib. iv. c. 13.

† *Mallet's Introd.* i. 257.

‡ *Sax. Gram. Hist. Dan.* 109.

gold,

gold, the mast gilt, and the ropes purple *. A hundred thousand of these savages have at once sallied from *Scandinavia*, so justly stiled *Officina Gentium, aut certe velut vagina nationum* †. Probably necessity, more than ambition, caused them to discharge their country of its exuberant numbers. Multitudes were destroyed; but multitudes remained, and peopled more favorable climes.

Their king, *Olaus*, was a convert to Christianity in 994; *Bernard*, an *Englishman*, had the honor of baptizing him, when *Olaus* happened to touch at one of the *Scilly* islands. He plundered with great spirit during several years; and in 1006 received the crown of martyrdom from his pagan subjects. But religious zeal first gave the rest of *Europe* a knowledge of their country, and the sweets of its commerce. The *Hanse* towns poured in their missionaries, and reaped a temporal harvest. By the year 1204, the merchants obtained from the wise prince *Suer* every encouragement to commerce; and by that means introduced wealth and civilization into his barren kingdom. *England*, by every method, cherished the advantages resulting from an intercourse with *Norway*; and *Bergen* was the *emporium*. *Henry III.* in 1217, entered into a league with its monarch *Haquin*, by which both princes stipulate for free access for their subjects into their respective kingdoms, free trade and security to their persons. In 1269, *Henry* entered into another treaty with *Magnus*, in which it was agreed, that no goods should be exported from either kingdom except they had been paid for; and there is besides a humane provision on both sides, for the security of the persons and effects of the subjects who should suffer shipwreck on their several coasts.

This country exhibits a most wonderful appearance of coast. It runs due north to *Cape Staff*, the western point of *Sondmor*, then winds north-east to its extremity at the *North Cape*. The extent (measuring along the shores) is three hundred *Norwegian* miles, or above fifteen hundred *English*; or in a direct line, as a bird flies, above a thousand *English*. High and precipitous rocks compose the front, with a sea generally from one to

COASTS.

SEA.

* *Sax. Gram. Hist. Dan.* 145.† *Jornandes*, c. 4.

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DYBRENDIS.

three hundred fathoms deep washing their base*. Multitudes of narrow creeks penetrate deep into the land, overshadowed by stupendous mountains. The sides of these chasms have depth equal to that of the adjacent sea; but in the middle is a channel called *Dybrendes*, i. e. deep courses, from fifty to a hundred fathoms broad, and of the disproportionable depth of four hundred †, seemingly time-worn by the strength of the current from the torrent-rivers which pour into them. Fish innumerable resort to their edges. These creeks are, in many places, the roads of the country; for the vallies which traverse it are often so precipitous as to be impervious, unless by water. Some, which want these conveniences, are left uninhabited by reason of the impossibility of conveying to and from them the articles of commerce, or necessaries of life.

CHAIN OF ISLANDS.

Millions of islands, large and small, skerries, or rocks, follow the greatest part of this wondrous coast. The islands are rude and mountainous, and soar correspondent to the *Alps* of the opposite continent. They run parallel to the coast, are generally of a long narrow form, and beset on outside and inside with rock and skerries at small and regular distances. The isles of *Loeffort*, on the north side of the dreadful whirlpool the *Moskoestrom*, or *Maelstrom*, engraven by *Le Bruyn*, give a full idea of the nature of the coasts ‡. This whirlpool is only quiescent one quarter of an hour, at high and low water; and then alone the fishermen venture to pass: on the return or retreat of the tide, such is the fury of its vertiginous motion, that whatsoever comes within a considerable distance of it, is drawn in and forced to the bottom, where it remains for some hours, after which the shivered fragments appear on the surface. Boats, and even ships, have been swallowed up by it: whales have been known to be caught within the vortex; their struggles to free themselves from the danger, and their piteous bellowings, are said to surpass all description. The solution of this phenomenon is now rendered very easy. It lies in the midst of the isles of *Loeffort*, in a narrow channel, between the isle of *Moskoe* and that of *Ver*; the depth of water is between thirty-six and forty fathoms, but on

* *Pentoppidan*, i. 68.

† The same, i. 69.

‡ *Le Bruyn's Voyages*, i. tab. 1.

the side next to *Ver* so shallow, as not to give passage to a vessel without danger of splitting on the rocks. All the bottom is vastly craggy, shooting into stoney spires, which appear at low water above the surface; over them the flood and ebb roll with amazing rapidity, and whirl round with a noise equal to that of the greatest cataracts, so that the roaring may be heard several miles distant*. So simply may be explained that wonder which philosophers have styled the navel of the sea; supposing it to have been an abyfs which sunk here, and rose again in the gulph of *Botnia*.

The sea near the islands is so deep and rocky, that the *Norwegian* kings caused vast iron rings to be fastened with lead † to the sides, to enable ships to moor in security, or to assist them in warping out. A few of the former give shelter to the fishermen and their small stock of cattle; the rest rise in columns of grotesque forms. On the outside of these natural counterscarps, are multitudes of *haubroe*, or sea-breakers, longitudinal banks of sand, running north and south, from the distance of four to sixteen leagues from the continent, and from ten to fifteen fathoms below the surface of the water; the haunts of myriads of useful fish.

No country furnishes such numerous and secure ports. *Bergen*, the capital of its district, lies at the bottom of a strait narrow bay, at the end of one of great expanse; it was founded in 1073 by *Olaf* the peaceable, and takes its name from the lofty *berg* or mountain which impends over it. It seems also to have been known to the antients § by the name of *Bergos*. It is a place of considerable trade. Here, in 1665, a most unsuccessful attempt was made by an *English* Squadron on a rich *Dutch East Indian* fleet, which had taken refuge under the guns of the castle. The very remarkable presage of Mr. *Mountagu* and another gentleman, respecting their deaths in this attack, is worth recording: more perhaps from the use the famous licentious Earl of *Rochester* (who was present) made of it, than the notion they had conceived. The gentleman, who was of undaunted courage, at the end of the action fell into such a trembling, that

BERGEN.

* *Torſæus Hiſt. Norv.* l. 94. *Pb. Tr.* lx. 42. † *Olaus Magnus, Gent. Septentr.* lib. ii. c. xi. § *Plinii Hiſt. Nat.* lib. iv. c. 16.

Mr.

Mr. *Mountagu* ran to support him ; a ball at the instant flew them both. The first had entered into a solemn agreement with the earl, that in case either of them fell, that he should appear and give notice to the other of the future state, if there was any. The gentleman never appeared, which, as Lord *Rocheſter* confessed, was to him a great snare for the rest of his days, or rather till his happy conversion gave him a clear insight into the orders of Providence.

Drontheim is the most northern seat of empire we are acquainted with. It was founded by *Olaf Trygguin*, and was, in the flourishing days of *Norway*, the residence of its kings. Here were kept the archives of this kingdom, and its appendages the *Scottish* isles ; all destroyed by a dreadful fire. Its port is excellent, and its trade still considerable. That of *Norway* has been so from early times. Its credible records may be dated from the year 800 ; but from the classical names of certain parts, it is evident it was known in very distant ages.

TIDES.

The tides off the *Naze*, and most of the coasts of *Norway*, are very inconsiderable. At the *North Cape*, the spring tides have been observed to rise to the height of eight feet one inch ; the neap to six feet eight inches *. Mr. *William Ferguson*, an able pilot, who had often the conduct of our fleets in the North sea, informed me, that on the *Naze*, and many other parts of *Norway*, the tides were hardly perceptible, except with strong westerly winds, when they rose two or three feet, and fell with the easterly winds.

RIVERS.

Into the ends of most of the *Dybrendes* rush the furious rivers, or rather torrents, of the mountains ; useleſs for navigation, but most singularly advantageous for the conveyance of the great article of commerce, the masts and timber of the country, from the otherwise inaccessible forests. The trees are cut down, and at present conveyed from some distance to the rivers, down which they are precipitated over rocks and stupendous cataracts, until they arrive at the *Lentzes* or booms †, placed obliquely in the

LENTZES.

* Mr. *Bayley*, in *Phil. Trans.* lix. 270.

† *Pontoppidan*, i. 93. tab. vii.

stream

stream in fit places. To them the owners of the timber resort; and, on paying a certain rate to the proprietors, receive their pieces, which are all marked before they are committed to the water; but numbers are injured or destroyed in the rough passage.

The species which is of such great value to *Norway*, is the *Fyr* or *Fure*, our *Scotch Pine*, and the *Pinus Sylvestris* of *Linnaeus*. It grows in the driest places, and sometimes attains the vast age of four hundred years*; and is of universal use in the northern world. Such trees as are not destined for masts are squared, and arrive in *England* under the name of *Balk*: the rest are sawed on the spot, in hundreds of mills, turned by the torrents, and reach us in form of planks. An immense quantity of tar is made from the trees, and even from the roots, very long after they have been divided from the trunk. The *Gran*, *Pinus Abies*, or what we call *Norway Fir*, is in little esteem. Thousands are cut down annually by the peasants, who feed their cattle with the tender shoots. It is the tallest of *European* trees, growing to the height of a hundred and sixty feet. In winter, the branches are depressed to the ground with snow, and form beneath them the dens of wild beasts.

I must here mention the adventitious fruits, such as nuts and other vegetable productions, which are brought by the waves to these shores, those of *Feroe*, and the *Orknies*, from *Jamaica* and other neighboring parts †. We must have recourse to a cause very remote from this place. Their vehicle is the gulph-stream from the gulph of *Mexico*. The trade-winds force the great body of the ocean to the westward through the *Antilles* into that gulph, when it is forced backward along the shore from the mouth of the *Mississippi* to *Cape Florida*; doubles that cape in the narrow sea between it and *Cuba*, and from *Cape Florida* to *Cape Cannaveral* runs nearly north, at the distance of from five to seven leagues from shore, and extends in breadth from fifteen to eighteen leagues. There are regular soundings from the land to the edge of the stream, where the depth is generally seventy fathoms; after that no bottom can be found. The sound-

EXOTIC FRUITS
FOUND ON THE
SHORES.

GULPH-STREAM;

* *Aman. Acad.* v. 184.

† *Voy. Hebrides.*

ings off Cape *Cannaveral* are very steep and uncertain, as the water shallows so quick, that from forty fathoms it will immediately lessen to fifteen, and from that to four, or less; so that, without great care, a ship may be in a few minutes on shore. It must be observed, that, notwithstanding the gulph-stream in general is said to begin where soundings end, yet its influence extends several leagues within the soundings; and vessels often find a considerable current setting to the northward all along the coast, till they get into eight or ten fathom water, even where the soundings stretch to twenty leagues from the shore; but their current is generally augmented or lessened by the prevailing winds, the force of which, however, can but little affect the grand unfathomable stream. From Cape *Cannaveral* to Cape *Hatteras* the soundings begin to widen in the extent of their run from the shore to the inner edge of the stream, the distance being generally near twenty leagues, and the soundings very regular to about seventy fathoms near the edge of the stream, where no bottom can be afterwards found. Abreast of *Savannah* river, the current sets nearly north; after which, as if from a bay, it stretches north-east to Cape *Hatteras*; and from thence it sets east-north-east, till it has lost its force. As Cape *Hatteras* runs a great way into the sea, the edge of the stream is only from five to seven leagues distant from the cape; and the force and rapidity of the main stream has such influence, within that distance, over ships bound to the southward, that in very high foul winds, or in calms, they have frequently been hurried back to the northward, which has often occasioned great disappointment both to merchant ships and to men of war, as was often experienced in the late war. In *December 1754*, an exceeding good sailing ship, bound from *Philadelphia* to *Charlestown*, got abreast of Cape *Hatteras* every day during thirteen days, sometimes even with the tide, and in a middle distance between the cape and the inner edge of the stream; yet the ship was forced back regularly, and could only recover its lost way with the morning breeze, till the fourteenth day, when a brisk gale helped it to stem the current, and get to the southward of the Cape. This shews the impossibility of any thing which has fallen into the stream returning or stopping in its course.

On

On the outside of the stream is a strong eddy or contrary current towards the ocean; and on the inside, next to *America*, a strong tide sets against it. When it sets off from Cape *Hatteras*, it takes a current nearly north-east; but in its course meets a great course that sets from the north, and probably comes from *Hudson's Bay*, along the coast of *Labrador*, till the island of *Newfoundland* divides it; part setting along the coast through the streights of *Belleisle*, and sweeping past Cape *Breton*, runs obliquely against the gulph-stream, and gives it a more eastern direction: the other part of the northern current is thought to join it on the eastern side of *Newfoundland*. The influence of these joint currents must be far felt; yet possibly its force is not so great, nor contracted in such a pointed and circumscribed direction as before they encountered. The prevailing winds all over this part of the ocean are the west and north-west, and consequently the whole body of the western ocean seems, from their influence, to have what the mariners call a *set* to the eastward, or to the north-east by east. Thus the productions of *Jamaica*, and other places bordering on the gulph of *Mexico*, may be first brought by the stream out of the gulph, enveloped in the *Sargasso* or alga of the gulph, round Cape *Florida*, and hurried by the current either along the *American* shore, or sent into the ocean in the course along the stream, and then by the set of the stream, and the prevailing winds, which generally blow two-thirds of the year, wafted to the shores of *Europe*, where they are found*.

The extent of the gulph-stream is supposed to be as far as *Nantucket* shoals, which are not less than a thousand miles from the gulph of *Florida*.

Let me remark, from Dr. *Blagden* †, the singular difference of warmth in the gulph-stream, from that of the sea which limits its edges. In the month of *April*, in north latitude 33, and west longitude from *Greenwich* 76, somewhat to the north of *Charlestown*, the heat of the stream was found to be at least six degrees greater than the water of the sea through,

* For this curious account, I am indebted to Doctor *Garden*, who, by his long residence in *Charlestown*, is extremely well acquainted with the subject.

† *Phil. Trans.* lxxi. 334.

which it ran. From observations made on the heat, it should seem that the breadth of the stream was about twenty leagues; and that it retains; for so great a part of its course, the heat it had acquired in the torrid zone: which proves the amazing velocity with which it runs. A pursuit of these remarks may be of no small utility to navigators who may have occasion to pass this singular current.

The mast of the *Tilbury* man of war, burnt at *Jamaica*, was by this vehicle conveyed to the western side of *Scotland*; and among the amazing quantity of drift-wood, or timber, annually flung on the coasts of *Iceland*, are some species which grow in *Virginia* and *Carolina* *. All the great rivers of those countries contribute their share; the *Alatamaha*, *Santee*, and *Roanok*, and all the rivers which flow into the *Cbesapeake*, send down in floods numberless trees †: but *Iceland* is also obliged to *Europe* for much of its drift-wood; for the common pine, fir, lime, and willows, are among those enumerated by Mr. *Troille*; all which, probably, were waisted from *Norway*.

MOUNTAINS.

The mountains of *Norway* might prove a boundless subject of speculation to the traveller. Their extent is prodigious, and the variety of plants, animals, and fishes of the lakes, are funds of constant amusement.

METALS.

The silver mines, wrought ever since 1623, are sources of wealth to the kingdom, and afford the finest specimens of the native kinds yet known. Gold was found in a considerable quantity in 1697. *Christian V.* caused ducats to be coined with it; the inscription was in the words of *Job*, *VON MITTERNACHT KOMT GOLD, out of the north comes GOLD* ‡. Copper and iron are found in abundance; lead in less quantities: tin does not extend to this northern region. It is difficult to say which is the beginning of this enormous chain. In *Scandinavia* it begins in the great *Koelen* rock at the extremity of *Finmark*. It enters *Norway* in the diocese of *Drontheim*, bends westward towards the sea, and terminates at a vast precipice, I think, the *Heirefoss*, about three *Norwegian* miles from *Lister*.

* *Troille's Voy. to Iceland*, 47.

† *Doctor Garden*.

‡ *Pontoppidan*, i. 179. *Museum Regium Havnæ*, pars ii. sect. v. tab. xx. No 18.—
With more truth, perhaps, our version has it, *out of the north cometh GOLD*.

Another

Another branch of this mountain divides *Norway* from *Sweden*, fills *Lap-land*, and rises into the distinguished summits of *Horrikalero*, *Avafaxa*, and *Kittis*, and ends in scattered masses of granite, in the low province of *Finland*. It incloses *Scandinavia* in form of a horse-shoe, and divides it from the vast plains of *Russia*. The antient name of this chain was *Sevo mens*, to this day retained in the modern name *Seveberg*. *Pliny* compares it to the *Riphaean* hills, and truly says, it forms an immense bay, even to the *Cimbrian* promontory*.

The mountains and islands break into very grotesque forms, and would furnish admirable subjects for the pencil. The monstrous conoid mountains of *Harmsoe* and *Luycko* in *Roemsdale*, *Syck* in *Bommel-Hoofst*, and the high lands of *Jedder*, form most striking features even in this rugged country. Among the desiderata of these days, is a tour into those parts by a man of fortune, properly qualified, and properly attended by artists, to search into the great variety of matter which this northern region would furnish, and which would give great light into the history of a race, to which half *Europe* owes its population. Among the views, the mountains of the *Seven Sisters* in *Helgeland* †, and the amazing rock of *Torg-batten* ‡, rising majestically out of the sea, with its pervious cavern, three thousand fells § long, and a hundred and fifty high, with the sun at times radiating through it, are the most capital. Not to mention the tops of many, broken into imaginary forms of towers and Gothic edifices, forts, and castles, with regular walls and bastions.

I agree with the *Comte De Buffon*, in thinking that the heights of the *Scandinavian* mountains, given by *Bishop Pontoppidan*, and *Mr. Brownallius*, are extremely exaggerated ||. They are by no means to be compared with those of the *Helvetian Alps*, and less so with many near the equator. The sober accounts I have received from my northern friends, serve to confirm the opinion, that there is an increase of height of moun-

ROMANTIC
VIEWS.

HEIGHTS OF
MOUNTAINS.

* *Sevo mons ibi imensus, nec Riphaeis jugis minor, immanem ad Cimbrorum usque promontorium efficit sinum, qui Codanus vocatur. Lib. iv. c. 13.*

† *Pontoppidan*, i. 46. tab. iii.
Danish feet each.

‡ The same, i. 47. tab. iii.

§ Of two

|| *Epoques de la Nature*, Suppl. tom. vi. p. 136. edit. *Amsterdam*.

HEIGHTS OF MOUNTAINS.

tains from the north towards the equatorial countries. M. *Afcanius*, professor of mineralogy at *Drontheim*, assures me, that from some late surveys, the highest in that diocese are not more than six hundred fathoms above the surface of the sea; that the mountains fall to the western side from the distance of eight or ten *Norwegian* miles*; but to the eastern, from that of forty. The highest is *Dovre-fjel* in *Drontheim*, and *Tille* in *Bergen*. They rise slowly, and do not strike the eye like *Romsdale-born*, and *Hornalen*, which soar majestically from the sea. Professor *Ritzius* of *Lund*, acquaints me, that *Kinnekulle* in *Westro-Gothia* is only eight hundred and fifteen *English* feet above the late *Swedish* measure, or nine hundred and thirty-one above the sea. He adds, the following have been only measured to their bases, or to the next adjacent waters: *Areskutan*, a solitary mountain of *Femland*, about four or five *Swedish* miles from the highest *Alps*, which separate *Norway* and *Sweden*, is said to be six thousand one hundred and sixty-two *English* feet above the nearest rivers: *Swuckusfoet*, within the borders of *Norway*, four thousand six hundred and fifty-eight above lake *Famund*; and that lake is thought to be two or three thousand above the sea: and finally, *Sylfiellen*, on the borders of *Femland*, is three thousand one hundred and thirty-two feet perpendicular, from the height to the base. By some late experiments, the highest mountains of *Sweden*, between lat. 63 and 64, have been found to be six thousand six hundred and fifty-two feet above the surface of the *Baltic* †; but no trees will grow on them at little more than half that height.

PONTOPPIDAN gives the mountains of *Norway* the height of three thousand fathoms: *Browallius* those of *Sweden* two thousand three hundred and thirty-three, which makes them nearly equal to the highest *Alps* of *Savoie*, or the still higher summits of the *Peruvian Andes*.

ARCTIC LAKES.

The lakes of this great country are not less magnificent. That of *Faris*, in the south of *Norway*, is of great extent, and indented into numbers of fine bays. It is navigated by multitudes of vessels, subservient to the uses of the rich iron founderies with which its coasts abound ‡.

* Of 18,000 feet each.

† Mr. *Tornsten*, in *Act. Reg. Ac. Holm. Travels*, ii. 484. *Trolhatta*, see *Dahlberg*, book ii. tab. 292.

‡ Mr. *Coxe's*

The lake *Wenern*, in *Sweden*, is near ninety miles long, and forty broad. The shores so low, that it has a sea-like appearance. From this lake a project has been formed to open a communication with the *German* ocean. Attempts have been made even through the stupendous cataracts of *Trolhatta* to *Gottebourg*; but as yet the difficulties have baffled the art of the engineer. The *Swedes* seem to want a *Brindley*. The glorious project for joining the *Baltic* and the ocean has long been projected. Lake *Malar* is already united with lake *Heelmar*, by the canal of *Arboga*; to join the last with lake *Wenern* has been planned: but the rockiness of the country seems to forbid the attempt.

The neighborhood of the *Wenern* lake is remarkable for several antiquities. Near the south end, in the mountain *Heclaberg*, is the celebrated *Ættesupa*, a tremendous precipice, down which the votaries of *Odin* used to precipitate themselves when weary of life, in order to arrive the sooner in the *Valballa*, or hall of their hero*. Their bodies were first washed, and afterwards buried at the foot of the hill †. These places were called *Ættitupa*, from *ætt* a family, and *stupa* to precipitate: and *æternis stupa* the rock of the race or family; because, at such places, the family was lessened ‡. Not far from this *Ættitupa* was a circle of enormous upright stones, now called *Hustwads stanar* §, at which sacrifices were made in honor of these self-devoted enthusiasts.

Not far from hence is a row of small isles lying across the river *Gotba*, in which is *Edsborg*, the remains of the antient fortress of the kings of the *Westrogoths*.

The lake *Wetter* may be reckoned among those of the first rate. It extends from 57. 20. as high as 57. 40. north. The greatest breadth is four *Swedish* miles and a half, or twenty-seven *English*. Its greatest depth three hundred and sixty feet: its height above the *Baltic* sea a hundred and forty feet. It abounds with islands: the principal is that of *Wissingson*. On this the counts *Brabe* had a castle: at present there is a college, a school, and the royal park. The peninsula *Omberg*, on the eastern side of the

* *Dahlberg*, tab. 279. *Ibre Gloss.* 807.

† *Busching Geogr.* I. 287.

‡ *Bartholinus de causis contempt.* Mort. 328.

§ *Dahlberg*, tab. 280.

lake, is mountainous, and most beautifully covered with woods. The shores rocky, and worn into vast caverns, in old times the retreat of the natives from the ravages of war. The headlands exhibit most grotesque sports of nature, and are clothed with ivy, a very rare plant in these northern regions; it blossoms here in *March*. Above forty rivers rush into this great water; all which find but one discharge, through the river *Motala*, which runs eastward, swells in its way into several other large lakes, and after tumbling down the great cataract near the city of *Nordkoping*, reaches the *Baltic* in *Brawicken* bay. This river carries through its channel hourly, not less than a hundred and forty thousand cubic fathoms of water: notwithstanding which, at seasons, its course seems stopt, and the very bottom is left dry. This has happened the beginning of the present century. The cause of this wondrous phenomenon is attributed to the violence of the adverse winds, to the cold and ice impregnated with saline particles.

Before storms, the lake *Wetter* exhibits several strange appearances, such as the phantoms of cities, towers, fleets, and numbers of other most singular mimicry of real objects. I can compare them only to *la Fata Morgana*, a glorious vision often seen on the shores of the streights of *Messina* *. Here are often vapours of a most fetid scent, attendant on the subterraneous winds which burst out of the neighboring caverns, probably out of some sulphureous strata. Winds often rise from the bottom of the lake (such I have felt in a less degree on the lake of *Keswick*) which are sometimes so violent as to raise the waves to a height dangerous to the vessels at that time navigating the lake.

The ice is of a very great thickness: but will frequently break into a thousand pieces in less than an hour, even after it had been just before capable of bearing a hundred horses. This is always foretold by dreadful sounds like bellowing, and bursts like thunder, heard beneath the ice. After a deep stillness on the surface of the lake, at times a thick smoke will arise, such as issues out of a chimney; immediately follow lightning, rain, and often the sound of thunder exceeding the explosions of cannons,

* *Swinburne's Travels Sicily*, 365

roaring

roaring beneath the water. These noises are chiefly heard in the spring and autumn; the first symptom is the appearance of a bubble on the top. Before tempests, fiery appearances arise from the midst of the waves, whirlpools, water-spouts, and various other singular phœnomena. The lake is not covered wholly with ice till the latter end of *January*; it dissolves in the beginning of *April*. It is observed that the rivers are frozen much sooner than the lake itself. The inhabitants of the environs of the lake *Wetter* are healthy and long-lived; the fish sweet and wholesome: the waters so clear, that the bottom may be plainly seen at the depth of forty-eight and even sixty feet. The salmon reaches the cataract of the *Motala* at the end of *July*. Eels, at the wane of the moon, in *July*, *August*, and *September*, descend the river, and seek the *Baltic* sea.

The lake *Mælaren* or *Mælär* is of great extent and uncommon beauty. Its length is sixty *English* miles, the breadth thirty-six. It receives eight rivers and ninety brooks, and, after dividing the capital of *Sweden* in two parts, mixes with the *Baltic*. It abounds with beautiful and fertile islands, richly varied with groves, castles, palaces, and villas, and adorned with every thing which art or nature could supply. The palace of *Drottningholm* is most superb. And the ruins of *Siggtun*, the seat of the hero *Odin*, surnamed *Sigge*, form a venerable group. The *Swedish* palaces have a species of finery about them unknown to other countries*. The *Fauna* of this lake and its environs are most remarkably great. I know of no place of equal extent that can boast an equal number of quadrupeds, birds, fishes, and reptiles: all within reach of a great capital.

As *Stockholm* forms the striking prospect of the lake, I shall just make mention of it. This singular city stands on two peninsulas and seven rocky islands; some low, others rise high out of the water, covered with variety of buildings; numbers also of granite rocks aspire out of the lake

* Views on this lake in *Dahlberg*, book i. *Siggtun*, tab. 69, 70. *Biorkoo*, the seat of the Gothic kings, tab. 71. *Carlberg*, the present royal palace, tab. 73 to 77. *Drottningholm*, tab. 79 to 84. *Graneborg*, a most ancient castle, tab. 107. *Skogkloster*, a palace of Count *Wrangel*, tab. 142.

or sea on all sides *. Multitudes are to be seen even within the walls ; so that for a while you doubt whether you are within the town. The magnificence of many of the buildings, the depth of the water, its great clearness, and the number of large ships which lie close to the quays, form a most charming and romantic view †.

MOUNTAINS OF
FINMARK.

In *Finmark*, the mountains in some places run into the sea : in others recede far, and leave extensive plains between their bases and the water. Their extreme height is on the *Fiell-ryggen*, *dorsum Alpium*, or *back of the Alps*, a name given to the highest course of the whole chain : the summits of which are clad with eternal snow. These are skirted by lower mountains, composed of hard sandy earth, destitute of every vegetable, except where it is mixed with fragments of rock, on which appear the *Saxifrages* of several kinds ; *Diapensia Lapponica*, Fl. Lapp. N° 88 ; *Azalea Procumbens*, N° 90 ; the *Andromeda Cærulea*, N° 164 ; and *Hypnoides*, N° 165, thinly scattered. Lower down are vast woods of Birch, N° 341, a tree of equal use to the *Laplanders*, and the northern *Indians of America*. On the lower *Alps* abound the *Rein-deer Lichen*, N° 437, the support of their only cattle ; the *Dwarf Birch*, N° 342, the seeds of which are the food of the White Grouse beneath the snow, during the long and rigorous winter ; the *Arbutus Alpina*, N° 161 ; and *Arbutus Uva Ursa*, N° 162 ; and, finally, the *Empetrum Nigrum*, or *Black Heath Berries*, used by the *Laplanders* in their ambrosial dish the *Kappitiamas* ‡.

PLANTS.

Let me not conceal that *Lapland* enjoys every native fruit of *Great Britain* ; the currant, the strawberry, the bilberry, the cranberry, and the

* Mr. COXE'S Travels, ii. 327. See the plan ; also the views in *Dahlberg*, book i. N^{os} 14, 15, 16, 17.

† It contains 20,000 inhabitants. Its markets are annually supplied with

14 to 15,000 beeves.	20,000 calves.
30 to 35,000 sheep.	24,000 hogs.

100,000 grouse, of different species, brought out of *Norland*, especially the white grouse and the black grouse. After the exhausting wars of *Charles XII.* *Sweden* could reckon only one million of inhabitants ; at present they are increased to near three. MR. OEDMAN.

‡ *Fl. Lapp.* p. 108.

cloudberry :

N O R T H E R N P L A N T S .

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cloudberry: which put it on an equality with our own climate, before the introduction of foreign fruits among us. If we can clame the puckering sloe, and crab, we have not much to be proud of; while the *Laplanders* may boast their *ackermurie* (*rubus arcticus*) which with its nectareous juice, and vinous flavour, so often supported the great LINNÆUS in his arduous journies through the deserts of the country*. They may also exult in having given to our gardens the grateful *angelica archangelica*; the imputed gift of angels to men, and in *Lapland* the common inhabitant of the banks of every rill; the *panacea* and delight of the natives †, and (preserved) a frequent luxury even in our most sumptuous deserts.

The *Scotch Pine*, N° 346, and *Norway Fir*, N° 347, form the immense forests of *Lapland*, associated with the Birch: the Pine affects the dry, the Fir the wet places, and grow to a vast size; but, being inaccessible, are lost to the great uses of mankind. On their northern sides they are almost naked, and deprived of boughs by the piercing winds; the wandering *Laplander* remarks this, and uses it as a compass to steer by, amidst these wilds of wood. Whole tracts are oft-times fired by lightning; then prostrated by the next storm. The natives make, of the under part of the wood (which acquires vast hardness by length of time) their snow-shoes; and form their bows for shooting the squirrel with pieces united with glue, made from the skin of the perch. Their fragile boats are formed of the thinnest boards: their ropes of the fibrous roots: and finally, the inner bark, pulverized and baked, is the substitute for bread to a people destined to this rigorous climate. These three trees, the *Dwarf Birch*, N° 341, the *Alder*, N° 340, and not less than twenty-three species of Willows, form the whole of the trees of *Lapland*. Every other *Swedish* tree vanishes on approaching that country.

There is a great analogy between the plants of these northern *Alps*, and those of the *Scottish Highlands*. A botanist is never surprized with meeting similar plants on hills of the same height, be their distance ever so great. It may be remarked, that out of the three hundred and seventy-

* *Fl. Lapp.* 162.

† The same, p. 67.

TREES IN THE NORTH OF EUROPE.

nine perfect plants which grow in *Lapland*, two hundred and ninety-one are found in *Scotland*; and of the hundred and fifty cryptogamous, ninety-seven are to be met with in *North Britain*.

TREES OF
ARCTIC EUROPE.

In a philosophical circuit of the globe, it is easy to observe the exact proportion of necessaries, animal or vegetable, which are allotted by the all-wise Providence to the demands of the inhabitants of the respective climates. To such part of the *Europeans* who were destined to active and exploring life; to the subjection and civilization of distant people, nearly unreclaimed from a state of nature; the means of conveyance, for attaining so desirable an end, were supplied and pointed out. In distant ages, most part of the world was on an equality: the canoe served the navigation of the then unpolished *Briton* and *Gaul*, as it does at present the *Americans* of the recent discoveries. As the light of improvement spread over the western world, the application, and (in the case of pride-excited wars) the misapplication of many of the works of nature, became the attention of mankind. The supple willow covered with hides, or the rude tree hollowed into a floating trough, no longer contented the laudable ambition of mankind; we no longer suffered our wants to be supplied by the ships of remote nations. We aspired to be our own carriers; we applied to our forests for the means; and for that purpose the oak first felt the edge of the ax. Commerce and war, the consequence of wealth, increased the demand, and stimulated to the utmost improvement in naval affairs. These arts spread as far as *Europe* was inhabited by an enlightened race; but there is a line which separates the rational from a less rational part of the human creation. The brave, the intelligent *Swedes* and *Norwegians*, born to conquer, if not destined to explore, are divided by a very narrow space from a race of men, the link, the partition between the intellectual and animal creation. The *Laplander*, with few wants, and those to be supplied only from the next forest or lake, has no demands farther than for birch for his canoes, or materials for his sledges. Accordingly we find that every species of tree, except the few I have mentioned, cease before they reach his torpid country. The OAK, *quercus robur*, is not found even in *Sweden* further than lat. 61. The last tree is found
about

TREES IN THE NORTH OF EUROPE.

CRV

about *Gesse* in *Gastrickland**. It is met with farther north in *Norway*, in places near the milder air of the sea; but abounds in both kingdoms in their southern provinces. The forests of *Blekingen* are full of excellent timber, oaks as well as other trees, pines and firs excepted; which give that province quite the appearance of *England*. It has few masses of granite, few iron forges, which, with groves of pines, form the characteristic face of *Sweden*. In that province are placed the royal docks of *Carlescroon*, the seat of the navy of the kingdom, in the neighborhood of the forests, its great support.

The *ASH*, *fraxinus excelsior*, is not found higher than *Gestricia*, or lat. 61; but in *Norway* is (cultivated only) as high as *Drontheim*.

The *ELM*, *ulmus campestris*, grows as far as the extremity of *Helsingland*.

The *LIME*, *tilia Europea*, is frequent in all the south of *Sweden*, but grows scarce towards the north: it is destroyed by the frost beyond the province of *Gastrickland*. This is supposed not to have been an indigenous tree of *Great Britain*.

The *BEECH*, *fagus sylvatica*. There are vast forests of this tree in *Scania* and *Smoland*; every where in *Babus*, but seldom found north of that province, or lat. . . . This is the tree which *Cæsar*, from misinformation, denies to our island; but vast native woods are found in *Buckinghamshire*, and some adjacent counties. Not indigenous of our northern counties.

This species ends in an island of the lake *Wetter*, and with a most remarkable tree, called the *Tree of the Apostles*, on account of its dividing into twelve great stems. At present there are only eleven, for a certain zealous peasant, some years ago, cut down one, lest the traitor *Judas* should have a place among his brethren, who continue to flourish greatly. Numberless names are cut on the bark, among others, those of *Charles XI.* and *XII.* and the *Queen Hedvig Eleonora*, wife of *Charles X.*; who were drawn by their curiosity to visit this beautiful tree.

* All the additions to this part I owe to Mr. OEDMAN.

TREES IN THE NORTH OF EUROPE.

The HORNBEAM, *carpinus betulus*, is found in forests; in *Scania* commonly, but more rare in *Smoland*, especially beyond lat. 57.

The BETULA HYBRIDA, is a new species of birch lately discovered in *Dalecarlia*, and probably peculiar to that place. It has in bark and fructification the habit of the birch; but the leaves partake of those of the *acer platanoides*.

The ASPIN, *populus tremula*, is found from the highest alps of *Lapland*, to the lowest places of *Scania*; the *Laplanders* call it *supp. Linneus*, in his *Flora Suecica*, refers to it in his *Flora Lapponica*, yet omits it in that admirable work. The rein-deer are very fond of the fresh leaves, which are often gathered for winter food for cattle: the bark is made into meal for cattle, and the leaves and bark into a tea for calves, in *Norway* *.

The WHITE POPLAR, *populus alba*, is scattered over *Scania*, but is not a native, having been introduced there with the BLACK POPLAR, *populus nigra*, of late years, and bears the winter very well in *Upland*. It is doubtful whether these are natives of *Scotland*.

The MAPLE, the *acer platanoides*, is found in the southern parts of *Sweden*, and rarely on the mountain *Hyka* in *Dalecarlia*, one of its northern provinces. It grows in *Romidale* and southern *Norway* more frequently; is cultivated in *Drontheim*. The COMMON SYCAMORE, or *acer pseudo-platanus*, is only cultivated in *Sweden*. Mr. Ray suspects it not to be a native of *England*.

The LITTLE OR COMMON MAPLE, *acer campestre*, is rarely found above two *Swedish* miles from *Lund*; possibly not a native *Swedish* tree: the largest I ever saw was at the duke of *Argyle's*, at *Inverary*.

The BLACKTHORN OR SLOE-TREE reaches as far as *Norland*.

The BUCKTHORN, *rhamnus catharticus*, ends in *Upland*. The WHITE BEAM, *cratægus aria*, is seldom seen beyond *Upsal*. The WILD CHERRY, *prunus avium*, is found no farther than *Scania* or *Westrogothia*. The WICKEN TREE, *forbus aucuparia*, bears the winters of *Norland*. The Water Elder, *viburnum opulus*, is found to the extreme north of the same

* *Gunner's Fl. Norveg.* N° CXXXVII.

COMPARISON OF CLIMATES.

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district. The COMMON PRIVET, *figuſtrum vulgare*, enlivens the province of *Upland*.

All the above are found in ſome part or other of *Great Britain*, more auſpiciously favored by nature for the growth of trees and plants than northern *Sweden*. No blame can reſt on any nation, to whom the ſun has denied its fuller influence: let ſuch exult in vigor of body and acuteness of intellects, perhaps ſuperior to thoſe on whom it darts its enervating beams, and beſtows every ſpecies of enfeebling luxury.

I requeſt leave to make, by the following catalogue, a compariſon between the climate of *Sweden* and that of *England*. Theſe plants bear the utmoſt ſeverity of our cold; yet are obliged in *Sweden* to be ſheltered, during winter, under the protection of a green-houſe. A few ſpecimens, out of a number, will ſuffice,

White jafmine,	Jafminum officinale.
Yellow jafmine,	Jafminum fruticans.
Phillerea,	Phillerea media.
Common ſage,	Salvia officinalis.
Rofemary,	Rofmarinus officinalis.
Scarlet monarda,	Monarda fiſtuſoſa.
Male dogwood,	Cornus mas.
Common holly, A.	Ilex aquifolium.
Prickly buck-thorn,	Rhamnus paliurus.
<i>Virginian</i> ſumach,	Rhus glabrum.]
Laurus tinus,	Viburnum tinus.
Pinnated bladder-nut,	Staphylæa pinnata.
Scarlet flowering maple,	Acer rubrum.
Spurge laurel,	Daphne laureola.
Bay-tree,	Laurus nobilis.
Arbor judæ,	Cercis filiquaſtrum.
Garden rue,	Ruta graveolens.
Pomegranate,	Punica granatum.
Common almond-tree,	Amygdalus communis.

Portugal

COMPARISON OF CLIMATES.

<i>Portugal laurel,</i>	<i>Prunus lusitanica.</i>
<i>Cockspur thorn,</i>	<i>Cratægus coccinea.</i>
<i>Common medlar,</i>	<i>Mespilus germanica.</i>
<i>Flowering raspberry,</i>	<i>Rubus odoratus.</i>
<i>Tulip-tree,</i>	<i>Liriodendron tulipifera.</i>
<i>Spanish tree germander,</i>	<i>Teucrium latifolium.</i>
<i>Garden thyme,</i>	<i>Thymus vulgaris.</i>
<i>Broad-leaved lavender,</i>	<i>Lavendula spica.</i>
<i>Yellow Jerusalem sage,</i>	<i>Phlomis fruticosa.</i>
<i>Trumpet honeysuckle,</i>	<i>Bignonia radicans.</i>
<i>Common laburnum,</i>	{ <i>Cytissus laburnum; sometimes in open</i>
	air.
<i>Bastard acacia,</i>	<i>Robinia pseud-acacia.</i>
<i>Climbing milk-vetch,</i>	<i>Glycine apios.</i>
<i>Common box, A.</i>	<i>Buxus sempervirens.</i>
<i>Mulberry,</i>	<i>Morus nigra; sometimes in open air.</i>
<i>Walnut, the nuts of which</i>	{ <i>Juglans regia.</i>
<i>will not ripen,</i>	
<i>Chestnut,</i>	<i>Fagus castanea.</i>
<i>Western plane,</i>	<i>Platanus occidentalis.</i>
<i>Common cypress,</i>	<i>Cypressus sempervirens.</i>
<i>Western arbor vitæ,</i>	<i>Thuja occidentalis.</i>
<i>Male myrtle-leaved fumach,</i>	<i>Coriaria multifolia.</i>
<i>Butchers broom, A.</i>	<i>Ruscus aculeatus.</i>

One other shrub, which resists the severest of the *English* winters, is preserved in *Sweden*, during that season, in the tepedarium or dry stove, without tan: this is the common laurel, or *prunus lauro-cerasus*. I may add the *cistus ladaniferus*, which grows with great vigor on the rocks of the beautiful inclosure called *Arcadia*, near the town of *Conwy*, belonging to my friend *Owen Holland, Esq.*

Pine-apple, the *bromelia ananas*, has been introduced into *Sweden*, and fruit

SEASONS IN SWEDEN.

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fruit cut at the seat of *Baron de Geer*, at *Leuffstad* *. Peaches, nectarines, and apricots, are sheltered during winter; but, notwithstanding art is used, travellers do not commend them. Apples, pears, plums, and cherries, are cultivated only in the southern parts; but (the cherries excepted) afford a very indifferent fruit. Cherries bear the cold of the north of *Helsingland*, and bear in great abundance. In *Scotland* they succeed very ill: nonpareils and golden rennets will not ripen even at *Edinburgh* without the help of a wall. Yet in the middle of *August* 1769, I have seen, at *Castle Braun*, in *Rosshire*, in about *lat. 57. 42*, *Turkey* apricots, orange nectarines, and a soft small peach, against a common wall, ripe: but at the same time other peaches, nectarines, and green-gages, far from maturity.

Notwithstanding *England* is so noted for its vast produce of apples, yet such is its demand for them, that it imports great quantities from *Normandy*, and even *North America*. In 1785 the duty at the custom-house amounted to 56*l.* 16*s.* at the duty of about 2*s.* per bushel; that was in a year of scarcity: but in the preceding year, which was remarkable for its plenty, it amounted to 278*l.* 11*s.*

Mr. Hogstrom, a patriotic gentleman, whom Providence hath placed beyond the arctic circle, in *lat. 66*, hath by art brought apples to bear ripe fruit even in that distant region. He has also transplanted several trees and shrubs of the south of *Sweden* into his rigorous climate: and has even brought the mulberry, a native of *China*, to grow several years under his frozen sky. He mitigates the nocturnal frosts by burning semi-putrid wood, the slowness and thickness of which alleviates a little the rigor of the nights.

Wood-strawberries are the most delicious fruit in *Sweden*, and abound in most amazing quantities. The great *Linnaeus* kept himself free from a fit of the gout for several years by the liberal eating of this fruit.

In respect to the production of *Ceres*, it may be said, that the goddess extends her bounty in form of wheat with a sparing hand, and that only in the southern provinces. Barley is the general food of the common people;

* *Dahlberg*, book ii. tab. 249.

and

GRAIN OF SWEDEN.

and in the sub-alpine parts of the country, oats alone will attain maturity*. *Sweden* is obliged annually to purchase from other countries fifty thousand *Swedish*, or about six thousand tons *English* measure of wheat, of which the greatest part is employed to make powder and starch. Wheat will ripen as high as *lat. 62. north*; but so uncertain is the crop throughout *Sweden*, that it is called the *seed of repentance*. The winter-wheat is very often destroyed in severe winters, or by nocturnal frost of the spring.

The following is a compendious table of the *Swedish Ceres*:

GRAIN.	SOIL.	TIME OF SOWING.	HARVEST.	PRODUCE.	HOW FAR NORTH.
Winter wheat	Clay —	Mid. <i>Sept.</i>	End <i>Aug.</i>	10 or 12 fold.	Seldom above <i>Upland</i> . Sometimes sown mixed with <i>rye</i> .
Summer wheat	Soft earth	Begin. <i>April</i>	The same.	6 fold.	Not beyond <i>Smoland</i> .
Winter rye —	Clay —	Mid. <i>Aug.</i>	Beg. <i>Aug.</i>	10 fold.	In <i>Norland</i> ; seldom in the fields, but in the ashes of the burnt woods.
Summer rye —	Soft earth	In <i>March</i>	End <i>Aug.</i>	6 fold.	Not beyond <i>Smoland</i> . In weak sandy land is mixed with oats.
Barley — —	every where	At the budding of the beech.	<i>September.</i>	8 to 10 fold.	Sometimes sown with oats. The chief grain of <i>Norland</i> .
Oats — —	In sandy soil	<i>May.</i>	<i>October.</i>	6 fold.	The black the best. Common in <i>Norland</i> and the sandy soil of <i>Smoland</i> .
Buck-wheat, } <i>Polyg. fagopyrum</i> }	—	—	—	—	In <i>Scania</i> . Scarcely bears the climate of <i>Upland</i> .
<i>Polyg. Tataricum.</i>	—	—	—	—	<i>Finland</i> ; bears the climate well, but is neglected.

The esculent roots succeed well in *Sweden*. A potato has been raised at *Wermdon*, near *Stockholm*, of the weight of eighteen ounces; this was thought a large one. The cultivation in *Sweden* is too much neglected; it would

* *Aman. Acad. III. 77.*

frequently

SEASONS IN SWEDEN.

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frequently save *Norland* * from the sad effects of famine. At the same place, a cabbage has been cut of fifteen pounds weight.

WINTER begins in *Sweden* with what are called the *Farnnätter* or *iron nights*, which seldom exceed three or four, and happen between the 19th and 31st of *August*, in the latitude of *Upsal*. After these, barley ceases to grow, and the plants which require a green-house are no longer suffered to be abroad. Water-fowls almost of every denomination disappear in autumn. In *October*, the BEAR, BADGER, HEDGE-HOG, and MOLE, retire to their winter-quarters. In the same month is the first appearance of ice. In *November* is alternate snow and ice, an unpleasant thaw, and rain. The ditches are filled with water, till the snow takes firm possession of the ground, and winter reigns uninterrupted for many months. Between the 20th and 28th of *February* are the *days of steel* †; the ice on the lakes cracks longitudinally, the timbers of the houses snap with a great noise, and horser-dung spurts out icy particles a foot high. In *March* begins the unpleasing spring: the snow begins to melt against the walls, the ice is loosened from the stones, and the hills begin to appear of their own color. Inundations of snow-water, in *April*, cover the ground; the rivers are unbound, and the ice floats down. Birds of various kinds revisit the country; the sight of the *wheat-ear* confirms the flight of the more severe frosts, except the few *leaden nights* in *May*; after which summer is confirmed, and the return of birds is completed. In *June* are the *brazen nights*, which, with the *leaden*, reach *Sweden* eight days after they are felt in *Lapland*, on the thaw of its snow. These are the revolutions of a *Swedish* year.

The *Alps*, the woods, and marshes of the vast region of *Scandinavia* (for I will consider it in the great) give shelter to numbers of quadrupeds unknown to *Britain*. Those which brave the severity of the extreme north of this country are distinguished by the addition of the *Lapland* name. The ELK, is found in many parts: the REIN, *Godde*, is confined to the

QUADRUPEDS OF
SCANDINAVIA.

* The north of *Sweden*, bounded to the south by *Upland* and *Dalcarlia*, and by *Lapland* to the north; it is divided into seven provinces; *Gastriekland*, *Helsingeland*, *Medelpad*, *Jemteland*, *Herjadalen*, *Angermanland*, *Westerbohn*.

† *Amœn. Acad.* iv. 395.

R

chilliest

chillest places: the WOLF, *Kumpi*, is a pest to the whole: the ARCTIC FOX, *Njal*, skirts the shores of all the northern regions: the CROSS FOX, *Raude*, and the BLACK FOX, is scattered every where: the LYNX, *Albos**, inhabits the thickest woods: the BEAR, *Guouzbia*, and GLUTTON, *Gjeed'k*, have the same haunts: the SABLE, which continued in *Lapland* till the middle of the last century, is now extinct: the LESSER OTTER, or MÆNK, of the *Swedes*, is confined to *Finland*: the BEAVER, *Majæg*, is still found in an unfociable state in several parts: the FLYING SQUIRREL, the *Orava* of the *Finlanders*, is found in their forests †, and those of *Lapland*: the LEMMUS, *Lumenik*, is at seasons the pest of *Norway*, issuing like a torrent from the *Koelen* chain: The WALRUS, *Morsb*, is sometimes found in the *Finmark* seas: the HARP SEAL, *Dølja*, the ROUGH SEAL, the HOODED, *Oanide*? and the LITTLE SEAL, *Hist. Quad. ii. N° 386*, omitted by me in the first edition of this Work, inhabit the same place †. The last, says Bishop *Gunner*, is eaten salted, not only by the *Laplanders*, but by the better sort of people in *Finmark*.

Of animals found in *Britain*, the FOX, *Ruopsok*; PINE MARTIN, *Nette*; ERMINE, *Boaaid* §; WEESEL, *Seibus*; OTTER, *Zbieonares*; VARYING HARE, *Njaumel*; COMMON SQUIRREL, *Orre*; MOUSE, FIELD MOUSE, WATER RAT; and the SHREW, *Vandes* and *Ziebak*; are seen as high as *Finmark*: the COMMON SEAL, *Nuorrofb*, and the GREAT SEAL, also frequent the shores. All the other quadrupeds, common to *Scandinavia*, cease in *Norway*, and some even in *Sweden*. *Scandinavia* received its animals from the east; but their farther progress was prevented by the intervention of the North sea between that region and *Britain*. Our extinct

* I have no proof of this but the name. The *Lynx* inhabits *Norway* and *Sweden*, and all the woody parts of *Siberia*. I scarcely know whether I should apologize for the omission of the Fitchet, *Hist. Quad. i. N° 195*; the *Mustela Putorius*, N° 16, *Faun. Suec.* LINNÆUS speaks with uncertainty of its being found in *Scania*, and that is a latitude rather too far south for my plan.

† See Mr. *Gabriel Bonsdorff's* account of the animals of *Finland*, p. 24.

‡ Consult *Leem's Lapm.* 214, 215, 216. Also for the Mouse, &c. which want the *Lapland* names.

§ *Leem*, 220.

species, the BEAR, the WOLF, and the BEAVER, came into this island, out of *Gaul*, before our separation from the continent. Some of the northern animals never reached us: neither did the north ever receive the FALLOW DEER, the Harvest Mouse, the Water Shrew, nor yet the BROWN RAT, of this Work; notwithstanding it familiarly goes under the name of the *Norway* *.

This great tract has very few birds which are not found in *Britain*. We may except the COLLARED FALCON, the *Scandinavian* OWL, ROCK CROW, ROLLER, BLACK WOODPECKER, GREY-HEADED, THREE-TOED, the RHUSAK GROUS, and the HAZEL GROUS; the ORTOLAN, the ARCTIC FINCH, and the LULEAN F. The GREY REDSTART WARBLER, the BLUE THROAT W. BOGRUSH W. FIG-EATER, and KRUKA W. and the SAEBY TITMOUSE. All the cloven-footed water-fowl, except the SPOONBILL, the CRANE, WHITE and BLACK STORKS, FINMARK SNIPE, STRIATED SANDPIPER, SELNINGER, WAVED, SHORE, WOOD, ALWARGRIM PLOVER, and ALEXANDRINE; and all the web-footed kinds, except the CASPIAN TERN, HARLEQUIN DUCK, and LAPMARK and WESTERN DUCK †, are common to both countries; but during summer, FIELDFARES, REDWINGS, WOODCOCKS, and most of the water-fowl, retire from *Britain* into *Scandinavia*, to breed in security: and numbers of both land and water-fowl quit this frozen country during winter, compelled, for want of food, to seek a milder climate.

The fishes of this extensive coast amount to only one hundred and eleven, and are inferior in number to those of *Britain* by twenty-eight. The species of the North sea, which differ from the *British*, are not numerous. The depth of water, and the forests of marine plants which cover the bottom of the *Norwegian* seas, are assuredly the cause of the preference of certain kinds, in their residence in them. Among the fishes which have hitherto shunned the *British* shores, are the

* It is a native of the *East Indies*. See *Hist. Quad.* ii. N° 44.

† Mr. *Sparman* discovered this duck and the SAEBY TITMOUSE in *Sweden*. *Mus. Carlson*, tab. vii. xxv.

BIRDS.

FISHES.

SQUALUS SPINAX of *Linnaeus*, 398. Its length is from twenty inches to three feet: the back is purple: the belly flat and black. It is found off *Christiansand*, in the muddy vallies of the sea, of one or two hundred fathoms in depth.

Squalus centrina, LIN. 398. *Bloche* iv. 21. the *Pesce porco* of the *Italians*, which extends as far as the *Mediterranean*; a clumsy species, not exceeding four feet in length.

SYGNATHUS TYPHLE, LIN. 416. *BLOCHE* iii. 100, and *S. æquoreus* LIN. 417. *Bloche* iii. 104.

Regalecus Glesve, *fld-kong*, or *king of the herrings*; *Muller*, N° 335. *Afcan. Icon.* tab. xi; a most uncommon eel-shaped fish, found about *Glesvoer* near *Bergen*. Its length is from ten to eleven feet. The dorsal fin extends the length of the back, and unites with that of the tail. The pectoral fins are filiform, ovated at their ends, and one-third the length of the body.

GADUS BROSME, *Muller*, N° 341; a species of monopterigeous Cod, an article of commerce frequent on all the coast.

GADUS DYPTEIRIGIUS, or *Byrke-lang*, *Muller*, N° 346, *Ast. Nidr.* iii. 446. tab. viii.

BLENNIUS RANINUS, LIN. 444, and *Blennius fuscus*, *Muller*, N° 360.

ECHINEIS REMORA, LIN. 446, found as far as *Iceland*. See *Muller*, N° 361, extends to the *East* and *West Indies*.

CORYPHÆNA NOVACULA, LIN. 447, found also in the *Mediterranean* sea.

CORYPHÆNA RUPESTRIS, *Muller*, N° 363. *Ast. Nidr.* iii. tab. iii. taken as far south as *Gibraltar*.

GOBIUS JOZO, LIN. 450. *Bloche* iii. 144.

PLEURONECTES CYNOGLOSSUS, et *LINGUATULA*, LIN. 456, 457.

SPARUS ERYTHRYNUS, LIN. 469, common to *Norway*, *Italy*, and *America*.

LABRUS SUILLUS, *Muller*, N° 381.

PERCA NORVEGICA, *Muller*, N° 390. *Afcan. Icon.* tab. xvi; a red species, very fat and nourishing, which grows to the length of two feet and a half, peculiar to *Nordenfelds*.

THE NORTH SEA.

CXXV

SCOMBER PELAGICUS, LIN. 445. *Af. Nidr.* iv. 92. tab. xii? possibly the same with that found at *Jamaica*.

SILURUS AZOTUS, LIN. 501. the *Soekas* of the Norwegians, *Pontoppidan* ii. tab. iv. *Cateby* ii. p. 23.

SALMO ARCTICUS, or CAPELAN; a species so abundant about *Newfoundland*.

SALMO SILUS, or SIL, *Muller*, N° 418. *Afcan. Icon.* tab. xxiv. This is the only species of Salmon which never quits the sea: is full of bones, but excellent eating. A scarce species, growing to the length of two feet. Engraven.

SALMO KULMUND, *Afcan. Icon.* xxxiii. taken not in the sea, but in the river *Randsford*. It grows to the length of two feet; is of a purple color, spotted with silver and minute black spots. Unlike other Trouts, it never quits its station.

These are not the fishes of general use. Providence hath, in these parts, bestowed with munificence the species which contribute to the support of mankind; and made thereby the kingdom of *Norway* a coast of hardy fishermen. The chain of islands, and the shores, are the populous parts. It is the sea which yields them a harvest; and near to it stand all the capital towns: the staples of the produce of the ocean on one hand, and of the more thinly inhabited mountains on the other. The farther you advance inland, the less numerous is the race of man.

The Herring, the Cod, the Ling, and the Salmon, are the maritime wealth of this country. The Herring has two emigrations into this sea: the first is from *Christmas* to *Candlemas*, when a large species arrives, preceded by two species of Whales, who, by instinct, wait its coming. The fishermen post themselves on some high cliff, impatiently waiting for the cetaceous fish, the harbingers of the others. They look for them at the moon *Torre*, or the first new one after *Christmas*, and the moon *Gio*, which immediately follows.

These Herrings frequent the great sand-banks, where they deposit their spawn. They are followed by the Spring Herrings, a lesser fish, which approach

THOSE OF USE.

HERRINGS.

approach much nearer to the shore; after which arrive the Summer Herrings, which almost literally fill every creek: the whole fishery is of immense profit. From *January to October, 1752*, were exported, from *Bergen* alone, eleven thousand and thirteen lasts; and it was expected that as many more would be shipped off before the expiration of the year. The Herrings which visit this coast are only part of the vast northern army which annually quits the great deeps, and gives wealth and food to numbers of *European* nations.

COD.

THE Cod yields another fishery of great profit. They first arrive immediately after the earliest Herrings, and grow so pampered with their fry, that they reject a bait; and are taken in vast nets, which are set down in fifty or seventy fathom water, and taken up every twenty-four hours, with four or five hundred great fish entangled in them. As the Herrings retire, the Cod grows hungry; and after that is taken with hook and line, baited with Herring. In more advanced season, other varieties of Cod arrive, and are taken, in common with Turbot and other fish, with long lines, to which two hundred short lines with hooks are fastened: the whole is sunk to the bottom; its place is marked by a buoy fastened to it by another line of fit length. The extent of the Cod-fishery may be judged of on hearing that 40,000 *tonder*, of four bushels each, of *French* and *Spanish* salt, are annually imported into *Bergen* for that purpose only.

They grow here to the weight of fifty pounds, and from two to four feet in length. A single ovary of this species has been known to weigh fourteen pounds, and to contain nine millions of eggs: we need therefore never to fear the exhausting of this species. Ship loads of the spawn are annually sent to *France*.

LING.

The Ling is taken on the great sand-bank during summer, by hook and line, and, being a fish noted for being capable of long preservation, is much sought after for distant voyages.

SALMON.

The Salmon, a most universal northern fish, arrive in the *Norwegian* rivers in amazing numbers, and vast quantities are sent, smoke-dried or pickled, into various countries.

Infinite

Infinite multitudes of rare Vermes, Shells, Lithophytes and ZOO-CURIOUS FISHES. phytes, are found in the *Norwegian* seas; several of which, before their discovery by Bishop *Pontoppidan*, were supposed to have been inhabitants of most remote places*.

Among the *Lithophytes* is that elegant madrepore or coral, called the *madrepora pertusa*, *Aët. Nidr.* iv. tab. ii. fig. 1. The *isis hippuris*—tab. iv. fig. 8. The *gorgonia lepadifera*—ii. tab. ix. fig. 2. *Gorgonia placomus*—iii. tab. i. fig. 1. which grows to a vast size. Another species of *gorgonia*, with slender cylindrical branches, figured in the *Aët. Nidr.* ii. tab. ix. fig. 1. The vast *alcyonium arboreum*—iv. tab. xi. fig. 1; and some other species sent to me by the late Bishop *Pontoppidan*, from the *Norwegian* seas; among which shelter infinite numbers of marine animals. On one, I first discovered a *concha anomia* in the recent state, which LINNÆUS named the *anomia retusa*, Vol. I. p. 1151. N° 225.

Among the animals which LINNÆUS calls *vermes*, is found the *pennatululus mirabilis*, *Faun. Succ.* N° 2261; and a very singular long-spined *echinus* with a small body, engraven by the above-cited worthy but credulous prelate. As a member of the royal society at *Drontheim*, in *Norway*, I wish my brethren would be stimulated to a due attention to the wonders that surround them, and form a local museum, confined to the subjects of that extensive kingdom.

Exotic fruits flung on the coasts of *Norway*, which I have not described in my voyage to the *Hebrides*, are the following:

Pods of the *cassia fistulosa*.

The kidney-shaped nut of the *anacardium occidentale*.

Fruit of the *cucurbita lagenaria*, *pisidia erythrina*, and the *cocos nucifera*.

The præfecture of *Nordland*, is the farthest part of the kingdom of *Norway*. In it is the district of *Helgeland*, remarkable for that uncommon genius, *Oëber*, or *Obtber*, who, in a frozen climate, and so early as the ninth century, did shew a passion for discovery, equal perhaps with

N O R D L A N D .

O F O C T H E R .

* See the Plates in *Pontoppidan's Hist. Norway.*

that

that of the present. His country was at that time the last in the north which had the left tincture of humanity. In the year 890 he was attracted by the fame of our renowned ALFRED. He visited his court, and related to him his voyages. He told the monarch that he was determined to prove if there was any land beyond the deserts which bounded his country. It appears that he sailed due north, and left, on his starboard side, a waste, the present *Finmark*, occasionally frequented by the *Finnas*, or wandering *Laplanners*, for the sake of fishing and fowling. He went as far as the *Whale-fishers* usually ventured: a proof that the men of *Norway* practised that fishery many centuries before the *English*. He doubled the *North Cape*, and entered the *Cwen Sea*, or *White Sea*, and even anchored in the mouth of the *Dwina*. He was to these parts what *Columbus* was to *America*: but the knowledge of this country was to us lost for centuries after the days of *Othber*. He mentioned the *Scride Finnas*, who lived to the north-west of the *Cwen Sea*, and who wore snow-shoes. The country about the *Dwina* was well inhabited by a people called *Beormas*, far more civilized than the *Finnas*. The map attending ALFRED's *Orosius* places them in the country of the *Samoieds*, a race at present as uncultivated as mankind can be. *Othber* says, that in this sea he met with Horse-Whales (*Wairuse:*) and produced to the prince specimens of their great teeth, and of thong-ropes made of their skins; a mark of his attention to every thing curious which occurred to him*.

NORWEGIANS
A FINE RACE.

I must not leave *Norway* without notice of its chief of animals, *Man*. *Scandinavia*, in the course of population, received its inhabitants by colonies of hardy *Scythians*, who, under the name of *Sarmatians*, extended themselves to the coasts of the *Baltic*. In after-times their virtue was exalted by the arrival of their countryman, *Odin*, and the heroes he settled in every part of the country. The severity of the climate has not checked the growth, or distorted the human form. *MAN* here is tall, robust, of just symmetry in limbs, and shews strongly the human face divine. Their hair is light: their eyes light grey. The male peasants of the mountains

* *The Translation of Orosius, by the Hon. Daines Barrington, p. 9, &c. and Hackluyt, i. 4.*

are hairy on their breasts as Bears, and not less hardy: active in body: clear and intelligent in their minds. Theirs certainly is length of days; for out of six thousand nine hundred and twenty-nine, who died in 1761, in the diocese of *Christiana*, three hundred and ninety-four lived to the age of ninety; sixty-three to that of a hundred; and seven to that of a hundred and one*. The *Norwegians* justly hold themselves of high value; and slightly call their fellow-subjects, the *Danos*, *Jutes* †. The *Danos* tacitly acknowledge the superiority, by composing almost their whole army out of these descendants of the all-conquering *Normans*.

LONGEVITY.

As I am now on the subject of the *Norman* race, let me not suppress a small tribute to the memory of my amiable and respected friend *Daniel Solander*, born at *Pitea* in *Westerbotn*, February 28, 1736, in lat. 65. 21. within little more than a degree of the *Arctic* circle: but his genius was by no means frozen. His acquired knowledge was very great; and his liberal mind made him eager to render it subservient to the benefit of mankind: his affability endeared him to all his acquaintance. He was a favorite pupil of *LINNÆUS*, who spoke of him to me in these most tender terms: ‘*Eum ut filium apud me habui; eum in ANGLIA coegi; eum apud vestrates Commendavi* ‡.’ His untimely death, on May 13th, 1782, deprived the world of the labors of his pen; the vast and desirable collection he had formed respecting the *Arctic* and *Antarctic* regions.

The plants which he had collected were sent for into *Sweden* by his heirs, and sold there by auction. They amounted to seven thousand specimens; but, after taking out the duplicates and triplicates, the number was reduced to three thousand, of which very few were natives of the *Pacific Ocean*. And, mortifying to reflect, the labors of the most important part of the life of this able philosopher, were sold for the trifling sum of seventy-five pounds sterling §!!!

Within the *Arctic* circle, begins *Finmark*, a narrow tract, which winds about the shores eastwards, and bends into the *White Sea*: a country divided between *Norway* and *Russia*. The view from the sea is a flat,

FINMARK.

* *Phil. Transf.* vol. lix. 117.

† *Lord Molefworth's Account of Denmark*, 25.

‡ Letter, dated *Upsal*, October 22, 1771.

§ *Mr. Oeaman*.

S

bounded,

bounded, a little inland, by a chain of lofty mountains covered with snow. The depth of water off the shore is from a hundred to a hundred and fifty fathoms*. The inhabitants quit their hovels in winter, and return to them in the summer: and, in the middle of that season, even the *Alpine Laplanders* visit these parts for the sake of fishing; and, like the antient *Scythians*, remove with their tents, their herds, and furniture, and return to their mountains in autumn †. Some of them, from living near the sea, have long been called *Sia Finni*, and *Soe Lappernes*.

NEW RACE OF
MEN.

In this country begins instantly a new race of men. Their stature is from four to four feet and a half: their hair, short, black, and coarse: eyes transversely narrow: irides black: their heads great: cheek-bones high: mouth wide: lips thick: their chests broad: waists slender: skin swarthy: shanks spindle ‡. From use, they run up rocks like goats, and climb trees like squirrels: are so strong in their arms that they can draw a bow which a stout *Norwegian* can hardly bend; yet lazy even to torpidity, when not incited by necessity; and pusillanimous and nervous to an hysterical degree. With a few variations, and very few exceptions, are the inhabitants of all the *Arctic* coasts of *Europe*, *Asia*, and *America*. They are nearly a distinct species in minds and bodies, and not to be derived from the adjacent nations, or any of their better-proportioned neighbors.

SALMON FISH-
RIES.

The seas and rivers of *Finmark* abound with fish. The *Alten*, of *West Finmark*, rises in the most remote mountains of *Lapland*, and after a gentle course through mountains and forests, forms a noble cataract, which tumbles down an immense rock into a fine basin, called, in the Northern Pilot, *Alten bottom*, the receptacle of numbers of vessels which resort here to fish or traffic for Salmon §. They are taken by the natives in weirs built after the *Norwegian* model; and form, with the merchants of *Bergen*, a great article of commerce.

This coast is attended by chains of rocks and islands, similar to those of *Norway*, and are only a continuation of them: the chief of which are *Sanien*, *Trompsound*, *Suroy*, and *Maggeroe*. At the remote end of the last

* *Auth. Jenkinson's Voy. in Hackluyt*, i. 311.
12. and *Linn. Faun. Suec.* 2.

† *Leems*, 169.

‡ *Scheffer*,

§ *Leems*, 342.

C H E R I E I S L A N D.

CXXXI.

is *North Cape*, high and flat at top, or what sailors call *table land* *. Multitudes of the small whales called the *Grampus*, are perpetually seen tumbling off this point, and from it styled the *North Capers*.

I shall take my departure from this extreme north of the continent of *Europe*, or rather from its shattered fragments, the isle of *Maggeroe*, and other islands, which lie off the coast, in lat. 71. 33. These are but the continuation of the great chain of mountains which divides *Scandinavia*, and sinks and rises through the ocean, in different places, to the *Seven Sisters*, in about lat. 80. 30, the nearest land to the pole which we are acquainted with.

Its first appearance above water, from this group, is at *Cberie Island*, in lat. 74. 30. a most solitary spot, rather more than midway between the *North Cape* and *Spitzbergen*, or about a hundred and fifty miles from the latter. Its figure is nearly round: its surface rises into lofty mountainous summits, craggy, and covered with perpetual snow: one of them is truly called *Mount Misery*. The horror of this isle to the first discoverers must have been unspeakable. The prospect dreary, black, where not hid with snow, and broken into a thousand precipices. No sounds but of the dashing of the waves, the crashing collision of floating ice, the discordant notes of myriads of sea-fowl, the yelping of *Arctic Foxes*, the snorting of the *Walruses*, or the roaring of the *Polar Bears*.

This island was probably discovered by *Stephen Bennet* in 1603 †, employed by Alderman *Cberie*, in honor of whom the place was named. The anchorage near it is twenty and thirty fathoms. He found there the tooth of a *Walrus*, but saw none of the animals, their season here being past: this was the 17th of *August*. Encouraged by the hopes of profit, *Bennet* made a second voyage the next year, and arrived at the island the 9th of *July*; when he found the *Walruses* lying huddled on one another, a thousand in a heap. For want of experience, he killed only a few; but in succeeding voyages the adventurers killed, in 1606, in six hours time, seven or eight hundred; in 1608, nine hundred or a thousand in

CHERIE ISLAND.

WALRUSES.

* See a view of these islands in *Phil. Transf.* vol. lix. tab. xiv.

† *Purchas.* iii. 566.

seven hours; and in 1610, above seven hundred. The profit, in the teeth, oil, and skins, was very considerable*; but the slaughter made among the animals frightened the survivors away, so that the benefit of the business was lost, and the island no more frequented. But from this deficiency originated the commencement of the Whale-fishery by the *Englisb.*

COALS.

It is remarkable that this island produces excellent coals †; yet none are known nearer than the diocese of *Aggerbuys*, in the south of *Norway*, and there in very small quantities. Lead ore is also found, both in *Cberie Island* and a little one adjacent, called *Gull Island* ‡.

LEAD.

SPITZBERGEN.

About a hundred and fifty miles almost due north, is *South Cape*, north lat. 76. 30, the extreme southern point of *Spitzbergen*, the largest of the group of frozen islands which go under that name, or *New Groenland*. From this to *Verlegan-book*, north lat. 80. 7, the northern extremity, is above three hundred miles; and the greatest breadth of the group is from *Hackluyt's Headland* to the extreme east point of *North Eastland*, comprizing from 9. to near 24. east longitude. The shores are ragged and indented. A very deep bay runs into the east side from south to north; and a large trifurcated one from north to south. *Stat's Forland* is a large island rent from the southern part of the east side. *North Eastland* is divided from the north-east side by the *Waygat* and *Hinlopen* straits, usually blocked up with ice, and so shallow as to be, in one part, only three fathoms deep §. The long isle of King *Charles* lies parallel to the west side. At the southern end is *Black Point*; the coast high, black, and inaccessible; in parts seeming soaring above the clouds; and the interjacent vallies filled with ice and snow. *Fair Foreland*, or *Vogel-book*, is the northern headland, made by sailors. And due north of it, at the western point of *Spitzbergen*, is the small lofty isle of *Hackluyt's Headland*, another object of the mariners search.

MOFFEN'S ISLE.

To the north of the great group is *Moffen's Isle*, in lat. 80, opposite to the mouth of *Leifde* bay. This island is very low, and suspected to be a new creation, by the meeting of the streams from the great ocean, rushing

* *Purchas*, iii. pp. 560. 565.
 § *Barrington's Miscel.* 35.

† The same, 564.

‡ The same, 558. 564.

along

along the west side of *Spitzbergen*, and through the *Waygat*, and forcing up the gravelly bottom of this shallow part, where the lead touches the bottom at from two to five fathoms water, at half a mile from its western side*.

To the eastward of this is another low island, almost opposite to the mouth of the *Waygat*: it is remarkable for being part of the *Basaltic* chain, which appears in so many places in the northern hemisphere. The columns were from eighteen to thirty inches in diameter, mostly hexagonal, and formed a most convenient pavement. The middle of the isle was covered with vegetables, Mosses, Sorel, Scurvy Grass, and Ranunculuses in bloom on *July* 30th. Of quadrupeds, the Rein-deer fattened here into excellent venison; the *Arctic* Fox; and a small animal larger than a Weefel, with short ears, long tail, and spotted with black and white, were seen. Small Snipes, like Jack Snipes; Ducks, then hatching; and Wild Geese feeding, helped to animate this dreary scene †.

The beach was formed of an antient aggregate of sand, whale-bones, and old timber, or drift-wood. Fir-trees seventy feet long, some torn up by the roots, others fresh from the axe, and marked with it into twelve feet lengths, lay confusedly sixteen or eighteen feet above the level of the sea, intermixed with pipe-staves, and wood fashioned for use; all brought into this elevated situation by the swell of the furious surges.

The appearance of drift-wood is very frequent in many parts of these high latitudes: in the seas of *Greenland*, in *Davis's* streights, and in those of *Hudson*; and again on the coasts of *Nova Zemlja*. I have only two places from whence I can derive the quantity of floating timber which appears on the coast of *Nova Zemlja* and these islands: the first is from the banks of the *Oby*, and perhaps other great rivers, which pour out their waters into the Frozen ocean. In the spring, at the breaking up of the ice, vast inundations spread over the land, and sweep away whole forests, with the aid of the vast fragments of ice; these are carried off, rooted up, and appear entire in various places †. Such as are found marked into

LOW ISLAND.

BASALTIC.

PLANTS.

ANIMALS.

BIRDS.

DRIFT-WOOD.

* *Phips*, 54.

† The same, 58.

‡ *Purchas*, iii. 527.

lengths,

lengths, together with pipe-staves, and other fashioned woods, are swept by the *Norwegian* floods out of the rivers, on the breaking of a *lentze*, a misfortune which sometimes happens, to the bankruptcy of multitudes of timber-merchants. At such times not only the trees which are floating down the torrents, but the saw-mills, and all other places in which business is carried on, undergo the same calamity; and the timber, in whatsoever form it happens to be, is forced into the ocean, and conveyed by tides or tempests to the most distant parts of the north.

Let no one be staggered at the remoteness of the voyage: I have before shewn instances, but from a contrary course, from west to east. Part of the masts of the *Tilbury*, burnt at *Jamaica*, was taken up on the western coast of *Scotland*; and multitudes of seed or fruits of the same island, and other hot parts of *America*, are annually driven on shore, not only on the western side of *Scotland**, but even on those of more distant *Norway* †, and *Iceland*.

The islands of the *Seven Sisters*, last of known land, lie due north from *North Eastland*: the extreme point of the most remote is in lat. 80. 42. They are all high primæval isles: from a high mountain on the farthest, the hardy navigators of 1773 had a sight of ten or twelve leagues of smooth unbroken ice to the east and north-east, bounded only by the horizon; and to the south-east certain land laid down in the *Dutch* maps. Midway between these islands and *North Eastland*, Lord *Mulgrave*, after every effort which the most finished seaman could make to accomplish the end of his voyage, was caught in the ice, and was near experiencing the unhappy fate of the gallant *Englishman*, Sir *Hugh Willoughby*, who was frozen in 1553, with all his crew, in his unhappy expedition.

The scene, divested of the horror from the eventful expectation of change, was the most beautiful and picturesque:—Two large ships becalmed in a vast basin, surrounded on all sides by islands of various forms: the weather clear: the sun gilding the circumambient ice, which was low, smooth, and even; covered with snow, excepting where the pools of

VOYAGE BY
LORD MUL-
GRAVE, IN 1773.

* *Voy. to the Hebrides.*

† *Aman. Acad. vii. Rariora Norvegiæ, 477.*

water on part of the surface appeared crystalline with the young ice*: the small space of sea they were confined in perfectly smooth. After fruitless attempts to force a way through the fields of ice, their limits were perpetually contracted by its closing; till at length it beset each vessel till they became immoveably fixed †. The smooth extent of surface was soon lost: the pressure of the pieces of ice, by the violence of the swell, caused them to *pack*; fragment rose upon fragment, till they were in many places higher than the main-yard. The movements of the ships were tremendous and involuntary, in conjunction with the surrounding ice, actuated by the currents. The water shoaled to fourteen fathoms. The grounding of the ice or of the ships would have been equally fatal: the force of the ice might have crushed them to atoms, or have lifted them out of the water and overfet them, or have left them suspended on the summits of the pieces of ice at a tremendous height, exposed to the fury of the winds, or to the risk of being dashed to pieces by the failure of their frozen dock ‡. An attempt was made to cut a passage through the ice; after a perseverance worthy of *Britons*, it proved fruitless. The commander, at all times master of himself, directed the boats to be made ready to be hauled over the ice, till they arrived at navigable water (a task alone of seven days) and in them to make their voyage to *England*. The boats were drawn progressively three whole days §. At length a wind sprung up, the ice separated sufficiently to yield to the pressure of the full-sailed ships, which, after laboring against the resisting fields of ice ||, arrived on the 10th of *August* in the harbor of *Smeeringberg*, at the west end of *Spitzbergen*, between it and *Hackluyt's Headland*.

It was the hard fortune of Lord *Mulgrave*, at this season, to meet with one of those amazing shoals of ice which cover, at times, these seas, for multitudes of leagues. He made the fullest trial, from long. 2 to 21 east, and from about lat. 80. 40, as low as about 78. 30, opposed by a face of

* *Phips Voy.* tab. iv.

† Same, tab. iii.

‡ See these distressful situations in tab. B. of *Fr. Marten's Voyage*, and *Gerard le Ver, Voy. au Nord*, p. 19, edition 1606.

§ *Phips Voy.* tab. v.

|| Same, tab. vi.

ice without the left opening, and with all the appearance of a solid wall. It is well known, that the coasts of *Siberia* are, after a northern tempest, rendered inaccessible for a vast extent, by the polar ice being set in motion. It is as well known, that a strong southern wind will again drive them to their former seats, and make the shores of the Frozen ocean as clear as the equatorial seas. A farther discovery on this side was denied to the noble navigator. His misfortune will for ever redound to his honor, as it proved his spirit, his perseverance, and a soul fertile in expedients among the greatest difficulties!

That navigators have gone into higher latitudes I cannot deny: the authenticated instances only shew their accidental good fortune, in having the ice driven towards the pole, and in making a retreat before they were enveloped in the returning ice. The *Russians*, under vice-admiral *Tshitschagof*, within these very few years, made an attempt to sail to the pole by the eastern side of *Spitzbergen*; but after suffering great hardships, returned without effecting any discovery. Curiosity has been amply satisfied: and I believe we may rest fully content with the common passage to *India*, on the conviction of this tract being totally impracticable.

1cc.

The forms assumed by the ice in this chilling climate, are extremely pleasing to even the most incurious eye. The surface of that which is congealed from the sea-water (for I must allow it two origins) is flat and even, hard, opaque, resembling white sugar, and incapable of being slid on, like the *British* ice*. The greater pieces, or fields, are many leagues in length: the lesser, are the meadows of the Seals, on which those animals at times frolic by hundreds. The motion of the lesser pieces is as rapid as the currents: the greater, which are sometimes two hundred leagues long, and sixty or eighty broad †, move slow and majestically; often fix for a time, immovable by the power of the ocean, and then produce near the horizon that bright white appearance, called by mariners the *blink of the ice* ‡. The approximation of two great fields produces a most singular phenomenon; it forces the lesser (if the term can be applied to

* *Grantz*, i. 31.

† The same.

‡ *Phips*, 72.

pieces of several acres square) out of the water, and adds them to their surface: a second, and often a third succeeds; so that the whole forms an aggregate of a tremendous height. These float in the sea like so many rugged mountains, and are sometimes five or six hundred yards thick*; but the far greater part is concealed beneath the water. These are continually increased in height by the freezing of the spray of the sea, or of the melting of the snow, which falls on them. Those which remain in this frozen climate, receive continual growth; others are gradually wasted by the northern winds into southern latitudes, and melt by degrees, by the heat of the sun, till they waste away, or disappear in the boundless element.

The collision of the great fields of ice, in high latitudes, is often attended with a noise that for a time takes away the sense of hearing any thing else; and the lesser with a grinding of unspeakable horror.

The water which dashes against the mountainous ice freezes into an infinite variety of forms; and gives the voyager ideal towns, streets, churches, steeples, and every shape which imagination can frame †.

The *Icebergs*, or *Glacieres* of the north-east of *Spitzbergen*, are among the capital wonders of the country; they are seven in number, but at considerable distances from each other: each fills the vallies for tracts unknown, in a region totally inaccessible in the internal parts. The *glacieres* of *Switzerland* seem contemptible to these; but present often a similar front into some lower valley. The last exhibits over the sea a front three hundred feet high, emulating the emerald in color: cataracts of melted snow precipitate down various parts, and black spiring mountains, streaked with white, bound the sides, and rise crag above crag, as far as eye can reach in the back ground ‡.

At times immense fragments break off, and tumble into the water, with a most alarming dashing. A piece of this vivid green substance has fallen, and grounded in twenty-four fathoms water, and spired above the surface

* *Ellis's Voy.* 127.
plate in *Phipps's Voy.* tab. vii.

† *Marten*, 37. *Grantz*, i. 31.

‡ See the beautiful

ICEBERGS.

fifty feet *. Similar *icebergs* are frequent in all the *Arctic* regions; and to their lapses is owing the solid mountainous ice which infests those seas.

Frost sports also with these *icebergs*, and gives them majestic as well as most singular forms. Masses have been seen, assuming the shape of a Gothic church, with arched windows and doors, and all the rich tracery of that style, composed of what an *Arabian* tale would scarcely dare to relate, of crystal of the richest sapphire blue: tables with one or more feet: and often immense flat-roofed temples, like those of *Luxxor* on the *Nile*, supported by round transparent columns of cærulean hue, float by the astonished spectator †.

These *icebergs* are the creation of ages, and receive annually additional height by the falling of snows and of rain, which often instantly freezes, and more than repairs the loss by the influence of the melting sun ‡.

SNOW.

The snow of these high latitudes is as singular as the ice. It is first hard, and small as the finest sand §; changes its form to that of an hexagonal shield, and into the shape of needles, crosses, cinquefoils, and stars, plain and with ferrated rays. Their forms depend on the disposition of the atmosphere; and in calm weather it coalesces, and falls in clusters ||.

SEASONS.

Thunder and lightning are unknown here. The air in summer is generally clear; but the sky loaden with hard white clouds. The one night of this dreadful country begins about *October* 20th, O. S.; the sun then sets, and never appears till about the 3d of *February* ¶: a glimmering indeed continues some weeks after its setting: then succeed clouds and thick darkness, broken by the light of the moon, which is luminous as that in *England*, and shines without intermission during the long night **. Such also is the case in *Nova Zemlja* ††. The cold, according to the *English* proverb, strengthens with the new year; and the sun is ushered in with unusual severity of frost. The splendor of that luminary on the snowy summits of the mountains was the most glorious of sights to the single

* *Phips*, p. 70.† *Marten*, 43.

‡ The same.

§ The same.

|| The same, 51.

¶ Relation of Eight *Englishmen*, &c. *Churchill's Coll.* iv. 818.—Relation of Seven *Dutchmen*, &c. *Churchill*, ii. 430.** Narrative of Four *Russian*

Sailors, 94.

†† *De Ver, trois Voy. au Nord.* 22, b.

party

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party who survived to relate the account. The Bears stalk forth at the same time from their dens, attended by their young cubs. By the beginning of *March*, the chearful light grows strong: the *Arctic* Foxes leave their holes, and the sea-fowls resort in great multitudes to their breeding-places*.

BEARS.

FOXES.

FOWLS.

The sun, in the height of summer, has at times heat enough to melt the tar on the decks of ships. It sets no more after the third of *May*, O.S. Distinction of day and night is lost; unless it be fact what *Fr. Marten* alleges, that during the summer night of these countries, the sun appears with all the faintness of the moon †. This is denied by Lord *Mulgrave* ‡. From *August* the power of the sun declines, it sets fast; in *September* day is hardly distinguishable; and by the middle of *October* takes a long leave of this country; the bays become frozen; and winter reigns triumphant.

DAY AND NIGHT.

Nature, in the formation of these islands, preserves the same rule which she does in other places: the highest mountains are on the western side; and they gradually lower to the east. The altitude of the most lofty, which has been taken by Lord *Mulgrave*, seems to have been one a little to the north of *Black Point*, which was found by the megameter to be fifteen hundred and three yards §: that of a hill on the little isle, the *Norways*, a small distance to the north-east of *Spitzbergen*, was two thousand four hundred feet: one on *Vogel Sang*, sixteen hundred and fifty; another, on the isle near *Cloven Cliff*, in about lat. 80, eight hundred and sixty-five; a third, on that near *Cook's Hole*, seven hundred and eleven; and one on *Hackluyt's Island*, only three hundred and twenty-one ||. These are the most northern lands which ever were measured; and the experiments favor the system of the decrease of the heights of the mountains toward the poles.

MOUNTAINS.

Earth and soil are denied to those dreadful regions: their composition is stone, formed by the sublime hand of Almighty Power; not frittered

* Relation of Eight Englishmen, &c. 817, 818, 819. † Marten, 48. ‡ Voy. 71.
§ Phipps's Voy. 33. || The same, on tab. viii.

into segments by fissures, transverse or perpendicular, but at once cast into one immense and solid mass; a mountain is but a single stone throughout, destitute of fissures, except in places cracked by the resistless power of frost, which often causes lapses, attended with a noise like thunder, scattering over their bases rude and extensive ruins. The stone is granite, mostly grey and black; some red, white, and yellow. I strongly suspect, that veins of iron are intermixed; for the meltings of the snow tinge the rocks frequently with a ferruginous ochre. A potter's clay and a gypsum are to be met with on the eastern part of the islands*.

TEMPERATURE
OF THE AIR.

In respect to the temperature of the summer air in *Spitzbergen*, Lord *Mulgrave* makes these remarks:—At the noon of *July* 20th, in lat. 80. 30. long. 3. 26. the mercury stood at 37; at midnight at 33½; and in lat. 80. 37, at noon, at 48. In lat. 80. 4. long. 2. 12, on *July* 16th, at noon at 49, at midnight at 48. This was the greatest degree of warmth felt in this arctic region during the voyage.

COALS.

Coals are also found in *Spitzbergen*, by means of which, seven people, left there accidentally, were enabled to bear the severity of the winter †.

VALLIES.

The vallies, or rather glens, of this country, are filled with eternal ice or snow; are totally inaccessible, and known only by the divided course of the mountains, or where they terminate in the sea in form of a *glaciere*. No streams water these dreary bottoms; even springs are denied; and it is to the periodical cataracts of melted snow of the short summer, or to the pools in the middle of the fields of ice, to which the mariners are indebted for fresh water.

HARBOURS.

The harbours on the west side are frequent; penetrate deep into the island of *Spitzbergen*; and are the only channels by which the slight knowledge of the interior parts is attained. *North Harbour* is a scene of picturesque horror, bounded by black craggy *alps*, streaked with snow; the narrow entrance divided by an island; and at seasons affording a landlocked shelter to multitudes of ships.

TIDE AND SEA.

The tide at the *Vogel Sang* flows only four feet, and the flood appears

* Narrative of Four Russian sailors, 78, 89.

† *Barrington's Miscellanies*, 16.

to come from the south. The depth of the sea is very irregular: near the shore it is generally shallow: off *Low Island*, only from ten to twenty fathoms; yet suddenly deepens to a hundred and seventeen: off *Cloven Cliff* from fourteen to twenty-eight, and deepens to two hundred. The shallows are usually on rock; the great depths on soft mud: the former I look on as submarine islands; but, from the small number of fish, the bottoms must be universally barren.

The grit worn from the mountains by the power of the winds, or attrition of cataracts of melted snow, is the only thing which resembles soil, and is the bed for the few vegetables found here. This indeed is assisted by the putrefied *lichens* of the rocks, and the dung of birds, brought down by the same means.

SOIL!

Even here *Flora* deigns to make a short visit, and scatter over the bases of the hills a scanty stock. Her efforts never rise beyond a few humble herbs, which shoot, flower, and seed, in the short warmth of *June* and *July*; then wither into rest till the succeeding year.—Let me here weave a slender garland from the lap of the goddess, of such, and perhaps all, which she hath bestowed on a country so repugnant to her bounty. Let the salubrious Scurvy Grass, the resource of distempered seamen, be remarked as providentially most abundant in the composition.

PLANTS.

Let me first mention its only tree, the *Salix Herbacea*, or Dwarf Willow, described by *Marten*, p. 65, *Phips*, 202, which seldom exceeds two inches in height, yet has a just title to the name. The plants are, a new species of Grass, now named *Agrostis Algida*: *Tillæa Aquatica*, Sp. Pl. 186. Fl. Suec. 156: *Juncus Campestris*, Fl. Sc. i. 186: *Sibbaldia Procumbens*? Fl. Lap. 111.; *Marten's Spitz. tab. H. fig. b*: *Polygonum Viviparum*, Fl. Lap. 152; *Marten's Spitz. tab. I. fig. a*: *Saxifraga Oppostifolia*, Fl. Lap. 179, 222: *Sax. Cernua*, Sp. Pl. i. 577; Fl. Lap. 172: *Sax. Rivularis*, Sp. Pl. 577; Fl. Lap. 174: *Sax. Cespitosa*, Sp. Pl. 578; Fl. Suec. 376: *Sedum Annuum*? Sp. Pl. 620; *Marten's Spitz. tab. F. fig. c*: *Cerastium Alpinum*, Sp. Pl. 628; Fl. Lap. 192: *Ranunculus Sulphureus*, *Phips's Voy.* 202; *Mart. Spitz.* 58: *R. Lapponicus*, Fl. Lap. 461, 503: *R. Nivalis*? 232; *Mart. Spitz. tab. F. fig. a*: *Cochlearia Danica*,

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Danica, Sp. Pl. 903; Fl. Suec. 578, 579: *Coch. Granlandica*, Sp. Pl. 904: *Polytrichum commune*, Fl. Lap. 395: *Bryum Hypnoides*, Fl. Lap. 396: *Bryum Trichoides*? Dill. 391; Musc. tab. 50. fig. 61: *Bryum Hypnoides*? Dill. Musc. 394, tab. 50, fig. 64, C: *Hypnum Aduncum*, Sp. Pl. 1592; Fl. Suec. 879, 1025: *Jungermannia fulacea*, Sp. Pl. 1601: *Jung.* like the *Lichenastrum Ramosius*, fol. trif. Dill. Musc. 489, tab. 70, fig. 15: *Lichen Ericetorum*, Fl. Lap. 936, 1068: *L. Islandicus*, 959, 1085: *L. Nivalis*, 446: *L. Caninus*, 441: *L. Polyrbizos*, Sp. Pl. 1618; Fl. Suec. 1108: *L. Pyxidatus*, Fl. Lap. 428: *L. Cornutus*, 434: *L. Rangiferinus*, 437: *L. Globiferus*, Lin. Mantiff. 133: *L. Paschalis*, Fl. Lap. 439: *L. Cbalybeiformis*, Sp. Pl. 1623; Fl. Suec. 988, 1127: and the *Fucus Saccharinus*? Fl. Lap. 460; Mart. Spitz. tab. F. fig. 6.

It is matter of curiosity to trace the decrease of vegetables from our own island to this spot, where so few are to be found. They decrease with the numbers of herbivorous animals, and the wants of mankind. The following catalogue may not be quite just, but is probably pretty near the truth:

	Perfect.	Imperfect.	Total.
England has	1,124	590	1,714
Scotland	804	428	1,232
The Orknies	354	144	498
Holland	809	275	1,084
Sweden	933	366	1,299
Lapland	379	155	534
Iceland	309	233	542

Those of *Spitzbergen* are given above.

QUADRUPEDS.

The three terrestrial quadrupeds of these islands are confined here without possibility of migration. The Polar Bears pass the greatest part of the winter in a torpid state: appear in numbers at the first return of the sun, when, probably, they take to the ice, in quest of their prey, Seals, or dead Whales.

It is difficult to account for the means which the Foxes find for support,

as the island is destitute of birds during the whole winter; and, the bays being totally frozen up, they can find no subsistence from the sea. Perhaps they lay up provision for winter, on which they subsist till the arrival of the birds in *March*; at which season they have been observed first to quit their holes, and appear in multitudes*. The Rein Deer have at all times their favorite *lichen*, which they can readily get at, by help of their palmated horns.

WALRUSES and Seals are found in great abundance; the latter are often the object of chase, for the sake both of oil and skins: the *Russians* make voyages on purpose. In 1743, four unhappy mariners of that nation were accidentally left on shore on *North Eastland*, called by the *Russians* *Maloy Broun*. Here three (the fourth died in the last year) lived till *August* 15th, 1749; when they were providentially relieved by the arrival of a ship, after passing six years, realizing in ingenious contrivances the celebrated *English* fable of *Robinson Crusoe* †.

In the year 1633, seven *Dutch* sailors were left voluntarily on the western part of *Spitzbergen*, to pass the winter, and form their remarks. They were furnished with medicines, and every requisite to preserve life; but every one perished by the effects of the scurvy. In the next year, seven other unhappy men devoted themselves, and died in the same manner. Of the first set, it appeared by his journal, that the last was alive the 30th of *April* 1634; of the second, the life of the last survivor did not continue far beyond the 28th of *February* 1635 ‡. Yet eight *Englishmen*, left in 1630 in the same country, by accident, and unprovided with every thing, framed themselves a hut from some old materials, and were found by the returning ships, on *May* 28th, 1631, in good health ||. Thus *Russian* hardiness and *British* spirit braved a climate, which the phlegmatic constitution of a *Dutchman* could not resist.

To meet with the SNOW BUNTING, a bird whose bill, in common with the rest of that genus, is calculated for granivorous life, is a kind of miracle. The country has a very scanty provision of seeds; the earth yields

* *Churchill*, iv. 819.
ii. 415, 427.

† See the curious Narrative.
|| The same, iv. 808.

‡ *Churchill's Coll.*

no worms, the air no insects; yet these birds are seen in flocks innumerable, and that chiefly on the ice around *Spitzbergen*: as it breeds early, possibly the old and young may have quitted the land, and collected on the ice at the time of the arrival of the ships.

Of cloven-footed water-fowl, the *PURRE* alone is seen here.

Of web-footed, the *PUFFIN AUK*, the *RAZOR BILL*, the *LITTLE AUK*, the *FOOLISH GUILLEMOT*, the *BLACK GUILLEMOT*, the *NORTHERN DIVER*, the *IVORY GULL*, the *HERRING GULL*, the *ARCTIC GULL*, the *KITTIWAKE*, and the *GREATER TERN*: these, with the *EIDER DUCK*, complete the short list of the feathered tribe of *Spitzbergen*. All these breed in the frost-rent cracks of the mountains, and appear even in these regions before the 16th of *March* *.

FISH.

The Whale is lord paramount of these seas; and, like a monstrous tyrant, seems to have terrified almost every other species of fish away. A few Coal Fish, *Br. Zool.* iii. N° 78, and two of the unctuous Suckers, N° 58, were the whole which were taken by Lord *Mulgrave*, after several trials by hook and by net. I can never imagine that the shallow, barren, and turbulent shores of the polar regions receive, as is popularly thought, the immense shoals of Herrings and Cod which annually repair to other more southern seas. Their retreat must be in the great depths before described †, where they are secure from the greatest storms, and probably enjoy a bottom luxuriant in plants and *vermes*.

The Whale, which inhabits these seas, and occasions the great resort of shipping, is the common species, *Br. Zool.* iii. N° 16. I have in that Work given its history; therefore shall add no more, than that during spring these animals keep near *Greenland* and the island of *John Mayen*; and towards summer they appear in the seas of *Spitzbergen*. The Fin Fish, *Br. Zool.* iii. N° 18, is another species: on their appearance, the Common Whale makes its retreat. The *BELUGA* or White Whale, is seen here in summer, and prognosticates a good fishery.

The voyage to the usual station for the Whale-fishery, in these seas, is

* *Churchill's Coll.* iv. p. 818.

† See p. lxxvii.

from

S P I T Z B E R G E N.

CXLV

from the eastern coast of *Great Britain* very short, the business concluded with much expedition. The following journal of the ship *Yarmouth*, of *Yarmouth*, is one among many other proofs I could offer :

1787.

- | | |
|---|--|
| <i>March</i> 19. left <i>Yarmouth Roads</i> . | <i>May</i> 14. killed the first whale. |
| 24. anchored off <i>Lerwick</i> till | 17. killed the second. |
| <i>April</i> 2. | 20. lat. 75. 26. |
| 9. fell in with ice. | 31. third whale. |
| 11. in lat. 70. 50. | <i>June</i> 6. killed a bottle-nose. |
| 13. lat. 70. 25. | 11. lat. 75. 36. |
| 15. got some seals. | 14. lat. 76. 40. |
| 23. lat. 72. 40. | 18. killed more seals. |
| <i>May</i> 2. lat. 73. 50. | 22. lat. 75. 12. |
| 3. lat. 75. 45. | |
| 12. lat. 75. 19. | 24. not being able with |
| | safety to get through the ice, toke departure home from lat. |
| | 74. 45. long. E. 10. and got into <i>Yarmouth</i> roads, <i>July</i> 11th. |

The insects, *vermes*, and shells, of *Spitzbergen*, are very few. The Prawn, *Br. Zool.* iv. N° 28; and Sea Flea, N° 33, are found there. The *Cancer Boreas*, *Ampulla*, and *Nugax*, are three new species*, added to the genus by the noble navigator.

Of the known species of *vermes*, the *Ascidia Gelatinosa*, *Lin. Syft.* 1087: the *Ascidia Rustica*, 1087, 5: the *Lernea Branchialis*, 1092: and the *Clio Helicina*, the small Slime Fish of *Marten*, p. 141, tab. Q. fig. e: and the *Clio Limacina*, the Sea May Fly of the same, p. 169, tab. P. fig. 5: the *Sipunculus Lendix*, a new species, *Phips*; 194; tab. xiii. are found here: the two last, the supposed food of the Common Whale, are met with in vast abundance †: the *Medusa Capillata*, the *Asterias Papposa*, *Lin. Syft.* 1098: *Ast. Rubens*, 1099: *Ast. Pectinata*, 1101; *Br. Zool.* iv. N° 70: *Ast. Opbiura*, 1100; *Br. Zool.* iv. N° 62: and *Ast. Caput Medusæ*, *Lin. Syft.* 1101;

* *Phips's Voy.* 190, &c. tab. xii.

† The same, p. 194, 195.

Br. Zool. iv. N° 73. And of Shells, the *Cbiton Ruber*, 1107: *Lepas Tintinnabulum*, 1168: the *Mya Truncata*, 1112; *Br. Zool.* N° 14: and *Mytilus Rugosus*, 1156; *Br. Zool.* iv. N° 72: the *Buccinum Carinatum*, a new species, *Phips*, 197, tab. xiii: *Turbo Helicinus* of the same, 198: the *Serpula Spirorbis*, *Lin. Syft.* 1265; *Br. Zool.* iv. N° 155: *Serpula Triquetra*, 1265; *Br. Zool.* iv. N° 156: and the *Sabella Frustrulosa*, *Phips*, 198, complete the list of this class. Among the *Zoophytes* is the *Millepora Polymorpha*, *Lin. Syft.* 1285; and *Millep.* 1286; and a most curious new genus, discovered in the voyage, named the *Synoicum Turgens*, 199, tab. xiii: the *Flustra Pilosa*, *Lin. Syft.* and *Fl. Membranacea*, 1301, 3, 5: and, to conclude, that very curious *Zoophyte*, the foundation of the fossil *Encrini*, the *Vorticella Encrinus*, *Lin. Syft.* N° 1317, engraven in our *Transactions*, vol. *xlvi*. p. 305, and taken in lat. 79, off this coast: two of them being drawn up with the sounding-line, in 236 fathom water.

DISCOVERY OF
SPITZBERGEN.

The priority of discovery of these islands has been a great matter of controversy between the *English* and the *Dutch*. We claim it from the sight which *Sir Hugh Willoughby* is pretended to have had of it in his unfortunate voyage; but if what he saw, in lat. 72, was not a fog-bank, we must suppose it to have been either *John Mayen's* isle, or part of *Greenland*. The absurd zeal of the *English* compilers makes *Stephen Boroughs* the second discoverer of this country, in 1556; but it is very certain, that he never got higher than lat. 70. 42, nor ever meant any discovery but a passage to the river *Ob**. It doubtlessly was first discovered by the *Dutch Barentz*; who, in his third voyage, in 1596, for the finding out the north-east passage, met with a land in lat. 79 $\frac{1}{2}$, and anchored in a good road, in eighteen fathom water. He afterwards failed as high as 80, and found two of the islands of which *Spitzbergen* is composed †. Embarrassed with ice, he took a southern course, and was soon after wrecked on the coast of *Nova Zemlja*: but the *English* and *Dutch* pursued the hint; and the *Whale-fishery*, which before was chiefly carried on by the *Biscayeners* in

* *Hackluyt*, i. 274, 280.

† *Trois Voyages au Nord*, &c. par *Girard de Ver*, p. 14, 15.

the bay of *St. Laurence*, was commenced here with great success. So active were we, that our ships frequented the place within two years after its discovery.

THE *Russians* have of late attempted to colonize these dreadful islands. They have, for a few years past, sent parties to continue there the whole year; who have established settlements on the isle of *Spitzbergen*, at *Croon Bay*, *King's Bay*, *Magdalena Bay*, *Smeerenburgh*, and *Green Harbour*; where they have built huts, each of which is occupied by about two boats crews, or twenty-six men. They bring with them salted fish, rye-flour, and the serum or whey of sour milk. The whey is their chief beverage, and is also used in baking their bread. Each hut has an oven, which serves also as a stove; and their fuel is wood, which they bring with them from *Archangel*. The huts are above ground, and most surprizingly warm; placed also in situations which may guard them as much as possible from the keenness of the northern wind.

Mr. *Erskine Tomnach*, surgeon of *Dunbar* (who, by the friendship of the worthy Mr. *George Paton*, of *Edinburgh*, favored me with this account) gives me the following particulars from his own knowledge:—"During our stay on the island, my curiosity prompted me to go on shore, that I might see the oeconomy of these *arctic* settlers; and had an opportunity of seeing them dine; and though their fare appeared coarse, the dispatch they use, said a great deal for their health and appetite. They boil their fish with water and rye-meal: and this constitutes their diet during winter. In the summer they live chiefly on fowls, or their eggs; but in general they forbear flesh, as the fasts prescribed by their religion are so numerous. They are dressed in the skins of the animals they kill, which they use with the fur side next to their bodies: their bedding is likewise composed of skins, chiefly of those of the Bear or Rein Deer. The skin of the Fox is the most valuable; but these are preserved as articles of commerce in their own country. They catch the *Beluga*, or white Whale, in nets, being conversant in this species of fishery; but are ignorant of that of the great Whale. They were very solicitous to get information on that subject; which I endeavoured to instruct them in, in return for the information they

so readily gave me. They are most excellent marksmen; but, what is peculiar, in presenting their piece, they do not raise it to their shoulder, but place the butt-end between their arm and their side, fixing their eye on the object toward which they direct the barrel. I saw a Bear receive a considerable shot: it astonished me greatly to see the animal apply great quantities of snow to the part (which was bleeding freely) as if conscious of its styptic powers. It retreated with much slowness; but at short intervals looked behind, and, with much art, threw abundance of snow with its hind-paws into the wound. Few of the *Russians* die from the severity of the cold, but are often frost-bitten, so as to lose their toes or fingers; for they are so hardy as to hunt in all weathers. I naturally asked them, Had they a surgeon? They replied, 'No! no! CHRIST is our doctor!' They quit the island in *September*, and are privileged to leave the place by the 22d of that month, whether they are relieved by a fresh party from *Russia* or not."—Let me remark, that the great exercise used by these volunteer adventurers; their quantity of vegetable food; their freshening their salt provision, by boiling it in water, and mixing it with flour; their beverage of whey; and their total abstinence from spirituous liquors—are the happy preservatives from the scurvy, which brought all the preceding adventurers, who perished, to their miserable end*. The drink of these *Russians* was no other than *Quass*, the common beverage of their countrymen, and their celebrated anti-scorbutic liquor †.

HOPE ISLAND. Before I quit *Spitzbergen*, let me add, that to the south of *Statz* island, and about ten leagues distant, is *Hope* island; of a singular form, nine leagues long, and only half a mile broad; divided into five very high mountains, gradually decreasing in height from the north-east ‡. On the north is good anchorage in twenty fathom water. The south side has a rocky bottom, and for some way to the east and west the sea is shallow.

* See this subject amply treated by Doctor *Aikin*, in a Treatise on the success, with respect to the health, of some attempts to pass the winter in high northern latitudes,

† See Doctor *Gutbrie*, in *Pl. Transf.* vol. lxxviii. 627.

‡ Northern Pilot, page 59.

NORTHERN RIVERS AND COAST.

CXLIX

At the north-east end is a hollow, the haunt of Walrusses, and of myriads of Gulls and other sea-fowls, which darken the air with their numbers.

From the *North Cape* the coast of *Finmark* runs easterly: *North-ky* north-point is a distinguished promontory: between them are the *three sisters*, conic rocks of a grotesque appearance. From thence to *Tana bay* is high and craggy land, and a bold shore. The river *Tana* falls with a prodigious noise into the end of the bay, forming a noble cataract; like the *Alten*, it rises far in *Lapland*, and, after a long course through *morasses*, here has its discharge. Conoid mountains of surprizing heights distinguish the coast. Among the lesser rivers which feed it, some were famous for Beavers and Pearls. The *Loplanders* had therefore, in 1652, this river committed to their special care. The *Tana* is the most celebrated of any in the north for its Salmon; they are distinguished by their depth, shortness, and superior excellency. The fishery begins early in the spring, and, by the laws of *Norway*, must end in fourteen days after the feast of St. *John the Baptist*.

COAST OF
FINMARK.

To the east of this is *Wardoe*, an island remarkable for having on it the most northern fortress in the world, and of unknown antiquity, built at the extremity of *Norwegian Finmark*. It commands a fine harbour, and probably was built to protect the fishing trade, the only object it could have in this remote place. It has caused an assemblage of about three hundred *Norwegian* cottages, the habitations of fishermen. Beyond the adjacent promontory, *Domesness*, the sea runs westward, and forms a deep bay. The river *Pes* is the boundary between the *Muscovitish* and *Norwegian* dominions. *Kegor*, or *Fishers Island*, stretches along the shore a little to the east of the mouth of the *Pes*. A vast hollow sea is observed off this island, arising from the N. W. and N. E. winds. Let it be remarked, that the land takes a southern trend from the *North Cape* to the extreme of the *White Sea*; and the hills gradually decline in height, and the isles diminish in number. *Kola*, a vast river, opens a little to the east of *Kegor*, and is about a mile broad near the town of *Kola*, above seven leagues from its mouth. This, above two centuries ago, was the great resort of *English* and *Dutch*, who carried on a great trade in Salmon and fish-

WARDHUVS.

SIR HUGH WILLOUGHBY'S EXPEDITION:

fish-oil *. The oil is extracted from the livers of the Sharks, such as the *Brugde*, *Haa-mer* or Basking Shark, *Br. Zool.* III. N° 41; the *Haa-skiærdin* or White Shark, *Br. Zool.* III. N° 42; and the *Haa-brand* or Blue Shark, N° 43. All these species having for a long time been taken for this purpose †, chiefly in the winter, and by the natives. Cod-fish, Holibuts, and most of the valuable fish of the *German* sea, abound as far as this high latitude. Even the Tunny is found to pursue the Mackerel into these cold seas ‡. The small isle of *Kilduyn* lies a little to the east of the *Kola*; and farther on the *Sem-ostrowow*, or seven islands; not far from which is the river *Arzina*, memorable for the fate of our illustrious countryman, Sir *Hugh Willoughby*, who, in *May* 1553, sailed from *Ratcliff*, on the first voyage for the discovery by sea of *Muscovia* by the north-east, a country at that time scarcely known to the rest of *Europe*. In *August* he was separated from his consorts in this high latitude, and driven by tempests into this part, where he was found, the spring following, by some *Russian* fishermen, with all his crew, 110 men to death. His more fortunate consort *Richard Chancellor*, captain and pilot major, pursued his voyage, and renewed the discovery of the *White Sea*, or bay of *St. Nicholas*. The circumstances attending his arrival exactly resemble those of the first discoverers of *America*. He was struck with astonishment at the barbarity of the *Russian* inhabitants. They, in return, stood amazed at the size of his ship; they fell down and would have kissed his feet: and when they left him, spread abroad the arrival of "a strange nation of singular gentleness and courtesie." He visited in sledges the court of *Basilovitz* II. then at *Moscow*, and layed the foundation of immense commerce with this country, for a series of years, even to the distant and unthought-of *Persia*.

It is singular, that so very little has been preserved concerning that very illustrious character, Sir *Hugh Willoughby*. It appears that he was son of Sir *Henry Willoughby*, knight and banneret, by his third wife *Elen*,

* *Hackluyt*, I. 416.† *Torfæi*, *Hist. Norweg.* I. 99. *Muller*, *Zool. Dan.* N° 315, 316, 318.‡ *Leems Lapm.* 326. *Pontopp.* II. 153.

daughter

H I S F A M I L Y .

CLF

daughter of *John Egerton of Wrine Hall*, in *Cheeshire*, Esq. Sir *Hugh* married *Jane*, daughter of Sir *Nicholas Strelley*, of *Strelley*, in the county of *Nottingham*, Knt.; by her he had a son named *Henry*, of whom I do not find any account. They were originally of *Riseley*, in *Derbyshire*; Sir *Hugh* is stiled by *Cambden*, of *Riseley*. *Thoroton* adds the same title to an ancestor of the same christian name, who died in 1491. They changed their residence to *Wollaton*, in *Nottinghamshire*, the princely and venerable seat of Lord *Middleton*, who acquired it by the marriage of his ancestor, Sir *Perceval Willoughby*, with *Brigitta*, daughter and sole heiress of Sir *Francis Willoughby*, founder of that noble pile. The portrait of the celebrated Sir *Hugh* is to be seen there; a whole length, in very large breeches, according to the fashion of the times, in a room hung with velvet, with a table covered with velvet, and a rich carpet. From his meagre appearance, the servant tells you, that it represents the attitude, &c. in which he was found starved. This trivial account is all that is left of so great a name.

From the river *Arzina* the land trends fast to the south-east. *Swojatoi Nos*, or the *Holy Promontory*, is the next of note: here commences a strait, which running to the south-west, opens in the *Bioele More*, or the *White Sea*; on the east side of the strait is the isle of *Kandinos*.

The *Bioele More*, or *White Sea*, may, with much propriety, be called a gulph; on the west side it is bounded by *Russian Lapland*, consisting of low hills; on the eastern by the flat province of *Mesen*. Its water is shallow, and its bottom muddy, occasioned by the violent floods during the meltings of the snows. These rush out of the entrance of the sea with a most terrible rippling, and almost deprive it of saltness. This was the *Cwen* sea of *Oeiber*, but had been forgotten by the *English* till it was again discovered by *Chancellor*.

The *Norwegians* traded and frequented this sea till the fourteenth century. They called the *White Sea*, *Gandevic*, and the land to the east *Biar-maland*, corrupted from *Permia*, the *Russian* name. If we may credit the histories formed from the songs of the antient *Scalds*, it appears that *Permia* was invaded, in the time of king *Gormo*, by *Therkil*, a chieftain sent

WHITE SEA

on the adventure; and adventures he met with worthy of the magical pen of the author of the *Arabian Nights* *. This preceded the time of *Oöber*. We may depend more on the learned *Icelandic Torfæus*, who relates, that in the time of king *Hacquin*, in the year 1224, two of his generals made an inroad into this country, and made a great slaughter among the *Permians* †. Whether to expiate that fault, or out of a zeal for Christianity, I cannot say, but the same prince built, for a number of *Permians* who had been expelled their country, a church in the isle of *Tromp-sound*, off *Finmark*. These he caused to be instructed in the *Christian* religion, and assigned them a place for their habitation ‡.

The *Dwina*, or *double* river, discharges itself into the bottom of the *White Sea*. It takes its name from its being formed by the *Suchana* and the *Lug*. It is navigable to a great distance, even to *Wologda*, in lat. 59. 15, a thousand versts, or above six hundred and sixty-six miles by water. The isles of *Podejemskoe* form the *Delta* of this great river §. The channel on each side is thirty miles long, and difficult of navigation; their depth from three to eight fathom. A narrow channel, passable by *Russian* *lodies*, or small vessels, runs through the middle of the *Delta*. *Archangel* stands in lat. 64. 35, on the banks of the eastern channel, at its extremity, but may be approached by either. *Archangel* arose from a castle built by *Basilovitz* II. to protect the increasing trade brought there on the discovery of the *White Sea* by the *English*; for ships of all nations resorted to this port, even as far as from *Venice*. Its exports, in 1655, amounted to three hundred and thirty thousand pounds ||. *Peter* the Great, intent on aggrandizing his creation, *Petersburgh*, prohibited all trade to *Archangel*, except from the neighboring provinces. Still its exports of tar were considerable: in 1730, to the amount of forty thousand lasts, of eleven barrels each ¶. As late as the year 1784, a hundred and twenty ships sailed out of this port. The ships built here are made entirely of deal, and are of a vast size and height. By means of the *Dwina* it re-

TRADE OF
ARCHANGEL.

* *Saxo Gramm.* lib. viii. p. 161. † *Hist. Norveg.* 164. ‡ The same.
§ Chart of the northern navigation. || *Anderson's Dict.* ii: 97. ¶ The same, 328.

K A N D I N O S.

CLIM

ceives various articles of commerce from the interior parts, and its exports are, to this day, prodigious. It sends, during winter, great quantities of the *Nawaga*, a small species of three-finned Cod *, to *Petersburgh*, frozen, as *Kola* does Herrings in the same state.

There is also found in this sea a new species of *Anarrhicas* or Wolf fish. It grows to the length of three feet. The teeth are numerous, and resemble canine teeth; the body is covered with numerous round spots of a pale brown colour, with very large ones of a dusky hue. It was discovered by Mr. *Laxman*, in the *Mé. Acad. Petrop.* 1781, p. 271. tab. vi. The *Russians* call it *Kusatscha*.

NEW WOLF
FISH.

The *White Sea* is every winter filled with ice from the Frozen ocean, which brings with it the *HARP SEAL*, and the *LEPORINE* frequents it during summer. Whoever surveys the maps of the provinces between this sea and the gulphs of *Bothnia* and *Finland*, will observe them to be more occupied by lakes than land, and be at once satisfied of the probability of the once-insulated state of *Scandinavia*. As soon as these streights were closed, the *White Sea* lost its depth, and is at present kept open only by the force of its great rivers.

On the eastern side of the entrance into the streight, is the isle of *Kandinos*, often spoken of by our early navigators in their way to the *Waygatz*, in their search for a north-east passage. Between it and the main land is a very narrow channel. After doubling the cape of *Kandinos*, the sea forms two great bays. A considerable part of the shore to the east consists of low sandy hills †. Into the most remote bay flows, in lat. 68. 30, by many mouths, the vast river *Peczora*, a place of great trade before the time of *Peter I*. Thousands of *Samoieds* and other savages resorted to the town, with feathers of White Grouse, and other birds; Sables, and the most valuable furs; skins of Elks and other Deer; the oil from the *WALRUS*; from the *BELUGA*; and different sort of fish ‡. Here was, in 1611, a great fishery of *BELUGA*: above fifty boats, with three men each, were employed to harpoon them ||. The

KANDINOS.

* *Nov. Com. Petrop.* xiv. 484. tab. xii. Its length does not exceed eleven inches.

† *Hackluyt*, i. 277.

‡ *Purchas*, i. 546.

|| The same, 549.

entrance into the *Peczora* is dangerous, by reason of a sandy shoal. The tide rises there only four feet.

SAMOIEDS.

The coasts east of *Archangel*, even as far as the river *Ob*, are inhabited by the *Samoieds*; a race as short as the *Laplanders*, more ugly, and infinitely more brutalized; their food being the carcases of horses, or any other animals. They use the Rein Deer to draw their sledges, but are not civilized enough to make it the substitute for the Cow. These are in fact the *Hottentots* of the north.

Their country was that of the *Beormas*, the ancient *Permia*, before-mentioned, still retained among the titles of the Emperors of *Russia*. The *Nortmans* and *Sweons* had great intercourse with them through the *Neva* and the lake *Ladoga*. Their capital was *Tcherdyn*, seated in about lat. 60. 25, on the river *Kolva*. It was the great northern emporium of very early times. An immense traffic was carried on by the merchants, even from the remote *India*. They came down the *Oxus* into the *Caspian* sea, thence up the *Volga*, and from that river into the *Kama*, which receives into it the *Kolva**, on which *Tcherdyn*, now an inconsiderable place, is seated. The *Biarms* purchased the merchandize from these foreigners, and conveyed it up the *Peczora* to the most distant people of the north: and after obtaining furs in exchange, returned and delivered them at *Tcherdyn* to the foreign merchants.

Ladoga, which stood on the lake of the same name, was another vast emporium, till it was deserted, after the rise of *Novogrod*, seated on the lake *Ilmen*, at the mouth of the *Wolchow*, which runs into the *Ladoga* lake. This had its amazing season of wealth and prosperity. Both extended their trade into the *Baltic* as far as *Wisby*: both were in their day the staple of the goods of the East. In the ancient burial-places at *Ladoga* were found proofs, in the coins of *Syria* and *Arabia*; there were also found coins of *Greece* and *Rome* †: even at *Tcherdyn*, coins of the *Arabian caliphs* have been discovered.

The communication with the western world was not less ready, and might have been effected by the same means, that of rivers. From *La-*

* *Strablemberg*, 110. *Nichols Russ. Nations*, i. 176.

† *Strablemberg*, 110.

MEANS OF EXTENSIVE INTERCOURSE.

CLV

dogæ was a passage down the great river *Volchow* to *Novogorod* and the lake *Ilmen*. At the bottom is the river *Pola*, which rises in a small lake, and within a small distance of others almost contiguous to the *Volga*. By means of *voloks*, or what the *Americans* call *carrying-places*, a communication with that river is formed. The *Volga* might be the channel from both the eastern and western world. That river is navigable far beyond *Taver*, and to a small distance from the *Boristhenes*, or *Dnepr*; down which was a quick passage into the *Euxine* or *Black* sea, and from thence to *Syria*, *Greece*, and *Rome* itself. The *carrying-places*, either from river to river, or to avoid the cataracts of the *Dnepr*, might be easily surmounted, for we are told that in the *Palus Mæotis*, part of this very sea, light boats, covered with leather, were used; not only on account of the shallowness of the *Palus*, but for the passage up the *Volga*, the *Boristhenes*, and other great rivers, which, like those of *America*, would be impervious by any other sort of vessels. Thus there was a communication practicable with the barbarous nations of the north, from the colonies which the *Egyptians*, the *Greeks*, and the *Romans* had, in their different periods, on the *Euxine* sea; and for the protection of which the *Romans* kept on it a fleet of forty sail. It was through these channels the ancients received the little knowledge they had of the *arctic* regions.

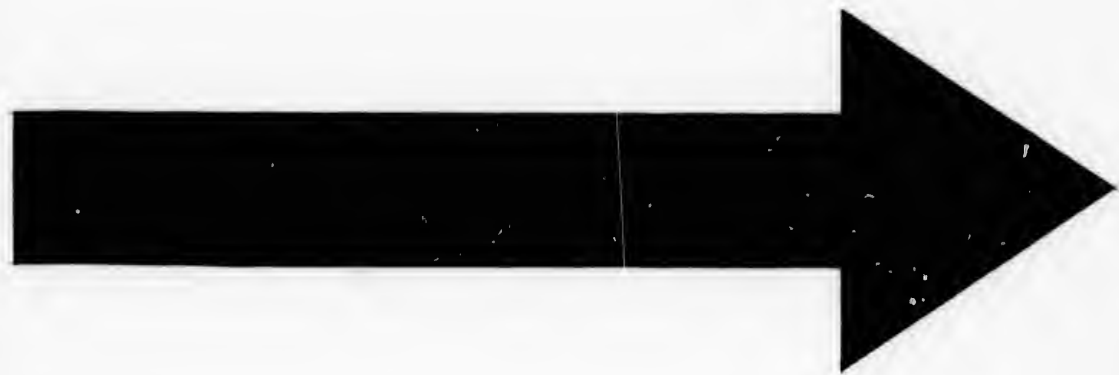
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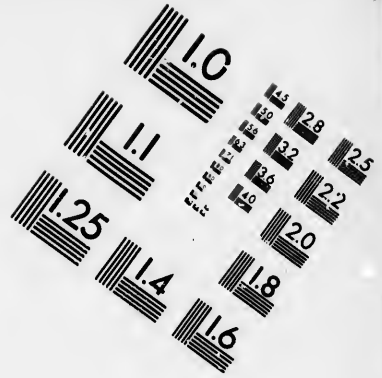
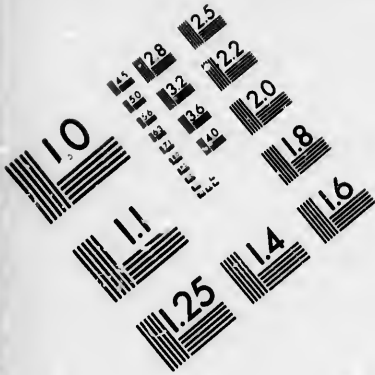
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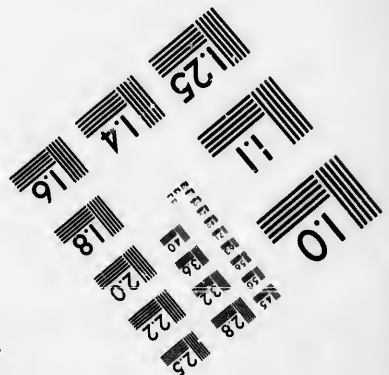
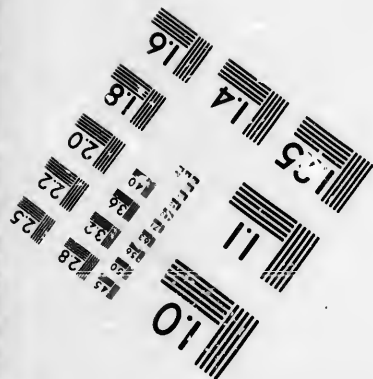
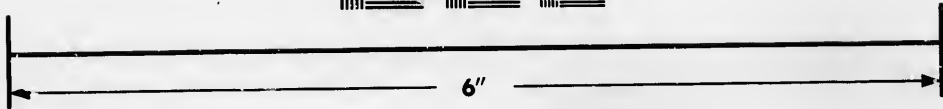
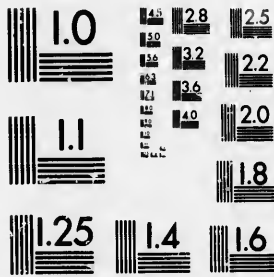
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A S I A,

Which has most natural and strongly-marked limits, commences to the east of the *Peczora*. Here appear the *Werchoturian* mountains, or famous *Urallian* chain, which begins distinctly (for it may be traced interruptedly farther south) near the town of *Kungur*, in the government of *Kasan*, in lat. 57. 20, runs north, and ends opposite to the *Waygatz* streight, and rises again in the isle of *Nova Zemlja*. The *Russians* also call this range *Semennoi Poias*, or the *Girdle of the world*, from a supposition that it encircled the universe. These were the *Riphaei montes*: *Pars mundi damnata a natura rerum, et densa mersa Caligine* *, of which only the southern part was known to the ancients, and that so little as to give rise to numberless fables. Beyond these were placed the happy *Hyperborei*, a fiction most beautifully related by *Pomponius Mela* †. Moderns have not been behind-hand in exaggerating

URALLIAN
CHAIN.

* *Plinii Hist. Nat. lib. iv. c. 12.*

† In *Asiatico* littore primi *Hyperborei*, super aquilonem *Riphaeosque* montes, sub ipso siderum cardine jacent; ubi sol non quotidie, ut nobis, sed primum verno *Æquinoctio* exortus, autumnali demum occidit; et ideo sex mensibus dies, & totidem aliis nox usque

ing several circumstances relative to these noted hills. *Ysbrand Ides*, who crossed them in his embassy to *China*, asserts that they are five thousand toises or fathoms high: others, that they are covered with eternal snow. The last may be true in their more northern parts; but in the usual passages over them, they are free from it three or four months.

ITS HEIGHT.

The heights of part of this chain have been taken by *M. l'Abbè d'Auteroche*; who, with many assurances of his accuracy, says, that the height of the mountain *Kyria*, near *Solikamskaia*, in lat. 60, does not exceed four hundred and seventy-one toises from the level of the sea, or two hundred and eighty-six from the ground on which it stands*. But, according to *M. Gmelin*, the mountain *Pauda* is much higher, being seven hundred and fifty-two toises above the sea †. From *Petersburg* to this chain is a vast plain, mixed with certain elevations or platforms, like islands in the midst of an ocean. The eastern side descends gradually to a great distance into the wooded and morassy *Siberia*, which forms an immense inclined plain to the *Icy Sea*. This is evident from all the great rivers taking their rise on that side, some at the amazing distance of lat. 46; and, after a course of above twenty-seven degrees, falling into the Frozen ocean in lat. 73. 30. The *Yaik* alone, which rises near the southern part of the eastern side, takes a southern direction, and drops into the *Caspian* sea. The *Dwina*, the *Peczora*, and a few other rivers in *European Russia*, shew the inclined plane of that part: all of them run to the northern sea; but their course is comparatively short. Another in-

continua est. Terra angusta, aprica, per se fertilis. Cultores justissimi, et diutius quam ulli mortalium & beatius vivunt. Quippe festo semper otio læti, non bella novère, non jurgia; sacris operati, maximè *Apollinis*; quorum primitias *Delon* misisse, initio per virgines suas, deinde per populos subinde tradentes ulterioribus; moremque eum diu, & donec vitio gentium temeratus est, servasse referuntur. Habitant lucos sylvasque; et ubi eos vivendi satietas magis quam tædium cepit, hilares, redimiti fertis, semet ipsi in pelagus ex certa rupe præcipiti dant. Id eis funus eximium est. *Lib.* iii. c. 5. This was the same with the *Ættestupa* of the votaries of *Odin*, See p. cix. only the *Hyperboreans* preferred a watery death to that of dashing themselves to pieces down an inland precipice.

* *Voyage de la Sibirie*, ii. 605.

† Preface to *Flor. Sibir.* i. 54.

clination directs the *Dnieper* and the *Don* into the *Euxine*, and the vast *Volga* into the *Caspian Sea*.

The *Altaic Chain*, its southern boundary, which begins at the vast mountain *Bogdo*, passes above the head of the *Irtisch*, and then takes a course rugged, precipitous, clothed with snow, and rich in minerals, between the *Irtisch* and *Ob*; then proceeds by the lake *Telezkoi*; after which it retires, in order to comprehend the great rivers which form the *Jenesei*, and are locked up in these high mountains; finally, under the name of the *Saianes*, is uninterruptedly continued to the lake of *Baikal**. A branch insinuates itself between the sources of the rivers *Onon* and *Ingoda*, and those of *Icbikoi*, accompanied with very high mountains, running without interruption to the north-east, and dividing the river of *Amur*, which discharges itself into the east, in the *Chinese* dominions, from the river *Lena* and lake *Baikal*. Another branch stretches along the *Olesma*, crosses the *Lena* below *Jakoutsk*, and is continued between the two rivers *Tungusca* to the *Jenesei*, where it is lost in wooded and morassy plains. The principal chain, rugged with sharp-pointed rocks, approaches and keeps near the shores of the sea of *Ochotz*, and passing by the sources of the rivers *Outh*, *Aldan*, and *Maia*, is distributed in small branches, which range between the eastern rivers which fall into the *Icy Sea*; besides two principal branches, one of which, turning south, runs through all *Kamtshatka*, and is broken, from the cape *Lopatka*, into the numerous *Kurile* isles; and to the east forms another marine chain, in the islands which range from *Kamtshatka* to *America*; most of them, as well as *Kamtshatka* itself, distinguished by fierce volcanoes, or the traces of volcanic fires. The last chain forms chiefly the great cape *Tschutschi*, with its promontories and rocky broken shores.—I have so far pillaged the labors of my friend †, to trace the boundaries of the vast region which has so amply furnished my *Zoological* part.—To that, and the Table of *Quadrupeds*, I refer the several peculiarities of their situations.

* *Observations sur la Formation des Montagnes*, par P. S. PALLAS, p. 18.

† DOCTOR PALLAS.

ALTAIC CHAIN.

HOW DISTRIBUTED.

At the northern end of the great *Urallian* chain, is the *Waygatz* streight, which cuts them from *Nowyia Zemlja*, *Nova Zembla*, or the *New Land*. The passage is narrow, obstructed by islands, and very frequently by ice. The flux and reflux is here uncertain, by reason of the winds; but the tide has been observed to rise only four feet*: the depth from ten to fourteen fathoms. It was discovered by *Stephen Borroughs*, in 1556; and the navigation was often attempted by the *Dutch*, in hopes of a passage that way to *China*. Continual obstructions from the floating ice baffled their designs, and obliged them to return.

NOVA ZEMLJA. *Nova Zemlja* consists of five islands; but the channels between them are always filled with ice †. It is quite uninhabited, but is occasionally frequented by the people of *Mesen*, who go there to kill Seals, Walruses, *Arctic* Foxes, and White Bears, the sole animals of the place, excepting a few Rein Deer. Attempts have been made to find a way to the *East Indies* to the north of it; but with equal bad success as through the *Waygatz*. *Barentz* just doubled the eastern end in 1596; suffered shipwreck there with his crew; and passed there a most miserable winter, continually besieged by the Polar Bears: several of the crew died of the scurvy or excess of cold; the survivors made a vessel of the remains of their ship, and arrived safe in *Europe* the following year; but their great pilot sunk under the fatigue ‡.

The southern coasts of these islands are in a manner unknown. Between them and the continent is the *Kara* sea, which forms a deep bay to the south; in which the tide has been observed to flow two feet nine inches. Fishing people annually come here from the *Peczora* through the *Waygatz*, for the sake of a smuggling trade in furs with the *Samoieds* of the government of *Tobolski* §. In the reign of the Empress *Anne*, attempts were made to double the great cape *Jalmal*, between the gulph of *Kara* and that of the *Ob*; one of which (in 1738) only succeeded, and that after encountering the greatest difficulties §. Had the discovery

* *Hackluyt*, i. 282.
related by *De Veer*.

† *Doctor PALLAS*.
‡ *PALLAS*.

§ See this curious voyage, as
§ *Coxe's Russian Discoveries*, 306.

of *Siberia* depended on its approach by sea, it might have still remained unknown.

In the gulph of *Kara* are taken the *Salmo Kundsha*, PALLAS *Iin.* III. No. 46; the *Nawaga*, a sort of Whiting; *Salmo Autumnalis* or *Omul*; *Pleuronectes Glacialis*; and the *Cottus Scorpius*, *Rumfoa*, or Father-lasher, *Br. Zool.* III. No. 99.

The mouth of the *Ob* lies in a deep bay, which opens into the *Icy Sea*, THE RIVER OB. in lat. 73. 30. This is the first and greatest of the *Siberian* rivers: it rises from the *Alpine*, or, as the *Russians* call it, the *Telezkoi*, a large lake situated in about lat. 52, has a gentle course through eight hundred leagues of country, and is navigable almost to its source*, and abounds with fish. It is fed with multitudes of rivers: among others, the great river *Irtisch* falls into it in lat. 51. At the junction the *Ob* divides into two channels, and runs separated for a great space; unites again, and near *Beresow* its stream is broken by numbers of small isles. Near *Obdorofkoe Ostrog* it takes an eastern course, and discharges itself into the great bay of the same name.

The *Irtisch* has also a most extensive course. It rises in lat. 47, runs IRTISCH. through the great lake *Tajsan*, takes a north-westerly direction, and, among multitudes of other rivers, receives, in lat. 58. 12, the great *Tobol*; and on the forks of these two rivers, on the northern side of the *Irtisch*, stands *Tobol*, the present capital of *Siberia*. The banks of the *Irtisch* and *Ob*, and other *Siberian* rivers, are, in many places, covered with immense forests, growing on a soft soil; which being torn up by the restless force of the vast fragments of ice brought down by the torrents occasioned by the melting of the snows, are conveyed into the *Icy* and other seas, and form the drift-wood I have before spoken of. The channel of the *Ob*, from its source to the *Ket*, is stony: from that river to the mouth it runs through a fat land. After it has been frozen some time, the water grows foul and fetid. This is owing to the vast ANNUAL STENCH OF THE OB.

* *Gmelin Introd. Fl. Sib.* vii. xxx. By *Leuca* he seems to mean a *Verß*, of which 104½ make a degree. See cxxiii. and Mr. *Coxe's Russian Discoveries*, *Introd.* xiii.

morasses it in some places goes through, to the slowness of the current, and to the *earth-salt* (*erdsaltz*) with which some of the rivers which run into it are impregnated. The fish therefore, in certain seasons, shun the waters of the *Ob*, and resort in vast shoals to the mouths of those rivers which rush into it from stony countries, and in such places are taken in great abundance. This stench continues till the river is purified in the spring by the melting of the snow. The *Taz*, another river which empties itself into the east of the gulph of *Ob*, is liable to the same impurity.

JENESEI RIVER. The *Jenesei* next succeeds. Mr. *Gmelin*, as a naturalist, would consider this as the boundary between *Europe* and *Asia*. From its eastern banks every thing puts on a new appearance: a certain new and unusual vigour reigns in every thing. The mountains, which to the westward, as far as the *Urallian* chain, appeared only scattered, now take full possession, and are interspersed with most beautiful vallies. New animals, such as the ARGALI and MUSK; Garlic Rat, *Hist. Quad.* II. N° 315; *Mus Liriophagus*, PALLAS MS. *Cat.*; the Hare-tailed Rat, *Hist. Quad.* II. N° 320. Perhaps the *Oeconomic*, N° 313. and the Pygmy Shrew, N° 344. begin to shew themselves, as does the IBEX, after the long interval of the vast tract between this country and the *Carpathian* mountains.

Many new birds also appear: such as the *Strix Barbata*, PALLAS MS. Latham, Suppl. N° 43; White-browed Blackbird, *Turdus Leucophrys*, PALLAS Itin. III. 694. Latham, III. 31; Red-faced Flycatcher, *Muscicapa fronte rubra*, PALLAS MS. Latham, III. 351; *Siberian* Whinchat, *Motacilla Montanella*, Itin. III. 695. and MS.; *M. Calliope*, Itin. III. 697. and MS.; Ruby-throat, *Arct. Zool.* which sings most exquisitely in the middle of the night; *M. Cyanura*, Itin. II. 709. Latham, IV. 459; White-winged Lark, MS. *Alauda Calandra*, Itin. II. 708; *Black Pigeon*, MS. lesser than the Turtle Dove; Long-tailed Grosbeak, MS. *Loxia Sibirica*, Itin. II. 711; Pine Bunting, *Emberiza Pitbyorus*, Itin. II. 710. Latham, III. 203; *Cia. Emb. Cia.* MS. Latham, III. 191; and, finally, the Falcated Duck, *Arct. Zool.* Itin. III. 701.

Many

Many *European* plants disappear, and others, peculiar to *Asia*, gradually mark the alteration*. Such are the *Robinia Pygmaea*, Flora Ross. 71. tab. xlv. *Rob. frutescens*—69. xliii. *Spiraea Trilobata*—33. xvi. *Sp. Salicifolia*—36. xxi. *Rhododendron Dauuricum*—47. xxxii. *Populus Balsamifera*—67. xlvii. and numbers of others. I am inclined to think, that the commencement of *Asiatic* plants is about the *Ob*, for I observe that the *Robinia caragana*, Fl. Sib. iv. 17. and a few more, begin to shew themselves on the eastern side of that vast river; but, in fact, they appear in force only beyond the *Jenesei*.

This river is scarcely inferior to the *Ob*. It rises from the two rivers *Ulu-kem* and *Bei-kem*, in north lat. 51. 30, long. 111, and runs due north into the *Icy Sea*, forming a mouth filled with multitudes of islands: its channel for the most part stony or gravelly: its course swift: its waters most pure, limpid, and wholesome: its fishes and birds most delicate: its banks, especially the eastern, mountainous and rocky; but from the foot of *Saiacnes* to the river *Dubtches*, rich, black, and cultivated. It is fed by numbers of rivers. The *Tungusca*, and the lower *Tungusca*, are the most noted.

The first rushes, near *Irkutz*, out of the great lake *Baikal*, under the name of the *Angara*, between two vast rocks, natural, but with all the appearance of being cut through by art, and tumbling over huge stones in a bed a mile wide, and for a space nearly the same †. The collision of the waters against the stones is attended with a most dreadful noise, which, with the magnificence of the scenery, forms the most awful approach imaginable to this sacred water. A deity presided over the lake; and no one dared call it by that degrading name, for fear of incurring the penalty of the disrespect. Instead of *lake*, the borderers style it the *Holy Sea*; and its vast mountains, the *Holy Mountains*. *St. Nicholas* presides over them, and has here his chapel. The mountains are clothed with forests: of large trees on the lower parts; with fewer and lesser as they gain the heights. These are the retreat of the Wild Boar, and variety of game.

LAKE BAIKAL:

* Pref. Fl. Sibir. xlv.

† Bell's Travels, 8vo. ed. i. 279.

Its

SEALS.

Its depth of water is very great: its clearness perfect: free from islands, except the *Olcbon* and *Saetchia*: navigable in all parts: and in storms, the waves like those of the sea. Its length is a hundred and twenty-five common leagues: its breadth from four to seven*. The Common Seal abounds in this lake. It is a small variety, but so fat as to appear almost shapeless. These animals must have been here aboriginally; for, besides the vast distance from the sea, their passage must have been entirely obstructed by the cataracts which intervene.

Another creation of plants and animals appears about this lake, especially the *Trans-Baikal*, or farther side, as there did on the borders of the *Jenesei*. The *Two-bunched Camel*, Hist. Quadr. I. p. 120. is first found there; the *Chinese Antelope*, Hist. Quadr. I. N° 36. inhabits the mountains about the *Selinga*; the *Once*—I. N° 157; the *Baikal Hare*—II. N° 245; *Stone Rabbit* or *Alpine Hare*—N° 248; the *Ogotona Hare*—N° 249; the *Caraco Rat*—N° 299; *Rock R.*—N° 312; *Baraba R.*—N° 330; the *Blind R.*—N° 331; the *Daurian R.*—N° 332; the *Siberian Yerboa* (the middle species)—292, and the *Black Squirrel*—p. 407, are not to be met with till you arrive at the *Trans-Baikal* region.

Neither is there a less alteration in the feathered tribe: numbers of southern birds terminate in those parts. The *Vultur Barbatus*, Bearded V. of Edw. breeds in lofty mountains. The *Corvus Dauricus*, PALLAS Itin. I. 694. Latham, I. 376; the *Corvus Cyaneus*—III. 694. Latham, I. 394; the *Sturnus Dauricus*—III. 695. Latham; the *Turdus fuscus*, and *Ruficollis*—III. 694. Latham, III. 31; *Turdus pallidus*—MS. Cat. Latham, III. 32; that rival in melody to the Nightingale, the *Muscicapa Aedon*†—III. 695. Latham, III. 32; *Emberiza fucata*—III. 698; *Emb. pusilla*—III. 697; *Emb. Chrysopbris*—III. 698; *Emb. Rustica*, the *Siberian Reed Sparrow*—III. 698; *Emb. Spodo-cephala*—III. 698; *Fringilla Rosea*—III. 629; *White-tailed Fly-catcher*, MS. Cat; *Dun Fly-catcher*, MS. Cat.—are all inhabitants of this tract.

* *Voyage en Siberie*, i. 213.

† A Thrush, and the smallest of the genus.

Multitudes

Multitudes of water fowls frequent this lake, or its neighborhood. Of the scarcer sort is the *Tringa Saliva*, that haunts the salt lakes of *Trans-Baikal*: as does the *Tringa Falcinella*. The *Anas Rutila*, Nov. Com. Petrop. xiv. 579; and the *Anas Glocitans*, my bimaculated Duck, *Br-Zool.* II. N° 287, are the two rarer species of the web-footed class.

When the ice breaks in lake *Baikal*, the *Salmo Oxyrhynchus*, and the *Lenki*, lay their spawn in the sandy shores, but in summer retire into the deep water.

The *Callionymus Baikalensis* is a fish peculiar to the lake; is about nine inches long, of a most soft and tender texture, and flowing with oil: it is never caught in nets, or any way alive. It inhabits the vast subaqueous caverns of the lake, at vast depths, particularly near the northern shores, in places three or four hundred fathoms deep. They are never seen but after they have been disturbed by the violent summer storms, when they are seen floating on the surface, or flung in vast heaps on the shore, particularly on the *Pofolskijb*, and the mouth of the *Selinga*. The people extract oil from them, which they sell to the *Chinese*.

The *Salmo Autumnalis* or *Omul*, is taken in the lake in *June* and *July*, in its passage still farther south.

Vast quantities of the skins of the *Oniscus Trasburus* are seen floating on the surface of lake *Baikal*; a species of insect which abounds on the rocky shores, and is the food of the *Salmo Lenok* and *Sig* †.

A new vegetable world also begins to shew itself on passing this lake. The species continue probably southward till they are cut off by the sterile sands of the great desert of *Gobi*. Among them I enumerate the *Prunus Sibirica*, Flora Ross. 15. tab. viii; *Pyrus Baccata*—23. x; *Spiræa Thaliætroides*—34. xviii; *Sp. Alpina*—35. xx; *Sp. Palmata*—40. xxvii; *Betula Daurica*—60. xxxix; *Bet. Fruticosa*—63. xl; *Robinia Altagana*—68. xlii; *Rob. Ferox*—70. xlv; *Ulmus Pumila*—76. xlviii; and *Rhododendron Dauricum*, Sp. Pl. I. 562; Amm. Ruth. 181.

* A Thrush, and the smallest of the genus.
App. N° 54.

† PALLAS Itin. iii. 293.

This region is wholly destitute of Marble, and other calcareous stones; whereas they abound in such parts of *Russia* and *Siberia*, where the ground is lower. No petrifications of shells, or crustaceous animals. And the metallic veins are here found near the surface of the earth, never sunk deep into its bowels*.

All this region, and even the desert of *Gobi*, are most surprizingly elevated above the surface of the rest of the earth. It is proved by the great cold that reigns in these comparatively low latitudes; by the *Alpine* plants of *Europe* growing even in the low vallies of these regions; and by vast rivers which rise from every side †, flow into the Icy Sea, that of *Ocbotz*, of *China*, and of *India*, and water, by far, the greatest part of the vast continent of *Asia*.

I am got eight degrees beyond my plan: but I could not resist the description of this prince of lakes and its environs.

TOWN OF MAN-
GAZEA.

The *Angara* runs nearly due north for a great way; then assumes the name of *Tungusca*, turns westward, and joins the *Jenesei* in lat. 58. The lower *Tungusca* rises far to the south-west, approaches very near to the *Lena*, and falls into the *Jenesei* in lat. 65. 40. Above its junction stands the town of *Mangazea*, celebrated for its great fair of furs of every kind, brought there by the surrounding pagans, who pass the long winter in the chace. Many *Russians* have also migrated, and settled here for the same purpose, and draw great profit from the spoils of the animals. This neighborhood is, during summer, the great resort of multitudes of species of water-fowl. About the feast of *St. Peter*, here *Flora* begins to disclose her beauties: the country is covered with the most beautiful *Siberian* flowers; many of which enliven the gardens of our more southern climate. The fowls now exult, and unite in emitting their various notes; none particularly melodious in themselves, but together form a concert far from disagreeable ‡; perhaps from the hearer being conscious that they are the notes of happiness, at the enjoyment of the reviving rays of the sun.

* *Fl. Sib.* Vol. I. Praef. P. lix.
Montagnes, 21.

† PALLAS *Obs.* sur la formation des
‡ *Voyage en Siberie*, ii. 56.

In antient times, *Mangaxea*, or, as it was then called, *Mongozey*, and *Mongolmy*, was seated near the mouth of the *Taz**; but was removed by the inhabitants into a milder climate, *i. e.* just to the south side of the *Arctic* circle. Before that period it was a place of great trade, and was eagerly visited from *Archangel*, through a complication of difficulties, by sea, by rivers, by land, by rein-drawn sledges, and by drawing the vessels from river to river over frequent carrying-places †. These tracts were certainly *Le pais presque inaccessible à cause de boües, & de glaces*, and, *Le pais de tenebres*, spoken of by *Marco Polo* ‡, as the regions from whence the *Chams* of *Tartary* procured the richest furs.

From the mouth of the *Jensei*, the immense promontory *Taimura* stretches farthest north of all this region into the *Icy Sea*, nearly into lat. 78. To the east of it, the *Chatunga*, *Anabara*, and *Olenek*, rivers little known, fall into the sea, and have before the mouth of each a considerable bay. Remarks have been made on the tide which flows into the *Katanga*, that at the full and new moon it rises two feet; at other times is much less ||. We may conclude, that if it flows no higher in this contracted place, and that of the gulph of *Kara*, its increase must be very small on the open shores of the *Icy Sea*. The coasts are in general shallow, which has proved a safety to the few small vessels which have navigated this sea; for the shoalness of the water preserves them from the mountainous ice, which grounds before it can reach them.

BEYOND the *Olenek*, the vast *Lena*, which rises near lake *Baikal*, after a gentle and free course over a sandy or gravelly bottom, discharges itself by five great mouths, the eastern and western most remote from each other. The middle, or most northerly, is in lat. 73. 20. Many of the isles formed by the mouth of this river are wholly covered by the *Hippuris Vulgaris*, common Horsetail. This brings multitudes of Wild-geese, who are particularly fond of the plant: and amazing numbers are taken annually in snares §. To form an idea of the size of this river, I must remark, that at *Iakutsk*, in lat. 61. twelve degrees from its discharge, the

CAPE TAIMURA.

RIVER LENA.

* *Voyage en Siberie*, ii. 57.
 Collection, 160, 161.

† Same, and *Purchas*, iii. 539.
 || *Voy. en Siberie*, ii. 30.

‡ In *Bergeron's*
 § *Fl. Sib.* iii. 8.

ARCTIC FLATS
WOODLESS.

breadth is near three leagues *. Beyond this river the land contracts itself, and is bounded to the south by the gulph of *Ochotz*. The rivers *Jana*, *Indigirka*, and *Kolyma* or *Kowyma*, have a comparatively short course. The last is the most easterly of the great rivers which fall into the *Icy Sea*. Beyond it is a woodless tract, which cuts off the Beaver, the Squirrels, and many other animals to whom trees are essential in their œconomy. No forests can exist farther north than lat. 68; and at 70, brush-wood will scarcely grow. All within lat. 68, form the *Arctic Flats*, the summer haunts of water-fowl; a bare heath or moor, mixed with rocky mountains: and beyond the river *Anadyr*, which in lat. 65, falls into the *Kamtshatkan Sea*, the remainder of the tract between it and the *Icy Sea* has not a single tree †.

JOURATEKAINÉ
COAST.

I shall now take a review of the vast extent of shore which borders on the *Icy Sea*. The *Jouratzkaine* coast, which lies between the *Ob* and the *Jenesi*, is high but not mountainous, and almost entirely composed of gravel or sand; but in many places there are low tracts. Not only on these, but on more elevated situations, are found great fragments of wood, and often entire trees, all of the same species; Fir, Larch, and Pine, green and fresh; in other places, elevated beyond the reach of the sea, are also great quantities of floated wood, antient, dried, and rotting ‡. This is not the only proof of the loss of water in the *Icy* as well as other seas; for in these places is seen a species of clay, called by the *Russians*, *Il*, which is exactly like the kinds usually deposited by the water: and of this there is, in these parts, a bed about eight inches thick, which universally forms the upper stratum §. Still farther to the east, it grows mountainous, covered with stones, and full of coal. On the summit of the chain, to the east of *Simovie Retchinoïe*, is an amazing bed of small Mussels, of a species not observed in the subjacent sea. I think them brought there by sea-fowl, to eat at leisure; for it is not wonderful that numbers of objects of natural history should escape the eye in such

* Possibly *Versts*. See *Voy. en Sibirie*, i. 407.
Sibirie, ii. 27, 28.

† Doctor PALLAS.

‡ *Voy. en*

a sea

§ Same, ii. 362.

a sea as this. Many parts again are low; but in most places the sea near the shore is rugged with pointed rocks. The coast about the bay of cape *Tschuischi*, the most eastern extremity of *Asia*, is in some places rocky, in others sloping and verdant; but within land rising into a double ridge of high mountains.

About the end of *August*, there is not a day in which this sea might not be frozen; but in general it never escapes later than the first of *October*. The thaw commences about the twelfth of *June*, at the same time with that of the mouth of the *Jeneisei**. From the great headlands, there is at all times a fixed, rugged, and mountainous ice, which projects far into the sea. No sea is of so uncertain and dangerous navigation: it is, in one part or other, always abundant in floating ice. During summer, the wind never blows hard twenty-four hours from the north, but every part of the shore is filled for a vast distance with ice; even the straits of *Bering* are obstructed with it†. On the reverse, a strong south wind drives it towards the pole, and leaves the coast free from all except the fixed ice. During winter, the sea is covered, to the distance of at least six degrees from land. *Markoff*, a hardy *Cossac*, on *March* 15th, O. S. in the year 1715, attempted, with nine other persons, a journey from the mouth of the *Jana*, in 71 north lat. to the north, over the ice, on sledges drawn by dogs. He went on successfully some days, till he had reached lat. 77. or 78: he was then impeded by most mountainous ice. He climbed to the summit of one of the *Icebergs*; and seeing nothing but ice as far as his eye could reach, returned on *April* 3d, with the utmost difficulty: several of his dogs died, and served as food for the rest ‡.

I shall just mention some of the attempts made to pass through the *Icy Sea* to that of *Kamtschatka*. The first was in 1636, from the settlement of *Yakutzk*. The rivers from the *Jana* to the *Kolyma* were in consequence discovered. In 1646, a company of *Russian* adventurers, called *Promyschleni*, or Sable-hunters, made a voyage from the *Kolyma* to the

FREEZING OF
THE ICY SEA.

* *Voy. en Siberie*, ii. 29.
† away on *East Spitzbergen*, 55.

† *PALLAS*: Also Narrative of four *Russian* sailors cast
‡ *Forster's Obs.* 81.

country

VOYAGE OF
DESCHNEF.

country of the *Tschutshi*, and traded with those people for the teeth of the *Walrus*. A second, but unsuccessful voyage was made in the next year; but in 1648 one *Deschnef*, on the 20th of *June*, began his memorable voyage, was fortunate in a season free from ice, doubled the *Tschutshi-nofs*, arrived near the river *Olutora*, south of the river *Anadyr*, where he suffered shipwreck, but escaped to enjoy the honor of his discovery. Doubts were for a long time entertained, whether *Deschnef* had passed this celebrated promontory, but, fortunately for his memory, the observations of *Cook* entirely confirm those made in the last century by the *Russian*. The appearance of the coast exactly tallies in the accounts of each of these voyagers. Each of them have noted the towers made of the bones of Whales*, which, in this age at least, is peculiar to these people.

Many other attempts were made, but the most which the adventurers have done was to get from the mouth of one great river to another in the course of a summer. I find very few names, except of rivers, in a tract so vast as it is, on account of its being so little frequented. To the east of the promontory *Taimura*, that of *St. Transfigurationis* bounds the east side of the bay of *Chatanga*, in lat. 74. 40, long. from *Ferro* 125. *Swaitoi-nofs*, or the *Holy Cape*, in lat 73. 15, is a far-projecting headland, and, with the isles of the *Lena*, and another intervening headland, forms two vast bays. Out of the most eastern, into which the river *Yana* discharges itself, one *Schalourof*, a broken *Russian* merchant, took his departure for an eastern discovery. He began his voyage, in *July* 1760, from the *Lena*, but was so obstructed with ice that he was forced into the *Yana*, where he was detained the whole winter, by the same cause, till *July* 29th, 1761. He doubled the *Swaitoi-nofs* *September* the 6th; according to some, saw to the north a mountainous land, possibly an island. He was eight days in getting through the passage between the continent and the isle of *St. Diomedé*, which lies a little to the south-east of the *Nofs*. He passed with a favorable wind the mouths of the *Indigirka* and *Alazeia*, and getting entangled among the ice between the *Medviedkie Ostrova*, or

* *Coxe's Comparative View*, p. 12.

Bear Islands, was obliged to lay up his vessel in one of the mouths of the *Kolyma* during winter, where he subsisted on Rein-deer, which frequented those parts in great herds during the severe season; and on various species of Salmon and Trout, which were pushing their way up the river before it was frozen. After this he made two other attempts. In the year 1763 he passed the *Peszcanoi-nofs*, and got into a deep bay, called *Tschaoûn Skaja Goubu*, with the isle of *Sabedei* at its mouth; the great *Schalatskoi-nofs* to the east; and at its bottom the little river *Tschaoûn*, which discharges itself here out of the land of the *Tschutschi*, some of whom he saw on the shore, but they fled on his appearance. He found no means of subsisting in this bay, therefore was obliged to return to the *Lena*, and was greatly assisted in his passage by the strength of the current, which uniformly set from the east. In 1764 he made his last attempt, and was, as is conjectured, slain by the *Tschutschi*; but whether he doubled the famous cape of that name, is left uncertain. A MS. map, which Doctor PALLAS favored me with, places the mountainous isle before mentioned in lat. 75, opposite to the cape *Schalatskoi* *. Thus closes all the accounts I can collect of the voyages along this distant coast. Part is taken from Mr. COXE's *Russian Discoveries* †, and part from a manuscript for which I am indebted to the learned Professor before mentioned.

It will be proper to mention here, that the BEAR ISLANDS were further explored in 1763, by the two land surveyors, *Andrejef Leontief*, and *Lyssof*. They began their journey on March 4th, from *Nischne Kowimskoi*, in sledges drawn by dogs: on April 22d they reached the shore of the Icy Sea, and opposite to the mouth of the river *Krestowa*, went on the ice in a straight direction to the first island; on landing they found it to consist of small yellowish gravel, overspread with rocks of granite of immense

BEAR ISLANDS.

* This was supposed to have been part of the continent of *America*; but in 1768, M. *Tchitscherin*, governor of *Siberia*, put the matter out of doubt; for he sent there three young officers in the winter, on the ice. They found some small desert isles, without the least appearance of land on the north; but on one they met with a sort of defence, formed of floating wood, on the side of a precipice, but by whom formed, or against what enemy, is hard to guess. PALLAS MS.

† P. 323 to 329.

bigness,

bigness, but productive of nothing but moss and short grass like the *Tundra*, or the great northern tract on the continent. They found there the remainder of a yurt or tent, made of the floating timber which abounds in this part of the sea. It did not seem of *Russian* construction, therefore must have been built by some of the natives of the continent, who came here for the sake of the chase of sea animals. In one part of the isle is a lofty hill of a most rugged form; having to the east a dreadful precipice. This island seemed fifty versts long, and forty broad.

They afterwards visited four other isles; near to the third was a rock separated about eleven fathoms from the shore, connected at low water to the island. It consisted of brittle granite, and was about ten yards high. About six yards from the bottom was a declivity, on which were placed ten fir trees with their roots upwards; over the roots were placed planks covered with gravel; along the sides were boards six spans high; and over the whole had been a roof, now fallen down, formed of small pieces of floating timber, fastened with leathern straps and covered with gravel: it had one entrance from land, another from sea; and was about five fathoms and a half long, and four broad, and of most coarse workmanship. On the same isle were traces of a hut, and two cellars.—No animals were seen on them but *polar* Bears and *arctic* Foxes.

By the accounts of these adventurers, the farthest isle must extend far to the east, for they assert that it lay opposite to the bay of *Tschaoán*. On this island the provisions for their dogs began to fail. They were obliged to set out on their return on the 12th of *April*. Their whole journey, and their return to the continent, was comprehended in five or six days*.

EXCESSIVE COLD. The wind which passes over the ice of this polar sea, has rendered *Siberia* the coldest of inhabited countries: its effects may perhaps extend much farther. At *Chamanning*, in *Thibet*, in lat. 30. 44. (according to Major *Rennel's* classical map) Mr. *Bogle* found, during winter, the thermometer in his room at 29° below the freezing point. In the middle of *April*

* Neue nordische Beytrage, I. 231.

the standing waters were all frozen, and heavy snows perpetually fell*. I have heard of ice even at *Patna*, in lat. 25. 35; and of the *Seapoy*s who had slept on the ground being found in the morning torpid. Near the fort of *Argun*, not higher than lat. 52, the ground seldom thaws deeper than a yard and a half †. At *Iakutsk*, in lat. 62, the soil is eternally frozen, even in summer, to the depth of three feet below the surface. An inhabitant, who by the labor of two summers sunk a well to the depth of ninety-one feet, lost his time, and found his farthest searches frozen ‡. Birds fall down, overcome with the cold; and even the wild beasts sometimes perish. The very air is frozen, and exhibits a most melancholy gloom §.

The *Aurora Borealis* is as common here as in *Europe*, and usually exhibits similar variations: one species regularly appears between the north-east and east, like a luminous rainbow, with numbers of columns of light radiating from it: beneath the arch is a darkness, through which the stars appear with some brilliancy. This species is thought by the natives to be a forerunner of storms. There is another kind, which begins with certain insulated rays from the north, and others from the north-east. They augment little by little, till they fill the whole sky, and form a splendor of colors rich as gold, rubies, and emeralds: but the attendant phænomena strike the beholders with horror, for they crackle, sparkle, hiss, make a whistling sound, and a noise even equal to artificial fire-works. The idea of an electrical cause is so strongly impressed by this description, that there can remain no doubt of the origin of these appearances. The inhabitants say, on this occasion, it is a troop of men furiously mad which are passing by. Every animal is struck with terror; even the dogs of the hunters are seized with such dread, that they will fall on the ground and become immoveable till the cause is over ||.

I am slightly acquainted with the fish of the *Icy sea*, except the anadromous kinds, or those which ascend from it into the *Siberian* rivers. The

AURORA BOREALIS.

FISH.

* *Pb. Transf.* lxxvii. 471.
quoted from *Gmelin*.

† *Prof. Flora Sib.* 78.
§ *Prof. Flora Sib.* 73.

‡ *Forster's Obs.* 85.
|| *Voy. en Sibirie*, ii. 31, 52.

Ob,

Ob, and other *Siberian* rivers, are visited by the *Beluga* Whale, the common Sturgeon, and the Sterlet or *Acipenser Rutbenus*, Lin. Syft. 403; but I am informed by Doctor *Pallas*, that they have neither Carps, Bream, Barbels, nor others of that genus, nor yet Eels, *Silurus Glanis*, Lin. Syft. 501; *Perca Lucio-perca*, 481; or common Trout: all which are found in the *Amur*, and other rivers which run into the eastern ocean: in the latter our common Cray-fish is found. In return, the *Siberian* rivers abound in vast variety of the Salmon kind, and many unknown to us in *Europe*, which delight in the chilly waters of these regions. The common Salmon, *Br. Zool.* iii. N° 143, is one of the scarcer kinds: the *Salmo Nelma*, *Pallas Itin.* ii. 716, or *Salmon Leucichthys* of *Guldenstaedt*, *Nov. Com. Petrop.* xiv. 531, is a large species, growing to the length of three feet: the head greatly protracted: the lower jaw much the longest: the body of a silvery white: scales oblong: tail bifid. *P. D. Rad.* 14. The *Salmo Taimen*, or *Hucho*, *Pallas*, ii. 716, grows to the weight of ten or fifteen pounds, and the length of a yard and a half: the color of the back is dusky; towards the sides silvery: the belly white: spotted with dusky on the back: anal fin of a deep red: tail bifurcated: flesh white. *Salmo Lavaretus*, iii. 705, or *Gwiniad*, *Br. Zool.* iii. N° 152: *Salmo Albula*, Lin. Syft. 512: *Salmo Schokur*, *Pallas Itin.* iii. 705; a species about two feet long, not unlike the *Gwiniad*: the *Salmo Pidschian*, *Pallas Itin.* iii. 705; about two spans long, broader than the *Gwiniad*, and with a gibbous back: *Salmo Wimba*, Lin. Syft. 512: and *Salmo Nasus*, *Pallas Itin.* iii. 705*, are extremely common in the *Ob*. Others shun that still river, and seek the *Jenesei*, and other rapid streams with stony bottoms. Such are the *Salmo Lenok*, *Pallas Itin.* ii. 716 †: *Salmo Oxyrhynchus*, Lin. Syft. 512: and *Salmo Autumnalis*, or *Omul*, *Pallas Itin.* iii. 705; which annually force their way from the sea, from lat. 73. to lat. 51. 40, into lake *Baikal*, a distance of more than twenty-one degrees, or near thirteen hundred miles. The *Omul* even

SURPRIZING MI-
GRATIONS OF
FISH.

* The *Schokur* and *Nasus* are two species of *Coregoni* or *Salmons*, with very small teeth.

† *Voy. en Siberie*, i. 237. It also ascends through the *Jenesei* and the *Tuba* to the *Madbar*, a lake an amazing distance in the mountains.

crosses the lake, and ascends in *August* the river *Selinga*, where it is taken by the inhabitants in great quantities, and is preserved for the provision of the whole year. After dropping its spawn in the stony beds of the river, it again returns to the sea. The *Salmo Arcticus*, Pallas Itin. iii. 206; and *S. Thymallus*, or *Grayling*, Br. Zool. iii. N° 150; may be added to the fish of the *Siberian* rivers. The *Salmo Cylindraceus*, or *Walok* of the *Russians*, is a fish very slender, and almost cylindrical, with a very small mouth, large silvery scales, and the under fins reddish. This is found only in the *Lena*, the *Kowyma*, and *Indigirjka*, M. Gmelin and the *Abbé d'Auterocbe* assure us, that Pikes, Perch, Ruffs, Carp, Bream, Tench, Crucians, Roach, Bleaks, and Gudgeons, are also met with in the *Ob*, and different rivers of this country*. I cannot reconcile this to the former account given me by so able a naturalist, to whom I owe this history of the *Arctic* fish. The *Salmo Kundsha*, Pallas Itin. iii. 706, abounds in the gulphs of the *Icy* sea, but does not ascend the rivers; and the *Pleuronectes Glacialis*, Pallas Itin. iii. 706, is frequent on the sandy shores.

The *Mollusca* and *Vermes*, which extend to the gulph of *Kara*, the beginning of the *Icy* sea, are, the *Aphrodita Squammata*, *Nereis Cylindraria*, *Aetinia Equina* et *Senilis*, *Ascidia Globularis*, Pallas Itin. III. App. N° 57; *Buccinum Glaciale* et *Undatum*, *Murex Antiquus* et *Canaliculatus*, and the *Tellina Atra*.

VERMES OF THE
ICY SEA.

The *Monoculus Arcticus*, PALLAS ITIN. III. App. N° 58, swarms in the lakes near the *Icy* sea, and is the great support of the multitudes of water-fowl which make them their summer retreat. Among the *Zoophytes* of the Frozen ocean are the *Eschbara Foliacea*, *Sertularia Dichotoma* et *Cupressina*, *Alcyonium Digitatum* et *Gelatinosum*, and the *Spongia Oculata* and *Infundibulum*. And of the *Fucus* tribe, the *Saccharinus Edulis*, *Quercus*, *Ceranoides*, *Aculeatus*, *Glacialis*, and *Truncatus*, PALLAS ITIN. III. N^{rs} 135 and 136, and the *Ulva Intestinalis*.

To review the inhabitants of the *Arctic* coasts, I shall return as far as

* *Voy. en Sibirie*, par Gmelin, i. 84, 89, 241. ii. 167, 170, 219.—*Voy. en Sibirie*, par l'Abbé d'Auterocbe, i. 200. *Engl. Ed.* 231. The last is most faultily translated.

Finmark. I refer the reader to p. cxxx. for what I have said of the *Laplanders.* The *Samoieds* line the coasts from the east side of the *White* sea, as far (according to the *Ruffian* maps) as the river *Ob*, and even the *Anabara*, which falls into the *Icy* sea in lat. 73. 30; and possess the wildest of countries inland, as low as lat. 65. After them succeeds, to the east, a race of middle size; and, extraordinary to say, instead of degeneracy, a fine race of men is found in the *Tj:butsebi*, in a climate equally severe, and in a country equally unproductive of the supports of life, as any part of these inhospitable regions. The manners of all are brutal, savage, and nearly animal; their loves the same; their living squalid and filthy beyond conception: yet on the site of some of these nations *Mela* hath placed the elegant *Hyperborei*: and our poet, *Prior*, giving free loose to his imagination, paints the manners of these *Arctic* people in the following beautiful fiction, after describing the condition of the natives of the torrid zone.

And may not those, whose distant lot is cast
 North beyond *Tartary's* extended Waste;
 Where, thro' the plains of one continual day,
 Six shining months pursue their even way,
 And six succeeding urge their dusky flight,
 Obscur'd with vapors, and o'erwhelm'd in night;
 May not, I ask, the natives of these climes
 (As annals may inform succeeding times)
 To our quotidian change of heaven prefer
 Their own vicissitude, and equal share
 Of day and night, disparted thro' the year?
 May they not scorn our sun's repeated race,
 To narrow bounds prescrib'd, and little space,
 Hast'ning from morn, and headlong driven from noon,
 Half of our daily toil yet scarcely done?
 May they not justly to our climes upbraid
 Shortness of night, and penury of shade?
 That, ere our weary'd limbs are justly blest
 With wholesome sleep, and necessary rest,
 Another sun demands return of care,
 The remnant toil of yesterday to bear?

Whilst,

A R C T I C C O A S T S.

CLXXVII

Whilst, when the solar beams salute their light,
 Bold and secure in half a year of light,
 Uninterrupted voyages they take
 To the remotest wood, and farthest lake;
 Manage the fishing, and pursue the course
 With more extended nerves, and more continued force
 And when declining day forsakes their sky;
 When gathering clouds speak gloomy Winter nigh,
 With plenty for the coming season blest,
 Six solid months (an age) they live releas'd
 From all the labor, process, clamor, woe,
 Which our sad scenes of daily action know:
 They light the shining lamp, prepare the feast,
 And with full mirth receive the welcome guest:
 Or tell their tender loves (the only care
 Which now they suffer) to the list'ning Fair;
 And rais'd in pleasure, or repos'd in ease,
 (Grateful alternates of substantial peace)
 They blest the long nocturnal influence shed
 On the crown'd goblet, and the genial bed.

With greater reality speaks that just observer of nature, the naturalist's poet, of the inhabitants of this very country, as a true contrast to the foregoing lines:

Hard by these shores, where scarce his freezing stream
 Rolls the wild *Oby*, live the last of men;
 And half enliven'd by the distant sun,
 That rears and ripens man as well as plants,
 Here human nature wears its rudest form.
 Deep from the piercing season, sunk in caves,
 Here, by dull fires, and with unjoyous cheer,
 They waste the tedious gloom. Immers'd in furs,
 Doze the gross race. Nor sprightly jest, nor song,
 Nor tenderness they know; nor aught of life,
 Beyond the kindred Bears that stalk without.
 Till morn appears, her roses dropping all,
 Sheds a long twilight bright'ning o'er the fiefs,
 And calls the quiver'd savage to the chace.

THOMSON.

This

CONQUEST OF
SIBERIA.

This amazing extent of the *Asiatic Russian* dominions remained undiscovered to a very late period. The *Czars*, immersed in sensuality, or engaged in wars, had neither taste or leisure to explore new countries. A plundering excursion was made into it in the reign of *Basilovitz I*; a second was made under his successor: but a stranger, the celebrated *Cossac, Yermac*, driven from his country on the shores of the *Caspian* sea, pushed his way with a resolute band as far as *Orel*, near the head of the *Kama*, on the western side of the *Urallian* chain. There he met with one *Strogonoff*, a *Russian* merchant, recently settled in those parts for the sake of the traffic of furs. He continued in that neighborhood the whole winter, and was supplied by the *Russians* with all necessaries. In the spring he turned his arms against *Kutsum Chan*, one of the most powerful of the petty princes of the country which now forms part of the government of *Tobolski*. In 1581, he fought a decisive battle with the Chan, overthrew him, and seated himself on the throne. Finding his situation precarious, he ceded his conquests to *Basilovitz*, who seized on the opportunity of adding this country to his dominions. He sent *Yermac* a supply of men. But at length his good fortune forsook him. He was surprized by the Chan; and, after performing all that a hero could do, perished in attempting to escape.

The *Russians*, on the death of their ally, retired out of *Siberia*; but they soon returned, recovered the conquests made by *Yermac*, and, before the middle of the following century, added to their ancient possessions a territory fourteen hundred and seventy leagues in length, and near seven hundred in breadth (without including the *Russian* colonies on the island of *Oonalasbka*, on the coast of *America**) yet it is so thinly peopled, and with such barbarians, as to add no strength to the empire by any supplies to the army or navy. They are almost torpid with inaction; lazy to the highest degree, from their necessary confinement to their stoves during the long winter of the country. In that season, the ground is clad with deep snow, and the frost most tremendously severe. The spring, if so it

* *D'Auteroche, Voy. en Siberie, i. 83.*

may be called, is distinguished by the muddied torrents of melting snows which rush from the mountains, and give a sea-like appearance to the plains. Mists, and rain, and snow, are the variations of that season, and they continue even to the fourth of *June*. The short summer is hot and favorable to vegetation. Corn may be seen a foot high by the 22d of *June*; and the grass is most luxuriant. Culinary plants will scarcely grow about *Tobolski*. Fruits of every kind, except a currant, are unknown. A single crab-like apple, raised in a hot-house, was once produced there, sliced in a large dish, at a great entertainment, and served up with as much ostentation as we would in *England* a pine-apple.

The animals of *Siberia*, the furs of which were the original object of its conquest, are now so reduced, that the *Russians* are obliged to have recourse to *England* for a supply from *North America*, which they add to their own stock of furs exported into *China*. Metals seem the staple trade of the country. Those of iron and copper are abundant and excellent. Gold and silver are found in several places, and in such abundance, as to form a most important article in the revenues of *Russia*. The copper mines of *Kolyvan*, from which those precious metals are extracted, employ above forty thousand people, mostly colonists. The silver mines of *Nertschinsk*, beyond lake *Baikal*, above fourteen thousand. The whole revenue arising from the mines of different metals, is not less than £.679,182. 13s. *

Next to the discovery of the new world, no place has added more to the entertainment of naturalists than *Siberia*. As has been before observed, nature there assumes a new appearance in the animal world: it does the same in the vegetable; at least, very few trees are found common to *Europe* and *Asia*. Let me just mention the nobler kinds: the Oak, frequent as it is in *Russia* and in *Casan*, is not to be seen in this vast region nearer than the banks of the *Argun* and *Amur*, in the *Chinese* dominions. The White Poplar, *Populus alba*; and the Aspen, *Populus tremula*, are extremely common. The Black Poplar, *Populus nigra*; the

* *Coxe's Travels.*

PLANTS.

Common

Common Sallow, *Salix caprea*; Sweet Willow, *Salix pentandra*; White Willow, *Salix alba*, are very frequent. The Hazel, *Corylus Avellana*, is circumstanced like the Oak. The Common Birch, *Betula alba*, is most abundant; and, as in all northern nations, of universal use. The Dwarf Birch, *Betula nana*, is confined to the neighborhood of lake *Baikal*. The Alder, *Betula Alnus*, is very frequent. The Pinafter, *Pinus Pinea*; the Pine with edible seeds, or *Pinus Cembra*; and Larch, *Pinus Larix*; all trees of the first use, medicinal or æconomical, cover many parts of the country. The Norway Fir, *Pinus Abies*, and the Silver Fir, *Pinus Picea*, form, in most parts of the country, great forests: the first grows in this country not farther north than lat. 60; the last not higher than lat. 58: yet the former flourishes in *Europe*, and composes in *Lapmark*, far beyond the *Arctic* circle, woods of great extent: a proof of the superior rigor of cold in the *Asiatic* north. These form the sum of *European* trees growing in *Siberia*. Of other plants, common to both continents, *M. Gmelin* gives the reader, in p. xciv. of his Preface, a slender list of such which fell under his observation.

EUROPE is obliged to *Siberia* for that excellent species of Oat, the *Avena Sibirica*, Fl. Sib. i. 113. tab. 22. Lin. Sp. Pl. i. 117; and our gardens are in a most peculiar manner enlivened with the gay and brilliant flowers introduced from that distant and severe climate. I shall only select a few out of the multitude*. *Veronica Sibirica*, *Iris Sibirica*, Fl. Sib. i. 28. *Eryngium planum*, i. 185. *Lilium bulbiferum*, i. 41. *L. pomponium*, i. 42. *L. Martagon*, i. 44. *Delphinium grandiflorum*, Sp. Pl. i. 749. *Erythronium dens canis*, i. 39. tab. 7. *Hemerocallis flava*, i. 37. *Saxifraga crassifolia*, Sp. Pl. i. 573. *Lychnis chalcedonica*, Sp. Pl. i. 625. *Robinia Halodendron*, Fl. Ross. 72. tab. xlvi. *Pyrus baccata*, Fl. Ross. p. 23. tab. x. *Lytbrum virgatum*, Sp. Pl. 642. *Amygdalus nana*, Sp. Pl. 677. *Pæonia tenuifolia*, Sp. Pl. i. 748. *Clematis integrifolia*, Sp. Pl. i. 767. *Adonis vernalis*, Sp. Pl. i. 771. *Astragalus alopecuroides*, Sp.

* This list was communicated to me by an able botanist; but I think some of the plants are also found in *Europe*.

Pl. ii. 1064. *Hypericum Ascyron*, Sp. Pl. ii. 1102. *Echinops Ritro*, Fl. Sib. ii. 100. *Veratrum nigrum*, Fl. Sib. i. 76.

After the conquest of *Siberia*, the *Tschutschi* were the first people discovered by the *Russians*, who were indebted to the adventure of *Deschnew* for the knowledge of them. They are a free and brave race, and in size and figure superior to every neighboring nation; tall, stout, and finely made, and with long and agreeable countenances; a race insulated strangely by a lesser variety of men. They wear no beards. Their hair is black, and cut short, and covered either with a close cap, or hood large enough to cover the shoulders. Some hang beads in their ears, but none have the barbarism to bore either noses or lips. They wear a short and close frock, breeches, and short boots: some have trowsers. The materials of their cloathing is leather admirably dressed, either with or without the hair*. It is said that at times they wear jackets made of the intestines of Whales †, like the *Esquimaux*; probably when they go to sea, for they excel their neighbors in fishing, and use open boats covered with skins ‡, and like the women's boats of the *Greenlanders*. They have also the lesser or *kajak*. They make use of sledges, and have large fox-like dogs of different colors, with long soft woolly hair, which are probably designed for the draught. Some say that they use Rein-deer, of which they have vast abundance, but neither milk them nor kill them for food, preferring the flesh of sea animals, except one dies by chance, or is killed by the Wolves. They are a spirited and warlike people; are armed with bows and arrows; the last pointed with stone or bone. They have spontoons headed with steel, procured by traffic from the *Russians*; these they usually sling over their right shoulder; and a leathern quiver of most elegant workmanship hangs over the left §. The *Russians* have often gained dear-bought victories over this brave people, but never were able to effect their conquest. They retained an high sense of liberty, and constantly refused to pay tribute; and the ambitious *European* miscalled them rebels. They will not on any con-

TSCHUTSCHI.

* *Cook's Voyage*, ii. 450, tab. 51.† *Hist. Kamtschatka*, Fr.‡ *Voyage*, ii. 452.§ See tab. 51 of the *Voyage*.

sideration part with their weapons : possibly a *Tschutschibi* may think a disarmed man dishonored. Captain Cook, in his three hours visit to them, found their attachment to their arms, notwithstanding they willingly parted with any thing else, and even without the prospect of exchange. They treated him with great civility, but prudent caution : saluted him by bowing and pulling off their caps, possibly a piece of politeness they learned from the *Russians*. They treated him with a song and dance, and parted friends ; but not without a most remarkable and consequential event :—A year after the interview between Captain Cook and the *Tschutschibi*, a party of these people came to the frontier post of the *Russian*, and voluntarily offered friendship and tribute. These generous people, whom fear could not influence, were overcome by the civility and good conduct of our illustrious commander : they mistook him and his people for *Russians*, and, imagining that a change of behaviour had taken place, tendered to their invaders a lasting league*. Possibly the munificent empress may blush at the obligation conferred by means of *British* subjects, in procuring to her empire a generous ally, at the instant her armed neutrality contributed to deprive us of millions of lawful subjects.

THEIR DWELLINGS.

Their winter dwellings were vaulted, and sunk a little under ground. The framing was composed of wood and the ribs of Whales ; more slender materials were laid over the roof, over them strong grass, and above all, a strong covering of earth : above them was a sort of centry-box, made of the bones of large fish. The frames of the summer huts were slight poles and bones. The stages for drying of fish were composed of the last material. This is not by any means a new species of architecture. The commanders of the fleet of *Alexander the Great* observed, that the *Gedrosi*, a people living on the gulph of *Sind* in *India*, made the frames of their doors, and their rafters, of the bones of Whales †. How often are the histories of the antients, deemed fabulous, verified by our modern discoveries !

* *Voy.* iii. 217.

† *Plin. Hist. Nat. lib. ix. c. 3.*

From the shortness of the interview little knowlege could be gained of their customs. I shall only observe, that they bury their dead under heaps of stones, or carnedds : several were seen here with the rib of a whale on the top instead of a pillar * ; a proof of the universality of these memorials of the dead.

I shall endeavour to make some addition to the accounts of the *Tschutschibi* given by Captain Cook, from two relations preserved in the *Neue Nordische Beytrage* ; as any thing relative to so remote a people cannot but be acceptable.

The first is from the journal of the *Cossack Nicolai Daurkin* ; who, by private direction from his commander, feigned a desertion from the *Russian* post on the *Anadyr*, to the nearest post of the *Tschutschibi*, was well received by them, and continued with them from July 20th, 1763, to the winter of the same year. This journal relates chiefly to the isles intermediate between *Asia* and *America*, in *BEHRING'S* streight. In *October*, when the sea between the *Asiatic* and *American* land was frozen, he procured a sledge and a couple of Rein-deer, and, attended by one of the *Tschutschibi*, who had adopted him as a kinsman, passed over to the first island, and arrived there in five or six hours. The inhabitants received them very kindly ; but instantly asked for tobacco leaves ; which being presented to them, they in return presented the travellers with some of their cloathing made of furs. The natives wore dresses made of the skins of Rein-deer ; and lived on the flesh of Whales, Walruses, and Seals. For want of wood, they dressed their food by means of lamps, made of a stone hollowed on the top, into which they poured train-oil, and into that they put a wick made of a soft moss, a sort of *sphagnum* or bogmoss, tied with strings, made of the bowels of animals : with these lamps they not only dressed their meat, but also warmed themselves. The natives of this isle are called by the *Tschutschibi*, *Achülaet*.

On the second isle live the same kind of people, who call it *Pejerkely*. The chief of them bore each side of the lips of their children, and intro-

DAURKIN'S AC-
COUNT OF IT,AND OF AME-
RICA.* *Ellis's Narrative*, I. 332.

duce into them pieces of the teeth of the Walrus : in other respects, they are cloathed like the natives of the first isle. These were the two islands seen in the streights by Captain Cook, but were neither named or visited by him. These people had intercourse with the *Tschutschki* ; for in one of the engagements which Colonel *Paulutzki* had with them in 1731, he found one of the islanders among the slain *, with his lips bored as before described.

DAURKIN mentions two ranks of *Tschutschki* ; one who have herds of Rein-deer, and others which have none ; the last live in holes below ground, and subsist on the flesh of sea animals entirely : but the others, in certain seasons, apply themselves to the chase of Sea Bears, Walruses, Whales, and *Belugas*, or the White Dolphin.

The second journal was made by *Iwan Robeles*, a *Kajak Stonik*, or a *Cossack*, who commanded a hundred men. In 1779 he was dispatched, like the former, as a spy into the country of *Tschutschki* ; on the 20th of May he reached the *Serdze kamen*, in the bay of *Notshkan*. He observed there, that the natives possessed of Rein-deer treated those who had none as the *Russians* do their vassals, and obliged them to fish for them, and to furnish them with train-oil, and the flesh of Sea-horses ; for which they supplied them with that of the Rein-deer.

On July 17th, *Robeles* reached the village *Jagacgein*, and from thence crossed a bay, eight versts broad, to the village *Nernegin* : here the *Tschutschki* mentioned to him the arrival of Captain Cook, in 1778, and the intercourse, as related by Captain Cook, in vol. II. p. 447 of his voyage. *Robeles* fixes the latitude of the place where he received his account in 65. 48, and in longitude 206. 30. The same people remembered also the visit paid to them by *Bebring*, several years before, when forty of the natives visited his ships in four leathern boats. Two important circumstances in the annals of the country.

ROBELES also visited the two intermediate isles : one he calls *Imoglin*, which was five versts long, and two broad. It had two villages, contain-

* Decouvertes faites par les Russes, I. 172.

ing two hundred and three males, and a hundred and ninety-five female inhabitants. It lay forty versts from the *Asiatic* shore. The second isle he calls *Ijelgin*: its length was three versts; its breadth one and an half: its distance from *Imoglin*, three versts; from *America* about thirty. Its number of inhabitants eighty-five males, and seventy-nine females. The chief of this isle was a native of *America*.

He assured *Robelef* of a fact too curious to be omitted—that there was a colony of *Russians*, which have been long settled on that continent: that they are distinguished from the *Americans* by their long beards, and by their language: that they can write, say their prayers out of books, and worship pictures. *Robelef* wished earnestly that the chieftain would bring him over to his countrymen; but was told he did not dare to do it, lest *Robelef* should come to any mischance, for which he should be answerable to the *Tschutschis*.

ROBELEF was also told by a *Tschutschis*, who had formerly crossed to *America* for the sake of trade, and made acquaintance with a person, who afterwards visited him in the isle of *Imoglin*, and brought to him a board, on which was written on one side red characters, on the other black; and said he had it from people with beards, who desired him to deliver it to the *Russians* who were in garrison at *Anadirsk*; and that the purport of it was to obtain iron from them. The *Russians* of that garrison had a tradition, that out of seven *kotches* or vessels, which once sailed from the mouth of the *Lena*, along the coasts of the Icy Sea, to double the *Tschutschis* point, three were never more heard of. These they believe to be the founders of this colony: but whether it has any better foundation than the story of the *Welsh* settlement in *North America*, by the sons of *Owen Gwynedd*, in 1170, appears to me a matter of great doubt.

ROBELEF informs us, that there is no visible ebb or flow in the Straights of *BEHRING*, and only a moderate current, running in summer from the Eastern ocean northward into the Icy sea, and about *August* turns to the south, and brings with it the floating ice. He adds, that the tide on the *Tschutschis-nofs* flows six feet.

The

MIGRATION OF THE REIN-DEER.

The *Tschutschki* gave *Robeles* much information respecting the topography of the opposite coast of *America*: from these accounts a map* is formed (with the assistance of that by Captain Cook), in which is placed a vast river, emptying itself into the *Icy sea* a little to the south of *Cape Mulgrave*; then making a bend southerly, and taking a very long course in that direction. Its banks are made as full of towns and villages (all of them named), as the banks of the *Tbames*; nor are the coasts, from its mouth to *Norton* sound, made less populous; and those from point *Shallow Water* to *Sboalness* vie in that respect with all the preceding. As Captain Cook met with no such marks of population, I must suspend my belief till these coasts have been farther explored; which the spirit of curiosity, which now reigns, makes me not despair of seeing effected.

The *Tschutschki* country is overgrown with yellow and white moss, which nourishes vast flocks of wild Rein-deer. These animals are accustomed, in *May* or *June*, as soon as the *Anadyr* is clear from ice, to swim over the river by thousands, to the cold woodless countries towards the *Icy sea*, to save themselves from insects; and they retire again in *August*, and the beginning of *September*, to the woods to change their horns. The neighboring inhabitants take the advantage of their migration, to kill great numbers of them for their provisions. The people are at this time particularly careful to avoid making much noise, or causing smoke in those parts where the Rein-deer pass; and watch the first harbingers of their arrival. The hunters assemble in small boats, and when the herd of Rein-deer is crossing the river, they row amongst them, and kill with lances as many as they can, which amount often to several hundreds. The herds crowd, during three whole days, so close together, that they cannot escape; but after that space the whole march is over, except by chance a single deer is now and then seen. The greatest number of Rein-deer killed in this encounter are females (*Wasbenki*), which cannot so easily make their escape, with their young

* See vol. IV. of *Neue Nordische Beytraege*, and the whole narration, at p. 105.

ones, as the bucks, who are always foremost, and retire therefore sooner. The Rein-deer in these eastern parts are in general much smaller than elsewhere in *Siberia*, the largest buck weighing no more than four puds, and a female about two and a half. The flesh, which is dried for preserving, is tied together in bunches, which contain two deer, and each bunch weighs a pud and half or two puds*.

The country of the *Tschutschi* forms the most north-easterly part of *Asia*. It is a peninsula, bounded by the bay of *Tchaoûn*, by the *Icy Sea*, the straits of *BEHRING*, and the gulph and river of *Anadir*, which open into the sea of *Kamtshatka*. It is a mountainous tract, totally destitute of wood, and consequently of animals which require the shelter of forests. The promontory *Schalotskoi*, before mentioned, is the most westerly part. Whether it extends so far north as lat. 74, as the *Russians* place it, is very doubtful: there is the opinion of our great navigator against it. From his own reasonings he supposed that the tract from the *Indigirka*, eastward, is laid down in the maps two degrees to the northward of its true position †. From a map he had in his possession, and from information he received from the *Russians*, he places the mouth of the *Kowyma* in lat. 68, instead of lat. 71. 20, as the *Peterburg* map makes it. It is therefore probable, that no part of *Asia* in this neighborhood extends further than lat. 70, in which we must place the *Schalotskoi Nofs*; and, after the example of Mr. *Campbell*, who formed his map of this country chiefly from the papers of Captain *BEHRING* ‡, give the land which lies to the east of that promontory a very southern trend. As Captain *COOK* had cause to imagine that the former charts erred in longitude as well as latitude, it is probable that he reached within sixty miles of the *Schalotskoi Nofs* §. There we find him on *August* 29th, 1778, and from this period are enabled, from his remarks, to proceed securely accurate.

After crossing the *Icy Sea* from the most extreme part of the coast of

* A pud is 40 *Russian* pounds, or 36 *English*.—Mr. *Coxe*.

† In *Harris's Voy.* ii. 1016.

‡ *Voyage*, iii. 270.

† *Voyage*, iii. 268.

CORRECTIONS IN
GEOGRAPHY BY
CAPT. COOK.

America

- America* which he could attain, he fell in with land. It appeared low near the sea, and high inland; and between both lay a great lake. To a steep and rocky point, nearly in lat. 68. 56, and long. 180. 51, his *ne plus ultra* on the *Asiatic* side, he gave the name of *Cape North*; beyond which he could not see any land, notwithstanding the weather was pretty clear. The sea, at three miles distance from the shore, was only eight fathoms deep: this, with a rising wind, approaching fog, and apprehension of the coming down of the ice, obliging him to desist from farther attempts in these parts, he proceeded as near to the coast as he could with prudence, towards the south-east, and found it retain the same appearance. In lat. 67. 45, he discovered a small isle, about three leagues from the main, with steep and rocky shores, on which he bestowed the name of *Burney*, in honor of one of his officers; gratefully immortalizing the companions of his voyage, in this and other instances. After passing the island, the continent inland rose into mountains of considerable height, the termination of the great chain I before described.
- CAPE NORTH.**
- BURNEY'S ISLE.**
- SERDZE KAMEN.** In lat. 67. 3, long. 188. 11, he fell in with *Serdze Kamen**, a lofty promontory, faced towards the sea with a steep rocky cliff. To the eastward the coast continues high and bold, towards the *North Cape* low, being a continuation of the *Arctic* flats. This was the northern limit of the voyage of another illustrious navigator, Captain VITUS BEHRING, a *Dane* by birth, and employed on the same plan of discovery in these parts as our great countryman was in the late voyage. He was in the service of PETER the GREAT; who, by the strength of an extensive genius, conceiving an opinion of the vicinity of *America* to his *Asiatic* dominions, laid down a plan of discovery worthy of so extraordinary a monarch, but died before the attempt was begun; but his spirit survived in his successor. BEHRING, after a tedious and fatiguing journey through the wilds of *Siberia*, arrived in *Kamtchatka*, attended with the scanty materials for his voyage, the greatest part of which he was obliged to bring with him through a thousand difficulties. Several of the circumstances of his adventures will
- CAPT. BEHRING.**

* See tab. 84 of the *Voyage*.

be occasionally mentioned*. I shall only say here, that he sailed from the river of *Kamschatka* on July 15th, 1728; on the 15th of August saw *Serdze Kamen*; or the heart-shaped rock, a name bestowed on it by the first discoverer.

From *Serdze Kamen* to a promontory named by Captain Cook *East Cape* †, the land trends south-east. The last is a circular peninsula of high cliffs, projecting far into the sea due east, and joined to the land by a long and very narrow isthmus, in lat. 66. 6. This is the *Tschutschki Nofs* of our navigators, and forms the beginning of the narrow streights or division of the old from the new world. The distance between *Asia* and *America* in this place is only thirteen leagues. The country about the cape, and to the north-west of it, was inhabited. About mid-channel are two small islands, named by the *Russians* the isles of *St. Diomedes*; neither of them above three or four leagues in circuit †. It is extremely extraordinary that BEHRING should have sailed through this confined passage, and yet that the object of his mission should have escaped him. His misfortune could only be attributed to the foggy weather, which he must have met with in a region notorious for mists §; for he says that he saw land neither to the north nor to the east ¶. Our generous commander, determined to give him every honor his merit could claim, has dignified these with the name of BEHRING'S STREIGHTS.

The depth of these streights is from twelve to twenty-nine or thirty fathoms. The greatest depth is in the middle, which has a slimy bottom; the shallowest parts are near each shore, which consists of sand mixed with bones and shells. The current or tide very inconsiderable, and what there was came from the west.

From *East Cape* the land trends south by west. In lat. 65. 36, is the bay in which Captain Cook had the interview with the *Tschutschki*. Imme-

* The account of the voyage is extremely worthy of perusal, and is preserved by the able Doctor Campbell, in *Harris's Collection*, ii. 1018.

† See tab. 84 of the *Voyage*.

‡ See the Chart of them, *Voyage*, vol. ii. tab. 53.

§ *Voy.* ii. 445. iii. 243.

¶ *Voyage* ii. 470, and Meteorolog. Tables, iii. App. 512, 513, 520, 521.

¶ *Harris's Coll.* ii. 1020.

EAST CAPE.

† BEHRING'S
STREIGHTS.

DEPTH.

CURRENT.

ISLES OF CLERKE AND ST. LAURENCE.

ISLES OF CLERKE
AND
ST. LAURENCE.

diately beyond is the bay of *St. Laurence*, about five leagues broad in the entrance, and four deep, bounded at the bottom by high land. A little beyond is a large bay, either bounded by low land at the bottom, or so extensive as to have the end invisible. To the south of this are two other bays; and in lat. 64. 13, long. 186. 36, is the extreme southern point of the land of the *Tschutschi*. This formerly was called the *Anadirskoi Nofs*. Near it BEHRING had conversation with eight men, who came off to him in a *baidar*, or boat covered with the skins of Seals; from which BEHRING and others have named it the *Tschutschi Nofs*. A few leagues to the south-east of this point lies *Clerke's* island, in lat. 63. 15, discovered by Captain COOK; and immediately beyond a larger, on which BEHRING bestowed the name of *St. Laurence*: the last, the resort of the *Tschutschi* in their fishing parties*. Both of these consist of high cliffs, joined by low land. A small island was seen about nineteen leagues from *St. Laurence's*, in a north-east by east half east direction; I suspect it to be that which Capt. COOK named *Anderson's*, in memory of his surgeon, who died off it, and from his amiable character seems to have well merited this memorial. It lies in lat. 63. 4, long. 192. An anonymous islet, imperfectly seen, and lying in lat. 64. 24, long. 190. 31, in mid-channel, completes the sum of those seen remote from land between the streights and the isle of *St. Laurence*. As to those named in the chart given by Lieut. SYDNEY, who in 1764 made a voyage from *Kamschatka* towards BEHRING'S Streights, they seem to exist only in imagination, notwithstanding the *Russian* calendar has been exhausted to find names for them. *St. Agathon*, *St. Titus*, *St. Myron*, and many others, fill the space passed over by Capt. COOK, and which could not have escaped the notice of his successor †.

The land from BEHRING'S *Tschutschi Nofs* trends vastly to the west, and bounds on that side the vast gulph of *Anadir*, into the bottom of which

* *Muller's Voy. des Russes*, i. 148.
Voy. iii. 503.

† *Coxe's Russian Discovery Map*, p. 300.—

the river of the same name empties itself, and limits the territory of the *Tschutshi*.

From thence is a large extent of coast trending south-west from Cape *St. Thaddens*, in lat. 62. 50, long. 180, the southern boundary of the gulph of *Anadir*, to *Oljutorskoi Nofs*, beyond which the land retires full west, and forms in its bosom a gulph of the same name. Off *Thaddens Nofs* appeared, on *June 29th*, abundance of *WALRUSES* and *GREAT SEALS*; and even the wandering *ALBATROSS* was seen in this high latitude *. Between this and the *Penginsk* gulph, at the end of the sea of *Ochotsk*, is the *isthmus* which unites the famous peninsula of *Kamtschatka* to the main land, and is here about a hundred and twenty miles broad, and extends in length from 52 to 61, north lat. The coasts are often low: often faced with cliffs, in many parts of an extraordinary height; and out at sea are rude and spiring rocks, the haunts of *LEONINE SEALS*, whose dreadful roarings are frequently the preservation of mariners, warning them of the danger, in the thick fogs of this climate †. The coast has but few harbours, notwithstanding it juts frequently into great headlands. The most remarkable are, the *North Head*, with its needle rocks, at the entrance of the bay of *Awatcha* (*Voyage*, vol. iii. tab. 58); *Cheepoonskoi Nofs*, still further north, engraven in vol. ii. tab. 84; and *Kronotskoi Nofs*, with its lofty cliffs. The peninsula widens greatly in the middle, and lessens almost to a point at *Cape Lopatka*, which slopes into a low flat, and forms the southern extremity of the country. The whole is divided lengthways by a chain of lofty rocky mountains, frequently covered with snow, and shooting into volcanic summits, often smoking with volcanic eruptions. They have broken out in numbers of places: the extinct are marked by the craters, and the new broken tops. The volcano near *Awatcha* ‡, that of *Tolbatschick*, and that of the mountain of *Kamtschatka* §, are the modern. They burst out sometimes in whirlwinds of flames, and burn up the neigh-

VULCANOS.

* *Voyage* iii. 241.
vol. iii.; and a description of its eruption, p. 235.
tab. xv. p. 342.

† *Descr. Kamtsch.* 429.

‡ See tab. 85, *Voyage*,
§ See *Descr. Kamtschatka*,

boring forests: clouds of smoke succeed, and darken the whole atmosphere, till dispersed by showers of cinders and ashes, which cover the country for thirty miles round. Earthquakes, thunder, and lightning, join to fill the horror of the scenery at land; while at sea the waves rise to an uncommon height, and often divide so as to shew the very bottom of the great deep*. By an event of this kind was once exposed to sight the chain of submarine mountains which connected the *Kuril* isles to the end of this great peninsula. I do not learn that they overflow with lava or with water, like the vulcanos of *Europe*. There are in various parts of the country hot springs, not inferior in warmth to those of *Iceland* †: like them they in some places form small *jets d'eaux*, with a great noise, but seldom exceed the height of a foot and a half ‡.

HOT SPRINGS.

CLIMATE.

The climate during winter is uncommonly severe; for so low as *Bolcheretsk*, lat. 52. 30, all intercourse between neighbors is stopped. They dare not stir out for fear of being frost-bitten. Snow lies on the ground from six to eight feet thick as late as *May*; and the storms rage with uncommon impetuosity, owing to the subterraneous fires, the sulphureous exhalations, and general vulcanic disposition of the country. The prevailing winds are from the west, which passing over the frozen wilds of *Siberia* and *Tartary*, add keenness and rigour to the winters of *Kamtschatka*. Winter continues till the middle of *June*: from that month to the middle of *September* may be called summer, if a season filled with rain, and mists, and ungenial skies, merits that name. Rye, barley, and oats, are committed to the earth, but seldom come to perfection. The subsistence of the *Russians* and *Cossacks* depends therefore on importation from *Siberia*. In some parts grass grows to a great height, and hay of uncommon nutriment is harvested for the fattening of cattle §. Grain is a luxury for the colonists only: the natives have other resources, the effects of necessity. Excepting in few places, this is a land of incorrigible barrenness. As soon as the SEA OTTERS and other precious furs are

* *Descr. Kamtsch. Fr.* 340, 341. † *Voyage*, iii. 206, 332. ‡ *Descr. Kamtsch. Fr.* 348, and tab. iv. v. in which are given the course of the warm streams. § *Voy.* iii. 327.

exhausted,

exhausted, *Kamtschatka* will be deserted by the *Russians*, unless they should think fit to colonize the continent of *America*, which the furs of that country, or the prospect of mineral wealth, may induce them to attempt.

Few ores have as yet been discovered in this peninsula: not that it wants either copper or iron; but every necessary in those metals is imported at so cheap a rate, that it is not worth while for a people ignorant in mining and smelting to search for them in the almost inaccessible mountains.

From the climate and the barren nature of *Kamtschatka*, the reader need not be surprized at the poverty of its *Flora*. It must not be supposed that the scanty enumeration of its plants arises from a neglect of search, or the want of a botanist to explore its vegetable kingdom. *STELLER*, a first-rate naturalist of *Germany*, who attended *BEHRING* in his last voyage, resided here a considerable time after his escape from that unfortunate expedition, expressly to complete his remarks in natural history. The result of his botanical researches was communicated to Doctor *Gmelin*, another gentleman sent by the *Russian* government to examine into the natural history of its dominions. *Europe* has from time to time been ransacked for men of abilities to perform this meritorious mission, and the fruits of their labors have been liberally communicated to a public thirsting for knowlege. The names of *MULLER*, *GMELIN*, *STELLER*, *DE L'ISLE*, *KRASHANINICOFF*, *GULDENSTAEDT*, *LEPECHIN*, and *PALLAS*, will ever be held in respect, for adding to the stock of natural knowlege. But how much is it to be lamented that *England* wants a patron to encourage the translation of their works, locked up at present in *Russian* or *German*, concealed from the generality of readers, to the great suppression of knowlege!

I here give a list of the plants of *Kamtschatka* in systematic order; and from it annex an account of the uses made of them by the natives of the peninsula. I must not omit my thanks to the Rev. Mr. *Lightsfoot*, and the Rev. Mr. *Hugh Davies* of *Beaumaris*, for the great assistance I received from them. Let me premise, that the plants marked *A.* are com-

mon

ORES:

PLANTS:

mon to *America* and *Kamtschaska*; with *B.* to *BEHRING'S* Isle; with *E.* to *England* or *Scotland*; and with *Virg.* are distinguished those which extend to *Virginia*, or the eastern side of *North America* *. It is remarkable, that the *European* plants, which had deserted *Siberia* about the *Jenesoi*, appear here in great abundance.

<i>Veronica.</i> <i>Gmel. Sib.</i> iii. 219. N° 33.	<i>L. cærulea.</i>
<i>V. incana.</i>	<i>Ribes alpinum.</i> <i>A. E.</i>
<i>V. serpyllifolia.</i> <i>E.</i>	<i>R. rubrum.</i> <i>Virg.</i>
<i>Iris sibirica.</i>	<i>R. grossularia.</i> <i>A. Virg.</i>
<i>Iris.</i> <i>Gm. Sib.</i> i. 30. N° 28.	<i>Claytonia virginica.</i> <i>A. Am. Acad.</i>
<i>Dactylis.</i> <i>Gm. Sib.</i> i. 130. N° 68.	ii. 310.
<i>Bromus cristatus.</i> <i>Aman. Acad.</i> ii.	<i>Salsola prostrata.</i> - - 318.
312.	<i>Anabasis aphylla.</i> - - 319.
<i>Triticum.</i> <i>Gm. Sib.</i> i. 119. N° 56.	<i>Heuchera americana.</i> - - 310.
<i>Plantago major.</i> <i>A. E. Virg.</i>	<i>Swertia dichotoma.</i> - - 317.
<i>Pl. asiatica.</i>	<i>Sw. corniculata.</i> - - <i>ibid.</i>
<i>Sanguisorba canadensis.</i> <i>A.</i>	<i>Gentiana amarella.</i> <i>E.</i>
<i>Cornus suecica.</i>	<i>G. aquatica.</i> <i>Am. Acad.</i> ii. 316.
<i>Pulmonaria virginica.</i> <i>A. Am. Acad.</i>	<i>Heracleum panaces.</i> <i>A.</i>
ii. 310.	<i>Angelica archangelica.</i>
<i>Cerintho major.</i> <i>A.</i>	<i>Ang. Sylvestris.</i> <i>E. Virg.</i>
<i>Cortusa Gmelini.</i> <i>Am. Acad.</i> ii. 313.	<i>Cicuta virosa.</i>
<i>Anagallis.</i> <i>Gm. Sib.</i> iv. 87, 37.	<i>Chærophyllum Sylvestre.</i>
<i>Azalea procumbens.</i> <i>E.</i>	<i>Chær. aureum?</i>
<i>Phlox sibirica.</i> <i>Am. Acad.</i> ii. 314.	<i>Sambucus racemosa.</i>
<i>Convolvulus persicus.</i> <i>Ibid.</i>	<i>Tradescantia.</i> <i>Virg?</i>
<i>Polemonium cæruleum.</i> <i>A. E.</i>	<i>Allium ursinum.</i> <i>E. Virg.</i>
<i>Lonicera Xylosteum.</i> <i>A?</i>	<i>Allium triquetrum.</i>

* Taken from Doctor *Forster's* FLORA AMERICÆ SEPTENTRIONALIS. It is highly probable that many, not noted as such, may be common to both sides of the continent, notwithstanding they escaped the notice of *Steller* or our navigators.

- Lilium martegon.*
L. Camtschatcense. *A. Virg. Am. Acad.* ii. 320.
Uvularia perfoliata. - 310.
Convallaria bifolia.
Juncus filiformis. *E. Virg.*
J. campestris. *E.*
Rumex acetosa. *Virg.*
Melanthium fibiricum. *Am. Acad.* ii. 320.
Trillium erectum. - - ii. 310.
Alisma plantago aquatica. *E.*
Alsinanthemum. *Gm. Sib.* iv. 116. N° 86.
Epilobium latifolium.
Vaccinium myrtillus. *A. E.*
Vac. uliginosum. *E.*
Vac. vitis idæa. *A. E.*
Vac. oxycoccus. *E. Virg.*
Erica. *Gm. Sib.* iv. 130. N° 21. *B.*
Er. *Gm. Sib.* iv. 131. N° 22. *A.*
Bryanthus. *Gm. Sib.* iv. 133. N° 23.
Polygonum bistorta. *E.*
Pol. viviparum. *E.*
Adoxa moschatellina. *A. E.*
Sophora Lupinoides. *Am. Acad.* ii. 321.
Ledum palustre.
Andromeda. *Gm. Sib.* iv. 121. N° 9.
Chamærhododendros. *Gm. Sib.* iv. 126. N° 13.
Rhododendron Kamtschataka. *FL.* 310. *Roff.* 48. tab. xxxiii. *B.*
Arbutus uva ursi. *E. Virg.*
Pyrola rotundifolia. *E. Virg.*
Tiarella trifoliata. *Am. Acad.* ii. 322.
Sedum verticillatum. ii. 323.
Prunus padus. *E.*
Sorbus aucuparia. *E. Virg.*
Cratægus oxyacantha. *Voyage,* iii. 334.
Spiræa hypericifolia. *Am. Acad.* ii. 310.
Sp. Sorbifolia. - - 324.
Spiræa. *Gm. Sib.* iii. 192. N° 55.
Sp. Camtschatika. *Fl. Ross.* 41. tab. xxviii. *B.*
Spiræa. *Gm. Sib.* iii. 192. N° 56.
Sp. aruncus.
Rosa alpina.
Rubus Idæus. *A. E. Virg.*
R. Cæsius. *E.*
R. fruticosus. *E. Virg.*
R. arcticus. *Virg.*
R. chamæmorus. *E.*
Fragaria vesca. *A. E.*
Potentilla fruticosa. *E.*
Dryas pentapetala.
Actæa cimicifuga. *Am. Acad.* ii. 325.
Papaver nudicaule.
Aconitum napellus.
Anemone narcissifolia.
Anem. ranunculoides.
Anem. Dichotoma. *Am. Acad.* ii. 310.
Thalictrum flavum. *E.*
Ranunculus.

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Acad.
310.
318.
319.
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317.
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- Ranunculus. After. *A. B. Gm. Sib.* ii. 175. N° 145.
 Troillus europeus. *E.* After. - - - 186. N° 152.
 Helleborus trifolius. *Am. Acad.* ii.
 327. Solidago virga aurea. *A. B. E.*
 Solidago. *Gm. Sib.* ii. 170. N° 190.
 Bartsia pallida. *ibid.* Cineraria sibirica.
 Pedicularis verticillata. Pyrethrum. *A. B. Gm. Sib.* ii. 203.
 Linnæa borealis. *Virg.* N° 170.
 Myagrurn fativum. *E.* Orchis bifolia. *E. Virg.*
 Thlaspi burfa pastoris. *E. Virg.* Orchis latifolia. *E.*
 Arabis grandiflora. Ophrys Camtschatca. *Am. Acad.* ii.
 Turrilis hirsuta. *E.* 332.
 Geranium pratense. *E.* Drachontium Camtschatcense. *Am.*
 Lathyrus. *Gm. Sib.* iv. 85. *Acad.* ii. 332.
 Astragalus alopecuroides. *Am. Acad.*
 ii. 330. Carex panicea. *E. Virg.*
 Astr. alpinus. Carex. *Gm. Sib.* i. 139. N° 77.
 Astr. *Gm. Sib.* iv. 44. N° 58. Betula alba. *E.*
 Astr. physodes. *Am. Acad.* ii. 329. Betula incana. *Fl. Ross.* 64.
 Hypericum. *Gm. Sib.* iv. 279. N° 3. Betula nana. *E. Virg.*
 Picris hieracioides. *E.* Betula alnus. *A. E. Virg.*
 Sonchus. *Gm. Sib.* ii. 13. N° 13. Urtica dioica. *E.*
 Prenanthes repens. *Am. Acad.* ii.
 331. Sagittaria latifolia. *E.*
 Serratula noveboracensis. *Virg.* Pinus cembra.
 Cirsium. *Gm. Sib.* ii. 69. N° 49. Pinus Larix. *A. Virg.*
 Cacalia suaveolens. *Am. Acad.* ii.
 310. Pinus picea.
 Artemisia vulgaris. *A. E.* Salix retusa.
 Gnaphalium margaritaceum. *E.* Salix viminalis. *E.*
Virg. Empetrum nigrum. *A. E. Virg.*
 Erigeron acre. *A. E.* Populus alba. *E.*
 Tussilago. *B. Gm. Sib.* ii. 145.
 N° 125. Juniperus communis. *E.*
 Senecio. - - - 136. N° 118. Equisetum hyemale. *E. Virg.*
 Asplenium Rhyzophyllum. *Am.*
 *Acad.* ii. 311. *Virg.*
 Lycopodium rupestre. *Virg. ibid.*
 Lycop. Sanguinolentum. ii. 333.
 The

The *Kamtschadales* boast of their skill in the knowlege of the application of the vegetable kingdom to the uses of mankind. The *Sibirians* cure the venereal disease by a decoction of the root of the *Iris Sibirica*, which acts by purging and vomiting. They keep the patient eight days in a stove, and place him in a bed of the leaves of the *Arctium Lappa*, or common Burdock, which they frequently change till the cure is effected.

Uses.

The *Heracleum Panaces*, or *Sweet grass*, was a plant of the first use with the *Kamtschadales*, and formerly made a principal ingredient in all their dishes; but so powerful does the love of hot liquors sway with the *Russians*, that, since their arrival, it is entirely applied to distillation. The beginning of *July* the more succulent stalks and leaves are gathered; after the down is scraped off with shells, they are layed to ferment; when they grow dry, they are placed in bags, and in a few days are covered with a saccharine powder: only a quarter of a pound of powder is collected from a pood, or thirty-six pounds of the plant, which tastes like liquorice. They draw the spirit from it by steeping bundles of it in hot water; then promote the fermentation in a small vessel, by adding the berries of the *Lonicera Xylosteum*, Sp. Pl. i. 248, and *Vaccinium uliginosum*, 499. They continue the process by pouring on more water, after drawing off the first: they then place the plants and liquor in a copper still, and draw off, in the common manner, a spirit equal in strength to brandy*. Accident discovered this liquor. One year, the natives happening to collect a greater quantity of berries of several kinds, for winter provision, than usual, found in the spring that a great quantity had fermented, and become usefess as a food. They resolved to try them as a drink, and mixed the juice with water. Others determined to experience it pure; and found, on trial, the *Arctic* beatitude, drunkenness †. The *Russians* caught at the hint, introduced distillation, and thus are enabled to enjoy ebriety with the production of the country.

SWEET GRASS.

* *Voyage*, iii. 337.† *Gmelin, Fl. Sib.* i. 217.

MOUCHO-MORE. The *Moucho-more* of the *Russians*, the *Agaricus muscarius*, Sp. Pl. 1640, is another instrument of intoxication. It is a species of Toadstool, which the *Kamtschadales* and *Koriaks* sometimes eat dry, sometimes immersed in a fermented liquor made with the *Epilobium*, which they drink notwithstanding the dreadful effects. They are first seized with convulsions in all their limbs, then with a raving such as attends a burning fever; a thousand phantoms, gay or gloomy (according to their constitutions) present themselves to their imaginations: some dance; others are seized with unspeakable horrors. They personify this mushroom; and, if its effects urge them to suicide, or any dreadful crime, they say they obey its commands. To fit themselves for premeditated assassinations, they take the *Moucho-more*. Such is the fascination of drunkenness in this country, that nothing can induce the natives to forbear this dreadful potion*!

SARANNE.

As a food, the *Saranne*, or *Lilium Kamtschatcense*, is among the principal. Its roots are gathered by the women in *August*, dried in the sun, and layed up for use: they are the best bread of the country; and after being baked are reduced to powder, and serve instead of flour in soups and several dishes. They are sometimes washed, and eaten as potatoes; are extremely nourishing, and have a pleasant bitter taste. Our navigators boiled and eat them with their meat. The natives often parboil, and beat them up with several sorts of berries, so as to form a very agreeable confection. Providentially it is an universal plant here, and all the grounds bloom with its flower during the season†. Another happiness remarked here is, that while fish are scarce, the *Saranne* is plentiful; and when there is a dearth of this, the rivers pour in their provisions in redoubled profusion. It is not to the labors of the females alone that the *Kamtschadales* are indebted for these roots. The ŒCONOMIC MOUSE, *Hist. Quadr. II. N° 313*, saves them a great deal of trouble. The *Saranne* forms part of the winter provisions of these little animals: they not only gather them in the proper season, and lay them up in their magazines, but at times have

* *Hist. Kamtschatka*, 99, 100.† *Desc. Kamtsch.* 363.

the instinct of bringing them out, in sunny weather, to dry them, lest they should decay*. The natives search for their hoards; but with prudent tenderness leave part for the owners, being unwilling to suffer such useful caterers to perish.

Let me add, that STELLER enumerates other species of the Lilly genus, which I believe are edible. Every species of fruit, except berries, is denied to this unkind climate; but the inhabitants use various sorts of them as wholesome substitutes, which they eat fresh, or make into palatable jams, or dress with their fish, either fresh or when preserved for winter use: such are those of the *Lonicera Xylosteum* or *Gimolost*, a sort of Honeyfuckle: the *Rubus Chamemorus*, *Morochka*, or Cloudberries: the *Vaccinium Myrtillus*, *Uliginosum*, *Vitis Idæa*, and *Oxycoccos*, or Bilberries; Marsh Bilberries, Red Bilberries, and Cranberries: the *Empetrum Nigrum*, or Heathberries: the *Prunus Padus*, or Bird Cherry: *Cratægus Oxycantha*, or White Thorn with red and with black berries: the *Juniperus Communis*, or Common Juniper: and finally, those of the *Sorbus Aucuparia*, or Common Service.

Of the *Epilobium Latifolium*, Sp. Pl. 494, or *Kipri*, is brewed a common beverage; and, with the assistance of the Sweet Plant, is made an excellent vinegar: the leaves are used as a tea, and the pith is mixed with many of the dishes, and served up green as a desert. When the infusion of it is mixed with the Sweet Herb in the distillation, much more brandy is procured than if water alone is used †.

The *Polygonum Bistorta*, Snake-weed, or *Jikoum*, is eaten fresh or dried, and often pounded with the *Caviar*. The *Chærophyllum Sylvestre*, Wild Chervil, or Cow-weed, the *Morkavai* of the natives, is eaten green in the spring, or made into four krout. The *Solidago Itschitschu*, Fl. Sib. ii. 170, is dried and boiled with fish; and the broth from it tastes as if the flesh of the *Argali* or wild sheep had been seethed in it. The root of *Kotkonnia*, a species of *Tradescantia*, is eaten either fresh, or used with the roes of fish: the berries have an agreeable acidity, like an unripe apple, but will not

* PALLAS, *Nov. Sp. Mur.* 230.

† *Desc. Kamtsch.* 368.

keep, therefore they must be eaten as soon as they are gathered. *Allium Urfinum*, *Tcheremcha*, our Wild Garlic, is very common, and useful in medicine as well as food; both *Russians* and natives gather it in great quantities for winter service: they steep it in water, then mix it with cabbage, onions, and other ingredients, and form out of them a ragout, which they eat cold. It is also the principal remedy for the scurvy. As soon as this plant appears above the snow, they seem to put this dreadful disorder at defiance, and find a cure almost in its worst stages. The *Potentilla fruticosa*, Sp. Pl. i. 709, or Shrubby Cinquefoil, is very efficacious in the dysentery, or in fresh wounds. The *Dryas Pentapetala*, Sp. Pl. i. 717, or *Ichagban*, is employed in swellings or pains of the limbs. That dreadful poison the *Cicuta virosa*, Sp. Pl. i. 366, Water Hemlock, the *Omeg*, is applied to use, by the bold practitioners of this country, in cases of pains in the back. They sweat the patient profusely, and then rub his back with the plant, avoiding to touch the loins, which, they say, would bring on immediate death.

TREES.

The trees of use are a dwarf species of *Pinus Cembra*, or Pine with edible kernels; it grows in great quantities on both the mountains and plains, covered with moss. It never grows upright, but creeps on the ground, and is therefore called by the *Russians*, *Slanetz*. The natives eat the kernels, with even the cones, which brings on a tenesmus; but the chief use of the tree is as a sovereign medicine in the scurvy. BEHRING taught the *Kamtshadales* to make a decoction of it: but they have neglected his instructions, notwithstanding they saw numbers of his people restored to health in a short time, and snatched, as it were, from the jaws of death*. Even at this time the *Russian* colonists perish miserably with the disorder, notwithstanding the remedy is before their eyes.

The *Pinus Larix*, or Larch-tree, grows only on the river of *Kamtshatka*, and the streams which run into it. This tree is of the first use in the mechanical services of the country: with it they build their houses,

* *Voyage*, iii. 332.—*Gm. Fl. Sib.* i. 181.—Respecting the trees, consult *Voyage*, iii. 332. *Desc. Kamtschatka*, 359, and the preceding catalogue.

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their fortifications, and boats. They make use of the *Populus alba*, or White Poplar, for the same purposes. Of the *Betula alba*, or Common Birch, a tree so useful to these northern nations, they make their sledges and canoes; and cut the fresh bark into small slices like vermicelli, and eat it with their dried caviar: they also tap the trees, and drink the liquor without any preparation. With the bark of the Alder they dye their leather; but that, and every tree they have near the coast, is stunted, so that they are obliged to go far inland for timber of proper size.

The *Populus Balsamifera*, Fl. Ross. 77. tab. xli. the *Taccamabaca* of the Americans, *Catesby* i. 34, is found on the river *Bolschaja*. It is common to North America, Kamtschatka, and Siberia. In the last it abounds about the upper part of the *Lena*, about the *Jenesei*, *Irtisch*, *Angara*, and *Argun*. A decoction of it is used with success in the scurvy, and in a certain stage of an infamous distemper*, which almost generally pervades this vast region.

I must add, as a vegetable of use in œconomics, the *Triticum*, Gm. Sib. i. 119, N° 56, which grows in great quantities along the shores, which they mow, and work into mats, which serve for bedclothes and curtains; into mantles, smooth on one side, and with a pile on the other, which are water-proof. They also make with it sacks, and very elegant baskets; these, as well as the mats, they ornament with split whale-bones, and work into variety of figures †. The *Urtica Cannabina* or Hemp Nettle, Sp. Pl. ii. 1396. *Amm. Ruth.* 173. tab. xxv. is another plant of great use: this they pluck in *August* or *September*, tie in bundles, and dry on their huts: they tear it to pieces, beat, and clean it; then spin it between their hands, and twist the thread round a spindle. It is the only material they have to make their nets; which, for want of skill in the preparation, will rot, and last no longer than one season ‡.

In respect to the quadrupeds of this country, I have reason to think, from the great assistance I have received from the *Russian* academicians, or

QUADRUPEDS.

* *Fl. Sib.* iii. p. 31.† *Hist. Kamtschatka*, 373.‡ *Fl. Sib.* i. 152, 153.

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their labors, that my account of them, in my zoological part of this Work, can receive little addition. I request that the *Brown Bear* may be substituted instead of the Black, as the native of *Kamtshatka*. I was led into the mistake by the suspicions of a most able naturalist. I am since informed, by the best authority, (that of Captain KING*) that it is the brown species which is found there; that they are carnivorous, and prey at times on the ARGALI or wild sheep; but do not attack man, except urged by extreme hunger, or provoked by wounds, or by the slaughter of their young; when nothing but their death can ensure the safety of the persons who fall in their way. In the first case, they will hunt mankind by the scent, and sacrifice them to their want of food, which usually is fish or berries.—The *Kamtshadales* never read *Pope*, but observe his advice:

Learn from the Beasts the physic of the field.

The Bear is their great master; and they owe all their knowledge in medicine and surgery, and the polite arts, to this animal. They observe the herbs to which he has recourse when he is ill, or when he is wounded, and the same simples prove equally restorative to the two-legged Urfine race. The last even acknowledge the Bear as their dancing-master, and are most apt scholars in mimicking his attitudes and graces †. I was informed by one of the gentlemen who was on the voyage, that the *Sea Otter* was seen on the first arrival on the *American* coast; but, as it is not mentioned in that excellent and magnificent work till the arrival of the ships in *Nootka* sound, I will not insist on the accuracy of its latitude.

ARGALI.

The ARGALI yields a dish of most excellent flavor. The natives work the horns into spoons, small cups, and platters; and have frequently a small one hanging at their belts, by way of a drinking horn, in their hunting expeditions ‡.

DOGS.

The Dogs are like the *Pomeranian*, but vastly larger; the hair rather

* See *Voy.* iii. 304 to 308, where Captain KING gives a full account of the present method of hunting.

† *Voy.* iii. 308.

‡ Same, 344.

coarser,

coarfer, and the ufual color light dun, or dirty creme-color. Bitches are never used for the draught, but dogs alone; which are trained to it from their puppy-hood, by being tied with thongs to stakes, with their food placed at a small distance beyond their reach; so that by constant laboring and straining, they acquire both strength of limb and habit of drawing*.

The LEONINE and URSINE SEALS, and the MANATI, must have been on their migrations during the time the navigators visited this peninsula; for they saw not one of those curious animals. The COMMON SEALS, being stationary, were met with in great numbers. The bottle-nosed Seal, or Sea Lion of Lord *Anson*, is totally unknown in these seas. I refer the reader, for a view of the quadrupeds and birds of *Kamtschatka*, to the catalogue which Captain KING honored with a place in the third volume of the Voyage †. I shall only add, that the class of AVKS is far the most numerous of any, and contains six species unknown to *Europe*; that the only bird which has escaped me is a small *Blue Petrel* ‡, seen in numbers in about lat. 59. 48, off the northern part of the peninsula.

Kamtschatka is destitute of every species of serpent and frog. Lizards are very frequent, and are detested by the natives, who believe them to be spies sent by the infernal gods to examine their actions, and predict their deaths. If they catch one, they cut it into small pieces, to prevent it from giving any account of its mission: if it escapes out of their hands, they abandon themselves to melancholy, and expect every moment their dissolution; which often happens through fear, and serves to confirm the superstition of the country §. The air is very unfavorable to insects, except lice and fleas, which are in all their quarters; and, filthy to relate! are

* *Voy.* iii. 345.

† By some typographical mistake, the greater part of the *webbed-footed birds* are, in the first edition, placed under the division of *clowen-footed*. The naturalist reader will easily see, that the birds, from CRANE, p. 357, to PIED OYSTER-CATCHER, ought to be placed in the division of *clowen-footed*; and from GREAT TERN, p. 356, to RED-FACED CORVORANT, p. 357, should be put after RED-THROATED DIVER, p. 358, the *webbed-footed*.

‡ *Narrative*, ii. 246.

§ *Descr. Kamtsch. Fr.* 509.

SEALS.

REPTILES.

INSECTS.

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eaten by these beastly people *. Bugs are acquisitions of late years, imported into the bay of *Awatcha*.

FISH.

The fish of *Kamtschatka* are with difficulty enumerated. There does not seem to be any great variety of genera; yet the individuals under each species are found in most astonishing abundance. Providence hath been peculiarly attentive to the natives of this peninsula, by furnishing them in so ample a manner, who for the greater part must for ever be deprived of support derived from grain and cattle. The vegetables they have are sufficient to correct the putrescent quality of the dried fish, and often form an ingredient in the dishes; which are prepared different ways. The *Joukola* is made of the salmon kind, cut into six pieces, and dried either in the open air or smoked: the roes are another dish in high esteem with them, either dried in the air, or rolled in the leaves of different plants, and dried before the fire. They can live a long time on a small quantity of this food, and eat with it the bark of birch or willow trees, to assist them in swallowing a food so very viscid; but their ambrosial repast is the *Huigul*, or fish flung into a pit till it is quite rotten, when it is served up in the state of carrion, and with a stench unsupportable to every nose but that of a *Kamtschadale* †.

WHALE.

The Fin Whale, *Br. Zool.* iii. N° 18, is very frequent, and is of singular use to the inhabitants. They eat the flesh; preserve the fat for kitchen use and for their lamps; with the corneous laminæ they sew the seams of their canoes, and make nets for the larger sort of fish; they form the sliders of their sledges with the under jaw-bones, and likewise work them into knives; with the blade-bones, worked down to a sharp edge, they form scythes, and most successfully mow the grass. The *Tschutschibi* verify the relation of *Pliny* ‡, and, like the *Gedrosi* of old, frame their dwellings with the ribs §; with the ligaments they make excellent snares for different animals; with the intestines dried, cleaned, and blown, they make bags for their grease and oil; and with the skins the soles of their shoes, and

* *Descr. Kamtschatka*, Fr. 507.‡ *Hist. Nat. lib. ix. c. 3.*† *Hist. Kamtschatka*, Engl. 194. Fr. 46.§ *Voyage*, iii. 450.

straps and thongs for various purposes. The *Tschutski* take these animals by harpooning; the *Oloutores*, in nets made of thongs cut out of the skins of the *Walrus*; and the *Kamtshadales*, by shooting them with darts or arrows, the points of which, having been anointed with the juice of the *Zgate*, a species of *Anemone* and *Ranunculus**, are so noxious as to bring speedy death from the slightest wound, like the celebrated poison of the *Paragua Indians*. The vast animals in question, when struck with it, are infected with such agonies that they cannot bear the sea, but rush on shore, and expire with dreadful groans and bellowing.

THE GRAMPUS, *Br. Zool.* iii. N° 26, is very common in these seas: they are dreaded by the natives, who even make offerings to them, and entreat their mercy, lest they should overset their boats; yet, if these fish are thrown on shore, they apply them to the same uses as the Whale †.

GRAMPUS.

The *Motkoia* or *Akoul*, or White Shark, *Br. Zool.* iii. N° 42, is among the useful fish. They eat the flesh, and form of the intestines and bladder, bags to hold their oil. In the chase of this fish they never call it by its name, for fear of provoking it to burst its bladder ‡.

Lampries, *Br. Zool.* iii. N° 27; Eels, — 57; Wolf-fish, the *Kufatschka* of the *Russians*, is here of most uncommon fierceness, — 65; common Cod-fish? — 73; Hadock, — 74; and Hake, — 81, are found in the *Kamtshatkan* sea: and I also suspect, that the three-bearded Cod, — N° 87, is also met with: it is called there *Morskie Nalimi* §. An elegant species of Flounder, of excellent flavor, was taken here in abundance by our navigators: the back was studded with prickly tubercles, and marked longitudinally with lines of black on a brown ground. The *Ferchei*, possibly our *Ruffe*, — N° 127, is among the fish of the country; as is a species of the *Englisch* Sticklebacks.

But the fish of the first importance to the *Kamtshadales*, and on which

SALMON.

* I cannot discover the species. *Gmelin*, in his *Flora Sibirica*, does not give the least account of these plants.

† *Descr. Kamtsch.* 462.

‡ Same, 466.

§ *Br. Zool.* iii. 261.

they depend for subsistence, are the anadromous kinds, or those which at stated seasons ascend the rivers and lakes out of the sea. These are entirely of the Salmon genus, with exception to the common Herring, which in autumn quits the salt water. It is sayed, that every species of Salmon is found here. I may with certainty adjoin, that several of the *Siberian* species, with variety peculiar to this country, ascend the *Kamtshadale* rivers in multitudes incredible. The inhabitants dignify some of their months by the names of the fish. One is called *Kouiche*, or the month of *Red Fishes*; another, *Ajaba*, or that of *Little White Fish*; a third, *Kaiko*, or of the fish *Kaiko*; and a fourth, *Kijou*, or the month of the *Great White Fish* *. It is observable, that each shoal keeps apart from others of different species, and frequently prefers a separate river, notwithstanding the mouths may be almost contiguous. They often come up in such numbers as to force the water before them, and even to dam up the rivers, and make them overflow their banks; insomuch that, on the fall of the water, such multitudes are left on dry ground, as to make a stench capable of causing a pestilence, was it not fortunately dispersed by the violence of the winds; besides, the bears and dogs assist, by preying on them, to lessen the ill effects.

Every species of Salmon dies in the same river or lake in which it is born, and to which it returns to spawn. In the third year, male and female consort together, and the latter deposits its spawn in a hole formed with its tail and fins in the sand; after which both sexes pine away, and cease to live. A fish of a year's growth continues near the place, guards the spawn, and returns to the sea with the new-born fry in *November* †. The Salmon of this country spawn but once in their lives: those of *Siberia* and *Europe*, the rivers of which are deep, and abound with insect food, are enabled to continue the first great command of nature frequently during the period of their existence. In *Kamtshatka* the rivers are chilly, shallow, rapid, full of rocks, and destitute of nourishment for such multitudes: such therefore which cannot force their way to the neighborhood of the

* *Hist. Kamtsch.* 218.

† *Descr. Kamtsch.* 471.

tepid streams, or get back to the sea in time, universally perish; but Providence has given such resources, in the spawners, that no difference in numbers is ever observed between the returning seasons. It is singular, that neither the lakes or rivers have any species of fish but what come from the sea. All the lakes (for this country abounds with them) communicate with the sea; but their entrance, as well as that of many of the rivers, is entirely barred up with sand brought by the tempestuous winds, which confine the fish most part of the winter, till they are released by the storms taking another direction.

The species which appears first is the *Tshawytscha*. This is by much the largest; it weighs sometimes between fifty and sixty pounds, and its depth is very great in proportion to the length. The jaws are equal, and never hooked: the teeth large, and in several rows: the scales are larger than those of the common Salmon; on the back dusky grey, on the sides silvery: the fins bluish white, and all parts unspotted: the tail is Junated: the flesh, during its residence in the sea, is red; but it becomes white in fresh waters. It is confined, on the eastern side of the peninsula, to the river of *Kamtshatka* and *Awatcha*; and on the western to the *Bolchaia-reka*, and a few others; nor is it ever seen beyond lat. 54. It enters the mouths of the rivers about the middle of *May*, with such impetuosity as to raise the water before it in waves. It goes in far less numbers than the other species; is infinitely more esteemed; and is not used as a common food, but reserved for great entertainments. The natives watch its arrival, which is announced by the rippling of the water; take it in strong nets; and always eat the first they take, under a notion that the omission would be a great crime.

The *Nerka* is another species, called by the *Russians*, *Krasnaya ryba*, from the intense purplish redness of the flesh. It is of the form of the common Salmon; but never exceeds sixteen pounds in weight. When it first enters the rivers it is of a silvery brightness, with a bluish back and fins: when it leaves the sea the teeth are small, and jaws strait; but after

TSHAWYTSCHA.

* P. D. 12.
P. 16.
V. 10.
A. 15.

NERKA.

P. D. 11.
P. 16.
V. 10.
A. 15.

* Numbers of rays in the dorsal, pectoral, ventral, and anal fins.

it has been some time in the fresh water, the jaws grow crooked (especially in the male) and the teeth large. It begins to ascend the rivers in vast numbers in *June*; penetrates to their very sources; and returns in *September* to the sea, first resting for some time in the deep parts of the intervening lakes. It is taken in nets, either in the bays, as it approaches the rivers, or in the rivers, after it has quitted the sea*.

KYSUTCH.

P. D. 11.

P. 14.

V. 10.

A. 14.

The *Kysutch*, or *Bjelaya ryba*, or White Fish of the *Russians*, ascends the rivers in *July*, particularly such as are discharged from the inland lakes, and remain till *December*, when all the old fish perish, and the fry take to the sea. The upper jaw of the male, in its last period, becomes crooked. This species has the form of a common Salmon, but never attains three feet in length. It is of a silvery glossy color, spotted about the back; but in the rivers acquires a reddish cast: the jaws are long and blunt: the teeth large: the flesh is reddish before it quits the sea; but in the fresh water grows white. It is reckoned the most excellent of the light-colored fish.

KETA.

P. D. 14.

P. 15.

V. 11.

A. 18.

The *Keta* or *Kayko*, in form and size resembles the last; but the head is shorter and more blunt: the tail is lunated: the flesh white: the color of the scales a silvery white: the back greenish; and the whole free from spots. It ascends the rivers in *July*, and the fishery continues till *October*. This species is found in great abundance; and is so common, that the *Joukola* made with it is called *household bread*.

GORBUSCHA.

P. D. 12.

P. 15.

V. 10.

A. 15.

The *Gorbuscha*, or Hunch-back, arrives at the same time with the last. In form it resembles the Grayling: never exceeds a foot and a half in length: is of a silvery color, and unspotted: the tail forked: the flesh white. After it has been some time in the fresh water it changes its shape (the male especially) in a most surprizing manner. The jaws and teeth grow prodigiously long, especially the upper, which at first is shortest, but soon shoots beyond the under, and grows crooked downwards; the body becomes emaciated, and the meat bad: but what is most characteristic, an enormous bunch rises just before the first dorsal fin, to

* This species is described (*Voyage*, iii. 351) under the name of *Red Fish*; the preceding, in p. 350, under that of *Tichavitsf*.

which

which it owes its name. Its flesh is bad; so that this species falls to the share of the dogs.

The *Malma*, or *Golet* of the *Russians*, grows to the weight of twenty pounds, and to the length of about twenty-eight inches. It is the most slender and cylindrical of all the genus. The head resembles that of a trout: the scales are very small: the back and sides bluish, with scattered spots of scarlet red: the belly white: ventral and anal fins red: tail slightly forked. This and the two following are sporadic, going dispersedly, and not in shoals. It ascends the rivers with the last, and attains their very sources. It feeds on the spawn of the other species, and grows very fat. The natives salt those they take in autumn, and preserve frozen those which are caught when the frosts commence*.

The *Milkschitsch* is a scarce species, in form like a young Salmon; but the scales larger in proportion, and the body more flat: it never exceeds a foot and a half, in length: is of a silvery white, with a bluish back: nose conical: jaws equal: tail slightly forked.

The *Mykiss* appears at first very lean, but grows soon fat: it is very voracious: feeds not only on fish, but insects and rats, while swimming over the rivers; and is so fond of the berries of *vaccinium vitis idæa*, that it will dart out of the water, and snatch at both leaves and berries, which hang over the banks †. In shape it resembles a common Salmon: seldom grows above two feet long: has large scales, blunt nose, and numerous teeth: the back is dusky, marked with black spots; and on each side is a broad band of bright red: the belly white. It is a species of excellent flavor; but is scarcer than the other kinds. Its time of arrival is not known: M. STELLER therefore suspects that it ascends the rivers beneath the ice ‡.

The *Kunsha*, mentioned in page CLXXV, frequents the bays of this country, but never advances inland; and grows to the length of two feet: the nose is short and pointed: the back and sides dusky, marked with great yellowish spots, some round, others oblong: the belly white: the lower fins and tail

MALMA.

P. D. 12.

P. 14.

V. 8.

A. 10.

MILKTSCHITSCH.

P. D. 11.

P. 14.

V. 10.

A. 13.

MYKISS.

P. D. 12.

P. 14.

V. 10.

A. 12.

KUNSHA.

* *Descr. Kamtsch.* 482.

† Same, 482.

‡ Same, 482.

blue:

blue: the flesh white, and excellent. It is a scarce fish in these parts; but near *Ochotsk* ascends the rivers in great shoals.

I conclude this division of the tribe with the common Salmon, which is frequent here, and, like the others, ascends the rivers, equally to the advantage of the natives of the country.

INGHAGHITSH.

P. D. 8, 9.

P. 12.

V. 10.

A. 12.

Of the Salmon which LINNÆUS distinguished by the title of *Coregoni* is the *Inghaghitsh*, which has the habit of a small carp, with very large scales: the jaws nearly of equal length: the eyes very great, and silvery: the teeth very minute: the body silvery, bluish on the back: tail forked: it does not exceed five inches in length. It arrives in spring and autumn, and in both seasons is full of spawn, and smells like a Smelt.

INNYAGHA.

The *Innyagha* is another small kind, about five inches long, and not unlike the *S. Albula* of LINNÆUS. It is a rare species, and found but in few rivers. P. D. 9. P. 11. V. 8. A. 16.

OUIKI.

The most singular is the *Ouiki*, or *Salmo Cateroarius* of STELLER. It belongs to the *Osmeri* of LINNÆUS. Swims in immense shoals on the eastern coast of *Kamtschatka*, and the new-discovered islands, where it is often thrown up by the sea to the height of some feet, upon a large extent of shore: is excessively unwholesome as a food, and causes fluxes even in dogs. It never exceeds seven inches in length. Just above the side-line is a rough fascia, beset with minute pyramidal scales, standing upright, so as to appear like the pile of shag: their use is most curious—while they are swimming, and even when they are flung on shore, two, three, or even as many as ten, will adhere as if glued together, by means of this pile, inasmuch that if one is taken up, all the rest are taken up at the same time.

To conclude this list of *Kamtschadale* Salmon, I must add the *Salmo Thymallus*, or Grayling; the *S. Cylindraceus*, before described; the *Salmo Albula*, Lin. Syst. 512; and the *Salmo Eperlanus*, or common Smelt, to those which ascend the rivers.—For this account I am indebted to Doctor PALLAS, who extracted it from the papers of STELLER, for the use of this Work.

To these I may add, from the *Spicilegia Zoologica* of Doctor Pallas, *Fasc.*
vii.

vii. 13, tab. ii. the *Cyclopterus Ventricosus* or *Daechpu* of the *Kamtshadales*, which is often flung on shore and eaten by the natives. They call it libidinous and incestuous, for they say it watches the women as they walk along the shore, and casts a most lustful eye towards them.

The *Cyclopterus Gelatinosus*, *Fasc.* vii. 19, tab. iii. is another species, in substance a perfect jelly, and so filthy and fetid, that even the dogs starving with hunger refuse to eat it.

The *Cottus Japonicus*, *Fasc.* vii. 30, tab. v. is taken in these seas off the *Kuril Isles*, but more plentifully off *Japan*. It is defended like our armed Bull-head, but is of a much more elegant form.

The Herring, both the common and the variety, found in the gulph of *Botnia*, called the *Membras*, and by the *Suedes*, *Stroeming*, *Faun. Suec.* p. 128, visit these coasts in shoals, perhaps equal to those of *Europe*. There are two seasons, the first about the end of *May*, the second in *October*. The first species are remarkably fine and large*; they ascend the rivers, and enter the lakes: the autumnal migrants are closed up in them by the shifting of the sand at the mouths of the entrance, and remain confined the whole winter. The natives catch them in summer in nets; and in winter in most amazing numbers, by breaking holes in the ice, into which they drop their nets, then cover the opening with mats, and leave a small hole for one of their companions to peep through, and observe the coming of the fish; when they draw up their booty: and string part on packthread for drying; and from the remainder they press an oil white as the butter of *Finland*†.

The sea, on which these people depend for their very existence, is finely adapted for the retreat and preservation of fish. It does not consist of a level uniform bottom, liable to be ruffled with storms, but of deep vallies and lofty mountains, such as yield security and tranquillity to the finned inhabitants. We find the soundings to be most unequal: in some places only twenty-two fathoms, in others the lead has not found a bottom with a hundred and sixty fathoms of line. On such places the fish might rest un-

HERRING.

SEA.

* *Voyage*, iii. 350.† *Descr. Kamtsch.* 485.

disturbed

disturbed during the rage of the tempestuous winters. I do not find the least notice of shells being met with in these seas: either there are none, or they are pelagic, and escape the eyes of the navigators. But nature probably hath made ample provision for the inhabitants of the sea, in the quantity of sea-plants which it yields; STELLER, the great explorer of this region, enumerates the following, many of which are of uncommon elegance:

<i>Fucus peucedanifolius</i> , <i>Gm. Hist.</i>	<i>Fucus rosa marina</i>	-	-	102
<i>Fucor.</i>	<i>Fucus crenatus</i>	-	-	160
<i>Fucus turbinatus</i>	<i>Fucus fimbriatus</i>	-	-	200
<i>Fucus corymbiferus</i> , <i>E.</i>	<i>Fucus angustifolius</i>	-	-	205
<i>Fucus dulcis</i> , <i>E.</i>	<i>Fucus agarum</i>	-	-	210
<i>Fucus tamariscifolius</i> *, <i>E.</i>	<i>Fucus quercus marina</i> †			
<i>Fucus bifidus</i>	<i>Fucus vesiculosus</i> , <i>Sp. Pl.</i> 1626, <i>E.</i>			
<i>Fucus polyphyllus</i>	<i>Ulva glandiformis</i>	-	-	232
<i>Fucus clathrus</i>	<i>Ulva Priapus</i>	-	-	231
<i>Fucus myrica</i>		-	-	88

Of these the *Quercus marina* is used as a remedy in the dysentery; and the females of *Kamtshatka* tinge their cheeks with an infusion of the *Fucus tamariscifolius* in the oil of Seals.

TIDES:

In the harbours of *Sts. Peter and Paul* the greatest rise of the tides was five feet eight inches at full and change of the moon, at thirty-six minutes past four, and they were very regular every twelve hours †. The *Russian* philosophers observed here a singular phenomenon in the flux and reflux of the sea twice in the twenty-four hours, in which is one great flood and one small flood; the last of which is called *Manikba*. At certain times nothing but the water of the river is seen within its proper channel; at other times, in the time of ebb, the waters are observed to overflow their banks. In the *Manikba*, after an ebb of six hours, the water sinks about three feet, and the tide returns for three hours, but does not rise above a

* *Hist. Kamtschatka*, 45.

† Same, 124.

‡ *Voyage*, iii. 323.

foot; a seven-hours ebb succeeds, which carries off the sea-water, and leaves the bay dry. Thus it happens three days before and after the full moon; after which the great tide diminishes, and the *Manikba*, or little tide, increases*.

The rivers of the country rise in the midst of the great chain of mountains, and flow on each side into the seas of *Ochotsk*, or that of *Kamtschatka*. They furnish a ready passage in boats or canoes (with the intervention of carrying-places) quite across the peninsula. As has been mentioned, the waters yield no fish of their own, but are the retreat of myriads of migrants from the neighboring seas.

This peninsula, and the country to the west, are inhabited by two nations; the northern parts by the *Koriacs*, who are divided into the Rein-deer or wandering, and the fixed *Koriacs*; and the southern part by the *Kamtschadales*, properly so called: the first lead an erratic life, in the tract bounded by the *Penschinfska* sea to the south-east; the river *Kowyma* to the west; and the river *Anadir* to the north †. They wander from place to place with their Rein-deer, in search of the moss, the food of those animals, their only wealth. They are squalid, cruel, and warlike, the terror of the fixed *Koriacs*, as much as the *Tschutski* are of them. They never frequent the sea, nor live on fish. Their habitations are *jourts*, or places half sunk in the earth: they never use *balagans*, or summer-houses elevated on posts, like the *Kamtschadales*: are in their persons lean, and very short: have small heads and black hair, which they shave frequently: their faces are oval: nose short: their eyes small: mouth large: beard black and pointed, but often eradicated.

The fixed *Koriacs* are likewise short, but rather taller than the others, and strongly made: they inhabit the north of the peninsula: the *Anadir* is also their boundary to the north; the ocean to the east; and the *Kamtschadales* to the south. They have few Rein-deer, which they use in their sledges; but neither of the tribes of *Koriacs* are civilized enough to apply them to the purposes of the dairy. Each speak a different dialect of the same

NATIVES.

KORIACS.
WANDERING.

FIXED.

* *Descr. Kamtsch.* 510.† *Hist. Kamtsch.* 136.

F f

language;

language; but the fixed in most things resemble the *Kamtschadales*; and, like them, live almost entirely on fish. They are timid to a high degree, and behave to their wandering brethren with the utmost submission; who call them by a name which signifies *their slaves*. These poor people seem to have no alternative; for, by reason of the scarcity of Rein-deer, they depend on these tyrants for the essential article of cloathing. I cannot trace the origin of these two nations; but from the features may pronounce them offspring of *Tartars*, which have spread to the east, and degenerated in size and strength by the rigour of the climate, and often by scarcity of food.

KAMTSCHA-
DALES.

The true *Kamtschadales* possess the country from the river *Ukoi* to the southern extremity, the cape *Lopatka*. They are supposed, by M. STELLER, to have been derived from the *Mongolian Chinese*, not only from a similarity in the termination of many of their words, but in the resemblance of their persons, which are short. Their complexion is swarthy: their beard small: their hair black: face broad and flat: eyes small and sunk: eye-brows thin: belly pendent: legs small—circumstances common to them and the *Mongolians*. It is conjectured, that in some very remote age they fled hither to escape the yoke of the eastern conquerors, notwithstanding they believe themselves to be aboriginal, created and placed on the spot by their god *Koutkou*.

RELIGION.

In respect to their deity, they are perfect minute philosophers. They find fault with his dispensations; blaspheme and reproach him with having made too many mountains, precipices, breakers, shoals, and cataracts; with forming storms and rains; and when they are descending, in the winter, from their barren rocks, they load him with imprecations for the fatigue they undergo. In their morals they likewise bear a great similitude to numbers among the most polished rank in the *European* nations—they think nothing vicious that may be accomplished without danger; and give full loose to every crime, provided it comes within the pale of security.

GENII.

They have also their lesser deities, or genii. Each of them have their peculiar charge; to these they pay considerable veneration, and make offerings

offerings to them, to divert their anger or ensure their protection. The *Kamouli* preside over the mountains, particularly the *vulcanic*; the *Oucbakthou*, over the woods; *Mitg*, over the sea; *Gaetch*, over the subterraneous world; and *Fouila* is the author of earthquakes. They believe that the world is eternal; that the soul is immortal; that in the world below it will be reunited to the body, and experience all the pains usual in its former state; but that it never will suffer hunger, but have every thing in great abundance: that the rich will become poor, and the poor rich; a sort of just dispensation, and balance of former good and evil*. But almost all these superstitions are vanished by the attention of the *Russians* to their conversion. There are few who have not embraced the Christian religion. Churches have been built, and schools erected, in which they are successfully taught the language of their conquerors, which has already almost worn out that of the native people.

The country was very populous at the arrival of the *Russians*; but, after a dreadful visitation of the small-pox, which in 1767 swept away twenty thousand souls †, at present there are not above three thousand who pay tribute, the inhabitants of the *Kuril* isles included. Here are about four hundred of the military *Russians* and *Cossacks*, besides a number of *Russian* traders and emigrants perpetually pouring in, who intermix with the natives ‡ in marriage, and probably in time will extinguish the aboriginal race. The offspring is a great improvement; for it is remarked, that the breed is far more active than the pure *Russian* or *Cossack*. Sunk in lordly indolence, they leave all the work to the *Kamischadales*, or to their women; and suffer the penalty of their laziness, by the scurvy in its most frightful forms.

The *Kamischadales* seem to retain the antient form of their dress; but during summer it is composed of foreign materials; in the warm season both sexes use nankeen, linen, and silk; in winter, the skins of animals well dressed: the dress of men and women resembles a carter's frock with long sleeves, furred at the wrists, the bottom, and about the neck. On their head is a hood of fur, sometimes of the shaggy skin of a dog, and often of

* *Hist. Kamtsch.* 68, 71.† *Voyage*, iii. 366.

‡ Same, 367.

NUMBERS OF
PEOPLE.

DRESS.

the

the elegant skin of the EARLESS MARMOT. Trousers, boots, and furred mittens, compose the rest. The habit of ceremony of a *Toion* or chieftain is very magnificent, and will cost a hundred and twenty rubels: in antient times it was hung over with the tails of animals, and his furred hood flowed over each shoulder, with the respectability of a full-bottomed perriwig in the days of *Charles II.* The figure given in the *History of Kamtschatka*, translated into *French*, exhibits a great man in all his pride of dress*; but so rapidly has the present race of natives copied the *Russians*, that possibly in so short a space as half a century, this habit, as well as numbers of other articles and customs, may be ranked among the antiquities of the country.

ARMS:

Bows and arrows are now quite disused. Formerly they used bows made of larch-wood, covered with the bark of the birch. The arrows were headed with stone or bone, and their lances with the same materials. Their armour was either mats, or formed of thongs cut out of the skins of Seals, and sewed together, so as to make a pliable cuirass; which they fixed on their left side; a board defended their breast, and a high one on their back defended both that and the head.

HOSPITALITY.

Their savage and beastly hospitality is among the obsolete customs. Formerly, as a mark of respect to a guest, the host set before him as much food as would serve ten people. Both were stripped naked: the host politely touched nothing, but compelled his friend to devour what was set before him, till he was quite gorged; and at the same time heated the place, by incessantly pouring water on hot stones, till it became unsupportable. When the guest was crammed up to the throat, the generous landlord, or his knees, stuffed into his mouth a great slice of whale's fat, cut off what hung out, and cried, in a surly tone, *Tana*, or *There!* by which he fully discharged his duty; and, between heat and cramming, obliged the poor guest to cry for mercy, and a release from the heat, and the danger of being choaked with the noble welcome: oftentimes he was

* See *Hist. Kamtschatka*, tab. vi.—It differs much from the habit of ceremony described by Captain KING, iii. 377.

obliged

obliged to purchase his dismissal with most costly presents; but was sure to retaliate on the first opportunity*.

From the birds they learned the art of building their *balagans* or summer-houses. They seem like nests of a conic form, perched on high poles instead of trees; with a hole on one side, like that of the magpie, for the entrance. Their *jourts*, or winter residences, are copied from the OECONOMIC MOUSE; but with less art, and less cleanliness. It is partly sunk under ground; the sides and top supported by beams, and wattled, and the whole covered with turf. In this they live gregariously, to the number of six families in each; in a state intolerable to an *European*, by reason of smoke, heat, and stench, from their store of dried or putrid fish, and from their laziness, in never going out to perform their offerings to *Cloacina* †.

DWELLINGS.

Instigated by avarice, the *Russians* made a conquest of this savage country; and found their account in it, from the great value of its furry productions. They have added to their dominions this extremity of *Asia*, distant at least four thousand miles from their capital. The journey to it is still attended with great difficulties, through wild and barren regions, over dreadful mountains; and possibly impracticable, but for the multitude of *Siberian* rivers, which, with short intervals of land, facilitate the passage. Travellers usually take their departure out of *Siberia* from *Jakutz*, on the river *Lena*, in lat. 62: they go by water along the river, to its conflux with the *Aldun*, along the *Aldun* to the *Mai*, and from that river up the *Judoma*; and from near the head of that river to *Ochotsk*, the port from whence they embark, and cross the sea of *Ochotsk* to *Bolschaia-reka*, the port of the western side of *Kamtschatka*. The whole journey usually takes up the short summer: that over the hills to *Ochotsk* (and which is most convenient) was performed by *STELLER* in thirty-four days, excluding seven of rest ‡.

ROADS TO
KAMTSCHATKA.

The *Kuril* or *Kurilski* isles, which probably once lengthened the peninsula of *Kamtschatka*, before they were convulsed from it, are a series of

KURIL ISLES.

* *Hist. Kamtsch.* 107 to 109.† *Ellis's Nar.* ii. 217.‡ *Descr. Kamtsch.* 602.

islands

VULCANIC.

islands running south from the low promontory *Lopatka*, in lat. 51; between which and *Sboomka*, the most northerly, is only the distance of one league. On the lofty *Paramoufer*, the second in the chain, is a high-peaked mountain, probably volcanic *: on the fourth, called *Araumakutan*, is another volcano †; on *Urufs* is another; on *Storgu* two; and on *Kunatir*, or *Kaunachir*, one. These three make part of the group which pass under the name of the celebrated land of *Jeso* ‡. *Japan* abounds with volcanoes §; so that there is a series of spiracles from *Kamtschatka* to *Japan*, the last great link of this extensive chain. Time may have been, when the whole was a continuation of continent, rent asunder before the laboring earth gave vent to its inward struggles, through the mouths of the frequent volcanoes. Even with these discharges, *Japan* has suffered considerably by earthquakes ||. Volcanoes are local evils, but extensive benefits.

The *Russians* soon annexed these islands to their conquests. The sea abounded with Sea Otters, and the land with Bears and Foxes; and some of them sheltered the Sable. Temptations sufficient for the *Russians* to invade these islands; but the rage after the furs of the Sea Otters has been so great, that they are become extremely scarce, both here and in *Kamtschatka*.

BEHRING'S ISLE.

The islands which lie to the east of that peninsula, and form a chain between it and *America*, must now engage our attention. They lie in the form of a crescent, and are divided into three groupes; the *Aleutian*, the *Andreanoffskie*, and the *Fox* isles; but mention must first be made of *BEHRING'S* isle, and that of *Mednoi*, and one or two small and of little note. These lie about two hundred and fifty versts to the east of the mouth of *Kamtschatka* river. *BEHRING'S* is in lat. 55, where that great seaman was shipwrecked in *November* 1741, on his return from his *American* discoveries; and, after enduring great hardships, perished miserably.

* *Voyage*, iii. 388. † *Decouvertes des Russes*, i. 113. ‡ These isles are marked in a *Russian* map, communicated to me by Doctor *PALLAS*, with MS. notes. § *Kämpfer*, *Hist. Japan*. i. 305. || Same, 304.

Numbers of his people died of the scurvy, with all the dreadful symptoms attendant on those who perished by the same disease in Lord *Anson's* voyage *; the survivors, among whom was the philosopher STELLER, reached *Kamtschatka* in *August* 1742, in a vessel constructed out of the wreck of their ship. The isle is about seventy or eighty versts long; consists of high granitical mountains, craggy with rocks and peaks, changing into free-stone towards the promontories. All the vallies run from north to south: hills of sand, formed by inundations of the sea, floated wood, and skeletons of marine animals, are found at great distances from the shore, at thirty fathoms perpendicular height above the high-water level; which serve as a monument of the violent inundations that the vulcanoes before mentioned produce in these seas. Farther, the effect of the meteoric waters, and of the frosts, causes the rocks very sensibly to shiver and fall down, and precipitates every year some great mass into the sea, and changes the form of the island. The others are in the same case; so nothing is more probable than their gradual diminution, and, by consequence, the more easy communication formerly from one continent to the other, before the injuries of time, the effects of vulcanoes, and other catastrophes, had insensibly diminished the size, and perhaps the number of these isles, which form the chain; and had eaten in the coasts of *Asia*, which every where exhibit traces of the ravages they have undergone †.

The island swarmed with Sea Otters, which disappeared in *March*. The Urine Seal succeeded them in vast numbers, and quitted the coast the latter end of *May*. The LEONINE SEAL, the *Lachtach* or GREAT SEAL, and the MANATI, abounded, and proved the support of the wrecked during their stay. ARCTIC FOXES were seen in great multitudes, and completed the list of Quadrupeds. The same species of water-fowl haunt the rocks, and the same species of fish ascend the rivers, as do in *Kamtschatka*. The

* Book i. ch. x. and *Decouvertes*, &c. ii. 293.

† I am indebted to Doctor PALLAS for the whole account of this chain of islands, except where I make other references.—My extracts are made from a *French Memoir*, drawn up by my learned friend, and communicated to me.

tides rise here seven or eight feet. The bottom of the sea is rocky, correspondent with the island.

STELLER found, on BEHRING'S island, two hundred and eleven species of plants, of which more than a hundred grow in *Siberia*, and other mountainous countries; many are common to the eastern side of *Kamtshatka* and *America*. Brush-wood is only met with in the broadest part of the island. Near the northern part are some small alders with sharp-pointed leaves, and some wild roses. The *betula nana* grows in the marshes; and on the hills are some small junipers, the *forbus aucuparia* or *wicken* tree; and a few creeping willows.

The following, adding to those in the *Flora of Kamtschatka*, is the sum of those named in the account of *Behring's* island.

Mimulus luteus.	Gnaphalium dioicum, <i>A.</i>
Fumaria.	Cornus herbacea, <i>E.</i>
Picris pedata.	Epilobium angustifolium, <i>E.</i>
Polypodium fragrans, <i>E.</i>	Cochlearia danica, <i>E.</i>
Andromeda polyfolia, <i>E.</i>	Pulmonaria maritima, <i>E.</i>
Campanula, <i>Gm. Sib. iii. 160, 28.</i>	Senecio, <i>Gm. Sib. ii. 136, N° 118.</i>
Leontodon taraxacum, <i>A. E. Virg.</i>	Arnica montana.
Hieracium murorum, $\beta.$ <i>E.</i>	Chrysanthemum leucanthemum,
Tanacetum vulgare, <i>E.</i>	<i>Virg.</i>

MEDNOI.

Mednoi, or the copper island, lies a little to the south-east. A great quantity of native copper is found at the foot of a ridge of calcareous mountains on the eastern side, and may be gathered on the shores in vast masses, which seems originally to have been melted by subterraneous fires. This island is full of hillocks, bearing all the appearance of volcanic spiracles; which makes it probable, that these islands were rent from the continent by the violence of an earthquake. Among the float-wood off this island is camphor, and another sweet wood, driven by the currents from the isle of *Japan*.

ALEUTIAN ISLES.
THE NEAREST.

The *Aleutian* group lies in the bend of the crescent, nearly in mid-channel between *Asia* and *America*, lat. 52. 30, and about two hundred versts distant from *Mednoi*. It consists of *Attok*, *Schemija*, and *Semitchi*.

The

The first seems to surpass in size BEHRING'S isle; but resembles it in its component parts, as do the other two. *Attok* seems to be the island which *Behring* called *Mount St. John*. These are inhabited by a people who speak a language different from the northern *Asiatics*; they seem emigrants or colonists from *America*, using a dialect of the neighboring continent. They were discovered in 1745, by *Michael Nevodtsikoff*, a native of *Tobolski*, who made a voyage, at the expence of certain merchants, in search of furs, the great object of these navigations, and the leading cause of discoveries in this sea. This voyage was marked with horrid barbarities on the poor natives. The marine animals must have swarmed about this period, and for some time after. Mention is made of adventurers who brought from hence to *Kamtschatka* the skins of 5030 old and young Sea Otters. Another, on a small adjacent isle, killed 700 old, and 120 cub Sea Otters, 1,900 blue Foxes, 5,700 black Urine Seals, and 1,310 of their cubs*. The blue Foxes abound in these islands, brought here on floating ice, and multiply greatly. The blue variety is ten times more numerous here than the white; but the reverse is observed in *Siberia*. They feed on fish, or any carrion left by the tide. The natives bore their under lips, and insert in them teeth cut out of the bones of the Walrus; and they use boats covered with the skins of sea animals.

At a great distance from the first group is the second, or farthest *Aleutian* isles: of those we know no more than that the natives resemble those of the first. By the vast space of sea which Doctor *PALLAS* allows between the two groups, Captain *COOK* is fully vindicated for omitting, in his chart, the multitude of islands which, in the *Russian* maps, form almost a complete chain from *BEHRING'S* isle to *America*. Dr. *PALLAS'S* information must have been of the best kind; and he and our illustrious navigator coincide in opinion, that they have been needlessly multiplied, by the mistake of the *Russian* adventurers in the reckoning, or, on seeing the same island in different points of view, putting it down as a new dis-

ALEUTIAN ISLES.
THE FARTHEST.

* *Coxe's Russ. Disc.* 4to. 42. 57. 8vo. 46. 63.

ANDREAN ISLES. discovery, and imposing on it a new name. The *Andreanoffskie*, so called from their discoverer (in 1761) *Andrean Tolstytk*, succeed. On two of them are vulcanoes. Lastly, are the *Fox* islands, so called from the number of black, grey, and red Foxes found on them; the skins of which are so coarse, as to be of little value. The natives bore their noses and under lips, and insert bones in them by way of ornament. Among the last in this group is *Oonolafcha*, which was visited by Captain Cook. This lies so near to the coast of *America*, as to claim a right to be considered as an appurtenance to it. I shall therefore quit these detached paths for the present, and, in pursuance of my plan, trace the coasts of the northern division of the great continent, from the place at which it is divided from *South America*.

CALIFORNIA. After traversing obliquely the *Pacific Ocean*, appears *California*, the most southerly part of my plan on this side of the new world. This greatest of peninsulas extends from Cape *Blanco*, lat. 32, to Cape *St. Lucas*, lat. 23; and is bounded on the east by a great gulph called the *Vermillion sea*, receiving at its bottom the vast and violent river *Colerado*. The west side is mountainous, sandy, and barren *, with several vulcanoes on the main land and the isles †: the eastern, varied with extensive plains, fine vallies watered with numbers of streams, and the country abounds with trees and variety of fruits. The natives, the most innocent of people, are in a state of paradisaical nature, or at least were so before the arrival of the *European* colonists among them. The men went nearly naked, without the consciousness of being so. The head is the only part they pay any attention to; and that is surrounded with a chaplet of net-work, ornamented with feathers, fruits, or mother of pearl. The women have a neat matted apron falling to their knees: they sling over their shoulders the skin of some beast, or of some large bird, and wear a head-dress like the other sex. The weapons of the country are bows, arrows, javelins, and bearded darts, calculated either for war or the chase. In the

* *Shelwoke*, in *Harris's Coll.* i. 233. † *Hackluyt*, iii. 401.—*Hist. California*, i. 140.

art of navigation, they have not got beyond the bark-log, made of a few bodies of trees bound parallel together; and in these they dare the turbulent element. They have no houses. During summer they shelter themselves from the sun under the shade of trees; and during nights sleep under a roof of branches spread over them. In winter they burrow underground, and lodge as simply as the beasts themselves: such however was their condition in 1697; I have not been able to learn the effect of *European* refinement on their manners. Numbers of settlements have, since that time, been formed there, under the auspices of the Jesuits. The Order was of late years supported by the Marquis *de Valero*, a patriotic and munificent nobleman *, who favored their attempts, in order to extend the power and wealth of the *Spanish* dominions; and I believe with success. The land and climate, particularly *Monterey*, in lat. 36, is adapted for every vegetable production; and a good wine is made from the vines introduced by the colonists.

The natives are a fine race of men, tall, brawny, and well made; with black hair hanging over their shoulders, and with copper-colored skins. We have a most imperfect account of the animals of this peninsula. It certainly possesses two wool-bearing quadrupeds. As to birds, I doubt not but the Jesuits are right, when they say, that it has all that are found in *New Mexico* and *New Spain*. The capes of *Florida* and cape *St. Lucas*

NATIVES.

* This is the nobleman whom the writer of *Lord Anson's Voyage* stigmatizes with the epithet of *munificent bigot*. It was not by a reverend author, as is generally supposed, but by a person whose principles were unhappily in the extreme of another tincture.—Having from my youth been honored with the friendship of the *Anson* family, I can give a little history of the compilation of the *Voyage*:—A Mr. *Paman* first undertook the work. It was afterwards taken out of his hands, and placed in those of the reverend Mr. *Walters*, chaplain of the *Centurion*; but he had no share in it farther than collecting the materials from the several journals: those were delivered to Mr. *Benjamin Robins*, a most able mathematician, and the most elegant writer of his time. He was son of a quaker-taylor at *Bath*, whom I have often seen: a most venerable and respectable old man. Mr. *Robins* unfortunately forgot that he was writing in the character of a divine; and it was not thought proper to affront Mr. *Walters*, by omitting his name in the title-page, as he had taken in subscriptions: this, therefore, will account for the constant omission of the word *PROVIDENCE*, in a voyage which abounded with such signal deliverances.

lie nearly under the same latitudes, and form the southern extremities of *North America*; but our ignorance of the productions of the vast provinces of *New Mexico*, will leave ample subject to a future naturalist to supply my deficiencies.

This country was discovered under the auspices of the great *Cortez*, and *Don Antonio de Mendoza*, cotemporary viceroy of the new conquests: each, actuated by a glorious spirit of emulation, sent out commanders to advance the welfare of their country to the utmost; and *Francisco Ulloa*, in 1539, and *Fernando Alarcon*, in 1540, soon discovered this peninsula, and other adjacent regions, sources of immense wealth to their country*. The *Spanish* adventurers of these early times sailed as high as lat. 42; and named, in honor of the viceroy, the farthest point of their discovery, *Cabo di Mendoza*.

SIR FRANCIS
DRAKE.

Our celebrated navigator, *Sir Francis Drake*, on *June* 5th 1578, touched on this coast, first in lat. 43; but was induced, from the severity of the cold, to sail to lat. 38, where he anchored in a fine bay. He found the natives to be a fine race of men, naked as the *Californians*, with the same kind of head-dresses; and the females habited like their southern neighbors. He was treated like a deity. The chief of the country, by the resignation of his crown or chaplet, his sceptre, *i. e.* calumet, and other insignia of royalty, vested in *Sir Francis* the whole land; which he named *New Albion*, from its white cliffs, and took formal possession of in the name of his royal mistress. We may be thankful that we never claimed the cession: it forms at present part of *New Mexico*; and probably is reserved for future contests between the *Spaniards* and the offspring of our late colonists. *Sir Francis* found this country a warren of what he calls 'a strange kind of Conies, with heads as the heads of ours; the feet of a Want, *i. e.* a Mole, and the tail of a Rat, being of a great length: under her chinne 'is on either side a bag, into the which she gathereth her meat when she 'hath filled her bellie abroad.' The common people feed on them, and the king's coat was made of their skins †. This species is to be referred to

* A full account of these voyages may be seen in *Hackluyt*, iii. 397, &c.

† *Hackluyt*, iii. 738.

the division of Rats with pouches in each jaw; and has never been observed from that period to this.

Exactly two hundred years from that time the coast was again visited CAPTAIN COOK. by an *Englishman*, who in point of abilities, spirit, and perseverance, may be compared with the greatest seamen our island ever produced. Captain JAMES COOK, on *March* 7th 1778, got sight of *New Albion*, in lat. 44. 33 north, and long. 235. 20 east, about eight leagues distant. The sea is here (as is the case the whole way from *California*) from seventy-three to ninety fathoms deep. The land is moderately high, diversified with hills and vallies, and every where covered with wood, even to the water's edge. To the most southern cape he saw he gave the name of *Cape Gregory*, its latitude 43. 30: the next, which was in 44. 6, he called *Cape Perpetua*; and the first land he saw, which was in 44. 55, *Cape Foul-weather*. The whole coast, for a great extent, is nearly similar, almost strait, and harborless, with a white beach forming the shore. While he was plying off the coast, he had a sight of land in about lat. 43. 10, nearly in the situation of *Cape Blanco de St. Sebastian*, discovered by *Martin d'Aguilar* in 1603. A little to the north, the *Oregon*, or great river of the *West*, discharges itself into the *Pacific Ocean*. Its banks were covered with trees; but the violence of the currents prevented *D'Aguilar* from entering into it*. This, and the river of *Bourbon*, or *Port Nelson*, which falls into *Hudson's Bay*; that of *St. Laurence*, which runs to the east; and the *Mississipi*, which falls into the bay of *Mexico*, are said to rise within thirty miles of each other. The intervening space must be the highest ground in *North America*, forming an inclined plane to the discharges of the several rivers. An ill fated traveller, of great merit, places the spot in lat. 47, west long. from *London* 98, between a lake from which the *Oregon* flows, and another called *White Bear* lake, from which the *Mississipi* †.

* *Hist. California*, ii. 292.

† *Carver's Travels*, 76, 121.—Mr. *Carver*, captain of an independent company, penetrated far inland into *America*; and published an interesting account of his travels. This gentleman was suffered to perish for want, in *London*, the seat of literature and opulence!!!

This

CHAIN OF ALPS
IN AMERICA.

This exalted situation is part of the *Sibiring Mountains*, which are branches of the vast chain which pervades the whole continent of *America*. It may be fairly taken from the southern extremity, where *Staten Land* and *Terra del Fuego* rise out of the sea, as insulated links, to an immense height; black, rocky, and marked with rugged spiry tops, frequently covered with snow. *New Georgia* may be added, as another, horribly congenial, rising detached farther to the east. The mountains about the streights of *Magellan* soar to an amazing height, and infinitely superior to those of the northern hemisphere, under the same degree of latitude. From the north side of the streights of *Magellan*, they form a continued chain through the kingdoms of *Cbili* and *Peru*, preserving a course not remote from the *Pacific Ocean*. The summits, in many places, are the highest in the world. There are not less than twelve which are from two thousand four hundred toises high, to above three thousand. *Pichincha*, which impends over *Quito*, is about thirty-five leagues from the sea, and its summit is two thousand four hundred and thirty toises above the surface of the water; *Cayambé*, immediately under the equator, is above three thousand; and *Ckimborazo* higher than the last by two hundred. Most of them have been volcanic, and in different ages marked with eruptions far more horrible than have been known in other quarters of the globe. They extend from the equator, through *Cbili*; in which kingdom is a range of vulcanoes, from lat. 26 south, to 45. 30*, and possibly from thence into *Terra del Fuego* itself, which, forming the streights of *Magellan*, may have been rent from the continent by some great convulsion, occasioned by their laborings; and *New Georgia* forced up from the same cause. An unparalleled extent of plain appears on their eastern side. The river of *Amazons* runs along a level clothed with forests, after it bursts from its confinement at the *Pongo* of *Borjas*, till it reaches its sea-like discharge into the *Atlantic Ocean*.

In the northern hemisphere, the *Andes* pass through the narrow isthmus of *Darien*, into the kingdom of *Mexico*, and preserve a majestic height and

* *Ovalle, Hist. Cbili*, in *Churchill's Coll.* iii. 13.

their

their volcanic disposition. The mountain *Popocatepec* made a violent eruption during the expedition of *Cortez*, which is most beautifully described by his historian, *Antonio de Solis* *. This, possibly, is the same with the vulcano observed by the Abbé *d'Auteroche*, in his way from *Vera Cruz* to *Mexico*, which, from the nakedness of the lavas, he conjectured to have been but lately extinguished †. From the kingdom of *Mexico*, this chain is continued northward, and to the east of *California*; then verges so greatly towards the west, as to leave a very inconsiderable space between it and the *Pacific Ocean*; and frequently detached branches jut into the sea, and form promontories; which, with parts of the chain itself, were often seen by our navigators in the course of their voyage. Some branches, as we have before observed, extend towards the east, but not to any great distance. A plain, rich in woods and savannas, swarming with Bisons or Buffaloes, Stags, and *Virginian Deer*, with Bears, and great variety of game, occupies an amazing tract, from the great lakes of *Canada*, as low as the gulph of *Mexico*; and eastward to the other great chain of mountains, the *Apalachian*, which are the *Alps* of that side of northern *America*. I imagine its commencement to be about lake *Champlain* and lake *George*, with branches pointing obliquely to the river *St. Laurence* eastward, and rising on its opposite coasts: others extending, with lowering progress, even into our poor remnant of the new world, *Nova Scotia*. The main chain passes through the province of *New York*, where the lower or eastermost scattered ridge is distinguished by the name of the *Higblands*, and lies within forty miles of the *Atlantic*. From thence it recedes from the sea, in proportion as it advances southward; and near its extremity in *South Carolina* is three hundred miles distant from the water. It consists of several parallel ridges ‡, divided by most enchanting vallies, and generally clothed with variety of woods. These ridges rise gradually from the east, one above the other, to the central; from which they gradually fall to the west, into

* *Conquest of Mexico*, book iii. ch. iv.

† *Voy. to California*, 33.

‡ *Doctör Garden*. See also Mr. *Lewis Evans's* Essays and map. *Philadelphia*, 2d. ed. p. 6, &c.

the vast plains of the *Mississipi*. The middle ridge is of an enormous bulk and height. The whole extends in breadth about seventy miles; and in many places leaves great chafms for the discharge of the vast and numerous rivers which rise in the bosoms of the mountains, and empty themselves into the *Atlantic* ocean, after yielding a matchless navigation to the provinces they water. In p. CLVIII. I have given a view of the immense elevated plain in the *Russian* empire. Beyond the branch of the *Apalachian* mountains, called *The Endless*, is another of amazing extent, nearly as high as the mountains themselves*. This plain, (called the *Upper Plains*) is exceedingly rich land; begins at the *Mobock's* river; reaches to within a small distance of lake *Ontario*; and to the westward forms part of the extensive plains of the *Ohio*, and reaches to an unknown distance beyond the *Mississipi*. Vast rivers take their rise, and fall to every point of the compass; into lake *Ontario*, into *Hudson's* river, and into the *Delawar* and *Susquehannab*. The tide of the *Hudson's* river flows through its deep-worn bed far up, even to within a small distance of the head of the *Delawar*; which, after a furious course down a long descent, interrupted with rapids, meets the tide not very remote from its discharge into the ocean †.

LOW GROUNDS.

Much of the low grounds between the base of the *Apalachian* hills and the sea (especially in *Virginia* and *Carolina*) have in early times been occupied by the ocean. In many parts there are numbers of small risings composed of shells, and in all the plains incredible quantities beneath the surface. Near the *Mississipi* again, in lat. 32. 28, from the depth of fifty to eighty feet, are always found, in digging, sea-sand and sea-shells, exactly similar to what are met with on the shores near *Pensacola* ‡. This is covered with a stratum of deep clay or marle, and above that with a bed of rich vegetable earth. All this proves the propriety of applying the epithet of *NEW* to this quarter of the globe, in a sense different to that intended by the novelty of its discovery. Great part of *North America* at least became but recentl, habitable: the vast plains of the *Mississipi*, and the tract between the *Apalachian Alps* and the *Atlantic*, were once possessed by

* Mr. Lewis Evans, p. 9, and map.

† Same.

‡ J. Lorimer, esq.

the ocean. Either at this period *America* had not received its population from the old world, or its inhabitants must have been confined to the mountains and their vallies, till the waters ceased to cover the tracts now peopled by millions.

The composition of the northern mountains agrees much with those of the north of *Asia*, and often consists of a grey rock-stone or granite, mixed with glimmer and quartz; the first usually black, the last purplish. Near the river *St. Lawrence*, a great part of the mountains rests on a kind of slaty limestone. Large beds of limestones, of different colors, are seen running from the granitical mountains, and are filled with *Cornua Ammonis*, and different sorts of shells, particularly with a small species of scallop, together with various sorts of corals, branched as well as starry. The strata of limestone also appear near the base of different parts of the *Apalachian* chain*. Without doubt, the schistous band, consisting of variety of stone, split and divided by fissures horizontal and perpendicular (in *Asia* the repository of metallic veins) is also found attendant on the granitical mountains of *North America*; and like them will be found rich in ores †. The labor will be amply repaid to the proprietors, by the discovery of mineral sources of wealth, perhaps equal to those already discovered in the similar secondary chains of mountains in the *Russian* empire ‡.

NORTH AMERICA is subject to earthquakes, but never to the destructive degree that *South America* is. The only observations which could have been made were on the eastern part. *Canada* and *New England* have experienced several shocks, some very violent, so as to throw down walls and chimnies, dry up springs and small rivers; infect others with sulphureous and most fetid smells. In some places sulphureous blasts burst out of the ground, and flung up calcined bituminous earth, or loads of fine sand and ashes, mixed with a remnant of sulphur. The same singular

COMPONENT
PARTS.

EARTHQUAKES.

* *Kalm*, iii. 21, 198, 216.—*Bartram's Travels*, 10, 38.

† In such seem to be lodged the lead and silver ores found in *Canada*. See *Kalm*, iii. 212.

‡ See Dr. *PALLAS's Obs. sur la formation de Montagnes*, &c.

CLIMATE OF NORTH AMERICA.

rumbling noise preceded each earthquake as in *Europe*; and ships, at a great distance from shore, felt shocks as if they had struck upon a rock. The most terrible earthquake on record in these parts was that of 1663. Its greatest violence was in *Canada*. Many mountains were broken and rent; and, between *Tadoussac* and *Quebec*, two mountains were flung so as to form a point of land, jutting a quarter of a league into the river of *St. Laurence*.

These parts of *North America* have their volcanoes. On the *West River* mountain, in the province of *New Hampshire*, are cinders, calcined matter, and burnt sand. Noises have been heard at the distances of fourteen or fifteen miles; and, about thirty-five years ago, the noise was uncommonly loud; and at that time the fire was seen very distant. These accounts of the volcanoes are but imperfectly related, but I little doubt but that they are well founded. As to the explosions, which so often rend the rocks in *North America*, they are of different nature, and caused by the expansive power of the frosts*.

CLIMATE OF
NORTH
AMERICA.

The thermometer has been known, in *Hudson's-bay*, to rise out of doors to 85, on the 12th of *July*, and to sink in the month of *January* to 45 below the cypher, in a glass regulated according to *Farenheit's* scale. It has been observed by Mr. *Hutchins*, that on the 6th of *July*, 1775, the quicksilver rose as high as 99; and once in the same month, for an hour or two, even to 103. In respect to cold, the quicksilver begins to congeal when it is sunk to about 40 below the cypher; but the spirit thermometer continues to shew a degree of cold so low as 46. The former remarks were made by Mr. *Wales*, at *Prince of Wales's* fort, in lat. 58° 55', correspondent to the southern part of the *Orknies*. Those islands lie surrounded by the sea: *Hudson's-bay* has to the west a tract of continent extending in the narrowest part above thirty-five degrees, covered the whole winter with snow; and to the north a still more rigorous climate, a sea

* See Professor *Williams's* account of the Earthquakes in *North America*, and Mr. *Alexander's* account of the Volcanoes, in the *Memoirs of the American Academy*, vol. i. pp. 260. 316.

STORMS IN CAROLINA.

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perpetually infested with ice: so let the wind blow either from the west or from the north, it is sure to bring with it the most severe effects. From the province of *New York* to this in question, the ground remains covered with snow the greatest part of the winter; later or earlier, as the country approaches or recedes from the south. The predominant winds are from the west, and those blow above three quarters of the year: but the north or north-easterly winds are observed to be the vehicles of snow. The north-westerly bring the severest cold.

The middle provinces are remarkable for the unsteadiness of the weather, or the quick transitions from heat to cold. Snow falls in quantities in *Virginia*, but does not lie above a day or two; yet even after a mild, or indeed a warm day, the river *Potomac* has been frozen over in one night, strong enough to be passed, and that in places where it was two miles broad; and *James* river, where it has been three miles broad. These alterations are owing to the above-cited cause, the sudden arrival of the chilling winds of the north-west.

The provinces of *South Carolina* and *Florida* are subject to vast heats and furious whirlwinds, hurricanes, bursts of thunder, and fatal lightnings. Mr. *Henry Ellis* found the thermometer in *Georgia* at 105, in one of the summer months: a heat so far superior to that of the human body, even in that climate, that Mr. *Ellis* could not raise it above 97 by the application of it to his body. On *December* 10th it was at 86, yet the next day fell as low as 38. Well might Mr. *Ellis* remark the deleterious effect of these extraordinary changes on the human frame*.

The united fury of the thunder, lightning, and whirlwind, cannot be better illustrated than by the descriptive instance which happened in *South Carolina*, with which Dr. GARDEN, with his usual liberality, favored me; and of which he was an eye-witness.

‘ Before I say any thing of that tremendous whirlwind which I mentioned to you in conversation, the particulars of which you desire, I shall observe that *Carolina*, in common with other warm climates, is subject to

* Phil. Transf. l. 754, 755.

STORMS IN CAROLINA.

occasional tempests of various sorts; such as severe thunder storms, hurricanes, whirlwinds, &c. of different strength and violence. Thunder storms and gusts happen at all times of the year, particularly in the summer time; but there are some, of the most dreadful force and appearance, that happen chiefly in the spring and autumnal months. They generally rise between the west and north, and gradually advance, with accumulating thickness, always in a contrary direction to the wind, which strengthens as the gust approaches, and rises in the atmosphere with deep and fullen darkness, pregnant with frequent bursts of sharp lightning, darting its tremendous forks in all directions. Every kind of animal seeks shelter and retreat. The wind increasing, and the clouds rolling on from contrary quarters, the opposing elements, by their furious approach and violent contention, produce a general uproar and darkness; and the atmosphere is hurried into eddies and whirlwinds, that fill the air with dust, leaves, and branches of trees, and every other light body that lies in their way; so that an almost total darkness takes place, before the important cloud, rolling on, at length bursts over you, and pours down spouts and torrents of rain, mingled with almost unintermitting peals of thunder, and the most alarming flashes of lightning, pointed and forked, which frequently strikes houses, and shivers in pieces the loftiest and stoutest trees. During the storm, heaven and earth seem to be in contention; and yet no sooner is its force spent, than all is sunshine, calmness, and tranquillity.—These gusts generally happen in the afternoon and towards evening, though I have seen them at all times of the 24 hours.—But, entirely independent of such storms, whirlwinds of different sorts arise in various parts of the country; and taking sometimes a rectilinear, and sometimes an irregular and varied direction, proceed through the country, marking their progress (if of great strength and violence) by an avenue in the woods, of a greater or less extent according to their diameter, where every tree, plant, building, &c. are torn up, broken, and laid flat; till at length the whirling column either suddenly lifts itself up, and vanishes in the air; or gradually diminishing in force, bulk, and diameter, totally disappears. Small whirlwinds of this kind

are

REMARKABLE WHIRLWIND.

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are frequent in the hottest weather: those of large size and great force fortunately happen seldomer; but their tracks are now and then seen in the woods, and may be followed for miles.

Of this kind, commonly known under the title of *TYPHONS*, a most violent one passed down *Ashley River*, on the 4th of *May 1761*, and fell upon the shipping in *Rebellion Road* with such fury, as to threaten the immediate destruction of a large fleet lying there ready to sail for *Europe*.

This terrible phenomenon was seen by many of the inhabitants of *Charlestown*, coming down *Wappoo Creek*, resembling a large column of smoke and vapor, whose motion was very irregular and tumultuous, as well as that of the neighboring clouds, which appeared to be driven down nearly in the same direction (from the south-west), and with great velocity. The quantity of vapor which composed this impetuous column, and its prodigious velocity, gave it such a surprising momentum, as to plow *Ashley River* to the bottom, and to lay the channel bare, of which many persons were eye-witnesses. When it came down *Ashley River* it made so great a noise, as to be heard by most of the people in town, and was taken by many for constant thunder; its diameter at that time was generally judged to be about three hundred fathoms (though from what I have since known of the breadth of the river, I am confident it must have been nearer double); and in height, to a person in *Broad-street*, *Charlestown*, it appeared to be about forty-five degrees, though it increased in magnitude and height during its progress to *Rebellion Road*. As it passed the town, nearly about the conflux of *Cooper* and *Ashley* rivers, it was joined by a column of the same kind, though not of the same magnitude, which came down *Cooper River*. Though this last was not of equal strength or impetuosity with the other, yet on their meeting together, the tumultuous and whirling agitations of the air were seemingly much greater; insomuch that the froth and vapor raised by its sides in the river, seemed to be thrown up to the apparent height of thirty-five or forty degrees towards the middle; whilst the clouds, which were now driving in all directions to this place, appeared to be precipitated into the vortex, and whirled around at the same time with incredible velocity: just after this, it fell on the shipping in the *Road*, and was scarce three minutes in its pas-

' sage, though the distance is near two leagues. Five vessels were sunk out-
 ' right; his majesty's ship the *Dolphin*, which happened to be at anchor just
 ' on the edge of the column, and all others in that situation, lost their masts;
 ' the other unfortunate five, which lay in the direct line of its progress, were
 ' instantaneously sunk. Whether was this done by the immense weight of
 ' this column pressing them into the deep? or was it done by the water be-
 ' ing suddenly forced from under them, and thereby letting them sink so
 ' low, as to be immediately covered and ingulphed by the lateral mass of
 ' water? This tremendous column was seen upwards of thirty miles south-
 ' west from *Charlestown*, where it arrived twenty-five minutes after two
 ' o'clock, P. M. making an avenue in its course of great width, tearing up
 ' trees, houses, and every thing that opposed; great quantities of leaves,
 ' branches of trees, even large limbs, were seen furiously driven about and
 ' agitated in the body of the column as it passed along. When it passed
 ' *Rebellion Road*, it went on the ocean, which it overspread with trees,
 ' branches, &c. for many miles, as vessels arriving from the northward some
 ' days afterwards informed us. The sky was overcast and cloudy all the
 ' forenoon; about one o'clock it began to thunder, and continued more or
 ' less till three. The mercury in *Farenheit's* thermometer, at two o'clock,
 ' stood at 77°; by four o'clock the wind was quite fallen, the sun shone
 ' out, and the sky was clear and serene, and not a vestige of the dreadful
 ' scene remaining, but the dismasted and dismantled vessels in the *Road*.'

I will now return from this digression to the *Oregon*. I am sorry to find
 that our illustrious voyager treats the existence of the strait, into
 which that river falls, with a fastidiousness very uncommon with his
 usual candor and modesty. He even denies the river a place in his map.
 Captain Cook came, on *March* 22d 1778, off a point of land which,
 with an island and some other circumstances, afforded such hopes of
 having found an entrance, that he gave to that point the name of *Cape*
Flattery. Hard gales, and even a short storm, blew him from this part
 of the coast; yet it is now evident, that very cape was the southern
 horn of the mouth of the river *Oregon*, or of what is now indisputably
 known to be the long-scouted straits of *De Fuca*. *De Fuca* was a
 very able pilot, employed by the viceroy of *Mexico* on voyages of dis-
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Tomahawk & Bow.

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STREIGHTS ESTABLISHED.

CCXXXIII*

covery, in the reign of *Philip II.* In 1592 he was sent, in pursuance of a former plan, for the discovery of the streights of *Anian.* He found an opening or great inlet between lat. 47 and 48. He sailed up till he met with an open sea, which he navigated to a considerable distance. He returned; and, on some discontent with the *Spaniards,* quitted their service, and went to *Venice,* on his way home, being a *Greek* by birth. At *Venice* he met with a Mr. *Lack,* either a *British,* or a considerable merchant: to him he expressed a wish to engage with the *English,* and conduct them to his discovery of a north-west passage into the *South Sea.* *Lack* wrote to Sir *Walter Raleigh,* and to *Richard Hackluyt**: but the offer was neglected; and *De Fuca* soon after died, in his passage to his native country.

If it had not been for the last voyage of Captain *Cook,* the discovery by *De Fuca* had either been forgotten, or his memory stigmatized as that of an impostor. The report of the vast prices which the few skins of the sea otters took at *Canton,* on the return of the *Resolution* and *Enterprize,* stimulated several merchants to fit out vessels for that trade alone. The first were from *Macao:* the second from *Bombay.* One *Hanna* was the first adventurer; who sailed from the *Tyra* in *April* 1785, and reached *Nootka* in the *August* following. Lieutenant *Meares,* of the royal navy, sailed from *Bengal* in 1786. The national insult we suffered from the *Spaniards,* in the person of this gentleman, is unknown to none: I shall only mention Mr. *Meares* in the character of a brave and spirited discoverer. In *June* 1788 he entered and explored these famous streights. He found them in lat. 48. 5. The land dreary, but often covered with immense forests, and the sea abounding with the valuable animal, the sea otter: the men fierce in their aspect, and most undoubted *antropophagi.* The hard gales, and surrounding dangers, determined him to quit the streights, and seek the open sea. He soon after met with an *American* sloop, the *Washington,* and informed the master of the discovery: which he pursued, entered the famous passage, and found an extensive

* *Purchas,* iii.

sea, with numerous and populous isles, seated on the back of *Nootka*, and other islands hitherto supposed to have been part of the great continent. The great river *Oregon* is placed in the charts as entering into the western side of this inland sea. The *Washington* sailed from south to north above nine degrees, and came again into the ocean through another sound or streight, nearly in lat. 55, to the south of the place named by Mr. *Arrowsmith*, *Sea Otter Sound*. The whole group is named by Mr. *Meares*, *Princess Royal Islands*: no part of which, excepting *Nootka*, was ever touched at before. We must wait patiently for the great consequences of this discovery: it probably may approximate to the territories of the *Hudson's Bay* company; and give, by means of lakes and rivers, a communication with the bay, and by their medium, and those of carrying-places, unite the *Atlantic* and *Pacific* oceans. I cannot suppose these are actual streights: the shores of the bay have been thoroughly investigated, and if they had not, Mr. *Hearne's* journey has put the matter beyond the power of doubt. The place that should be searched should be *Baffin's Bay*: but should we succeed in meeting with a pervious inlet, the dangers of the floating ice, and the shortness of the favorable season, will, I fear, effectually destroy the utility of such a passage.

The next discoverers of the parts so unfortunately missed by Captain *Cook*, were Captain *George Dixon*, Mr. *Strange*, Captain *Douglas*, and Captain *Duncan*. The first had the honor of discovering the two great islands now called *Queen Charlotte's Islands*; Mr. *Meares* attributes the merit to the captains *Lourie* and *Guire*, under Mr. *Strange*, in the year 1786. I will not enter into the dispute between two gentlemen I have the pleasure of knowing; let the proportion of fame be settled by an impartial public. I mention the effects of discovery only in the state in which I find it.

I shall now inform the public of the great discovery of what it has for a long time held equally fabulous with that of *De Fuca*. *De Fonta's* inlet is no longer doubted; yet the entrance, perhaps, not perfectly ascertained. He probably passed between the two *Charlotte* islands, through *Trollope* river, into *Dixon Streight*; from that streight he passed through
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the *Princess Royal Island*, and then arrived in that great gulph or inland sea discovered by the *Washington*, of which we may expect more perfect accounts, leading to the most important consequences. We have in Mr. Meares's voyage (Introd. LXII.) a hint of a discovery through the inland sea, into the vicinity of *Huájon's Bay*. A little time will either disprove this communication, or reduce it to a certainty: we will therefore, in the present doubtful state, conclude, that we may pronounce the *Trollope* river to have been *De Fonta's* inlet, and the *Charlotte* and the *Princess Royal Islands*, his *Archipelago of St. Lazarus* *.

In lat. 49, Captain Cook found a secure shelter in an harbour called by him *King George's Sound*; by the natives, *Nootka*. The shores are rocky †; but within the Sound appears a branch of the range I before mentioned. It is here divided into hills of unequal heights, very steep, with ridged sides, and round blunted tops; in general cloathed with woods to the very summits. In the few exceptions, the nakedness discovers their composition, which is rocky, or in parts covered with the adventitious soil of rotten trees or mosses.

The trees were the *Pinus Canadensis*, or *Canada Pine*; the *P. Sylvestris*, or *Scotch Pine*, and two or three other sorts; *Cupressus Thyoides*, or the *White Cedar*. The Pines of this neighborhood are of a great size: some are a hundred and twenty feet high, and fit for masts or ship-building ‡; but the dimensions of some of the canoes in *Nootka Sound* best shew their vast bulk—they are made of a single tree, hollowed so as to contain twenty persons, and are seven feet broad, and three deep. They are the same with the *monoxyla* of the antient *Germans* and *Gauls* §, but constructed with much more elegance. The old *Europeans* were content if they could but float. They probably were formed on the same rude model as those of the

* Those who wish for fuller information may consult Mr. Meares's Voyage, on the probability of a north-west passage, deduced from the observations on the letter of Adm. De Fonta, published by Tho. Jefferys, 1768.

† Voyage, ii. 290. tab. 86, 87.

‡ Barrington's Miscell. 290.

§ Polyæn. Stratagen. lib. v. c. 23.—Vel. Paterc. lib. ii. c. 107.

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old *Virginians* *, or of the antient *Britons*, similar to one I have seen dug up in a morass in *Scotland*, as artless as a hog-trough †. Those of *Nootka Sound* are at the head tapered into a long prow, and at the stern they decrease in breadth, but end abrupt.

The day-tides rise here, two or three days after the full and new moon, eight feet nine inches. The night-tides, at the same periods, rise two feet higher. Pieces of drift wood, which the navigators had placed during day out of the reach (as they thought) of the tides, were in the night floated higher up, so as to demonstrate the great increase of the nocturnal flux ‡.

I have described, to the best of my power, the quadrupeds and birds of the *American* part of this voyage. In the Zoological part I have given my suspicions of certain animals of the Sheep kind being natives of this neighborhood and *California*; but am not sufficiently warranted to pronounce them to be the same with the ARGALI or wild Sheep. Woollen garments are very common among the people of this Sound, and are manufactured by the women. The materials of many of them seem taken from the Fox and the Lynx; others, I presume, from the exquisite down of the MUSK OX. The only peculiar animal of these parts is the SEA OTTER: it extends southward along the coast, as far as lat. 49, and as high as 60. The other quadrupeds observed by the navigators are common to the eastern side of *North America*.

BIRDS.

I may mention, that small Perroquets, and Parrots with red bills, feet, and breasts, were seen by M. *Maurelle* about Port *Trinidad*, in lat 41. 7; and great flocks of Pigeons in the same neighborhood §. This was in *June*: they might have been on their migration when our navigators reached the coasts, which was on *March* 29th. As to the Parrots, it is possible that those birds may not extend so far north as *Nootka*; for on the eastern

* *Brevis et fida Narratio Virginiae*, in which are engraven the canoes of the country, taken from the drawings of *John Witt*; sent there with *Tho. Harriot*, by Sir *Walter Raleigh*, who communicated them to *De Bry*.—See tab. xii. and xiii. of the *Account of Florida*.

† *Tour Scotl.* ii. p. 106. ‡ *Voyage*, ii. 339. § See *Barrington's Miscell.* 489, 502.

side of the continent they do not inhabit higher, even in summer, than the province of *Virginia*, in lat. 39; or, in the midland parts, than lat. 41. 15, where they haunt in multitudes the southern sides of the lakes *Erie* and *Michigam*, and the banks of the rivers *Illinois* and *Ohio*. Another delicate species of bird was seen here in plenty, a kind of *Honey-sucker* or *Humming-bird*, a new species; which I have described under the title of the RUFFED. Among the water-fowl were seen the GREAT BLACK PETREL, or the *Quebrantabueffos*, or *Bone-breaker* of the *Spaniards*, which seems to be found from the *Kuril* isles to *Terra del Fuego*; the NORTHERN DIVER, a great flock of Black Ducks with white heads; a large species of White Ducks with red bills; and Swans flying northward to their breeding-places: common Corvorants were also very frequent.

The inhabitants of this Sound alter in their appearance from those who live more southern. They are in general below the middle stature; plump, but not muscular: their visage round, full, and with prominent cheeks; above which the face is compressed from temple to temple: the nostrils wide: nose flat, with a rounded point; through the *septum narium* of many is introduced a ring of iron, brass, or copper: eyes small, black, languishing: mouth round: lips large and thick: hair of the head thick, strong, black, long, and lank; that on the eye-brows very thin: neck short and thick: limbs small and ill-made: skin a pallid white, where it can be viewed free from dirt or paint. The women are nearly of the same form and size as the men, but undistinguishable by any feminine softness. Many of the old men have great beards, and even mustachios; but the younger people in general seem to have plucked out the hair, except a little on the end of the chin.

Their dress consists of mantles and cloaks, well manufactured among themselves, and either woollen, matting, or some material correspondent to hemp. Over their other cloaths the men frequently throw the skin of some wild beast, which serves as a great cloak. The head is covered with a cap made of matting, in form of a truncated cone, or in that of a flower-vase, with the top adorned with a pointed or round knob, or with a bunch of leathern tassels. Their whole bodies are incrufted with paint or dirt,

and they are a most squalid offensive race; silent, and uncommonly lazy; easily provoked to violent anger, and as soon appeased. The men are totally destitute of shame: the women behave with the utmost modesty, and even bashfulness*. I should not repeat what has been said of the infinite variety of hideous masques this nation possesses, and seems particularly fond of, was not the ingenious Editor of the Voyage at a loss for their intent, whether for religious or for masquerading purposes †. Mr. *Bartram* ‡ proves that these masques extend to the eastern side of the continent, and that their use, in those parts, was sportive; for he was plagued one night with the buffoonery of a fellow, who came into his lodgings while he was on his travels, and, after playing a thousand antic tricks, vanished in a manner as if he meant to be taken for a hobgoblin.

The *Ostiahs*, to this day, in their dances put on masques, change their dresses frequently, and imitate the forms of beasts and birds, and often in a manner so striking and satirical, that one is surprized to hear of so perfect a pantomime among such a savage people. But would not ignorance or superstition ascribe to a supernatural metamorphosis these temporary expedients to deceive the brute creation, or to afford amusement to their countrymen by these frolicsome masquerades? The *Americans* may carry themselves thus dressed into the field of battle, as the *Apulian* hunter did, who fell by the hand of *Camilla*. Dress and arms were similar;

Caput ingens oris hiatus,
Et malæ texere lupi, cum dentibus albis:
Agrestisque manus armat sparus.

These people have made some progress in the imitative arts; for, besides their skill in the sculpture of their masques, which they cut into the shape of the heads of various species of beasts and birds, they are capable of painting with tolerable exactness: accordingly, they often represent on their caps the whole progress of the Whale-fishery. I have seen a small

* *Voyage*, ii. 319.

† Same, 307.

‡ *Travels*, 43.

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bow made of bone, which was brought by the navigators from this side of *North America*, on which was engraven, very intelligibly, every object of the chase. I could distinguish the Elk, the Rein, the *Virginian Deer*, and the Dog; the Walrus, and the Seal, with the harpooning of Whales from boats or canoes of two kinds. The chase of birds was not omitted, for a man is to be seen driving a large flock, probably of Geese or Swans, during the season of moulting, a method of capture very common in many countries.—With what facility might be reclaimed and civilized a people so strongly possessed with a disposition towards the liberal arts! I have caused this singular bow to be engraven; and, in the same plate, that most terrific *Tomahawk* of *Nootka Sound*, called the *Taarweesh* or *Tsuskeab*. The offensive part is of stone, representing a tongue flung out in defiance, as is customary with many savage nations. It issues from a sculpture in wood resembling a human face, in which are stuck human and other teeth: and, to give it a fulness of horror, long locks of scalped hair are placed on several parts, waving, when brandished by the warriors, (who feed on the flesh of their enemies) in a most dreadful manner.

From lat. 55. 20, towards the north, the country increases in height, especially inland, where a range of very lofty mountains, mostly covered with snow, is seen nearly parallel with the coast, a branch of those I have before mentioned. Above lat. 56 the coast is broken into bays and harbours. In this neighborhood Captain *Tschirikow*, consort to the great navigator BEHRING, who was separated from his commander by a storm, was so unfortunate as to touch on an open part of the coast, in about lat. 55, in which he anchored in a most dangerous situation, full of rocks. Having lost his shallop, and after that his small boat, with part of his crew, which he had sent on shore to water, and which were destroyed by the natives, he was obliged to return from his ineffectual voyage*. A vast conic mountain, called by Captain Cook *Mount Edgcumbe* †, rises pre-eminent above all the others. This is in lat. 57. 3, long. 224. 7. Not remote from hence is the *Bay of Islands*, the same as the *Port los Remedios*,

RUSSIAN VOYAGE.

MOUNT
EDGECUMBE.

* *Voy. & Decouvertes de Russes*, i. 250.

† *Cook's Voy.* ii. 344, tab. 86.

nearly the *ve plus* of the *Spanish* expedition of 1775. The adventurers comforted themselves with having reached lat. 58, and having attained the highest latitude ever arrived at in these seas*. This coast, as well as the rest, continued covered with woods.

A high peaked mountain, Mount *Fair-weather*, and the inlet *Cross Sound*, next appear. The first is the highest of a chain of snowy mountains, which lie inland about five leagues, in lat. 58. 52. The land between them and the sea was very low, for the trees seemed to arise out of the water. Several sea-birds, with a black ring round the head; the tip of the tail, and upper part of the wings, marked with black; the body bluish above, white beneath, came in view; and on the water sat a brownish Duck, with a deep blue or black head †.

In lat. 59. 18, is a bay, with a wooded isle off its south point, named by Captain COOK, BEHRING'S; in honor of the illustrious *Dane* who first discovered this part of *America*, and, as was conjectured, anchored there for a small space. The appearance of the country was terrific; it consisted of lofty mountains (in *July*) covered with snow: but the chain is interrupted near this port by a plain of a few miles in extent; beyond which the view was unlimited, having behind it a continuance of level country, or some great lake. He had not leisure to make observations; he only named a cape, which advanced into the sea, Cape *Elias* ‡: this is not at present known; but the name of Mount *Elias* was bestowed by Captain COOK on a very conspicuous mountain ||, which lay inland to the north-west of the bay, in lat. 60. 15.

BEHRING, during the short stay he made on the coast, sent his boat on shore to procure water. That great naturalist, STELLER, companion of the voyage, took the opportunity of landing. The whole time allotted him was only six hours; during which he collected a few plants, and shot that beautiful species of Jay, N° 139, to which I have given his name. He returned on board with the regret a man of his zeal must feel at the

* *Barrington's Miscel.* 507.

† *Cook's Voy.* ii. 347.

‡ *Voy. & Decouvertes*, i. 254.—*Cook*, ii. 347, 383.

|| *Cook*, ii. tab. 86.

necessity of so slight an examination in so ample a field. What he could have done, had circumstances permitted, is evident from the excellent collection he formed of natural history respecting *Kamtschatka*, and some of its islands*.

Among the plants found by him on the *American* continent were, *Plantago major*, Sp. Pl. i. 163; Great Plantane, *Fl. Scot.* i. 117. *K. Virg.*: *Plantago Asiatica*, Sp. Pl. i. 163. *K.*: *Polemonium Cæruleam*, Sp. Pl. i. 230: Greek Valerian, *Hudson*, i. 89. *K.*: *Lonicera Xylosteum*, *Fl. Sib.* iii. 129. *K.*: *Ribes Alpinum*, Sp. Pl. i. 291. *Fl. Scot.* i. 146. *K.*: *Ribes grossularia*, Sp. Pl. i. 291; Gooseberries, *K. Virg.*: *Claytonia Virginica?* Sp. Pl. i. 294. *K. Virg.*: *Heuchera Americana?* Sp. Pl. i. 328. *K.*: *Heracleum Panaces*, Sp. Pl. i. 358; or Cow Parsnep, *K.* which he found in one of the habitations of the natives, tied up in bundles † ready for use. (I have mentioned, at p. cxcvii. the application of it in *Kamtschatka*, for the purposes of distilling an intoxicating liquor; but the *Americans* are fortunate enough to be ignorant of that art, and only use it as a food.) *Vaccinium Myrtillus*, Sp. Pl. i. 498; Bilberries, *Fl. Scot.* i. 200. *K.*: *Vaccinium Vitis Idæa*, *Virg.* Sp. Pl. i. 500; Red Whortle-berries, *Fl. Scot.* i. 202. *K.*: *Erica*, *Fl. Sib.* 131, N° 22. *K.*: *Adoxa Moschatellina*, Sp. Pl. i. 527; tuberous Moschatel, *Fl. Scot.* i. 209. *K.*: *Rubus Idæus*, Sp. Pl. i. 706; Raspberry-bush, *Fl. Scot.* i. 263. *K.*: *Fragaria Vesca*, Sp. Pl. i. 708; Wood Strawberry, *Fl. Scot.* i. 267. *Virg. K.*: the *Leontodon Taraxicum*, *Virg. B.* Sp. Pl. ii. 1122; or common Dandelion, *Fl. Scot.* i. 433: *Absinthium*, Sp. Pl. ii. 1188; or common Wormwood, *Fl. Scot.* i. 467: *Artemisia Vulgaris*, Sp. Pl. ii. 1188; or Mugwort, *Fl. Scot.* i. 468: *Gnaphalium Dioicum*, Sp. Pl. ii. 1199; Mountain Cudweed, or Cat's-foot, *Fl. Scot.* i. 470. *K.*: *Aster seu potiùs Helenium fruticosum*, *Fl. Sib.* ii. 175, *B. K.* with beautiful yellow flowers: *Erigeron acre*, Sp. Pl. ii. 1211; Blue Fleabane, *Fl. Scot.* i. 474. *K.*: *Chrysanthemum Leucanthemum*, ii. 1251; Great Daisy, or Ox-eye, *Fl. Scot.* i. 488. *B. K. Virg.*: *Pyrethrum*, *Fl. Sib.* ii. 203,

PLANTS.

* *Voy. & Decouvertes*, i. 257.† *Decouvertes faites par les Russes*, i. 256.—*Voyage*, ii. tab. 86.

K A Y E ' S I S L A N D .

N^o 170. *B. K.*: *Achillea Millefolium*, Sp. Pl. ii. 1267; Milfoil or Yarrow, *Fl. Scot.* i. 490. *K. Virg.*: *Empetrum nigrum*, Sp. Pl. ii. 1450; Black-berried Heath, Crow-berries, *Fl. Scot.* ii. 612. *K. Virg.*: *Menispermum Canadense?* Sp. Pl. ii. 1468. *K. Virg.*—I retain the mark of the *British* vegetables, to shew the vast dilatation of plants; and that of *Virg.* to shew those which spread to the eastern side of *America*. Among the plants enumerated by the Reverend Mr. *Manasseh Cutler*, discovered by him in the neighborhood of *Ipswich*, in the *Massachusetts*, not fewer than a hundred and forty are to be found also in *Great Britain* *.

To these may be added a few trees and plants observed by our navigators; such as the *Pinus Strobus*, Sp. Pl. ii. 1490, the white or *Weymouth* Pine, which grows to an enormous size; *Pinus Canadensis*, Sp. Pl. ii. 1421, the *Canada* Pine; three or four other Pines, which we cannot determine; the *Cupressus Disticha?* Sp. Pl. ii. 1422, the deciduous Cypress; *Cupressus Thuyoides*, Sp. Pl. ii. 1422, or white Cedar; some Birch, Alders, and Willows; wild Rose-bushes; and several plants, the species of which are unknown to us. Probably that useful Lily, the *Lilium Kamtschatkense*, or *Saranne*, extends to the continent, for it is found in abundance in the adjacent island *Oonalaschka*, where it serves as a food, as it does in *Kamtschatka* †.

KAYE'S ISLAND.

In this neighborhood, in lat. 59. 49, about *Kaye's* island ‡, off Cape *Suckling*, Captain *Cook* observed variety of birds; among them some Albatrosses, the snowy Gulls, and the common Corvorant: and in the poor woods which encircled the island like a girdle, were seen a Crow, the white-headed Eagle, and another species equally large, of a blacker color, with a white breast.

It was a great misfortune, in this voyage, that the fishes were promiscuously flung into one common cask, so that it is impossible to ascertain the species belonging to each country. In respect to shells, Mr. *Martyn*,

* *Rev. Manasseh Cutler's* account of the indigenous plants of *North America*, vol. i. 396. *Mem. Am. Acad.*

† *Voyage*, ii. 501.

‡ Same, tab. 85.

PRINCE WILLIAM'S SOUND.

CCXLII

of *Great Marlborough Street*, has, with great skill and most uncommon elegance, given us the figures of all that he could collect out of the South Sea.

In his 16th Table is the Sattin Limpet from *Nootka Sound*.

- In Tab. 18. The bonnet Limpet.
- Tab. 34. The ribbed *Trochus*.
- Tab. 43. The ridged *Buccinum*.
- Tab. 44. The plaited *Buccinum*.
- Tab. 46. The file *Buccinum*.
- Tab. 47. The bellied *Buccinum*.
- Tab. 66. The leafed *Purpura*.
- Tab. 76. The brown *Trochus* *.— All these the productions of *Nootka*. Their colors are plain: but their forms elegant.

After doubling a cape, called by our great navigator, *Hinchinbroke* †, he anchored in a vast sound, named by him *Prince William's*, in lat. 61. 30. secured by a long island, called *Mountague's*, stretching obliquely across from north-east to south-west. The land round this harbour rose to a vast height, and was deeply covered with snow ‡. Vegetation in these parts seemed to lessen. The principal trees were the *Canadian* and Spruce Firs, and some of them moderately large.

PRINCE
WILLIAM'S
SOUND.

Besides the quadrupeds found at *Nootka*, there is a variety of Bear of a white color; I will not call it the *Polar*, as that animal inhabits only the severest climates, where it can find dens of snow and isles of ice. An animal of the ermine kind, varied with brown, but the tail scarcely tipped with black. WOLVERENES were here, of a very brilliant color; and the earless MARMOT was very common. None of these were seen living, but their skins were brought in abundance as articles of commerce. The skin of the head of the male LEONINE SEAL was also offered to sale: in

QUADRUPEDS.

* These are ranged in the order they stand in his elaborate performance.

† *Voyage*, ii. tab. 86.

‡ See the picturesque view of *Snug Corner Cove*, tab. 45.

the

the Voyage it is called the *Ursine*; but from the great shagginess of the hair I presume I am not wrong in my conjecture. This is the only place in the northern hemisphere in which it was found by the navigators*.

BIRDS.

Among the birds were the black Sea Pies with red bills, observed before in *Van Diemen's Land* and *New Zealand*. A Duck, equal in size to our Mallard, with a white bill tinged with red near the point, and marked with a black spot on each side near the base; on the forehead a large white triangular spot, and a larger on the hind part of the neck: the rest of the plumage dusky: the tail short and pointed: the legs red. The female was of duller colors, and the bill was far less gay. Another species resembled the small one found at *Kerguelen's Land*. A Diver (Grebe?) of the size of a Partridge; with a black compressed bill: head and neck black: upper part of the body deep brown, obscurely waved with black; the lower part dusky, speckled minutely with white. Honey-suckers, probably migratory in this high latitude, frequently flew round the ships †.

MEN.

MANKIND here shew a variation from the last described. The natives are generally above the common stature, but many below it: square-built or strong-chested: their heads most disproportionably large, their faces flat, and very broad: their necks short and thick: their eyes small, in comparison to the vast breadth of their faces: their noses had full round points, turned up at the end: their hair long, thick, black, and strong: their beards either very thin or extirpated; for several of the old men had large, thick, but strait beards: their countenances generally full of vivacity, good-nature, and frankness, not unlike the *Cristinaux*, a people who live far inland, between the little and the great lakes *Ouinepique*. On the contrary, the inhabitants of *Nootka* in their dulness resemble the *Astinbouels*, who live on the western side ‡: and these two nations may have been derived from a common stock with the maritime tribes whom we have had occasion to mention. The skins of the natives of this sound were swarthy,

* *Voy.* ii. 377.

† Same, 378.

‡ *Dobbs*, 24.

possibly

possibly from going often naked; for the skins of many of the women, and the children, were white, but pallid. Many of the women were distinguishable from the men by the delicacy of their features, which was far from the case with those of *Nootka*.

In these parts, within the distance of ten degrees, is a change of both dress and manners. The cloak and mantle are here changed for a close habit, made of the skins of different beasts, usually with the hair outwards; or of the skins of birds, with only the down remaining; some with a cape, others with a hood: over which, in rainy weather, is worn a garment like a carter's frock, with large sleeves, and tight round the neck, made of the intestines probably of the whale, and as fine as gold-beater's leaf. On the hands are always worn mittens, made of the paws of a bear; and the legs are covered with hose, reaching to midway the thigh. The head is generally bare; but those who wear any thing, use the high truncated conic bonnet, like the people of *Nootka**. In this place only was observed the *Calumet*; a stick about three feet long, with large feathers, or the wings of birds, tied to it. This was held up as a sign of peace.

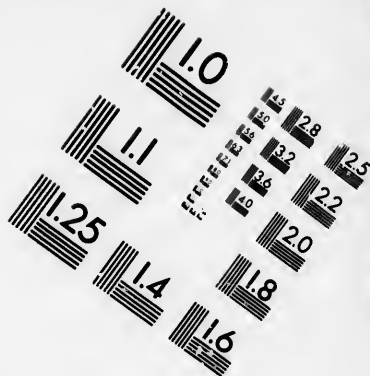
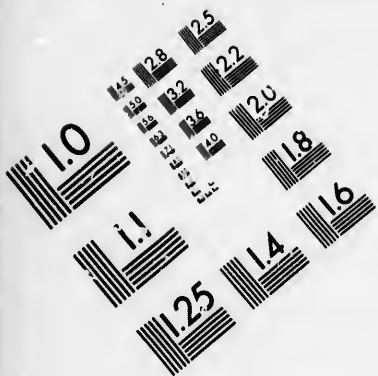
I leave the reader to amuse himself in the Voyage, by the account of the strange custom of the natives in cutting through their under lip, and giving themselves the monstrous appearance of two mouths†: in the orifice they place a bit of bone or shell by way of ornament. This custom extends to the distant *Mosquitos*, and even to the *Brasilians*‡, but seems unknown in other parts of *America*.—I endeavour to confine myself to passages which may lead to trace the origin of the people. These paint their faces, and puncture or tallow their chins. They are most remarkably clean in their food, and in their manner of eating it, and even in the keeping of their bowls and vessels. In their persons they are equally neat and decent, and free from grease or dirt§: in this they seem an exception to all other savages.

* *Voyage*, ii. 368, 369.
De Bry. Brasil, 165.

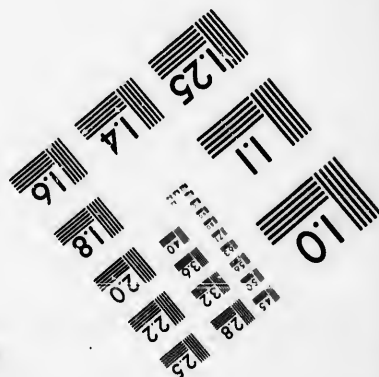
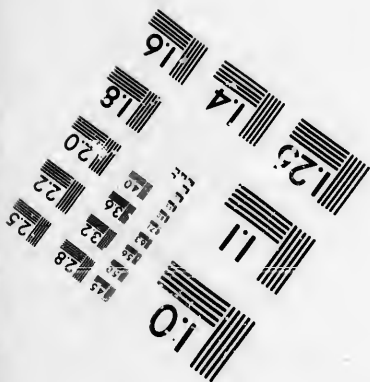
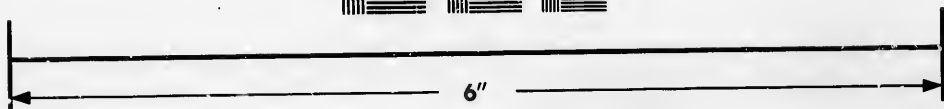
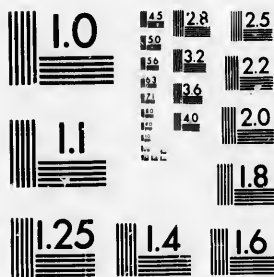
† Same, 369, tab. 46, 47.
§ *Voyage*, ii. 374.

‡ *Dampier*, i. 32.





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BOATS.

They have two kinds of boats; one large, open, and capable of containing above twenty people. It is made of the skins of marine animals, distended on ribs of wood, like the *vitalia navigia* of the *Britons*, at the time in which they were on a level with these poor *Americans*; or like the woman's boat of the *Greenlanders* and *Eskimaux*. The canoes are exactly of the same construction with those of the latter; and the difference of both is very trivial. The canoes of these *Americans* are broader than those of the eastern side of the continent; and some have two circular apertures, in order to admit two men*. Every weapon which these people have for the chase of quadrupeds or fish, is the same with those used by the *Greenlanders*: there is not one wanting.

CAPE BEDE.

From *Prince William's* found the land trends north-west, and terminates in two headlands, called Cape *Elizabeth* and Cape *Bede*; these, with Cape *Banks* on the opposite shore, form the entrance into the vast estuary of Cook's river; in the midst of which are the naked isles, distinguished by the name of the *Barren*. Within, to the west, is a lofty two-headed mountain, called Cape *Douglas*; which is part of a chain of a vast height, in which was a volcano, at the time this place was visited, emitting white smoke: and in the bottom of a bay, opposite to it, is an island, formed of a lofty mountain, on which was bestowed the name of Mount *St. Augustine* †. The estuary is here of a great breadth, owing to a bay running opposite to Mount *Augustine* deeply to the east.

MOUNT ST. AUGUSTINE.

COOK'S RIVER.

The estuary of Cook's river is of great length and extent. The river begins between *Anchor Point* and the opposite shore, where it is thirty miles wide: the depth very considerable, and the ebb very rapid. Far within, the channel contracts to four leagues, through which rushes a prodigious tide, agitated like breakers against rocks. The rise of the tide in this confined part was twenty-one feet. It was examined seventy leagues from the entrance, as far as lat. 61. 30, long. 210, and its boundaries were found to be flat, swampy, and poorly wooded, till they reached the foot of the

* *Voyage*, ii. 371.

† See the chart, ii. tab. 44.

great mountains. Towards the north, it divides into two great branches, or perhaps distinct rivers. That to the east is distinguished by the name of *Turn-again* river. The first is a league wide, and navigable, as far as was tried, for the largest ships, and continued very brackish; there is therefore the greatest probability of its having a very long course, and being, in after times, of considerable use in inland navigation: that it is of some even at present is very certain; for here, as well as in *Prince William's* found, the *Indians* were possessed of glass beads and great knives of *English* manufacture, which the *Hudson's bay* company annually send in great quantities, and exchange for furs with the natives, who travel to our settlements very far from the west. The company also send copper and brass vessels; but neither copper or iron in bars. There does not seem to be any direct dealings with the *Indians* of this coast: the traffic is carried on by intermediate tribes, who never think of bringing furs to a people so amply supplied as the *Indians* are who deal with our factories. Nations who use the most precious furs merely as a defence from the cold, make no distinction of kinds: if they could get more beads or more knives for the skins of Sea Otters than any other, they would instantly become articles of commerce, and find their way across the continent to the *European* settlements.

From *Turn-again* river to the nearest part of *Hudson's bay*, is fifty-five degrees, or about sixteen hundred miles; but from the most western part of *Arapahescow* lake (which is intermediate) is only twenty-six degrees, or about seven hundred and fifty miles. There is no discharge out of that vast water but what runs into *Hudson's bay*. We have some obscure accounts of rivers* which take a western course from the countries east of this coast: some of which may be those which have been seen by our navigators, and which, by means of lakes or other rivers falling into them, may prove a channel of intercourse between these *Indians* and the *Hudson's bay*

* Particularly from one *Joseph de la France*, who, in 1739, made a very long journey to the west, and was a very observant man. See *Dobbs, Hudson's Bay*, 21, 34, 35.

company, as soon as our friendly *Indians* become acquainted with the value of these maritime furs.

DOGS.

The inhabitants of Cook's river differed very little from those of *Prince William's* sound. They had Dogs, which were the first seen on the coasts; Sea Otters, Martins, and white Hares: and they were plentifully supplied with Salmon and Holibut.

CAPE ST. HERMOGENES.

ALASCHKA, CONTINENT OF AMERICA.

After leaving the entrance into the river, appears Cape St. *Hermogenes*, discovered first by BEHRING. It proved a naked lofty island, about six leagues in circuit, and divided from the coast by a channel a league broad. This lies in lat. 58. 15, off the vast peninsula *Alaschka*, which begins between the estuary of Cook's river and *Bristol* bay, which bound its isthmus. It points south-west, and continues the crescent formed by the islands which cross the sea from *Kamtschatka*. *Alaschka* is the only name given by the natives to the continent of *America*. The land to the west of Cook's river rises into mountains, with conoid tops thickly set together. The coast is frequently bold, and the rocks break into pinnacles of picturesque forms: the whole is fronted by groups of isles and clusters of small rocks. In a word, the country and shores are the most rugged and disjointed imaginable, and bear evident marks of having undergone some extraordinary change.

KADJAK.

Among the isles, those of *Schoumagin* are the most important, which received their name from having been the place of interment of one of BEHRING's crew, the first which he lost in these seas. The principal lies the farthest to the west, and is called *Kadjak*: it is about a hundred versts long, and from twenty to thirty broad; and, from the account of *Demetrius Bragin*, who visited it from *Oonalaschka* in 1776, is very populous. The inhabitants spoke a language different from those of that island: it seemed a dialect of the *Greenlanders*. They called their wooden shields *Kuyaky*, probably because they resemble a *kaiak*, or a little canoe, a *Greenland* word for that species of boat; and themselves *Kanagist*, as the others style themselves *Karalit*. They have likewise the woman's boat, like the people of *Prince William's* sound: in fact, they seem to be the same people, but more refined. They were armed with pikes, bows and arrows, and wooden shields.

shields. Their shirts were made of the skins of birds; also of the EARLESS MARMOT, Foxes, and Sea Bears, and some of fishes skins. Dogs, Bears, common Otters, and Ermines, were observed here. Their dwellings were made with timber, and were from fifteen to twenty fathoms long, covered with a thatch and dried grass. Within they were divided into compartments for every family, and every compartment lined neatly with mats. The entrance was on the top, covered with frames, on which were stretched the membranes of dried intestines instead of glass*. These people seemed to have made far greater progress in the arts than their neighbors. They worked their carpets in a very curious manner; on one side close set with beaver wool. The Sea Otters skins which they brought for sale were in some parts shorn quite close with sharp stones, so that they glistened and appeared like velvet. They shewed strong proofs of genius in their invention to preserve themselves from the effects of the *Russian* fire-arms. They had the spirit to make an attack, and formed skreens with three parallel perpendicular rows of stakes, bound with sea-weeds and osiers; their length was twelve feet, and thickness three: under the shelter of these they marched; but their success was not correspondent to their plan †: a sally of the *Russians* disconcerted them, and put them to the rout.

The island consists of hills mixed with lowlands. It abounds with bulbs, roots, and berries, for food; with shrubs, and even trees sufficiently large to be hollowed into canoes capable of carrying five persons ‡. In this kind of boat they differ from those of the *Greenlanders*.

Off the extremity of the peninsula of *Alaschka* is *Holibut* island, in lat. 54, rising into a lofty pyramidal mountain, lying opposite to the narrow shallow streight which lies between the isle *Oonemaka* and *Alaschka*. HOLIBUT ISLE,

* From a MS. communicated to me by Dr. PALLAS, *Bragin* was commander of a vessel which was fitted out by the merchants on a voyage to the new-discovered islands, and sailed from *Ochotsk* in 1772. About ten years prior to this, another voyage was made to *Kadjak* by *Stephen Glotoff*.—See *Coxe's Disc.* 108.

† *Coxe's Russ. Disc.* 12.

‡ MS.

OONEMAK AND OONALASHKA:

The chain on the continent is seen to rise into stupendous heights, covered with snow: among them several of the hills appear to rise insulated, and of a conic form. One was a *vulcano*, flinging up volumes of black smoke to a great height*, then streaming before the wind with a tail of vast length and picturesque appearance. It often took a direction contrary to the point the wind blew from at sea, notwithstanding there was a fresh gale; a demonstration of the existence of a contrary current of air in the upper region to that which was below. It lies in lat. 54. 48 north, long 195. 45 W. and is evidently a link in the vulcanic chain, which extends, in the southern hemisphere, as low at least as that of *St. Clement* in *Cbili*, in lat. 45. 30.

OONEMAK.

The extremity of *Alaschka* ends abrupt, and has opposite to it an island called *Oonemak* or *Uumak*, of nearly a correspondent breadth, separated from it by a very narrow and shallow channel, situated in lat. 54. 30, and leading into *Bristol* bay, pervious only by boats or very small vessels. The isle is a hundred versts long, and from seven to fifteen broad; and has in the middle a vulcano. In the low parts several hot springs burst forth, to which the islanders carry the fish or flesh they want to boil; and they are also fond of bathing in the temperate parts †.

OONALASHKA.

To the west are the small isles of *Oonella* and *Acvotan*: at a small distance from them is *Oonalashka* or *Agboun-alaiska* ‡, a name evidently referring to the continent. My MS. calls its length a hundred and twenty versts, its breadth from ten to eighteen. It is the most remote of the *Russian* colonies, who have now made settlements on most of the isles between *Asia* and *America*; all under the care of private adventurers. The voyage from *Ochotsk* or *Kamtschatka* lasts three or four years; and is solely undertaken for the sake of the skins of Sea Otters. Possibly other reasons will, in a little time, induce them to attempt the colonization of the continent. Timber may be one; for their northern *Asiatic* dominions and their islands yield none. I foresee docks and timber-yards in all convenient places. At

* See the plate, N° 87, vol. ii. for the several views.

† *Bragin's Voy.* MS.

‡ Doctor PALLAS, MS.

MANNERS OF THE INHABITANTS.

CCLI

NATIVES.

present, the natives of these isles have only the skin-covered canoes*, and even for the ribs they are obliged to the chance of drift-wood. In these, in dress, and in weapons, they resemble the *Esquimaux*. The language is a dialect of the *Esquimaux*. They are rather of low stature. They have short necks, swarthy chubby faces, black eyes, and straight long black hair. The fashion of wearing feathers or bits of sticks in their noses is used in *Oonalaschka*. Both sexes cut their hair even over their foreheads: the men wear theirs loose behind; the females tie theirs in a bunch on the top of their head: the first wear long loose frocks, of the skins of birds; the last of the skins of Seals. The men sling over their frocks another, of the guts of the cetaceous animals, dried and oiled, to keep out the water †; and, to defend their faces from the weather, they wear a piece of wood, like the front of the bonnet of an *English* lady ‡. Some use the bonnet in the form of the truncated cone. The women slightly tattoo their faces, and often wear a string of beads pendent from their noses; both sexes perforate their under lip, but it is very uncommon to see any except the females stick in it the ornamental bone. The nose-ornaments extend far inland on the continent; for the *Americans*, who trade with the *Hudson's bay* company, use them: but from the figures given by *De Bry*, they do not seem ever to have reached the people of *Virginia* and *Florida*. They inhabit *jourts*, or subterraneous dwellings, each common to many families, in which they live in horrible filthiness: but they are remarkably civilized in their behaviour; and have been taught by the *Russians* to pull off their caps, and to bow, in their salutations.

BARROWS.

They bury their dead on the summits of hills, and raise over the spot a barrow of stones §, in the manner customary in all the north of *Europe* in very early days.

On the north side of the promontory *Alaschka*, the water decreases considerably in depth, and the mountains recede towards the bottom far inland, and leave a large tract of low land between them and the sea. Here it

* See their boats, tab. 50.

† See their dresses, tab. 48, 49, 56, 57.

‡ *Voyage*, ii. 510.

§ Same, 521.

forms

BRISTOL BAY
AND RIVER.

forms a great bay, called *Bristol*; with a vast river at the end, with an entrance a mile broad, seated in lat. 58. 27. Cape *Newenham*, lat. 58. 42, a rocky promontory, is the northern horn of the bay, eighty-two leagues from Cape *Oonemak*, its southern: an universal barrenness, and want of vegetation, appeared in the neighborhood of the former. The WALRUSES began, the 15th of *July*, to shew themselves in great numbers about this place: a proof that ice is not essential to their existence. The inhabitants of this coast were dressed much more squalidly than those before seen; but, like the others, decorated their noses and lips. They shaved their head or cut the hair close, and only left a few locks behind or on one side, somewhat in the *Chinese* fashion. From Cape *Newenham*, the continent runs due north. To the west is *Gore's* island, distinguished by a vast cliff, in lat. 60. 17, long. 187. 30, called *Point Upright*; and near it a most rugged, high, rocky islet, named the *Pinnacles**. Myriads of the Auk tribe haunted these precipices. This seems the extreme northern resort of the SEA OTTER.

GORE'S ISLE.

SEA OTTERS.

CAPE STEPHENS.

From *Sboal-nefs*, in lat. 60, long. 196, there is a gap in the *American* geography, as far as *Point Shallow Water*, lat. 62. 50; and not far from thence were the symptoms of the discharge of some great river, from the uninvestigated part. Beyond *Point Shallow*, in lat. 63. 33, is Cape *Stephens*; and before it, at a small distance, *Stuart's* isle. These make the southern points of *Norton's Sound*, formed by a vast recess of the land to the east. All the land near the sea is low and barren, bounded inland by mountains. The trees, which were Birch, Alder, Willow, and Spruce, very small; none of the last above six or eight inches in diameter: but the drift-wood, which lay in plenty on the shore, much larger; having been brought down the rivers from land more favorable to its growth. Towards the bottom of the sound, Cape *Denbigh* juts far to the west into the water, and forms a peninsula. It has been an island; for there are evident marks on the isthmus, that the sea had once possessed its place: a proof of the loss

* See tab. 87.

of the element of water in these parts, as well as in other remote parts of the globe.

The sound, from Cape *Denbigh*, is suddenly contracted, and is converted into a deep inlet, seemingly the reception of a large river. The continent, in these parts, consists of vast plains, divided by moderate hills; the former watered by several rivers meandering through them. Vegetation improves in proportion to the distance from the sea, and the trees increase in bulk. A promontory, called *Bald Head*, bounds the northern entrance into this inlet. Farther to the west Cape *Darby*, in lat. 64. 21, makes the northern horn of this great sound.

Numbers of people inhabit this coast. The men were about five feet two inches high; and in form and features resembled all the natives seen by the navigators since they left *Nootka Sound*. They had, in their under lip, two perforations. The color of their skin was that of copper: their hair short and black: the beard of the men small: their language a dialect of the *Eskimaux*. Their clothing is chiefly of Deer skins, with large hoods, made in the form of loose jackets, scarcely reaching lower than half the thigh; where it was almost met by a great wide-topped boot. The *Eskimaux* occasionally stick their children in the top: the women of this country place them more commodiously within the upper part of the jacket, over one shoulder*. In language there seems considerable conformity. They had, like them, the woman's boat, and the *Kaiack*: the first they sometimes made use of as a protection from the weather, by turning it upside down, and sheltering beneath. But their hovels were the most wretched of any yet seen; consisting of only a sloping roof (without any side walls) composed of logs; a floor of the same; the entrance at one end, and a hole to permit the escape of the smoke. These poor people seem very susceptible of feelings for the misfortunes of each other, which would do honor to the most polished state. A family appeared, one of which was a most distorted figure, with scarcely the human form: another, seemingly the chief, almost blind: the third, a girl: the last, the wife.

CAPE DARBY.

NATIVES.

THEIR SENSIBILITY.

* See tab. 54.

She made use of Captain KING to act as a charm to restore her blind husband to his sight*. He was first directed to hold his breath; then to breathe on, and afterwards to spit on his eyes. We are not without similar superstitions. The *Romans* † applied the same remedy to diseases of the same part: but I doubt whether they, or our polished nation, ever expressed the same feelings as this poor woman did. She related her story in the most pathetic manner; she pressed the hands of the Captain to the breast of her husband, while she was relating the calamitous history of her family; pointed sometimes to the husband, sometimes to the cripple, and sometimes to the poor child. Unable to contain any longer, she burst into tears and lamentation. She was followed by the rest of her kindred in unison, which, I trust, filled the eyes of the civilized beholders, as their relation has mine.

From *Cape Darby* the land trends to the west, and ends in *Point Rodney*; low land, with high land far beyond, taking a northerly direction inland. Off this point, in lat. 64. 30, is *Sledge Island*, so called from a sledge being found on it, resembling those which the *Russians* use in *Kamtshatka* to carry goods over the snow. It was ten feet long, twenty inches broad, with a rail on each side, and shod with bone; all neatly put together, in some parts with wooden pins, but mostly with thongs of whale-bone: a proof of the ingenuity of the natives. Whether it was to be drawn with dogs or rein-deer, does not appear; for the island was deserted, and only the remains of a few *jourts* to be seen. In lat. 64. 55, long. 192, is KING's island, named in honor of the able and worthy continuator of the voyage. The continent opposite to it bends towards the east, and forms a shallow bay; then suddenly runs far into the sea, and makes the most western extremity yet known, and probably the most western of all. On it were several huts; and stages of bone, such as had been observed in the *Tschutsché* country. This cape forms one side of BEHRING's streights,

* See *Voyage*, ii. 481.

† *Mulieris salivam quoque jejunæ potentem dijudicant oculis cruentatis.*—*Plin. Hist. Nat.* lib. xxviii. c. 7.

POINT MULGRAVE. ICY SEA.

CCLV

and lies nearly opposite to *East Cape*, on the *Asiatic* shore, at the small distance of only thirty-nine miles. This lies in lat. 65. 46; is named *Cape Prince of Wales*; is low land, and the heights, as usual, appeared beyond; among which is a remarkable peaked hill. It would be unjust to the memory of past navigators, not to say, that there is the greatest probability that either this cape, or part of the continent adjacent to it, was discovered, in 1730, by *Michael Gwosdew*, a land surveyor attendant on the *Cossack*, Colonel *Scheftakow*, in the unfortunate expedition undertaken by him to render the *Tschutschi* tributary*.

Here begins the *Icy Sea* or *Frozen Ocean*. The country trends strongly to the east, and forms, in lat. 67. 45, long. 194. 51, *Point Mulgrave*; the land low, backed inland with moderate hills, but all barren, and destitute of trees. From hence it makes a slight trend to the west. *Cape Lisburn* lies in lat. 69; and *Icy Cape*, the most extreme land seen by any navigators on this side, was observed in lat. 70. 29, long. 198. 20, by our illustrious seaman, on *August* 18th 1778. The preceding day he had made an advance as high as 70. 41; but, baffled by impenetrable ice, upon the justest reasoning was obliged to give up all thoughts of the north-east passage: which reasons were confirmed, in the following year, by his successor in command, Captain CLERKE. All the trials made by that persevering commander could not attain a higher latitude than 70. 11, long. 196. 15. He found himself laboring under a lingering disease, which he knew must be fatal, unless he could gain a more favorable climate; but his high sense of honor, and of his duty to his orders, determined him to persist, till the impossibility of success was determined by every officer. He gave way to their opinion, failed towards the southward on *July* 21st, and on *August* 22d honorably sunk, at the age of thirty-eight, off the coast of *Kamtshatka*, under a disorder contracted by a continued scene of hardships, endured from his earliest youth in the services of his country †.

POINT MUL-
GRAVE.

To such characters as these we are indebted for the little we know, and OF THE ICY SEA. probably all that can be known, of the ICY SEA. The antients had some

* *Decouvertes*, &c. i. 166.

† See the particulars of his services, *Voyage*, iii. 280.

obscure notion of its coasts, and have given it the name of *Scythicum Mare*; a cape jutting into it was styled *Scythicum Promontorium*; and an island at the bottom of a deep bay to the west of it, *Scythica Insula*. It is following the conjectures of the ingenious to say, that the first may be the Cape *Jalnal*, and the last, *Nova Zemlja*, which some will make the *Insula Taxata* of *Pliny*, as it resembles in name the river *Tas*, which flows almost opposite to it into the gulph of *Ob**. The knowlege which the antients had of these parts must have been from traffic. The channels through which it was conveyed are pointed out in p. CLIV. of this work.

The *Icy SEA* extends from *Nova Zemlja* to the coast of *America*. We have seen how unable even the *Russians* have been to survey its coasts, except by interrupted detail, notwithstanding it formed part of their own vast empire. To our navigators was given the honor not only of settling parts of its geography with precision, but of exploring the whole space between the most northern promontory of *Asia* and the farthest accessible part of *America*. This was a tract of one hundred leagues †. The traversing it was a work of infinite difficulty and danger. The sea shallow; and the change from the greatest depth, which did not exceed thirty fathoms, to the least, which was only eight, was sudden: the bottom muddy, caused by the quantity of earth brought down from the vast rivers which pour into it from the *Asiatic* side. We suspect that it receives but few from the *American*, their general tendency being east and west. The *Icy Sea* is shallow, not only because its tides and currents are very inconsiderable; but its outlet through the streights of *BEHRING* very narrow, and even obstructed in the middle by the islands of *St. Diomedes*: both which circumstances impede the carrying away of the mud. The current, small as it is, comes chiefly from the south-west, and is another impediment. The land of each continent is very low near the shores, and high at a small distance from them: the former is one instance of a correspondent shallowness of water. The soundings off each continent, at the same distances from the shore, were exactly the same.

DEPTH.

* *Strahlenberg Hist. Russia*, 113.

† *Voyage*, iii. 277.

The ice of this sea differs greatly from that of *Spitzbergen*. It probably is entirely generated from the sea-water. The *Icy Sea* seems to be in no part bounded by lofty land, in the valleys of which might have been formed the stupendous *icebergs*, which, tumbling down, form those lofty islands we had before occasion to mention. The ice here is moveable, except about the great headlands, which are beset with a rugged mountainous ice. It is notorious, that a strong gale from the north in twenty-four hours covers the whole coast, for numbers of miles in breadth; will fill the straits of *BEHRING*, and even the *Kamschatkan* seas; and in smaller pieces extend to its islands. In the *Icy Sea* it consists chiefly of field-ice. Some fields, very large, and surrounded with lesser, from forty to fifty yards in extent, to four or five; the thickness of the larger pieces was about thirty feet under water; and the greatest height of others above, about sixteen or eighteen. It was transparent, except on the surface, which was a little porous, and often very rugged: the rest compact as a wall. At times it must pack; for the mountainous ice which the *Cossack Morkoff* ascended (see p. CLXIX.) must have been of that nature. The destruction of the ice is not effected by the sun, in a climate where fogs reign in far greater proportion than the solar beams; neither will the straits of *BEHRING* permit the escape of quantity sufficient to clear the sea of its vast load. It must, in a little time, become wholly filled with it, was it not for the rage of the winds, which dashes the pieces together, breaks and grinds them into minute parts, which soon melt, and resolve into their original element.

The animals of this sea are very few, and may be reduced to the *POLAR BEAR*, the *WALRUS*, and *SEALS*. The first does not differ from those of other arctic countries: it is beautifully engraven in tab. LXXIII. of the *Voyage*. Amidst the extraordinary scenery in tab. LII. is given the only accurate figure of the *Walrus* I have ever seen. I cannot but suspect it to be a variety of the species found in the *Spitzbergen* seas. The tusks are more slender, and have a slight distinguishing flexure: the whole animal is also much less. The length of one (not indeed the largest) was only nine feet four inches; its greatest circumference seven feet ten; weight, exclusive

Ice.

ANIMALS.

clusive of the entrails, about eleven hundred pounds. They lay on the ice by thousands; and in the foggy weather cautioned our navigators, by their roaring, from running foul of it. They are usually seen sleeping, but never without some centinels to give notice of approaching danger: these awaken the next to them, they their neighbors, till the whole herd is roused. These animals are the objects of chase with the *Tschutschis*, who eat the flesh, and cover their boats and hovels with the skins. Whales abound in this sea. Fish, the food of Seals, and partly of the polar Bears, must be found here, notwithstanding they escaped the notice of the navigators. Shells and sea-plants, the food of the *Walrus*, cannot be wanting.

FISH.

BIRDS.

Many species of birds (which will occur in their place) were seen traversing this sea. Geese and Ducks, were observed migrating southward in *August*; whether from their breeding-place in a circum-polar land, or whether from the probably far-extending land of *America*, is not to be determined. Drift-wood was very seldom seen here. Two trees, about three feet in girth, with their roots, were once observed, but without bark or branches; a proof that they had been brought from afar, and left naked by their contact with the ice and elements.

The sea, from the south of *BEHRING'S* streights to the crescent of isles between *Asia* and *America*, is very shallow. It deepens from these streights (as the *British* seas do from those of *Dover*) till soundings are lost in the Pacific Ocean; but that does not take place but to the south of the isles. Between them and the streights is an increase from twelve to fifty-four fathom, except only off *St. Thaddeus Nöfs*, where there is a channel of great depth. From the volcanic disposition I am led to believe not only that there was a separation of the continents at the streights of *BEHRING*, but that the whole space, from the isles to that small opening, had once been occupied by land; and that the fury of the watery element, actuated by that of fire, had, in most remote times, subverted and overwhelmed the tract, and left the islands monumental fragments.

Whether that great event took place before or after the population of *America*, is as impossible, as it is of little moment, for us to know. We
are

are indebted to our navigators for settling the long dispute about the point from which it was effected. They, by their discoveries, prove, that in one place the distance between continent and continent is only thirty-nine miles, not (as a celebrated cavilist* would have it) eight hundred leagues. This narrow streight has also in the middle two islands, which would greatly facilitate the migration of the *Asiatics* into the New World, supposing that it took place in canoes, after the convulsion which rent the two continents asunder. Besides, it may be added, that these streights are, even in the summer, often filled with ice; in winter, often frozen: in either case mankind might find an easy passage; in the last, the way was extremely ready for quadrupeds to cross, and stock the continent of *America*. I may fairly call in the machinery of vulcanoes to tear away the other means of transit farther to the south, and bring in to my assistance the former supposition of solid land between *Kamschatka* and *Oonalascha*, instead of the crescent of islands, and which, prior to the great catastrophe, would have greatly enlarged the means of migration; but the case is not of that difficulty to require the solution. One means of passage is indisputably established.

But from which part of the vast expanse of the north-eastern world, to fix on the first tribes who contributed to people the new continent, now inhabited almost from end to end, is a matter that baffles human reason. The learned may make bold and ingenious conjectures, but plain good sense cannot always accede to them. As mankind encreased in numbers, they naturally protruded one another forward. Wars might be another cause of migrations. I know no reason why the *Asiatic* north might not be an *officina virorum*, as well as the *European*. The overteeming country, to the east of the *Riphaean* mountains, must find it necessary to discharge its inhabitants: the first great wave of people was forced forward by the next to it, more tumid and more powerful than itself: successive and new impulses continually arriving, short rest was given to that which spread over a more eastern tract; disturbed again and again, it covered fresh regions;

* The author of *Recherches Philosophiques sur les Americains*, i. 136.

at length, reaching the farthest limits of the Old World, found a new one, with ample space to occupy unmolested for ages; till *Columbus* cursed them by a discovery, which brought again new sins and new deaths to both worlds.

The inhabitants of the New do not consist of the offspring of a single nation: different people, at several periods, arrived there: and it is impossible to say, that any one is now to be found on the original spot of its colonization. It is impossible, with the lights which we have so recently received, to admit that *America* could receive its inhabitants (at least the bulk of them) from any other place than eastern *Asia*. A few proofs may be added, taken from customs or dresses common to the inhabitants of both worlds: some have been long extinct in the old, others remain in both in full force.

CUSTOMS COMMON TO AMERICA AND THE NORTH OF ASIA.

The custom of scalping was a barbarism in use with the *Scythians*, who carried about them at all times this savage mark of triumph: they cut a circle round the neck, and stripped off the skin, as they would that of an ox*. A little image, found among the *Kalmucs*, of a *Tartarian* deity, mounted on a horse, and sitting on a human skin, with scalps pendent from the breast, fully illustrates the custom of the *Scythian* progenitors, as described by the *Greek* historian. This usage, as the *Europeans* know by horrid experience, is continued to this day in *America*. The ferocity of the *Scythians* to their prisoners extended to the remotest part of *Asia*. The *Kamtschadales*, even at the time of their discovery by the *Russians* †, put their prisoners to death by the most lingering and excruciating inventions; a practice in full force to this very day among the aboriginal *Americans*. A race of the *Scythians* were styled *Anthropozbagi* ‡, from their feeding on human flesh. The people of *Nootka Sound* still make a repast on their fellow-creatures §: but what is more wonderful, the savage allies of the *British* army have been known to throw the mangled limbs of the

* *Herodotus*, lib. iv.— Compare the account given by the historian with the *Tartarian icunculus*, in *Dr. PALLAS's Travels*, i. tab. x. a.

† *Hist. Kamtschatka*, 57.

‡ *Mela*, lib. ii. c. 1.

§ *Voyage*, ii.

French prisoners into the horrible Iron, and devour them with the same relish as those of a quadruped *.

The *Scythians* were sayd, for a certain time, annually to transform themselves into wolves, and again to resume the human shape †. The new-discovered *Americans* about *Nootka Sound*, at this time disguise themselves in dresses made of the skins of wolves and other wild beasts, and wear even the heads fitted to their own ‡. These habits they use in the chase, to circumvent the animals of the field. But would not ignorance or superstition ascribe to a supernatural metamorphosis these temporary expedients to deceive the brute creation ?

In their marches the *Kamtschadales* never went abreast, but followed one another in the same track §. The same custom is exactly observed by the *Americans*.

The *Tungusi*, the most numerous nation resident in *Siberia*, prick their faces with small punctures, with a needle, in various shapes; then rub into them charcoal, so that the marks become indelible ||. This custom is still observed in several parts of *America*. The *Indians* on the back of *Hudson's bay*, to this day perform the operation exactly in the same manner, and puncture the skin into various figures; as the natives of *New Zealand* do at present, and as the antient *Britons* did with the herb *Glastum*. or *Woad* ¶; and the *Virginians*, on the first discovery of that country by the *English* **. *Herodian* delivers down to us this custom of the *Britons*. He says that they painted their bodies with the figures of all sorts of animals, and wore no cloaths, lest they should hide what was probably intended to render themselves more terrible to their enemies.

The *Tungusi* use canoes made of birch-bark, distended over ribs of wood, and nicely sewed together ††. The *Canadian*, and many other *Ame-*

* *Colden's Five Indian Nations*, i. 155.

† *Herodotus*, lib. iv.

‡ *Voyage*, ii. 311. 329.—A very curious head of a Wolf, fitted for this use, is preserved in the *LEVERIAN Museum*.

§ *Hist. Kamtsch.* 61.

|| *Bell's Travels*, oct. ed. i. 240.

¶ *Herodian in*

Vita Severi, lib. iii.

** *De Bry, Virginia*, tab. iii. 111.

†† *Ysbrandt Ides*,

in *Harris's Coll.* ii. 929.

rican nations, use no other sort of boats. The paddles of the *Tungusi* are broad at each end; those of the people near *Cook's* river, and of *Oonalascha*, are of the same form.

In burying of the dead, many of the *American* nations place the corpse at full length, after preparing it according to their customs; others place it in a sitting posture, and lay by it the most valuable cloathing, wampum, and other matters. The *Tartars* did the same: and both people agree in covering the whole with earth, so as to form a *tumulus*, barrow, or earnedd*.

Some of the *American* nations hang their dead in trees. Certain of the *Tungusi* observe a simillar custom.

I can draw some analogy from dress: conveniency in that article must have been consulted on both continents, and originally the materials must have been the same, the skins of birds and beasts. It is singular, that the conic bonnet of the *Chinese* should be found among the people of *Nootka*. I cannot give into the notion, that the *Chinese* contributed to the population of the New World; but I can readily admit, that a shipwreck might furnish those *Americans* with a pattern for that part of the dress.

SIMILAR FEAT-
TURES.

In respect to the features and form of the human body, almost every tribe found along the western coast has some similitude to the *Tartar* nations, and still retain the little eyes, small noses, high cheeks, and broad faces. They vary in size, from the lusty *Calmucs* to the little *Nogaians*. The internal *Americans*, such as the *Five Indian* nations, who are tall of body, robust in make, and of oblong faces, are derived from a variety among the *Tartars* themselves. The fine race of *Tschutski* seem to be the stock from which those *Americans* are derived. The *Tschutski* again, from that fine race of *Tartars*, the *Kabardinjski*, or inhabitants of *Kabarda*.

ESKIMAUX.

But about *Prince William's Sound* begins a race, chiefly distinguished by their dress, their canoes, and their instruments of the chase, from the tribes to the south of them. Here commences the *Eskimaux* people, or

* Compare *Colden*, i. 17; *Lastau*, i. 416; and *Archæologia*, ii. 222. tab. xiv.

the race known by that name in the high latitudes of the eastern side of the continent. They may be divided into two varieties. At this place they are of the largest size. As they advance northward they decrease in height, till they dwindle into the dwarfish tribes which occupy some of the coasts of the *Icy Sea**, and the maritime parts of *Hudson's bay*, of *Greenland*, and *Terra de Labrador*. The famous *Japanese* map † places some islands seemingly within the straits of *BEHRING*, on which is bestowed the title of *Ya Zue*, or the kingdom of *the dwarfs*. Does not this in some manner authenticate the chart, and give us reason to suppose that *America* was not unknown to the *Japanese*, and that they had (as is mentioned by *Kempfer* and *Charlevoix* ‡) made voyages of discovery, and, according to the last, actually wintered on the continent? That they might have met with the *Eskimaux* is very probable; whom, in comparison of themselves, they might justly distinguish by the name of dwarfs. The reason of their low stature is very obvious: these dwell in a most severe climate, amidst penury of food; the former in one much more favorable, abundant in provisions; circumstances that tend to prevent the degeneracy of the human frame. At the island of *Oonalascha* a dialect of the *Eskimaux* is in use, which was continued along the whole coast, from thence northward. I have before mentioned the similarity in the instruments between the *Americans* of this side of the coast and the *Eskimaux*, which is continued even to *Greenland*.

I cannot think the accounts well supported, that *America* received any part of its first inhabitants from *Europe*, prior to the fifteenth century. The *Welsh* fondly imagine that our country contributed, in 1170, to people the New World, by the adventure of *Madoc*, son of *Owen-Gwynedd*; who, on the death of his father, sailed there, and colonized part of the country. All that is advanced in proof is, a quotation from one of our poets, which proves no more than that he had distinguished himself by sea and land. It is pretended that he made two voyages: that sailing

WELSH.

* See *Mr. Hearne's Discoveries*.

† Given by *Kempfer* to *Sir Hart Sloane*, and now preserved in the *British Museum*.

‡ *Hist. Japan*. i. 67.—*Charlevoix, Voyages Chronologiques*, ann. 168.

west, he left *Ireland* so far to the north, that he came to a land unknown, where he saw many strange things: that he returned home, and, making a report of the fruitfulness of the new-discovered country, prevailed on numbers of the *Welsh* of each sex to accompany him on a second voyage, from which he never returned. The favorers of this opinion assert, that several *Welsh* words, such as *gwrando*, to hearken or listen; the isle of *Croeso* or *welcome*; *Cape Breton*, from the name of our own island; *gwynndwr*, or the white water; and *pengwin*, or the bird with a white head; are to be found in the *American* language*. I can lay little stress on this argument, because likeness of sound in a few words will not be deemed sufficient to establish the fact; especially if the meaning has been evidently perverted: for example, the whole *Penguin* tribe have unfortunately not only black heads, but are not inhabitants of the northern hemisphere; the name was also bestowed on them by the *Dutch*, a *Pinguedine*; from their excessive fatness†: but the inventor of this, thinking to do honor to our country, inconsiderately caught at a word of *European* origin, and unheard of in the New World. It may be added, that the *Welsh* were never a naval people; that the age in which *Madoc* lived was peculiarly ignorant in navigation; and the most which they could have attempted must have been a mere coasting voyage.

NORWEGIANS.

The *Norwegians* put in for share of the glory, on grounds rather better than the *Welsh*. By their settlements in *Iceland* and in *Greenland*, they had arrived within so small a distance of the New World, that there is at least a possibility of its having been touched at by a people so versed in maritime affairs, and so adventurous, as the ancient *Normans* were. The proofs are much more numerous than those produced by the *British* historians; for the discovery is mentioned in several of the *Icelandic* manuscripts. The period was about the year 1002, when it was visited by one *Biorn*; and the discovery pursued to greater effect by *Leif*, the son of *Eric*, the discoverer of *Greenland*. It does not appear that they reached farther than *Labrador*; on which coast they met with *Eskimaux*, on whom they be-

* *Powell's Hist. Wales*, 228, 229.† *Clus. Exot.* 101.

stowed the name of *Skrælingues*, or dwarfish people, from their small stature. They were armed with bows and arrows, and had leathern canoes, such as they have at present. All this is probable; nor should the tale of the *German*, called *Turkil*, one of the crew, invalidate the account. He was one day missing; but soon returned, leaping and singing with all the extravagant marks of joy a *bon vivant* could shew, on discovering the inebriating fruit of his country, the grape*: *Torseus* even says, that he returned in a state of intoxication †. To convince his commander, he brought several bunches, who from that circumstance named the country *Vinland*. I do not deny that *North America* produces the true vine ‡; but it is found in far lower latitudes than our adventurers could reach in the time employed in their voyage, which was comprehended in a very small space. I have no doubt of the discovery; but, as the land was never colonized, nor any advantages made of it, it may be fairly conjectured, that they reached no farther than the barren country of *Labrador*.

The continent which stocked *America* with the human race, poured in the brute creation through the same passage. Very few quadrupeds continued in the peninsula of *Kamtschatka*. I can enumerate only twenty-five which are inhabitants of land; for I must omit the marine animals, which had at all times power of changing their situation: all the rest persisted in their migration, and fixed their residence in the *New World*. Seventeen of the *Kamtschadale* quadrupeds are found in *America*: others are common only to *Siberia* or *Tartary*, having, for unknown causes, entirely evacuated *Kamtschatka*, and divided themselves between *America* and the parts of *Asia* above cited. Multitudes again have deserted the *Old World*, even to an individual, and fixed their seats at distances most remote from the spot from which they took their departure; from mount *Ararat*, the resting-place of the ark, in a central part of the *Old World*, and excellently adapted for the dispersion of the animal creation to all its parts. We need not be startled at the vast journies many of the quadrupeds took

* *Mallet's Northern Antiq. Engl. ed. i. 284.*

† *Hist. Vinlandiæ antiq. per Thorm.*

Turfaum, p. 8.

‡ *Glover's Account of Virginia, Phil. Trans. Abr. iii. 570.*

QUADRUPEDS OF THE NEW WORLD.

to arrive at their present seats: Might not numbers of species have found a convenient abode in the vast *Alps* of *Asia*, instead of wandering to the *Cordilleras* of *Chili*? or might not others have been contented with the boundless plains of *Tartary*, instead of travelling thousands of miles, to the extensive flats of *Pampas*?—To endeavour to elucidate common difficulties is certainly a trouble worthy of the philosopher and of the divine; not to attempt it would be a criminal indelence, a neglect to

Vindicate the ways of God to man.

But there are multitudes of points beyond the human ability to explain, and yet are truths undeniable: the facts are indisputable, notwithstanding the causes are concealed. In such cases, faith must be called in to our relief. It would certainly be the height of folly to deny to that Being who broke open the fountains of the great deep to effect the deluge—and afterwards, to compel the dispersion of mankind to people the globe, directed the confusion of languages—powers inferior in their nature to these. After such wondrous proofs of Omnipotency, it will be absurd to deny the possibility of infusing instinct into the brute creation. *Deus est anima brutorum*; God himself is the soul of brutes: His pleasure must have determined their will, and directed several species, and even whole genera, by impulse irresistible, to move by slow progression to their destined regions. But for that, the *Llama* and the *Pacos* might still have inhabited the heights of *Armenia* and some more neighboring *Alps*, instead of laboring to gain the distant *Peruvian Andes*; the whole genus of *Armadillos*, slow of foot, would never have absolutely quitted the torrid zone of the Old World for that of the New; and the whole tribe of Monkeys would have gambolled together in the forests of *India*, instead of dividing their residence between the shades of *Indostan* and the deep forests of the *Brazils*. Lions and Tigers might have infested the hot parts of the New World, as the first do the deserts of *Africa*, and the last the provinces of *Asia*; or the Pantherine animals of *South America* might have remained additional scourges with the savage beasts of those antient continents. The Old World would have been overstocked with animals; the
New

New remained an unanimated waste! or both have contained an equal portion of every beast of the earth. Let it not be objected, that animals bred in a southern climate, after the descent of their parents from the ark, would be unable to bear the frost and snow of the rigorous north, before they reached *South America*, the place of their final destination. It must be considered, that the migration must have been the work of ages; that in the course of their progress each generation grew hardened to the climate it had reached; and that after their arrival in *America*, they would again be gradually accustomed to warmer and warmer climates, in their removal from north to south, as they had in the reverse, or from south to north. Part of the Tigers still inhabit the eternal snows of *Ararat*, and multitudes of the very same species live, but with exalted rage, beneath the Line, in the burning soil of *Borneo* or *Sumatra*; but neither Lions or Tigers ever migrated into the New World. A few of the first are found in *India* and *Persia*, but they are found in numbers only in *Africa*. The Tiger extends as far north as western *Tartary*, in lat. 40. 50, but never has reached *Africa*. I shall close this account with observing, that it could be from no other part of the globe except *Asia*, from whence the New World could receive the animal creation.

The late voyage of the illustrious Cook has reduced the probable conjectures of philosophers into certainty. He has proved that the limits of the Old and New World approach within thirteen leagues of each other. We know that the intervening streights are frequently frozen up; and we have great reason to suppose, that the two continents might have been once united, even as low as the *Aleutian* islands, or lat. 52. 30. Thus are discovered two means of passage from *Asia* to *America*; the last in a climate not more rigorous than that which several animals might very well endure, and yet afterwards proceed gradually to the extreme of heat.

In fact, every other system of the population of the New World is now overthrown. The conjectures of the learned, respecting the vicinity of the Old and New, are now, by the discoveries of our great navigator, lost in conviction. The strained systems of divines, laudably indeed exerted in elucidating SACRED WRIT, appear to have been ill-founded; but, in the place of imaginary hypotheses, the real place of migration is uncontroversibly

trovertibly pointed out. Some (from a passage in *Plato*) have extended over the *Atlantic*, from the streights of *Gibraltar* to the coast of *North* and *South America*, an island equal in size to the continents of *Asia* and *Africa*; over which (say they) had passed, as over a bridge, from the latter, men and animals; wool-headed Negroes, and Lions and Tigers*, none of which ever existed in the New World. They assert that a mighty sea arose, and in one day and night engulfed this stupendous tract, and with it every being which had not completed its migration into *America*. The whole Negro race, and almost every Quadruped, now inhabitants of *Africa*, perished in this critical day. Four only are to be found at present in *America*; and of these only one, the Bear †, in *South America*. Not a single custom, common to the natives of *Africa* and *America*, to evince a common origin. Not a negro was ever seen in *America* but what had been imported out of the Old World. Of the Quadrupeds of *Africa* four only, viz. the Bear, Stag, Fox, and Weefel, can certainly be pronounced to be found on each continent. The Stag ‡, Fox, and Weefel, have made no farther progress in *Africa* than the north. I suspect, besides, that the Stag hath not advanced farther south in *America* than *Mexico*; and that the Fox and Weefel have not yet travelled beyond the southern limits of *North America*. In *Africa* and *South America* the Bear is very local, being met with only in the north of the first, and on the *Andes* in the last. Some cause unknown arrested its progress in *Africa*, and impelled the migration of a few into the *Cbilian Alps*, and induced them to leave unoccupied the vast tract from *North America*

* *Catcott on the Deluge*, edit. 2d. p. 139, 15, &c.

† On the reasoning of Mr. *Zimmerman* (*Zool. Geogr.* 476), and the opinion of Mr. *Erxleben* (*Syst. Regn. An.* 508), I give up my notion of the Panther (*Hist. Quad.* N^o 153), being a native of *South America*. It is most probable, that the skin which I saw at a furrier's shop, which was said to have been brought from the *Brazils*, had originally been carried there from the western coast of *Africa*, where the *Portuguese* have considerable settlements, and a great slave-trade for their *American* colonies, and where those animals abound.

‡ *Shaw's Travels*, 243. Quere? whether exactly the same with the *European*. I omit the *Wolf* in this edition as an animal of *Africa*. The *Wolf* of *Senegal*, and of the *Cape of Good Hope*, being no other than *Hyenas*, misnamed by the *Europeans*: and the little *Wolf* of *Egypt* is only the *Jackal*.

TABLE OF QUADRUPEDS.

CCLXIX

to the lofty *Cordilleras*.—My promised Table of Quadrupeds will at once give a view of those which inhabit *North America*, and are either peculiar to it, or are met with in other countries. It certainly will point out the course they have taken in their migration; and, in case misnomers are avoided, will reduce to the single continent of *Asia* the original country from whence they sprung. Men of the first abilities, and first in learning, who have neglected the study of natural history, will give Lions and Tigers to *America*, misled by the ignorance of travellers, who mistake the PUMA of this Work for the first; and the spotted wild beasts, allied to the Pantherine race, for the second.

TABLE OF QUADRUPEDS.

H O O F E D.

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
I. Ox.	Bison, N° 6.	In parts of <i>Lithuania</i> , and about mount <i>Caucasus</i> ; except there, universally domesticated.	To the west of <i>Canada</i> , and as low as <i>Louisiana</i> . In <i>New Mexico</i> , on the western side of <i>North America</i> .
	Musk, N° 9.	A variety in the interior parts of <i>Guinea</i> , and the south of <i>Africa</i> .	To the north of <i>Hudson's Bay</i> , from <i>Churchill</i> river to lat. 73, and among the <i>Christinaux</i> , and in <i>New Mexico</i> .
II. SHEEP.	Wild, p. 36.	<i>Sardinia. Corsica. Crete.</i> North of <i>India. Persian Alps.</i> About the <i>Onon</i> and <i>Argun</i> , in <i>Siberia. Mongolia</i> , to lat. 60. East of the <i>Lena</i> , and quite to <i>Kamtschatka</i> .	Suspected to be found in <i>California</i> ; but not on the best authorities.
III. DEER.	Moose, N° 42.	<i>Norway. Sweden</i> , to lat.	<i>Hudson's Bay. Canada. Nova</i>

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TABLE OF QUADRUPEDS.

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
		64. <i>Russia. Sibiria</i> , as low as lat. 53. As far east as <i>Lake Baikal</i> ; and in the north of <i>China</i> to the north of <i>Corea</i> . lat. 45*.	<i>va Scotia. New England</i> ; and near the northern part of the river <i>Ohio</i> .
Rein,	N° 43.	<i>Lapland. Norway. Samoi- edea</i> . Along the <i>Arctic</i> coasts, to <i>Kamischatka</i> . In the <i>Urallian</i> mountains to <i>Kungur</i> , in lat. 57. 10. About <i>Lake Baikal. Spitzbergen. Greenland</i> .	<i>Hudson's Bay</i> . Northern parts of <i>Canada. Labrador. Island of Newfoundland</i> .
Stag,	N° 45.	<i>Norway</i> , and most part of <i>Europe</i> to the south. In the north of <i>Asia. China. Barbary. E.</i>	From <i>Canada</i> , over all parts of <i>North America. Mexico</i> .
<i>Virginian</i> ,	N° 46.	— —	From the provinces south of <i>Canada</i> to <i>Florida</i> . Perhaps in <i>Guiana</i> .
<i>Mexican Roe</i> ,	} N° 52. }	— —	Interior north-western parts of <i>America? Mexico</i> .
Roc,		N° 51.	<i>Norway. Sweden. Most</i> part of <i>Europe</i> , except <i>Russia. Scotland</i> .

D I G I T A T E D.

D I V. I.

IV. Dog.	WOLF, N° 137.	From the <i>Arctic</i> circle to the most southern part of <i>Europe</i> . In <i>Asia</i> , from the	From <i>Hudson's Bay</i> to the most southern parts of <i>North America</i> .
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* Or lat. 42, according to Mr. *Zimmerman's* new Map.

TABLE OF QUADRUPEDS.

CCLXXI

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
		the circle to <i>Persia</i> . <i>Kamtschatka</i> . All parts of <i>Africa</i> .	
	<i>Arctic Fox</i> , N° 140.	Within the whole <i>Arctic</i> circle. <i>Iceland</i> . <i>Spitz-</i> <i>bergen</i> . <i>Greenland</i> . <i>Fin-</i> <i>mark</i> . North of <i>Siberia</i> . <i>Kamtschatka</i> , and its isles.	<i>Hudson's Bay</i> . The isles in the high latitudes on the western side of <i>Ame-</i> <i>rica</i> .
	Common Fox, } N° 139. }	In all parts of <i>Europe</i> , and the cold and temperate parts of <i>Asia</i> . <i>Kamts-</i> <i>chatka</i> , and its furthest isles. <i>Iceland</i> . <i>E</i> .	From <i>Hudson's Bay</i> , cross the continent to the <i>Fox</i> <i>Isles</i> . <i>Labrador</i> . <i>New-</i> <i>foundland</i> . <i>Canada</i> . Not further south: a variety only, the <i>Brandt Fox</i> , in <i>Pensylvania</i> .
	<i>Grey</i> , N° 142.	— —	From <i>New England</i> to the southern end of <i>North</i> <i>America</i> .
	<i>Silvery</i> , N° 143.	— —	In <i>Louisiana</i> .
V. CAT.	<i>Puma</i> , N° 160.	— —	From <i>Canada</i> to <i>Florida</i> ; thence through <i>Mexico</i> , quite to <i>Quito</i> in <i>Peru</i> .
	<i>Lynx</i> , N° 170.	Forests of the north of <i>Europe</i> , and many of the south. <i>Spain</i> . North of <i>Asia</i> , and the mountains in the north of <i>India</i> *.	From <i>Canada</i> , over most parts of <i>North America</i> .
	<i>Bay Lynx</i> , N° 171.	— —	In the province of <i>New</i> <i>York</i> .
			Mountain,

* As I have been assured by Doctor PALLAS, since the publication of my *History of Quadrupeds*.

TABLE OF QUADRUPEDS.

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
	Mountain, N° 168.	— —	<i>Carolina</i> , and perhaps other parts of <i>North America</i> .
VI. BEAR.	Polar, N° 175.	Within the whole polar circle of <i>Europe</i> and <i>Asia</i> .	The same in <i>America</i> ; also as low as <i>Hudson's Bay</i> and <i>Labrador</i> .
	Black, N° 174.	<i>Jeso Masima</i> , north of <i>Japan</i> ; perhaps in <i>Japan</i> .	In all parts of <i>North America</i> .
	Brown, <i>ibid.</i>	In most parts of <i>Europe</i> , north and south. The same in <i>Asia</i> , even as far as <i>Arabia</i> . <i>Barbary</i> *. <i>Ceylon</i> . <i>Kamtchatka</i> .	To the north-west of <i>Hudson's Bay</i> , and on the western side of <i>America</i> . About <i>Nootka Sound</i> . On the <i>Andes</i> of <i>Peru</i> †.
	Wolverene, N° 176. }	North of <i>Norway</i> . <i>Lapland</i> . North of <i>Siberia</i> . <i>Kamtchatka</i> .	As far north as the <i>Copper River</i> , and south as the country between lake <i>Huron</i> and <i>Superior</i> . On the western side of <i>North America</i> .
	Raccoon, N° 178.	— —	From <i>New England</i> to <i>Florida</i> . <i>Mexico</i> . <i>Isles of Maria</i> , near <i>Cape Corientes</i> , in the <i>South Sea</i> .
VII. BADGER.	N° 179.	In the south of <i>Norway</i> , and all the more southern parts of <i>Europe</i> . In the temperate parts of <i>Asia</i> , as far as <i>China</i> eastward. <i>E.</i>	In the neighborhood of <i>Hudson's Bay</i> . <i>Terra de Labrador</i> , and as low as <i>Pennsylvania</i> .
VIII. OPOSSUM.	<i>Virginian</i> , N° 181.	— —	As far north as <i>Canada</i> , and from thence to the <i>Brazils</i> and <i>Peru</i> .

IX. WEESEL.

* *Shaw's Travels*, 249.† *Condamine's Travels*, 82.—*Ulloa's Voyage*, i. 461.

TABLE OF QUADRUPEDS.

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GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
IX. WEESEL.	Common, N° 192.	Most parts of <i>Europe</i> . <i>Siberia</i> . <i>Kamtschatka</i> . <i>Barbary</i> . E.	<i>Hudson's Bay</i> . <i>Newfoundland</i> . As far south as <i>Carolina</i> .
	Stoat, N° 193.	All the northern parts of <i>Europe</i> and <i>Asia</i> ; and as far as <i>Kamtschatka</i> and the <i>Kuril</i> isles. E.	<i>Hudson's Bay</i> , and as low as <i>Newfoundland</i> and <i>Canada</i> .
	Pine Martin, N° 200.	North of <i>Europe</i> . Rare in <i>France</i> . Only in the west of <i>Siberia</i> . In <i>China</i> . E.	Northern parts of <i>North America</i> , quite to the <i>South Sea</i> .
	Pekan, N° 204.	— —	<i>Hudson's Bay</i> . <i>Canada</i> .
	Vison, N° 205.	— —	<i>Canada</i> .
	Sable, N° 201.	<i>Siberia</i> . <i>Kamtschatka</i> . <i>Kuril</i> isles.	<i>Canada</i> .
	Fisher, N° 202.	— —	<i>Hudson's Bay</i> . <i>New England</i> . <i>Pensylvania</i> .
	Striated, N° 217.	— —	<i>Pensylvania</i> to <i>Louisiana</i> .
	Skunk, N° 218.	— —	From <i>Hudson's Bay</i> to <i>Peru</i> .
	X. OTTER.	Common, N° 226.	Northern <i>Europe</i> and <i>Asia</i> . <i>Kamtschatka</i> . E.
Leffer, N° 228.		About the banks of the <i>Yaik</i> . <i>Poland</i> . <i>Litwania</i> . <i>Finland</i> .	From <i>New Jersey</i> to <i>Carolina</i> .
Sea, N° 230.		<i>Kamtschatka</i> . <i>Kuril</i> isles.	Western coasts of <i>America</i> .

D I V. II.

XI. HARE.	Varying, N° 242.	<i>Scandinavia</i> . <i>Russia</i> . <i>Siberia</i> . <i>Kamtschatka</i> . <i>Greenland</i> . E.	<i>Hudson's Bay</i> . About <i>Cook's river</i> .
	<i>American</i> , N° 243.	— —	From <i>Hudson's Bay</i> to the extremity of <i>North America</i> .

Alpine

TABLE OF QUADRUPEDS.

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
	<i>Alpine</i> , N° 248.	From the <i>Altaic</i> chain to lake <i>Baikal</i> ; thence to <i>Kamtschatka</i> .	<i>Alutian</i> isles. Possibly the west of <i>North America</i> .
XII. BEAVER.	<i>Castor</i> , N° 251.	<i>Scandinavia</i> . About the <i>Jenesei</i> and <i>Kondu</i> . In <i>Casan</i> , and about the <i>Yaik</i> .	From <i>Hudson's Bay</i> to <i>Louisiana</i> .
	<i>Musk</i> , N° 252.	— —	From <i>Hudson's Bay</i> to <i>Louisiana</i> .
XIII. PORCU- PINE. }	<i>Canada</i> , N° 257.	— —	From <i>Hudson's Bay</i> to <i>Virginia</i> .
XIV. MARMOT.	<i>Quebec</i> , N° 259.	— —	<i>Canada</i> .
	<i>Maryland</i> , N° 260.	— —	From <i>Pensylvania</i> to the <i>Babama</i> isles.
	<i>Hoary</i> , N° 261.	— —	North of <i>North America</i> .
	<i>Tail-lefs</i> , N° 265.	— —	<i>Hudson's Bay</i> .
	<i>Earlefs</i> , N° 263.	<i>Bobemia</i> . <i>Austria</i> . <i>Hungary</i> . From the <i>Occa</i> over the temperate parts of <i>Siberia</i> . About <i>Jakutz</i> . <i>Kamtschatka</i> .	Western side of <i>North America</i> .
XV. SQUIRREL.	<i>Hudson</i> , N° 274.	— —	<i>Hudson's Bay</i> . <i>Labrador</i> .
	<i>Grey</i> , N° 272.	— —	<i>New England</i> to <i>Peru</i> and <i>Chili</i> .
	<i>Black</i> , N° 273.	— —	<i>New England</i> to <i>Mexico</i> .
	<i>Flying</i> , N° 283.	— —	From the southern part of <i>Hudson's Bay</i> to <i>Mexico</i> .
	<i>Hooded</i> , N° 284.	— —	<i>Virginia</i> .
	<i>Severn River</i> , } N° 282. }	— —	<i>Hudson's Bay</i> .
XVI. DORMOUSE	<i>Striped</i> , N° 286.	<i>Siberia</i> , as high as lat. 65.	<i>Hudson's Bay</i> to <i>Louisiana</i> .
	<i>English?</i> N° 289.	<i>Sweden</i> , and all <i>Europe</i> south. <i>E. Carolina?</i>	

XVII. RAT.

TABLE OF QUADRUPEDS.

CCLXXV

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
XVII. RAT.	Black, N° 297.	All Europe. Many of the South Sea islands. E.	The rocks among the Blue Mountains.
	American, N° 299.	Mongolia.	North America.
	Water, N° 300.	From Lapland to the south of Europe. From Peterf-burgb to Kamtschatka, and as low as the Caspian sea, and Persia. E.	From Canada to Carolina.
	Moufe, N° 301.	Univerfal. E.	Among the rocks, with the Black Rat.
	Field, N° 302.	All Europe. Not beyond the Urallian chain. E.	Hudfon's Bay. New York.
	Virginian, N° 307.	— —	Virginia.
	Labrador, N° 295.	— —	Hudfon's Bay. Labrador.
	Hudfon's, N° 319.	— —	Same places.
	Meadow, N° 322.	Sweden. All temperate Russia. In Siberia only to the Irtyfcb. E.	Hudfon's Bay. Newfoundland.
		Hare-tailed ? } N° 320. }	Siberia.
XVIII. SHREW.	Fœtid, N° 341.	Europe. Siberia. Kamtschatka. E.	Hudfon's Bay. Carolina.
XIX. MOLE.	Long-tailed, } N° 352. }	— —	New York. Interior parts of Hudfon's Bay.
	Radiated, N° 351.	— —	New York.
	Brown, N° 353.	— —	New York.
D I V. III.			
XX. WALRUS.	Arctic, N° 373.	Spitzbergen. Greenland. Nova Zemlja. The coast of the Frozen Sea. And on the Asiatic side, to the south of	Hudfon's Bay. Gulph of St. Laurence. On the western side of America, as low as lat. 58. 42.

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TABLE OF QUADRUPEDS.

GENUS.	HIST. QUADR.	OLD WORLD.	NEW WORLD.
XXI. SEAL.	Common, N° 372.	All the <i>European</i> and northern <i>Asiatic</i> seas, even to the farthest north. <i>Kamtschatka. E.</i>	Northern seas of <i>America.</i>
	Rubbon, N° 380.	The <i>Kuril</i> isles.	
	Great, N° 382.	<i>Greenland</i> and <i>Kamtschatka. E.</i>	West of <i>North America.</i>
	Léporine, N° 381.	<i>White Sea. Iceland. Spitzbergen. Kamtschatka.</i>	There can be no doubt that every species of Seal is found on the <i>American</i> coast.
	Hooded, N° 285.		
	Harp, N° 385.	<i>Spitzbergen. Greenland. Iceland. White Sea. Kamtschatka.</i>	
	Rough, N° 283.		
XXII. MANATI.	Urfine, N° 387.	<i>Kamtschatka. New Zealand.</i>	West of <i>America</i> , and from the isle of <i>Gallipagos</i> to <i>New Georgia.</i>
	Leonine, N° 389.	<i>Kamtschatka.</i>	West of <i>America.</i> Streights of <i>Magellan. Statenland. Falkland</i> isles.
	Whale-tailed, N° 390. } Sea Ape, p. 392. }	<i>Bebring's</i> isle, and near the isle of <i>St. Mauritius.</i> — —	West of <i>America.</i> West of <i>America.</i>

D I V. IV.

XXIII. BAT.	<i>New York</i> , N° 403.	<i>New Zealand.</i>	<i>New York.</i>
	Long haired, N° 83. }	— —	<i>Carolina.</i>
	Noctule, N° 407.	<i>France. E.</i>	<i>Hudson's Bay.</i>

Some

JOURNEY TO THE ICY SEA.

CCLXXVII

Some years ago a very important discovery was made, not very remote from the place where Captain Cook was obliged to desist from his northern voyage. Mr. *Samuel Hearne*, in the service of the *Hudson's Bay* Company, by direction of the governors, began a journey, on *December 7th 1770*, towards the northern limits of *America*. He went attended only by *Indians*, with whom he had been long acquainted. He set out from *Prince of Wales* fort, 58. 55. 30, north lat. west long. from *London* 95. 15. He for a long space took a north-western course, crossed *Melancholic* lake, in lat. 61, a water thirty-five miles in breadth, full of fine islands, and joining with the river *Namassy*. He passed over *Wietben* and *Cassed* lakes, and from the last kept due west. In *April* he reached *Tbleweyaza Yesh*, a small lake in long. 19, west from *Churchil* fort, lat. 61. 30, near which he made some stay to build canoes, now requisite against the breaking up of the frost. From that lake he began a course due north, and crossed a chain of lakes, of which *Titumeg* is one. In lat. 64. he went over *Peshew* lake; after that, the great lake *Cogeed*, out of which issues a river pointing north-east, which is supposed to fall into *Baffin's Bay*. About the middle of *June* he crossed the great river *Conge-cathawba-chaga*, in lat. 68. 46; and from *Churchil* river west long. 24. 2. About those parts are the *Stoney Mountains*, extending in longitude from 116 to 122 from *London*: craggy, and of a tremendous aspect. On *July 7th* he arrived at *Buffalo* lake, in lat. 69. 30: here he first saw the **MUSK BUFFALO**. Near the north end is *Grizzle Bear-hill*, in about lat. 70, so called from its being the haunt of numbers of those animals.

JOURNEY TO THE
ICY SEA.

On *July 13th* he reached the banks of *Copper River*, which runs due north into the *Icy Sea*. About the south end is much wood, and very high hills. Its current is very rapid, and its channel choaked with shoals, and crossed with stoney ridges, which form three great cataracts. Its banks are high, the breadth about a hundred and eighty yards; but in some places it expands into the form of a lake. In an island of the river unfortunately happened to be a summer encampment of five tents of *Eskimaux*. The *Indians* attendant on Mr. *Hearne* grew furious at the sight of them. It is their firm opinion, that these savages are magicians,

COPPER RIVER.

ESKIMAUX.

and that all the evils they experience result from their incantations. Mr. *Hearne* in vain solicited his *Indians* to forbear injuring these poor people. They, with their usual cowardice, deferred the attack till night, when they surprised and murdered every one, to the number of between twenty and thirty. A young woman made her escape, and embraced Mr. *Hearne's* feet; but she was pursued by a barbarian, and transfixed to the ground. He observed in their tents (which were made of deer-skins with the hair on) copper vessels, and whale-bone, and the skins of Seals, wooden troughs, and kettles made of a soft stone (by his description a *lapis ollaris*), and dishes and spoons formed from the thick horns of the Buffalo. Their arms are spears, darts, and bows and arrows; the last pointed with stone or copper, but most rudely made, for want of proper tools. In their dress they much resemble the *Eskimaux* of *Hudson's Bay*, but the tails of their jackets are shorter; neither do the women, like them, stiffen out the tops of their boots. Their canoes differ in not having long projecting prows, but in other respects are of the same construction. In most circumstances these people resemble those of the *Bay*; and differ materially only in one, for the men in these pull out by the roots all the hair of their heads.—Mr. *Hearne* first saw the sea on *July 16*, at the distance of eight miles. He went to the mouth of the river (in lat. 72; west long. from *London* 121) which he found full of shoals and falls, and inaccessible to the tide, which seemed to flow twelve or fourteen feet. The sea was at this time full of ice, and on many pieces he saw Seals. The land trended both to the east and to the west, and the sea was full of islands. The land about *Copper* river, for the space of nine or ten miles to the sea, consisted of fine marshes, filled in many places with tall Willow, but no sort of berry-bearing shrubs. There are no woods within thirty miles of the mouth of *Copper* river; and those which then appear, consist of ill-shaped and stunted Pines.

DOG-RIBBED
INDIANS.

The people who live nearest to this river, are the *Copper-mine Indians*, and the *Plat-cotes de Chiens*, or *Dog-ribbed Indians*; these have no direct commerce with *Hudson's Bay*, but sell their furs to the more southern *Indians*, who come for them, and bring them down to the settlements. The *Dog-ribbed Indians* still make their knives of stones and bones, and
head

head their arrows with slate. The *Copper Indians* have abundance of native copper in their country; they make with it ice-chiffels and arrow-heads. The mine is not known; but I find that an *Indian* chief, who had many years ago communication with a Mr. *Frost*, one of the Company's servants, says, that the copper was struck off a rock with sharp stones; and that it lay in certain islands far to the northward, where was no night during summer*.

Mr. *Hearne* set out on his return the 22d of *July*. He took, in some places, a route different from what he did in going, and got to the settlements in *June* 1772. I have perused the journal, and had frequent conversation with Mr. *Hearne*. I took the liberty to question him about the waters he had crossed during winter upon the ice; and whether they might not have been at that time obstructed streights, a passage to the *Pacific Ocean*? He assured me, that he could make no mistake: that he passed over many of them in canoes during the summer, and that the others had large rivers running out of them, almost every one to the west: that the *Indians*, who crossed them annually, in their way to the north to trade for furs, were exceedingly well acquainted with them, and knew them to be fresh-water lakes; and in particular used to fish in them for Pikes, fish notoriously known never to frequent salt-water.

The Quadrupeds observed by Mr. *Hearne* in this high latitude were the MUSK OX, REIN DEER, GRIZZLE BEARS, POLAR BEARS, WHITE WOLVES, ARCTIC FOXES, WOOLVERINES, ERMINES, Common Squirrels, STRIPED SQUIRRELS, Mice of different kinds; and on the ice in the mouth of *Copper River*, Seals. The *Eskimaux* had with them, Dogs.

I must now take a blind unguided course along the *Icy Sea*. The charts give the land a turn to the south, in lat. 81. long. 22 from *London*. This is the most northern extremity of the country called *Greenland*, if it reaches so far; but, beyond the discovery by Mr. *Hearne*, in lat. 72, the northern limits given in our charts appear to be merely conjectural. To the south, on the eastern coast, in 1670, was seen land in lat. 79.

GREENLAND.

* *Dobbs's Account of Hudson's Bay, &c.* 47.

Another part, in lat. 77. 30, called in the maps *the land of Edam*, was seen in 1655. The inlet named *Gael-bankes*, in lat. 75, was discovered in 1664. A headland was observed, in 1665, a degree further south. In a map of *North and South America*, published by Mr. *Sayer* in 1775, is a small isle called *Bontekol*, seated off the coast in lat. 73. 30, the date of the discovery is 1665: and in 1607 our celebrated *Hudson* discovered what he named *Hold with Hope*, in lat. 73*. Excepting the last, the rest of the attempts were made by the *Danes*, for the recovery of *Old Greenland*. *Gael-bankes* alone continues known to navigators, and is annually frequented by *European* Whale-fishers, who extend their business even to this coast. It is represented as a great streight, twenty-five leagues wide, communicating with *Baffin's Bay*. A species of Whale, frequent in *Davis's Streights*, and not found on this side of the coasts, is often seen here harpooned with the stone weapons of the inhabitants of the opposite country; which fish must have escaped through this passage †. The land to the north of *Gael-bankes* is level, and not very high; and within five or six leagues from it are soundings. That to the south is very lofty, and rises into peaks like that of *Spitzbergen*; and the sea opposite to it is fathomless ‡.

JOHN MAYEN'S
ISLE.

In lat. 71. long. 8. west from *London*, is *John Mayen's* island, formerly much frequented by Whale-fishers; but those animals have now left the neighboring sea. The north end rises into a prodigious mountain called *Beerenberg*, or *the Bears*, from its being the haunt of numbers; but it is so steep as to be inaccessible to all human creatures.

The height of the mountain on *Mayen's* isle is so great, that it may be seen at the distance of thirty leagues. Many parts of the coast are from twenty to thirty fathoms high. The sea at the north end is often frozen ten miles from the shore; and on one part of the isle are three stupendous *icebergs*, or mountains of ice. Off the north-east end are alternate calms, and sudden gusts of wind like whirlwinds, which make navigators shun the approaching it from that quarter.

The bottom of the sea round the isle is rocky and uneven, and of very

* *Purchas*, iii. 568.

† *Voyages par de Pagès*, ii. 222.

‡ Same.

various

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various depths. There are places where there is only six or seven fathom water, with a black sand, possibly volcanic; and at a small distance is water of three hundred fathoms. In other parts the bottom is rocky, and most unfit for anchorage*: a few creeks, pervious by difficult and narrow inlets, are capable of affording shelter, in this horrible spot, to a few shallops; but ships must anchor without, and then with the most sedulous circumspection.

The ships destined for the *Greenland* whale-fishery often visit this island first, for the sake of the seals, which are here in great numbers upon the ice. They are killed for the sake of the oil, which is extracted from their blubber; and for their skins, which, after being salted, are kept in casks, and used in *England* for making of boots and shoes. Our ships leave their ports in *February* or *March*, and arrive off the island in *March* or *April*, according to the time of their departure; and if they arrive in the first month, they generally find the sea full of ice; but that depends on the winds, for when they blow from certain points the ice disappears and leaves the water open. The ships usually continue in this sea till the beginning of *May*, at which time they stretch away to the east, and apply themselves to the whale-fishery in about latitude 79, and even to that of 81.

Opposite to *Iceland* begins the once-inhabited part of *Old Greenland*. A very deep streight opens a little opposite to *Snesfeluas*, and runs across *Greenland*, near *Jacob's Haven*, into *Davis's Streights*, so as quite to insulate the country: it is now almost entirely closed with ice, and annually fills the sea with the greatest *icebergs*, which are forced out of it. A little to the north of the eastern entrance are two mountains of a stupendous height, called *Blaasferk* and *Huitferk*, cased in perpetual ice. The whole country, to the southern end, consists of similar mountains: a few exhibit a stoney surface; but the greater part are genuine *glacieres*, shooting into lofty peaks, or rugged summits: yet such a country as this became the settlement of numbers of *Norwegians* during several centuries. The valiant *Eric Raude*, or the *Red*, having committed a murder in his own

O L D G R E E N -
L A N D .

P E O P L E D B Y
N O R W E G I A N S .

* Northern Pilot, 61, 62. *Marten's Spitzbergen*, 186.

country

country (a common cause for seeking adventures, with the heroes of Greece as well as *Scandinavia*) fled here in the tenth century. Numbers of his countrymen followed him. *Leif*, his son, became a convert to Christianity. Religion flourished here: a bishoprick was established, and monasteries founded. The cathedral was at *Gardar*, a little to the south of the polar circle.

VOYAGE OF THE
ZENI.

In *Hackluyt** is a relation of the voyage of the two *Zeni* (noble *Venetians*) who in 1380 visited this country, and give evidence to the existence of the convent, and a church dedicated to St. *Thomas*: possessed by friers preachers. It appears to have been built near a volcano, and the materials were lava, cemented with a sort of *pulvis puteolanus*, which is known to be a volcanic attendant. A spring of boiling water was near the house, and was conveyed into it for all their culinary uses. I am not averse to giving credit to this account; there being no reason to deny the former existence of burning mountains, when such numbers are to be found in the neighboring *Iceland*; and at this very time there is a fountain of hot water in the isle of *Onortok*, not remote from *Cape Farewell* †. A strange phraseology runs through the voyage of these two brethren, and perhaps some romance; but so much truth is every where evident, that I hesitate not to credit the authenticity.

Torseus enumerates seventeen bishops who presided over the diocese. The last prelate was appointed in 1408. The *black death* had almost depopulated the country not long before that period. Probably the surviving inhabitants fell victims to want, or were extirpated by the natives: for, after that year, we hear no more of them. It certainly had been well inhabited: the ruins of houses and churches evince its former state. In the fifteenth century the kings of *Denmark* attempted to discover whether any of the antient race remained; but all in vain: the adventurers were driven off the coast by the ice with which it was blocked up, which remains an invincible obstacle to re-settle the eastern coast, even were there the left temptation. All is a dreadful tract from lat. 81 to *Staten Hook* or *Cape Farewell*, its southern extremity, on an isle off that point; in lat. 59;

* Vol. iii. 123: and *Purchas*, iii. 610:

† *Grantz*, i. 18.

on both sides deeply indented with bays, bounded by icy promontories. Many of these bays had been parts of pervious streights, which had divided the country into several islands; but are now totally obstructed with ice. Besides that I before mentioned, was one in lat. 63, called *Bär-fund*; and that in 62. 50, immortalized by the name of our celebrated sailor *Frobisher*, who penetrated into it sixty leagues, in his first voyage in 1576, in his search for a passage to *Catbaya*; but imagined that *Asia* bounded the right side, and *America* the left*. He met with inhabitants, describes them and their œconomy, and is particular about their great dogs, and their use of them in drawing their sledges. In his second voyage he found a *Narwal* dead on the shore, and has given a figure of it. 'This horn,' says he, 'is to be seene and reserved as a jewel by the Queens Majesties commandemēt, in her wardrop of robes†.' — The original map of his voyages is a singular sketch of erroneous supposition. He makes his streights reach to the *Icy Sea*, opposite to what he calls *Catbaya*, just to the north of what is made to resemble the new-discovered streights of *BEHRING*; which, in the map, are called those of *Anian*; and accidentally gives them a tolerably just form‡. Those of *Anian* are equally fabulous with those of *de Fuca*, but of prior invention; and, like them, were sayed to have been a passage from the South to the North sea||. Queen *Elizabeth* bestowed on his discoveries the name of *Meta Incognita*.

FROBISHER'S
STREIGHTS.

Greenland was resettled with *Norwegians* in 1721, by the zeal of the Reverend Mr. *Hans Egede*, the *Arctic* apostle§. He continued, till 1735, preaching the Gospel to the poor natives; and had not only the happiness

NEW GREEN-
LAND.

* 'A true Discourse of the late Voyages of Discoverie for finding a Passage to *Catbaya* by the north-west, under the Conduct of *Martin Frobisher*, General. Printed by *Henry Bynnyman*, 1578.' First Voyage, p. 48.

† The Same, Second Voyage, p. 19.

‡ In the same book.

|| See an account of these imaginary streights in *Drage's Voy. to Hudson's Streights*, vol. ii. 68.

§ *Grants*, i. 279. 285.

of

of seeing his labors blessed with effect, but his example followed by a numerous set of missionaries, who have formed (on the western side only) many settlements, which flourish even to this day. Mr. *Egede* returned to *Denmark*, founded a seminary for students in the *Greenland* language, from which missionaries were to be drawn; and finished his pious life in 1754.

At *Cape Farewell* begins the vast opening between *Greenland* and *Terra de Labrador*, which leads to *Hudson's Bay*. Between the west side of *Greenland* and certain vast islands, are *Davis's Straights*, which lead to *Baffin's Bay*. These islands in different maps bear different names, and in one are even consolidated; so little are these parts known*.

To describe *Greenland*, would be to ring changes on ice, and snow, and lofty mountains (some, according to Mr. *Crantz*, a thousand fathoms high) rising into broken crags or sharp spires, or vallies with no other garniture than moss and some moor-grass; and in some parts are long flat mountains, clad with perpetual ice and snow. Where the birds, by their dung, have formed a little soil, some plants are found. Mr. *Crantz* † enumerates about twenty-four species, besides the cryptogamous kinds. *Egede* observed, in lat. 60 or 61, small Junipers, Willows, and Birch; the last two or three yards high, and as thick as a man's leg ‡; an amazing tree for this country. *Davis* also saw some low Birch and Willows as high as about lat. 65 §. Nature here suffers the reverse of melioration; the *glacieres* constantly gain on the vallies, and destroy all hopes of improvement. That amazing *glaciere*, the *Ice Blinck* or *Ice Glance*, on the western coast, is admirably described by Mr. *Crantz*. I must refer to him for the account, after saying, that it is a stupendous aggregate at the mouth of an inlet, and of an amazing height; the brilliancy of which appears like a glory to the navigators at many leagues distance. It forms, beneath, a series of most magnificent arches, extending eight leagues in length, and two in breadth; through these are carried, at the ebb of tide, great frag-

TREES.

ICE-BLINCK.

* Collate Mr. *Middleton's* map, and others.

† Vol. i. 60.

‡ *Hist. Greenl.*§ *Hackluyt*. iii. 101.

ments of ice, which have fallen from various *icebergs*, and prove one supply to the ocean of its floating ice*. The streights, now obstructed to navigation, are supposed to be open at bottom, by arches similar to those spoken of; for an immense quantity of ice is annually discharged from their mouths †.

I have mentioned the islands of ice at p. cxxxiv; for those of *Spitzbergen* have every thing in common with those of *Greenland*. Perhaps the colors in the last may be more brilliant; the green being as high as that of the emerald, the blue equal to that of the sapphire; the first, Mr. *Egede* attributes to the congelation of fresh, the latter to that of salt-water ‡. Here are frequent instances of the freezing of the sea-water. The frost often forms a pavement of ice from island to island, and in the confined inlets §.

The tides rise at the south of this country three fathoms, in lat. 65; on the west side two, or in spring-tides three; at *Disco*, about lat. 69, only one; further north it sinks even to one foot. In great spring-tides, especially in winter, is this strange phænomenon: springs of fresh-water are forced up on the shores in places where they were before unknown ||.

During the long day of the short summer is considerable heat. The long winter is a little cheared by the *Aurora Borealis*, which appears and radiates with unusual brilliancy and velocity in the spring, about the time of the new moon. Fogs give a gloom to the summer, and frost-smoke often adds horror to the winter. It rises out of the opening of the ice in the sea, and peels off the very skin from those who venture to approach it. The effect of the frost is very violent on the human body; but less so than in the north-east of *Siberia*, where at times it is fatal to stir abroad, even when protected with every guard of cloathing ¶.

The *Greenlanders* fastidiously style themselves *Innuits*, i. e. *men*, as if they

* *Crantz*, i. 21 to 24.

† Same, 19.

‡ *Egede*, 55.

§ *Crantz*, i. 43.

|| Same, 41.

¶ *Voyage en Siberie*, i. 381.

TIDES.

AURORA BOREALIS.

were the standard of the human race; yet few of them attain the height of five feet; but are well made. Their hair is long and black; their faces flat; their eyes small. They are a branch of the *Eskimaux*, the small race which borders all the *Arctic* coasts. They originated from the *Samoied Asiatics*, who, passing over into the New World, have lined the coast from *Prince William's Sound* on the western side, in lat. 61, quite to the southern part of *Labrador* on the eastern. They crept gradually in their little canoes northward, and diminished in size in their progress, till they attained their full degeneracy in the *Eskimaux* and *Greenlanders*. Similar people, or vestiges of them, have been seen in different places, from *Prince William's Sound* to the north of *BEHRING's* streights. They were again seen by *Mr. Hearne* in lat. 72. By report of the *Greenlanders* of *Disco bay*, there are a few inhabitants in *Baffin's bay*, in lat. 78. *Egede* says, that the country is peopled to lat. 76*; but the highest colonized spot is at *Noogsoak*, in lat. 71. They are a race made for the climate, and could no more bear removal to a temperate clime, than an animal of the torrid zone could into our unequal sky: seasons, and defect of habitual food, would soon bring on their destruction. This race has been found to agree in manners, habits, and weapons, and in many instances in language, from *Prince William's Sound* to the end of *Labrador*, a tract extending near fifteen hundred leagues †. They only line the coasts; for the *Indians* persecute them with merciless hatred, and almost push them into the sea. They imagine these poor creatures to be magicians, and that to them they owe every ill success in life ‡. The numbers of the *Greenlanders* are now amazingly diminished. In 1730 there were thirty thousand souls, at present only ten thousand; a decrease chiefly owing to the ravage of the small pox.

Greenland has been most happy in its Zoologist. The Reverend *Mr. Otto Fabricius*, whom a laudable zeal for enlightening the minds of the gross inhabitants, led to these parts, hath given a most ample and classical

* As quoted in *Green's map of America*.

† *COOK's Voy.* i. Pref. LXXIV.

‡ Same, ii. 43.

account of the animals. His *Fauna Groenlandica* is among the first works of the kind. I eagerly expect the performance of the promised remainder of the work.

The Quadrupeds of this country are, the REIN-DEER, which are here merely considered as objects of the chase. Their number is lessened greatly, and they are now only found in the most remote parts. The *Ukalcrajek** is, I suspect, an animal of imagination. It is said, by the *Greenlanders*, to be long-eared, hare-lipped, and to resemble that animal; to have a short tail; to be of a white color, with a dark list down the back, and of the size of a Rein-deer. The Dogs resemble Wolves in figure, size, and nature. Left to themselves, they hunt in packs the few animals of the country, for the sake of prey. They exactly resemble the Dogs of the *Esquimaux* of *Labrador*. It is probable, that they might have been originally brought here by their masters, who first fled that country, and populated *Greenland*. ARCTIC FOXES abound here; and, with POLAR BEARS, infest the country. Had I not such excellent authority, I should have doubted whether the WOLVERENE, usually an inhabitant of wooded countries, was found in *Greenland*; but it is certainly met with, yet rarely, in the southern parts, where it preys on the Rein-deer and White Hares. It must have been originally wafted hither on the ice from *Terra de Labrador*, the nearest place to this of which it is an inhabitant. The VARYING HARE is very common. The WALRU, and five species of Seals, inhabit these seas: the COMMON, the GREAT, the ROUGH, the HOODED, the HARP, and an obscure species, called by the *Laplanders*, *Fatne Vindac*, with a round head and long snout, bending like the proboscis of an elephant †. Mr. *Fabricius* adds to the marine animals, the WHALE-TAILED MANATI, of which he once saw the head partly consumed.

The POLAR BEARS, SEALS, and MANATI, were originally natives of these countries. The other Quadrupeds found their way here from either *Hudson's Bay* or *Labrador*, on the islands of ice. The ARCTIC FOX found

QUADRUPEDS:

* *Faun. Groenl.* p. 26.

† Same, p. 17.—*Leem's Lapm.* 214; 215.

the same kind of conveyance from *Greenland* to *Iceland* as it did with the REIN-DEER to *Spitzbergen*. To the last was waisted, probably from *Labrador*, the COMMON WEESEL, the RED or COMMON FOX; and the Mouse, mentioned p. LXIX, missed *Greenland*, but arrived at and stocked *Iceland*; and the Common Bat was originally tempest-driven to the latter from *Norway*: the WOLVERENE and VARYING HARE never reached farther than *Greenland*.—This seems the progress of Quadrupeds in the frigid zone, as high as land is found.

BIRDS.
FISHES.

The note * gives the sum of the Birds, land and water.

The numbers of Fish which frequent these icy seas are very considerable. They are, indeed, the great rendezvous of Whales. There is a

* LAND BIRDS.		Striated Sandpiper, N° 383	Glaucous,	p. 532 B.
Cinereous Eagle,	p. 214 B.	Hebridal Sandpiper, N° 382	Ivory Gull,	N° 457
Greenland Falcon,	220 E.	Dunlin Sandpiper, N° 391	Tarrock,	p. 533 D.
Gyrfalcon,	221 F.	Alwargrim Plover, N° 398	Arctic,	N° 459
Collared Falcon,	222 G.	Ringed Plover, N° 401	Fulmar Petrel,	N° 461
Long-eared Owl ?	N° 117	P I N N A T E D.		
Snowy Owl,	N° 121	Grey Phalarope, N° 412	Shearwater P.	N° 462
Raven,	N° 134	Red Phalarope, N° 413	Goosander,	N° 465
Ptarmigan,	p. 315 B.	W E B B E D.		
Snow Bunting,	N° 222	Great Auk,	Brant,	N° 478
Lulean Finch,	p. 380 B.	Razor-bill,	Bernacle,	N° 479
Lefs Red-poll,	N° 262	Black-billed,	Eider Duck,	N° 480
Wheat-ear,	p. 420 P.	Puffin,	King Duck,	N° 481
Crested Titmouse ?	p. 427 F.	Little,	Golden Eye,	N° 486
CLOVEN-FOOTED		Black Guillemot,	Pin-tail,	N° 500
WATER FOWL.		Northern Diver, N° 439	Long-tailed,	N° 501
Common Heron,	N° 433	Red-throated D. N° 443	Harlequin,	N° 490
Snipe,	N° 366	Great Tern, N° 448	Mallard,	N° 494
Jadrecka,	N° 375	Black-backed Gull, N° 451	Morillon,	p. 573 F.
		Cinereous G. (<i>Lin. Syst.</i>) 224	Great Tern,	N° 448
			Black-backed Gull,	N° 451

The fifth species is very doubtful. Except the *Canada* Goose ? there is not a species of Bird which is not found in *Europe*. This induces me to place all those of *Greenland* in the appendages to the genera, as they seem to have little clame to *America*.

fishery for them by the *Dutch*, in *Disco Bay*, as early as *April* *. The natives take them at other times, cut off the blubber in an awkward manner, and preserve that and the whalebone as articles of commerce. It is certain that they do not drink train-oil, like the true *Esquimaux*, and some other congenerous people †. The species which frequent *Greenland* are, the MONODON MONOCEROS, or NARWHAL, *Lin. Syst.* 105 : the MONODON SPURIUS, *Faun. Groenl.* N° 19 ; a rare species, with two teeth, about an inch long, projecting from the extremity of the upper jaw : the BALÆNA MYSTECETUS, or COMMON WHALE, *Br. Zool.* iii. N° 16 : BALÆNA PHYSALUS, or FINFISH, N° 18 : BALÆNA BOOPS, *Faun. Groenl.* N° 22 : BALÆNA MUSCULUS, or ROUND-LIPPED, N° 19 : the BALÆNA ROSTRATA, *Faun. Groenl.* N° 84 ; a very small species with a long snout : PHYSETER MACROCEPHALUS, *Faun. Groenl.* N° 25 : PHYSETER CATODON, or ROUND-HEADED CACHALOT, *Br. Zool.* iii. N° 22 : PHYSETER MICRUPS, or BLUNT-HEADED CACHALOT, *Br. Zool.* iii. N° 21 : DELPHINUS ORCA, SPEKHUGGER, or GRAMPUS, *Faun. Groenl.* N° 28 ; the tormentor of the greater Whales, whom they will fix on, as Bull-dogs will on a Bull, and tear out large pieces from their bodies : DELPHINUS PHOCÆNA, the PORPESSE, *Br. Zool.* iii. N° 25 : DELPHINUS DELPHIS, or the Dolphin, N° 24 : the DELPHINUS TURSIO, or the BUTSKOPF, N° 26 : and finally, the DELPHINUS ALBICANS, or BELUGA WHALE, p. 182 of this Work, which enlivens those waters with its resplendent whiteness.

Among the cartilaginous species are the RAIA FULLONICA, *Lin. Syst.* 396 : the WHITE SHARK, *Br. Zool.* iii. N° 42, equally voracious from the equator to the *Arctic* circle ; and, with fierceness unsubdued by climate, often bites in two the *Greenlanders* sitting in their Seal-skin canoes : the PICKED SHARK, *Br. Zool.* N° 40 : the BASKING SHARK, N° 41 : the SQUALUS PRISTIS, or SAW SHARK, *Lin. Syst.* 401 : the LUMP SUCKER, *Br. Zool.* iii. N° 57 ; a great article of food with the natives : CYCLOPTERUS SPINOSUS, or SPINY SUCKER, *Faun. Groenl.* N° 93 : CYCLOP-

* *Crantz*, i. 118.

† *Egede*, 134.—*Crantz*, i. 144.

TERUS MINUTUS of PALLAS, *Spicil. Zool. fasc. vii. 12. tab. ii.*, or the MINUTE, N° 94: the UNCTUOUS SUCKER, *Br. Zool. N° 58.*

Of the boney Fishes, the EEL, *Br. Zool. N° 63*, is rarely found in the southern rivers. The WOLF-FISH, N° 65, appears here in the spring with the Lump Fish, and disappears in autumn. The Greenland Faunist describes a lesser variety, in N° 97, b. The LAUNCE, *Br. Zool. iii. N° 66*: the OPHIDIUM VIRIDE, *Faun. Groenl. N° 99*: the HADDOCK, *Br. Zool. iii. N° 74*, is plentiful here in winter. GADUS CALLARIAS, or VARIED COD, *Lin. Syst. 436*; and COMMON COD, *Br. Zool. iii. N° 73*, frequent the coasts in spring and autumn. The POUT, N° 75: GADUS VIRENS, or GREEN COD, *Lin. Syst. 438*: the HAKE, *Br. Zool. N° 81*: the LING, N° 85: and the GADUS BRUSME, *Faun. Groenl. N° 107*, are species of Cod-fish found in these seas. The SPOTTED BLENNY, *Br. Zool. iii. N° 93*. A new species, the BLENNIUS PUNCTATUS, *Faun. Groenl. N° 110*; and that curious fish the CORYPHÆNA RUPESTRIS, N° 111, *Aët. Nidr. iii. tab. 111*; the first rare, the last frequent in the deep southern bays. The ARMED BULL-HEAD, *Br. Zool. iii. N° 98*. The FATHER LASHER, N° 99, is a most common fish, and singularly useful. COTTUS SCORPIOIDES, *Faun. Groenl. N° 114*; QUADRICORNIS, *Lin. Syst. 451*; and the RIVER BULL-HEAD, *Br. Zool. iii. N° 97*, are found here in salt-water. The ZEUS GALLUS, *Lin. Syst. 454*, a fish of the hottest parts of *South America*, is suspected to be found here. The HOLIBUT, *Br. Zool. iii. N° 102*, is very common; as is the PLEURONECTES CYNOGLOSSUS, *Faun. Groenl. N° 118*; and the new species, PL. PLATTESSOIDES, N° 119, is seen here in small numbers near the mouths of rivers. LABRUS EXOLETUS, *Faun. Groenl. N° 120*: STRIPED WRASSE? *Br. Zool. iii. 119*: PERCA NORVEGICA, *Faun. Groenl. N° 121*: THREE-SPINED STICKLEBACK, *Br. Zool. iii. N° 129*, not only in rivers but places overflowed by the sea. The SALMON, N° 143, is extremely scarce at present; yet in *Davis's* time, was among the presents made to him by the savages; and *Baffin* * saw most amazing shoals of these fish in *Cockin's*

* *Purchas*, iii. 848.

Sound, on this western coast, in lat. 65. 45. The SALMO CARPIO, *Faun. Groenl.* N° 124, is one of the most common and useful fishes; is frequent in the lakes, rivers, and estuaries. The CHAR, *Br. Zool.* iii. N° 149, consorts with the other, and is as common. The SALMO STAGNALIS, *Faun. Groenl.* N° 126, a new species, found remote in the mountain lakes, and caught only by the hunters of Rein-deer. The SALMO RIVALIS, N° 127, is another, inhabiting small brooks. The SALMO ARCTICUS, N° 128, or CAPELIN of the *Newfoundland* fishers *, is the last of this genus, but the most useful; the daily bread, and the fish in highest esteem with the *Greenlanders*, and providentially given to them in the greatest abundance. The COMMON HERRING, *Br. Zool.* iii. N° 160, is a rare fish in these seas; as is the ANCHOVY, N° 163.

The same indefatigable Zoologist hath discovered in this country (including crustaceous) not fewer than ninety-one Insects, a hundred and twenty-six Vermes, fifty-nine shells, and forty-two Zoophytes.

JOHN DAVIS, a most able seaman, was the first who examined the west side of *Greenland*. Before his time the eastern coast was the only part known to *Europeans*. He made there three different voyages, in 1585, 1586, and 1587. After doubling *Cape Farewell*, he sounded, and could not find bottom with three hundred fathoms of line. North of what he properly called *the Land of Desolation*, he arrived in a filthy, black, and stagnating water, of the depth of a hundred and twenty fathoms. He found drift-wood in lat. 65, and one entire tree sixty feet long, with its root; the species were Fir, Spruce, and Juniper †, which came down from remote places on the banks of the rivers of *Hudson's Bay*; for Mr. *Hutchins* assures me, that to this day, in certain years, vast quantities of timber are brought down with the ice at the opening of the rivers. He also met with black Pumices ‡, whether from neighboring volcanoes, burning or extinct, remains unknown; or whether, which is most probable, conveyed there from *Iceland*. The stone of the country is mostly granitical.

JOHN DAVIS, HIS
DISCOVERIES.

* See it well engraven in M. Du Hamel, *Hist. de Poissons*, part ii. tab. xxvi.

† *Davis's Voy.* in *Hackluyt*, iii. 101.

‡ Same, 111.

Some

Some sand-stone, and many sorts of coarse marble. The *Lapis Ollaris* is found here in abundance, and of great use to the natives for making of pots. Talc is frequent here, Asbestos, and Gypsum. Granates are not uncommon. Sulphureous Marcasites, which have more than once deceived the navigators with the opinion of their being gold*. The mineral symptoms of copper, such as stains of blue and green, are seen on these rocks; but avarice itself will never tempt adventurers to make here a trial.

DAVIS's streights is frequented by some of our Whale-fishers: they sail from *England* (e. g.) *Yarmouth*, the beginning of *March*, arrive there about the middle of *April*, and go up the streights two hundred leagues, towards *Disco* bay, or North-east bay, usually called by the seamen *North-east Bite*. In these parts the Whales are larger, but fewer than in the *Spitzbergen* seas. Seals there are also scarcer. It is singular that no intelligence is to be obtained concerning *Baffin's* bay, from these navigators.

DAVIS got as high as lat. 72, and called the country *London Coast*. The streight he passed, between the west of *Greenland* and the great islands, is honored by his name. He seems to have been engaged among the great islands; for he says he sailed sixty leagues up a sound, found the sea of the same color with the main sea, and saw several Whales. He sailed through another sound to the south-west, found ninety fathom water at the entrance; but within could not touch ground with three hundred and thirty. He had hopes of having found the long-sought-for passage. The tides rose six or seven fathoms; but, as is frequent among islands, the flood came from such variety of places, that he could not trace its principal origin †.

BAFFIN'S BAY.

At lat. 72. 30, I must take as my pilot that great seaman *William Baffin*, who gave name to the great bay I now enter on. His first voyage was in 1613; his second, in which he made the most effectual trial for the north-

* *Purchas*, iii. 833.—*Egede*, 32.† *Hackluyt*, iii. 102.

west passage, was in 1616. He passed through *Davis's Straights*. In lat. 70. 20, on the *London Coast*, he found the tides rise only eight or nine feet. In *Horn Sound*, lat. 73. 45, he met with several people *. To the north of that, in 75. 40, was a large and open bay; *Cape Dudley Digges* forms its northern point; within is *Westenbolme Sound*; beyond that, *Whale Sound*; and in the extreme north, or bottom of this great bay, is that named by *Baffin* after *Sir Thomas Smith*, lying in 78 degrees. In those three sounds were abundance of Whales; but in the last the largest in all this bay. It is highly probable, that there are one or more communications from hence to the *Icy Sea*, through which the Whales pass at certain seasons; and this (if I may collect from their numbers) might be that of their migration southward. The distance into the *Icy Sea* can be but very small, but probably blocked up with ice; or if not, from the sudden shifting of the ice in that sea by the change of wind, the passage must be attended with too great hazard to be attempted. The ice prevented our great seaman from making trial of the tides in this bay, which would have brought the matter to greater certainty. He saw multitudes of *Walruses* and Seals in these parts, but no signs of inhabitants. From hence the land trended westerly, to a sound he called by the name of *Alderman Jones*, in lat. 76. 40. Here the land ran due south to a great sound in lat. 74. 20, which he called *Sir James Lancaster's*. From this place the land took an eastern curvature, to the straits between the continent and *Cumberland* island. *Baffin* took his course between that isle and the isle of *Saint James*, left his name to the strait he passed, and arrived safe in *Cockin's Sound*, on the coast of *West Greenland*, where he found the tide rise eighteen feet: this, and similar excesses, arising from the confined situation of places †.

This is the only voyage ever made into *Baffin's Bay*. *Christian IV.* of *Denmark*, in 1619, sent *John Munck*, a most able seaman, to make discoveries in these parts; but, notwithstanding any furnishes of his having

* *Hackluyt*, iii. 846.

† For the account of this curious voyage, see *Purchas*, iii. from p. 836 to 848.

reached this famous bay, he got no farther than *Hudson's Bay*; to which, in honor of his master, he gave the name of *Christian Sea*. He passed a miserable winter in *Churchill* river, and returned home the next year, after losing, during his stay on shore, every man but two*. *Munck* never reached beyond lat. 63. 30. A cruel fate attended this able seaman. Being still persuaded of the possibility of a north-west passage, he engaged several opulent people in the design, who equipped two vessels, and committed them to his care. On taking leave of his prince, *Christian IV.* some discourse arose concerning his late expedition. The king ungenerously reproached him with being the cause of its miscarriage. *Munck*, indignant at the aspersion, answered his majesty with warmth, on which the king struck him with his cane. *Munck* was so affected, that he took to his bed, refused all food, and died of grief at the unjust usage he had experienced†.

HUDSON'S BAY.

We now proceed through a nameless streight, between the main land and the two great islands on the east; and, after doubling *Cape Southampton*, enter into *Hudson's Bay*, in the gulph called *the Welcome*. This bay was discovered in 1610, by that able seaman *Henry Hudson*, from whom it takes its name. His view, in the voyage he made, was the discovery of a passage to the *East Indies*. The trial has been vigorously pursued since his days, but without success. In 1742 an attempt was made, as low as the bottom of *the Welcome*, by Captain *Middleton*; and from the check he met with, he called that part *Repulse Bay*. In subsequent trials *Wager's Water* was suspected to be the passage into the Western ocean; but in 1747 its end was discovered, and found to terminate in two navigable rivers. The romantic scenery which the adventurers met with in the way is most admirably described by the elegant pen of Mr. *Henry Ellis*.

CHESTERFIELD
INLET.

Chesterfield, or *Bowden's Inlet*, was likewise suspected to have been the desired streight; but in 1762 Messrs. *Norton* and *Christopher*, in a sloop and cutter, belonging to the Company, went to the remotest end. At the distance

* Clerk of the *California's Voy.* i. 106.—For a further account of this unfortunate voyage, see *Churchill's Collection*, ii. 472.

† *Churchill*—476.

of a hundred and twenty-eight miles from the mouth was scarcely any tide; thirty miles farther it quite died away. The land here grew contracted into a very narrow passage. Here the adventurers entered with the cutter, and discovered that the end was in a magnificent fresh-water lake, to which was given the name of *Baker's*. The land was quite level, rich in grass, and abounding with Deer. They found the end quite innavigable, and to terminate in a small stream, with many shoals at its mouth, and three falls across it. After finding the water decrease to the depth of two feet, they returned fully satisfied with their voyage.

Hudson's Bay has been so frequently described, that I shall only give a general view of it and its adjacent parts. Its entrance from the ocean, after leaving to the north *Cape Farewell* and *Davis's Straights*, is between *Resolution* isles on the north, and *Button's* isles, on the *Labrador* coast, to the south, forming the eastern extremity of the straits distinguished by the name of its great discoverer. The coasts very high, rocky, and rugged at top; in places precipitous; but sometimes exhibit large beaches. The isles of *Salisbury*, *Nottingham*, and *Digges*, are also very lofty, and naked. The depth of water in the middle of the bay is a hundred and forty fathoms. From *Cape Churchill* to the south end of the bay are regular soundings; near the shore shallow, with muddy or sandy bottom. To the north of *Churchill*, the soundings are irregular, the bottom rocky, and in some parts the rocks appear above the surface at low water. From *Moose* river, or the bottom of the bay, to *Cape Churchill*, the land is flat, marshy, and wooded with Pines, Birch, Larch, and Willows. From *Cape Churchill* to *Wager's Water* the coasts are all high and rocky to the very sea, and woodless, except the mouths of *Pockerekesko*, and *Seal* rivers. The hills on their back are naked, nor are there any trees so far great distance inland.

The mouths of all the rivers are filled with shoals, except that of *Churchill*, in which the largest ships may lie; but ten miles higher, the channel is obstructed with sand-banks; and all the rivers, as far as has been navigated, are full of rapids and cataracts, from ten to sixty feet perpendicular. Down these rivers the *Indian* traders find a quick passage; but their return is a labor of many months.

As far inland as the Company have settlements, which is six hundred miles to the west, at a place called *Hudson House*, lat. 53. long. 106. 27, from *London*, is flat country: nor is it known how far to the eastward the great chain, seen by our navigators from the *Pacific Ocean*, branches off.

CLIMATE.

The climate, even about *Haye's river*, in only lat. 57, is, during winter, excessively cold. The snows begin to fall in *October*, and continue falling by intervals the whole winter; and, when the frost is most rigorous, in form of the finest sand. The ice on the rivers is eight feet thick. Port wine freezes into a solid mass; brandy coagulates. The very breath fell on the blankets of the beds in form of a hoar-frost, and the bed-cloaths often were found frozen to the wall*. In the very cold nights it is impossible to sleep an hour without being awakened by the cracking of the beams, which are rent by the expansive power of the frost. They are often mistaken for the three-pounders placed on the top of the Company's house. Up the country the noise occasioned by the burst of the rocks is quite terrible, bursting with a report equal to that of many heavy artillery fired together, and the splinters are thrown to an amazing distance †. The sun rises, in the shortest day, at five minutes past nine, and sets five minutes before three. In the longest day the sun rises at three, and sets about nine. The ice begins to disappear in *May*, and hot weather commences about the middle of *June*; which, at times, is so violent, as to scorch the face of the hunters. Thunder is not frequent, but very violent. But there must be great difference of heat and cold in this vast extent, which reaches from lat. 50. 40, to lat. 63, north.

FISH.

During winter the firmament is not without its beauties. Mock suns and halôs are not infrequent; are very bright, and richly tinged with all the colors of the rainbow. The sun rises and sets with a large cone of yellowish light. The night is enlivened with the *Aurora Borealis*, which spreads a thousand different lights and colors over the whole concave of the

* *Voy. to Hudson's Bay*, 1746, written by the Clerk of the *California*, i. 159. His name was *Drage*; his account is sensible and entertaining.

† *Mr. Wales*, in *Pb. Transf.* lx. 125.

sky, not to be defaced even by the splendor of the full moon; and the stars are of a fiery redness*.

Hudson's Bay is very ill supplied with Fish. The common Whale is frequent there. The Company have attempted to establish a fishery; and for that purpose procured experienced people from the *Spitzbergen* ships, and made considerable trials between lat. 61 and 69; but, after expending twenty thousand pounds, and taking only three fish, were, in 1771, obliged to desist. The ice prevented the vessels from getting to a proper station in due time; and the hard gales, and quick return of winter, always deprived them of an opportunity of making a fair trial. The fishery of the *Beluga*, or White Whale, is attended with more success. It haunts the mouths of rivers in *June*, as soon as they have discharged the ice, and are taken in great numbers. There are two varieties; one with a blue cast, the other of a pure white. These animals, probably, superfete; a foetus of six inches in length having been extracted, at the same time that a young one has been seen (as is their custom) mounted on the back of another.

Sturgeons are frequently taken near *Albany* above two hundred pounds in weight: and, since the Company have had settlements far inland, its servants annually take numbers which weigh from seventy to a hundred pounds each. I suspect that the Sturgeons of the great lakes of *Canada*, which, I am told, are smooth, or free from tubercles, are the same with *Acipenser Huso* of *Linnaeus*, and *Hauson* of the *Germans*, a fish of the *Danube* and *Volga*.

The *Lopbius Piscatorius*, or Common Angler, *Br. Zool.* iii. N° 51, appears towards the surface only in windy weather; for which reason it is called by the natives *Tbutina-meg*, or the *Wind-fish*.

The *Gadus Lota*, or Burbot, *Br. Zool.* ii. N° 86, is common in the rivers, and is caught with hooks after nine o'clock at night. It is called here *Marthy*; grows to the weight of eight pounds; is so voracious as to feed even on the tyrant Pike; will devour dead Deer, or any carrion, and even swallow stones to fill its stomach: one of a pound weight has been taken out of a fish of this species. It spawns about *February* 8th, and is unhappily most prolific. Mr. *Hutchins* counted, in a single fish, 671,248 ovaria.

* *Ellis*, 172.

Allied to this is the *Matbemeq* of the natives, the Land Cod of the *English*, a fish abundant in the northernly lakes; it grows to the length of three feet, and the weight of twelve pounds: has three beards on the lower jaw; the middlemost the longest: the back is brownish: the belly grey.

The *Perca Fluvialis*, or common Perch, *Br. Zool.* iii. N° 124, is found in the rivers, but not in plenty; and sometimes grows to the weight of eight pounds. The *Gasterosteus aculeatus*, or three-spined Stickleback, *Br. Zool.* iii. N° 129, is found here in great numbers.

Salmo Salar, or the common Salmon, *Br. Zool.* iii. N° 143, is taken in plenty from *June* to *August*, in nets placed along the sea-shores, and salted for use. Very few are caught to the south of *Churchill* river.

The *Namaycush*, is a species of Trout, with the head, back, dorsal fin, and tail of a dark blue: the sides dusky, marked with white and reddish spots: the belly silvery: the flesh white, and very delicate. It is caught with the hook in lakes far inland; and sometimes of the weight of thirty pounds. A *Trutta lacustris generis*, p. 1012. *Wil. Ictb.* 198?

Salmo Alpinus, or Char, *Br. Zool.* iii. N° 149, is common in the fresh waters, and weighs from two to six pounds.

The *Salmo Lavaretus*, or Gwiniad, *Br. Zool.* iii. N° 152, is found here in vast abundance; and grows to a size far superior to those of *Europe*. There is a lesser kind, called here the *Sea Gwiniad*: the head is not so dusky: eyes smaller; and back less arched. The nose of the male is blunt; and the stomach muscular, like a gizzard: the female has an arched nose. They are very numerous in autumn, just when the rivers are frozen over, and are called here *Tickomeq*. The *Salmo Arcticus*, or *Capelin*, is observed to precede the Salmon, and is sometimes thrown on shore in amazing quantities by hard gales.

The *Omisco Maycus* is a new species of Trout, taken in *May* in *Albany* river, not exceeding four inches and a half long. It has five branchiostegous rays: first dorsal fin has eleven rays, ventral eight, anal seven, pectoral thirteen: tail forked: in the jaws are minute teeth: back, as low as the lateral line, is of a pale color, marked with two longitudinal rows
of

of black stelliform spots: below the lateral line the color silvery: the belly white.

The Pike, *Br. Zool.* iii. N° 153, abounds in all the lakes. Mr. *Hearne* assures me, that he has taken some above twenty pounds apiece, and in the inland lakes even above thirty.

The *Cyprinus Catastomus* of Dr. *Forster**, or Sucker Carp, is a new species: of which there are two varieties; the *Mitbomapetb* of the *Indians*, marked with a broad stripe of red along the lateral line, and found on the sea-coast; and the White, or *Namapetb*, with larger scales, and wholly of a whitish color: very scarce in the salt-water, but in such plenty in the inland lakes and rivers, as to be even burdensome to the nets. They grow to the weight of two pounds and a half, and in the inland lakes to a far greater size. The form is oblong: the head boney, rugged, and decreasing to the tip of the nose: the mouth small, and placed beneath: the body scaly: the tail lunated.

Shell-fish are very scarce in this sea. *Mytilus Edulis*, the Edible Mussel, *Br. Zool.* iv. N° 73, alone are plentiful; but of Cockles, only the dead shells are seen. From the number of shells which are dug up, for the space of ten miles inland of this flat muddy country, may be collected a proof of the great retreat of the water; but for want of inhabitants, the period of its loss cannot be ascertained.

Multitudes of birds retire to this remote country, to *Labrador*, and *Newfoundland*, from places most remotely south, perhaps from the *Antilles*; and some even of the most delicate little species. Most of them, with numbers of aquatic fowls, are seen returning southward, with their young broods, to more favorable climates. The savages, in some respects, regulate their months by the appearance of birds; and have their *Goose month* from the vernal appearance of Geese from the south. All the Grouse kind, Ravens, cinereous Crows, Titmouse, and *Lapland Finch*, brave the severest winter; and several of the *Falcons* and *Owls* seek shelter in the woods. The *Rein Deer* pass in vast herds towards the

* By whom it is well described and figured, in vol. lxxiii. p. 155. tab. vi. of *Ph. Transf.*

TERRA DE LABRADOR.

north, in *October*, seeking the extreme cold. The male Polar Bears rove out at sea, on the floating ice, most of the winter, and till *June*: the females lie concealed in the woods, or beneath the banks of rivers, till *March*, when they come abroad with their twin cubs, and bend their course to the sea in search of their consorts. Several are killed in their passage; and those which are wounded shew vast fury, roar hideously, and bite and throw up into the air even their own progeny. The females and the young, when not interrupted, continue their way to sea. In *June*, the males return to shore, and, by *August*, are joined by their consorts, with the cubs, by that time of a considerable size*.

TERRA DE LABRADOR.

The eastern boundary of the bay is *Terra de Labrador*; the northern part has a strait coast facing the bay, guarded with a line of isles innumerable. A vast bay, called the *Archiwinnipy Sea*, lies within it, and opens into *Hudson's Bay* by means of *Gulph Hazard*, through which the *Beluga* Whales dart in great numbers. Here the Company had a settlement, for the sake of the fishery, and for trading with the *Eskimaux*; but deserted it as unprofitable about the year 1758 or 1759. The eastern coast, so admirably described by that honored name, Sir ROGER CURTIS† is barren past the efforts of cultivation. The surface every where uneven, and covered with masses of stone of an amazing size. It is a country of fruitless vallies and frightful mountains, some of an astonishing height: the first watered by a chain of lakes, formed not from springs but rain and snow, so chilly as to be productive of only a few small Trout. The mountains have here and there a blighted shrub, or a little moss. The vallies are full of crooked stunted trees, Pines, Fir, Birch, and Cedars, or rather a species of Juniper. In lat. 60, on this coast, vegetation ceases. The whole shore, like that on the west, is faced with islands at some distance from land. The inhabitants among the mountains are *Indians*; along the coasts, *Eskimaux*. The Dogs of the former are very small; of the latter, large, and headed like a Fox. Notwithstanding they have

* See an ingenious and laudable Calendar of *Hudson's Bay*, published by Doctor *Macfai*, in his new System of General Geography, 348 to 354.

† *Ph. Transf.* lxiv. 372.

Rein-

Rein-deer, they never train them for the sledge; but apply the Dogs to that use*. WALRUSES visit a place called *Nuchvink*, in lat. 60, during winter; from thence they purchase the teeth, with which they head their darts. *Davis* suspected that he had found a passage on this coast, in 1586, to the Western ocean; but it proves no more than a deep bay.

That curious body the *Labrador* stone, which reflects all the colors of the peacock, is found there in loose masses. The late Mr. *La Trobe* shewed me a piece of exquisite beauty, finely polished, which he procured from the missions in that country. It is, according to Mr. *Kirwan*, a *feldt-spat*, softer than the common kind.

The laudable zeal of the *Moravian* clergy hath induced them to send, in the year 1752, missionaries from *Greenland* to this country. They fixed on *Nisbet's* harbour for their settlement; but the first party was partly killed, partly driven away. In 1764, under the protection of our government, another attempt was made. The missionaries were well received by the *Eskimaux*, and go on with success†. These pious people, like the *Jesuits*, have penetrated almost into every part of the known world; and, for the sake of the Gospel, dared the extremities of heat and cold. They endeavoured to humanize the savages of *Greenland*, and improve the morals of the soft inhabitants of the unwholesome coasts of *Bengal*. They are not actuated by ambition, political views, or avarice. Here my comparison with the once-potent order of the *Roman* church fails.

Terra de Labrador, at *Cape Charles*, in lat. 52, trends towards the southwest. Between that cape and the isle of *Newfoundland* begin the streights of *Belleisle*, a passage with from twenty to thirty fathoms water; but often choaked up with the floating ice from the north, even so late as the middle of *June*‡. They open into the vast triangular gulph of *St. Laurence*, bounded to the north by *Terra de Labrador*; to the west by *Nova Scotia*;

* *Ph. Transf.* lxiv. 386.

† *Grantz, Hist. Morav.* 404, 608.

‡ *Barrington's Miscel.* 25.

to the east by *Cape Breton* and *Newfoundland*. In the western corner, the vast river of *St. Laurence* discharges itself; arising from a thousand streams which feed the sea-like lakes of *Canada*, and, after falling down the amazing cataract of *Niagara*, and darting down the slopes of numberless foaming rapids, tremendous to all but *British* battalions*, forms a matchless navigation of many hundred miles. *Jacques Cartier*, a native of *St. Maloes*, had, in 1534, the honor of being the first discoverer of this noble river.

MAGDALENE
ISLES.

In the gulph are scattered several important islands, occupied by the *English* and *French* for the sake of the fisheries. The small rocky isles of *St. Magdalene* are still frequented by numbers of *Walruses*. There is an annual chase during the season, and numbers are killed for the sake of the oil and skins. The water round the *Magdalenes* is only from three to nine fathoms deep, and the shores slope most conveniently into it for the ascent or descent of these animals. The water round the other isles is of one depth, except on the north side of *St. John's*.

NEWFOUNDLAND.

Newfoundland (a name, in the infancy of discovery, common to all *North America*) was discovered in 1496, by the celebrated *Venetians*, *Sebastian Cabot* and his three sons; who, at their own charges, under a grant of *Henry VII.* giving them possession (as vassals of his) of all lands they might discover †, coasted from lat. 67. 30, to the capes of *Florida*, and thus indisputably gave to ill-fated *Britain* the right, by pre-discovery, of the whole continent of *North America*. The short-sighted avaricious prince, under whose banners it was discovered, had not the heart to make the proper advantage. He had before neglected the offer of *Columbus*, which would have given him that species of right to the whole New World. 'But,' says the courtier-like *Bacon* §, 'it was not a refusal on the king's part, but a delay by accident, which put by so great an acquiescence.' The *French* soon found out the gold mine of the *Newfoundland* discovery,

* Read the account of Lord *Amberst's* descent down this river, in 1760.

† *Rymer's Fæd.* xii. 595.

§ *Hist of King Henry VII.* *Bacon's Works*, iii. 89.

which

NEWFOUNDLAND FISHERY.

CCCLIII

which offered itself in the fisheries. Of all minerals (twice says the same noble philosopher) there is none like the fisheries. In 1534 they were actually engaged in them. A private man, Sir *Humphry Gilbert*, brother-in-law to RALEIGH, or, what was better, animated by a congenial soul, failed in 1583 with every provision for settling this important colony. On his return he was swallowed up by the ocean. His love of improvement, and his piety, never forsook him. He was seen sitting unmoved in the stern of his ship, with a book in his hand; and often heard to say, 'Courage, my lads! we are as near heaven at sea as at land*.'

The isle of *Newfoundland* is of a triangular form, and lies between lat. 46. 40, and 51. 30: visited occasionally, but not inhabited, by savages from the continent.

The boasted mine of this island lies on the southern and western sides, on the great bank, which stretches from north-east to south-west, about two hundred leagues. The water on the bank is from twenty-two to fifty fathoms; on the outside from sixty to eighty; on the lesser banks much the same. A great swell and thick fog generally mark the place of the greater. The subject of the fishery has been often treated of; but the following short though clear account of so interesting a subject cannot fail being acceptable to the *British* reader.

"The boats or shallops are forty feet in the keel, rigged with a main-mast and foremast, and lug sails; furnished with four oars, three of which row on one side, and the other (which is twice as large) *belays* the other three, by being rowed sideways over the stern, by a man who stands up for that purpose, with his face towards the rowers, counteracting them, and steering at the same time as he gives way to the boat.

"Each of the men in this boat is furnished with two lines, one at each side of the boat, each furnished with two hooks; so here are sixteen hooks

* *Hackluyt*, iii. 159.

NEWFOUNDLAND FISHERY.

constantly employed; which are thought to make a tolerable good day's work of it, if they bring in from five to ten quintals of fish, though they have stowage for, and sometimes bring in thirty. Two hundred quintals is called a saving voyage; but not under. The bait is small fish of all kinds; Herring, Capelin, Lance, Tom Cod, or young Cod; the first of which they salt, and keep for some time, in case of scarcity of the rest; but these are not near so eagerly taken by the fish when salted. In case small fish cannot be got, they use sea-fowl, which are easily taken in vast numbers, by laying nets over the holes in the rocks where they come to roost in the night. If neither small fish nor birds are to be got, they are forced to use the maws of fish they catch, which is the worst bait of any.

“ When the fish are taken, they are carried to the stage, which is built with one end over the water for the conveniency of throwing the offals into the sea, and for their boats being able to come close to discharge their fish. As soon as they come on the stage a boy hands them to the header, who stands at the side of a table next the water end; whose business it is to gut the fish and cut off the head, which he does by pressing the back of the head against the side of the table, which is made sharp for that purpose; when both head and guts fall through a hole in the floor into the water. He then shoves the fish to the splitter, who stands opposite to him: his business is to split the fish, beginning at the head, and opening it down to the tail; at the next cut he takes out the larger part of the back-bone, which falls through the floor into the water. He then shoves the fish off the table, which drops into a kind of hand-barrow, which as soon as filled, is carried off to the salt-pile. The header also flings the liver into a separate basket, for the making of train-oil, used by the curriers, which bears a higher price than Whale-oil.

“ In the salt pile, the fish are spread upon one another, with a layer of salt between. Thus they remain till they have taken salt; and then are carried, and the salt is washed from them by throwing them off from shore in a kind of float called a *Pound*. As soon as this is completed, they are carried to the last operation, of drying them; which is done on standing flakes

flakes made by a slight wattle, just strong enough to support the men who lay on the fish, supported by poles, in some places as high as twenty feet from the ground: here they are exposed, with the open side to the sun; and every night, when it is bad weather, piled up five or six on a heap, with a large one, his back or skinny part uppermost, to be a shelter to the rest from rain, which hardly damages him through his skin, as he rests slanting each way to shoot it off. When they are tolerably dry, which in good weather is in a week's time, they are put in round piles of eight or ten quintals each, covering them on the top with bark. In these piles they remain three or four days to sweat; after which they are again spread, and when dry put into larger heaps, covered with canvas, and left till they are put on board.

“ Thus prepared, they are sent to the *Mediterranean*, where they fetch a good price; but are not esteemed in *England*: for which place another kind of fish is prepared, called by them Mud Fish; which, instead of being split quite open, like their dry fish, are only opened down to the navel. They are salted, and lie in salt, which is washed out of them in the same manner with the others; but instead of being laid out to dry, are barrellled up in a pickle of salt boiled in water.

“ The train-oil is made from the livers: it is called so to distinguish it from Whale or Seal oil, which they call fat oil, and is sold at a lower price (being only used for lighting of lamps) than the train-oil, which is used by the carriers. It is thus made:—They take a half tub, and, boring a hole through the bottom, press hard down into it a layer of spruce boughs, upon which they place the livers; and expose the whole apparatus to as sunny a place as possible. As the livers corrupt the oil runs from them, and, straining itself clear through the spruce boughs, is caught in a vessel set under the hole in the tub's bottom.”

I must acknowledge my obligations to vice admiral *Campbel*, for the trouble he took in procuring, during his government, the following accounts from the different divisions of the great island of *Newfoundland*,

land; and some additions to the manner of carrying on its most important fishery.

Within the circuit of sixty miles of the southern part, the country is hilly, but not mountainous. The hills increase in height as they recede from the sea; their course is irregular, not forming a chain of hills, but rise and fall abruptly.

The coasts are high, and the shores most remarkably bold. The same may be said of almost every part of this vast island.

The country is much wooded, and the hills (such which have not flat tops, to admit the rain to stagnate on them) are clothed with birch, with hazel, spruce, fir, and pine, all small; which is chiefly owing to the inhabitants taking off the bark to cover the fish stages. This *peninsula* is so indented by the fine and deep bays of *Placentia*, *St. Mary*, *Conception*, and *Trinity*, that it may be easily penetrated in all parts, which is done for the sake of fowling, or the procuring of spars for masts, oars, &c.

The island is on all sides more or less pierced with deep bays, which peninsulate it in many places by isthmuses most remarkably narrow.

The mountains on the south-west side, near the sea, are very high, and terminate in lofty headlands. Such are *Chapeau rouge*, a most remarkably high promontory; *Cape St. Mary's*, and *Cape le Hune*. Such in general is the formation of the island: on the north-east, most of the hills in the interior parts of the country terminate pyramidally, but form no chain. The interior parts of the country consist chiefly of morasses, or dry barren hummocks, or level land, with frequent lakes or ponds, and in some places covered with stunted black spruce. The rivers of *Newfoundland* are unfit for navigation, but they are of use in floating down the wood with the summer floods. Still the rivers and the brooks are excellent guides for the hunters of beavers, and other animals, to penetrate up the country; which as yet has never been done deeper than thirty miles. Near the brooks it is, that timber is commonly met with, but seldom above three or four miles inland, and in vallies; the hills in the northern district being naked and barren.

In

NEWFOUNDLAND FISHERY.

CCCVII

In some parts of *Newfoundland* there is timber sufficiently large for the building of merchant ships: the hulk is made of the black larch, and the pine furnishes masts and yards; but as yet none has been found large enough for a mast for a large cutter.

The fishery is divided into two seasons: that on the shore, or the shore season, commences about the 20th of *April*, and ends about the 10th of *October*; the boats fish in from four to twenty fathoms water.

The most important, the bank-fishing season, begins the 10th of *May*, and continues till the last of *September*, and is carried on in thirty to forty-five fathoms depth of water.

Banking vessels have sailed from *St. John's* to the bank as early as the 12th of *April*. At first they use pork or birds for a bait; but as they catch fish, they supply themselves with a shell-fish called *clams*, which is found in the belly of the cod. The next bait is the lobster; after that, the herring, and the launce, *Br. Zool.* III. N° 66, which last till *June*, when the *capelan* comes on the coast, and is another bait. In *August* the *squid* comes into use, and finally the herring again.

The greatest number of cod-fish taken by a single fisherman in the season, has been twelve thousand; but the average is seven thousand. The largest fish which has been taken was four feet three inches long, and weighed forty-six pounds.

A banking vessel of ten thousand fish ought to be filled in three weeks, and so in proportion; and eighty quintals (112 lb. each) for a boat in the same time.

In 1785, five hundred and forty-one *English* vessels fished on the bank; a number exceeding that of the *French*.

A heap of dried fish twenty feet long, and ten wide, and four deep, contains three hundred quintals. Such an heap settles, in the course of forty-eight hours after it is made, about 1-12th.

An extraordinary splitter will split five quintals of fish in an hour. The average in that time is two.

There is no fishing during winter, on account of the inclemency of the season.

season. It is supposed that the fish in a great measure quit the banks before that time, as in general they are very scarce when the fishing vessels go upon the banks early in the spring.

There are a few small towns on the coasts, which have gardens sown with *English* pulse; but many of the inhabitants quit the country in winter.

An admiral, or some sea officer, is governor of *Newfoundland*. He sails from *England* in *May*, and returns by the 30th of *November*.

CAPE BRETON.

The barren island of *Cape Breton* forms one side of the great entrance into the gulph of *St. Laurence*. It is high, rocky, and dreary: rich in thick beds of coal, and may prove the *Newcastle* of *America*. This isle was first discovered by Sir *Humphry Gilbert*, in his fatal voyage. It was soon after frequented, on account of the *Walrus*es, and the fishery of *Whales*. Among the earliest adventurers were the industrious *Biscayeners*, who seem to have been our masters in the art. Till of late years it had been important by being the seat of the *French* fishery; but the strong fortress of *Louisbourg* is now demolished, and the place deserted.

NOVA SCOTIA.

The great peninsula of *Nova Scotia* is separated from *Cape Breton* by a narrow streight. It was in 1616 possessed by the *French*, who attempted to colonize it from their new settlement in *Canada*; but they were soon expelled by the *English*, who deemed it part of *North Virginia*; the whole continent, at that time, going under the name of *Virginia*, so called, originally, in honor of our virgin queen. The *French* had given it the name of *Acadia*. *James I.* made a grant of the country to Sir *William Alexander* in 1621, on condition that he would form there a settlement. It then received the title of *Nova Scotia*. In order to encourage Sir *William*, he planned the order of baronets, which is called after the country. To every knight who would engage to colonize any part, a grant was to be made of certain portions of land. The order was not instituted till 1625, when a number were created, and they held their lands from the crown of *Scotland* as a free barony, with great privileges to all who would settle in the country.

country*. The design almost instantly failed, and the *French* were permitted to repossess themselves of the province. Its value became known, and since that period it has frequently changed masters. It never was effectually settled till the year 1749, when a large colony was sent there under the auspices of the Earl of *Halifax*.

The climate of this province is, during the long winter, extremely severe, and the country covered with snow many months: the summer misty and damp. The face of it is in general hilly; but can scarcely be called mountainous, being the lowered continuation of the great chain which pervades the whole continent. The ground is not favorable to agriculture, but may prove excellent for pasturage. Due attention to the breeding of cattle will not only repay the industry of the farmer, by the home consumption, but be an extensive benefit to our islands. The country cannot boast, amidst its vast forests, timber fit for large masts, nor yet for the building of large ships; yet it will prove an inexhaustible magazine for that species of timber called lumber, so essential to our sugar plantations.

CLIMATE.

Its situation, in respect to the fisheries, is scarcely inferior to that of *Newfoundland*. The vast banks, called *Sable Island's*, *Brown's*, and *St. George's*, with many others, are frequented by myriads of Cod-fish. It is the duty of the Parent State to encourage, with all diligence, this branch of commerce; and in a manner so expeditious and so frugal, as may anticipate and underfell foreign adventurers. Without that, our remnants of the New World will be but of little use. The fisheries, the staples of *Nova Scotia* and *Newfoundland*, are open to other nations; and if they are permitted to excel us in expedition and frugality, our labors are truly vain. It is to the ancient hardy colonists we must look up for the support of the toils of the sea, and the advantages we may expect to gain from them: they should have their encouragement. But there is another set of men who of late (a public calamity) have made

ITS FISHERIES.

* *Collins's Baronets*, iv. 330.

hither an involuntary migration, who with sad hearts recollect their exiled land :

Nos Patriæ fines, et dulcia linquimus arva:
Nos Patriam fugimus.

Their sufferers are in general unused to the fatigues of a maritime life, and ought to be fostered, for their filial piety, at first, with a parental care; to be encouraged in the pastoral life, or in such arts as may supply the sailor and the fisherman with food, and with materials for their professions. If the climate is fit for corn, for flax and hemp, let due rewards be given for the successful efforts of their industry. The succeeding generation, hardened to the climate, and early habituated to another kind of life, may join the maritime adventurers, and give importance to themselves, and strength to the island from which they sprung.

COASTS.

The coasts of this province are, in general, rude and rocky, with some variations. It is peninsulated by the *Atlantic* ocean and gulph of *St. Laurence*, and joined to the main land by a narrow isthmus. From *Bay Vert*, on the northern side, the shore is bounded with red cliffs, with beaches beneath, as far as *Port Luttrell*, and the same to a remarkable high rock, called, from its shape, *The Barn*. *Cape George* terminates the coast to the east. This promontory is iron-bound, and very high, its summit aspiring to four hundred and twenty feet above the sea. This, with *Point Hood* on the *Cape Breton* side, forms a great bay. On the western shore, between *Cape George* and the entrance of the gut of *Canso*, are most remarkable cliffs of plaster, lofty precipices, and extremely white.

PLASTER CLIFFS.

The gut of *Canso* divides *Nova Scotia* from *Cape Breton*. It is not above a mile wide: it opens into *Cbedabucto Bay*, which penetrates far into land. *Cape Canso* forms the most eastern point on this side of the gut; the land trends far to the west; from *Canso* to *Torbay* breaks into several white rocky heads. *Beaver Harbour* is guarded by most picturesque isles, rounded, with wooded tops. As far as *Halifax* it varies, with banks of red earth or white insulated rocks: the capes and external isles are bounded

BEAVER HAR-
BOUR.

bounded with black flaty rocks, running generally out in spits from east to west, from the *Rugged Islands* to the *Devil's Isle*. Off *Halifax* are remarkably high red cliffs, linked with beaches: from thence to *Cape Sable*, an island which forms the most western extremity, is often broken, rocky, and white; but from *Port Haldimand* to *Cape Sable* the land appears level and low, with a shore of exceedingly white sand.

About twenty-three sea leagues from *Cape Canso*, in lat. 44, lies the singular *Isle de Sable*, or of *Sand*. It is in shape of a bow, in length about eight leagues, and not above a mile and half broad in the broadest part. In the middle is a narrow pond of sea-water, running about half the length, which is filled every tide from the sea's rushing through a little gut on the north side. This pond contains multitudes of Seals, some flat fish, Eels, &c. and has about twelve feet depth at low-water. The entrance is often choaked with sand by a strong north wind, and cleared by the next southern blast. This island lies on a vast sand-bank, on which the water gradually deepens to fifty fathoms. At each end is a bar: the water breaks on them often mast high; and there is, besides, a surf beating continually on the shore, to be heard in calm weather several leagues. No boats can approach the island without risque. Landing is practicable on the north shore only, and that only in calm weather. The north bar breaks, in bad weather, seven or eight leagues from the shore; and thousands of ships have been lost about this place. M. DE BARRES* was two years in surveying this fatal tract, and his services have been lately rewarded by the government of the isles of *St. John* and *Cape Breton*, under the name of that of *Lunenburgh*. The whole isle consists of fine white sand mixed with white transparent stones, but coarser than in the adjacent soundings: the face is much broken, and hove up into little hills, knobs, and cliffs, wildly heaped together. In the hollows are ponds of fresh water, frequented at times by variety of fowls. On the skirts grow juniper and blue berries in their season, and cranberries all the year. Here are

ISLE DE SABLE.

* To this gentleman's labors we owe the accurate charts of these and some other parts of *North America*, the most elegant and magnificent work of its kind extant.

no trees, but plenty of beach grafs, wild peafe, &c. which ferve to fupport the horfes, cows, and hogs, which run about in a ftate of nature. Wrecks and drift-wood afford fewel. The whole ifle has a ftange appearance; for the fand-hills have a conoid ftape, are milk white, and fome of them are a hundred and forty-fix feet above the level of the fea.

BAY OF FUNDY.

I quit this ftingular ftot to return to *Cape Sable*, juft beyond which commences the great bay of *Fundy*, with infinite variety of picturefque and fublime fcenery. The bay divides at the bottom into two others, the bay of *Mines*, and that of *Chignecto*; and, like the reft of the coaft of this province, has numbers of fine harbours. Far from the ftore of every part of *Nova Scotia* extends a ftirt of fand, with deep water, and fine anchorage; but the harbours are moft ftecure retreats. *Grand Manan* ifle is very lofty, and lies in the mouth of the bay of *Fundy*, nearer to the western ftide. The bay of *St. Mary*, which lies on the eastern, is guarded by an extent of land and iflands; the entrances between two of them, diftinguifhed by the name of the *Grand* and *Petit Passage*, are particularly noble, very lofty, with vaft mural fronts, and their tops finely cloathed with trees.

GRAND
MANAN ISLE.

VIEWS.

The gut or entrance into the harbour of *Annapolis Royal* is narrow, has not lefs grandeur, nor is it wholly difftimilar. The ifle of *Haute*, which lies in the middle of the approach to the bay of *Mines*, rife fublime with mural ftides out of the water, and is crowned with trees: from it is vaft variety of beautiful fcenery; fuch as *Cape Chignecto*, *Cape Doré*, and *Cape Split*; the laft named from the vaft columnar rocks which rife before it to an amazing height. Nearly oppofite is *Partridge Ifland*, remarkable for the inclined difpofition of its rocks. *Cape Blow-me-down* is another great precipice, not far to the eaft. Between thefe the ftream of the current runs at the rate of five or fix knots, even at neap tides. The tides in parts of the bay of *Fundy* rife to an amazing height, and force themfelves into the great creeks with a bore or head from fifty to feventy-two feet high, and with prodigious rapidity. Hogs, which feed along the ftores, are much more fenfible of its approach than mankind: they

HIGH TIDES.

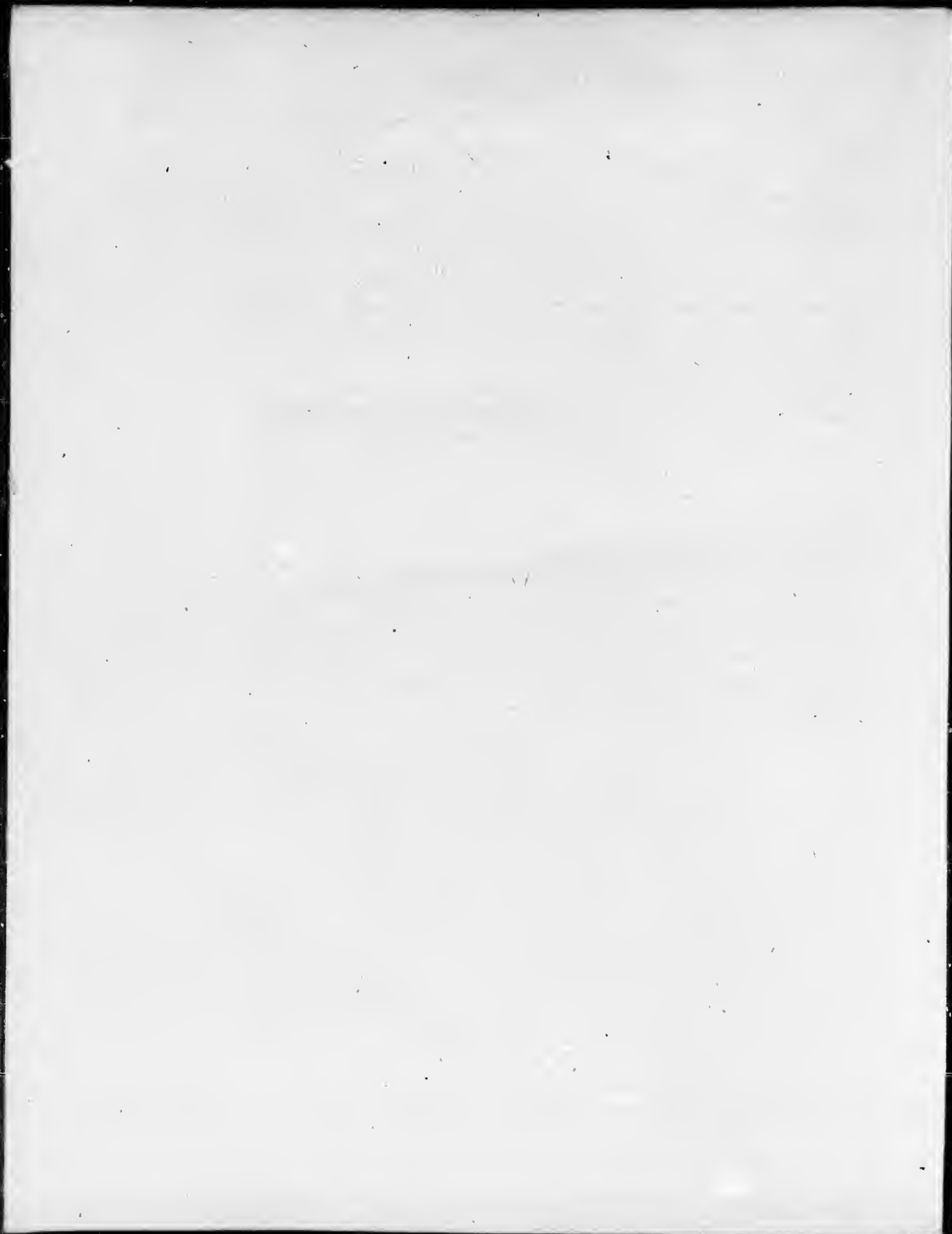
they are observed to listen, to prick up their ears for some time, and then run off at full speed.

The bay of *Chignecto* is the last. This runs far inland, and is separated by the isthmus from the gulph of *St. Laurence*. If we reckon to *Bay Vert*, it is only twenty miles in breadth; but if we compute the space between *Petendiac* river and *Shediac*, on the side of the gulph, only fourteen. From hence the shore extends to the south-west; and we retain as far as the river *St. Croix* — a wretched barren remnant of near half of the New World.—Humiliating prospect! the sad reverse of the short space of twenty years!—My eyes withdraw themselves from the mortifying sight. BRITAIN, who fate (by the wisdom of one man) as the Queen of Nations, now deploras her folly; and ought to confess, that ‘those things which should have been for her wealth, proved to her an occasion of falling.’ She sunk under the delusion of prosperity, by false security, and the pride of victories. If she makes a proper use of adversity, she still may rise into glory and wealth, by honest industry, and by the repression of rapacity and profligate ambition.—Once more, O gracious Heaven, endeavour to save an ungrateful people! once more raise up some great instrument to execute thy mercies!—Pour with full measure, into our youthful Minister, the virtues of his father!—Emulate, young Man, his conduct! persist in your glorious career! and then—

THE ISTHMUS.

Si qua fata aspera rumpas,
Tu MARCELLUS eris.

S U P P L E.



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S U P P L E M E N T.

IN my land travels I have never failed pointing out the places of slaughter resulting from a strife for superiority between rival nations, or the lust of power in princes, or of gain in the mercantile world, or the want of due submission to lawful government in the people, or the madness of enthusiasm, or the pride of nations too often arising from an unfortunate series of successes over neighbors destined to flourish in their turn. Providence seldom fails punishing an abuse of its favors. *Britain* at this moment feels the scourge, the just chastisement of its want of moderation.

I must not overlook the great naval actions of our countrymen, which often stained our narrow seas with gore. Mention may be made in this page of the fierce contest between the fleet of *Philip de Valois*, consisting of four hundred ships manned with forty thousand men, and that of *Edward III.* consisting of two hundred and sixty, commanded by the king in person. The action happened off *Sluys*, in *June 1340*. Victory declared for the *English*. The carnage of the enemy was prodigious, and chiefly owing to the number, skill, and courage of the *English* archers. Thirty thousand were killed or drowned, and above two hundred and thirty of their largest ships taken: the loss of the *English* very inconsiderable. This signal victory gave occasion to the *noble* of that monarch, by which he asserted the dominion of the sea, and sovereignty of *France*. He appears completely armed in the middle of a ship at sea; in his right hand is a sword, in the left a shield, with the arms of *England* and *France*; the royal standard displayed at the stern*.

* See *Foulk's* Coins, tab. 1. gold coins.

The obstinate contests on the coast of *Holland*, during the time of the *English* commonwealth, and in the succeeding reign of *Charles II.* were attended with torrents of the bravest blood of both the contending nations. The *Dutch* fought not merely for glory, or the sweets of commerce, but latterly *pro aris et focis*. *Delenda est Carthago* was the maxim of one of *Charles's* ministers, which animated the *Dutch* to death or victory. Naval skill and desperate valour never were so strongly exhibited by any people. The combatants often fought with fleets of eighty or a hundred line of battle ships of a side, furnished with every infernal engine which the subtlety of an animated enemy could invent. The great *De Witte*, soldier and statesman, first introduced chain-shot in the celebrated FIGHT OF FOUR DAYS, which ended in the defeat of the *Dutch*, on their own coast, on *June 4th*, 1666, notwithstanding we suffered so greatly by its ravages among our rigging. The *Dutch* commanders were *De Ruyter* and *Van Tromp*, of different factions on shore, and mortal enemies; at sea they thought only of their country. *De Ruyter* even saved his rival from the overpowering fire of the *English*; having a mind superior to the ruining of a party at home, at the expence of his country's welfare!!!

The elder *Van Tromp*, the glory of *Holland*, lost his life in a fierce engagement off the *Texel*, *July 29th*, 1653. Satiety of slaughter parted the combatants, and actual weariness. *Van Tromp* fell sword in hand, shot through the heart, in the very instant of encouraging his men to resist to the last moment of their lives. THIS WAS A FIGHT OF THREE DAYS! this was the true period of obstinate contest.

A dreadful battle commenced off *Leoffhoff*, in *Suffolk*, on *June 3d*, 1665, between the *Dutch* under the command of *Opdam*, and the *English* led by the duke of *York*, before a crown had deprived him of his courage: he fought with the truest and most persevering bravery. The battle proved decisive. *Opdam's* ship was blown up: three *Dutch* admirals, besides him, were killed. It is said that the victory would have been more brilliant, but that during the night of pursuit, after the engagement, orders were pretended, in the duke's name, to slacken sail: they were unfortunately obeyed,

obeyed, and the total destruction of the *Dutch* fleet prevented. This affair was ill enquired into: but not the least imputation sullied the character of his highness. We might be content with the victory. The *Dutch* lost thirty ships: eight thousand men were taken. We lost but one ship, and had only eight hundred men killed or wounded. Many persons of rank were slain on board our fleet. The earl of *Falmouth*, a worthless favorite, Lord *Muskerry*, and Mr. *Boyle*, of the noble family of *Burlington*, were killed on the quarter-deck by one shot; and the duke was covered with their gore, and even hurt by their splinters. *James Ley*, earl of *Marlborough*, and *Charles Weston*, earl of *Portland*, fell in the action: the veteran admiral *Lawson* died soon after of his wounds.

On *May* 28th, 1672, a surprize of the duke of *York* by *De Ruyter*, in *Southwold*, alias *Solebay*, on the same coast, brought on a battle, sustained on both sides with unparalleled valour and obstinacy. The *Dutch* had the disadvantage, but nothing decisive followed, yet the death of the earl of *Sandwich*, second in command, would have cast a gloom over the greatest victory. This nobleman possessed the highest character of any of his time, for courage, abilities, munificence, and goodness. He fought in the *Royal James*, of a hundred guns; slew *Van Ghent*, a *Dutch* admiral, and beat off his ship; sunk another great ship; sent to the bottom two of the enemy's fire-ships. Five hundred men (half of his crew) lay on the decks weltering in blood. A third fire-ship succeeding, this illustrious hero was drowned in attempting to save himself; and his ship was blown up, with the remainder of his gallant companions. His body was found, and all due honors payed to it by his lamenting sovereign and grateful countrymen.

IN about lat. 53, I may draw a line from the *North Sea* to the opposite part of the kingdom, which will comprehend a small part of the north of *Norfolk*, the greater part of *Lincolnshire*, *Nottinghamshire*, *Derbyshire*, the moor-lands of *Staffordshire*, all *Cheshire*, *Denbighshire*, *Flintshire*,

T t

Caernarvonshire,

Caernarvonshire, and *Anglesey*. Beyond this line nature hath allotted to the northern part of these kingdoms certain plants, of which I am about to make an enumeration, which are rarely or never found to transgress that line to the south. Those which are nearest the south shall be first taken notice of.

Galeum boreale. *Fl. Angl.* i. 70. *Fl. Scot.* i. 116*.

Pulmonaria maritima.

Ribes alpinum.

Athamanta meum.

Juncus triglumis.

Rumex Digynus.

Vaccinium vitis Idæa.

Polygonum viviparum.

Saxifraga nivalis.

stellaris.

oppositifolia.

autumnalis.

Arenaria verna. *Tour in Wales.*

fericifolia.

Cerastium alpinum.

latifolium

Prunus Padus.

Rosa villosa.

Rubus chamæmorus.

Papaver cambricum.

Ajuga pyramidalis.

Draba muralis.

incana.

Thlaspi montanum.

Brassica momeensis.

* I refer the reader for the *English* names to Mr. *Hudson's Flora Anglica*, and Mr. *Lightfoot's Flora Scotica*.

P L A N T S.

CCCXIX

- Cardamine petræa.
 Serratula alpina.
 Carduus helenoides.
 Lobelia *Dortmanna*.
 Viola grandiflora.
 Satyrium albidum.
 Carex atrata.
 Salix herbacea. Only on mountains; is found high on *Snowdon*.
 reticulata.
 Rhodiola rosea.
 Osmunda crispa.
 Acrostichum septentrionale.
 Ilvense.

The following catalogue is of plants, which in our island seem to affect still more northern situations, or I may say are not found to the south of *Yorkshire*; and, respecting *Great Britain*, a few seem to be nearly local.

- Cynosurus cæruleus.
 Cornus herbacea.
 Alchemilla alpina.
 Primula farinosa.
 Azalea procumbens. In *Scotland* only.
 Selinum palustre. Inclines to the southern part of this class.
 Ligusticum *Scoticum*. *Scotland* only.
 Sibbaldia procumbens. The same.
 Trientalis *Europea*.
 Vaccinium uliginosum.
 Pyrola secunda.
 Andromeda polyfolia.
 Arbutus uva ursi. Not farther south than the woods near *Hexham*;
 again not till we reach *Peebles, Roxburgh*, and
 the isle of *Skie*.
 alpina. In *Scotland* only.

- Saxifraga cæspitosa.
 Stellaria nemorum.
 Chierleria sedoides. *Breadalbane* and *Baibeval*, in the isle of *Rum*.
 Sedum villosum.
 Rubus saxatilis.
 Dryas octopetala. Found in *Scotland* and *Ireland* only.
 Actæa spicata.
 Gnaphalium supinum. Omitted in the *Flora Scotica*, having been discovered after the publication. . In the north of *Scotland*.
 Satyrium repens. In the north of *Scotland*.
 Ophrys corallorhiza. The same.
 cordata: *Yorkshire*, *Lancashire*, *Isle of Man*, and *Scottish* highlands.
 Cypripedium calceolus. Near *Ingleton* and *Clapham*, in *Yorkshire*.
 Ericaulon decangulare. In the isle of *Skie* only.
 Betula nana. From *Clydesdale* to *Rofsshire*.
 Pinus sylvestris. At present native only in the *Scottish* highlands.

It is to be remarked, that notwithstanding none of these plants are to be discovered in *Great Britain*, south of the line above drawn; yet most if not all of them are to be found in very southern latitudes on the continent. Numbers are inhabitants of *Provence*, and other warm provinces in *France* *. Is it owing to similitude of soil, or of exposure, in dissimilar climates, which should occasion in different places the production of the same plants? Or what should forbid the growth of similar plants in places nearly contiguous, and occasion their appearance almost instantly on a neighboring spot? Without reminding one of the question put by the wisest of men on a like embarrassment :

* See *Lamarck's FLORE FRANÇOISE*.

ERUPTION IN ICELAND.

CCCXXI

WHY should one earth, one clime, one stream, one breath,
RAISE this to strength, and sicken that to death * ?

Almost every one of these plants is again found in a climate very opposite to the mild provinces which border on the *Mediterranean* sea; for there is scarcely one which I have enumerated which is not met with in *Sweden*, or in *Lapland*, and some even in the distant *Iceland* †.

I HERE introduce a very curious account of the eruption of fire in *Iceland*, mentioned in page LXII, translated from the *Danish* account of Mr. *Magnus Stephensen*, and communicated by the friendship of the ingenious the late Mr. *John Whitehurst*.

AN ACCOUNT OF THE ERUPTION OF FIRE IN ICELAND.

UPON the 1st of *June*, 1783, there was observed a trembling or shaking of the earth, in the western part of the province of *Skap-tarfiall*, which increased more and more until the 11th. It was so great that the inhabitants were under the necessity of quitting their houses, and lying at night in tents upon the open ground. All this time there was observed a continual smoke or steam arising out of the earth, in the northern and uninhabited parts of the country. Three fire-spouts broke out, of which that in the north-west was the greatest; one of these spouts broke out in *Ulfarsdal*, a little to the east of the river *Skapta*; the other two were a little west of the river *Hwerfisfiót*. These three fire-spouts,

* A question put by *Prior* in the mouth of *Solomon*, in his first book.

† See the catalogue of *Iceland* plants in vol. ii. of *Ciſſen's* and *Povelsen's* journey in *Iceland*.

after

after they had risen to a considerable height in the air, were collected into one stream, which rose so high as to be seen at the distance of 34 miles*, and upwards. The whole country, for double that distance all around, was continually covered with a thick smoke and steam not to be described.

The 8th of *June* gave sufficient notice of the above-mentioned fire-spouts breaking out, for upon that day the fire became visible. It was mixed with prodigious quantities of brimstone, sand, pumice-stones, and ashes, which, being thrown up with great force, noise, and shaking of the earth, were scattered in the neighborhood of the spouts; and a part of them being blown about by the wind (which at that time was very high) all over the country, fell in the fields, villages, and towns, at a considerable distance. The whole atmosphere was filled with sand, dust, and brimstone, so thick as to occasion a continual darkness. The pumice which fell in the villages, being red hot, did considerable damage. Along with the pumice-stones there fell a great quantity of a dirty substance like pitch, rolled up sometimes in the form of small balls, and sometimes like rings or garlands. The falling of these hot substances was attended with great mischief, as they totally destroyed all manner of vegetation that they came near.

Upon the third day of this dreadful shower, the fire became very visible, and came out sometimes in a continued stream, and sometimes in flashes or flames, which were seen at the distance of 30 or 40 miles, accompanied at the same time with a noise like thunder: this continued the whole summer. Upon the same day that the fire first broke out, there fell a very great quantity of rain in all that neighborhood, which did almost as much harm as the fire; inasmuch as the great quantity of cold water, that ran in vast streams upon the hot ground, tore up the earth in large cakes, and carried it down into the lower situations: besides, the water of this rain

* The reader will observe, that the distances mentioned here are in the measure of *Danish* miles, twelve of which make one degree; so that each *Danish* mile is nearly five and three quarters of our statute miles.

was strongly impregnated with salts of different kinds, and sulphur, which it had acquired in falling through the immense cloud of smoke before described; and was so sharp and poisonous as to occasion a considerable smarting, if it fell either upon the hands or face. At a greater distance from the fire there was a great coldness in the atmosphere; and in some places there was a very heavy fall of snow, so that it lay upon level ground about three feet deep; in others so great a quantity of hail, as to do very considerable damage to the cattle, and every thing that was out. The grass, and all manner of vegetables, which were already scorched by the heat, sand, and pumice-stones, were covered over with a thick crust of brimstone and sooty matter. The great heat of the streaming fire, meeting with so large a body of water, occasioned such a vapour and steam in the air, as to darken the sun, which appeared like blood *, and the whole face of nature seemed to be changed. This lasted several days, the sand and pumice-stones destroying all the crops that were upon the ground, the moment that they fell, burning up every thing that they touched: the whole country was laid waste, the cattle dying for want of food; and the surviving or escaping inhabitants flying from the horrid scene, betook themselves to other parts of the country, where they might hope for safety, and left all their stock and goods a prey to the outrages of these two turbulent elements.

When the fire first broke out, there was a very considerable increase of water in the river *Skapta*, upon the east side of which one of the fire-spouts was situated, as was mentioned above: a similar overflow of water was observed, at the same time, in the great river *Piorsa*, which runs into the sea a little to the eastward of the town *Orebakke*, and into which the river *Tuna*, after having run through a large tract of barren and uninhabited land, empties itself.

Upon the 11th of *June* the river *Skapta* was totally dried up in less than twenty-four hours, and the day following a prodigious stream of liquid

* In the same summer the sun had a similar appearance in *Great Britain*, and the same obscurity of air reigned in most parts of our island.

and.

and red hot lava, which the fire-spout had discharged, ran down the channel of it, which is very deep, having large rocks and high banks on each side, the whole length of its course. This stream of lava not only filled the deep channel above mentioned, but overflowing the banks of it, spread itself over the whole valley, covering all the low grounds in its neighborhood; and not having any sufficient outlet to empty itself by, it rose to a very great height, and over-ran all the neighboring country, insinuating itself between the hills, and covering some of the lower ones. The hills here are not continued in a long chain or series, but are separated from one another, and detached; and between them run little rivulets or brooks: so that, besides filling up the whole of the valley in which the river *Skapta* ran, the fiery stream spread itself for a considerable distance on each side, getting vent between the above-mentioned hills, and laying all the neighboring country under fire. The fiery lake, getting fresh and greater supplies from the spouts, now ran up the course of the river, and overflowed all the lower grounds above; and, as it proceeded upwards, it dried the river, until the stream was stopped against the side of the hill from whence the river takes its rise. The lava now rose to a prodigious height, and the fiery lake overflowed all the village of *Buland*; the church, houses, and every thing in its way being consumed: those who knew the situation of this village, upon what high ground it stands, would be astonished to think that it could have been overflowed. Two other farm-houses in the same parish of *Buland*, at about a mile and an half from the village, northward, were likewise destroyed, and three lives lost in both of them. The whole of this parish, which was highly cultivated land, is now totally demolished. The fiery lake still increasing, and spreading itself out in length and breadth, overflowed all the country for six miles in width. When all this tract of land was converted into a sea of fire, the lava stretched itself towards the south; and getting vent through the channel of the river *Skapta*, down which it rushed with great impetuosity (being confined within the narrow compass between the high banks before described, for about a mile) it came into a more open place, where

where it poured itself forth in prodigious torrents with amazing velocity and force; spreading itself now towards the south, tearing up the earth, and carrying along with it on its surface flaming woods, and whatsoever it met with: in its course it laid waste another large district of land. The ground wherever it came was broke and cracked, and emitted large quantities of smoke and steam long before the fire reached it; so great was the heat: and every thing near the edge of the fiery lake was either burnt up, or reduced to a fluid state. In this situation matters remained from the 12th of *June* till the 13th of *August*. The fiery lake now no longer spread itself, but remained burning nevertheless; and when any part of the surface by cooling was cruusted over, the fire from below broke the crust, which tumbling amongst the melted substance, was rolled and tossed about with a prodigious noise and crackling; and in many parts of its surface small spouts, or at least ebullitions, were formed, which continued for some length of time.

The river *Skapta*, that we have talked so much about, is situated on the north and north-west sides of the province of *Sidu*; it takes its rise in the north-east, and running first westward, it turns to the south, and falls into the sea in a south-east direction. The confined part of its channel, that we have before made mention of, is an uninterrupted stretch of about four miles in length; being in some places 200 fathoms deep (as in the neighborhood of *Swartanup*, where the river cuts through a hill), in others 150 or 100; and in some parts 100, in others 50, 40, and 30 fathoms broad. Along the whole of this part of its course the river is very rapid, though there are no considerable cataracts or falls above two feet high. There are several other such confined channels as this in other parts of *Iceland*, but this is the greatest and most considerable in all its dimensions. This channel was filled to the brink, and from thence the lava spread itself over the village *Skaptardal*, consumed the houses and every thing in its way, and destroyed the woods and meadow lands: this place is situated on the east of the river, upon a rising ground. The stream then went forwards to the south, by the village marked A, which is at the south end of the

narrowest part of the channel, and stretched itself between two hills to the east. The whole of this village, with all its meadow and wood lands, was also totally destroyed. Upon the 12th of *June*, the lava having run through the narrow part of the channel, and obtained an outlet, it stretched itself out in breadth towards the south-west, as far as the east side of the hills in the province *Skaptartunga*; and also to the west side of *Sidu*, and the south-west of *Medalland* towards the east. Just as the lava began to overflow this flat country, and had got out of the channel of the river, the perpendicular height of its edge was 70 fathoms. Proceeding now southwards, the lava destroyed the church and town of *Skal*, and all the neighboring grounds: in this place a prodigious noise was heard when the lava overspread the low lands, and noises like thunder have continued ever since, till the 12th of *August*. It then came to the village of *Swinadalur*, which lies in a south-west direction from *Skal*; and having with a corner destroyed that, it was stretched out farther to the west, and over-ran the village of *Hvammar*, which stands on a pretty high rising ground on the west side of the river; but before the fire had reached these two villages, they were both overflowed with the water that had been turned out of its course by the lava damming up the river when it first came into the channel. Proceeding forward, the lava overflowed the village *Nez*, and all the grounds belonging to it: from thence it came to *Villungar*, and turning more southwardly, came near to the village *Leidvólla*; a little to the north of which, after having destroyed a great quantity of grass land and wood, it entered into the channel of the great river *Kudafiôt*; and kept a south course along the east side of it till it came down near to the village of *Hraun*, where this branch stopped. A little above the place where this arm went into the channel of the river *Kudafiôt*, a corner of the lava stretched itself out to the south-east, and came to a place called *Eysfribrun*, east of *Hraun*. From *Skal*, which we mentioned just now, the lava taking an eastward direction, ran by the side of a hill called *Holtfiáll*, and destroyed the village *Holts*, which stood upon a fine level ground, and was surrounded with very rich corn and pasture land. Proceeding eastward,

ward, it came to a village called *Heid*; and destroying a quantity of meadow land and wood belonging to that village, it went on down the river *Skapta*, between the two hills *Heilderstapa* and *Dalberstapa*, which lie on each side of the river, and destroyed the villages *Hunkabakke*, *Holmur*, and *Dalbear*; and proceeded on eastward towards the village *Nyibear*, within a hundred yards of which it stopped. In this course there is a very great cataract of the river *Skapta*, about 14 fathoms high, where the lava falling down, was thrown about, together with the stones which it tore up, to a very considerable distance. From *Dalbear* the stream of lava went southward, over that large tract of land called *Hrauns-melar*, quite down to *Efristeins-myri*, the edge of it to the east passing by *Lutandabals*, *Lutandast*, and *Rofa*. In passing over this broad tract of land the fire did considerable damage, for the whole was good and rich meadow and pasture land. The stream of lava went within 30 fathoms of *Efristeins-myri*, on the west; and falling into the channel of the river *Steins-myristiôt*, which is among the larger ones, it filled the whole valley between *Efristeins-myri* and *Syáristeins-myri*, going on in an eastward direction: these two villages are totally destroyed, although the edge of fire only approached within 100 fathoms of them. The main body of the lava from this place went in a south-west direction, and came to the village *Hnauser*; which, although it was not destroyed by the fire, yet was overflowed by the water of the two rivers *Steins-myristiôt* and *Fegdaqvist* being dammed up. Here the lava stopped on the south; and its edge goes all the way from *Eystribrun* before mentioned, north of *Stadarbolt*, to *Strandarbolt*. In this neighborhood the lava destroyed five villages; namely, *Holmasel*, with its church; *Botna*, *Holma*, *Efristiôta*, and *Sydrifiôta*; besides a great quantity of corn and meadow lands, with woods, and other property belonging to the villages southward.

The spouts still continuing to send forth immense quantities of fresh lava, and all the passage to the south or low lands being shut up, the lava spread itself to the north and north-east, over a tract of land eight miles long and six broad. All this place is barren and uninhabited, so that no

observations were made how the fiery stream proceeded; all we know is, that it dried up the rivers *Tuna* and *Axafyrði*. The lava, on account of the high hills on the east of *Hwerfisfiót*, could proceed no farther in an eastward direction; for these hills form a continued chain for three miles in length, running in a direction north and south. There was then no other outlet for the lava than the channel of the river *Hwerfisfiót*: this branch broke out from the main body about a quarter of a mile north of *Ytridalur* and *Eystridalur*, two villages situated opposite to each other, on each side of the river: the lava running between these two villages, followed the course of the river, and passed between two others, *Therna* and *Selialand*, about a mile lower down; coming then into an open and level ground, it spread itself out, and formed a small lake of fire, about two miles long and one broad; lying in a direction a little westwardly from the south. The only damage done by this branch was the destruction of the corn and grass land, and some wood; no villages having suffered. Upon the 16th of *August* this branch stopped.

It appears then, from the whole, that the utmost extent of the ground covered with lava, and making the appearance of a fiery lake, was fifteen miles long, and seven broad, in its utmost extent. The edge of it, reckoning all that part south of *Buland*, with all its inequalities on the south side, is upwards of thirty miles long; what it may be on the north is not known, as nobody chuses to venture himself near that part as yet. The perpendicular height of the edge is from 16 to 20 fathoms, so that wherever it came it covered every village it met with, as well as several hills; and those which, on account of their great height, it did not cover, were melted down by it, so that the whole surface was in a fluid state, and formed a lake of fire, in appearance like red hot melted metal.

The whole number of villages totally destroyed are 20 or 21, either by the fire or the water overflowing them. About 34 are very materially hurt, having their lands and woods burnt up; but most of them may be furnished with fresh ground being taken up in their respective neighborhoods.

borhoods. Besides villages, there are seven parish churches and two chapels destroyed. In the whole there were 220 lives lost by the fire, and 21 by water. The rivers that were dried up are twelve; namely, *Tuna*, *Axafardi-Hwerfisfliót*, *Skapta*, *Steins-myrisfliót*, *Landa*, *Melquiss*, *Gieen-laekur*, *Tungu-laeker*, *Fedaquiss*, *Kararvikarsh-urdur*, and *Hraunsa*.

Besides this immense fire, there happened two other circumstances that are equally wonderful. Two islands have been thrown up. One of these was thrown up in the month of *February* 1784, where there was before upwards of 100 fathoms deep water; it lies about sixteen miles from the land, south-west from *Reikianese* in *Iceland*, and about eight miles from the cluster of islands called *Gierfugla*. By the last accounts this island continued burning with great vehemence, and sent forth prodigious quantities of pumice, sand, and other matters, similar to other burning mountains. The island is somewhat above half a mile in circumference, and full as high as the mountain *Esian* in *Iceland*. The other island is at a greater distance from *Iceland* to the north-west, lying between *Iceland* and *Greenland*: it has burnt without intermission, day and night, for a considerable time, like the other; is very high, and larger in circumference than the other.—The account of this island is taken from the report of certain masters of ships, but is not so well authenticated as the former.

We have also some very indubitable accounts, partly by the relation of sailors, and partly by letters from *Trondheim* in *Norway*, that before the fire broke out in *Iceland*, there was a very remarkable eruption in the uninhabited parts of *Greenland*; and that in the northern parts of *Iceland*, opposite to *Greenland*, the fire was visible a vast while. These accounts were strengthened by a letter from *Iceland*, bearing date the 21st of *September*; which says, that when the wind was north there fell a great quantity of ashes, pumice, and brimstone, upon the north and west coasts of *Iceland*; and that this continued for the whole summer, whenever the wind was in that quarter; and that the air was always very strongly impregnated with a brimstone smell, and thick smoke.

But

But to return to *Iceland*. Ever since the first breaking out of the eruption, the whole atmosphere has been loaded with smoke, steam, and sulphureous vapours. The sun became at times wholly invisible, and, when it could be seen, was of a reddish or bloody colour. The fisheries were most of them destroyed; for the banks where the fish used to be, were so shifted and changed, as not to be known again by the fishermen; and the smoke so thick, as to prevent them from going far out to sea, for there was no seeing any object at above the distance of fifty fathom. The water of the rain falling through this smoke and steam, was so impregnated with salt and brimstone, as to destroy the hair, and even the skin, of the cattle; and all the grass in the whole island was so covered with the sooty and pitchy matter before described, that the most of it was destroyed, and, what was left was sure poison for any cattle that eat of it; so that those which escaped the fire died for want of food, or were poisoned by the unwholesome remains of the vegetables. Nor were the inhabitants, in many respects, more free from dangers than the cattle. Many lost their lives by the poisonous quality of the smoke and steam of which the whole atmosphere consisted; particularly old people, and such as had any weakness or complaint of the breast and lungs.

During the fall of the sharp rain which we have before made mention of, there was observed at *Trondbeim*, and at other places in *Norway*, and also at *Faroe*, an uncommon fall of sharp and salt rain, which was so penetrating that it totally destroyed the leaves of the trees, and every vegetable it fell upon, by scorching them up, and causing them to wither. At *Faroe* there fell a considerable quantity of ashes, sand, pumice, and brimstone, which covered the whole surface of the ground whenever the wind blew from *Iceland*; and the distance between these two places is at least eighty miles. Ships that were sailing between *Copenhagen* and *Norway* were frequently covered with ashes and brimstone, which stuck to the sails, masts, and decks, besmearing them all over with a black and pitchy matter. Many parts of *Holland*, *Germany*, and other countries in the north, observed a brimstone vapour in the air, accompanied with a thick smoke; and

I C E L A N D.

CCCXXXI

and there fell in some places a light grey-colored substance upon the earth every night, which, by its yielding a blueish flame when thrown on the fire, evidently appeared to be sulphureous: upon those nights in which this substance fell in any quantity, there was observed to be little or no fall of dew. These appearances continued more or less all the months of *July*, *August*, and *September*.

A more particular account of these appearances, and the periods when they were observed, are published in the *Berlin Advertiser*, N^o 96, 1783, and the following numbers, in some of which there is a very accurate account of the two islands that were thrown up; but I have not seen them.

I shall conclude with giving you a catalogue of all the known eruptions in *Iceland*.

1. Date lost. *Ildborger braun*.
2. 1000. *Thurrar braun*.
3. 1004. *Heckla*, for the first time.
4. 1029. Ditto, second time.
5. 1105. Ditto.
6. 1113. Ditto.
7. 1151. *Trolledynger*.
8. 1157. *Heckla*.
9. 1188. *Trolledynger*.
10. 1206. *Heckla*.
11. 1210. *Reikenesse*.
12. 1219. Ditto.
13. 1222. *Heckla*.
14. 1222. *Reikenesse*.
15. 1223. Ditto.
16. 1225. Ditto.
17. 1226. Ditto.
18. 1237. Ditto.
19. 1240. Ditto.

20. 1245.

20. 1245. *Soelheim Jockul.*
21. 1262. Ditto.
22. 1294. *Heckla.*
23. 1300. Ditto.
24. 1311. *Roidekambe field.*
25. 1332. *Knappfelds Jockul.*
26. 1340. *Heckla.*
27. 1359. *Trolledynger.*
28. 1362. *Knappfelds Jockul.*
29. 1366. *Lillebered.*
30. 1374. *Heckla.*
31. 1390. Ditto.
32. 1416. *Hofde Jockul.*
33. 1422. *Reikeneje.*
34. 1436. *Heckla.*
35. 1475. In the north part of the island.
36. 1510. *Heckla.*
37. 1554. In the neighborhood of *Heckla.*
38. 1587. *Tbingvalla.*
39. 1619. *Heckla.*
40. 1625. *Myradalur.*
41. 1636. *Heckla.*
42. 1660. *Myrdals Jockul.*
43. 1693. *Heckla.*
44. 1721. *Kattlegiða.*
45. 1725. *Leermicks, Hitboel, and Bjarnastaeg.*
46. 1725. *Krafte.*
47. 1727. *Myrdal and Leermick, and Hroffedall.*
48. 1728. *Reibeklider and Myrvatn.*
49. 1755. *Kattlegiða.*
50. 1766. *April 15. Heckla, to Sept. 7.*
51. 1771. *June 13. Ditto, three weeks.*

ARCHITHINUES INDIANS.

CCCKXXIII

OF THE ARCHITHINUES INDIANS,

TAKEN FROM THE JOURNAL OF A TRADER FROM HUDSON'S BAY.

SUNDAY.—Fine weather, wind W. Travelled S. W. by W. 15 miles. Level land, and ledges of small woods. We were joined by seven *Archithinues* on horseback, who informed us that we should see the great Leader and numbers of the *Archithinues* to-morrow. *Indians* killed several Buffaloes; they are numerous all round us.

1754.
OCTOBER
13.

MONDAY.—Fine weather, wind N. E. Travelled S. W. by W. four miles; then came to us 40 men on horseback; they told us they were sent from the main body, to enquire whether we were friends or enemies. We told them we were friends. *Atickofsb*, *Connawappaw*, *Cocamanakifick*, and the rest of the leaders, walked in the front about four miles further. Then we came to two hundred tents of *Archithinues* Indians, pitched in two rows, and an opening in the middle; where we were conducted to the Leader's tent, which was at one end, large enough to contain fifty people, where he was seated on a clean Buffalo's skin, attended by twenty elderly men. He made signs to me to sit down on his right hand, which I did. Our leaders set on several grand pipes, and smoked all round, according to their usual custom. Not one word was yet spoke on either side. Smoking being done, Buffalo flesh boiled was handed round in willow baskets, and I was presented with ten Buffaloes tongues. *Atickofsb* then informed him, that I was sent by the great leader, who lives down at the great waters, to invite his young men down to see him, and to bring with them Beaver and Wolves, and they would get in return powder, shot, guns, and cloth, &c. He made little or no answer, more than that it was far off, and that they could not paddle; then they entered upon indifferent subjects, until we were ordered to depart to our tents, which were ready pitched about a quarter of a mile from them.

14.

TUESDAY.—Fine weather, wind S. E. Froze a little last night. Women employed dressing Beaver skins for cloathing. At ten o'clock I was invited

15.

ARCHITHINUES INDIANS.

vited to the Leader's tent, when, by an interpreter, I told him what I was sent for, and perswaded him to allow me to carry down some of his young men to the fort, where they would get guns, powder, and shot, and be kindly used; he made answer, it was far off, and that they could not live without Buffaloes flesh; and that they never would leave their horses; and mentioned many more obstacles, which I thought was very just; the chief of which was, that they never wanted provisions. He made me a present of a handsome bow and arrows; and in return I gave him a knife, four strings of beads, and several other sorts of trading goods that I had with me; so departed and took a view of the camp. Their tents were pitched close one to another, in two regular lines, which formed a broad street, open at both ends: the horses are turned out to grass, their legs being fettered; or, when wanted, are fastened to lines cut off Buffaloes skin, that stretches along, and fastened to stakes drove in the ground; they have hair halters, Buffalo skin pads, and stirrups of the same. The horses are fine spirited creatures, about fourteen hands high, the largest, and tractable; the natives are good horsemen; and kill the Buffaloes on them. These natives are dressed much the same as the others, but more clean and sprightly: they think nothing of my tobacco, and I think as little of theirs, which is dried horse-dung: they appear to be under proper discipline, and obedient to the leader, who orders a party of horsemen morning and evening to reconnoitre, and other parties to bring in provisions. They have other *Indians* beyond them, who are their enemies; they are also called *Archithinues*; and, by what I can learn, talk the same language, and have the same customs, &c. They are, like the rest of the natives, murdering one another slyly. Saw several pretty girls that had been taken in war; and many dried scalps with long black hair, disposed on long poles round the Leader's tent. They follow the Buffalo, and, that they may not be surpris'd by the enemy, encamp in open plains. Their firing is turf, and dried horse-dung: their cloathing is finely painted with red paint, like unto *English* red oker; but they do not mark nor paint their faces.

EXPORTS

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EXPORTS from *Archangel*, 1780, in 126 Ships.

Rye, Tchertvert - -	10,624	Soap, Poods - -	6
Wheat, D° - -	58,239	Tar, Barrels * - -	89,215
Linseed *, D° - -	63,191	Train-oil, D° - -	4,901
Tallow *, Pood - -	159,137	Mats *, Pieces - -	807,290
Hemp *, D° - -	39,066	D°, Bags, D° - -	47,450
Iron *, D° - -	31,976	Horse-tails, D° - -	94
Bristles *, D° - -	4,533	Hare-skins *, D° - -	26,445
Bees-wax *, D° - -	346	Cat D° - -	3,970
Tallow-candles, D° - -	12,500	Bear D° - -	10
Hides, D° - -	10,091	Swan D° - -	356
Cordage, D° - -	1,060	D° wing, p' - -	252
Castoreum - -	1 : 3 W'	White Fox-skins, Pieces - -	4,955
Linseed oil, Pood - -	1,140	Squirrel-skins, D° - -	110,610
Horse-manes *, Pieces - -	2,454	D° tails, D° - -	42,000
Tobacco, Poods - -	738	Hare furs - -	10
Rye-meal, D° - -	598	Ox tongues * - -	1,000
Agaricum - -	135	Linen bags - -	500
Pitch *, Pood - -	131,881	Sail-cloth - -	1,000
Flax, D° - -	3	Diaper, Arschines - -	58,612
Isinglafs *, D° - -	59	Linen, D° - -	1,529

* These articles to *England*, in common with other countries.

GOODS Exported from *St. Petersburg* in 1780, to *Great Britain* and *Ireland*.

Iron. Pood *. 3,777,411	Clean Hemp. Pood. 810,982	Out Shot. Pood. 96,786	Half clean. Pood. 32,986	Hemp codille. Pood. 21,101	Flax. Pood. 153,762	Hides, and Sole Leather. Pood. 220	Hare-skins. Pieces. 76,024
Tallow. Pood. 379,982	Wax. Pood. 2,188	Briftles. Pood. 15,348	Ifinglafs. Pood. 1,939	Tobacco.	Candles.	Tar. Poods. 16,040	Broad and narrow Diaper. Arfchines. 489,885
Sundry furs, Squirrel, Fox, and Weasel. 31,517	Horse-tails.	Raven Ducks. Pieces. 77,793	Flams. Pieces. 17,500	Sail-cloth. Pieces. 428	Drills. Pieces. 21,833	Linen. Arfchines. 983,588	Caviar.
Crafs. Arfch. 942,728	Wheat.	Cordage.	Horse-hair.	Pitch. Pood. 586	Mafts.	Deals. Pieces. 115,486	Rhubarb. Pood. 156
Hemp-feed oil.	Soap. Pood. 496	Ox-bones.	Feathers. Pood. 519	Salt-petre. Pood. 15,857	Old Iron. Pood. 6,957	Rozin. Pood. 1,221	
Linfed. Tchetvert. 15,744							

* The Pood confits of 36 lb.

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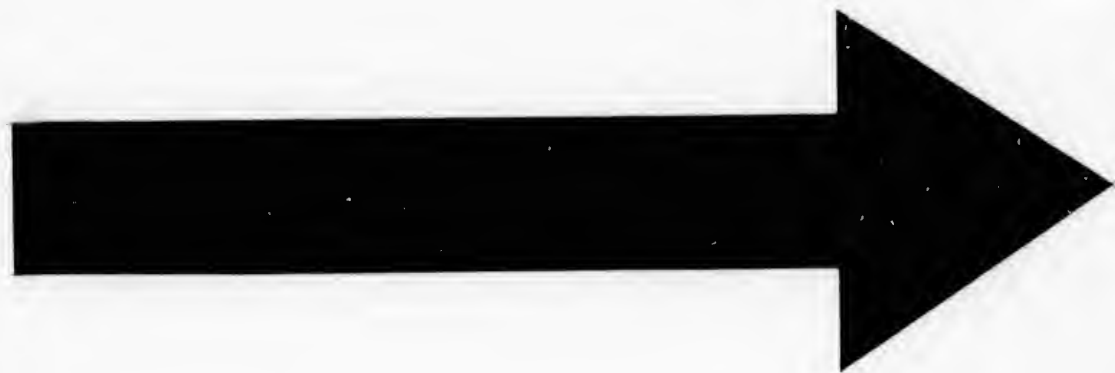
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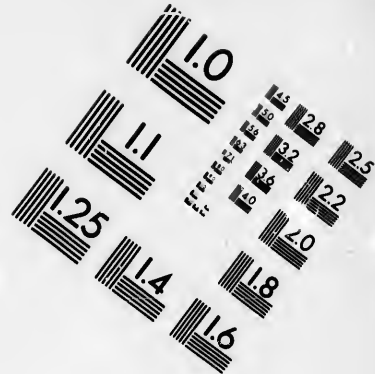
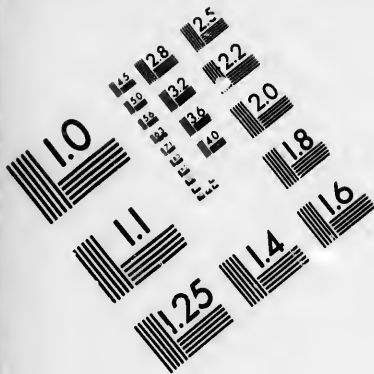
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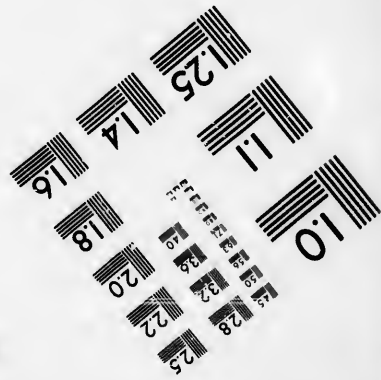
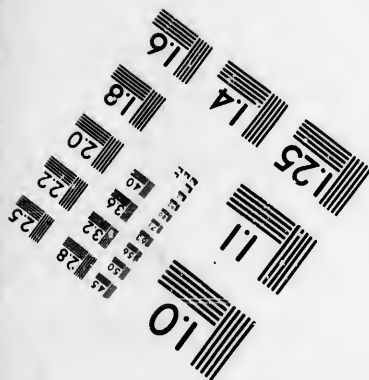
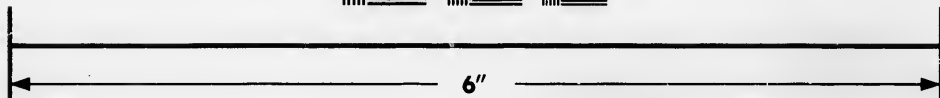
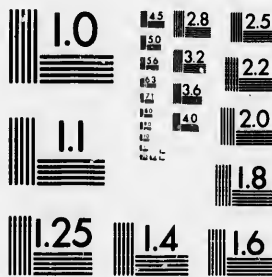
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K. Kadjak





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* Omitted in the historical part, but is placed in the map 11. to the west of Cape *Taimura*, in about lat. 77.

Y y

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I N D E X, &c.

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