ARCTIC ZOOLOGY.

VOL. I.

INTRODUCTION.

CLASS I. QUADRUPEDS.

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1784
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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 correspondencies, made far greater progress in my plan than my most fanguine 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, 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 claim 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 Kamtschatka, 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 fleur 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 will soon arise, with the other strengths of the new empire, and some native Naturalist give perfection to that
part of the undertaking, by observations formed on the spot, in the uses, manners, and migrations. Should, at present, no one be inclined to take the pen out of my hand, remarks from the other side of the Atlantic, from any gentlemen of congenial studies, will add peculiar pleasure to a favorite pursuit, and be gratefully received.

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. Atston 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

* Now resident in London.
of Steller; which have assisted me in the history of parts hitherto but very slightly understood.

From the correspondence and labors of Mr. Eberh. Aug. William Zimmerman, Professor of Mathematics at Bruns- wic, I have collected most uncommon instruction. His Specimen Zoologie Geographicca 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 acknowledgment for variety of most useful communications: Doctor Anders Sparman, of Stockholm; Doctor Charles P. Thunberg, of Upsal; Mr. And. J. Retzius, Professor of Natural History at Lund; Mr. Martin Thrane Brunnich, Professor of Natural History, and Mr. Otho Muller, Author of the Zoologia Danica, both 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.

* A quarto in Latin, containing 683 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 Geographicca, lately published in German by the Author.
To many of my countrymen my best thanks are due for literary affiustances. 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 subject of the following sheets.

To Sir Ashton Lever, Knight, I am highly indebted, for the more intimate and closer examination of his treasures than was allowed to the common visitors of his most magnificent museum.

To Mr. Samuel Hearn, the great explorer by land of the Icy Sea, I cannot but fend my moft 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 fide.

Mr. Andrew Graham, long a resident in Hudson's Bay, obliged me with numbers of obfervations on the country, and the use of multitudes of specimens of animals tranfmitted by him to the late museum of the Royal Society, at the instance of that liberal patron of science, my refpected friend the Honourable Daines Barrington.

Let me close the lift with acknowledging the great affiustance I have found in the Synopfis of Birds by Mr. John Latham; a work now brought almoft to a conclusion, and which contains a far greater number of defcriptions than any which has gone before. This is owing not only to the affiduity of the Author, but also to the peculiar spirit of the English nation, which has, in its voyages to the moft remote and moft opposite parts of the globe, payed attention to every branch of science. The advantages are pointed out by the able pen of the Reverend Do{t}or Douglas, in his Introduction to the last Voyage of
ADVERTISEMENT.

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.

Dow n i n g,
February 1, 1785.

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For the drawings from which these Antiquities were engraved, I am indebted to the Reverend Mr. Low, Minister of Birfa 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.

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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 Zoologic 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 luxuriance of plants in the warmer climates.

The Fossilist should join company, and point the variations of primeval 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 compensation it may have made to others, by the retreat of its waters.

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 flocking 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 resided in its passage from an overcharged 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 primitive seats. Some leading customs may still have been preserved in both; or some monuments of antiquity, proofs of congenial habits, possibly no longer extant in the savage than in the cultivated branches of the common stock.

Let me take my departure northward, from the narrow straits 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
Esec freium

But it is most probable, that the great philosopher alluded to the partial destruction of the Atlantia insula, mentioned by Plato as a distant tradition 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, Orkneys, Shetlands, 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 pashed with the antients 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 Folkestone (about six miles from

* Plato died about the year 347 before Christ, aged 81. Pythagoras, about 497, aged 90.
† See this opinion farther discussed by Mr. Somner, Pl. Trans. Abridg. iv. 230.
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 Folkestone have often
touched it with a fifteen feet oar; so that it is justly the dread of navigators. Many
tall ship has perished on it, and sunk instantly into twenty-one fathoms water.

In July 1792, the Belleisle of sixty-four guns struck, and lay on it during three
hours; but, by flarting 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
increased height of water, from a decrease of breadth, has been apparent even in
that space. The depth of the 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

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,
Hasting, and Bologne *; a proof, that if the separation of the land was ef-
ected by the seas, it must have been by the overpowering weight of those of the
north.

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

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

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 unvet feet through all our land.
To the blown Baltic then, they say,
The wild waves found another way. 

Collins's Ode to Liberty.

If, after the event by which our island was torn from the continent, the migration over so narrow a freight might, in the earlier ages, have been very readily effected in the vitilia navigia or coracles, or the monaxyla or canoes in use in the remote periods; but 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 poiffessed by tides so rapid, as to baffle their utmost efforts; their passage, therefore, must have been over the antient isfimus; for it is contrary to common fenfe to suppose, that our ancestors would have been at the trouble of transporting such guefts as wolves and bears, and the numerous train of leffer rapacious animals, even had it been practicable for them to have introduced the dometfic and useful species.

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

Prior.

Quadrupeds. 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 loft animals may be reckoned the Urus, p. 2; Wolf, No 9; Bear, No 20; Wild Boar; and the Beaver, No 40: all which were once common to both countries. The Urus continued among us in a state of nature as late at left 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 1507. They existed in Wales, perhaps, till the fame period; for our antient laws ranked them among the beasts of chase §. Wolves infected 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

* 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. § Rall. Syn., Quadr. 214.
ENGLAND.

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 Mon- fet, took great delight in their chase *. Let me add, from the same authority, that Roebucks were found at the same period in Wales, and among the Clueist 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 Ursus 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, No. 3; Genet, Hist. Quad. No. 224; Lynx, No. 150; Fat Dormouse, Hist. Quad. No. 287; Garden Dormouse, Hist. Quad. No. 288; and the Bats Serstine, Pipistrelle, and Barbastelle, Hist. Quad. Nos. 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 Iber, Hist. Quad. No. 13, and the Chamois, Hist. Quad. No. 17, inhabitants only of the remote Gaulish Alps and Pyrenean, 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, which have the ready means of wasting 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. Glencoe, 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 Bunting, p. 360, natives of Cuba, after the planting of rice in the Carolinas, annually quit the island in myriads, and fly over sea and land, to partake of a harvest introduced there from the distant India.

* Health's Enmprovement. † École de la Chasse, clxi.
‡ The Common Seal, is common to the ocean and Mediterraneaen sea. Possibly the Mediterranean Seal, Hist. Quad. No. 376, may be so likewise.—This work is always intended, when the name of the work referred to is not added to the numbers.

FRANCE.
ENGLAND.

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 Collisere 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 ancient strength; and the vestiges of a quay, now bounded by a ditch, points out the anchorage of the Roman commerce. The adjacent Thanet, the Thanatos 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 Thanet 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 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 Lepeoffe; 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 Winterton, the coast is low, flat, and composed of shingle, backed by sand. From Harborough 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 Sheringham and Cley, it rises into pretty and gentle hills, sloping down into a rough
rough shore, of little rocks and stones. At 

Holkham, Wells, and 

Worthingham, 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 loose 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 plum-

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 

Metatis Estuarium of Ptolemy. From hence, all the coast by Snetterton to Lynn is low, flat, 

and shingly.

From Helm, the northern promontory of Norfolk, the sea advances deeply west-

ward, 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 

Ouse, which is 

circulated into the very inland 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. 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 country, overlooks, as 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. The whole coast is fronted with salt-marshes or sand-hills, and secured by artificial banks against the fury of the sea. Old 

Holinf-head gives a long lift of ports on this now inhospitable coast. 

Waynfleet, once a noted haven, is at-present a mere creek. 

Skidness, once a large walled town, with a 
good harbour, is now an inconsiderable place a mile from the sea; and the port of 

Grimesby,
GRIMSELY, which in the time of Edward III. furnished him with eleven ships, is now totally choked 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 antient 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 time to time. Ovid's beautiful account of the deluge was here verified; for under Coneyton 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.

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 those 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 neglected, 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, Thorney, Ramsey, Spiney, and others, rose into celebrated abbeys, and by the industry of their inhabitants first began to restore the works of the Romans. The country above Thorney is represented by an old historian † as a paradise. Constant visitations, founded on wholesome laws, preferred this vast recovered country: but on the rapid and rapacious disfollution, 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

* Vita Agricola.  † Malbyson, lib. iv. 294.
the country again reduced to a useless morass *. In the twentieth of Elizabeth the flate 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 vaft tract of more than three thousand hundred acres; and the last received, under fanjion of parliament, the just reward of ninety thousand acres. I speak not of the reliques of the antient banks which I have seen in Holland, 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 vaft feney 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 fent annually to the London markets, from the numerous decoys. The Grey Lag Goofe, Br. Zool. ii. N° 266, the origin of the Tame, breeds here, and is refident the whole year: a few others of the Duck kind breed here. Ruffs, Redshanks, 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 flock our shores, driven southward by the extreme cold: most of them regularly, others, whose nature enables them to brave the usual winters of the frigid zone, are with us only accidental guests, and in seasons when the frost rages in their native land with unusual severity.

From Clea Nefs, the land retires westward, and, with the opposite shore of Yorkshire, bounds the great effuary of the Humber, which, winding deep into the country, is the receptacle of the Trent, and all the considerable rivers of that vaft 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 styled good ones §. Similar

* Compare Sir W. Dugdale’s maps of this tract, in its marshy and drained state. Hift. Embank, p. 375. 416. † Same, p. 375.
‡ See Tour in Scotland, 1769; Lincolnshire, where the fen birds are enumerated.
§ Defer. Britain, 1106.

accidents
accidents have befallen the upper part of the low tract of Holderness, which faces the congruent shores. *Hedon*, a few miles below *Hull*, several hundred years ago a port 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 failed 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 deposition 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 *Oceum Promontorium of Ptolemy*, terminates this side of the *Humber*, at present in form of a fickle, 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.

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 expofes 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 fame fertility reaches from *Kilnsey*, near this place, as far as the village of *Sprotthy*, extending, in a waved form, for numbers of miles; and, when I saw it, richly cloathed with wheat and beans.

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 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 *Hides*, a neighboring town, only the tradition is left.

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 *Evaluatius*, on account of the excellency and


*Safety*
safety of its port, where vessels ride in full security under the shelter of the lofty head-land. Smithie sand, the only one between Flamborough and Spurn Head, stretches across the entrance into Bridlington bay, and, in hard gales from the north and north-east, adds to the security of that noble asylum for the coasting vessels. Surely, 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.

The head is formed of lime-flint, 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 Brigantium Extrema, and the bay Portus Felix. The Saxons flyled 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.

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 darkness; 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 flunmed us with

* 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-flint used at Scarborough is made from flintes flung up by the sea. It may be remarked, that whatsoever degree of hardness any lime-flint possesse 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 cafes of fire, the whole building tumbles suddenly, and renders all attempts to extinguish the fire very dangerous.—Mr. Travis.
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 bass 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, about the 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 fisheries 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 sandy 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.

An amazing shoal of Haddocks visit this coast periodically, generally about the tenth of December, and extend from the shore near three miles in breadth, and in length from Flamborough head to Tynemouth castle, perhaps further north. An army of a small species of Shark, the Piked, Br. Zool. iii. N° 40, flanks the outside of this shoal to prey upon it; for when the fishermen cast their lines beyond
beyond the distance of three miles from land, they never catch any but those voracious fish *.

Between Flamborough head and Scarborough projects Filey Brig, a ledge of rocks running far into the sea, the cause of frequent shipwrecks. Scarborough cacline, 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 alum-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 clear 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 peafants in the picturesque and rocky parts of China.

The Tees, the northern limit of this great county, opens with a wide mouth and muddied bottom into the sea. This was the Dunum Efiinarium 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 clyuary, 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 Sluice, 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 Seabam 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 Haworth Hive are bold, excavated, and formed into grotesque figures, for several miles, and the shores rough with a broken and heavy sea, by reason of the hidden rocks and spits of sands which run out far

* 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.
from land. From Sebham to Sunderland are sand-hills and shallow sandy beaches. From Weymouth to near Cleadon, low rocks of lime-stone form the coast, here and there interfaced with sand-hills and stony beaches. From thence to the mouth of the Tyne, and even to Dunstanborough 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 left 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 benumbed 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 favored, by means of machines always ready for the purpose *.

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 ft. St. Cuthbert 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. 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 coves, or boats of the country; and the Eider Ducks, * Art. Zool. ii. No 480, still distinguished here by the name of the Saint. Numberless sea-fowls, and of great variety of kinds, possess the remotest rocks, on which they find a more secure retreat than on the low-cliffed shores. To 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

* Tour in Scotland, 1769; and fuller in Mr. Hutchinson's Northumberland, ii. 176.
† Adair, Hammond. Tomkson.
the cliffs soar to a distinguished height. Where those are wanting, they retire to
sea-girt rocks, as spots the left 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. Lindisfarne, or the Holy island, with its ruined
cathedral and castle, lie remote from shore, 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 flow-
ing 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 land-
scapes of the adjoining shores.

The Tweed, the antient Alannus, a narrow geographical boundary between us
and our fellow-subjects the Scotoes nation, next succeeds. After a short con-
 nuance of low land, St. Ebb's head, a lofty promontory, projects into the sea
(frequented in the seafon by Razor-bills, Guillemots, and all the birds of the Ba-
fts, excepting the Gannet) and its lower part is hollowed into most august caverns.
This, with Fife ness, about thirty miles distant, forms the entrance into that
magnificent estuary the firth of Forth, which extends inland sixty miles; and,
with the canal from Carron to the firth of Clyde, entirely insulates the antient
Caledonia. The isle of May appears near the northern side of the entrance; the
vast towering rock, the Bafts, 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 Corvovants and Auks, the flights of which are rapid, and the
Gulls, which move with sluggish wing.

Near the Bafts the entrance narrows, then opens, and bending inwards, forms
on each side a noble bay. The Firth contracts to a very narrow strait at
Queensferry; then winds beautifully, till it terminates beyond Alloa, in the river
to which it owes its name. The shores are low, in part rocky, in part a plea-
sant beach; but every where of matchless beauty and population. Edinburgh,
the capital, rises with true grandeur near the shore, with its port, the great em-

* Mr. Hutchinson, ii. 135.
porium, 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.

Fife-shire, 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 country, 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 vaft province are rocky and precipitous; but 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 Tyna of the old geographer.

Firth of Tay. The efluary of the Tay limits the north of Fife-shire. Before the mouth extends the fand retaining the British name of Aber-tay, or the place where the Tay discharges itself into the sea. The Romans preferred 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 affumes the form of a river. At the recefs 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 ages 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 foil †. 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 Aberbrothie, in the shire of Angus, noted for the venerable remains of its abbey, is a low and sandy shore. From Aberbrothie 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

* See Tour in Scotland, 1772. part ii. p. 212. † Douglas's Easf Coast of Scotland, 14.

most
moit 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 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-pet, 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 sight of the heavens; he finds himself in a circular chasm, 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 cornfields 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 ancient and barbarous times the retreat of the neighboring inhabitants from the rage of a potent invader.

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 Esse, which, near Montrose, discharges itself into the sea.

A sandy coast is continued for a small distance from Montrose. Rude rocky cliffs re-commence in the county of Mearns, and front the ocean. Among the highest is Fewls-brough, 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

* These descriptions borrowed from my own Tours.
moist exalted one, are the vast ruins of Dunnottar, 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 over-
whelmed the parish of Furtie: two farms only exist, out of an estate, in 1600, va-
lued at five hundred pounds a year.

Bullers of
Buchan.

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 bason, 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 battlement, ought first
to be well assured of the strength of his head.

Peterhead.

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 go-

Caverns and
singular Rocks:

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SCOTLAND.

To the north the firth of Cromartie, and the firth of Tayne, the Varan Estuary, penetrate deep into the land. From Dornoch, the caft 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 middle 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 habituation of the original inhabitants, driven from their antient seats by the ancestors of Lowland Scots, descendants of Saxons, French, and Normans, congeneric with the English, yet abstrusely 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 Rafts-shire and Inverness-shire. Their Summer Alps are, Meall Fourvounich, the Corry, Benrivich, and Benrivich near Fort William; the last of which is reported to be fourteen hundred and fifty yards in height. Great part of Aberdeneshire lies in this tract. It boasts of another Morvern, soaring far beyond the others: this is in the centre of the Grampian Hills, and perhaps the highest from the sea of any in Great Britain. They again comprehend the eastern part of Perthsire, and finish on the magnificent shores of Loch-lomond, on the western side of which Ben-lomond 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 long 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 Staxig; the whole a bold, but most inhospitable shore for shipping. Wick and Staxig have indeed their creeks, or rather chasms, which open between the cliffs, and may accidentally prove a retreat, unless in an eastern gale.

Sindair and Frewick 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.
furns of similar materials, some hollowed into arches; others, pillar-like, aspire in heights equal to the land 3. These are animated with birds. All their economy may be viewed with ease from the neighboring cliffs; their loaves, incubation, exclusion, and nutrition.

Dunfgby-head, the antient Berygium, terminates the eastern side of this kingdom, as Far-out-head, the old Tarvedum, does the western. Strathig-head, the Verewdrum 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!

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 isles. 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 4; and Ptolemy called it Germanicus: both which it still retains. Its northern extremity lies between Dunfgby-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 Schetland isles and Norway §. The depth of water, at highest spring-tides, in the straits of Dover, is twenty-five fathoms: it deepens to thirty-one, between Lowsaeft 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 Buchan-nefs and Schutness in Norway, within the Buchan deeps, it has from eighty-six to a hundred fathoms; then decreases, towards the Orkney and Schetland isles, from seventy-five to forty; but between the Schetlands and Bergen, the northern end of this sea, the depth is from a hundred and twenty to a hundred and fifty fathoms.

* See Mr. Cardiner's beautiful view of a flock of this kind, tab. xv.  † Mela.  ‡ Plin.  § Mr. William Ferguson.

lib. iv. c. 19.  The
The coasts from Dungeness Head to Flamborough-head are bold and high, and may be seen at sea from seven to fourteen leagues: from the last to Spurn-head is also a clear coast; but the rest of the coast of Norfolk and Suffolk is low, visible at small distance, and rendered dangerous by the number of sand-banks projecting far to sea. After passing the Spurn Head, navigators steer between the inner and outer Downs, for the floating light kept on board a small vessel (constructed for that purpose) always anchored at the inner edge of a sand called Dog fish's Shool, about eight leagues from the coast of Lincolnshire, in about fifteen fathom water. From thence they make for Cromer in Norfolk; and from that point, till they arrive at the Nere, their track is all the way through a number of narrow channels near the most dangerous sands: to which, if we add foggy weather, dark nights, storms, contrary winds, and very near adjacent lee-shores, it may be very fairly reckoned the most dangerous of the much-frequented navigations in the world.

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.

The Long Bank, or the Long Forty, 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.

The bank called Montrose Pits lies a little to the east of the middle of the Long Forty. 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 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 Ower 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 fa-
thoms. 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 pur-
oposes 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; insurrec-
tions in times of scarcity of grain be prevented; our manufactures worked at an easy
rate; our rivals in trade thereby under-fold; and, in defiance of the probably ap-
proaching decrease of the Newfoundland fishery (since the los of America) contri-
but to form a nursery of seamen sufficient to preserve the small remnant we have
left of respect from foreign nations.

I have, to the best of my abilities, enumerated the British fish, in the third
volume of the British Zoology. The Faunula which I have prefixed to Mr. Light-
foot's Flora Scotia, 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.

I will now pursue my voyage from the extreme shores of North Britain through
a new ocean. Here commences the Oceanus Caledonius, or Deucaledonius, of Ptolemy;
a vast expanse, extending to the west as far as Greenland, and northward to the ex-
treme north. This I should call the Northern Ocean, distinguishing its parts
by other names suitable to the coasts. From Dungby Head the Orkney islands

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

f appear
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 show 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.

Between these and the main land, about two miles from the Cathness shore, lies Stroma, the Octis of Ptolemy, a little island, an appertenance to that county, 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 admission given to cattle, which have trampled them to pieces. This catacomb island on a neck of land 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 caves, 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 light, 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 flagrant, 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

Mr. Cordiner's elegant description, p. 25. Mackenzie's Charts of the Orkney, p. 4, 5.
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, fling in an oar, or any bulky 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 circumference 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 overfl) 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 Orkneys, is about four miles beyond Strona, 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 increase 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 Orkneys; 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 Strona and the mainland, 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 Ronaldsba and South Wales; for in general the other sounds are only from three to thirteen; and the circumambient depth of the whole group very rarely exceeds twenty-five.

Tides. 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 *

* Murdoch Mackenzie.
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 diellas a nomine Greco.*

Mela and Pliny take notice of them; and the last describes their number and clustered form with much accuracy†. The fleet of Agricola failed 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 Inchturel ‡, excepting at Fortingal § in Breadalbane, 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. Ptolemæus 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 failing in pursuit of the plundering Saxons through unknown shores, and a naval victory obtained off these islands by the forces sent to the relief of the distressed Britons by Honorius.

Quid Sidera profunt?
Ignotumque fretum? Maduerunt Saxones iufo
Orcades §.

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 Shetland 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 nests in the ground. It is

* Claudian. † Mela, lib. iii. c. 6. Plin. lib. iv. c. 16. ‡ Tour Scot. 1772. p. 70.

Language.

Rocks of the Orkneys.
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 poolees, by distant pairs, the upper part of the rocks: neither these nor any other Falcons will bear society; but, as Pliny elegantly expressses it, Adultos persequitur parens et longe fugat, amules seiicient rapina. Et alloquin unum par aquarum magno ad populandum tradus, ut satietur, indiget*. Auk, Corvorants, and all the tribes which love exalted situations, breed by thousands in the other parts. The Tyffle, or Black Guillemot, NO 236, feeues 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 darker. This species never migrates from the Orkneys. The Foolish Guillemot, NO 436, continues till November. The Little Auk, NO 429, a rare bird in other parts of Britain, breeds in the holes of the lofty precipices. And the Lyre, or the Sheerwater, NO 462, 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 surprizing distances from land. The Stormy Petrel, NO 464, 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, NO 122, 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 familiarity 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.

* Hist. Nat. lib. x. c. 3.

Schetland
SCHETLAND.

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 peninsulas connected by very narrow isthmuses. That called Mavifgrind, which unites the parish of North Maven, 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 voes; a most providential dispensation in a sea which swarms with fishes of the most general use. 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 flacks assume great variety of forms, such as steeplcs and Gothic cathedrals rising out of the water, fleets of ships, and other fancied shapes. The Doreholm, in the parish of North Maven, 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 light 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 dark 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."

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 ruflet. They often cover the whole hemisphere, 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 * Phil. Trans. Abr. xi. 1328.

* 2 briskly
brigely 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 indistinguishable 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 phenomena, 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 fages 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 antients called them Chajmetas, 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 to. The vulgar considered them as marking the introduction of a foreign race of princes. The novelty is now ceased, and their cause perhaps properly attributed to the greater abundance of electrical matter.

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. 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 fort 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

† See various accounts of them in the Phil. Trans. abr. iv. part ii. 138.
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, meditatively and immediately. Dutch, French, Flemings, Danes, and English, rendezvous in Bruxa found to meet these treasures of the ocean: and return to distribute their booty even to the distant Antilles.

Cod, Ling, and Torf†, furnish cargoes to other adventurers. I wish I could speak of the same satisfaction of this as of the free fishery of the Herring; but in these distant islands, the hand of oppression reigns uncontrollably. 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 Opah, Br. Zool. iii. N° 101. is found in abundance. It seems a fish of the north as well as the Torf; the last is not found south of the Orkneys; the former extends even to the banks of Newfoundland.

The birds of these islands are the same with those of the Orkneys, except the Skua, p. 531, which breeds only in Foula and Unf. Among the few land-birds which migrate to them in summer, is the Golden-crested Wren, N° 153. Its shortest flight must be sixty miles, except it should rest midway on Fair island: a surprising flight for so diminutive a bird!

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 satisfy one of the extremity to which the poor people are driven for want of food. Copinsha, Hunda, Hoy, Foula, and Nofs head, 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, pase 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

* See my Voy. to the Hebrides; and Br. Zool. iii. for the history of the Herring. † Br. Zool. i. N° 89.
SCHETLAND AND

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 Gutter 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 Nafs, a vast rock covered from the Isle of Nafs 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, N° 451, and the Herring Gull, N° 452.

The number of wild Quadrupeds which have reached the Orkney and Schetland islands are only five; the Otter, Brown Rat, Common Mouse, Fidd Shrew, and Bat. Rabbets 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 festing the unstable soil in motion, greatly counter-vaies 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 Maran, and even in Foula in the Schetlands, often large tracts are discovered filled with the remains of large trees, which are usually found after some violent tempest hath

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* Debes, Hist. Ferroa Islet, 154.  † 480 feet.

blown
blown away the incumbent strata of sand or gravel with which they have been covered. They are lodged in a morally 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. I shall, in another place, consider the decrease of vegetation in this northern progres.

The great quantity of turf which Providence hath bestowed on all these islands, excepting Sanna, 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, surnamed, from that circumstance, Torf einar, Einar de Cepite*. Had he lived in Greece, he could not have escaped deification for so useful a discovery.

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.

The Orkneys, the Shetlands, Cathness, Sutherland, and Roft-shire, with the Hebrides, were, for centuries, possessed by the Norwegians; and, in many instances, they adopted their customs. Of the antient 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 Piitip houses, Burghs, and Duns: the first are of modern date, and to be exploded, as they never were the work of the Piits; the second are affuredly right, and point out the founders, who at the same time bestowed on them their national name of Borg, 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 Shetland and Orkney

* Torfus Rer. Orcad. lib. i. c. 7. † See Ib. Glossarium Sueo-Gothicum, where the word is defined, munimentum, derived from Berga cucundire, or Byrga claudire. ‡ Baxter, Gloss. antiqu. Brit. 109.
islands, they are most frequently called Ward or Wardhills, which shews that they were garrisoned. They had their wardmaidher *, 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 Shetland 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 Torfaus, that after Suens 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 Swalberg ‖ in Norway is one; the Stir-bischop ¶, at Upfal in Sweden, is another; and Umfieborg, in the same kingdom, is a third **.

These towers vary in their internal structure; but externally are universally the same; yet some have an addition of strength on the outside. The burgh of Culf-wick in Shetland, notwithstanding it is built on the top of a hill, is surrounded with a dry ditch thirteen feet broad; that of Snaburgh in Upfal, has both a wet and a dry ditch; the first cut, with great labor, through the live rock. The burgh of Moura 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 Hogfster, upon an isle in a loch of the same name, has also its addition of a wall; a peculiarity in a caufeway, to join it to the main land, and a singular internal structure. 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 Coningsburg, 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

§ Dalberg, tab. 64. ** The same, tab. 300.—For more ample accounts, see Mr. Cordiner's Letters, 70, 105, 115, and my Tours in Scotland.
Antiquities in the Orkney & Shetland Isles.

Burgh of Cursweik.

Burgh of Burracorth.

Lauburgh in Unst.

Burgh of Hopnwar.

Roman Camp in Tital.
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.

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 ancient Scandinavian architects: a few deviated from the original manner, were square, had great thicknesses 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.

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 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 caffellet, 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 visited these islands: one at the time when the fleet of Agricola subdued them; the other, when the fleet of Honorius defeated the Saxons in the seas of Orkney. A copper medal of Vespasian, with Judææ deviita 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

* See his curious account of Caingborouh castle, which he justly compares to the Scottisb Dun; and judiciously attributes to it a very early date. Archeologia, vi. 254. tab. xxiii.
† Figetius de re Milt. lib. iv. c. 10. † Mr. Lew.
this place, were six pieces of brass, cast into a form the nearest resembling fet-
ters. They were wrapped in a piece of raw hide; but we cannot pretend to
say that they belonged to the occupiers of the camp.

**Stone Weapons.**

Flint heads of arrows, flint axes, swords made of the bones of a whale, flones,
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 newly-discovered islands
in the South Sea. Druidical circles of stones, the temples of primeval 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.

**Circles.**

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. Behind them
is a mound of earth, conformable to their position. If there never was a num-
er of stones to complete a circle, this antiquity was one of the kind which the
learned Doctor Borlase calls a theatre, and supposed was designed for the exhi-
bition of dramatical performances *. I suspect them to have been either for the
purposes of religion, or judicial transactions; for the age was probably not suf-
ficiently refined for the former amusements. Upright stones, either memorials of
the dead, or victories obtained on the spot, are very numerous. The most re-
markable 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 repts over a hero of that name. Notwithstanding the long resi-
dence of the Norwegians in these islands, I find only one stone with a Runic in-
scription, which runs along the sides. The rest of the stone is plain, and defti-
tute of the sculptures so frequent on those found in Scandinavia.

**Semicircles.**

In the wall of the church at Sandness, is a stone with three circles, a semi-
circle, 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 church-yard of Far, on the ex-
treme northern coast of Caithness. 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 934, on the defeat of Camus, the Danes
the last in 1034, on the murder of Malcolm the Second.

* Antiq. Cornwall, 195.

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In
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, concentrical; 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 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 Orkneys, 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 flint, we may suppose that the Egyptians, and the nation to whom these tumuli did belong, might have had the same superstitious 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 sods. 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 Shetlands, 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 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.

* See Mr. Low's account, and plate, Archaeologia, iii. 276, tab. xiii.
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, brotches, 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 brafs 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.

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 Smalund, 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 Humlus, and Laudur brother to King Angantyr; the last surrounded at its base with a circle of rude stones ‡. The Rambura Rulle 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 Hydeland, 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 Macu-hirion, 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 ‖.

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 superstitious 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, Angantyr! 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.
Hervardur, Hervardur, hear!
Lift, oh, lift, my father dear!

* Dahlberg, tab. 315. † The same, and tab. 281.  ‡ Olav Magnus.  ¶ Wormii Mon. Dan. p. 63.  § I do not well understand some of these distinctions; but give them from Olav Magnus, lib. i. c. 18.  ¶¶ Of them are exemplified at Finja in Sweden. See Dahlberg, tab. 104, and Peringskiöld Monum. Sues-Gotb. p. 216.  ‖ Wormii Monum. Dan. 64, & passim. ** Dahlberg, tab. 314.  †† By my friend, the Reverend Mr. Williams of Fran.

Each
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.
Lifting in your clay-cold beds,
Sons of Eyvor, lift your heads.
Rife, Hervardur, rise and speak; Hervardur, 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!

ANGANTYR.

Cease, oh daughter, cease to call me;
Didst thou know what would 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 relics to the grave;
And Tirfing, that all-conqu'ring sword,
No longer calls Angantyr lord.
A living warrior wears it now——

HERVOR.

'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,
Tho' attendant of thy obsequies!
My just inheritance I claim;
Conjure thee by a daughter's name,
Tby only child!

ANGANTYR.

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 Hervor bear,
Hervor'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.

HERVOR.

Never shall my enchantments cease,
Nor you, ye spirits, rest in peace,
Until ye grant what I demand,
And Tirfing glitters in my hand.

ANGANTYR.

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?

HERVOR.

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

ANGANTYR.

Then hear me, Maid,
That art not ev'n of death afraid!
Hialmar's bane thou shalt command;
The fatal sword is in my hand:
But see the flames that round it rise;
Doft thou the furious fire despise?

HERVOR.

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

ANGANTYR.

Rash Maid! will nothing then controul
The purpots of thy daring soul?

But
**FEROE ISLES.**

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.

**HERVOR.**

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 seen,
Tho' Scandinavia hail'd me queen.

**ANGANTYR.**

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

**HERVOR.**

My steamen 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!

**ANGANTYR.**

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.

**HERVOR.**

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

**ANGANTYR.**

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.

**HERVOR.**

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, burying from the vap'rous ground,
Meteors shoot, and blaze around.

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 Zealand; which, with two other barrows, is included in a square of stones.

Circles, for the purpose of religious rites, were not wanting here. The *Etteflupa*, or circle of lofty rude columns in *West Gotland*, was celebrated for the sacrifices of the heathens †; and the great stones at *Finflad*, 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 the Ferôe islands, 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 arifing 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

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* Wormii Min. Dan. p. 3. † Dallberg, tab. 280. ‡ The same, 105.
them faced with most tremendous precipices. The surface of the mountains consists of a shallow soil of remarkable fertility; for barley, the only corn grown here, yields above twenty for one; and the gardens afford abundant pasturage for sheep. The exports are salted mutton and tallow, goose quills, 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 flunted 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, p. 214. B; the Lanner, p. 225. K; the Sparrow Hawk, p. 226. N *; a species of Owl; the Raven, N° 134; and Hooded Crow, p. 251. B. 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 feacious-house, on St. Olaus's day, the beak of one of those 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 nests here in spring, on its passage northward. The Heron is sometimes met with. The Spoon-Bill is Common †. The Sea Pie, Water Rail, and Lapwing, are seen here. The birds of the rocks, such as Puffins, Razor Bills, and Little Auks, Foolish and Black Guillemots, swarm here; and the Gejur-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, Corvorsants, and the Sula Gannet, form the sum of the palmed fowl of these inhospitable spots! 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 preserve 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

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* Thiere on the authority of Mr. Debes, who wrote the history of these isles in 1679.  
† Brunnich, p. 48.
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 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 feet. 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 preferred 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 nestled 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 fling 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.

The sea which surrounds these islands is extremely turbulent. The tides vary greatly on the western and eastern sides. On the north, 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, ces, agitate the sea to a strange degree; catch up a vast quantity of water,

* In Pontoppidan’s Hist. Norway, ii. 61. is a plate expressive of this manner of fowling.
so as to leave a great temporary chain 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 irresistible 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 suppose they may be bred in the upper regions cut of succulent matter.

Among the numerous whirlpools of these seas, that of Suderø, 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 circumgirations. 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 fourth border of the basin is a lofty rock, called Sunnes Hunk, 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 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. Naadodd, 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, Orkneys, Shetland, 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 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 Marcellian, at least cotemporary with

* Olai Magnus, Archb. of Ulfjal.
† See his plan, p. 52.
‡ Islands Landnaamabok, q.  
Aristotle
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. He does not exactly hit on the length of day and night; but he could have been at no other, at that distance from Britain, but Iceland, in which there was a most remarkable absence of light. As to Naddod, 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 Snowland; yet he returned home full of its praises. Soon after, Gædar, 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 fort 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.

Flóke, 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 failed, 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 Shetland and the Færse isles his first flops; and looked from the last for Iceland, the nearest point of which is about five hundred and forty miles distant. His first Raven returned to Færse: 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. Flóke was sick of his voyage: 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 assurredly 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.

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

* The works of Pytheas had been read by Dicurbas, a disciple of Aristotle's. See Strabo, lib. ii. p. 163.
† Flin, lib. ii. c. 75. ‡ Same, p. 7. § Same, p. 2. Tofofus Hift. Norveg. ii. 97.
f 2 happen
happen in a climate where luxury might pamper and corrupt the inhabitants. In
1261, wearied with their diffentions, they voluntarily re-united themselves to
their mother-country, Norway, under the reign of its monarch Haquin. It is re-
markable, that the poetic genius of their aboriginal country flourished with equal
sublimity in every climate. The Scalds, or bards, retained their fire in the inhosp-
titable 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, flunted shrubs, a
thin herbage, rude torrents, and fierce gales, reign in every part. We admit
the apology of the learned Torfens for the present state of his country*. Violent
tempests might cover whole tracts with the unfruitful sand, eruptions of water from
the mountains defolate 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 pre-
parations 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 flowed from the volcanoes, and terminated in the sea. Such is the appear-
ance, about three miles from Hafnafjord, in lat. 64° 4′ of vast mafs of lava piled
to a montaneous 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 rushed from the moun-
tains, attendant on the fiery eruptions. Vallies composed of a very thin soil, afford
grasfs for a numerous breed of cattle and sheep. Here is found variety of species of
the best grasses; of the airas, poa, fesluga, and carex. Part is harvested against winter;
but not in such plenty, but that the farmer is obliged often to feed his flock 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!

The woods of Iceland have long since vanished, unless we except a few flunted
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 Langanef
on the north-east, and Hornstrandi on the north-west. That woods were found here

* Hift. Norw. t, 12.
in very remote periods, is very evident, from the quantity of futurbrand 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 futurbrand 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; Thera, the modern Santorini, and Therasia, in the 135th Olympiad; Thas, 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 Reicbenes, part of the very island in question. But these futur or forte brands are certainly the remains of antient forests, overturned and buried by earthquakes, after the golden age 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 Asienfen, which is totally and aboriginally volcanic, a Flora of not more than seven plants is to be seen ‡.

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 sea about thirty-five leagues wide ¶. The whole is traversed with great ridges of mountains; the highest naked, and usually free from snow, by reason of the saline and fulphurous particles with which they abound. The lower, called Jök- teler, are cased with eternal ice and snow; and are the glaciers of Iceland. Of these, Snæfells Jökkel, which hangs over the sea in the 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

* Hift. Nat. lib. ii. c. 87. † Most admirably described in the Ph. Trans. v. 156, &c. ‡ Ofbeck's Voy. ii. 98. Forfar's Voy. ii. 575. 576. ¶ Mallet, i. 15. ‖ Kerguelen, 175. ‖ See Olausen, i. tab. xvi.
Iceland.

distance of four miles. The heights of the mountains have not been taken; but
that of the Hecla-fall is not far short of seventeen hundred yards. Of this species of
mountain, Hecla has been most celebrated: 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 *

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

Hecla has been known to have had only ten eruptions between the years 1104 and
1693; from the last to 1766, when it burst out in flames and lava. It emitted flames
in 1771 and 1772; but did not overflow with Stenna, or a stone flood. But other
volcanos have, in the present century, proved the spiracles to the internal fires of
Iceland. The valleys between the mountains are in general sandy and sterile. Fiery
eruptions are not confined to the mountains. Last year they burst out of the sulphure-
ous foil of the low parts of Skagafiel Syfle or province; and the lava has overflowed
the country for the space of thirty miles, and has at last reached the sea, destroying
every thing in its progress. It dries up the rivers, and fills their beds with lava.
Moors in some places flop its course; but it totally changes their nature. It has
taken to the deserts of the same province, and begins to spread to the east, or
Mulé Syfle, 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 †.

The Fountains of many of the valleys are of a most extraordinary nature: are called Huers, 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! espe-
cially 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 flaxsitical matter, formed of suc-
cessive flaxy 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 increases its height,
smoking amazingly, and flinging up great fumes. 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

* Bartholinus de Contemptu Mortis, 359. † Letter from Mr. Brunich, dated October 31, 1785.
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.

These Haurs are not confined to the land. They rise in the very sea, and form scalding fountains amidst the waves. Their distance from the land is unknown; but the new volcanic isle, twelve miles off the point of Reikanes, 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 arenacaus, the frequent evomition of vulcanos. How much past human comprehension must the powers have been, that could force up materials for an isle, 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!

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 volcanic spiracula. The earthquakes shatter the crust on which they stand, and they tumble into the great abys. Such was the fate of the nine isles of Gouberman, which lay about four leagues from Sandanesfj, between Patriarxford and Cape Nord, all which suddenly disappared. 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 computed not to exceed sixty thousand. Considering the ungenial surface of this vast isle, 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 farte died, 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 isle. During the time of the plague, tradition relates,

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* See Mr. Whiteburn's Theory. † Sable noir comme la poudre a canon. Voyage au Nord, par M. de Kerguelin, 69. † The same, 65, 66.
in terms most graphically horrid, that the persons who escaped to the mountains, saw the whole low country covered with a thick pestiferous fog. A guess may be made at the number of inhabitants in the eleventh century; for a bishop of Schalbott caused, in 1090, all who were liable to pay tribute to be numbered: four thousand of that rank were found; so that, giving five to a family, the sum is twenty thousand. Much of the labor in the northern world falls to the female part of the family; and in those patriarchal times, the sons also shared the toil. I cannot therefore under-rate the number of commonalty, or untaxable people, heads of families, at ten thousand; which, by the same rule, will give fifty thousand of the lower rank. Besides the dearth of food in this rude island, other causes contribute to prevent the increase of inhabitants. Necessity forces 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 capacity 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 caufe 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 flock, 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.

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. The violet of France, queen to Edward II. wore a head-dress of an enor-

* Arngrim Jonas's Comment. Iceland. in Hechlugi, i. 556.
† See Oleffen, i. tab. iii. Pontoppidan, ii. tab. p. 272.
mous 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. Troll awakens our curiosity about the Icelandic antiquities; speaks of castles, and heathen temples, and burying-places, and upright stones, 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, Orcnies, Shetland, and the north of Scotland: others seem to me the various Scandinavian antiquities, admirably exemplified in Baron Dahlberg's Suecia Antiqua et Moderna.

The species of quadrupeds of this island are very few. Small horses of a hardy kind; cows in great abundance, and moost hornless, the flech 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, Arch. Zool. N° 4. 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 provifion.

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 Myx, is common in the bushes. I suspect that there is a native species, allied, as Doctor Pallis imagines, to the Economic, Arch. Zool. p. 134, A.; 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

* Monfaucon Monum. de la Monarchie Fr. ii. tab. xiii.
† Voy. Hebrides.
‡ Confer.
Olausen. ii. 234. and Amoen. Acad. iv. 151.

berries
ICELAND.

The berries are thorny, and little animals are obliged to seek for a place to make their nests. In their return, the birds to their magazines, they are obliged to repair the prizes; of which Mr. Ogyey gives the following account —

"If I no longer hesitate to credit the relation of the Common, Fox, A. Z. F. 11, and the Arctic, No. 19, frequent tales in the country, which, in the case of similar accuracy, make as much of our books, as their dilapidated forms."

The party, which consists of four men, clads itself in their clothing, and after launching their small boat, they take their position on the deck, then, by the aid of dried cows-dung, on which they place the boats in a heap in the middle, and then, by their united forces, bring it to the water's edge, and after launching it, embark, and place themselves round the deck, with their heads joined in, and their backs to the water, their tails pendulous in the wind, letting the purgation of the vessel."

When I consider the wonderful facility of the vessel, and the management of the sail, which, in the case of similar accuracy, make as much of our books, as their dilapidated forms...

The Foxes, A. Z. F. 11, and the Arctic, No. 19, are frequent tales in the country, which, in the case of similar accuracy, make as much of our books, as their dilapidated forms.
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 superstitition 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, No 77,
or Vade-Selur. These quit the seas of Iceland in March, and swim through the
frights 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 Christ-
mas, chiefly upon the drift-ice, on which they are either shot, or harpooned.
The Hooded Seal, No 76, or Bladru Seal, is rarely taken here. The Walrus,
No 71, or Roft-unger, is sometimes waited here from Greenland on the ice.

It cannot be expected, that many of the feathered tribe should inhabit an
island so very subject to 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 return
here than to the untrouled wales of the more distant north. The Gulland
Duck, p. 572. E. may possibly be a local bird. The rel, whether land or water,
are common to Norway, and many other parts of Europe. The Great Auk,
No 428, 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 Reknes,
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

* Sea Eagle, No 57. Raven, - - No 144. Lofter Field-Lark, - p. 325.
Gyr Falcon, - 221, F. Starling, - - p. 331, A. Wheat-carr, - - 430.
Short-eard Owl? No 116. 

† Clafen, ii. tab. xlv, gives the figure of an Owl resembling his species.
feet, and forty-three with webbed feet, natives or frequenters of the ifland. I have omitted, in the Zoologic part, the Lesser Guillemer, Br. Zool. ii. No. 235, which is a native of Iceland, and called there Ringuia. It ought to have had a place in an appendage to the Guillemer, p. 517.

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

**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 the rongs._

_Thus in days of yore the fang,_

_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 the 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,_

_Throstling 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 fate 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 affright me more;_ R. W.

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

* Island. Landnamabok, 172.  † Barthesius de Canis contempta Mortis, &c. 429.  † Mal- ke's Northern antiq. ii. 132.  The
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 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.

The bays, especially those of the south, which lie under the influence of the cold of Greenland, are annually frozen over; that of Patrikford 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 Greenland and Spitzbergen, and often fills, during the whole summer, the freight 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 mountaneous ice, called Fial-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 flunted 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 fish 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 prohibited. In 1767, two hundred Dutch, and 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 cap-

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§ Trailli, 48, 49. ¶ Kerguelin, 20, 175.
ICELAND.

ture 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 Breder-swick, and extends round the North Cape, by the isle of Grim, to the point of Langenefs.

The Englfs have entirely deserted this fishery since they have been 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 Englfs parlement enforced this order, by making it penal for any of our subjects to trade in the Danish ports, except in North Eren 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 Englijfman 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 injustice 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 Chriftian 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 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 fitter Anne. I observe, that the Danish prince excepts the port of Weftmonny, it being reserved for the peculiar supply of the royal court §.

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 flave 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

* Rymer's Fland. iv. 322. † Ibid. xvi. 443. ‡ Ibid. xv. 443. § Gambbo's Life of Queen Elizabeth, in the Complete Hiji. of England, ii. 530.
FLANDERS AND HOLLAND.

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. This is the most northern place in which the Herring is seen: they are not found in the shallow water of Spitsbergen; 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 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 strights 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; Hellegeland, off the mouths of the Elbe and Weser; and Robitus, and Harthol, 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 they may be to mariners, are the security of Holland, in particular, from naval invasions. 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 Helvesthys 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 ex-

* Lord Mulgrave's Voy. towards the North Pole. † Yarranton's England's Improvement, 45.
ceed 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.

Flanders and Brabant formed part of the Gallia Belgica of Cæsar; and Holland
the Batavorum Insula. The rivers are the Scaldis, Mefa, and Rhenus, the modern
Scheld, Maese, and Rhine. The two first probably do not vary greatly in their dis-
charge 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-froom, 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 Wijer. The
Dutch historians date this accident in 1421: it seems to have been the operation
of a length of time; for the paffage 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 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 Arcmax 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 forefathers. 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 popula-
tion 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 los of men occasioned by distant voyages, and by the most wholesome
colonies in the East and West Indies. Holland is, from its climate, unfavorable to
the increase of mankind: it cannot depend on itself for the reparation of the los
of people, but musi 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

* Andersen’s Dict. i. 225.
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 fort 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 Weser, and the Elbe, the antient Amisia, Vifurgis, and Albis.

Opposite to the mouth of the effuary of the Weser and the Elbe, is the remnant of the Infula, 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 vehiculum vesfe contefsum, attingere uni facerdoti confessum. Is adeffé penetrali Deam intelligit, vestitamque bubas feminis multa cum veneratione profequitur. Latif tune dies, fojla loca, quacunque adventu hospitioque dignatur. Non bella incunt, non amra fumunt, claftam omne ferrum. Pax et quies tune tantum nota, tune tantum amata. Donec idem facerdos fatiadam converfionem mortalium Deam templo reddat. Max vehiculum et vesfes, et ficerere velis, numen ipsum, secreto lacu abluiur. Servi miniftant, quos flatum idem laus bawit. Arcanus hinc terror, sanctiique ignaranm, quid fi illud quod tantum peritius vidit. The worship was continued very long after that period, and the island was distinguished by the name of Fjolaland, Fjofra, Infula Sacra, or Heilgeland, or the Holy isle, from the sacrifices made there to the goddes Fjofla, or Fjofla, the fame with Vejla, Herthum, or the Earth. She was called by the Scandinavians, Goya. The victims to her were precipitated into a pit: if they funk 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 goddes, by people of high rank. Radhunus 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 1800 and 1649, was reduced to its present contemptible size. The great island of Nordstrandt (one of the Insulae Saxenum) not remote from this, in 1634 was reduced, by the fame caufe, from twenty parifhes to one: fifty thousand head of cattle, and between fix and seven thousand souls, were swept away. Such are the calamities to which these low countries are liable.


Holland
Jutland and Holstein, the antient Cimbrica Chereinesius *, and Caravis 4, terminating in the low point called the Skagen, or Scaw, stretches out in form of a peninsula, bounded by the North sea and the Kattegatte, the oblique approach into the Baltic. It is a very narrow tract, and only the resting-place of birds in their way from Scandiaucia, 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 prefix 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 Marcus, in 101 before Christ. Their army was composed 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 Chereinesius, to apply to the 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 Jutis-riff, and the neighboring sand-banks. The first might have been the continuation of land from the end of Jutland, beginning at the Scaw, 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 Kattegatte lies between part of Jutland and the coast of Sweden: the last covered with islands 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. These islands were of old called Codanania §, 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 Mare Sarmaticum, and part of the Mare Scythicum. As a na-

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naturalist, I must mention, that when Linnæus speaks of the _Mare Occidentale_, he intends the _Kattegatte_. 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.

The _Roman fleet_, under the command of _Germanicus_, failed, according to Pliny, round _Germany_, and even doubled the _Cimbrium Promontorium_, and arrived at the islands which fill the bottom of the _Kattegatte_*: either by observation or information, the _Romans_ were acquainted with twenty-three. One they called _Gleffaria_, 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 _Krivikke_, in _Schonen_ in _Sweden_, of _Hadrian_, _Antoninus Pius_, _Commodus_, and _Albinus_. Among the islands, Pliny makes _Norway_ one, under the name of _Scandinavia incomperta magnitudinis_, and _Baltia_ another, _immensae magnitudinis_, probably part of the same, and which might give name to the Sounds called the _Belt_, and to the _Baltic_ itself. The geographer _Mela_ had the juiciest information of this great water, which he describes with great elegance, "Hac re mare (Codanus sinus) quod gramos litorum accipitur, nunquam late patet, nec usquam maris stipulat, mile verum aquis passim interfrentibus ac sepe transgressis vagum atque diffusum facie annium spargitur, qua litora attingit, ripis contentum insularum nee longe dis tantibus, et ubique pane tantundem, it augmentum et par freto curvansque se subinde, longo supercilio inflexum est." The different nations which inhabited its coasts shall hereafter be mentioned.

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 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 _Linde_, sixty. It has in this course many sand-banks, but all in great depths of water. Between _Alands Hoff_, amidst the great archipelago, the _Aland_ isles, and the isle of _Ofel_ 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.

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* Plin. lib. ii. c. 67. lib. iv. c. 13. † Lib. xxxvii. c. 3. ‡ Foroennius de Monum. Kivikenfe. p. 27. § Ruffius and other charts.

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**THE BALTIC.**

Voyage of the Roman Fleet.

**THE BALTIC A GULPH.**

**DEPT**

**h 2**
THE BALTIC.

No tides. 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, Linnaeus enumerates but three fuci*, plants of the sea: in the gulph of Bothnia, which is beyond the reach of salt water, not one †.

Not salt. The fewness of species of fish in the Baltic is another difference between it and a genuine sea. I can enumerate only nineteen † which are found in this vast extent of water: and may add one cetaceous fish, the Porpèffe. No others venture beyond the narrow freight which divide the Baltic from the Kattegatte; yet the great Swediʃ Faujiʃ reckons eighty-seven belonging to his country, which is wafted 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 report of Christian ships to fish off the isle of Rugen, the seat of the antient Rugii, insomuch that the Danes cloathed themselves with scarlet and purple, and fine linen.

The Hornfimpa, or Cottus Quadricornis, Faun. Succ. No 321, and the Syngnathus Typhle, or Blind Pipe-fish, No 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 Helsinger, where it properly begins, to Cronfjalt, 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

Few species of fish. The length and breadth of the Baltic, of the Gulf of Bothnia.

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<td>Porpèffe</td>
<td>Striated Cod-fish,</td>
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<td>Sea Lamprey</td>
<td>Viviparous Blenny,</td>
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<td>Sturgeon</td>
<td>Bearded Ophidion,</td>
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<td>Lance</td>
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<td>Sword-fish</td>
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I find that the Ajinus Callarias is common to the Baltic and our seas, therefore must be added to the list of British fish.

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   *annium* *sagittarum* qua *littera* *attigit*, *ripis contentum insularum* non *longe dissipatis*
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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 Rugen, the course of the Baltic is strait and open, except where interrupted by the famous isle of Gotland, the place of rendezvous from whence the Goths made their naval excursions. In 811, on this island, was founded the famous town of Wifby, 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, Waldermar 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 Stockholme 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 fireweld over with detached masses of the same. Its greatest breadth is between Gofie and Abo, in Finland, where it measures a hundred and sixty-two miles: its greatest depth a hundred and ninety-five yards†. It terminates in 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 reigned, betwixt 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 Waldermar 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 towns 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

*L. H. Abregé de Nord. i. 206. † Prof. Ritzius of Lund. § Ph. Tr. Abr. vii. part iv.

Houfe
RUSSIAN EMPIRE.

House of Peasants in the national diet *. But these were at all times the most cultivated of this disinclined race. They trained the Rein-deer to the fledge, domesticated it from its wild state, and made it the substitute for the Cow.

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 from the disturbance of mankind. LINNÆUS, the great explorer of these deserts, my venerable example! mentions them as exceeding in numbers the armies of Xerxes; re-migrating, with him, in autumn, eight entire days and nights, to seek sufficiency 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 Stickel-back, Br. Zool. iii. No 130; Salmon, No 143, in great abundance, which force their way to the very heads of the furious rivers of Tornea and Kiimi, to deposit their spawn; Char, No 149, are found in the lakes in great abundance; and Graylings, No 150, in the rivers; Gwiniads, No 152, are taken of eight or ten pounds weight; Pikes, No 153, sometimes eight feet long; and Perch, No 124, of an incredible size §; and the Salmo Albula, Faun. Suec. No 353, closes the list of those of the Lapland lakes and rivers.

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 rockinefs, and with all the other aspects as if torn from the continent by some mighty convulsion. 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. Füland and Carelia are the bounds of the gulph on this side: Livonia, the granary of the north, and Ingrisa, on the other. 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 Cronfjodt, the great naval arsenal of Russia. From thence is twelve miles of shallow water to Petersburg, 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. Peter was formed with a singular mixture of

‖ Ptolomy.
RUSSIAN EMPIRE.

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 Russ ions. Peter hewed his work into shape: for the last polish, Heaven formed another Cat hel inne, 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 Zemlia, 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 shortes breadth, from the coast of the Frozen ocean, at the extremity of the country of the Tcherkess, lat. 73, to the mouth of the Aimakan, in the gulf of Ochetz, in lat. 54. Its length is still more prodigious, from Peterburgh as far as the Asiatic side of the freights of Bering.

In the following work, I have, by the assistance of that celebrated naturalist Doctor Pall as, 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, as low as 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 Peterburgh, 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. It has encouraged above a hundred Bani ans, all males, from Multan, to settle at A frak an; and their number is kept up by a supply of young unmarried relations from home. These support the most important trade of Afrakan, by carrying through Afrak abad to the inland parts of the Mogul empire. I dre 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 Bcbara and Samarcand to the northern cities of India, Candahar and Cabul.
FINLAND.

SARMATAE. In my return to the German sea, let me review the antient inhabitants of the Baltic. The wandering Sarmatae, of Scythian descent, possested all the country from lake Onea to the Viñula; 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 shine in the night, and often proved the guide to the bewildered traveller. The resplendent plumage of the Strix Nyctea, the Snowy Owl, N° 121, 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 savagenesfs and squalid poverty; who lived by the chase, headed their arrows with bones, cloathed 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. There is no certainty respecting the Oone; illanders, 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 Sarmatae. We may add, that the Hippopodes 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 Hippopodes were certainly the same sort of people as the Finni Lignipedes of Olaus, and the Skride Finnis of Othboer. They wore snow-shoes, which might fairly give the idea of their being, like horses, hoofed and fhad. 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 immatum, which, with part of the Hyperborean ocean, really insuflated Scandinavia, and which he places beyond the Suiones, or modern Sweden. Pliny gives, I suppose from the relation of Bresl or other voyagers, to part of this sea, probably the most northern, the title of Merimarus, or Dead Sea, and Crownm. The learned Forster, with great ingenuity, derives the word from the Gaelic and Celtic language. The first, from the Welsh, mór, sea, and marwy, dead; the other from the Irish, muir-croinin, the conulated, i.e. congealed sea. Tacitus adds to his account, that it was believed to encir-

* Cesar Bell. Gall. lib. iv. Plin. lib. viii. c. 15. † Seinus, c. 32. Plin. x. c. 47. |


cle
Antient Streights.

...cle the whole globe, and that the last light of the setting sun continued so very vivid as to obscure the flares 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*. The flares are frequently lost in the amazing splendor and various colors of the aurora borealis. The Hillevines, an antient people of Sweden, styled Scandinaevia, alterum orbe terrarum, and their descendants, long carolled the junction of the Bothnian gulph with the northern ocean, traditionally rehearsed in old Swedish songs. Tacitus uses the two last words to express the world surrounded 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 says, "Quae Sarmatis adversa sunt, ob alternos accessus recurvusque pelagi, et quod "spatia quies diftant, modò operiuntur undis, modò nuda sunt; alia insulae "videntur, alia una et continens terra." With propriety, therefore, in another place, does he compare it to a freight, par frets, 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 mafs. Parts of the channel which formed the infillation of Scandinaevia, are the chain of lakes, from that of Ladoga to the White Sea, such as Onego, and others, often connected by rivers, and lying in a low country, filled with the proofs above-mentioned. This was the freight 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 could be no obstacle to the flocking of Scandinaevia with quadrupeds. There is no fixing the period in which this passage was obstructed. An influx of sand, 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 Pitheca, the gulph of Bothnia 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

* Forster's Obs. 80.
force of fancy, give full credit to the insufflated form of Scandinavia, given in one of Cluverius’s maps; which, he says, is drawn from the erroneous accounts of the ancients.

The Suiones polisied the modern Sweden, and extended even to the ocean, and were a potent naval power. Their ships were so constructed, with provs 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 Suethons, and were famous for their cavalry. In their time, the Sable, No 30, was common in their country: Jornandes, therefore, observes, that notwithstanding they lived poorly, they were most richly cloathed: 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, a native of the country, 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 Bohusland, Swedish provinces, bounded by the Kattegatte. 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 promontory of the Naze, visible at eight or ten leagues distance, with the low land of Beugenbergen in Jutland, forms the entrance into the German sea. The Bonmel, and the Drummel, high mountains to the east of it; and the high land of Left, 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 Thule. He speaks also of Berges, which, from agreement of sound, is thought to be the present province of Bergen. The promontorium Rubecas is guessed to be the North Cape, between which and the Cimbr, Philamon places the Mare Merimarus, or the Dead Sea, so called from the clouded sky that usually reigned there.

Our first certain knowledge of the inhabitants of this country, was from the desolation they brought on the southern nations by their piratical invasions.

* At the end of his second vol. of Germania Antiqua. † Jornandes de Reb. Geticis, c. iii. ‡ The same, c. iv. § As quoted by Pliny, lib. iv. c. 15.
Their country had, before that period, the name of Nortmannland, 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 Blaatond consisted of seven hundred*. A hundred thousand of these savages have at once sallied from Scandinavia, so justly styled Officina Gentium, aut certè 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 peoples 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 1000 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 millionaries, 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 stipulated 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 extends above fifteen hundred miles in length, and exhibits a most wonderful appearance of coast. It runs due north to Cape Staff, the

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* Mallet's Introd. i. 257.  
† Fornander, c. 4.
western point of Soundnor, then winds’ north-east to its extremity at the North Cape. High and precipitous rocks compose the front, with a sea generally from one to 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. c. deep courses, from fifty to a hundred fathoms broad, and of the disproportionate 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.

Millions of islands, large and small, skerries, or rocks, follow the greatest part of this wondrous coast. The islands are rude and mountainous, and so far correspondent to the Alps of the opposite continent. Those of Loeffert, on the north side of the dreadful whirlpool Maelstrom, engraved by Le Bruyn, give a full idea of the nature of the coasts ‡. 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 flock of cattle; the rest rise in columns of grotesque forms. On the outside of these natural counter-carps, are multitudes of haubroe, or sea-breakers, longitudinal banks of sand, running north and south, from the distance of four to fifteen leagues from the continent, and from ten to fifteen fathoms below the surface of the water; the haunts of myriads of useful fish.

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.

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 mafts 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 stream in fit places. To them the owners of the timber reft; 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 Furt, our Scotch Pine, and the Pinus Sylvestris of Linnæus. It grows in the driest places, and attains the vall age of four hundred years †; and is of universal use in the northern world. Such trees as are not defigned for mafts are squared, and arrive in England under the name of Balk: the rest are fawed 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 deprefled 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 thefe shores, thofe of Feroe, and the Orknies, from Jamaica and other neighboring parts ‡. We must have recourse to a caufe 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 from 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 ftre of back- ward along the shore from the mouth of the Mississippi to Cape Florida; doubles that cape in the narrow fte, between it and Cuba, and from Cape Florida to Cape Cannaveral runs nearly north, at the distance of from five to leven leagues from shore, and extends in breadth from fifteen to eighteen leagues. There are regular foundings from the land to the edge of the fream, where the depth is generally seventy fathoms; after that no bottom can be found. The foundings off Cape Cannaveral are very fteep and uncertain, as the water fhalows fo quick, that from forty fathoms it will immediately feffen to fifteen, and from that to four, or lefs; fo that, without great care, a ship may be in a few minutes on fhore. It must be obferved, that, notwithstanding the gulph-stream in general

* Pontoppidan, i. 93. tab. vii. † Ann. Acad. iv. ‡ Voy. Hebrides.
GULPH-STREAME.

is said to begin where foundings end, yet its influence extends several leagues within the foundings; 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 foundings 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 Canaveral to Cape Hatteras the foundings 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 foundings 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 failing 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 it, 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 the outside of the stream is a strong eddy or contrary current towards the ocean; and on the inshore, 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 current 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 freights of Belleisle, and sweeping past Cape Breton, runs obliquely against the gulf-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 con-

1 frequently
N O R W A Y.

Nepenthe 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 gulf of Mexico, may be first brought by the stream out of the gulf, enveloped in the fargaffo or alga of the gulf 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 mast of the Tilbury man of war, burnt at Jamaica, was thus 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 Atamahba, Santee, and Rousek, and all the rivers which flow into the Chesapeake, 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 wafted from Norway.

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 amufement. 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 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 Kollen rock at the extremity of Finnmark. It enters Norway in the diocede of Drothheim, bends westward towards the sea, and terminates at a vast precipice, I think, the Heireofs, about three Norwegian miles from Lifter. Another branch of this mountain divides Norway from Sweden, fills Lapland, and rises into

Mountains.

Metals.

* For this curious account, I am indebted to Doctor Garden, who, by his long residence in Charles-town, is extremely well acquainted with the subject.
† Troille's Voyage to Iceland, 47. † Doctor Garden.
‡ Pontoppidan, i. 179. Museum Regnum Harwicens, pars ii. feâ. 7. tab. xx. N° 18.—With more truth, perhaps, our version has it, out of the north comitb GOLD.
the distinguished summits of Horrikalero, Avofaxa, 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 ancient name of this chain was Sve mons, to this day retained in the modern name Seveberg. Pliny compares it to the Riphean 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. Among the defiderata of these days, is a tour into these 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 ells 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. Breugelius, are extremely exaggerated §. They are by no means to be compared with those of the Helvetic 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 mountains from the north towards the equatorial countries. M. Ascanius, professor of mineralogy at Drontheim, assures me, that from some late surveys, the highest in that diocese are not above 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 Talle in Bergen. They rise slowly, and do not strike the eye like Romsdale-born, and Hornalen, which soar majestically from the sea. In Sweden, only one mountain has been properly measured to the sea. Professor Ritzius of Lund, acquaints me, that Kinnuckle in Wesfo-Gothia is only eight hundred and fifteen English feet above.

* Sve mons ibi immenitus, nec Ripheus jugis minor, immanem ad Cimbrium usque promontorium efficat sinum, qui Calanus vocatur. Lib. iv. c. 13.
† Pontoppidan, i. 46. tab. iii.
‡ The same, i. 47. tab. iii. Of two Danish feet each.

above
above the lake Wetern, 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: Aorfskata, a solitary mountain of Jamtland, about four or five Swedish miles from the highest Alps, which separate Norway and Sweden, is laid to be fix thousand one hundred and sixty-two English feet above the nearest rivers: Svencufet, within the borders of Norway, four thousand six hundred and fifty-eight above lake Famsund; and that lake is thought to be two or three thousand above the sea: and finally, Syffallen, on the borders of Jamtland, is three thousand one hundred and thirty-two feet perpendicular, from the height to the base. Pontoppidan gives the mountains of Norway the height of three thousand fathoms: Brovallius thofe of Sweden two thousand three hundred and thirty-three, which makes them nearly equal to the highest Alps of Savoy, or the fill higher summits of the Peruvian Andes.

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 Fjell-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, deftitute of every vegetable, except where it is mixed with fragments of rock, on which appear the Saxifrages of several kinds; Diogenes Lapponica, Fl. Lapp. N° 88; Azalea Procumbens, N° 90; the Andromeda Caerulea, N° 164; and Hypnoides, N° 165, thinly scattered. Lower down are vast woods of Birch, N° 341, a tree of equal ufe to the Laplanders, and the northern Indians of America. On the lower Alps around the Rein-deer Lichen, N° 437, the support of their only cattle; the Dwarf Birch, N° 342, the feeds of which are the food of the White Grous beneath the snow, during the long and rigorous winter; the Arbutus Alpina, N° 161; and Arbutus Uva Ursus, N° 162; and, finally, the Empetrum Nigrum, or Black Heath Berries, used by the Laplanders in their ambrosial dish the Kappfjulnas.

The Scotch Pine, N° 346, and Norway Fir, N° 347, form the immense forests of Lapland, associated with the Birch: the Pine affeets the dry, the Fir the wet places, and grow to a vast size; but, being inaccesible, are loft to the great ufe of mankind. On their northern sides they are almost naked, and deprived of boughs by the piercing winds; the wandering Laplander remarks this, and ues it as a compafs to fler by, amidst these wilds of wood. Whole tracks are oft-times fired by lightning; then prolifrated by the next ftrain. The natives make, of the under part of the wood (which acquires vast hardness by length of time) their snow-shoes; and

* Fl. Lapp. p. 103.
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 inclined 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 fo great. It may be remarked, that out of the three hundred and seventy-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.

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, N° 3 of this Work, is found in many parts: the Rein, Godde, N° 4, is confined to the chilliest places: the Wolf, Kumpf, N° 9, is a pest to the whole: the Arctic Fox, Njat, N° 10, skirts the shores of all the northern regions: the Crofs Fox, Rauder, N° 11. 3., and the Black Fox, N° 11. a. is scattered every where: the Lynx, Albos *, N° 15, inhabits the thickest woods: the Bear, Gnouzbia, N° 20, and Glutton, Gjeed'k, N° 21, have the same haunts: the Sable, N° 30, which continued in Lapland till the middle of the last century, is now extinct: the Lesier Otter, or Mank, of the Sweden, is confined to Finland: the Beaver, Majag, N° 90, is still found in an unfociable state in several parts: the flying Squirrel, p. 124, the Otawa of the Finlanders, is found in their forests †, and those of Lapland: the Lemmus, Lumenik, p. 156, is at seasons the pest of Norway, issuing like a torrent from the Kolen chain: The Walrus, Morfb, N° 71, is sometimes found in the Finmark seas: the Harp Seal, Dajja, N° 77, the Rough Seal, N° 74, the Hooded, Oandi, N° 76, and the Little Seal, Hjfl. Quadr. i. N° 386, omitted by me in this Work, inhabit

* I have no proof of this but the name. The Lynx inhabits Norway and Sweden, and all the woody parts of Siberia; a circumstance I omitted in p. 50, of this Work. I scarcely know whether I should apologize for the omission of the Fitchet, Hjfl. Quadr. i. N° 195; the Mufela Putorius, N° 16, Fauz, Sure. LINNEUS speaks with uncertainty of its being found in Scania, and that is a latitude rather too far south for my plan.

† See Mr. Gabriel Bonfode's account of the animals of Finland, p. 24,
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, Ruofjok, N° 11; Pine Martin, Nette, N° 27; Ermine, Boodad †; N° 26; Weefel, Sebho, N° 25; Otter, Zbievare, N° 34; Varying Hare, Njaumel, N° 37; Common Squirrel, Orre, p. 122. A; Moue, N° 60; Field Moue, N° 61; Water Rat, N° 59; and the Shrew, Vandes and Ziebak, N° 67, are seen as high as Finmark: the Common Seal, Nuarroft, N° 72, and the Great Seal, N° 73, 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 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, Br. Zool. N° 7; the Harvest Moue, N° 29; the Water Shrew, N° 33; nor yet the Brown Rat, N° 57, 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, p. 222. G; the Scandinavian Owl, p. 237; Rock Crow, p. 252. F; Roller, p. 253; Black Woodpecker, p. 276; Grey-headed, p. 277; Three-toed, N° 168; the Rehusak Grous, p. 316. B; and the Hazel Grous, p. 316. F. The Ortolan, p. 367. D; the Arctic Finch, p. 379. A.; and the Lutef F. p. 380. B. The Grey Redstart Warbler, p. 417. C; the Blue Throat W. p. 417. E; Bogruf W. p. 419. I; Fig-eater, 419. K; and Kruke W. p. 422. U. All the cloven-footed water-fowl, except the Spoon-bill, p. 441. A; the Crane, p. 453. A; White and Black Storks, p. 455, 456. C. D; Finmark Snipe, p. 471. D; Striaded Sandpiper, N° 383; Selinger, p. 480. C; Waved, p. 481. E; Shore, p. 481. F; Wood, p. 482. G; Alwagrim Plover, N° 398; and Alexandriares, p. 488. B. And all the web-footed kinds, except the Harlequin Duck, N° 490, and Lapmark, p. 576. M. 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.

* Consult Leems Lapm. 214, 215, 216. Also for the Moue, &c. which want the Lapland names.
† Leems, 220.
‡ It is a native of the East Indies. See Hist. Quad. ii. N° 44.
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. Infinite numbers of rare Vermes, Shells, Lithophytes, and Zoophytes, are found there, several of which, before their discovery by Bishop Pontoppidan, were the supposed inhabitants of only the more remote seas. Among the fishes which have hitherto stunned our shores, are the Raia Clavata, Muller, No 309; Squalus Spinax, 312 &; Sq. Centrina, 313, which extends to the Mediterranean; Chimera Monstrosa, 320, a most singular fish; Syngnathus Typhlos, and Aequoreus, 324, 328; the Regalecus Glesus, 335, Acan. Icon. tab. xi.; Gadus Brotum, 341; G. Dyspterinus, or Byrde-lange, 346; Blennius Ranimus, & Fusus, 359, 360; Echeneis Remora, 361; Coryphena Novaacula, & Rupeltris, 362, 363; Gobius Fusus, 365; Pleuronectes Cynoglossus, Limanda, & Linguatula, 372, 375, 377; Sparus Erythrinus, 380; Labrus Szillus, 381; Pecten Norwegicus, and Lucis-perca, 390, 391; Scophus Pelagicus, 398; Silurus Astus, 404; Clopea Villofus, 425.

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 flaps 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 infinity, wait its coming. The fishermen poit themselves on some high cliff, impatiently waiting for the cetaceous fish, the harbingers of the others. They look for them at the moon Torrs, or the first new one after Christmas, and the moon Gie, 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 much nearer to the shore; after which arrive the Summer Herring, which almost literally fill every creek: the whole fishery is of immense profit. From January to October,

* See the Plates in Pontoppidan's Hist. Norway.
† In the British Zoology, iii. No 40, the trivial Spinax is inferred instead of Acanthius.
OF THE SALMON.

1752, were exported, from Bergen alone, eleven thousand and thirteen lafts; 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.

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 acts, which are let 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 tons, of four bushels each, of French and Spanish salt, are annually imported into Bergen for that purpose only.

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.

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

The préfecture of Nordland, is the farthest part of the kingdom of Norway. In it is the district of Helgeland, remarkable for that uncommon genius, Ofther, or Ofthers, who, in a frozen climate, and so early as the ninth century, did show a passion for discovery, equal perhaps with that of the present. His country was at that time the last in the north which had the least 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 failed due north, and left, on his starboard side, a waste, the present Finmark, occasionally frequented by the Finnas, or wandering Laplanders, for the sake of fishing and fowling. He went as far as the Whale-fishers usually ventured: a proof that the men of Norway practiced 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 lost for centuries after the days of Ofther. He mentioned the Seride Finnas, who lived to the north-west of the
Norwegians
A Fine Race.

Longevity.

the Given 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: we therefore must suppose those
Beormas to have been Russians. Other says, that in this sea he met with Horfe-
Whales (Wabrus) 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 *.

I must not leave Norway without notice of its chief of animals, Man. Scandi-
navia, 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 coun-
tryman, 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 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 diocefe of
Cbroflana, 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 sightingly call their fellow-subjects, the
the Danes, fates ‡. The Danes tacitly acknowledge the superiority, by componing
almost their whole army out of these descendants of the all-conquering Normans.

I shall here supply an omission in my account of the Scandinavian antiquities,
p. xxxvi. by mentioning the famous tomb, about seven Swedish yards long and two
broad, found at Kivike, a parifh of Schonen in Sweden, in the centre of a vaft tumu-
lus of round flones. It was oblong, and consisted of several flat stones, the infide
of which is carved with figures of men and animals, and the weapons of the age,
axes and spears heads. A figure is placed in a triumphal car; cornets seem found-
ing: captives with their hands bound behind, guarded by armed men; and figures,
supposed to be female, form part of the conquered people. It is supposed that the
Roman fleet made an accidental descent here, had a successful skirmiffh with the
natives, might have left their leader, and left this mark of their victory amidst the

* The Translation of Orosius, by the Hon. Daines Barrington, p. 9, &c. and Hacklay, i. 4.
† Phil. Trans. vol. liv. 117.  ‡ Lord Molfworth's Account of Denmark, 25.

barbarous
barbarous conquered. The tomb had been broken open by the country people, and whatsoever it might have contained was stolen away and lost.

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, 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 ancient 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 Sie Finni, and See Lappernes.

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: thumbs spindle. From use, they run up rocks like goats, and swarm 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 pufillaminous 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.

The seas and rivers of Finmark abound with fish. The Alten of West Finmark, after a gentle course through mountains and forests, forms a noble cataract, which tumbles down an immense rock into a fine basin, the receptacle of numbers of vessels which refort here to fish or traffic for Salmon. The Tana, and the Kola of the extreme north swarm with them. In the Alten 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. These fisheries are far from recent: that on the Kola was noted above two centuries ago for the vast concourse of English and Dutch, for the sake of the fish-oil and Salmon.

The most northern fortress in the world, and of unknown antiquity, is Wardhuys.
cherie island.

Butts, situated in a good harbour, in the isle of Wardes, at the extremity of Finmark; probably built for the protection of the fishing trade, the only object it could have in this remote place.

A little farther eastward, in Muscovitish Finmark, is Azina, noted for the sad fate of that gallant gentleman, Sir Hugh Willoughby, who, in 1553, commanded the first voyage on the discovery by sea of Muscovia, by the north-east; a country at that time scarcely known to the rest of Europe. He unfortunately lost his passage, was driven by tempests into this port, where he and all his crew were found the following year frozen to death. His more fortunate confrot, Richard Chancellor, captain and pilot major, pursued his voyage, and renewed the discovery of the White Sea, or Bay of St. Nicholas; a place totally forgotten since the days of Otho. The circumstances attending his arrival, exactly resemble those of the first discoverers of America. He admired the barbarity of the Russian inhabitants: they in return were in amaze at the size of his ship: they fell down and would have killed his feet; and when they left him spread abroad the arrival of "a strange nation, of singular gentleness and courtsey." He visited in flegdes the court of Bafilswitz II. then at Mosouw, and layed the foundation of immense commerce to this country for a series of years, even to the remote and unthought-of Persia.

I shall take my departure from the extreme north of the continent of Europe, or rather from its shattered fragments, the isle of Maggarea, and other islands, which lie off the coast, in lat. 71° 33'. At the remote end of Maggarea is the North Cape, high and flat at top, or what the sailors call Table-land\. 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.

cherie island. Its first appearance above water, from this group, is at Cherie 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 unspakeable. 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 roaring of the Walrus, or the roaring of the Polar Bears.

* Hackley, i. 145. \+ See a view of these islands in Phil. Trans. vol. lic. tab. xiv. 

This
This island was probably discovered by Stephen Bennet in 1623*, employed by Alderman Cherie, 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 few 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 1626, in six hours time, seven or eight hundred; in 1608, nine hundred or a thousand in 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 English.

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

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 Greenland. 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 Foreland 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.

To the north of the great group is Moffen’s Isle, in lat. 83°, opposite to the mouth of Leifde bay. This isle is very low, and suspected to be a new creation.

* Purchas, iii. 566. † The same, pp. 560, 565. § Earrington’s Mikel. 35. 1 The same, 564. || The same, 564.
by the meeting of the streams from the great ocean, rushing 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, Seawort, and some life was found at this season in the way of an antient weather glass.


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 pipes-flaves, 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 freights, and in those of Hudson; and again on the coasts of Nova Zemija. I have only two places from whence I can derive the quantity of floating timber which appears on the coast of Nova Zemija and those 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 lengths, together with pipe-flaves, 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 tempeis to the most distant parts of the north.

* Phips, 54. † The same, 58. ‡ Purchas, iii. 527.
Let no one be staggered at the remoteness of the voyage: I have before shewn
inances, 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 Scot-
land; 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-Ea-
land: the extreme point of the most remote is in lat. 80. 42. They are all high
primeval 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 skilful seaman could make to
accomplish the end of his voyage, was caught in the ice, and was near experienc-
ing 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 water on part of the surface appeared crys-
alline 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 befell 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 roll 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 shoal-
ed 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 overcast 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

* P. 51. of this Work.
† Voy. to the Hebrides.
‡ Amoen. Acad. vii. Rario
Norvegis. 477.
§ Phips Voy. tab. iv. 
§ Same, tab. iii.
‖ See these difficult situations in tab. B. of Fr. Marten's Voy. age, and Gerard le Ver, Voy. au Nord
attempt was made to cut a paffage through the ice; after a perseverance worthy of Britons, it proved fruitlefs. The commander, at all times master of himfelf, 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 progreffively three whole days *. At length a wind sprung up, the ice separated sufficiently to yield to the pressure of the full-failed ships, which, after laboring againft the refifling fields of ice †, arrived on the 10th of Auguft 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 feafon, to meet with one of thofe amazing fhoals of ice which cover, at times, thofe seas, for multitudes of leagues. He made the fullleft trial, from long. 2 to 21 eait, and from about lat. 80. 40, as low as about 78. 30, oppofed by a face of ice without the leaft opening, and with all the appearance of a solid wall. It is well known, that the coafs of Sikiria are, after a northern tempeft, rendered inacceffible for a vaft extent, by the polar ice being fet in motion. It is as well known, that a strong southern wind will again drive them to their former feats, and make the shores of the Frozen ocean as clear as the equatorial seas. A farther discovery on this fide was denied to the noble navigator. His misfortune will for ever redound to his honor, as it proved his spirit, his perseverance, and a foul fertile in expedients among the greatest difficulties!

That navigators have gone into higher latitudes I cannot deny: the authenticated inftances only fhow 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 Thithaghef, within thofe very few years, made an attempt to fail to the pole by the easterne fide of Spitzbergen; but after suffering great hardships, returned without effecting any discovery. Curiosity has been amply fatisfied: and I believe we may reft fully content with the common paffage to India, on the conviction of this tract being totally impracticable.

The forms assumed by the ice in this chilling climate, are extremely pleafing to even the moft incurious eye. The surface of that which is concealed from the fea-water (for I must allow it two origins) is flat and even, hard, opake, refeembling white sugar, and incapable of being flid on, like the Britifh ice ‡. The greater pieces, or fields, are many leagues in length: the leffer, are the meadows

* Phipps Voy. tab. v.  
† Same, tab. vi.  
‡ Crantz. i. 31.
of the Seals, on which those animals at times frolic by hundreds. The motion of
the lefser pieces is as rapid as the currents: the greater, which are sometimes two
hundred leagues long, and fixty or eighty broad *, move slow and majestically; often
fix for a time, immoveable 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 lefser (if the term can be applied to 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, re-
ceive continual growth; others are gradually wafted by the northern winds into
southern latitudes, and melt by degrees, by the heat of the sun, till they wafte 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 fene of hearing any thing elfe; and the lefser
with a grinding of unfepeakable horror.

The water which daifes against the mountanous ice freezes into an infinite
variety of forms; and gives the voyager ideal towns, streets, churches, fleeples,
and every shape which imagination can frame ‡‡.

The Icebergs, or Glacieres of the north-east of Spitzbergen, are among the cap-
pital wonders of the country; they are feven in number, but at considerable
diffances from each other: each fills the vallies for tracts unknown, in a region
totally inacceffible in the internal parts. The glacieres of Switzerland feem con-
temptible to these; but present often a fimilar front into fome lower valley. The
lafh 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 fpir-
ing mountains, freaked with white, bound the fides, and rife 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 moft
alarming dashing. A piece of this vivid green funftance has fallen, and grounded
in twenty-four fathoms water, and spired above the surface fifty feet **. Simi-

* Crantz, i. 31. † Piips, 72. ‡ Ellis's Voy. 127. || Marten, 37. 
* Crantz, i. 31. ‡ See the beautiful plate in Piips's Voy, tab, vii. ** Piips, p. 70.
lar icebergs are frequent in all the Arctic regions; and to their lapses is owing the solid mountaneous ice which infests those seas.

Frofl sports also with these icebergs, and gives them majestic as well as other most singular forms. Maffles 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 crytal of the richest fapphire blue: tables with one or more feet; and often immense flat-roofig temples, like those of Luxtor on the Nile, supported by round transparent columns of celestian 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 small and hard as the finest sand ‡; changes its form to that of an hexagonal shield, into the shape of needles, crofes, cinquefoils, and flars, plain and with ferrated rays. Their forms depend on the disposition of the atmosphere; and in calm weather it coalefces, and falls in clusters §.

Seasons.
Thunder and lightning are unknown here. The air in summer is generally clear; but the sky is laden 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 Zemljia **. Such also is the case in Nova Zemljia **. 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 sngle 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 cheerful light grows strong: the Arctic Foxes leave their holes, and the sea-fowls resort in great multitudes to their breeding-places ††.


* 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. †† Relation of Eight Englishmen, &c. 817, 818, 819.
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.

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 megometer 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 Cleven 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.

Earth and soil are denied to those dreadful regions: their composition is stone, formed by the sublime hand of Almighty Power; not frizzled into fragments 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 restless 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 meltlings of the snow tinge the rocks frequently with a ferruginous ochre. A potter's clay and a gypseum are to be met with on the eastern part of the islands †.

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

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* Marten, 43.
† Voy. 71.
‡ Flints Voy. 33.
§ The same, on tab. viii.
† Narrative of Four Russian sailors, 78, 89.
SPITZBERGEN.

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 flight knowledge of the interior parts is attained. North Harbour is a scene of picturesque horror, bounded by black craggy Alpi, streaked with snow; the narrow entrance divided by an island; and at fensons affording a land-locked shelter to multitudes of ships.

Tide and Sea.

The tide at the Fgel Seng flows only four feet, and the flood appears 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 Clouen 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.

Soil.

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 affixed by the petrified lichens of the rocks, and the dung of birds, brought down by the fume means.

Even here Flora deigns to make a short visit, and feet over the bases of the hills a scanty rock. Her efforts never rise beyond a few humble herbs, which shoot, flower, and feed, in the short warm of June and July; then wither into rest till the succeeding year.—Let me here weave a flender garland from the lap of the goddess, of fuch, and perhaps all, which the hath bestowed on a country so repugnant to her bounty. Let the alabrious Scurvy Grafs, the resourse of distempered seamen, be remarked as providentially most abundant in the composition.

**SPITZBERGEN.**


It is matter of curiosîty 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:

<table>
<thead>
<tr>
<th></th>
<th>Perfect.</th>
<th>Imperfect.</th>
<th>Total.</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1,124</td>
<td>590</td>
<td>1,714</td>
</tr>
<tr>
<td>Scotland</td>
<td>804</td>
<td>428</td>
<td>1,232</td>
</tr>
<tr>
<td>The Orkneys</td>
<td>354</td>
<td>144</td>
<td>493</td>
</tr>
<tr>
<td>Sweden</td>
<td>933</td>
<td>366</td>
<td>1,299</td>
</tr>
<tr>
<td>Lapland</td>
<td>379</td>
<td>155</td>
<td>534</td>
</tr>
<tr>
<td>Iceland</td>
<td>309</td>
<td>233</td>
<td>542</td>
</tr>
</tbody>
</table>

Those of Spitzbergen are given above.

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 Reindeer 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

* Churchill, iv. 819.
purposes. In 1743, four unhappy mariners of that nation were accidentally left on shore on North-Eastland, called by the Russians Maley Brown. 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, No. 222, 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 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, No. 390, alone is seen here.

Of web-footed, the Puffin Auk, No. 427; the Razor Bill, No. 425; the Little Auk, No. 429; the Foolish Guillemot, No. 436; the Black Guillemot, No. 437; the Northern Diver, No. 439; the Ivory Gull, No. 457; the Herring Gull, No. 452; the Arctic Gull, No. 459; the Kittiwake, No. 456; and the Greater Tern, No. 448: these, with the Eider Duck, No. 480, 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.

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. No. 78, and two of the unctuous Suckers, No. 58, were the whole which were taken by Lord Malgrave, after several trials by hook and by net.

* See the curious Narrative, † Churchill’s Coll. ii. 415, 427. ‡ The same, ii. 808. § The same, p. 818.
SPITZBERGEN.

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 southerly 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 fishing, 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 Fitch, Br. Zool. iii. N° 18, is another species: on their appearance, the Common Whale makes its retreat. The Beluga or White Whale, p. 183 of this Work, is seen here in summer, and prognosticates a good fishery.

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.

the *Poricella Enarinus*, Lin. Syn. No. 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 founding-line, in 236 fathom water.

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 East 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 doubtless was first discovered by the Dutch Barentsz; who, in his third voyage, in 1596, for the finding out the north-east passage, met with a land in lat. 79° ¢, and anchored in a good road, in eighteen fathom water. He afterwards sailed 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 Zemlya: but the English and Dutch pursued the hint; and the Whale-fishery, which before was chiefly carried on by the Biscayeners in 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.

I now return to the North Cape on the coast of Finmark; and after passing by the several places mentioned in pages lxxix. and lxxx. enter a freight, bounded by Muscovitish Finmark, consisting of low hills, and the flat province of Mezen, on the coast. This leads into the Beille Mari, or White Sea, or, more properly, gulph; for its waters are shallow, its bottom full of mud, brought by the great rivers which discharge themselves into it, which almost deprive it of shallowness. This was the Cwen sea of Osther; but had been forgotten since his time. The Dwina, or Double River, is the greatest, which takes its name from being formed by the Suchona and the Tyg, very remote from its mouth. It is navigable to a great distance, and brings the commodities of the interior parts of the empire to Archangel, a city seated on its banks, about six miles from the sea. It rose from a castle built there by Baslowitz II. to protect the in-

* Hacklyt, i. 274, 280.
† Trois Voyages au Nord, &c. par Girard de Ver, p. 14, 15.

creating
creasing trade brought here on the discovery of the White Sea by the English; for ships of all nations reforted 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, Petersburg, prohibited all trade to Archangel, except from the neighboring provinces. Still its exports of tar were considerable: in 1739, to the amount of forty thousand lafts, of eleven barrels each †. It sends, during winter, great quantities of the Nawaga, a small species of three-finned Cod ‡, to Petersburg, frozen, as Kola does Herrings in the same state.

The White Sea is every winter filled with ice from the Frozen ocean, which brings with it the Harp Seal, N° 77; and the Leporine, N° 75, frequent 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-infaluted state of Scandinavia. As soon as these freights 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 freight 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 confines of low sandy hills. Into the most remote bay flows, in lat. 68° 30', by many mouths, the vast river Pechora, a place of great trade before the time of Peter I. Thoufands of Samoieds and other savages reforted to the town, with feathers of White Grous, and other birds; Sables, and the most valuable furs; skins of Elks and other deer; the oil from the Walrus, N° 71, from the Beluga, p. 182; and different sort of fih§. Here was, in 1611, a great fishery of Beluga: above fifty boats, with three men each, were employed to harpoon them. The entrance into the river is dangerous, by reason of a sandy shoal. The tide rises there only four feet.

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 fledges, but are not civilized enough to

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* Anderson: Dis. i. 97. † The same, 328. ‡ Nov. Com. Petrop. xiv. 484, tab. xii. Its length does not exceed eleven inches. \[1\] Hacklyt, i. 477. § Purchas, i. 546.
URALLIAN CHAIN.

make it the substitute for the Cow. These are in fact the Hottentots of the north.

To the east of the Pecora commences the continent of

ASI A,

Which has most natural and strongly-marked limits. Here appear the Werchaurian 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 Kafan, in lat. 57. 20, runs north, and ends opposite to the Waygatz freight, and rises again in the isle of Nova Zemlya. The Russians also call this range Semenov Poias, or the Girdle of the World, from a supposition that it encircled the universe. These were the Riphei montes: Pars mundi damnata a natura rerum, et densa merfa Caligine *, of which only the southern part was known to the antients, 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 several circumstances relative to these noted hills. Tybrand Ides, who crossed them in his embassy to China, afferts 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 three or four months.

The heights of part of this chain have been taken by M. l'Abbe d'Asterroche, who, with many affurances of his accuracy, says, that the height of the mountain Kyria, near Selikamskaia, 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 Paua is much higher, being seven hundred and fifty-two toises above the sea §. From Petersfort to this chain

† In Aphatico littore primi Hyperborei, super aquilonem Ripheusique montes, sub ipso siderum cardine jacent: ubi sol non quotidié, ut nubes, sed primum verno æquinocèrio exoruit, autumnoque demum occidit; et idæo sex mensibus dies, & totidem aliis nox ufoque continua est. Terra augulta, aprica, per se fertilis. Cultores juftissimi, et diutius quam aliis mortalium & beatis vivunt. Quippe foelo temperat ore, foeto, non bella novère, non jurgia; fácris operati, maxime Apollinis: quorum primitias Delan mihi, initio per virgines fuses, deinde per populos fubinde tradentes ulterioribus; moremque eum dixi, & donec viato gentium temperatus est, fervàffile referuntur. Habitant lucos sylvosique; et ubi eos vivendi faticatas magis quam tadium cepit, hilares, redimiti fértes, femet iphi in pelagus ex certa rupe precipitati dant. Id est funus eximium est. Lib. iii. c. 5.
‡ Voyag. de la Sibérie, ii. 605.
§ Preface to Flor, Sibir. i. 54.
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 Teleskoi, the rise of the Ob; after which it retires, in order to comprehend the great rivers which form the Jenisei, and are locked up in these high mountains; finally, under the name of the Sainnes, is uninterrupted continued to the lake of Baikal*. A branch insinuates itself between the sources of the rivers Oren and Ingoda, and those of Ichikoi, accompanied with very high mountains, running without interruption to the north-east, and dividing the river of Amur, which discharges itself into the eait, in the Chinese dominions, from the river Lena and lake Baikal. Another branch stretches along the Olycra, crosses the Lena below Yakoutsk, and is continued between the two rivers Tonguska to the Jenisei, where it is lost in wooded and morally plains. The principal chain, rugged with sharp-pointed rocks, approaches and keeps near the shores of the sea of Ockhez, 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 Kamtschak, and is broken, from the cape Lopatka, into the numerous Kurile islands, and to the east forms another marine chain, in the islands which range from Kamtschak to America; most of them, as well as Kamtschak 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 Zoologic part.—To that, and the Table of Quadrupeds, I refer the peculiarities of their situations.

* Observations sur la Formation des Montagnes, par P. S. Pallas, p. 38. † Dorat Pallas.
RIVER OB.

At the northern end of the great Urallian chain, is the Waygatz freight, which cuts them from Novaja 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 Boroughs, 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 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. Barents 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 fever 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 Semides of the government of Tobolski. In the reign of the Empress Anne attempts were made to double the great cape Jamal, between the gulf of Kara and that of the Ob; one of which (in 1738) only succeeded, and that after encountering the greatest difficulties.§ Had the discovery of Sibiri depended on its approach by sea, it might have still remained unknown.

The mouth of the Ob lies in a deep bay, which opens into the Ice Sea, in lat. 73° 30'. This is the first and greatest of the Sibirian rivers: it rises from a large lake in lat. 52°, has a gentle course through eight hundred leagues of country, navigable almost to its source: is augmented by the vast river Irtish, in lat. 61°, which again receives on each bank a multitude of vast rivers in its extensive progress. Tobolski, capital of Sibiri, lies on the forks, where it takes in the Tobol. The

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* Hakluyt, i. 281. † Dodot Pallas. ‡ See this curious voyage, as related by De Verr. § Pallas. † Mr. Coxe's Russian Discoveries, 306. ¶ Gmelin Introd. F. Sib. vii. xxx. By Lezec he seems to mean a 'Verfl, of which 104½ make a degree. See exxi. and Mr. Coxe's Russian Discoveries, Introd. xiii.

5 banks
banks of the Irtysh and Ob, and other Sibirian rivers, are, in many places, covered with immense forests, growing on a soft foil; which being torn up by the refillless force of the vast fragments of ice brought down by the torrents occasioned by the melting of the snows, are conveyed into the Ice 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 fliny: 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 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 shun the waters of the Ob, and resort in vast flocks to the mouths of those rivers which rush into it from fowy countries, and in such places are taken in great abundance. This flench continues till the river is purified in the spring by the melting of the snow. The Taz, another river which empties itself into the eaf of the gulf of Ob, is liable to the same impurity.

The Jenesi next succeeds. Mr. Gmelin, as a naturalift, would consider this as the boundary between Europe and Asia. From its eafen banks every thing puts on a new appearance: a certain new and unufual vigour reigns in every thing. The mountains, which to the westward, as far as the Uralian chain, appeared only scattered, now take full possession, and are intersperfed with moft beautiful vallies. New animals, fuch as the Argali, p. 12, and Mufk, p. 34, and feveral others, begin to fhew themselves. Many European plants disappear, and others peculiar to Asia, gradually mark the alteration *. This river is fearcely inferior to the Ob. It rifes from the two rivers Ulu-kem and Beik-kem, in north lat. 51° 30', long. 111, and runs due north into the Ice Sea, forming a mouth filled with multitudes of islands: its channel for the moft part fowy or gravelly: its current ftrap: its fishes moft delicate: its banks, efpecially the eafen, mountaneous and rocky; but from the fort of Sainaen to the river Dubtches, rich, black, and cultivated. It is fed by numbers of rivers. The Tungufca, and the lower Tungufca, are the moft noted. The firt rushes, near Irkutiz, out of the great lake Baikal, under the name of the Angara, between two vall rocks, natural, but with the all appearance of being cut through by art, and tumbling over huge flones in a bed a mile wide, and for a space nearly the fame †. The collifion of the waters againft the flones is attended with a moft dreadful noise, which, with the magnificence of the fcenery, forms the moft awful approach imaginable to this fared water. A deity presides over the lake; and no one dared call it by that degrading name, for fear of incurring the penalty of the diинфect. Instead of lake, the borderers style it the Holy Sea; and its vall mountains, the Holy Mountains. St. Nicholas presides over them, and has

* Pref. Fl. Sibir, liv.  † Bell's Travels, 8vo. ed. i. 279.
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. Its depth of water is very great: its clearness perfect: free from islands, except the Olchon and Saetebia: 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. I am got eight degrees beyond my plan; but I could not refile the description of this prince of lakes.

The Angara runs nearly due north for a great way; then assumes the name of Tungusca, turns westward, and joins the Jenefei in lat. 58. The lower T tungusca rises far to the south-west, approaches very near to the Lena, and falls into the Jenefei 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 chase. Many Russians have also migrated, and settled here for the same purpose, and draw great profit from the spolts 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 Sibirian 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.

In antient times, Mangazea, or, as it was then called, Monguzsey, and Mongolmy, was feated 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 sledge, and by drawing the vessels from river to river over frequent carrying-places. These trafts were certainly Le pais presque inaccesible à cause de boisés, & 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 Jenefei, the immense promontory Taimura stretches

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* Voyage en Sibérie, i. 213.  † Same, ii. 56.  ‡ Same, 57.  § Same, and Purchas, iii. 557.  † In Bergeron's Collection, 160, 161.  3 farthest
farthest north of all this region into the Icy Sea, nearly into lat. 78. To the east of it the Chatanga, 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 encrease 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 montaneous 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. To form an idea of the size of this river, I must remark, that at Jakutsk, in lat. 61, twelve degrees from its discharge, the breadth is near three leagues; beyond this river the land contracts itself, and is bounded to the south by the gulph of Ochotsk. The rivers Jana, Indigirka, and Kolyma or Kovyma, 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 woodyless tract, which cuts off the Beaver, the Squirrels, and many other animals to whom trees are essential in their economy. 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 Kamtschatkan Sea, the remainder of the tract between it and the Icy Sea has not a single tree.

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 Jenosei, is high but not montaneous, 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, III, 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

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* Voy. en Siberie, ii. 30. † Possibly Verfs. See Voy. en Siberie, i. 407. ‡ Dejfor Pallas. § Voy. en Siberie, ii. 27, 28. ¶ Same, ii. 562.
the east, it grows mountainous, covered with stones, and full of coal. On the
summit of the chain, to the east of Simoeie Retchinsie, is an amazing bed of small
Muffels, 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 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 Tschutski, 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 Jenesei*.
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 navi-
gation: it is, in one part or other, always abundant in floating ice. During sum-
mer, 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 freights 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 Cofiac,
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 Yakutsk. The
rivers from the Jana to the Kolyma were in consequence discovered. In 1646 a
company of Russian adventurers, called Promysvleni, or Sable-hunters, made a
voyage from the Kolyma to the country of the Tschutski, 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 Deschnew, on the 25th of June, began his memo-
rable voyage, was fortunate in a season free from ice, doubled the Tschutski-nof,)
arrived near the river Olutora, south of the river Anadyr, where he suffered ship-

* Voy. en Siberie, ii. 29.
† Pallas: A colloquy of four Russian sailors cast away on
££ße Spitsbergen, 55. ‡ Forster's Obs. 81.
wreck, but escaped to enjoy the honor of his discovery. 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 Schalotrof, 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 montanous land, possibly an island. He was eight days in getting through the passage between the continent and the isle of St. Diomede, 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 Medvedkie Ostrava, or Bear Islands, was obliged to lay up his vessel in one of the mouths of the Kolma 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 piling their way up the river before it was frozen. After this he made two other attempts. In the year 1763 he passed the Pevecanoi-nofs, and got into a deep bay, called Tschavun Skaja Godba, with the isle of Sabedii at its mouth; the great Schalotrof-nofs to the east; and at its bottom the little river Tschavun, which discharges itself here out of the land of the Tschuksi, 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 affrighted 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 Tschuksi; but whether he doubled the famous cape of that name, is left uncertain. A MS. map, which Doctor Pallas favored me with, places the montanous isle before mentioned in lat. 75, opposite to the cape Schalotrof*. Thus closes all the accounts I can collect of the voyages along

* This was supposed to have been part of the continent of America; but in 1768, M. Tschitscherin, 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 defart isles, without the least appearance of land on the north; but on one they met with a fort 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.
ICY SEA.

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.

The wind which passes over the ice of this polar sea, has rendered Sibira the coldest of inhabited countries: its effects may perhaps extend much farther. At Chamnamning, in Thibet, in lat. 30° 44' (according to Major Ronnel's classical map) Mr. Bogle found, during winter, the thermometer in his room at 29° below the freezing point. In the middle of April 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 Seapays 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 Iskutfe, in lat. 62°, the soil is eternally frozen even in summer; from the depth of three feet below the surface. An inhabitant, who by the labor of two summers funk a well to the depth of ninety-one feet, loft his labor, 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 darknes, 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 infulated 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 phenomena 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 caufe 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 Sibirian rivers. The Ob, and other

* P. 323 to 329. † Phil. Trans. lxvii. 471. ‡ Pref. Flora Sib. 78. § Forster's Obs. 85, quoted from Gmelin. || Pref. Flora Sib. 73. ¶ Voy. en Sibérie, ii. 51, 52.
Siberian rivers, are visited by the Beluga Whale, the common Sturgeon, and the Sterlet or Acipenser ruthenus, Lin. Synt. 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. Synt. 501; Percus Lucioperca, 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 Crayfish 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. No. 143, is one of the scarcer kinds: the Salmo Nelea, 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: fleth white: Salmo Lavaaretus, iii. 705, or Gwiniad, Br. Zool. iii. No. 152; Salmo Albula, Lin. Synt. 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 Vimba, Lin Synt. 512: and Salmo Nafat, Pallas Itin. iii. 705 *, are extremely common in the Ob. Others shun that still river, and seek the Jenefi, and other rapid streams with stony bottoms. Such are the Salmo Lena, Pallas Itin. ii. 716†: Salmo Oxirbynchus, Lin. Synt. 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 croffes the lake, and ascends in Augufl the river Selinga, where it is taken by the inhabitants in great quantities, and is preserved for the provision of the whole people. 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. No. 150; may be added to the fish of the Siberian rivers. The Salmo Cylindracus, 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 Kewyna,

* The Schokur and Nafat are two species of Coregoni, or Salmons, with very small teeth.
† Vg. en Siberie, i. 257. It also ascends through the Jenefi and the Taba to the Mascur, a lake an amazing distance in the mountains.
and Indigirka. M. Gmelin and the Abbé D’Auteroche assure us, that Pikes, Perch, Ruffs, Carp, Bream, Tench, Crucians, Roach, Bleaks, and Gudgeons, are also met with in the Ok, and different rivers of this country *. I cannot reconcile this to the former account given me by fo able a naturalist, to whom I owe this history of the Arctic fish. The Salmo Kunda, Pallas linn. iii. 706, abounds in the gulphs of the ICY sea, but does not ascend the rivers; and the Pleuronectes Glacialis, Pallas linn. iii. 706, is frequent on the sandy shores.

To review the inhabitants of the Arctic coasts, I shall return as far as Finnmark. I refer the reader to p. lxxix. for what I have said of the Laplanders. The Sameds line the coasts from the east side of the White sea, as far (according to the Russian maps) as the river Ok, and even the Anabar, which falls into the Icy sea in lat. 73. 30; and poises 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 Tschutschi, 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 dusty flight,
Obscured with vapors, and o’erwhelmed in night;
May not, I ask, the natives of these climes
(As annals may inform succeeding times)
To our quotidlian change of heaven prefer
Their own vicissitude, and equal share
Of day and night, parted thro’ the year?
May they not scorn our fun’s repeated race,
To narrow bounds prefer’d, and little space,
Half’ning from morn, and headlong driven from noon,
Half of our daily toil yet scarcely done?
May they not jealously to our climes upbraid
Shortness of night, and penury of shade?
That, ere our weary’d limbs are jocily blest
With wholesome sleep, and necessary rest;
Another sun demands return of care,
The remnant toil of yesterday to bear?
Whilst, when the solar beams salute their sight,
Bold and secure in half a year of light,
Uninterrupted voyages they take
To the remotest wood, and farthest lake;

Manage the fishing, and purse the course
With more extended nerves, and more continued force?
And when declining day forsakes their sky;
When gathering clouds speak gloomy Winternigh,
With plenty for the coming season blest,
Six solid months (an age) they live released
From all the labor, process, clamor, woe,
Which our sad scenes of daily action know:

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 towers his freezing stream
Rolls the wild Obj, live the last of men;
And half driven 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, funk in caves,
Here, by dull fires, and with unjoyous cheer,
They waste the tedious gloom. Immens'd in furs,

Doze the grog's race. Nor sparsely fell, nor long,
Nor tendermes they know; nor aught of life,
Beyond the kindred bears that stalk without.
Till morn appears, her roes dropping all,
Sheets a long twilight brightening o'er the fields,
And calls the quiver'd savage to the chase.

Thomson.

This amazing extent of the Asiatic Russian dominions remained undiscovered to a very late period. The Czars, immered 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 Bosphovitz I; a second was made under his successor: but a stranger, the celebrated Caffac, 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 U. allian chain. There he met with one Stragenoff, 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 Kutche Creek, one of the most powerful of the petty princes of the country which now forms part of the government of Tbolski. 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 Bar- fievitz, who feized 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 Yermak, and, before the middle of the following century, added to their antient 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 Osnadaliska, on the coast of America*) yet 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 floves 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 may be called, is distinguished by the muddied torrents of melting snows, which run 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 grasses 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 flock 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. 13 s. †

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 Cafan, is not to be seen in this vast region nearer than the banks of the Argun.

* D'Aunterocke, Voy. en Siberie, i. 83.
† Caxœ's Travels.
ARCTIC COASTS.

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 Common Sallow, Salix caprea; Sweet Willow, Salix pentandra; White Willow, Salix alba, are very frequent. The Hazel, Corylus Avellana, is circumflanced 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 Alba, is very frequent. The Pinaster, Pinus pinea; the Pine with edible seeds, or Pinus Cembra; and Larch, Pinus Larix; all trees of the first use, medicinal or economic, cover many parts of the country. The Norway Fir, Pinus Abies, and the Silver Fir, Pinus Pinea, 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 rigour of cold in the Asiatic north. These form the fumi of European trees growing in Siberia. Of other plants, common to both continents, M. Gmelin gives the reader, in p. xxiv. of his Preface, a slender lift of such which fell under his observation.

The trees or shrubs peculiar to Siberia and Tartary, are the Acer Tartaricum, Sp. Pl. ii. 1495: the Ulmus pumila, 327: Prunus Sibirica, Amman. Rub. 277, tab. 29: Pyrus baccata, 274: Rehina Caragana, frutescens, and pygmea, Sp. Pl. ii. 1044. I may also observe, that the Taccamahaca, or Populus balsamifera, 1463, common also to North America, abounds about the upper part of the Lena, the Angara, and Jenisei, and between the Ouan and Aga. An infusion of its buds is used by the natives as an excellent remedy for an infamous disorder, frequent in this great country.

Europe is obliged to Siberia for that excellent species of Oak, the Quercus 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 flora, i. 37. Saxifraga caffifolia, Sp. Pl. i. 573. Lychnis chalcedonica, Sp. Pl. i. 625. Pyrus baccata, Lythrum virgatum, Sp. Pl. 642. Amyg-

* This list was communicated to me by an able botanist; but I think some of the plants are also found in Europe.
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 lessor variety of men. They wore no beards. Their hair was black, and cut short, and covered either with a close cap, or hood large enough to cover the shoulders. Some hung beads in their ears, but none had the barbarism to bore either noses or lips. They wore a short and clofe frock, breeches, and short boots: some had trowsers. The materials of their clothing was leather admirably dressed, either with or without the hair. It is said that at times they wear jackets made of the intellines of whales, like the Eskimoa; 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 leffer or kejak. They make use of flegdes, 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 brave and warlike people; are armed with bows and arrows; the last pointed with stone or bone. They had spontoons headed with steel, procured by traffic from the Russians; these they usually flung over their right shoulder; and a leathern quiver of most elegant workmanship hung 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 Europeans miscalled them rebels. They will not on any consideration part with their weapons: possibly a Tschutschi 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 bow-
ing and pulling off their caps, possibly a piece of politeness they learned from the Ruffians. 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 Tschutschi, a party of these people came to the frontier post of the Ruffians, 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 Ruffians, 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.

From the shortness of the interview little knowledge 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 univerality of these memorials of the dead.

The country of the Tschutschi forms the most north-easterly part of Asia. It is a peninsula, bounded by the bay of Tchouan, by the Icy Sea, the straits of Bering, and the gulph and river of Anadir, which open into the sea of Kantschatka. It is a mountainous tract, totally destitute of wood, and consequently of animals which require the shelter of forests. The promontory Schalotski, before mentioned, is the most westerly part. Whether it extends so far north as lat. 74, as the Ruffians 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 Ruffians, he places the mouth of Kowyma, in lat. 68, instead of lat. 71. 20, as the Petersburg 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 Schalotski Nofi; and after the example of Mr. Campbell, who formed his map of this country chiefly from the papers of Captain Bering§, 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 Schalotski Nofi||. There we find him on August 29th, 1778, and from this period are enabled, from his remarks, to proceed securely accurate.

* Voy. iii. 217. † Ellis's Narrative, i. 332. ‡ Voyage iii. 268. § In Harris's Voy. ii. 1016. || Voyage iii. 270.
After crossing the Icy Sea from the most extreme part of the coast of 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 no 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.

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 Bering, 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, Bering, after a tedious and fatiguing journey through the wilds of Siberia, arrived in Kamfchatcha, 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 circumstancial of his adventures will be occasionally mentioned †. I shall only say here, that he sailed from the river of Kamfchatcha 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.

East Cape. 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

* See tab. 84 of the Voyage. † The account of the voyage is extremely worthy of perusal, and is preferved by the able Doctor Campbell, in Harris's Collection, ii. 1018. ‡ See tab. 84 of the Voyage.
BERING'S STRIGHTS.

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 Tschutschi Nofs of our navigators, and forms the beginning of the narrow streights or division of the old and 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 Bering should have failed 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 Bering'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 limy 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 Tschuski. Immediately 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 Tschuski. This formerly was called the Anadorfski Nofs. Near it Bering had conversation with eight men, who came off to him in a baidor, or boat covered with the skins of seals; from which Bering and others have named it the Tschuski Nofs. A few leagues to the south-east of this point lies Clerke's island, in lat. 63°15, discovered by Capt. Cook; and immediately beyond a larger, on which Bering bestowed the name of St. Laurence: the last, the resort of the Tschuski 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

* See the chart of them, Voyage, vol. ii. tab. 52. † Voy. ii. 445. ‡ Voy. ii. 470. and Meteorolog. Tables, iii. App. 512. 513. 520. 521. § Harris's Coll. ii. 1020. || Muller's Voy. des Russes, i. 148.
merited this memorial. It lies in lat. 63° 4', long. 192. An anonymous inlet, 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. Lawrence. As to those named in the chart given by Lieut. Synd, who in 1764 made a voyage from Kamtschatka towards Bering'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 Bering's Tschutjki Nos, trends vastly to the west, and bounds on that side the vast gulph of Anadir, into the bottom of which the river of the same name empties itself; and limits the territory of the Tschutjki.

From thence is a large extent of coast trending south-west from Cape St. Thaddeus, in lat. 62° 50', long. 180°, the southern boundary of the gulph of Anadir, to Oljutorfki Nos, beyond which the land retires full west, and forms in its bosom a gulph of the same name. Off Thaddeus Nos 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 preseravation 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); Cheepoonfki Nos, still further north, engraven in vol. ii. tab. 84; and Kronotski Nos, 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 conic summits, often smoking with vulcanic eruptions. They have broken out in numbers of places: the extinct are marked by the craters, or their broken tops. The vulcano near Awatcha §, that of Tolbatchick, and that of the mountain of Kamtschatka ‖, are the modern. They burst out sometimes in whirlwinds of flames,
KAMTSCHATKA.

and burn up the neighboring 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 volcanos 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'eau, with a great noise, but seldom exceed the height of a foot and a half.

The climate during winter is uncommonly severe; for so low as Bolcheretfs, lat. 52° 30, all intercourse between neighbors is flopped. 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 Sibiria 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 Sibiria. 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 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 BERING 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 ranfammed for men of abilities to perform this meritorious mission, and the fruits of their labors have been liberally communicated to a public thirsting for knowledge. The names of MULLER, Gmelin, Steller, De L'Isle, Krashaninoff, Guildenstaedt, Lepechin, and Pallas, will ever be held in respect, for adding to the flock of natural knowledge. 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 supplication of knowledge!

Here I 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. Lightfoot, 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 common to America and Kamtschatka; with B. to Bering's Isle; with E. to England or Scotland; and with Virg. those which extend to Virginia, or the eastern side of North America*. It is remarkable, that the European plants, which had defected Sibiria about the Jenisei, appear here in great abundance.

V. incana. Cornus suecica.
V. feryllifolia. E. Pulmonaria virginica. A. Am. Acad. ii.
Iris fibirica. 310.
Iris. Gm. Sib. i. 30. No 28. Cerinthe major. A.
Triticum. Gm. Sib. i. 119. No 56. Azalea procumbens. E.
Pl. asiatica. Convolvolus percurus. Ibid.

* Taken from Doctor Forster's Flora Americae 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.
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Polemonium cæruleum. A. E.
Lonicera Xylosteum. A?

Ribes alpinum. A. E.
R. rubrum. Virg.
R. grossularia. A. Virg.

Claytonia virginica. A. Am. Acad. ii. 310.

Salix alpina. - - 318.
Anabasis aphylla. - - 319.
Heuchera americana. - - 310.

Swertia virginica. - - 317.

Gentiana virginica. A. Arn. Acad. ii. 310.

Salsola prostrata - - 318.

Heuchera americana. - - 310.

Sw. corniculata. - - ibid.

Gentiana amarella. E.

G. aquatica. Am. Acad. ii. 316.

Heracleum panaces. A.

Angelica archangelica. A.

Ang. Sylvestris. E. Virg.

Cicuta virofa.

Cherophyllum Sylvestre.
Chær. aureum?

Sambucus racemosa.

Tradescantia. Virg? 

Allium urfinum. E. Virg.

Allium triquetrum.

Lilium martegon.


Uvularia perfoliata. - - 310.

Convallaria bifolia.

Juncus filiformis. E. Virg.

J. campestris. E.

Rumex acetosa. Virg.

Melanthium fibricum. Am. Acad. ii. 320.

Trillium erectum. - - ii. 310.

Allíma plantago aquatica. E.


Epilobium latifolium.

Vaccinium myrtillus. A. E.

Vaccinium uliginosum. E.

Vacc. vitis idea. A. E.

Vacc. oxyccocos. E. Virg.


Fr. Gm. Sib. iv. 131. N° 22. A.


Polygonum bistorta. E.

Pol. viviparum. E.

Adoxa mochastellina. A. E.


Ledum palustre.


Chamaerhododendros. Gm. Sib. iv. 126.

N° 13. B.

Arbutus uva urfi. E. Virg.

Pyrola rotundifolia. E. Virg.

Tiarella trifoliata. Am. Acad. ii. 322.

Sedum verticillatum. ii. 323.

Prunus padus. E.

Sorbus aucuparia. E. Virg.

Crataegus oxyacantha. Voyage, iii. 334.

Spiræa hypericifolia. Am. Acad. ii. 310.

Sp. Sorbifolia. - - 324.


Sp. aruncus.

Rosa alpina.

Rubus Idaeus. A. E. Virg.

R. Caesius. E.

R. fruticosus. E. Virg.

R. arcticus. Virg.

R. chamæmorbus. E.

Fragaria vesca. A. E.

Potentilla fruticosa. E.

Dryas pentapetala.

Achéa cimicifuga. Am. Acad. ii. 325.

Papaver nudicaule.

Aconitum napellus.

Anemono
Uses.

The Kamtschatkans boast of their skill in the knowledge of the application of the vegetable kingdom to the uses of mankind. The Sibrians 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
of the _Arctium Lappa_, or common Burdock, which they frequently change till the cure is effected.

The _Heracleum Panaceae, or Sweet grass_, was a plant of the first use with the Kamtschakans, 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 laid 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 pound, or thirty-six pounds of the plant, which taints 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 became useful 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.

The _Mouchu-more_ of the Russians, the _Agaricus muscarius_, Sp. Pl. 1640, is another instrument of intoxication. It is a species of Toadstool, which the Kamtschadals 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 affluations, they take the _Mouchu-more_. Such is the fascination of drunkenness in this country, that nothing can induce the natives to forbear this dreadful potion ‡!

* _Voyage, iii. 337._ † _Gmelin, Fl. Sib. i. 217._ ‡ _Hist. Kamtschatka, 99, 100._
KAMTSCHATKA.

SARANNE.

As a food, the *Saranne*, or *Lilium Kamtschatense*, 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 it up with several sorts of berries, so as to form of it 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 *Kamtschatkans* are indebted for these roots. The *economic Muses*, p. 134. A. saves them a great deal of trouble. The *Saranne* forms part of the winter provisions of that little animal: they not only gather them in the proper season, and lay them up in their magazines, but at times have 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 carcers 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 drefs with their fish, either fresh or when preserved for winter use: such are those of the *Lonicera Xylosteum* or *Ginselof*, a sort of Honeyfuckle: the *Rubus Chamaemorus*, *Morechka*, or Cloudberries: the * Vaccinium Myrtillus*, *Uliginosum*, *Vitis Idea*, and *Oxyacorus*, or Bilberries, Marth Bilberries, Red Bilberries, and Cranberries: the *Empetrum Nigrum*, or Heathberries: the *Prunus Padus*, or Bird Cherry: *Crataegus Oxyacantha*, or White Thorn with red and with black berries: the *Juniperus Communis*, or Common Juniper: and finally, of those of the *Sorbus Ancuparia*, 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 ‡.

• *Defc. Kamtsch. 565.*


‡ Defc. Kamtsch. 568.

The
The Polygonum Bifertu, Snake-weed, or *Fiksum*, is eaten fresh or dried, and often pounded with the Caviar. The *Chersyphyllum Sylvestre*, Wild Chervil, or Cow-weed, the *Morkauv* of the natives, is eaten green in the spring, or made into four krou. The *Solidago Iyshitschu*, 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 feethed 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 keep, therefore they must be eaten as soon as they are gathered. *Allium Ursinum, Theremcha*, 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 wonted stages. The *Petunilla 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 virofa*, Sp. Pl. i. 366, Water Hemlock, the *Omeg*, is applied to use, by the bold practitioners of this country, in cafes 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.

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 mosses. It never grows upright, but creeps on the ground, and is therefore called by the Russians, *Slenetz*. The natives eat the kernels, with even the cones, which brings on a tetemias; but the chief use of the tree is as a sovereign medicine in the scurvy. Bering taught the Kamtschatians to make a decoction of it: but they have neglected his instructions, notwithstanding they few numbers of his people reftored to health in a short time, and snatched, as it were, from the jaws of death*. Even at this time the Russian colonists perih miserably with the disorder, notwithstanding the remedy is before their eyes.

The *Pinus Larix*, or Larch-tree, grows only on the river of Kamtschatka, 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, their fortifications, and boats. They make use of the *Populus alba*, or White Poplar, for the same pur-

KAMTSCHATKA.

Of the Betula alba, or Common Birch, a tree so useful to these northern nations, they make their flegges 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 elder they dye their leather; but that, and every tree they have near the coast, is flunted, so that they are obliged to go far inland for timber of proper size.

I must add, as a vegetable of use in econimics, the Triticum, Gm. Sib. i. 119, No. 56, which grows in great quantities along the shores, which they mow, and work into mats, which serve for bed clothes and curtains; into mantles, smooth on one side, and with a pile on the other, which is water-proof. They also make with it facks, and very elegant baskets; these, as well as the mats, they ornament with split whale-bones, and work into variety of figures *. The Urtica dioica, or Common Nettle, 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 spindie. 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 afflance I have received from the Russian academists, or their labors, that my account of them, in my zoological part of this Work, can receive little addition. I request that the Brown Bear, No. 20, may be substituted instead of the Black, No. 19, as the native of Kamtschatka. I was led into the mistake by the suppositions 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 Archali 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 secure the safety of the persons who fall in their way. In the first cafe, they will hunt mankind by the scent, and sacrifice them to their want of food, which usually is fish or berries.—The Kamtschatkans never read Pope, but observe his advice:

Learn from the Beasts the physic of the field.

The Bear is their great matter; 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

* Hift. Kamtschatka, 373. † Same, 375. ‡ See P. 394 to 398, where Mr. King gives a full account of the present method of hunting. § The reader is requested, at p. 58, l. 26, to change the word carnivorous into animal.
equally restorative to the two-legged Ursine 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, N° 36, 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.

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 †.

The Dogs are like the Pomeranian, but vastly larger; the hair rather coarser, and the usual 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 flakes, with their food placed at a small distance beyond their reach; so that by constant laboring and running, they acquire both strength of limb and habit of drawing ‡.

The leonine and urfine 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 Auks 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 dissipation; which often happens through fear, and serves to confirm the superstition of the country ¶. The air is very unfavorable

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* Voy. iii. 309.
† Same, 344.
‡ Same, 345.
§ By some typographical mistake, the greater part of the webbed-footed birds are, in the first edition, placed under the division of cloven-footed. The naturalist reader will easily see, that the birds, from Cranes, p. 357, to Pied Oyster-Catcher, ought to be placed in the division of cloven-footed; and from Great Tern, p. 356, to Red-faced Cormorant, p. 357, should be put after Red-throated Diver, p. 358, the webbed footed. ¶ Narrative, ii. 246. ¶ DeJzfr. Kamtsch. Fr. 509.
to insects, except lice and fleas, which are in all their quarters; and, filthy to
relate! are eaten by these beaftly people*. Bugs are acquisitions of late years,
imported into the bay of Awatcha.

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 putrefaent
quality of the dried fish, and often form an ingredient in the diffies; which are
prepared different ways. The *foukola is made of the falmon kind, cut into fix
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 affift them in
swallowing a food so very vicid: 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 fench unsupportable to every nose but that of a Kamtschatkan †.

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 few the seams of their canoes, and
make nets for the larger sort of fish; they form the sliders of their fleges with
the under jaw-bones, and likewise work them into knives; with the blade-bones,
worked down to a sharp edge, they form fcythes, and most successfully mow the
grafs. The Tschutsfi verify the relation of Pliny ‡, and, like the Gedroj 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 foles of their shoes, and
straps and thongs for various purposes. The Tschutsfi take these animals by harpooning; the Oloutores, in nets made of thongs cut out of the skins of the Wal-
rus; and the Kamtschatkans, 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,

lib. ix. c. 5. § Voyage, iii. 450. ¶ I cannot discover the species. Gmelin, in his
Flora Sibirica, does not give the least account of these plants.
KAMTSCHATKA.

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 Kazatka or Grampus, Br. Zool. iii. No. 26, is very common in these seas: they are dreaded by the natives, who even make offerings to them, and entreat their mercy, least they should overset their boats; yet, if these fish are thrown on shore, they apply them to the same uses as the Whale *.

The Motkola or Atoul, or White Shark, Br. Zool. iii. No. 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. No. 27; Eels, — 57; Wolf-fish, — 65; common Cod-fish ? — 73; Hadock, — 74; and Hake, — 81, are found in the Kamtschatkan sea: and I also suspect, that the three-bearded Cod, — No. 87, is also met with: it is called there Morskoe Nalimi ‡. An elegant species of Flounder, of excellent flavor, was taken here in abundance by our navigators: the back was fluddled with prickly tubercles, and marked longitudinally with lines of black on a brown ground. The Jerchei, possibly our Ruffe, — No. 127, is among the fish of the country; as is a species of the English Sticklebacks.

But the fish of the first importance to the Kamtschatkans, and on which 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 said, 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 Kamtschatkan rivers in multitudes incredible. The inhabitants dignify some of their months by the names of the fish. One is called Koniche, or the month of Red Fish; 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 lohal 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; infomuch that, on the fall of the water, such multitudes are left on dry ground, as to make a scene 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
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 conforth 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 Salmons of this country spawn but once in
their lives: those of Sibiria and Europe, the rivers of which are deep, and abound
with infest food, are enabled to continue the first great command of nature
during the period of their existence. In Kamtschatka 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 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 seafons. 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 en-
trance, 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 releaved by the storms taking another direction.

The species which appears first is the Tjawytscha. 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 lunate: 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 Kamtschatka 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 re-
served for great entertainments. The natives watch its arrival, which is an-
nounced 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.

* Defor. Kamtsch. 474. † Numbers of rays in the dorsal, pectoral, ventral, and anal fins.

The
The Nerka is another species, called by the Russians, Krašnaya 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 slight; but after 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.

The Kysutch, or Bjalaya 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.

The Keta or Kayke, in form and size resembles the last; but the head is shorter and more blunt: the tail is lunate: 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.

The Gorbuchta, 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 surprising manner. The jaws and teeth grow prodigiously long, especially the upper, which at first is short, 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 which it owes its name. Its flesh is bad; so that this fish falls to the share of the dogs.

* This species is described (Voyage, iii. 351) under the name of Red Fish; the preceding, in p. 330, under that of Tchavitsi.
KAMTSCHATKA.

MALMA.

P. D. 12.
V. 6.
A. 10.

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 disperedly, and not in shoals. It ascends the rivers with the frost, 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.

MILKTISCHITSCH.

P. D. 11.
V. 10.
A. 13.

The *Milktischitsch* 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.

MYKISS.

P. D. 12.
V. 10.
A. 12.

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-idaea*, 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.

KUNSHA.

P. D. 8, 9
V. 10.
A. 12.

The *Kunsha*, mentioned in page 145, 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 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.

INGHAGHITSCH.

P. D. 12.
V. 10.
A. 12.

Of the *Salmon* which *Linnaeus* distinguished by the title of *Coregoni* is the *Inghaghibs*, 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

* Defer. Kamsch. 481.† Same, 482. † Same, 482.
in length. It arrives in spring and autumn, and in both seasons is full of spawn, and smells like a smelt.

The Inyagha is another small kind, about five inches long, and not unlike the S. Albula of Linnaeus. It is a rare species, and found but in few rivers. P.D. q. p. 11. V. 8. A. 16.

The most singular is the Ouiki, or Salmo Catarvarius of Steller. It belongs to the Osmeri of Linnaeus. 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, in such a manner that if one is taken up, all the rest are taken up at the same time.

To conclude this list of Kamtschatkan Salmon, I must add the Salmo Thyamallus, or Grayling; the S. Cylindraceus, before described; the Salmo Albula, Lin. Syft. 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.

The Herring, both the common and the variety, found in the gulph of Bothnia, called the Membras, and by the Sueter, 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 frying part on pack-thread 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

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* Voyage, iii. 350.
† Deser. Kamtsch. 485.
mounds, such as yield security and tranquillity to the finned inhabitants. We find the foundings 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 ship might rest undisturbed 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:

<table>
<thead>
<tr>
<th>Species</th>
<th>Notes</th>
<th>Quantity</th>
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<tr>
<td><strong>Fucus peucedanifolius</strong>, Em. Hj. Fucor. 76</td>
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<tr>
<td><strong>Fucus turbinatus</strong></td>
<td>Fucus rofa marina</td>
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<td><strong>Fucus corymbiferus, E.</strong></td>
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<td><strong>Fucus bifidus</strong></td>
<td>Fucus quercus marina</td>
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<td><strong>Fucus polyphyllus</strong></td>
<td>Fucus vesiculofus, Sp. Pl. 1626, E.</td>
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<td><strong>Fucus clathrus</strong></td>
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</tr>
<tr>
<td><strong>Fucus myrica</strong></td>
<td>Ulva Priapus</td>
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</tbody>
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Of these the *Quercus marina* is used as a remedy in the dysentery; and the females of Kamtschatka 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 Manikha. 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 Manikha, 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 foot; a seven-hours ebb succeeds, which carries off the sea-water, and leaves the bay dry. Thus it happens three days before and

* Hj. Kamtschatka, 43. † Same, 124. ‡ Voyage, iii. 323.
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 Kamtschatkans, properly so called: the first lead an erratic life, in the tract bounded by the Penfchinske 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 mofs, the food of those animals, their only wealth ‡. They are equalid, cruel, and warlike, the terror of the fixed Koriacs, as much as the Tschurskie are of them. They never frequent the sea, nor live on fish.

Their habitations are jourots, or places half sunk in the earth: they never use bagans, or summer-houses elevated on posts, like the Kamtschatkans: 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 Kamtschatkans to the south. They have few Rein-deer, which they use in their flegges; 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 language; but the fixed in most things resemble the Kamtschatkans; 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 clothing. 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.

KAMTSCHATKA.

The true Kamtschadans* possesses the country from the river Ukoi to the southern extremity, the cape Lapatka. 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.

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 vitious that may be accomplished without danger; and give full loose to every crime, provided it comes within the pale of security.

They have also their lesser deities, or genii. Each of them have their peculiar charge; to these they pay considerable veneration, and make offerings to them, to divert their anger or ensure their protection. The Kameuli preside over the mountains, particularly the volcanie; the Ouchakthou, over the woods; Mitg, over the sea; Gatch, 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 everything in great abundance: that the rich will become poor, and the poor rich; a fort of just dispensation, and balance of former good and evil. But almost all these superstitions are vanquished 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

* The most proper word for the natives of this country is Kamtschadals; but as I have on many occasions used this, I wish to continue it.
† Hist. Kamfch. 68, 72.

fouls,
KAMTSCHATKA.

fours *, at present there are not above three thousand who pay tribute, the inhabitants of the Kuril islands 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 Kamtschatkans, or to their women; and suffer the penalty of their laziness, by the scurvy in its most frightful forms.

The Kamtschatkans 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 the elegant skin of the earless Marmot. Troufers, boots, and furred mittens, compose the rest. The habit of ceremony of a Toin or chieftain is very magnificent, and will cost a hundred and twenty rubles: 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.

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 fewed 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.

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

* Voyage, iii. 366. † Same, 367. ‡ See Hик. Kamtschatka, tab. vi.—It differs much from the habit of ceremony described by Captain King, iii. 377.

quite
quite gorged; and at the same time heated the place, by incessantly pouring water on hot flones, till it became unsupportable. When the guest was crammed up to the throat, the generous landlord, on his knees, fluffed into his mouth a great slice of whale’s fat, cut off what hung out, and cried, in a fury, 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 obliged to purchase his dismission with most costly presents; but was sure to retaliate on the first opportunity.

Dwellings. From the birds they learned the art of building their balogans 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 jourots, or winter refidences, are copied from the economic Mouse, p. 134; 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 fench, from their store of dried or putrid fish, and from their laziness, in never going out to perform their offerings to Clavina.

Inflicted by avarice, the Russian 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 Slavirian rivers, which, with short intervals of land, facilitate the passage. Travellers usually take their departure out of Siberia from Yakoutz, on the river Lena, in lat. 62°; they go either 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 Belskaia-rek, the port of the western side of Kamskhatka. 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.

The Kuril or Kurilski islands, which probably once lengthened the peninsula of Kamskhatka, before they were convulsed from it, are a series of islands running

fourth from the low promontory Lopatka, in lat. 51°; between which and Sboomska, the most northerly, is only the distance of one league. On the lofty Paramusfer, the second in the chain, is a high-peaked mountain, probably volcanic *; on the fourth, called Aramakutan, is another volcano †; on Urufs, is another; on Storgo two; and on Kunaîir, or Kaunachir, one. These three make part of the group which pays under the name of the celebrated land of Jefo ‡. Japan abounds with vulcanoes §; 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 vulcanoes. Even with these discharges, Japan has suffered considerably by earthquakes. Vulcanoes 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.

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 groups; the Aleutian, the Andreanoff group, and the Fox islands: but mention must first be made of Bering's isle, and that of Mednosi, and one or two smaller and of little note. These lie about two hundred and fifty versts to the east of the mouth of Kamtschatka river. Bering'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. 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

* Voyage, iii. 388. † Decouverte des Russes, i. 173. ‡ These islands are marked in a Russian map, communicated to me by Doctor Pallas, with MS. notes. § Kamzjfer Isl. Japan, i. 505. || Same, 504. ¤ Book i. ch. x. and Decouverte, &c. ii. 293.
produce in these seas. Further, 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 mafs 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 volcanoes, 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 isle swarmed with Sea Otters, which disappeared in March. The Ursine 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 fifth ascend the rivers, as do in Kamtschatka. The tides rise here seven or eight feet. The bottom of the sea is rocky, correspondent with the isle.

The few plants of this isle, which have not been discovered in Kamtschatka, are as follow:

Campanula, Gm. Sib. iii. 160, 28. Senecio, Gm. Sib. ii. 136, No. 118.
Leontodon taraxacum, A. E. Virg. Arnica montana.
Hieracium virgatum, B. E. Chrysanthenum leucanthemum, A.
Tanacetum vulgare, E. Virg.
Gnaphalium dioicum, A.

These, with a few creeping Willows, added to those in the Kamtschatkan Flora, form the sum of those observed in Bering's island.

Mednoi, or the copper isle, 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 easterly side, and may be gathered on the shores in vast mafs, which seems originally to have been melted by subterraneous fires. This isle 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 earth-

* I am indebted to Doctor Pallas for the whole account of this chain of isles, except where I make other references.—My extracts are made from a French Memoir, drawn up by my learned friend, and communicated to me.
ALEUTIAN, ANDREAN, AND FOX ISLANDS.

quake. Among the float-wood off this island is camphor, and another sweet wood, driven by the currents from the isle of Japan.

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 Mednci. It consists of Attok, Schemicha, and Semitchi. The first seems to surpass in size Bering's isle ; but resembles it in its component parts, as do the other two. Attok seems to be the isle which Bering 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 Nevodtskoff, a native of Tobolski, who made a voyage, at the expense 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 Kantschakta the skins of 1,872 Sea Otters, 940 females, and 715 cubs. Another, on a small adjacent isle, killed 700 old, and 120 cub Sea Otters, 1,900 blue Foxes, 5,700 black Ursine 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 Bering'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 discovery, and imposing on it a new name. The Andreanoffskie, so called from their discoverer (in 1761) Andrean Toflyé, succeed. On two of them are volcanoes. Lastly, are the Fox isles, 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

* Czer's Ruff. Dict.
value. The natives bore their noses and under lips, and infert bones in them by way of ornament. Among the laft in this group is Oonolafa, which was visited by Captain Cook. This lies fo near to the coaft of America, as to claim a right to be considered as an appurtenance to it. I fhall therefore quit these detached paths for the prezent, and, in purfuance of my plan, trace the coafts of the northern division of the great continent, from the place at which it is divided from South America.

After traversing obliquely the Pacific Ocean, appears California, the moft southerly part of my plan on this side of the new world. This greatest of pen-infulas extends from Cape Blanco, lat. 32, to Cape St. Lucas, lat. 23; and is bounded on the eaf by a great gulph, called the Vermilion Sea, receiving at its bottom the vaft and violent river Cokrado. The west fide is moft mountainous, sandy, and barren, with fveral vulcanoes on the main land and the ifles; the eafem, varied with extensive plains, fine vallis watered with numbers of freams, and the country abounds with trees and variety of fruits. The natives, the moft innocent of people, are in a state of paradifical nature, or at leaft were fo before the arrival of the European colonifls among them. The men went nearly naked, without the confequences of being fo. The head is the only part they pay any attention to; and that is furronded 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 fling over their shoulders the skin of some beaft, or of fome large bird, and wear a head-drefs like the other sex. The weapons of the country are bows, arrows, javelins, and bearded darts, calculated either for war or the chace. In the art of navigation, they have not got beyond the bark-log, made of a few bodies of trees bound parallel together; and in thefe they dare the turbulent element. They have no houfes. During fummer they shelter themselves from the fun under the shade of trees; and during nights sleep under a roof of branches fpread over them. In winter they burrow under ground, and lodge as simpifly as the beafts themselves: fuch 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, fince 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;

* Shelvoke, in Harris's Coll. i. 233. † Hackley, iii. 401.—Hift. California, i. 140.

† This is the nobleman whom the writer of Lord Anfons Voyage Rigmatizes with the epithet of munificent bigot. It was not by a reverend author, as is generally fuppoled, but by a perfon whose principles were unhappily in the extreme of another incline.—Having from my youth been honored with
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 possessed 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 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 failed as high as lat. 42; and named, in honor of the viceroy, the farthest point of their discovery Cabo di Mendoza.

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, veiled in Sir Francis the whole land; which he named New Albion, from its white cliffs, and took formal possession with the friendship of the Ancon 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 Centurian; 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 confluent omission of the word Providence, in a voyage which abounded with such signal deliverances.

* A full account of these voyages may be seen in Hakluyt, iii. 397, &c.
CALIFORNIA.

fion 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 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 the division of Rats with pouches in each jaw; and has never been observed from that period to this.

**Captain Cook.**

Exactly two hundred years from that time the coast was again visited by an Englishman, who in point of abilities, spirit, and perseverance, may be compared with the greatest seaman 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 valleys, 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 harboured, 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. Lawrence, which runs to the east; and the Mississippi, 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; weft long. from London 98, between a lake from which the Oregon flows, and another called White Bear lake, from which the Mississippi ‡.

* Hackluyt, iii. 738. † Hiß. 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
This exalted situation is part of the Shining 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 inflated links, to an immense height, black, rocky, and mark-
ed 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 freights of Magellan soar to an amazing height, and infi-
nitely superior to those of the northern hemisphere, under the same degree of la-
titude. From the north side of the freights of Magellan, they form a continued
chain through the kingdoms of Chili 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 hun-
dred 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, imme-
diately under the equator, is above three thousand; and Chimborazo higher than
the last by two hundred. Most of them have been vulcanic, 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 Chili; 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 freights 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 un-
paralleled extent of plain appears on their eastern side. The river of Amazons runs
along a level cloathed with forests, after it bursts from its confinement at the
Pange 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 their
vulcanic 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 na-
kedness of the lavas, he conjectured to have been but lately extinguished †. From
the kingdom of Mexico, this chain is continued northward, and to the est of California; then verges so greatly towards the west, as to leave a very

† Conquest of Mexico, book iii. ch. iv.
‡ Voy. to California, 33.
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 Appalacian, 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. Lawrence 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 it is distinguished by the name of the Highlands, 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 cloathed 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 the vast plains of the Mississippi. The middle ridge is of an enormous bulk and height. The whole extends in breadth about seventy miles; and in many places leaves great chasms 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. xcv, I have given a view of the immense elevated plain in the Russian empire. Beyond the branch of the Appalacian 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 Mohawk'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 Mississippi. Vast rivers take their rise, and fall to every point of the compass; into lake Ontario, into Hudson's river, and into the Delaware and Susquehanna. 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 Delaware; which, after a

* Mr. Lewis Evans, p. 9, and map.
† Mr. Lewis Evans, p. 9, and map.
Chain of Alps in America.

**Low Grounds.**

Much of the low grounds between the base of the Appalachian 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 Mississippi again, in lat. 32. 28, from the depth of fifty to eighty feet, are always found, in digging, sea-fand and sea-shells, exactly similar to what are met with on the shores near Penfaccla †. 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 first became but recently habitable: the vast plains of the Mississippi, and the tract between the Appalachian Alps and the Atlantic, were once possessed by 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 valleys; 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 flone 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 flaty limestone. Large beds of limestone, 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 scatlop, together with various sorts of corals, branched as well as flurry. The strata of limestone also appear near the base of different parts of the Appalachian chain ‡. Without doubt, the ichifous 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 §; but that country has not yet been surveyed by a philosophical eye. The labor will be amply repayed 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 ¶.

Captain Cook continued his voyage to the northward; but, by reason of squally weather and fogs for a few degrees, or from lat. 50 to 55. 20, was deprived of

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* Mr. Lewis Evans, p. 9, and map.  † J. Lorimer, esq.  ‡ Kalm, iii. 21, 198.  § In such seem to be lodged the lead and silver ores found in Canada. See Kalm, iii. 212.  ¶ See Dr. Palliser's Obs. sur la formation de Montagnes, &c.
of the opportunity of making the observations he wished. In lat. 48° 15', he in
vain looked for the pretended freight of Juan de Fuca, who imposed on a Michael
Lock, an Englishman, he met with at Venice, an account of having found, in 1592,
an entrance in this latitude, and sailed through it, till he arrived in the North
sea, i.e. Hudson’s Bay *. Of equal credibility is the pretended passage of Ad-
miral de Fontes, in 1640, which is placed in lat. 50° 1; and, according to one
map, falls into that of De Fuca: according to another, into a vast inland sea,
called Mer de l’Ouest †. Diligent search was also made after this in the Spanish
expedition of 1775; which ended in disproving these strange fictions ‡. It had
likewise the farther importance of filling up the gap in the charts, by furnishing
us with a survey of that tract of coast which Captain Cook was obliged to quit.

In lat. 49°, Captain Cook found a secure shelter in an harbor 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 fides, 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 foil of rotten trees or mosses.

The trees were the Pinus Canadenfis, 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 fize: some are a hundred and
twenty feet high, and fit for mafts or ship-building ¶; but the dimensions of some
of the canoes in Nootka Sound fell short their vaft bulk—they are made of a
single tree, hollowed fo as to contain twenty persons; and are fewen feet broad, and
three deep. They are the fame with the monoxyla of the antient Germans and
Gauls ¶¶, but confructed with much more elegance. The old Europeans were con-
tent if they could but float. They probably were formed on the fame rude model
as thofe of the old Virginians **, or of the antient Britons, similar to one I have
seen dug up in a morafs in Scotland, as artifals as a hog-trough ††. Thofe of Nootka
Sound are at the head taper’d into a long prow, and at the ftern they decrease in
breadth, but end abrupt.

The day-tides rise here, two or three days after the full and new moon, eight

* North-welf Fox, 163. † See Jefferies’s Ofij. on the Letter of Adm. de Fontes, and his
map; also de L’lfe’s map. ¶ Maurelle’s Voy. in 1775, in Mr. Barrington’s Miscellanies, 508.
lib. v. c. 25.—Pd. Patern. lib. ii. c. 107. ** Brevis et fida Narratio Virginiae, in which are
engraven the canoes of the country, taken from the drawing of John Witb; lent there with Tho. Harriot
for that purpose, by Sir Walter Raleigh, who communicated them to De Bry.—See tab. xii. and xlii.
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 p. 12 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, N° 2. The only peculiar animal of these parts is the Sea Otter, N° 36: 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.

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: possibly they were 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 side of the continent they do not inhabit higher, even in summer, than the province of Virginia, in lat. 39; or, in the mid-land parts, than lat. 41. 15, where they haunt in multitudes the southern sides of the lakes Erie and Michigan, and the banks of the rivers Illinois and Ohio. Another delicate species of bird was seen here in plenty, a kind of Honey-fucker or Humming-bird, a new species; which I have described, N° 177, under the title of the Ruffed. Among the water-fowl were seen the Great Black Petrel, p. 536. A. or the Quebrantabuesos, or Bone-breaker of the Spaniards, which seems to be found from the Kuril isles to Terra del Fuego; the Northern Diver, N° 439; 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,

* Voyage, ii. 339. † In p. 89, for lat. 44, read 49. ‡ See Barrington's Miscellaneous, 439, 502.
Nootka Sound.

bras, 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 eyebrows 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 moustachios; but the younger people in general seem to have plucked out the hair, except a little on the end of the chin.

Their dresses consist 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 incrusted with paint or dirt, and they are a most squallid offensive race; silent, phlegmatic, 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 modestly, and even bashfulness*. I shall 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 was sportive; for he was plagued part of a 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 Offiaks have exactly the same custom.§

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 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 have caused this singular bow to be engraved, and in the same plate, that most terrific Tomahawk of Nootka Sound, called the Taaweejeh, or Tsjufheeb. The offensive part is a stone projecting out of the mouth of a sculpture in wood, resembling a human face, in which are stuck human and other teeth: long locks of scalped hair are placed on several parts of the head.

* Voyage, ii. 319. † Same, 307. ‡ Travels, 43. § Russian Nations, i. 193.
Tomahawk & Bow.
waving when brandished in a most dreadful manner. I could distinguish the Elk, the Rein, the Virginian Deer, and the Dog; birds, probably of the Goose kind; the Whale-fishery, the Walrus, and the Seal.—With what facility might be reclaimed and civilized a people so strongly poiffed with a disposition towards the liberal arts!

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, confort to the great navigator Bering, 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 Edgecumbe†, 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, nearly the ne 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 Crofs 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 fat 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, Bering'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.

BERING, 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, No. 139, to which I have given his name. He returned on board with the regret a man of his zeal must feel at the 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 †.


* Cook, ii. tab. 36. † Voy. & Découvertes, i. 257. ‡ Découvertes faites par les Russes, i. 256.—Voyage, ii. tab. 36.
KAYE'S ISLAND. PRINCE WILLIAM'S SOUND.


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 Cypres; Cupressus Thyoides, 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 Kamtschatcense, or Saranne, extends to the continent, for it is found in abundance in the adjacent island Onalosbee, where it serves as a food, as it does in Kamtschatka.

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, which proves to be the kind described by Mr. Latham, i. p. 33. N° 72, under the name of the white-throated Eagle ‡.

After doubling a cape, called by our great navigator, Hinchinbrooke §, he anchored in a vast sound, named by him Prince William's, in lat. 61. 32, 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.

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 ice of ice. An animal of the ermine kind, variegated with brown, but the tail scarcely tint with black. Wolverines were here, of a very brilliant color; and the earless Marmot, N° 47, was very common. None of these were seen living, but their skins were brought

* Voyage, ii. 501. † Same, tab. 85. ‡ Same, p. 352. § Same, tab. 86. || See the picturesque view of Suisce Corner Cove, tab. 45.
in abundance as articles of commerce. The skin of the head of the male leonine Seal was also offered to sale: in 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.

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-fuckers, probably migratory in this high latitude, frequently flew round the ships.

To give all the additions I am able to my zoologic part, I shall here mention certain species of Petrels, observed on the western coast of North America: such as numberless brown Petrels near the entrance of Cook's river, flying round a remarkable sugar-loaf hill. A species seen near Nootka Sound, about fourteen inches long, with the nostrils scarcely tubular: bill and plumage above dusky, beneath white: legs back. This is common to Turtle Isle, lat. 19. 48, south, long. 178. 2, west; and Christmas Isle, lat. i. 59, north, long. 202. 30, east. Another, about thirteen inches long, with the forehead, space between the eyes and bill, the chin, and throat, of a greyish white, varied with specks of dusky: crown and upper part of the body dusky: under parts hoary lead-color: legs pallid. I may add a fourth, seen off the coast of Kamtschatka, which Mr. Ellis mentions as being small, and of a bluish color.

Mankind here shew a variation from the last described. The natives are generally above the common stature, but many below it: square-built or short-shouldered: their heads most disproporionably 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 flat round points, turned up at the end: their hair long, thick, black, strong: their beards either very thin, or extirpated; for several of the old men had large, thick, but frail beards: their countenances generally full of vivacity, good-nature, and frankness, not unlike the Criftinaux.

* Voy. ii. 377. † Same, 178. ‡ Ellis's Narrative, i. 251. § This, and the preceding, in the Leverian Museum. ¶ Narrative, ii. 246. a people
a people who live far inland, between the little and the great lakes Otinepique. On
the contrary, the inhabitants of Nootka in their dulness resemble the Affinibowels,
who live on the western side*: and these two nations may have been derived from
a common flock with the maritime tribes whom we have had occasion to mention.
The skins of the natives of this sound were swarthy, 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 interfines 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 tattoo 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.

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 vitilia 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 Green-
landers 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

* Dobbs, 24. † Voyage, ii. 368, 369. ‡ Sane, 369, tab. 46, 47. § Dampier, i. 35,
de Bry, Brasl, 165. ∥ Voyage, ii. 374.

Americans
COOK'S RIVER.

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.

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 very height, in which was a vulcano, 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.

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 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

* Voyages, ii. 371.
† See the chart, ii. tab. 44.
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 *Arapatheso* 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 company, as soon as our friendly Indians become acquainted with the value of these maritime furs.

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.

After leaving the entrance into the river, appears *Cape St. Hermogenes*, discovered first by *Bering*. 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 west peninsula *Alaschka*, which begins between the estuary of *Cook's* river and *Brijbol* bay, which bound its isthmus. It points south-west, and continues the crescent formed by the islands which cross the sea from Kamtchatka. *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.

Among the isles, those of *Schoumagin* are the most important, which received their name from having been the place of interment of one of *Bering's* crew, the first which he loft 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 *Omalakhka* in 1776, is very populous. The inhabitants spoke a language different from those

* 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, Hudfon's Bay, 21, 34, 35.*
of that island: it seemed a dialect of the Greenlanders. They called their wooden shields *kayak*, probably because they resemble a *kaiak*, or a little canoe, a *Greenland* word for that species of boat; and themselves *Kanagijt*, as the others style themselves *Karaliit*. They have likewise the woman's boat, like the people of Prince William's found: in fact, they seem to be the same people, but more refined. They were armed with pikes, bows and arrows, and wooden shields. Their thires were made of the skins of birds; also of the earlfs Marmot (*Arct. Zool*. i. No 47), 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 glafs*.

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 fet with beaver wool. The Sea Otters skins which they brought for sale were in some parts thorn quite close with sharp stones, so that they gliftened 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 screens with three parallel perpendicular rows of flakes, bound with sea-weeds and others; 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.

* From a MS. communicated to me by Dr. Pallas, Brogin was commander of a vessel which was fitted out by the merchants on a voyage to the new-discovered islands, and failed from Octobr in 1772. About ten years prior to this, another voyage was made to Kadak by Stephen Glottuff.—See Cox's *Dife*. 168. † Cox's *Ruff*. *Dife*. 12. ‡ MS.
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. 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 as at least as that of St. Clement in Chili, in lat. 45. 30.

The extremity of Alaschka ends abrupt, and has opposite to it an island called Oonemak or Unmak, 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 islands carry the flesh they want to boil; and they are also fond of bathing in the temperate parts.

To the west are the small isles of Oonella and Acotan: at a small distance from them is Oonalashka or Agshun-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 Ochotka or Kamtchatka 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 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 Eskimaux. The language is a dialect of the Eskimaux. 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 flocks in their noes is used in Oonalashka. 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 fling over their frocks another, of the guts of the cetaceous animals, dried and oiled, to keep out the water; and, to

* See the plate, No. 87, vol. ii. for the several views.  
† Brough's Voy. MS.  
‡ D'Urlo  
§ See their boats, tab. 50.  
¶ See their dresses, tab. 48, 49, 55, 57.  
defend.
BRISTOL BAY AND RIVER.

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 tattow 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 Brie, they do not seem ever to have reached the people of Virginia and Florida. They inhabit joruits, or subterraneous dwellings, each common to many families, in which they live in horrible filthines: but they are remarkably civilized in their behaviour; and have been taught by the Ruffians to pull off their caps, and to bow, in their salutations.

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 Alosboka, 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 forms a great bay, called Bristol; with a vast river at the end, with an entrance a mile broad, feated in lat. 58. 27. Cape Newenham, lat. 58. 42, a rocky promontory, is the northern horn of the bay, eighty-two leagues from Cape Ounmak, its southern: an universal barrenness, and want of vegetation, appeared in the neighborhood of the former. The Walruset (No 71) 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, deformed 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 2. Myriads of the Auk tribe haunted these precipices. This seems the extreme northern refort of the Sea Otter.

From Shoal-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. Be-

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* Voyage, ii. 510. † Same, 541. 2 See tab. 87.
yond 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, and 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 Denigh 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 pollied its place: a proof of the loss of the element of water in these parts, as well as in other remote parts of the globe.

The sound, from Cape Denigh, 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 flick 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 Kajack: 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 floping roof (without any side walls) compos'd 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:  

* See tab. 54.
another, seemingly the chief, almost blind: the third, a girl: the last, the wife. 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\(^1\) 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 an 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 Kamtschatka to carry goods over the snow. It was ten feet long, twenty inches broad, with a rail on each side, and shed with bone; all neatly put together, in some parts with wooden pins, but roughly with thongs of whalebone: 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 houses 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 Tschutschi country. This cape forms one side of Bering's straits, 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 Gwofdew, a land surveyor attendant on the Cozzack.

\(^1\) Mulleris salivam quoque jejune potestem dijudicat oculis eruentatis.—Plin. Hist. Nat. lib. xxviii. c. 7.

colonel
Colonel Scheffatsky, 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, sailed towards the southward on July 21st, and on August 22d honorably sunk, at the age of thirty-eight, under a disorder contracted by a continued scene of hardships, endured from his earliest youth in the services of his country †.

To such characters as these we are indebted for the little we know, and probably all that can be known, of the Icy Sea. The antients had some 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 Falmal, and the last, Nova Zemlja, which some will make the Insula Tazata of Pliny, as it resembles in name the river Tas, which flows almost opposite to it into the gulph of Ob ‡. The knowledge which the antients had of these parts must have been from traffic. The old Ladoga was, in very early times, a place of great commerce, by assistance of rivers and seas, even from the farthest parts of the Mediterranean; the coins of Syria, Arabia, Greece, and Rome, having been found in the burial-places adjoining to that antient city §. Another channel of knowledge was formed from the great traffic carried on by the merchants, from even the remote India, up the Volga and the Kama, and from thence to Tcherdy, an emporium on the river Kolva,

* Decouverte, &c. i. 166. † See the particulars of his services, Voyage, iii. 280. ‡ Strahlenberg Hist. Russia, 113. § Same, 110.
feated in the antient Permia or Biormia, and not far south of the river Pechora. From thence the Biormas, who seem to have been the factors, embarked with the merchandize on that river, went down with it to the coasts of the Frozen Sea; and, after obtaining furs in exchange, they returned and delivered them, at Tjcherdyn, to the foreign merchants*: and from them the antients might pick up accounts.

The Icy Sea extends from Nova Zemija 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 left, 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 freight of Bering 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.

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 freight of Bering, and even the Kamtschatkan 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

* Nichols's Russian Nation; i. 176. † Voyage, iii. 277.
ICY SEA.

The ICY SEA.

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 contour with the ice and elements.

The sea, from the south of BERING's freights to the crescent of isles between

**Animals.**

The animals of this sea are very few, and may be reduced to the Polar Bear, No 18; the Walrus, No 71; and Seals. The first does not differ from those of other arctic countries; it is beautifully engraved 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 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 sentinels to give notice of approaching danger; these awakened the next to them, they their neighbors, till the whole herd was roused. These animals are the objects of chase with the Tschutski, 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.

X 2

**Fish.**

**Birds.**

The sea, from the south of BERING's freights to the crescent of isles between

After
POPULATION.

Asia and America, is very shallow. It deepens from these freights (as the British seas do from those. of Dover) tillouldings are lost in the Pacific Ocean; but that does not take place but to the south of the islands. Between them and the freights is an increase from twelve to fifty-four fathom, except only off St. Thaddeus Nafs, where there is a channel of greater depth. From the volcanic disposition I am led to believe not only that there was a separation of the continents at the freights of Bering, but that the whole space, from the islands 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 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 cavilift * would have it) eight hundred leagues. This narrow freight has also in the middle two islands, which would greatly facilitate the migration of the Asiatic 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 freights 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 flock the continent of America. I may fairly call in the machinery of volcanoes 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 Kamtchata and Ossaflsca, 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 where, from 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 encroached 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 sivorum, 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

* The author of Recherches Philosophiques sur les Americains, i, 736.
it, more tumult 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; at length, reaching the farthest limits of the Old World, found a new one, with ample space to occupy unmolested for ages; till Columbus curst them by a discovery, which brought again new fans 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 left 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.

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 Kalmuses, 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 Kamtschatkans, 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 Anthropophagi‡, 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 French prisoners into the horrible cauldron, and devour them with the same relish as those of a quadruped∥.

The Scythians were fayed, 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

* Herodotus, lib. iv.—Compare the account given by the historian with the Tartarian icentulus, in Dr. Pallas's Travels, t. tab. x. a. † Haji. Kamtschak, 57. ‡ Mela, lib. ii. c. 1. § Voyage, ii. ¶ Golden's Five Indian Nations, i. 155. ∥ Herodotus, lib. iv.
own *. These habits they use in the chase, to circumvent the animals of the field. But would not ignorance or superition ascribe to a supernatural metamorphos these temporary expedients to deceive the brute creation?

In their marches the Kamtschatans never went abreast, but followed one another in the same track †. The same custom is exactly observed by the Americans.

The Tungus, 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 ancient Britons did with the herb Glafium, or Woad §; and the Virginians, on the first discovery of that country by the English ||.

The Tungus use canoes made of birch-bark, distended over ribs of wood, and nicely fewed together ¶. The Canadian, and many other American nations, use no other sort of boats. The paddles of the Tungus are broad at each end; those of the people near Cook's river, and of Osathacha, are of the same form.

In burying 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 clothing, 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 carneded **.

Some of the American nations hang their dead in trees. Certain of the Tungus observe a similar custom.

I can draw some analogy from dress: convenience 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 Chinefe 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.

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,

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* Voyage, ii. 311, 329.—A very curious head of a Wolf, fitted for this use, is preferred in the Leverian Museum.
† Hift. Kamfch. 61.
¶ Herodian in Fita Severi, lib. iii. § De Bry, Virginins, tab. iii. 111. ¶¶ Yferautd 1let, in Harris's Coll. ii. 929.
** Compare Goldin, i. 17; Loftau, i. 416; and Archaeologia, ii. 323, tab. xiv.
from the lofty Calmues to the little Nogaisians. 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 Tchutski seem to be the flock from which those Americans are derived. The Tchutski again, from that fine race of Tartars, the Kabardiniski, or inhabitants of Kabarda.

But about Prince William's Sound begins a race, chiefly distinguished by their drefs, their canoes, and their instruments of the chase, from the tribes to the south of them. Here commences the Eskimaux people, or 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 Eobar. The famous Japanese map places some islands seemingly within the outliers of Bering, 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 Kampfer and Charlevoix) made voyages of discovery, and, according to the left, 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 Oonalasche 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 Guwnedd, who, on the death of his father, failed 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 failing well, he left Ireland so far to the north, that he came to a land unknown, where

* See Mr. Hearne's Discoveries.  † Given by Kempfer to Sir Hans Sloane, and now preserved in the British Museum.  ‡ Hist. Japan. i. 67. Charlevoix, fecles Chronologiques, ann. 163.
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 gwando, to hearken or listen; the isle of Cres for welcome; Cape Breton, from the name of our own island; gwyniadur, or the white water; and penguin, or the bird with a white head; are to be found in the American language*. I can lay little stress on this argument, because likenesses 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 Pinguine, 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.

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 Norrmans 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 1022, 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 bestowed the name of Skraelingues, 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‡: Torfaus 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 flocked America with the human race, poured in the brute creation through the same paffage. Very few quadrupeds continued in the peninsula of Kamtchatka. I can enumerate only twenty-five which are inhabitants of land; for I muft omit the marine animals, which had at all times power of changing their situation: all the rest perifhed in their migration, and fixed their residence in the New World. Seventeen of the Kamtchatan quadrupeds are found in America: others are common only to Siberia or Tartary, having, for unknown caufes, entirely evacuated Kamtchatka, and divided themselves between America and the parts of Asia above cited. Multitudes again have deferted the Old World, even to an individual, and fixed their feats at distances moft remote from the spot from which they took their departure; from mount Ararat, the refuling-place of the ark, in a central part of the Old World, and excellently adapted for the diffpersion of the animal creation to all its parts. We need not be startled at the vaft journies many of the quadrupeds took to arrive at their present feats: Might not numbers of species have found a convenient abode in the vaft Alps of Asia, instead of wandering to the Cordilleras of Chili? or might not others have been contented with the boundles 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 philofopher and of the divine; not to attempt it would be a criminal indolence, 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 indifputable, notwithstanding the caufes are concealed. In such caufes, 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 great fountains of the deep to effeét the deluge—and afterwards, to compel the diffpersion of mankind to people the globe, directed the confusion of languages—powers inferior in their nature to thefe. After these wondrous proofs of Omnipo
tency,

* Glover's Account of Virginia, Phil. Trans. A. i. 570. *
QUADRUPEDS OF THE NEW WORLD.

it will be absurd to deny the possibility of infusing instinct into the brute creation. **Deus eff 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 defined 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*, flow of four, would never have absolutely quitted the torrid zone of the Old World for that of the New; and the whole tribe of *Monkies* 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 *Brafs*. 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 *Afia*; or the Pantherine animals of *South America* might have remained additional scourges with the savage beasts of those ancient continents. The Old World would have been overstocked with animals; the 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 destinaion. 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 *Afia*, 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 stights 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 *Afia* to *America*; the laft
QUADRUPEDS OF THE NEW WORLD.

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 uncontrovertibly pointed out. Some (from a passage in Plut) have extended over the Atlantic, from the freights of Gibraltar to the coast of North and South America, an island equal in size to the continents of Asia and Africa; over which 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. 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. Five 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. Of the Quadrupeds, the Bear, Stag, Wolf, Fox, and Weefel, are the only animals which we can pronounce with certainty to be found on each continent. The Stag ‡, Fox, and Weefel, have made also no farther progress in Africa than the north; but on the same continent the Wolf is spread over every part, yet is unknown in South America, as are the Fox and Weefel. I suspect, besides, that the Stag hath not advanced farther south than Mexico. 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 Chilian Alps, and induced them to leave unoccupied the vast tract from North America 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

* Catott on the Deluge, edit. 2d. p. 139, 15, &c.
‡ On the reasoning of Mr. Zimmerman (Zool. Geogr. 476), and the opinion of Mr. Erxleben (Syll. Regn. An. 508), I give up my notion of the Panther (Hist. Quadr. No 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 Egyptians, 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 Europeans.
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, No. 14 of this Work, for the first; and the spotted wild beasts, allied to the Pantherine race, for the second.

TABLE OF QUADRUPEDS.

<table>
<thead>
<tr>
<th>GENUS</th>
<th>NO.</th>
<th>OLD WORLD</th>
<th>NEW WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Ox.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>In parts of Lithuania, and about mount Caucasus; except there, universally domesticated.</td>
<td>To the west of Canada, and as low as Louisana. In New Mexico, on the western side of North America.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musk</td>
<td>2</td>
<td>A variety in the interior parts of Guinea, and the south of Africa. See Hyst. Quad. i. No. 9.</td>
<td>To the north of Hudson's Bay, from Churchill river to lat. 73, and among the Chriftinaux, and in New Mexico.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argali</td>
<td>p. 12</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Deer</td>
<td></td>
<td>Norway. Sweden, to lat. 64. Russia. Siberia, as low as lat. 53. As far east as Lake Baikal; and in the north of China to the north of Cortex. lat. 45°.</td>
<td>Hudson's Bay. Canada. Nova Scotia. New England; and near the northern part of the river Ohio.</td>
</tr>
<tr>
<td>Moose</td>
<td>No. 3</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rein</td>
<td>No. 4</td>
<td>Lapland. Norway. Samoidea. Along the Arctic coasts,</td>
<td>Hudson's Bay. Northern parts of Canada. Labrador,</td>
</tr>
</tbody>
</table>

* Or lat. 42, according to Mr. Zimmerman's new Map.
### TABLE OF QUADRUPEDS.

<table>
<thead>
<tr>
<th>GENUS.</th>
<th>OLD WORLD.</th>
<th>NEW WORLD.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexican Roe, N° 7.</td>
<td>— —</td>
<td>According to Charlevoix, in Canada?</td>
</tr>
</tbody>
</table>

### DIGITATED.

#### DIV. I.

<table>
<thead>
<tr>
<th>IV. Dog.</th>
<th>From the Arctic circle to the most southern part of Europe. In Asia, from the circle to Persia. Kamtschatka. All parts of Africa.</th>
<th>From Hudson's Bay to the most southern parts of North America.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Fox, N° 11.</td>
<td>In all parts of Europe, and the cold and temperate parts of Asia. Kamtschatka,</td>
<td>From Hudson's Bay, cross the continent to the Fox Isles, Labrador. Newfoundland.</td>
</tr>
<tr>
<td>GENUS</td>
<td>OLD WORLD</td>
<td>NEW WORLD</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><em>chatka, and its further isles. Iceland. E.</em></td>
<td><em>foundland. Canada. Not further south: a variety only, the Brandt Fox, in Pennsylvania.</em></td>
</tr>
<tr>
<td>V. CAT.</td>
<td></td>
<td>From New England to the southern end of North America.</td>
</tr>
<tr>
<td>Grey, N° 12</td>
<td></td>
<td>In Louisiana.</td>
</tr>
<tr>
<td>Silvery, N° 13</td>
<td></td>
<td>From Canada to Florida; thence through Mexico, quite to Quite in Peru.</td>
</tr>
<tr>
<td>Puma, N° 14</td>
<td></td>
<td>From Canada, over most parts of North America.</td>
</tr>
<tr>
<td>Bay Lynx, N° 16</td>
<td></td>
<td>The fame in America; also as low as Hudson's Bay and Labrador.</td>
</tr>
<tr>
<td>Mountain, N° 17</td>
<td></td>
<td>In all parts of North America.</td>
</tr>
<tr>
<td>VI. BEAR.</td>
<td></td>
<td>To the north-west of Hudson's Bay, and on the western side of America. About Nootka Sound.</td>
</tr>
<tr>
<td>Polar, N° 18</td>
<td>Within the whole polar circle of Europe and Asia.</td>
<td>On the Andes of Peru. As far north as the Copper River, and south as the country between lake Huron and Superior. On the</td>
</tr>
<tr>
<td>Black, N° 19</td>
<td>Jefo Masima, north of Japan; perhaps in Japan.</td>
<td></td>
</tr>
<tr>
<td>Brown, N° 20</td>
<td>In most parts of Europe, north and south. The fame in Asia, even as far as Arabia. Barbary †. Ceylon. Kamtschatka.</td>
<td></td>
</tr>
</tbody>
</table>

* As I have been assured by Decker Pallas, since the publication of my History of Quadrupeds.
† Show's Travels, 249.
‡ Condamine's Travels, 32.—Ulton's Voyage, 1. 461.
## Table of Quadrupeds

<table>
<thead>
<tr>
<th>Genus</th>
<th>Old World</th>
<th>New World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raccoon, No. 22</td>
<td>—</td>
<td>the western side of North America.</td>
</tr>
<tr>
<td>VII. Badger, No. 23</td>
<td>In the south of Norway, and all the more southern parts of Europe. In the temperate parts of Asia, as far as China eastward. E.</td>
<td>In the neighborhood of Hudson's Bay, Terra de Labrador, and as low as Pennsylvania.</td>
</tr>
<tr>
<td>VIII. Opossum, Virginian, No. 24</td>
<td>—</td>
<td>As far north as Canada, and from thence to the Brazils and Peru.</td>
</tr>
<tr>
<td>IX. Weasel, Common, No. 25</td>
<td>Most parts of Europe. Siberia, Kamtschatka, B.</td>
<td>Hudson's Bay. Newfound-land. As far south as Carolina.</td>
</tr>
<tr>
<td>Stoat, No. 26</td>
<td>All the northern parts of Europe and Asia; and as far as Kamtschatka and the Kuril isles. E.</td>
<td>Hudson's Bay, and as low as Newfoundland and Canada.</td>
</tr>
<tr>
<td>Pine Martin, No. 27</td>
<td>North of Europe. Rare in France. Only in the west of Siberia. In China. E.</td>
<td>Northern parts of North America, quite to the South Sea.</td>
</tr>
<tr>
<td>Pekan, No. 28</td>
<td>—</td>
<td>Hudson's Bay, Canada.</td>
</tr>
<tr>
<td>Vison, No. 29</td>
<td>—</td>
<td>Canada.</td>
</tr>
<tr>
<td>Sable, No. 30</td>
<td>Siberia, Kamtschatka, Kuril isles.</td>
<td>Canada.</td>
</tr>
<tr>
<td>Striated, No. 32</td>
<td>—</td>
<td>Pennsylvania to Louisiana.</td>
</tr>
<tr>
<td>Skunk, No. 33</td>
<td>—</td>
<td>From Hudson's Bay to Peru.</td>
</tr>
<tr>
<td>X. Otter, Common, No. 34</td>
<td>Northern Europe and Asia. Kamtschatka, E.</td>
<td>From Hudson's Bay to Louisiana.</td>
</tr>
</tbody>
</table>

Lesser...
<table>
<thead>
<tr>
<th>Genus</th>
<th>Old World</th>
<th>New World</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leffer, No. 35</td>
<td>About the banks of the Taïk, Poland, Lithuania, Finland.</td>
<td>From New Jersey to Carolina.</td>
</tr>
<tr>
<td>Sea, No. 36</td>
<td>Kamtschatka, Kuril isles.</td>
<td>Western coasts of America.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Div. II</th>
</tr>
</thead>
<tbody>
<tr>
<td>XI. Hare.</td>
</tr>
<tr>
<td>American, No. 38</td>
</tr>
<tr>
<td>Alpine, No. 39</td>
</tr>
</tbody>
</table>

| Musk, No. 41 | | From Hudson's Bay to Louisiana. |

| XIII. Porcupine |
| Canada, No. 42 | | From Hudson's Bay to Virginia. |
| Quebec, No. 43 | | Canada. |
| Maryland, No. 44 | | From Pensylvania to the Bahama isles. |

| XIV. Marmot. |
| Hoary, No. 45 | | North of North America. |
| Tail-lefs, No. 46 | | Hudson's Bay. |
| Earlefs, No. 47 | Bohemia, Austria, Hungary. From the Ocea over the temperate parts of Siberia. About Yakutz, Kamtschatka. | Western side of North America. |

<p>| XV. Squirrel. |
| Hudson, No. 48 | | Hudson's Bay, Labrador. |
| | Grey, | |</p>
<table>
<thead>
<tr>
<th>GENUS</th>
<th>OLD WORLD</th>
<th>NEW WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey, N° 49.</td>
<td>—</td>
<td>New England to Peru and Chili.</td>
</tr>
<tr>
<td>Flying, N° 51.</td>
<td>—</td>
<td>From the southern part of Hudson's Bay to Mexico.</td>
</tr>
<tr>
<td>Hooded, N° 52.</td>
<td>—</td>
<td>Virginia.</td>
</tr>
<tr>
<td>Severn River, N° 53.</td>
<td>—</td>
<td>Hudson's Bay.</td>
</tr>
<tr>
<td>Striped, N° 54.</td>
<td>Siberia, as high as lat. 65.</td>
<td>Hudson's Bay to Louisiana.</td>
</tr>
<tr>
<td>English ?, N° 55.</td>
<td>Sweden, and all Europe south. E. Carolina?</td>
<td></td>
</tr>
<tr>
<td>Black, N° 56.</td>
<td>All Europe. Many of the South Sea islands. E.</td>
<td>The rocks among the Blue Mountains.</td>
</tr>
<tr>
<td>Water, N° 59.</td>
<td>From Lapland to the south of Europe. From Peterburg to Kamtschatka, and as low as the Caspian sea, and Persia. E.</td>
<td>From Canada to Carolina.</td>
</tr>
<tr>
<td>Mouse, N° 60.</td>
<td>Universal. E.</td>
<td>Among the rocks, with the Black Rat.</td>
</tr>
<tr>
<td>Virginian, N° 62.</td>
<td>—</td>
<td>Virginia.</td>
</tr>
<tr>
<td>Labrador, N° 63.</td>
<td>—</td>
<td>Hudson's Bay. Labrador.</td>
</tr>
<tr>
<td>Hudson's, N° 64.</td>
<td>—</td>
<td>Same places.</td>
</tr>
<tr>
<td>Meadow, N° 65.</td>
<td>Sweden. All temperate Russia. In Siberia only to the Irifish. E.</td>
<td>Hudson's Bay. Newfoundland.</td>
</tr>
<tr>
<td>Hare-tailed ?, N° 66.</td>
<td>Siberia.</td>
<td>Hudson's Bay.</td>
</tr>
<tr>
<td>Long-tailed, N° 68.</td>
<td>—</td>
<td>New York. Interior parts of Hudson's Bay.</td>
</tr>
<tr>
<td>Radiated, N° 69.</td>
<td>—</td>
<td>New York.</td>
</tr>
<tr>
<td>Brown, N° 70.</td>
<td>—</td>
<td>New York.</td>
</tr>
</tbody>
</table>
### TABLE OF QUADRUPEDS.

<table>
<thead>
<tr>
<th>GENUS</th>
<th>OLD WORLD</th>
<th>NEW WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walrus</td>
<td>Arctic, N° 71</td>
<td>Spitzbergen. Greenland. Nova Zembla. The coast of the Frozen Sea. And on the Asiatic side, to the south of Bering's freightas, as low as lat. 62. 50.</td>
</tr>
</tbody>
</table>

#### DIV. III.

<table>
<thead>
<tr>
<th>GENUS</th>
<th>OLD WORLD</th>
<th>NEW WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seal</td>
<td>Common, N° 72</td>
<td>All the European and northern Asiatic seas, even to the farthest north. Kamtschatka. E.</td>
</tr>
<tr>
<td></td>
<td>Great, N° 73</td>
<td>Greenland and Kamtschatka. E.</td>
</tr>
<tr>
<td></td>
<td>Leporine, N° 75</td>
<td>White Sea. Iceland. Spitzbergen. Kamtschatka.</td>
</tr>
<tr>
<td></td>
<td>Urfine, N° 79</td>
<td>Kamtschatka. New Zealand.</td>
</tr>
</tbody>
</table>

#### DIV. IV.

<table>
<thead>
<tr>
<th>GENUS</th>
<th>OLD WORLD</th>
<th>NEW WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manati</td>
<td>Whale-tailed, N° 81</td>
<td>Bering's isle, and near the isle of St. Mauritius.</td>
</tr>
<tr>
<td></td>
<td>Sea Ape, p. 181</td>
<td>—</td>
</tr>
</tbody>
</table>

#### DIV. V.

<table>
<thead>
<tr>
<th>GENUS</th>
<th>OLD WORLD</th>
<th>NEW WORLD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Long haired, N° 83</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Noctule, N° 84</td>
<td>France. E.</td>
</tr>
</tbody>
</table>

Some
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. 50, north lat. He for a long space took a north-western course, crossed Meniobtic lake, in lat. 61, a water thirty-five miles in breadth, full of fine islands, and joining with the river Namafy. He passed over Wietben and Cassed lakes, and from the last kept due west. In April he reached Thleweyaza Yith, a small lake in long. 19, west from Churchill fort, lat. 61. 30, near which he made some try 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 Pebew lake; after that, the great lake Cogeet, 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-cathawha-thaga, in lat. 68. 46; and from Churchill river west long. 24. 2. About those parts are the Stone Mountains, extending in longitude from 116 to 122 from London: craggy, and of a tremendous aspect. On July 7th he arrived at Buffalos lake, in lat. 69. 30: here he first saw the Musk Buffalos, No 2. Near the north end is Grizzle Bear-hill, in about lat. 70, so called from its being the haunt of numbers of those animals. 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 choked with shoals, and crossed with flume 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, 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 surprized 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
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 drefs they much resemble the Esquimaux of Hudson’s Bay, but the tails of their jackets are shorter; neither do the women, like them, stiffer 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 flunted Pines.

The people who live nearest to this river, are the Copper-mine Indians, and the Plat-cotes de Chien, 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 their arrows with flake. The Copper Indians have abundance of native copper in their country; they make with it ice-chisels 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 the last year. 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 freights, a paffage to the Pacific Ocean? He assured me, that he could make no mistake: that he passed over many of them in canoes during the sum-

* Dobbs’s Account of Hudson’s Bay, &c. 47.
mêr, and that the others had large rivers running out of them, almost every one to the west: that the Indians, who crofled 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.

I muft 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 moft northern extremity of the country called Greenland, if it reaches fo 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 easterly coaft, in 1670, was feen land in lat. 79. Another part, in lat. 77. 30, called in the maps the land of Eden, was feen in 1655. The inlet named Gacl-hamkes, in lat. 75, was discovered in 1664. A headland was observed, in 1665, a degree further south; and in 1607 our celebrated Hudson discovered what he named Hold with Hope, in lat. 73*. Excepting the laft, the rest of the attempts were made by the Danes, for the recovery of Old Greenland. Gacl-hamkes alone continues known to navigators, and is annually frequented by European Whale-fihers, who extend their business even to this coaft. It is represented as a great strait, 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 fcone weapons of the inhabitants of the opposite country; which fish muft have escaped through this faffage†. The land to the north of Gacl-hamkes is level, and not very high; and with-in five or fix leagues from it are foundings. That to the south is very lofty, and rises into peaks like that of Spitzbergen; and the sea opposite to it is fathomless‡.

In lat. 71. long. 8. west from London, is John Mayen's ifland, formerly much frequented by Whale-fihers; 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 fo fteep as to be inaccefsible to all human creatures. The sea, within mufket-shot from shore, was fixty fathoms deep; a little farther the depth is past the reach of the line ‖.

Oppofite to Iceland begins the once-inhabited part of Old Greenland. A very deep strait opens a little oppofite to Snæfellsnes, and runs acrofs Greenland, near Jacob's Haven, into Davis's Streights, fo as quite to infulate the country: it is

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* Parcelas, iii. 568. † Voyages par de Pagis, ii. 222. ‡ Same. ‖ Maren's Spitzk. 136.
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 Blaafisk and Huitferk, caved 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 glaciers, 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 country (a common cause for seeking adventures, with the heroes of Greece as well as Scandina\v) 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.

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, polluted by friars preachers. It appears to have been built near a vulcano, and the materials were lava, cemented with a fort of pulvis puteolanus, which is known to be a vulcanic 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 everywhere evident, that I hesitate not to credit the authenticity.

Torfæus enumerates seventeen bishops who presided over the diocefe. 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 ancient 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 insuperable 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

* Vol. iii. 123; and Purchas, iii. 610. † Crantz, i. 18.
NEW GREENLAND.

southern extremity, on an ile off that point, in lat. 59; on both sides deeply indented with bays, bounded by icy promontories. Many of these bays had been parts of pervious freights, which had divided the country into several islands; but are now totally obstructed with ice. Befides that I before mentioned, was one in lat. 63, called Bür-fund; and that in 62. 50, immortalized by the name of our celebrated sailor Frobísher, who penetrated into it fixty leagues, in his first voyage in 1576, in his search for a paßage to Cathaya; but imagined that Asia bounded the right side, and America the left *.

He met with inhabitants, describes them and their economy, and is particular about their great dogs, and their use of them in drawing their fledges. In his second voyage he found a Narwhal dead on the shore, and has given a figure of it. 'This horne,' says he, 'is to be fene and reserved as a jewel by the Queens Majefties commandement, in her wardrobe of robes †.'—The original map of his voyages is a singular sketch of erroneous suppoftion. He makes his freights reach to the Icy Sea, opposite to what he calls Cathaya, juft to the north of what is made to resembe the new-discovered freights of Bering; which, in the map, are called those of Anian; and accidentally gives them a tolerably juft form ‡. Thofe of Anian are equally fabulous with those of de Fuca, but of prior invention; and, like them, were fayed to have been a paßage from the South to the North sea §. Queen Elizabeth beftowed on his discoveries the name of Meta Incognita.

Greenland was re-settled with Norwegians in 1721, by the zeal of the Reverend Mr. Hans Egede, the Arctic apolfe §. He continued, till 1735, preaching the Gofpel to the poor natives; and had not only the happines of feeing his labors blessed with effecl, but his example followed by a numerous fett of miffionaries, who have formed (on the western fide only) many fettlements, which flourifh even to this day. Mr. Egede returned to Denmark, founded a feminary for students in the Greenland language, from which miffionaries were to be drawn; and finifhed his pious life in 1754.

At Cape Farewell begins the vaft opening between Greenland and Terra de Labrador, which leads to Hudfon's Bay. Between the weft fide of Greenland and certain vaft iflands, are Davis's Streights, which lead to Baffin's Bay. These iflands

* A true Difcourfe of the late Voyages of Difcoverie for finding a Paßage to Cathaya by the "north-weft, under the Conduft of Martin Frobísher, General. Printed by Henry Eyneyman, 1578." First Voyage, p. 48.
† The Same, Second Voyage, p. 19.
‡ In the fame book.
§ See an account of thofe imaginary freights in Drage's Voy. to Hudfon's Streights, vol. ii. 68.
§ Grantz, i. 279. 285.
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 grasses; 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 glaciers constantly gain on the vallies, and destroy all hopes of improvement. That amazing glacier, 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 fragments of ice, which have fallen from various icebergs, and prove one supply to the ocean of its floating ice. The freights, 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. lxxxv; 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 saphir; the first, Mr. Egede attributes to the concentration 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 Disko, about lat. 60, only one; further north it sinks even to one foot. In great spring-tides, especially in winter, is this strange phenomenon: springs of fresh-water are forced up on the shores in places where they were before unknown.

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* Collate Mr. Middleton's map, and others.  
† Vol. i. 60.  
§ Hackl. iii. 101.  
¶ Crantz. i. 21 to 24.  
** Same, 19.  
†† Egede, 55.  
§§ Same, 41.  
†‡ Egede, 55.  
During
GREENLAND.

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 flee abroad, even when protected with every guard of cloathing.

The Greenlanders fastidiously style themselves Innuit, i.e. men, as if they 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 Eskaux, the small race which borders all the Arctic coasts. They originated from the Samoed 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 Eskaux and Greenlanders. Similar people, or vestiges of them, have been seen in different places, from Prince William's Sound to the north of Bering's straits. 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 Nanfok, 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: scarcity, 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 influences 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 Zoology. The Reverend Mr. Otte Fabricius, whom a laudable zeal for enlightening the minds of the gross inhabitants,

*Voyage en Siberie, i. 381. + As quoted in Green's map of America. † Cook's Voy. i. Pref. LXXXIV. § Same, ii. 43.
led to these parts, hath given a most ample and classical 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*, No. 4, 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 *Ukalrajek* 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 lift down the back, and of the size of a Rein-deer. The *Dogs*, p. 41, 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 *Eskimaux* 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*, No. 10, abound here; and, with *Polar Bears*, No. 18, infest the country. Had I not such excellent authority, I should have doubted whether the *Wolverene*, No. 21, 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*, No. 37, is very common. The *Walrus*, and five species of Seals, inhabit these seas: the *Common*, No. 72; the *Great*, No. 73; the *Rough*, No. 74; the *Hooded*, No. 76; the *Harp*, No. 77; and an obscure species, called by the *Laplanders*, *Fatna Vindae*, 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*, No. 81, 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 the same kind of conveyance from *Greenland* to *Iceland* as it did with the Rein-deer to *Spitzbergen*. To the last was wafted, probably from *Labrador*, the *Common Weasel*, the *Red* or *Common Fox*; and the *Moufe*, mentioned p. xlix, missed *Greenland*, but arrived at and stalked *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.

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† Same, p. 17.—Letts Lapm. 214, 215.

The
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 fishery for them by the Dutch, in Dikko 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 whale-bone as articles of commerce. It is certain that they do not drink train-oil, like the true Eskimaux, and some other Congenors people. The species which frequent Greenland are, the Monodon Monoceros, or Narwhal, Lin. Syll. 105: the Monodon Spurus, Fann. Groenl. No 19; a rare species, with two teeth, about an inch long, projecting from the extremity of the upper jaw: the Balaena Mystecetus, or Common Whale, Br. Zool. iii. No 16: Balaena Physalus, or Finfish, No 18; Balaena Musculus, or Round-lipped, No 19: the Balaena Rostrata, Fann. Groenl. No 84; a very small species with a long snout: Physeter Macrocephalus, Fann. Groenl. No 25: Physeter Catodon, or Round-headed Cachalot, Br. Zool. iii. No 22: Physeter Microps, or Blunt-headed Ca-


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 clane to America.

† Crantz, i. 118.

‡ Egert, i. 134.—Cranz, i. 144.
GREENLAND.

chalot, Br. Zool. iii. No. 21: Delphinus Orc, or Spekhugger, Faun. Groenl. No. 28; the tormentor of the greater Whales, whom they will mix on, as Bull-dogs will on a Bull, and tear out large pieces from their bodies: Delphinus Phoca, the Porpesse, Br. Zool. iii. N. 25: Delphinus Delphis, or the Dolphin, No. 24: the Delphinus Tursio, or the Grampus, No. 26: and finally, the Delphinus Albicans, or Beluga Whale, p. 182 of this Work, which enlivens those waters with its resplendent whiteness.


GREENLAND.

N° 120: Striped Wrasse? Br. Zool. iii. 110: Porca Norvegica, Faun. Greenl. 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 Sound, on this western coast, in lat. 65. 45. The Salmo Carpio, Faun. Greenl. 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, comforts with the other, and is as common. The Salmo Stagnalis, Faun. Greenl. 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 founded, 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 affures 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. Some sand-stone, and many sorts of coarse marble. The Lapis Olarius is found here in abundance, and of great use to the natives for making of pots. Talc is frequent here.

* Purchat, iii. 248. † See it well engraven in M. Du Hamel, Hift. de Poissons, part ii. sub. xxvi. ‡ Davis’s Voy. in Hackluyt, iii. 102. § Same, 111.

Asbeflos.
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-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 Wesenholme 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,
RUSSIAN SETTLEMENTS.

to found he called by the name of Alderman Jones, in lat. 76. 40. Here the land ran due south to a great found in lat. 74. 20, which he called Sir James Lancaster's. From this place the land took an eastern curvature, to the freights between the continent and Cumberland island. Baffin took his course between that isle and the isle of Saint James, left his name to the freight he passed, and arrived safe in Cockin's Sound, on the coast of West Greenland, where he found the tide rife 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 furnises of his having 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.

Before I quit these frozen regions, I must once more return to Spitzbergen, to relate, what has but very lately been communicated to me, that 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 Crown Bay, King's Bay, Magdalena Bay, Smirrenburgh, 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 four 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 keen-ness of the northern wind.

Mr. Erskine Tonnach, 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 economy 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.

* For the account of this curious voyage, see Purchas, iii. from p. 836 to 848.
† Clerk of the California's Voy, i. 106. — For a further account of this unfortunate voyage, see Churchill's Collection, ii. 472.
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 fish, as the safts preferred 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 preferred as articles of commerce in their own country. They catch the Beluga, or white Whale, in nets, being converfant 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 view 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 lyptic powers. It retreated with much show; 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 refreshing 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 fever, which brought all the preceding adventurers, who perished, to their miserable end*.

HUDSON'S BAY.

We now proceed through a nameless freight, 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 voyage, in the voyage he made, was the discovery of a passage to the East Indies. The

* 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.
Hudson's Bay.

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, or Bovuden's Inlet, was likewise suspected to have been the desired freight; but in 1762 Messrs. Norton and Christopher, in a sloop and cutter belonging to the Company, went to the remotest end. At the distance of a hundred and twenty-eight miles from the mouth was scarcely any tide; thirty miles further 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 in navigable, 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 freights 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 wooded, except the mouths of Pecherekeefko, and Seal rivers. The hills on their back are naked, nor are there any trees for a 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.

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*. 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.

During winter the firmament is not without its beauties. Mock suns and halos 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 sky, not to be defaced even by the splendor of the full moon; and the flars 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, surpass 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. † Ellis, 172.
H U D S O N ' S  B A Y.

Excess 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 of a small size are found in the rivers, not far from the sea. They appear to me to be of the same species with the English. Sturgeons are found in great plenty in the lakes far inland, and from the weight of six to forty pounds. I suspect these to be the same with the Sturgeons of the great lakes of Canada, which, I am told, are smooth, or free from tubercles; and probably the *Acipenser Hufs* of Linnaeus, and Hanfen of the Germans, a fish of the Danube and Wolsa.

The *Lophas Piscatorius*, or Common Angler, Br. Zool. iii. No. 51, appears towards the surface only in windy weather; for which reason it is called by the natives *Thutina-meg*, or the Wind-fish.

The *Gadus Lota*, or Burbot, Br. Zool. ii. No. 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.

Allied to this is the *Mathemeg* 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 Fluviatilis*, or common Perch, Br. Zool. iii. No. 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. No. 129, is found here in great numbers.

*Salmo Salar*, or the common Salmon, Br. Zool. iii. No. 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. Ic. b. 198?*

*Salmo Alpinus*, or Char, Br. Zool. iii. No. 149, is common in the fresh waters, and weighs from two to six pounds.

The *Salmo Lavaretus*, or Gwiniad, Br. Zool. iii. No. 152, is found here in vast abundance; and grows to a size far superior to those of Europe. There is a lesser kind,
HUDSON'S BAY.

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 Tockumeg. The Salmo Arcticus, or Capelin, is observed to precede the Salmon, and is sometimes thrown on shore in amazing quantities by hard gales.

The Omijca Maycus is a new species of Trout, taken in May in Albany river, not exceeding four inches and a half long. It has five branchioflegous 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 black flelliform spots: below the lateral line the color silvery: the belly white.

The Pike, Er. Zool. iii. No 153, abounds in all the lakes. It by no means arrives at the size of the English. Mr. Hutchins does not recollect any above the weight of twelve pounds.

The Cyprinus Catafemus of Dr. Forster*, or Sucker Carp, is a new species: of which there are two varieties: the Mithco-Mapeth of the Indians, marked with a broad stripe of red along the lateral line, and found on the sea-coast; and the White, or Namapeh, 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. The form is oblong: the head bony, 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. No 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.

Among the birds, which escaped my notice while I was writing the zoologic part of this Work, are two of the Eagle kind, found in this country: the first is the Yellow-Headed, with a dusky bill, cere, and irides: head and neck yellowish: back dark brown; each feather tipped with dirty yellow. This species appears in Hudson's Bay in April. Builds its nest in trees, with sticks and grass; and

* By whom it is well described and figured, in vol. ixi. p. 155. tab. vi. of Ph. Trans.
Hudson's Bay.

lays one egg. It preys on young Deer, Rabbets, and Fowls. Retires southward in October. Is called by the Indians, Ethensue Mikesue.

A variety of the Golden Eagle is also a native of the same place. The forehead is brown: crown and hind part of the neck striped with brown, white, and rusty yellow; lower part of the neck, breast, and belly, deep brown: covert of the wings, back, secondaries, and scapulars, of the same color; the two last white towards their bottoms, and mottled with brown: primaries black; middle feathers of the tail brown, barred with two or three cinereous bands; exterior feathers brown, blotched with cinereous; legs cloathed with pale brown feathers to the toes, which are yellow. Length three feet. A specimen of this was presented to the British Museum.

To these may be added a genuine Falcon, communicated to me by Mr. Latham. The bill very sharp, and furnished with a large and pointed procfs in the upper mandible: cere yellowish: head, front of the neck, breast, and belly, white: each feather marked along the shaft with a line of brown, narrowest on the head: the back and covert of the wings of dirty bluish ash-color; the edges of the feathers whitish, and many of them tipped with the same: primaries dusky; exterior webs blotched with white; interior barred with the same color: tail of the same color with the back, barred with white; but the bars do not reach the shaft, and, like those in the Iceland Falcon, oppose the dark bars in the adverse web: the legs bluish. The length of this fine species is two feet two inches.

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 Grous 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 pas in vast herds towards the 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 comforts. Several are killed in their paffage; 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 description and history of this species was communicated to me by Mr. Hutchins.
males return to shore, and, by Auguft, are joined by their consorts, with the cubs, by that time of a considerable size.  

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 Archiwinnipsey 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 Esquimaux; but deferred 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 everywhere uneven, and covered with maffles of stone of an amazing size. It is a country of fruitless valleys 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 valleys are full of crooked fluted 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, Esquimaux. The Dogs of the former are very small; of the latter, large, and headed like a Fox. Notwithstanding they have Rein-deer, they never train them for the fledge; but apply the Dogs to that use. Walruses visit a place called Nuchvank, 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.

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 Esquimaux, and the mission goes 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, dare the extremities of heat and cold. They endeavour to humanize the favage of Greenland, and improve the morals of the soot inhabitants of the unwholesome coasts of Bengal. They are not actuated by ambition, political views, or ava-
NEWFOUNDLAND.

rice. 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 south-west. Between that cape and the isle of Newfoundland begin the freights of Belleisle, a passage with from twenty to thirty fathoms water; but often choked 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. Lawrence, bounded to the north by Terra de Labrador; to the west by Nova Scotia; to the east by Cape Breton and Newfoundland. In the western corner, the vast river of St. Lawrence 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. Maloès, had, in 1534, the honor of being the first discoverer of this noble river.

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 Walrus. There is an annual chace 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 (a name, in the infancy of discovery, common to all North America) was discovered in 1496, by the celebrated Venetian, Sebastian Cabot and his three sons; who, at their own charges, under a grant of Henry VII., gave 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 specie 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 acquit.' The French soon found out the gold mine of the Newfoundland discovery, which offered itself in the fisheries. Of all minerals (twice says the same noble philosopher) there

* Barrington: Miscel. 25. † Read the account of Lord Amherst's descent down this river, in 1760. ‡ See p. 148. § Rymer's Hist. ‖ Hist. King Henry VII. Bacon's Works. ill. 89.
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 fitting 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 mainmast and foremast, and lugmasts; furnished with four oars, three of which are on one side, and the other (which is twice as large) belays the other three, by being rowed sidewise 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 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 allowance 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 eat, and keep for some time, in case of scarcity of the rest; but these are not 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 convenience of throwing the offal into the sea, and

* Hakluyt, iii. 159.
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 throws 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 backbone, which falls through the floor into the water. He then throws 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 fings 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 made by a flight 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 rolls flapping 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 barrelled 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
Cape Breton.

The barren island of Cape Breton forms one side of the great entrance into the gulph of St. Lawrence. 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 Walruses, 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 fortresses of Louisbourg is now demolished, and the place deserted. The great peninsula of Nova Scotia is separated from Cape Breton by a narrow strait. 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 Acadie. 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*. The design almost instantly failed, and the French were permitted to repose 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 milty and damp. The face of it is in general hilly; but can scarcely be called moun-

* Collin's Baronet, iv. 330.
taneous, 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.

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 under-fell 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 the articles expedition and frugality, our labors are truly vain. It is to the antient 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 fet of men who of late (a public calamity) have made hither an involuntary migration, who with sad hearts recollect their exiled land:

Nos Patriae fines, nos dulcia linquimus arva:
Nos Patriam fugimus.

These 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.

The harbours of this province are frequent and excellent. The tides are in many places most uncommonly high. Those of the bay of Fundy are the most remarkable; for they force themselves into the great creeks with a bore or head from
from fifty to seventy-two feet high, and with most amazing rapidity. Hogs, which feed along the shores, are much more sensible of its approach than mankind: they are observed to listen, to prick up their ears for some time, and then suddenly to run off at full speed.

The coasts are, in general, rude and rocky, with some variations; but in many places exhibit most picturesque scenery. All the northern side is high, red, and rocky. The isles of Cape are varied with many low white rocks. From them to Torbay is a series of lofty coast, broken and white. Beaver Harbour is guarded by most picturesque rounded isles. South shore of Chebucto steep: the piaffer cliffs in George Bay are remarkable for their precipitous face and whiteness. Sable or Sand Island is distinguished (as the name imports) by amazing sand-hills of a sugar-loaf form. The isle of Great Manan, on the western side of the entrance of the bay of Fundy, is very lofty, the strata divided, and the top wooded. St. Mary's Bay is nobly bounded by high rocks, cloathed on their summits with woods: the entrance into it are the Grand and Petit Passage; the sides of the last are either covered with hanging woods, sloping to the water-edge, or broke into short precipices. The entrance into the fine harbour of Annapolis is most august: a narrow gut, bounded by enormous precipices, with lofty hills soaring above, the tops of which are even and cloathed with woods. The approach to the bason of Minas is not less magnificent. The columnar rocks of Cape Split are very singular. The isle of Haute is lofty and steep on every side. The whole neighborhood abounds with views of the most sublime and romantic cast. This peninsula joins the great continent by a very narrow isthmus, beyond which we retain a wretched barren remnant of near half of the New World; the sad reverie of the short space of twenty years!—My eyes withdraw themselves from the mortifying sight. Britain, which fate (by the wisdom of one man) as the Queen of Nations, now deplores her folly; and ought to confess, that those things which were 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 fordid ambition.—Once more, 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 Minifter the virtues of his father!—Emulate, young Man, his virtues, and then—

Si qua fata apera rumpas;

Tu Marcellus cris.

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ARCTIC ZOOLOGY.

CLASS I. QUADRUPEDS.

DIV. I. HOOFED.

HIST. QUAD. GENUS II.


OX. With short, black, rounded horns; with a great space between their bases: on the shoulders a vast bunch, composed of a fleshy substance, much elevated: the fore part of the body thick and strong: the hind part slender and weak: tail a foot long, naked to the end, which is tufted: the legs short and thick.

The head and shoulders of the Bull are covered with very long flocks of reddish woolly hair, falling over the eyes and horns, leaving only the points of the latter to be seen: on the chin, and along the dewlaps, is a great length of shaggy hairs: the rest of the body during summer is naked, in winter is cloathed equally in all parts. The Cow is leffer, and wants the shaggy coat, which gives the Bull so tremendous an aspect.

It grows to a great size, even to the weight of sixteen hundred or two thousand four hundred pounds *. The strongest man cannot lift the hide of one of these animals from the ground †.

The *Bison* and *Aurochs* of Europe is certainly the same species with this; the difference consists in the former being less shaggy, and the hair neither so soft nor woolly, nor the hind parts so weak. Both *European* and *American* kinds scent of musk.

In ancient times they were found in different parts of the old world, but went under different names; the *Bonasus* of Aristotle, the *Urus* of Cæsar, the *Bos ferus* of Strabo, the *Bison* of Pliny, and the *Bifon of Oppian*, so called from its being found among the *Bifones*, a people of *Thrace*. According to these authorities, it was found in their days in *Media* and in *Paonia*, a province of *Macedonia*; among the *Alps*, and in the great Hercynian forest, which extended from Germany even into *Sarmatia* *.* In later days a white species was a native of the *Scottish* mountains; it is now extinct in its savage state, but the offspring, sufficiently wild, is still to be seen in the parks of *Drumlanrig*, in the South of *Scotland*, and of *Chillingham* Castle in *Northumberland* †.

In these times it is found in very few places in a state of nature; it is, as far as we know, an inhabitant at present only of the forests of *Lithuania*, and among the *Carpathian* mountains, within the extent of the great Hercynian wood ‡, its ancient haunts; and in *Asia*, among the vast mountains of *Caucasus*.

It is difficult to say in what manner these animals migrated originally from the old to the new world; it is most likely it was from the north of *Asia*, which in very ancient times might have been flocked with them to its most extreme parts, notwithstanding they are now extinct. At that period there is a probability that the old and the new continents might have been united in the narrow channel between *Tebukhi nos* and the opposite headlands of *America* ³.

---

‡ There is a very fine figure of the *European* *Bison* in Mr. Ridinger’s *Jagere Thiere* and
and the many islands off of that promontory, with the Aleutian or New Fox islands, somewhat more distant, stretching very near to America, may with great reason be supposed to be fragments of land which joined the two continents, and formed into their insular state by the mighty convulsion which divided Asia from America. Spain was probably thus disjoined from Africa; Britain from France; Iceland from Greenland; Spitzbergen from Lapland.

But that they passed from Asia to America is far the more probable, than that they stock'd the new world from the side of Europe, not only on account of the present narrowness of the strait between the two continents, which gives a greater cause to suppose them to have been once joined; but that we are now arrived at a certainty, that these animals in antient days were natives of Siberia: the sculls, with the horns affixed, of a size far superior to any known at this time, have been found fossil not only on the banks of the Ilga, which falls into the Lena, but even in those of the Anadyr, the most eastern of the Sibirian rivers, and which disembogues north of Kamtchake into those straits: similar skulls and horns have been discovered near Dirjchau, in Poland, also of a gigantic magnitude; and in my opinion of the same species with the modern Bifons.*

In America these animals are found in the countries six hundred miles west of Hudson's Bay; this is their most northern residence. From thence they are met with in great droves as low as Cibole †, in lat. 33, a little north of California, and also in the province of Mivera, in New Mexico ‡; the species instantly ceases south of those countries. They inhabit Canada, to the west of the lakes; and in greater abundance in the rich savannas which border the river Mississipi, and the great rivers which fall into it from the west, in the upper Louisiana.§

* Nov. Com. Petrop. xvii. 460. tab. xi. xii.—I am sorry to differ from my esteemed friend Doctor Pallas, who thinks them to be the horns of Buffaloes; which are longer, straiter, and angular.
† Purchas, iv. 1560, 1566. ‡ Fernandez, Nov. Hisp. x. c. 30.—Fernandez, 58.
§ Du Pratz, ii. 50. i. 116. 286.
BISON.

There they are seen feeding in herds innumerable, promiscuously with multitudes of fags and deer, during morning and evening; retiring in the sultry heats into the shade of tall reeds, which border the rivers of America.

They are exceedingly shy; and very fearful of man, unless they are wounded, when they pursue their enemy, and become very dangerous.

The chase of these animals is a favorite diversion of the Indians: it is effected in two ways; first, by shooting; when the marksman must take great care to go against the wind, for their smell is so exquisite that the moment they get scent of him they instantly retire with the utmost precipitation *. He aims at their shoulders, that they may drop at once, and not be irritated by an ineffectual wound. Provided the wind does not favor the beasts, they may be approached very near, being blinded by the hair which covers their eyes. The other method is performed by a great number of men, who divide and form a vast square: each band sets fire to the dry grass of the savanna where the herds are feeding; these animals have a great dread of fire, which they see approach on all sides; they retire from it to the center of the square †; the bands close, and kill them (pressed together in heaps) without the least hazard. It is pretended, that on every expedition of this nature, they kill fifteen hundred or two thousand beeses.

The hunting-grounds are prescribed with great form, lest the different bands should meet, and interfere in the diversion. Penalties are enacted on such who infringe the regulations, as well as on those who quit their posts, and suffer the beasts to escape from the hollow squares; the punishments are, the stripping the delinquents, the taking away their arms (which is the greatest disgrace a savage can undergo), or lastly, the demolition of their cabins ‡.

* Du Pratz, i. 49. ii. 227.  † Charlevoix, N. France, v. 192.
‡ Charlevoix, v. 192.
BISON.

The uses of these animals are various. Powder-flasks are made of their horns. The skins are very valuable; in old times the Indians made of them the best targets*. When dressed, they form an excellent buff; the Indians dress them with the hair on, and cloath themselves with them; the Europeans of Louisiana use them for blankets, and find them light, warm, and soft. The flesh is a considerable article of food, and the bunch on the back is esteemed a very great delicacy. The Bulls become excessively fat, and yield great quantity of tallow, a hundred and fifty pounds weight has been got from a single beast†, which forms a considerable matter of commerce. These over-fed animals usually become the prey of Wolves; for, by reason of their great unwieldiness, they cannot keep up with the herd.

The Indians, by a very bad policy, prefer the flesh of the Cows; which in time will destroy the species: they complain of the rankness of that of the Bulls; but Du Pratz thinks the last much more tender, and that the rankness might be prevented, by cutting off the testicles as soon as the beast is killed.

The hair or wool is spun into cloth, gloves, stockings, and garters, which are very strong, and look as well as those made of the best sheep's wool; Governor Pownall assures us, that the most luxurious fabric might be made of it‡. The fleece of one of these animals has been found to weigh eight pounds.

Their sagacity in defending themselves against the attacks of Wolves is admirable: when they scent the approach of a drove of those ravenous creatures, the herd flings itself into the form of a circle: the weakest keep in the middle, the strongest are ranged on the outside, presenting to the enemy an impenetrable front of horns: should they be taken by surprize, and have recourse to flight, numbers of the fatest or the weakest are sure to perish.§

* Purchas, iv. 1550.  † Du Pratz.  ‡ Tapp. Discr. N. Am. 8.
§ Du Pratz, i. 288.

Attempts
Attempts have been made to tame and domesticate the wild, by catching the calves and bringing them up with the common kind, in hopes of improving the breed. It has not yet been found to answer: notwithstanding they had the appearance for a time of having lost their savage nature, yet they always grew impatient of restraint, and, by reason of their great strength, would break down the strongest inclosure, and entice the tame cattle into the corn-fields. They have been known to engender together, and to breed; but I cannot learn whether the species was meliorated * by the intercourse: probably perseverance in continuing the crosses is only wanted to effect their thorough domestication; as it is notorious that the Bisons of the old world were the original stock of all our tame cattle.

These were the only animals which had any affinity to the European cattle on the first discovery of the new world: before that period, it was in possession of neither Horse nor Ass, Cow nor Sheep, Hog, Goat, nor yet that faithful animal the Dog. Mankind were here in a state of nature; their own passions unsubdued, they never thought of conquering those of the brute creation, and rendering them subservient to their will. The few animals which they had congenerous to those mentioned, might possibly by industry have been reclaimed. This animal might have been brought to all the uses of the European Cow; the Pecari might have been substituted for the Hog; the Fox or Wolf for the Dog: but the natives, living wholly by chase, were at war with the animal creation, and neglected the cultivation of any part, except the last, which was imperfectly tamed.

Such is the case even to the present hour; for neither the example of the Europeans, nor the visible advantages which result from an attention to that useful animal the Cow, can induce the Indian to pay any respect to it. He contemns every species of domestic labour, except what is necessary for forming a provision of bread. Every

* Kalor, i. 207.
BISON.

wigwam or village has its plantation of Mayz, or Indian corn, and on that is his great dependence, should the chase prove unsuccessful.

Domesticated cattle are capable of enduring very rigorous climates; Cows are kept at Quickjock in Lecha Lapmark, not far from the arctic circle; but they do not breed there, the succession being preserved by importation: yet in Iceland, a small portion of which is within the circle, cattle abound, and breed as in more southern latitudes: they are generally fed with hay, as in other places; but where there is scarcity of fodder, they are fed with the fish called the Sea-Wolf, and the heads and bones of Cod beaten small, and mixed with one quarter of chopped hay: the cattle are fond of it, and, what is wonderful, yield a considerable quantity of milk. It need not be said that the milk is bad.

Kamtschatka, like America, was in equal want of every domestic animal, except a wolf-like Dog, till the Russians of late years introduced the Cow and Horse. The colts and calves brought from the north into the rich pastures of Kamtschatka, where the grass is high, grow to such a size, that no one would ever suspect them to be descended from the Ponies and Runts of the Lena *. The Argali, the stock of the tame Sheep, abounds in the mountains, but even to this time are only objects of chase. The natives are to this hour as uncultivated as the good Evander describes the primary natives of Latium to have been, before the introduction of arts and sciences.

Queis neque mos, neque cultus erat, nec jungere tauros,
Aut componere opes norant, aut parcere parto:
Sed rami atque after viétu venatus alebat.

No laws they know, no manners, nor the care
Of lab'ring Oxen, or the shining Share;
No arts of gain, nor what they gain'd to spare:
Their exercise the chase: the running flood
Supplied their thrist; the trees supplied their food.

Dryden.

* Pallat, Sp. Zool. fasc. xi. 76.
B U L L. With horns closely united at the base; bending inwards and downwards; turning outwards towards their ends, which taper to a point, and are very sharp: near the base are two feet in girth; are only two feet long measured along the curvature: weight of a pair, separated from the head, sometimes is sixty pounds.

The hair is of a dusky red, extremely fine, and so long as to trail on the ground, and render the beast a seeming shapeless mass, without distinction of head or tail: the legs and tail very short: the shoulders rise into a lump.

In size lower than a Deer, but larger as to belly and quarters. I have only seen the head of this animal; the rest of the description is taken from the authorities referred to: but by the friendship of Samuel Wegg, Esq; I received last year a very complete skin of the cow of this species, of the age of three years, which enables me to give the following description:

C o w. The nostrils long and open: the two middle cutting teeth broad, and sharp-edged; the three on each side small, and truncated: under and upper lips covered with short white hairs on their fore part, and with pale brown on their sides: hair down the middle of the forehead long and erect; on the cheeks smooth and extremely long and pendulous, forming with that on the throat a long beard: the hair along the neck, sides, and rump hangs in the same manner, and almost touches the ground: from the hind part of the head to the shoulders is a bed of very long soft hair, forming an upright mane: in the old beasts the space between the shoulders rises into a hunch.

* M. Jeremie, in Voyages au Nord, iii. 315.
† The same.  
1 Drage’s Voy. ii. 260.
MUSK.

kunch: the legs are very short, covered with smooth whitish hairs; those which encircle the hoofs very long, and of a pure white: hoofs short, broad, and black: the false hoofs large in proportion: tail only three inches long, a mere stump, covered with very long hairs, so as to be undistinguishable to the sight. Of the tail, the Eskimaux of the north-west side of the bay make a cap of a most horrible appearance; for the hairs fall all round their head, and cover their faces; yet it is of singular service in keeping off the Musquetoes, which would otherwise be intolerable*.

Space between the horns nine inches: the horns are placed exactly on the sides of the head; are whitish; thirteen inches and a half long; eight inches and a half round at the base; of the same sort of curvature with those of the Bull: the ears are three inches long, quite erect; sharp-pointed, but dilate much in the middle; are thickly lined with hair of a dusky color, marked with a stripe of white.

The color of the hair black, except on these parts:—from the base of one horn to that of the other, is a bed of white and light rust-colored hair: the mane is dusky, tinged with red, which is continued in a narrow form to the middle of the back; on which is a large roundish bed of pure white, and the hairs in that space shorter than any of the rest, not exceeding three inches in length, and of a pale brown towards their roots.

The hairs are of two kinds, the longest measure seventeen inches; are very fine and glossy, and when examined appear quite flat: this is the black part, which clothes most part of the animal.

The bed of hair between the horns, and that which runs along the top of the neck, is far finer and softer than any human hair, and appears quite round. The white bed is still finer, and approaches to the nature of wool.

Beneath every part of the hair grows in great plenty, and often in flocks, an ashy-colored wool, most exquisitely fine, superior, I think,

* Ellis' voy. 232.
MUSK.

to any I have seen, and which might be very useful in manufactures if sufficient could be procured. I give full credit to M. Jeremie, who says, that he brought some of the wool to France, and got stockings made with it, more beautiful than those of silk *. The skin is thin.

The length of the whole hide, from nose to tail, is about six feet four inches: of the head alone fourteen inches. The legs could not be well measured, but were little more than a foot long.

The situation of these animals is very local. They appear first in the tract between Churchill river and that of Seals, on the west side of Hudson's Bay. They are very numerous between the latitudes 66 and 73 north, which is as far as any tribes of Indians go. They live in herds of twenty or thirty. Mr. Hearn † has seen in the high latitudes several herds in one day's walk. They delight most in the rocky and barren mountains, and seldom frequent the woody parts of the country. They run nimbly, and are very active in climbing the rocks. The flesh tastes very strong of Musk, and the heart is so strongly infected as hardly to be eatable; but the former is very wholesome, having been found to restore speedily to health the sickly crew who made it their food ‡.

They are shot by the Indians for the sake of the meat and skins, the last from its warmth making excellent blankets. They are brought down on sledges to the forts annually during winter, with about three or four thousand weight of the flesh. These are called Churchill Buffaloes, to distinguish them from the last species, which are in Hudson's Bay called Inland Buffaloes, of which only the tongues are brought as presents §.

They are found also in the land of the Cris or Cristinaux, and the Affinibouels: again among the Attimofpiquay, a nation supposed to in-

* Voy. au Nord, iii. 314.
† The gentleman who undertook, in 1770, 1771, 1772, the arduous journey to the Icy Sea, from Prince of Wales's Fort, Hudson's Bay. To him, through Mr. Hegg's interest, I am indebted for the skin and this information.
‡ Drake’s voy. ii. 260.  || Mr. Graham’s MS.  Habit
habit about the head of the river of Seals *, probably not very remote from the South Sea. They are continued from these countries southward, as low as the provinces of Quivera and Cibola; for Father Marco di Nica, and Gomara, plainly describe both kinds †.

Some of the skulls of this species have been discovered on the mossy plains near the mouth of the Ohy in Siberia. It is not said how remote from the sea; if far, they probably in some period might have been common to the north of Asia and of America; if near the shore, it is possible that the carcasses might have floated on the ice from America to the places where the remains might have been found ‡. Of this species was the head, and such were the means of conveyance, from the coast of Hudson's or Baffin's, mentioned by Mr. Fabricius, and which he saw so brought to Greenland §§; for it could not have been, as he conjectures, the head of the grunting Ox, an animal found only in the very interior parts of northern Asia.


The Sheep, in its wild state, inhabits the north-east of Asia, beyond lake Baikal, between the Onon and Argun, to the height of latitude 60, on the east of the Lena, and from thence to Kamtschatka, and perhaps the Kurili islands. I dare not pronounce that they extend to the continent of America; yet I have received from Doctor Pallas a fringe of very fine twisted wool, which had ornamented a dress from the isle of Kadjak; and I have myself another piece from the habit of the Americans in latitude 50. The first was of a snowy whiteness, and of unparalleled fineness; the other as fine, but of a pale brown color: the first appeared to be the wool which grows intermixed with the hairs of the Argali; the last, that which is found beneath those of the Musk Ox. Each of these animals may exist on that side of the continent, notwithstanding they might have not fallen within the reach of the navigators in their short stay off the coast.

Certain quadrupeds of this genus were observed in California by the missionaries in 1697; one as large as a Calf of one or two years old, with a head like a Stag, and horns like a Ram; the tail and hair speckled, and shorter than a Stag's. A second kind was larger, and varied in color; some being white, others black, and furnished with
with very good wool. The Fathers called both Sheep, from their great resemblance to them *. Either the Americans of latitude 50 are possessed of these animals, or may obtain the fleeces by commerce from the southern Indians.

The Argali abound in Kamtschatka; they are the most useful of their animals, for they contribute to food and clothing. The Kamtschatkans cloath themselves with the skins, and esteem the flesh, especially the fat, diet fit for the Gods. There is no labor which they will not undergo in the chase. They abandon their habitations, with all their family, in the spring, and continue the whole summer in the employ, amidst the rude mountains, fearless of the dreadful precipices, or of the acelenakes, which often overwhelm the eager sportsmen.

These animals are shot with guns or with arrows; sometimes with cross-bows, which are placed in the paths, and discharged by means of a firing whenever the Argali happens to tread on it. They are often chased with dogs, not that they are overtaken by them; but when they are driven to the lofty summits, they will often stand and look as if it were with contempt on the dogs below, which gives the hunter an opportunity of creeping within reach while they are so engaged; for they are the shyest of animals.

The Mongols and Tungusi use a nobler species of chase: they collect together a vast multitude of horses and dogs, attempting to surround them on a sudden; for such is their swiftness and cunning, that if they perceive, either by sight or smell, the approach of the chasseurs, they instantly take to flight, and secure themselves on the lofty and inaccessible summits.

Domesticated Sheep will live even in the dreadful climate of Greenland. Mr. Fabricius † says, they are kept in many places. They are very numerous in Iceland. Before the epidemical disease which raged among them from 1740 to 1750, it was not uncommon for a

* Ph. Trans. abr. v. part ii. 195. † Fauna. Green. p. 29.
SHEEP.

fingle person to be possessed of a thousand or twelve hundred. They have upright ears, short tails, and often four or five horns *. They are sometimes kept in stables during winter, but usually left to take their chance abroad, when they commonly hide themselves in the caves of exhausted volcanoes †. They are particularly fond of scurvy-grass, with which they grow so fat as to yield more than twenty pounds. The ewes give from two to six quarts of milk a day, of which butter and cheese is made. The wool is never shorn, but left on till the end of May, when it grows loose, and is stripped entirely off in one fleece; and a fine, short, and new wool appears to have grown beneath; this continues growing all summer, becomes smooth and glossy like the hair of Camels, but more shaggy ‡. With the wool the natives manufacture their cloth; and the flesh dried is an article of commerce.

In all parts of European Russia are found the common Sheep. Those of the very north, and of the adjacent Finnmark, have short tails and upright ears, and wool almost as rude as the hair of Goats; but are seldom polyceratous. They sometimes breed twice in a year, and bring twins each time ††.

In the Asiatic dominions of Russia, from the borders of Russia to those of China, is a most singular variety of Sheep, destitute of tails, with rumps swelling into two great, naked, and smooth hemispheres of fat, which sometimes weigh forty pounds: their noses are arched: their ears pendulous: their throats wattled: their heads horned, and sometimes furnished with four horns. These are so abundant throughout Tartary, that a hundred and fifty thousand have been annually fold at the Orenburg fairs; and a far greater number at the fort Troizkaia, from whence they are driven for slaughter into diffe-

* Smellie, vi. 207, 219. † Horrebow, 46. ‡ Troil’s voy. 138.
†† Leems, 228.
rent parts of Russia*. Sheep do not thrive in Kamtschatka, by reason of the wetness of the country.

Sheep abound in New England and its islands: the wool is short, and much coarser than that of Great Britain; possibly proper attention to the housing of the Sheep may in time improve the fleece; but the severity of the climate will ever remain an obstacle to its perfection. Manufactures of cloth have been established, and a tolerable cloth has been produced, but in quantities in no degree equal to the consumption of the country. America likewise wants downs; but by clearing the hills of trees, in a long series of years that defect may be alleviated. As we advance further south, the Sheep grow scarcer, worse, and the wool more hairy.


GOAT.
GOAT. Hist. Quad. Genus IV.

THE tame Goat inhabits northern Europe as high as Wardhuy, in latitude 71, where it breeds, and runs out the whole year, only during winter has the protection of a hovel: it lives during that season on moss and bark of Fir-trees, and even of the logs cut for fuel. They are so prolific as to bring two, and even three, at a time. In Norway they thrive prodigiously, inasmuch that 70 or 80,000 of raw skins are annually exported from Bergen, besides thousands that are sent abroad dressed.

Goats are also kept in Iceland, but not in numbers, by reason of the want of shrubs and trees for them to browse. They have been introduced into Greenland, even to some advantage. Besides vegetable food, they will eat the Arctic trouts dried; and grow very fat.

The climate of South America agrees so well with Goats, that they multiply amazingly: but they succeed so ill in Canada, that it is necessary to have new supplies to keep up the race.


DEER.
**MOOSE.**

**DEER. Hist. Quad. Genus VII.**


**DEER.** With horns with short beams, spreading into a broad palm, furnished on the outward side with sharp snags; the inner side plain: no brow antlers: small eyes: long flouching asinine ears: nostrils large: upper lip square, great, and hanging far over the lower; has a deep furrow in the middle, so as to appear almost bisid: under the throat a small excrecence, with a long tuft of coarse black hair pendent from it: neck shorter than the head; along the top an upright, short, thick, mane: withers elevated: tail short: legs long; the hind legs the shortest: hoofs much cloven.

Color of the mane a light brown; of the body in general a hoary brown: tail dusky above; white beneath. The vast size of the head, the shortness of the neck, and the length of the ears, give the beast a deformed and stupid look.

The greatest height of this animal, which I have heard of, is seventeen hands; the greatest weight 1229 pounds.

The largest horns I have seen are in the house of the Hudson's Bay Company; they weigh fifty-six pounds: their length is thirty-two inches; breadth of one of the palms thirteen inches and a half; space between point and point thirty-four.

The female is lesser than the male, and wants horns.

Inhabits the isle of Cape Breton, Nova Scotia, and the western side of the Bay of Fundy; Canada, and the country round the great lakes, almost as far south as the river Ohio *; These are its present northern and southern limits. In all ages it afflicted the cold and wooded regions in Europe, Asia, and America. They are found in all the woody tracts of the temperate parts of Russia, but not on the Arctic flats, nor yet in Kamtschatka. In Siberia they are of a monstrous size, particularly among the mountains.

* Du Praz, i. 301.

D
MOOSE.

The Elk and the Moose are the same species; the last derived from *Mufu*, which in the *Algonquin* language signifies that animal *. The English used to call it the Black Moose, to distinguish it from the Stag, which they named the Grey Moose †. The French call it *L'Orignal*.

These animals reside amidst forests, for the convenience of browsing the boughs of trees, because they are prevented from grazing with any kind of ease, by reason of the shortness of their necks and length of their legs. They often have recourse to water-plants, which they can readily get at by wading. *M. Sarrafin* says, that they are very fond of the *anagyris fatida*, or stinking bean trefoil, and will uncover the snow with their feet in order to get at it.

In passing through the woods, they raise their heads to a horizontal position, to prevent their horns from being entangled in the branches.

They have a singular gait: their pace is a shambling trot, but they go with great swiftness. In their common walk they lift their feet very high, and will without any difficulty step over a gate five feet high.

They feed principally in the night. If they graze, it is always against an ascent; an advantage they use for the reason above assigned.

They ruminate like the Ox.

They go to rut in autumn; are at that time very furious, seeking the female by swimming from isle to isle. They bring two young at a birth, in the month of *April*, which follow the dam a whole year. During the summer they keep in families. In deep snows they collect in numbers in the forests of pines, for protection from the inclemency of the weather under the shelter of those ever-greens.

They are very inoffensive, except in the rutting-season; or except they are wounded, when they will turn on the assailant, and attack

* Kalm, i. 298. iii. 204. † *Mr. Dudley's Phil. Trans. Abridg.* vii. 447.
Moose.

Their flesh is extremely sweet and nourishing. The Indians say, that they can travel three times as far after a meal of Moose, as after any other animal food. The tongues are excellent, but the nofe is perfect marrow, and esteemed the greatest delicacy in all Canada.

The skin makes excellent buff; is strong, soft, and light. The Indians dress the hide, and, after soaking it for some time, stretch and render it supple by a lather of the brains in hot water. They not only make their snow-shoes of the skin, but after a chase form the canoes with it: they sew it neatly together, cover the seams with an unctuous earth, and embark in them with their spoils to return home *.

The hair on the neck, withers, and hams of a full-grown Elk is of much use in making mattresses and saddles; being by its great length well adapted for those purposes.

The palmated parts of the horns are farther excavated by the savages, and converted into ladles, which will hold a pint.

It is not strange that so useful an animal should be a principal object of chase. The savages perform it in different ways. The first, and the more simple, is before the lakes or rivers are frozen. Multitudes assemble in their canoes, and form with them a vast crescent, each horn touching the shore. Another party perform their share of the chase among the woods; they surround an extensive tract, let loose their dogs, and press towards the water with loud cries. The animals, alarmed with the noise, fly before the hunters, and plunge into the lake, where they are killed by the persons in the canoes, prepared for their reception, with lances or clubs †.

The other method is more artful. The savages inclose a large space with stakes hedged with branches of trees, forming two sides

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* La Hontan, i. 59. † Charlevoix, v. 188.
of a triangle: the bottom opens into a second enclosure, completely triangular. At the opening are hung numbers of snares, made of slips of raw hides. The Indians, as before, assemble in great troops, and with all kinds of noises drive into the first enclosure not only the Mooses, but the other species of Deer which abound in that country: some, in forcing their way into the farthest triangle, are caught in the snares by the neck or horns; and those which escape the snares, and pass the little opening, find their fate from the arrows of the hunters, directed at them from all quarters *.

They are often killed with the gun. When they are first unharboured, they squat with their hind parts and make water, at which instant the sportsman fires; if he misses, the Moose sets off in a most rapid trot, making, like the Rein-deer, a prodigious rattling with its hoofs, and will run for twenty or thirty miles before it comes to bay or takes the water. But the usual time for this diversion is the winter. The hunters avoid entering on the chase till the sun is strong enough to melt the frozen crust with which the snow is covered, otherwise the animal can run over the firm surface: they wait till it becomes soft enough to impede the flight of the Moose; which sinks up to the shoulders, flounders, and gets on with great difficulty. The sportsman pursues at his ease on his broad rackets, or snow-shoes, and makes a ready prey of the distressed animals,

As weak against the mountain heaps they push
Their beating breast in vain, and piteous Bray,
He lays them quivering on th' ensanguin'd snows,
And with loud shouts rejoicing bears them home.

THOMPSON.

The opinion of this animal's being subject to the epilepsy seems to have been universal, as well as the cure it finds by scratching its ear with the hind hoof till it draws blood. That hoof has been used in Indian medicine for the falling-sickness; they apply it to the heart of

* Charlevoix, and La Hontan, i. 65.
the afflicted, make him hold it in his left hand, and rub his ear with
it. They use it also in the colick, pleurify, vertigo, and purple fever;
pulverizing the hoof, and drinking it in water. The Algonkins pre-
tend that the flesh imparts the disease; but it is notorious that the
hunters in a manner live on it with impunity.

The savages esteem the Moose a beast of good omen; and are per-
suaded that those who dream often of it may flatter themselves with
long life *

Their wild superstition hath figured to them a Moose of enor-
mous size, which can wade with ease through eight feet depth of snow;
which is invulnerable, and has an arm growing out of its shoulder,
subservient to the purposes of the human: that it has a court of
other Mooses, who at all times perform suit and service, according to
his royal will †.

I lament that I am not able to discover the animal which owned
the vast horns so often found in the bogs of Ireland, so long and so
confidently attributed to the Moose. These have been found to be
sometimes eight feet long, fourteen between tip and tip ‡, furnished
with brow antlers, and weighing three hundred pounds: the whole
skeleton is frequently found with them.

The fables delivered by Joffelyn, of the Moose being thirty-three
hands, or twelve feet, high; and by Le Hontan, of its horns weighing
between three and four hundred pounds; occasioned the naturalists of
past times to call the fossil horns those of the Moose; and to flatter
themselves that they had discovered the animal they belonged to: but
recent discoveries evince the error. I once entertained hopes that
the Wajkeje § of the Hudson's Bay Indians was the species; but by
some late information I received from Mr. Andrew Graham, factor
in the Bay, I find it to be no other than the common Moose.

* Charlevoix, v. 186. † The same. ‡ Wright's Louthiana.
book iii. 20. tab. xxii. § His. Quad. 45.
DEER. With large but slender horns, bending forward; with brow antlers broad and palmated, sometimes three feet nine inches long; two feet six from tip to tip; weight, nine pounds twelve ounces avoirdupois. The body is thick and square: the legs shorter than those of a Stag: the height of a full-grown Rein four feet six.

Color of the hair, at first shedding of the coat, of a brownish ash; afterwards changes to a hoary whiteness. The animal is admirably guarded against the rigor of the climate by the great thickness of the hairs, which are so closely placed as totally to hide the skin, even if they are put aside with ever so much care.

Space round the eyes always black: nose, tail, and belly white: above the hoofs a white circle: hair along the lower side of the neck very long: tail short.

Hoofs, and false hoofs, long and black; the last loosely hung, making a prodigious clatter when the animal runs.

The female is furnished with horns; but lesser, broader, and flatter, and with fewer branches than those of the male. She has six teats, but two are spurious and useless. They bring two young at a time.

The habitation of this Deer is still more limited than that of the former, confined to those parts where cold reigns with the utmost severity. Its most southern residence is the northern parts of Canada, Hudson's Bay, bordering on the territories of Hudson's Bay. Charlevoix mentions a single instance of one wandering as far as the neighborhood of Quebec. Their true place is the vast tract which surrounds the

* V. 191.
Bay. They are met with in Labrador, and again in Newfoundland, originally wafted thither across the narrow straits of Belleisle, on islands of ice.

They spread northerly into Greenland, particularly on the western coast, about Dijo *. I can find no traces (even traditional) of them in Iceland; which is the more surprizing, as that island lies nearer to Greenland than Newfoundland does to the Labrador coast. It is probable that they were destroyed in very early times, when that island was so infinitely more populous than it is at present; and the farther migration of these animals prevented by the amazing aggregate of ice, which in later ages blocked up and even depopulated the eastern side of Greenland. No vegetable, not even moss, is to be found on that extensive coast to support these hardy animals. Their last migration was from the western parts of Greenland, over unknown regions and fields of ice, to the inhospitable Alps of Spitzbergen. These, with the Polar Bear and Arctic Fox, form the short catalogue of its quadrupeds. They reside there throughout the year; and by wondrous instinct do discover their food, the lichen rangiferinus, beneath the snow, which they remove to great depths by means of their broad and spade-like antlers; and thus find subsistence thirteen degrees beyond the Arctic circle †.

To the western side of Hudson's Bay I trace the Rein as far as the nation called Les Plat-côté des Chiens ‡, the remotest we are acquainted with in the parallel of that latitude. Beyond, are lands unknown, till we arrive at that new-discovered chain of islands, which extends to within a small distance of Asia, or the northern cape of Kamtschatka, where I again recover these animals. There is reason to imagine that they are continued across the continent of America, but not on the islands which intervene between it and Asia §. But in the

* Egede, 59. Crantz, i. 70.—The Canadians call it Le Caribou. † Martin's Spitzbergen, 99. Phipps's voy. 185. ‡ Dobbs's Hudson's Bay, 19. § Muller's voyages from Asia to America, Preface xxv.
isle of Kadjak, and others of the easternmost Fox islands, the inhabitants have skins of them from the American continent, and border their bonnets with the white hairs of the domestic Rein-deers, stained red. They are found again in the countries which border on the Icy sea*; from which they retire, at approach of winter, towards the woods, to feed on the moss, not only that which grows on the ground, but the species pendulous from the trees. The whole north-east of Siberia abounds with them. They also are yet found wild in the Urallian mountains; along the river Kama, as far as Kungus; and about some snowy summits more south: and again on the high chain bordering on Siberia on the south, and about lake Baikal. Towards the west they are continued in the land of the Samoieds; and finally among the well-known Laplanders. I here transgress the limits of my plan, to give a short comparative view of the progress of civilization among the inhabitants of these frozen climes.

With the Laplanders this animal is the substitute to the Horse, the Cow, the Sheep, and the Goat. Those most innocent of people have, even under their rigorous sky, some of the charms of a pastoral life. They have subdued these animals to various uses, and reclaimed them from their wild state. They attend their herds of Rein-deer, during summer, to the summits of their alps; to the sides of their clear lakes and streams, often bordered with native roses. They know the arts of the dairy, milk these their cattle, and make from it a rich cheese. They train them to the plow, consider them as their chief treasure, and cherish them with the utmost tenderness.

The brutal Samoied considers them in no other view than as animals of draught, to convey them to the chase of the wild Reins; which they kill for the sake of the skins, either to cloath themselves, or to cover their tents. They know not the cleanly delicacy of the milk or cheese; but prefer for their repast the intestines of beasts, or the half-purrid flesh of a horse, ox, or sheep, which they find dead on the high road†.

* Barentz voy. † Le Bruyn, i. 7, 8.
The Koreki, a nation of Kamtschatka, may be placed on a level with the Samoieds: they keep immense herds of Reins; some of the richest, to the amount of ten or twenty thousand; yet soizzard are they as to eat none except such which they kill for the sake of the skins; an article of commerce with their neighbors the Kamtschatkans: otherwise they content themselves with the flesh of those which die by disease or chance. They train them in the fledge, but neglect them for every domestic purpose *. Their historian says, they couple two to each carriage; and that the Deer will travel a hundred and fifty verstes in a day, that is, a hundred and twelve English miles. They castrate the males by piercing the spermatic arteries, and tying the scrotum tight with a thong.

The inhabitants about the river Kolyma make use of the soft skins of the Rein-deer, dressed, for sails for a kind of boat called Schitiki, caulked with moss; and the boards as if sewed together with thongs; and the cordage made of slices of the skin of the Elk †.

The savage and uninformed Eskimaux and Greenlanders, who possess, amidst their snows, these beautiful animals, neglect not only the domestic uses, but even are ignorant of their advantage in the fledge. Their element is properly the water; their game the Seals. They seem to want powers to domesticate any animals unless Dogs. They are at enmity with all; consider them as an object of chase, and of no utility till deprived of life. The flesh of the Rein is the most coveted part of their food; they eat it raw, dressed, and dried and smoked with the snow lichen. The wearied hunters will drink the raw blood; but it is usually dressed with the berries of the heath: they eagerly devour the contents of the stomach, but use the intestines boiled. They are very fond of the fat, and will not lose the left bit ‡. The skin, sometimes a part of their clothing, dressed with the hair on, is soft and pliant; it forms also the inner lining of their tents, and most

* Hift. Kamtschatka, 226, 227.—The Koreki exchange their Deer with the neighboring nations for rich furs. † Muller’s Summary, Ge. xviii. ‡ Faun. Greuel. p. 28.
excellent blankets. The tendons are their bow-strings, and when split are the threads with which they sew their jackets.

The Greenlanders, before they acquired the knowledge of the gun, caught them by what was called the clapper-hunt. The women and children surrounded a large space, and, where people were wanting, set up poles capped with turf in certain intervals, to terrify the animals; they then with great noise drove the Reins into the narrow defiles, where they lay in wait and killed them with harpoons or darts. But they are now become very scarce.

On the contrary, they are found in the neighborhood of Hudson's Bay in most amazing numbers, columns of eight or ten thousand are seen annually passing from north to south in the months of March and April, driven out of the woods by the musketees, seeking refreshment on the shore, and a quiet place to drop their young. They go to rut in September, and the males soon after shed their horns; they are at that season very fat, but so rank and musky as not to be eatable. The females drop their young in June, in the most sequestered spots they can find; and then they likewise lose their horns. Beasts of prey follow the herds: first, the Wolves, who single out the stragglers (for they fear to attack the drove) detach and hunt them down: the Foxes attend at a distance, to pick up the offals left by the former. In autumn the Deer with the Fawns re-migrate northward.

The Indians are very attentive to their motions; for the Rein forms the chief part not only of their dress but food. They often kill multitudes for the sake of their tongues only; but generally they separate the flesh from the bones, and preserve it by drying it in the smoke: they also save the fat, and sell it to the English in bladders, who use it in frying instead of butter. The skins are also an article of commerce, and used in London by the Breeches-makers.

The Indians shoot them in the winter. The English make hedges, with stakes and boughs of trees, along the woods, for five miles in

* Drake's voy. i. 25. † Crantz, i. 71. § Debs, 19, 22.
length, leaving openings at proper intervals before with snares, in
which multitudes are taken.

The Indians also kill great numbers during the f easons of migra-
tion, watching in their canoes, and spearing them while passing over
the rivers of the country, or from island to island; for they swim
most admirably well.

_Hift. Quod. N° 45._—_Smelts iv. 74._—_Lev. Mus._

DEER. With long upright horns much branched: slender and
sharp brow antlers: color a reddish brown: belly and lower
side of the tail white: the horns often superior in size to those of the
European Stags, some being above four feet high, and thirty pounds
in weight.

Inhabits Canada, particularly the vast forests about the lakes; are
seen in great numbers grazing with the Buffaloes on the rich savannas
bordering on the Mississipi, the Missouri, and other American rivers;
yet they are also found within our Colonies, but their numbers decreafe
as population gains ground. An Indian living in 1748 had killed
many Stags on the spot where Philadelphia now stands.*

They feed eagerly on the broad-leaved Kalmia; yet that plant is a
poifon to all other horned animals; their intestines are found filled
with it during winter. If their entrails are given to Dogs, they be-
come ftopped, and as if drunk, and often are fo ill as hardly to ef-
cape with life †.

Stags are also found in Mexico, where they are called _Aculliame_:
yet they differ not from those of Spain in fhape, size, or nature ‡. South
America is deftitute of these animals: they can bear the extremes of
heat but not of cold. They are found neither in Hudson’s Bay,

* Kalm i. 336. † Kalm i. 338. ‡ Hernández, Nov. Hisp. 325.
Kamtschatka, nor in any country inhabited by the Rein—a line in a manner separates them.

Their skins are an article of commerce imported* by the Hudson's Bay company; but brought from the distant parts far inland by the Indians, who bring them from the neighborhood of the lakes. In most parts of North America they are called the Grey Moose, and the Elk; this has given occasion to the mistaken notion of that great animal being found in Virginia, and other southern provinces.

The Stags of America grow very fat: their tallow is much esteemed for making of candles. The Indians shoot them. As they are very shy animals, the natives cover themselves with a hide, leaving the horns erect; under shelter of which they walk within reach of the herd. De Brie, in the xxvth plate of the History of Florida, gives a very curious representation of this artful method of chase, when it was visited by the French in 1564.

Stags are totally extirpated in Russia, but abound in the mountainous southern tract of Sibiria, where they grow to a size far superior to what is known in Europe. The height of a grown Hind is four feet nine inches and a half, its length eight feet; that of its head one foot eight inches and a half.

The species ceases in the north-eastern parts of Sibiria, nor are any found in Kamtschatka.

6. Virginian.  

DEER. With round and slender horns, bending greatly forward; numerous branches on the interior sides: defluite of brow antlers: color of the body a cinereous brown: head of a deep brown: belly, sides, shoulders, and thighs, white, mottled with brown: tail

* In the sale of 1764, 1307 were entered.
ten inches long, of a dusky color: feet of a yellowish brown. Are not so well haunched as the English Buck, and are less active.

Inhabits all the provinces south of Canada, but in greatest abundance in the southern; but especially the vast savannas contiguous to the Mississippi, and the great rivers which flow into it. They graze in herds innumerable, along with the Stags and Buffaloes. This species probably extends to Guiana, and is the Baku of that country, which is said to be about the size of a European Buck, with short horns, bending at their ends.

They are capable of being made tame; and when properly trained, are used by the Indians to decoy the wild Deer (especially in the rutting season) within shot. Both Bucks and Does herd from September to March; after that they separate, and the Does secrete themselves to bring forth, and are found with difficulty. The Bucks from this time keep separate, till the amorous season of September revolves. The Deer begin to feed as soon as night begins; and sometimes, in the rainy season, in the day: otherwise they seldom or never quit their haunts. An old American sportsman has remarked, that the Bucks will keep in the thickets for a year, or even two.

These animals are very restless, and always in motion, coming and going continually. Those which live near the shores are lean and bad, subject to worms in their heads and throats, generated from the eggs deposited in those parts. Those that frequent the hills and savannas are in better case, but the venison is dry. In hard winters they will feed on the long moss which hangs from the trees in the northern parts.

These and other cloven-footed quadrupeds of America are very fond of salt, and resort eagerly to the places impregnated with it. They are always seen in great numbers in the spots where the ground

* The late ingenious Mr. Ellis shewed me a Bezoar found in one of these Deer, killed in Georgia. It was of a spheroid form, an inch and three quarters broad, half an inch thick in the middle; of a pale brown color; hard, smooth, and glossy.

† Bancroft. ‡ Doctor Garden. § Du Pratz, ii. 51. || Lavranon, 124.
VIRGINIAN DEER.

has been torn by torrents or other accidents, where they are seen licking the earth. Such spots are called licking-places. The hunters are sure of finding the game there; for, notwithstanding they are often disturbed, the Buffaloes and Deer are so passionately fond of the savory regale, as to bid defiance to all danger, and return in droves to these favorite haunts.

The skins are a great article of commerce, 25,027 being imported from New-York and Pennsylvania in the sale of 1764.

The Deer are of the first importance to the Savages. The skins form the greatest branch of their traffic, by which they procure from the colonists, by way of exchange, many of the articles of life. To all of them it is the principal food throughout the year; for by drying it over a gentle but clear fire, after cutting it into small pieces, it is not only capable of long preservation, but is very portable in their sudden excursions, especially when reduced to powder, which is frequently done.

Hunting is more than an amusement to these people. They give themselves up to it not only for the sake of subsistence, but to fit themselves for war, by habituating themselves to fatigue. A good huntsman is an able warrior. Those who fail in the sports of the field are never supposed to be capable of supporting the hardships of a campaign; they are degraded to ignoble offices, such as dressing the skins of Deer, and other employments allotted only to slaves and women.

When a large party meditates a hunting-match, which is usually at the beginning of winter, they agree on a place of rendezvous, often five hundred miles distant from their homes, and a place, perhaps, that many of them had never been at. They have no other method of fixing on the spot than by pointing with their finger. The preference is given to the eldest, as the most experienced.

† Lawson, 208. † Catseye, App. xii.
When this matter is settled, they separate into small parties, travel and hunt for subsistence all the day, and rest at night; but the women have no certain resting-places. The Savages have their particular hunting countries; but if they invade the limits of those belonging to other nations, feuds ensue, fatal as those between Percy and Douglas in the famed Chevy Chace.

As soon as they arrive on the borders of the hunting country, (which they never fail doing to a man, be their respective routes ever so distant or so various) the captain of the band delineates on the bark of a tree his own figure, with a Rattlesnake twined round him with distended mouth; and in his hand a bloody tomahawk. By this he implies a destrucive menace to any who are bold enough to invade their territories, or to interrupt their diversion *.

The chase is carried on in different ways. Some surprise the Deer by using the stale of the head, horns, and hide, in the manner before mentioned: but the general method is performed by the whole body. Several hundreds disperse in a line, encompassing a vast space of country, fire the woods, and drive the animals into some strait or peninsula, where they become an easy prey. The Deer alone are not the object; Foxes, Raccoons, Bears, and all beasts of fur, are thought worthy of attention, and articles of commerce with the Europeans.

The number of Deer destroyed in some parts of America is incredible; as is pretended, from an absurd idea which the Savages have, that the more they destroy, the more they shall find in succeeding years. Certain it is that multitudes are destroyed; the tongues only preserved, and the carcases left a prey to wild beasts. But the motive is much more political. The Savages well discern, that should they overstock the market, they would certainly be over-reached by the European dealers, who take care never to produce more goods than are barely sufficient for the demand of the season, establishing their prices according to the quantity of furs brought by the natives. The hunters live in their quarters with the utmost festivity, and indulgence.

* *Cotly, App. ix.*
in all the luxuries of the country. The chase rouses their appetites; they are perpetually eating, and will even rise to obey, at midnight, the calls of hunger. Their viands are exquisite. Venison boiled with red peas; turkeys barbecued and eaten with bears fat; fawns cut out of the does belly, and boiled in the native bag; fish, and crayfish, taken in the next stream; dried peaches, and other fruits, form the chief of their good living*. Much of this food is carminative: they give loose to the effects, and (reverse to the custom of the delicate Arabs †) laugh most heartily on the occasion‡.

They bring along with them their wives and mistresses: not that they pay any great respect to the fair. They make (like the Cathnesians) errant pack-horses of them, loading them with provisions, or the skins of the chase; or making them provide fire-wood. Love is not the passion of a Savage, at least it is as brief with them as with the animals they pursue.

**DEER.** With horns near nine inches long, measuring by the curvature; and near nine inches between tip and tip, and two inches distant between the bases. About an inch and a half from the bottom is one sharp erect snag. This, and the lower parts of the horns, are very rough, strong, and scabrous. The upper parts bend forwards over the bases; are smooth, flatted, and broad, dividing into three sharp snags. Color of the hair like the European Roe; but while young are rayed with white. In size somewhat superior to the European Roe.

Inhabits Mexico ||; probably extends to the interior north-western parts of America, and may prove the Scenoontung or Squinaton, described as being less than a Buck and larger than a Roe, but very like it, and of an elegant form.§.

* Lawson, 207. † D'Arvieux's travels, 147. ‡ Lawson, 207.
|| Hernandez. § Dobbs's Hudson's Bay, 24.

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**VIRGINIAN DEER.**

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DEER. With upright, round, rugged horns, trifurcated; hairs tawny at their ends, grey below; rump and under-side of the tail white. Length near four feet; tail only an inch.

According to Charlevoix, they are found in great numbers in Canada. He says they differ not from the European kind: are easily domesticated. The Does will retreat into the woods to bring forth, and return to their master with their young. They extend far west. If Piso’s figure may be depended on, they are found in Brazil; are frequent in Europe; and inhabit as high as Sweden and Norway: is unknown in Russia.


In its stead is a larger variety: with horns like the last, and color the same; only a great bed of white covers the rump, and extends some way up the back; no tail, only a broad cutaneous excrecence around the anus.

Inhabits all the temperate parts of Russia and Sibiria, and extends as far to the north as the Elk. Descends to the open plains in the winter. The Tartars call it Saiga: the Russian Dikaja Roza.

B. FALLOW DEER, Hist. Quad. No 44.

Are animals impatient of cold; are unknown in the Russian empire, except by importation; and are preserved in parks in Sweden. The English translator of Pontoppidan mentions them (perhaps erroneously) among the deer of Norway.

MUSK. *Hift. Quad. Genus X.*


**MUSK.** With very sharp, slender white tusks on each side of the upper jaw, hanging out far below the under jaw: ears rather large: neck thick: hair on the whole body long, upright, and thick; each hair undulated; tips ferruginous; beneath them black; the bottoms cinereous: on each side of the front of the neck is a white line edged with black, meeting at the chest; another cross line beneath the throat: limbs very slender, and of a full black: tail very short, and scarcely visible. The female wants the tusks and the musk-bag.

The musk-bag is placed on the belly, almost between the thighs. A full-grown male will yield a drachm and a half of musk; an old one two drachms.

**Size.**

The length of the male is two feet eleven; of the female, two feet three. The weight of a male from twenty-five to thirty pounds, Troy weight; of an old female, from thirty to thirty-five; but some young ones do not exceed eighteen.

**Place.**

Inhabits Asia, from lat. 20 to 60, or from the kingdoms of Laos and Tong-King, between India and China, and through the kingdom of Tibet *as high as Mangasfaa.* The river Jenesi is its western boundary, and it extends eastward as far as lake Baikal, and about the rivers Lena and Witim; but gradually narrows the extent of its residence as it approaches the tropic. Lives on the highest and rudest mountains, amidst the snows, or in the fir-woods which lie between them: goes usually solitary, except in autumn, when they collect in flocks to change their place: are excessively active, and take amazing

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*Correct in p. 113, *Hift. Quad.* 9. 44 or 45, read 20.*
leaps over the tremendous chasms of their alps, or from rock to rock: tread so light on the snow, with their true and false hoofs extended, as scarcely to leave a mark; while the dogs which pursue them sink in, and are forced to desist from the chase: are so fond of liberty as never to be kept alive in captivity. They feed on lichens, arbutus, rhododendron, and whortleberry-plants. Their chase is most laborious: they are taken in snares; or shot by cross-bows placed in their tracks, with a string from the trigger for them to tread on and discharge. The Tungus shoot them with bows and arrows. The skins are used for bonnets and winter dresses. The Russians often scrape off the hair, and have a way of preparing them for summer cloathing, so as to become as soft and shining as silk.

The two other hoofed animals of the north of Asia, the Two-bunched Camel, and the Wild Boar, do not reach as high as lat. 60; the first is found in great troops about lake Baikal, as far as lat. 56 or 57; but if brought as high as Jakutsk, beyond lat. 60, perish with cold.* The Wild Boar is common in all the reedy marshes of Tartary and Sibiria, and the mountainous forests about lake Baikal, almost to lat. 55; but none in the north-eastern extremity of Sibiria.

* Zimmerman, 357.
DIV. II.

DIGITATED QUADRUPEDS.

SECT. I. With Canine Teeth.
DIV. II. Digitated Quadrupeds.

SECT I. With Canine Teeth.
Rapacious, Carnivorous.

DOG.  

H I S T. Q U A D. G E N U S XVII.


DOG. With a long head: pointed nose: ears sharp and erect: 
legs long: tail bushy, bending down: hair pretty long. Color 
usually of a pale brown, mixed with dull yellow and black.

Inhabits the interior countries south of Hudson’s Bay; and from 
thereon all America, as low as Florida. There are two varieties, a greater 
and a lesser. The first usually confines itself to the colder parts. 
The latter is not above fifteen inches high*. In the more uninhabited 
parts of the country, they go in great droves, and hunt the deer 
like a pack of hounds, and make a hideous noise. They will attack 
the Buffalo; but only venture on the stragglers. In the unfrequented 
parts of America are very tame, and will come near the few habita-
tions in hopes of finding something to eat. They are often so very 
poor and hungry, for want of prey, as to go into a swamp and fill 
themselves with mud, which they will disgorge as soon as they can 
get any food.

Color. The Wolves towards Hudson’s Bay are of different colors; grey 
and white; and some black and white, the black hairs being mixed 
with the white chiefly along the back. In Canada they have been 
found entirely black†. They are taken in the northern parts in log-
traps, or by spring-guns; their skins being an article of commerce.

In the Leverian museum is the head and scull of a wolf: 
dusky and brown, formed by the natives into a helmet. The pro-

* Du Pratz, ii. 54.  
† Smellie, iv. 212.
tection of the head was the natural and first thought of mankind; and the spoils of beasts were the first things that offered. *Hercules* seized on the skin of the Lion: the *Americans*, and ancient *Latians* that of the Wolf.

Fulvofque Lupi de pelle galeros
Tegmen habet capiti.

Wolves are now so rare in the populated parts of *America*, that the inhabitants leave their sheep the whole night unguarded: yet the governments of *Pennsylvania* and *New Jersey* did some years ago allow a reward of twenty shillings, and the last even thirty shillings, for the killing of every Wolf. Tradition informed them what a scourge those animals had been to the colonies; so they wisely determined to prevent the like evil. In their infant state, wolves came down in multitudes from the mountains, often attracted by the smell of the corpses of hundreds of *Indians* who died of the small-pox, brought among them by the *Europeans*: but the animals did not confine their insults to the dead, but even devoured in their huts the sick and dying *Savages*.

The Wolf is capable of being in some degree tamed and domesticated. It was, at the first arrival of the *Europeans*, and is still in many places, the *Dog* of the *Americans*†. It still betrays its savage descent, by uttering only a howl instead of the significant bark of the genuine Dog. This half-reclaimed breed wants the sagacity of our faithful attendant; and is of little farther use in the chase, than in frightening the wild beasts into the snares or traps,

*The Kamtschatkans, Eskimaux, and Greenlanders,* strangers to the softer virtues, treat these poor animals with great neglect. The former, during summer, the season in which they are useless, turn them loose to provide for themselves; and recall them in *October* into their usual confinement and labor: from that time till spring they

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* Kalm, i. 285.  † The same, 286.  La Croy, 119.  1 Smith's *Hist.*

*Virginia*, 27.  *Crantz Greenland*, i. 74.
are fed with fish-bones and *opana*, i.e. putrid fish preserved in pits, and served up to them mixed with hot water. Those used for draught are castrated; and four, yoked to the carriage, will draw five poods, or a hundred and ninety English pounds, besides the driver; and thus loaded, will travel thirty versts, or twenty miles, a day; or if unloaded, on hardened snow, on slides of bone, a hundred and fifty versts, or a hundred English miles*.

It is pretty certain that the Kamtschatkan Dogs are of wolfish descent; for Wolves abound in that country, in all parts of Sibiria, and even under the Arctic circle. If their master is flung out of his fledge, they want the affectionate fidelity of the European kind, and leave him to follow, never stopping till the fledge is overturned, or else stopped by some impediment†. I am also strengthened in my opinion by the strong rage they have for the pursuit of deer, if on the journey they cross ‡ the scent; when the master finds it very difficult to make them pursue their way.

The great traveller of the thirteenth century, *Marco Polo*, had knowledge of this species of conveyance from the merchants who went far north to traffic for the precious furs. He describes the fledges; adds, that they were drawn by six great dogs; and that they changed them and the fledges on the road, as we do at present in going post‡.

The Kamtschatkans make use of the skins of dogs for clothing, and the long hair for ornament: some nations are fond of them as a food; and reckon a fat dog a great delicacy§. Both the *Asian* and *American* Savages use these animals in sacrifices to their gods¶, to bespeak favor, or avert evil. When the Korcki dread any infection,
W O L F.

they kill a dog, wind the intestines round two poles, and pass between them.

The Greenlanders are not better masters. They leave their dogs to feed on mussels or berries; unless in a great capture of seals, when they treat them with the blood and garbage. These people also sometimes eat their dogs: use the skins for coverlets, for clothing, or to border and seam their habits: and their best thread is made of the guts.

The Dogs in general are large; and, in the frigid parts at left, have the appearance of Wolves: are usually white, with a black face, sometimes varied with black and white, sometimes all white; rarely brown, or all black: have sharp noses, thick hair, and short ears: and seldom bark; but set up a sort of growl, or savage howl. They sleep abroad; and make a lodge in the snow, lying with only their noses out. They swim most excellently: and will hunt, in packs, the ptarmigan, arctic fox, polar bear, and seals lying on the ice. The natives sometimes use them in the chase of the bear. They are excessively fierce: and, like wolves, instantly fly on the few domestic animals introduced into Greenland. They will fight among themselves, even to death. Canine madness is unknown in Greenland*. They are to the natives in the place of horses: the Greenlanders fasten to their fledges from four to ten; and thus make their visits in savage state, or bring home the animals they have killed. Egede says that they will travel over the ice fifteen German miles in a day, or sixty English, with fledges loaden with their masters and five or six large seals†.

Those of the neighboring island of Iceland have a great resem- bance to them. As to those of Newfoundland, it is not certain that there is any distinct breed: most of them are curs, with a cross of the mastiff: some will, and others will not, take the water, absolutely refusing to go in. The country was found uninhabited, which makes it more probable that they were introduced by the Europeans;

W O L F.

who use them, as the factory does in Hudjon's Bay, to draw firing from the woods to the forts.

The Savages who trade to Hudjon's Bay make use of the wolfish kind to draw their furs.

It is singular, that the race of European Dogs shew as strong an antipathy to this American species, as they do to the Wolf itself. They never meet with them, but they shew all possible signs of dislike, and will fall on and worry them; while the wolfish breed, with every mark of timidity, puts its tail between its legs, and runs from the rage of the others. This aversion to the Wolf is natural to all genuine Dogs: for it is well known that a whelp, which has never seen a wolf, will at first fight tremble, and run to its master for protection: an old dog will instantly attack it.

I shall conclude this article with an abstract of a letter from Dr. Pallas, dated October 5th 1781; in which he gives the following confirmation of the mixed breed of these animals and Dogs.

"I have seen at Moscow about twenty spurious animals from dogs and black wolves. They are for the most part like wolves, except that some carry their tails higher, and have a kind of coarse barking. They multiply among themselves: and some of the whelps are greyish, rusty, or even of the whitish hue of the Arctic wolves: and one of those I saw, in shape, tail, and hair, and even in barking, so like a cur, that, was it not for his head and ears, his ill-natured look, and fearfulness at the approach of man, I should hardly have believed that it was of the same breed."

10. Arctic.

Arctic Fox, Hist. Quad. No —LEV. MVS.

D O G. With a sharp nose: ears almost hid in the fur, short and rounded: hair long, soft, and silky: legs short: toes covered above and below with very thick and soft fur: tail shorter than that of the common Fox, and more bushy.

Inferior in size to the common Fox: color a blueish-grey, and sometimes
sometime white. The young, before they come to maturity, dusky. The hair, as usual in cold regions, grows much thicker and longer in winter than summer.

These animals are found only in the Arctic regions, a few degrees within and without the Polar circle. They inhabit Spitzbergen, Greenland, and Iceland*: are only migratory in Hudson's Bay, once in four or five years†: are found again in Bering's and § Copper Isle, next to it; but in none beyond: in Kamtschatka, and all the countries bordering on the frozen sea, which seems their great residence; comprehending a woodless tract of heath land, generally from 70 to 65 degrees lat. They abound in Nova Zembla ||: are found in Cherry island, midway between Finmark and Spitzbergen $, to which they must have been brought on islands of ice; for it lies above four degrees north of the first, and three south of the last: and lastly, in the bare mountains between Lapland and Norway.

They are the hardiest of animals, and even in Spitzbergen and Nova Zembla prowl out for prey during the severity of winter. They live on the young wild geese, and all kind of water-fowl; on their eggs; on hares, or any lesser animals; and in Greenland, (through necessity) on berries, shellfish, or whatsoever the sea throws up. But in the north of Asia, and in Lapland, their principal food is the Lemings¶. The Arctic foxes of those countries are as migratory as those little animals; and when the last make their great migrations, the latter pursue them in vast troops. But such removals are not only uncertain, but long: dependent on those of the Leming. The Foxes will at times desert their native countries for three or four years, probably as long as they can find any prey. The people of Jenisea imagine, that the wanderers from their parts go to the banks of the Oby.

* Egede, 62. Martin’s Spitzb. 100. Horrebows’s Iceland, 43. † Mr. Graham. 1 Müller's Col. voy. 53. || Heemskirk's voy. 54. § Pustace, iii. 559.

¶ Of which I apprehend there are two species—the Lapland, Hist. Quad. N° 317, and the Mus Migratorius of Pallas, or Yak Rat, Hist. Quad. N° 326, which inhabits the country near the Yak.

G 2 Thosè
ARCTIC FOX.

Those found on Bering's and Copper isles were probably brought from the Asiatic side on floating ice: Steller having seen in the remotest islands only the black and brown foxes: and the same only on the continent of America. They burrow in the earth, and form holes many feet in length; strewing the bottom with moss. But in Spitzbergen and Greenland, where the ground is eternally frozen, they live in the cliffs of rocks: two or three inhabit the same hole. They swim well, and often cross from island to island in search of prey. They are in heat about Lady-day; and during that time continue in the open air: after that, retreat to their earths. Like dogs, continue united in coeducation: bark like them: for which reason the Russians call them Pejzti. They couple in Greenland in March, and again in May; and bring forth in April and in June*.

They are tame and inoffensive animals; and so simple, that there are instances of their standing by when the trap was baiting, and instantly after putting their heads into it. They are killed for the sake of their skins, both in Asia and Hudson's Bay: the fur is light and warm, but not durable. Mr. Graham informed me, that they have appeared in such numbers about the fort, that he has taken, in different ways, four hundred from December to March. He likewise assured me, that the tips of their tails are always black; those of the common foxes always white: and that he never could trace the breeding-places of the former.

The Greenlanders take them either in pitfalls dug in the snow, and baited with the Capelin fish; or in springs made with whale-bone, laid over a hole made in the snow, strewed over at bottom with the same kind of fish; or in traps made like little huts, with flat stones, with a broad one by way of door, which falls down (by means of a string baited on the inside with a piece of flesh) whenever the fox enters and pulls at it†. The Greenlanders preserve the skins for traffic; and in cases of necessity eat the flesh. They also make

* Faun. Greenl. 20. † Grantz, i. 73.
buttons of the skins: and split the tendons, and make use of them instead of thread. The blue furs are much more esteemed than the white.


**EUROPEAN.**

**DOG.** With a pointed nose: pointed erect ears: body of tawny red, mixed with ash-color: fore part of the legs black: tail long and bushy, tippd with white.

Inhabits the northern parts of North America from Hudson's Bay, probably across the continent to the islands intermediate between America and Kamtchatka. Captain Bering saw there five quite tame, being unused to the sight of man.

This species gradually decreases to the southward, in numbers and in size: none are found lower than Pennsylvania. They are supposed not to have been originally natives of that country. The Indians believe they came from the north of Europe in an excessive hard winter, when the season was frozen. The truth seems to be, that they were driven in some severe season from the north of their own country, and have continued there ever since. They abound about Hudson's Bay, the Labrador country, and in Newfoundland and Canada: and are found in Iceland*. They burrow as the European foxes do; and in Hudson's Bay, during winter, run about the woods in search of prey, feeding on birds and lesser animals, particularly mice.

**New England** is said to have been early stocked with foxes by a gentleman who imported them from England, for the pleasure of the chase†; and that the present breed springs from the occasion. This species is reckoned among the pernicious animals, and, being very destructive to lambs, are proscribed at the rate of two shillings a head.

The variety of British fox, with a black tip to the tail, seems unknown in America.

* Olafsen, i. 31. † Kalm, i. 283.
EUROPEAN, BLACK, AND CROSS FOX.

The skins are a great article of commerce: abundance are imported annually from Hudson's Bay and Newfoundland. The natives of Hudson's Bay eat the flesh, rank as is it is.

This species abounds in Kamtschatka, and is the finest red fur of any known: grows scarce within the Arctic circle of the Asiatic regions, and is found there often white.

* Black.

THIS variety is found very often entirely black, with a white tip to the tail; and is far inferior in value and beauty to those of Kamtschatka and Sibiria, where a single skin sells for four hundred rubles.

The beast in North America are found on the Labrador side of Hudson's Bay. They are also very common on the islands opposite to Kamtschatka. The American black foxes, which I have examined, are frequently of a mixed color: from the hind part of the head to the middle of the back is a broad black line: the tail, legs, and belly, black: the hairs on the face, sides, and lower part of the back, cinereous; their upper ends, black; the tip white.

* Cross.

FOX. With a bed of black running along the top of the back, crossed by another passing down each shoulder; from whence it took the name. The belly is black: the color of the rest of the body varies in different skins; but in all is a mixture of black, cinereous, and yellow: the fur in all very soft: and the tail very bushy and full of hair; for nature, in the rigorous climate of the North, is ever careful to guard the extremities against the injury of cold.

This is likewise a very valuable variety. It is remarked, that the more desirable the fur is, the more cunning and difficult to be taken is the fox which owns it*. The Cossacks quartered in Kamtschatka have attempted for two winters to catch a single black fox. The Cross-fox, *vulpes crucigera* of Gefner, and Kors-raef of the Swedes †, is found in all the Polar countries.

BRANT AND CORSAK FOX.

In the new-discovered *Fox Ilands* these animals abound: one in three or four are found entirely black, and larger than any in *Sibiria*: the tail also is tipt with white. But as they live among the rocks, there being no woods in those islands, their hair is almost as coarse as that of the Wolf, and of little value compared to the *Sibirian*.


FOX. With a very sharp and black nose: space round the ears ferruginous: forehead, back, shoulders, sides, and thighs, red, cinereous, and black: the ash-color predominates, which gives it a hoary look: belly yellowish: tail black above, cinereous on the sides, red beneath.

About half the size of the common fox. Described from one Mr. Brooks received from *Pennsylvania*, under the name of *Brandt-fox*; but it had not that bright redness to merit the name of either *Brandt-fuchs*, or *Brand-raf*, given by Gesner and Linnaeus.


FOX. With upright ears: yellowish-green irides: throat white: color, in summer, pale tawny; in winter, cinereous: middle of the tail cinereous; base and tip black; the whole very full of hair: the fur is coarser and shorter than that of the common fox.

I discovered this species among the drawings of the late Taylor White, Esq; who informed me that it came from *North America*. I imagine, from *Hudson's Bay*.

This species is very common in the hilly and temperate parts of Tartary, from the Don to the Amur; but never is found in woody places: it burrows deep beneath the surface. It is also said to inhabit the banks of the rivers *Indigisk* and *Anadyr*, where the hills grow bare. In the rest of *Sibiria* it is only known beyond lake *Baikal*; and from skins brought by the Kirghisian and Bucharian traders. *In Russia* it is found in the desarts towards Crimea and *African*, and also on the southern end of the *Urallian mountains*.
FOX. With a sharp nose: long sharp upright ears: long legs: color entirely grey, except a little redness about the ears.

Inhabits from New England to the southern end of North America; but are far more numerous in the southern colonies. They have not the rank smell of the red foxes. They are also less active, and grow very fat*. They breed in hollow trees: give no diversion to the sportsmen, for after a mile's chase they run up a tree†. They feed on birds; are destructive to poultry; but never destroy lambs‡. The skins are used to line clothes: the fur is in great request among the hatters. The grease is reckoned efficacious in rheumatic disorders.

FOX. With a fine and thick coat of a deep brown color, overspread with long silvery hairs of a most elegant appearance.

Inhabits Louisiana, where their holes are seen in great abundance on the woody heights. As they live in forests, which abound in game, they never molest the poultry, so are suffered to run at large§. They differ specifically from the former, more by their nature in burrowing, than in colors.

* Laosfon, 125. † Catesby, ii. 78. ‡ Jefferson, 82. • Kahn, i. 282. § Du Prais, ii. 64. Charlevoix, v. 196.
CAT. With a small head: large eyes: ears a little pointed: chin white: back, neck, sides, and rump, of a pale brownish red, mixed with dusky hairs: breast, belly, and inside of the legs, cinereous: tail a mixture of dusky and ferruginous, the tip black.

The teeth of a vast size: claws whitish; the outmost claw of the fore feet much larger than the rest: the body very long: the legs high and strong. The length of that I examined was five feet three from head to tail; of the tail, two feet eight.

Inhabits the continent of North America, from Canada to Florida; and the species is continued from thence low into South America, through Mexico, Guiana, Brazil, and the province of Quito, in Peru, where it is called Puma, and by the Europeans mistaken for a Lion: it is, by reason of its fierceness, the scourge of the country. The different climate of North America seems to have subdued its rage, and rendered it very fearful of mankind: the left cur, in company with his master, will make it run up a tree*, which is the opportunity of shooting it. It proves, if not killed outright, a dangerous enemy; for it will descend, and attack either man or beast. The flesh is white, and reckoned very good. The Indians use the skin for winter habits; and when dressed is made into shoes for women, and gloves for men†.

It is called in North America the Panther, and is the most pernicious animal of that continent. Lives in the forests. Sometimes purs, at other times makes a great howling. Is extremely destructive to do-

*Catesby, App. xxv. †Lawsen, 118.
meat-eating animals, particularly to hogs. It preys also upon the Moose, and other deer; falling on them from the tree it lurks in, and never quits its hold*. The deer has no other way of saving itself, but by plunging into the water, if there happens to be any near; for the Panther, like the Cat, detects that element. It will feed even on beasts of prey. I have seen the skin of one which was shot, just as it had killed a wolf. When it has satisfied itself with eating, it carefully conceals the rest of the carcase, covering it with leaves. If any other animal touches the relics, it never touches them again.

**Lynx.**


**Cat.** With pale yellow eyes: ears erect, tufted with black long hair: body covered with soft and long fur, cinereous tinged with tawny, and marked with dusky spots, more or less visible in different subjects, dependent on the age, or season in which the animal is killed: the legs strong and thick: the claws large. About three times the size of a common Cat: the tail only four inches long, tipt with black.

Inhabits the vast forests of North America: is called in Canada, Le Chat, ou Le Loup-cervier †, on account of its being so destructive to deer; which it drops on from the trees, like the former, and, fixing on the jugular vein, never quits its hold till the exhausted animal falls through loss of blood ‡.

The English call it a Wild Cat. It is very destructive to their young pigs, poultry, and all kind of game. The skins are in high esteem for the softness and warmth of the fur; and great numbers are annually imported into Europe.

* Charlevoix, v. 189, who by mistake calls it Cartajou, and Kistajo; two very different animals. † Charlevoix, v. 195. ‡ Lawson, 118. Catesby, App. xxv.

**Bay Lynx.**

**Hist. Quad. No. 168.**

Cat-a-mountain? *Lawson, 118.* *Du Pratz, ii. 64.*

**Cat.** With upright pointed ears, marked with two brown bars: head and upper part of the body of a reddish brown, with long narrow stripes of black: the sides and legs with small round spots: chin and throat of a clear white: belly of a dull white: tail eight inches long, barred with black. Length from nose to tail two feet and a half.

Inhabits *North America.* Is said to be a gentle animal, and to grow very fat. Described originally in the *Memoires de l'Academie*; since which an account of another, taken in *Carolina,* was communicated by the late Mr. *Collinson* to the Count *de Buffon.* The only difference is in size; for the last was only nineteen inches long: the tail four; but the same characteristic stripes, spots, and bars, on the tail, were similar in both.

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**Supplem. iii. 237.**

**H 2** There
Obscure Species. There still remain undescribed some animals of the Feline race, which are found in North America, but too obscurely mentioned by travellers to be ascertained. Such is the beast which Lawson saw to the westward of Carolina, and calls a Tiger. He says it was larger than the Panther, i.e. Puma, and that it differed from the Tiger of Asia and Africa*. It possibly may be the Brazilian Panther, Hist. Quad. No. 158, which may extend further north than we imagine. It may likewise be the Cat-a-mount of Du Pratz‡; which, he says, is as high as the Tiger, i.e. Puma, and the skin extremely beautiful.

The Pijoux of Louisiana, mentioned by Charlevoix.§, are also obscure animals. He says they are very like our Wild Cats, but larger: that some have shorter tails, and others longer. The first may be referred to one of the three last species: the last may be our Cayenne Cat, No. 163.

Domestic Cats are kept in Iceland and Norway.§. Some of them escape and relapse to a savage state. In Iceland those are called Urdekelder, because they live under rocks and loose stones, where they hide themselves. They prey on small birds. The most valuable of their skins are sold for twelve Danish skillings, or six pence a-piece. Linnaeus, speaking of the cats of Sweden, says, they are of exotic origin ||. They are not found wild either in that kingdom, or any part of the Russian dominions. Unknown in America.

* Hist. Carolina, 119.  † ii. 64. I wish to suppress the synonym of Cat-a-mount, as applied to the Cayenne Cat, as it seems applicable to a much larger species.

Hist.
Polar Bear.

Hist. Quad. Genus XX.

Hist. Quad. No 175.—Lev. Mus.

Bear.

With a long narrow head and neck: tip of the nose black: teeth of a tremendous magnitude: hair of a great length, soft, and white, and in part tinged with yellow: limbs very thick and strong: ears short and rounded.

Travellers vary about their size. De Buffon quotes the authority of Gerard le Ver* for the length of one of the skins, which, he says, was twenty-three feet. This seems to be extremely misrepresented; for Gerard, who was a companion of the famous Barentz, and Heemskirk, a voyager of the first credit, killed several on Nova Zembla, the largest of which did not exceed thirteen feet in length†. They seem smaller on Spitzbergen: one measured by order of a noble and able navigator‡, in his late voyage towards the Pole, was as follows: I give all the measurements to ascertain the proportions.

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Inches</th>
</tr>
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<tbody>
<tr>
<td>Length from snout to tail</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>from snout to shoulder-bone</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Height at the shoulder</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Circumference near the fore legs</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>of the neck near the ear</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Breadth of the fore-paw</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Weight of the carcase without the head,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>skin, or entrails</td>
<td></td>
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</tbody>
</table>

This species, like the Rein and Arctic Fox, almost entirely surrounds the neighborhood of the Polar circle. It is found within it,

* De Buffon, Suppl. iii. 200.
‡ The Honorable Constanine John Phipps, now Lord Muligrave.
Polar Bear.

far as navigators have penetrated; in the island of Spitzbergen, and within Baffin's Bay; in Greenland and Hudson's Bay; in Terra di Labrador *; and, by accident, wafted from Greenland, on islands of ice, to Iceland and Newfoundland. It perhaps attends the course of the Arctic circle along the vast regions of America; but it is unknown in the groups of islands between that continent and Asia; neither is it found on the Tekutski Nefs, or the Great Cape, which juts into the sea north of Kamtschatka †. None are ever seen in that country. But they are frequent on all the coasts of the Frozen Ocean, from the mouth of the Ob ‡, eastward; and abound most about the estuaries of the Jenisei and Lena. They appear about those savage tracts, and abound in the unfrequented islands of Nova Zembla, Cherry, and Spitzbergen, where they find winter quarters undisturbed by mankind. The species is happily unknown along the shores of the White Sea, and those of Lapland and Norway. Possibly even those rigorous climates may be too mild for animals that affect the utmost severity of the Arctic zone. They never are seen farther south in Sibiria than Mangseea, nor wander into the woody parts, unless by accident in great mists.

They are sometimes brought alive into England. One which I saw was always in motion, restless, and furious, roaring in a loud and hoarse tone; and so impatient of warmth, that the keeper was obliged to pour on it frequently pailfuls of water. In a state of nature, and in places little visited by mankind, they are of dreadful ferocity. In Spitzbergen, and the other places annually frequented by the human race, they dread its power, having experienced its superiority, and shun the conflict: yet even in those countries prove tremendous enemies, if attacked or provoked.

Barentz, in his voyages in search of a north-east passage to China, had fatal proofs of their rage and intrepidity on the island of Nova Zembla: his seamen were frequently attacked, and some of them

* Phil. Trans. lxiv. 577. + Muller, Pref. xxv. † Purchas's Pilgrims, iii. 805.

Died.
killed. Those whom they seized on they took in their mouths, ran away with the utmost ease, tore to pieces, and devoured at their leisure, even in sight of the surviving comrades. One of these animals was shot preying on the mangled corpse, yet would not quit its hold; but continued staggering away with the body in its mouth, till dispatched with many wounds.*

They will attack, and attempt to board, armed vessels far distant from shore; and have been with great difficulty repelled †. They seem to give a preference to human blood; and will greedily disinter the graves of the buried, to devour the cadaverous contents‡.

Their usual food is fish, seals, and the carcasses of whales. On land, they prey on deer ‖, hares, young birds, and eggs, and often on whortleberries and crowberries. They are at constant enmity with the Walrus, or Morse: the last, by reason of its vast tusks, has generally the superiority; but frequently both the combatants perish in the conflict.§

They are frequently seen in Greenland, in lat. 76, in great droves; where, allured by the scent of the flesh of seals, they will surround the habitations of the natives, and attempt to break in¶; but are soon driven away by the smell of burnt feathers**. If one of them is by any accident killed, the survivors will immediately eat it ††.

They grow excessively fat; a hundred pounds of fat has been taken out of a single beast. Their flesh is coarse, but is eaten by the seamen: it is white, and they fancy it tastes like mutton. The liver is very unwholesome, as three of Heemskirk’s sailors experienced, who fell dangerously ill on eating some of it boiled‡‡. The skin is an article of commerce: many are imported, and used chiefly for covers to coach-boxes. The Greenlanders feed on the flesh and fat; use the skins to fit on, and make of it boots, shoes, and gloves; and split the tendons into thread for sewing.

* Heemskirk’s Voy. 14. †† The same, 51. †† Heemskirk, 51. † The same, 45.
During summer they reside chiefly on islands of ice, and pass frequently from one to the other. They swim most excellently, and sometimes dive, but continue only a small space under water. They have been seen on islands of ice eighty miles from any land, preying and feeding as they float along. They lodge in dens formed in the vast masses of ice, which are piled in a stupendous manner, leaving great caverns beneath: here they breed, and bring one or two at a time, and sometimes, but very rarely, three. Great is the affection between parent and young; they will sooner die than desert one another *. They also follow their dams a very long time, and are grown to a very large size before they quit them.

During winter they retire, and bed themselves deep beneath, forming spacious dens in the snow, supported by pillars of the same, or to the fixed ice beneath some eminence; where they pass torpid the long and dismal night †, appearing only with the return of the sun ‡. At their appearance the Arctic Foxes retire to other haunts §.

The Polar Bear became part of the royal menagery as early as the reign of Henry III. Mr. Walpole has proved how great a patron that despised prince was of the Arts. It is not less evident that he extended his protection to Natural History. We find he had procured a White Bear from Norway, from whence it probably was imported from Greenland, the Norwegians having possessed that country for some centuries before that period. There are two writs extant from that monarch, directing the sheriffs of London to furnish six pence a day to support our White Bear in our Tower of London; and to provide a muzzle and iron chain to hold him when out of the water; and a long and strong rope to hold him, when he was fishing in the Thames §. Fit provision was made at the same time for the king's elephant.

* Marten's Spitzb. 102.
† Egede, 60. Martens says, that the fat is used in pains of the limbs, and that it assists parturition.
‡ Heemskirk's voy. in Purchas, iii. 500, 501. || The same, 499. § Madox's Antiquities of the Exchequer, i. 376.
Polar Bear.

The skins of this species, in old times, were offered by the hunters to the high altars of cathedrals, or other churches, that the priest might stand on them, and not catch cold when he was celebrating high masses in extreme cold weather. Many such were annually offered at the cathedral at Drontheim in Norway; and also the skins of wolves, which were sold to purchase wax lights to burn in honor of the saints.


Bear. With a long pointed nose, and narrow forehead: the cheeks and throat of a yellowish brown color: hair over the whole body and limbs of a glossy black, smoother and shorter than that of the European kind.

They are usually smaller than those of the old world; yet Mr. Bartram gives an instance of an old he-bear killed in Florida which was seven feet long, and, as he guessed, weighed four hundred pounds.

These animals are found in all parts of North America, from Hudson's Bay to the southern extremity; but in Louisiana and the southern parts they appear only in the winter, migrating from the north in search of food. They spread across the northern part of the American continent to the Kamtschatkan sea. They are found again in the opposite country, and in the Kuril'sk islands, which intervene between Kamtschatka and Japan, Jefo Masima, which lies north of Japan, and probably Japan itself; for Kempfer says, that a few small bears are found in the northern provinces.

It is very certain that this species of bear feeds on vegetables.

Du Pratz, who is a faithful as well as intelligent writer, relates, that

in one severe winter, when these animals were forced in multitudes from the woods, where there was abundance of animal food, they rejected that, notwithstanding they were ready to perish with hunger; and, migrating into the lower Louisiana, would often break into the courts of houses. They never touched the butchers meat which lay in their way, but fed voraciously on the corn or roots they met with.

Necessity alone sometimes compels them to attack and feed on the swine they meet in the woods: but flesh is to them an unnatural diet. They live on berries, fruits, and pulse of all kinds; are remarkably fond of potatoes, which they very readily dig up with their great paws; make great havoc in the fields of maize; and are great lovers of milk and honey. They feed much on herrings, which they catch in the season when those fish come in shoals up the creeks, which gives their flesh a disagreeable taste; and the same effect is observed when they eat the bitter berries of the Tupelo.

They are equally inoffensive to mankind, provided they are not irritated; but if wounded, they will turn on their assailant with great fury, and, in case they can lay hold, never fail of hugging him to death; for it has been observed they never make use, in their rage, of either their teeth or claws. If they meet a man in a path they will not go out of his way; but will not attack him. They never seek combat. A small dog will make them run up a tree.

The bears of Kamtschatka resemble those of America: they are neither large nor fierce. They also wander from the hills to the lower lands in summer, and feed on berries and fish. They reject animal food, nor ever attack the inhabitants, unless they find them asleep, when, through wantonness, they bite them severely, and sometimes tear a piece of flesh away; yet, notwithstanding they get a taste of human blood, are never known to devour mankind. People thus injured are called Drauki †, or the flayed.

The American bears do not lodge in caves or clefts of rocks, like those of Europe. The bears of Hudson's Bay form their dens beneath

* Du Pratz, ii. 57. † Hist. Kamtschatka, iii. 386.
the snow, and suffer some to drop at the mouth, to conceal their retreat.

The naturalist's poet, with great truth and beauty, describes the retreat of this animal in the frozen climate of the north:

There through the piny forest half absorb'd,
Rough tenant of those shades, the shapeless Bear,
With dangling ice all horrid, flaks forlorn;
Slow pac'd, and slower as the storms increase,
He makes his bed beneath th' inclement drift,
And with stern patience, scorning weak complaint,
Hardens his heart against assailing want.

Those of the southern parts dwell in the hollows of antient trees. The hunter discovers them by striking with an ax the tree he suspects they are lodged in, then suddenly conceals himself. The Bear is immediately roused, looks out of the hollow to learn the cause of the alarm; seeing none, sinks again into repose *. The hunter then forces him out, by flinging in fired reeds; and shoots him while he descends the body of the tree, which, notwithstanding his awkward appearance, he does with great agility; nor is he less nimble in ascending the tops of the highest trees in search of berries and fruits.

The long time which these animals subsist without food is amazing. They will continue in their retreat for six weeks without the least provision, remaining either asleep or totally inactive. It is pretended that they live by sucking their paws; but that is a vulgar error. The fact is, they retire immediately after autumn, when they have fattened themselves to an excessive degree by the abundance of the fruits which they find at that season. This enables animals, which perspire very little in a state of rest, to endure an abstinence of uncommon length. But when this internal support is exhausted, and they begin to feel the call of hunger, on the approach of the severe season, they quit their dens in search of food. Multitudes

* Du Pratz, ii. 61.
then migrate into the lower parts of Louisiana: they arrive very lean; but soon fatten with the vegetables of that milder climate. They never wander far from the banks of the Mississippi, and in their march form a beaten path like the track of men.

Lawson and Catesby relate a very surprizing thing in respect to this animal, which is, that neither European or Indian ever killed a Bear with young. In one winter were killed in Virginia five hundred bears, and among them only two females; and those not pregnant. The cause is, that the male has the same unnatural dislike to its offspring as some other animals have: they will kill and devour the cubs. The females therefore retire, before the time of parturition, into the depth of woods and rocks, to elude the search of their savage mates. It is said that they do not make their appearance with their young till March.

All who have tasted the flesh of this animal say, that it is most delicious eating: a young Bear, fattened with the autumnal fruits, is a dish fit for the nicest epicure. It is wholesome and nourishing, and resembles pork more than any other meat. The tongue and the paws are esteemed the most exquisite morsels; the hams are also excellent, but apt to rutt, if not very well preserved.

Four inches depth of fat has been found on a single Bear, and fifteen or sixteen gallons of pure oil melted from it. The fat is of a pure white, and has the singular quality of never lying heavy on the stomach, notwithstanding a person drank a quart of it. The Americans make great use of it for frying their fish. It is besides used medicinally, and has been found very efficacious in rheumatic complaints, aches, and strains.

The Indians of Louisiana prepare it thus:—As soon as they have killed the Bear, they shoot a Deer; cut off the head, and draw the skin entire to the legs, which they cut off: they then stop up every orifice, except that on the neck, into which they pour the melted fat.

of the Bear; which is prepared by boiling the fat and flesh together. This they call a Deer of oil, and sell to the French for a gun, or something of equal value*.

Bears grease is in great repute in Europe for its supposed quality of making the hair to grow on the human head. A great chymist in the Haymarket in London used to fatten annually two or three Bears for the sake of their fat.

The skin is in use for all purposes which the coarser sorts of furs are applied to: it serves in America, in distant journeys, for coverlets; and the finer parts have been in some places used in the hat manufacture †.

The Indians of Canada daub their hands and face with the grease, to preserve them from the bite of musktoes: they also linear their bodies with the oil after excessive exercise ‡. They think, like the Romans of old, that oil suppes their joints, and preserves them in full activity.


**B**ear. With long shaggy hair, usually dusky or black, with brown points; liable to vary, perhaps according to their age, or some accident, which does not create a specific difference.

\(a\). A variety of a pale brown color, whose skins I have seen imported from Hudson's Bay. The same kind, I believe, is also found in Europe. The cubs are of a jetty black, and their necks often encircled with white.

\(b\). Bears spotted with white.

\(\gamma\). Land Bears, entirely white. Such sometimes fally from the lofty mountains which border on Siberia, and appear in a wandering manner in the lower parts of the country ||. Marco Polo relates, that they were frequent in his time in the north of Tartary, and of a very great size.

Grizzly Bears. These are called by the Germans Silber-bar, or the Silver-bear, from the mixture of white hairs. These are found in Europe, and the very northern parts of North America, as high as lat. 70°; where a hill is called after them, Grizzle Bear Hill, and where they breed in caverns. The ground in this neighborhood is in all parts turned by them in search of the hoards formed by the Ground Squirrels for winter provision.

All these varieties form but one species. They are granivorous and carnivorous, both in Europe and America; and I believe, according to their respective palates or habits, one may be deemed a variety which prefers the vegetable food; another may be distinguished from its preference of animal food. Mr. Graham assures me, that the brown Bears, in the inland parts of Hudson's Bay, make great havock among the Buffaloes: are very large, and very dangerous when they are attacked and wounded.

In all savage nations the Bear has been an object of veneration. Among the Americans a feast is made in honor of each that is killed. The head of the beast is painted with all colors, and placed on an elevated place, where it receives the respects of all the guests, who celebrate in songs the praises of the Bear. They cut the body in pieces, and regale on it, and conclude the ceremony.

The chase of these animals is a matter of the first importance, and never undertaken without abundance of ceremony. A principal warrior first gives a general invitation to all the hunters. This is followed by a most serious fast of eight days, a total abstinence from all kinds of food; notwithstanding which, they pass the day in continual song. This they do to invoke the spirits of the woods to direct them to the place where there are abundance of bears. They even cut the flesh in divers parts of their bodies, to render the spirits more propitious. They also address themselves to the manes of the beasts' flain in preceding chases, as if it were to direct them in their dreams to plenty of game. One dreamer alone cannot determine

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* Mr. Samuel Hearne.  † Charlevoix, Nov. Fr. v. 443.
the place of chase, numbers must concur; but, as they tell each other their dreams, they never fail to agree: whether that may arise from complaisance, or by a real agreement in the dreams from their thoughts being perpetually turned on the same thing.

The chief of the hunt now gives a great feast, at which no one dares to appear without first bathing. At this entertainment they eat with great moderation, contrary to their usual custom. The master of the feast alone touches nothing; but is employed in relating to the guests antient tales of the wonderful feats in former chases: and fresh invocations to the manes of the deceased bears conclude the whole. They then fall forth amidst the acclamations of the village, equipped as if for war, and painted black. Every able hunter is on a level with a great warrior; but he must have killed his dozen great beasts before his character is established: after which his alliance is as much courted as that of the most valiant captain.

They now proceed on their way in a direct line: neither rivers, marshes, or any other impediments stop their course; driving before them all the beasts which they find in their way. When they arrive in the hunting-ground, they surround as large a space as their company will admit, and then contract their circle; searching, as they contract, every hollow tree, and every place fit for the retreat of the bear, and continue the same practice till the time of the chase is expired.

As soon as a bear is killed; a hunter puts into its mouth a lighted pipe of tobacco, and, blowing into it, fills the throat with the smoke, conjuring the spirit of the animal not to resent what they are going to do to its body; nor to render their future chases unsuccessful. As the beast makes no reply, they cut out the string of the tongue, and throw it into the fire: if it crackles and runs in (which it is almost sure to do) they accept it as a good omen; if not, they consider that the spirit of the beast is not appeased, and that the chase of the next year will be unfortunate.

The hunters live well during the chase, on provisions which they bring with them. They return home with great pride and self-sufficiency.
sufficiency; for to kill a bear forms the character of a complete man. They again give a great entertainment, and now make a point to leave nothing. The feast is dedicated to a certain genius, perhaps that of Gluttony, whose resentment they dread, if they do not eat every morsel, and even sup up the very melted grease in which the meat was dressed. They sometimes eat till they burst, or bring on themselves some violent disorders. The first course is the greatest bear they have killed, without even taking out the entrails, or taking off the skin, contenting themselves with singeing the skin, as is practiced with hogs *

The Kamtschatskans, before their conversion to Christianity, had almost similar superstitions respecting bears and other wild beasts: they entreated the bears and wolves not to hurt them in the chase, and whales and marine animals not to overturn their boats. They never call the two former by their proper name, but by that of Sipang, or ill-luck.

At present the Kamtschatskans kill the bear and other wild beasts with guns: formerly they had variety of inventions; such as filling the entrance of its den with logs, and then digging down upon the animal and destroying it with spears †. In Sibiria it is taken by making a trap-fall of a great piece of timber, which drops and crushes it to death: or by forming a noose in a rope fastened to a great log; the bear runs its head into the noose, and, finding itself engaged, grows furious, and either falls down some precipice and kills itself, or wearies itself to death by its agitations.

The killing of a bear in fair battle is reckoned as great a piece of heroism by the Kamtschatskans as it is with the Americans. The victor makes a feast on the occasion, and feasts his neighbors with the beast; then hangs the head and thighs about his tent by way of trophies.

These people use the skins to lie on, and for coverlets; for bonnets, gloves, collars for their dogs, soles for their shoes, to prevent them

* Charlevoix, v. 169 to 174. † Hist. Kamtschatka, Fr. iii. 73.
from flapping on the ice. Of the shoulder-blades they make instruments to cut the grass; of the intestines, covers for their faces, to protect them from the sun during spring; and the Cossacks extend them over their windows instead of glass. The flesh and fat is among the chief dainties of the country.*

Superstitions, relative to this animal, did not confine themselves to America and Asia, but spread equally over the north of Europe. The Laplanders held it in the greatest veneration: they called it the Dog of God, because they esteemed it to have the strength of ten men, and the sense of twelve †. They never presume to call it by its proper name of Guouzhja, lest it revenge the insult on their flocks; but style it Moedda-aigia, or the old man in a furred cloak ‡.

The killing of a Bear was reckoned as great an exploit in Lapland as it was in America, and the hero was held in the highest esteem by both sexes; and, by a singular custom, was forbid all commerce with his wife for three days. The Laplanders bring home the slain beasts in great triumph. They erect a new tent near their former dwelling, but never enter it till they have flung off the dress of the chase. They continue in it three entire days; and the women keep at home the same space. The men dress the flesh of the Bear in the new tent, and make their repast, giving part to the females; but take great care never to bestow on them a bit of the rump. Neither will they deliver to them the meat through the common entrance of the hut, but through a hole in another part. In sign of victory, the men sprinkle themselves with the blood of the beast.

After they have finished eating the flesh, they bury the bones with great solemnity, and place every bone in its proper place, from a firm persuasion that the Bear will be restored, and re-animate a new body.

At the pulling off the skin, and cutting the body into pieces, they were used to sing a song, but without meaning or rhyme ‖; but the

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* Hift. Kamtschatka, Fr. iii. 390. † Letts Lapmark, Suppl. 64. ‡ The same, 502. ‖ The same, Suppl. K ancient
antient Fins had a song, which, if not highly embellished by the translator, is far from inelegant.

**BEAR.**

With short rounded ears, almost concealed by the fur: face sharp, black, and pointed: back broad, and, while the animal is in motion, much elevated, or arched; and the head carried low: the legs short and strong: claws long and sharp, white at their ends.

The length from nose to tail twenty-eight inches; of the trunk of the tail seven inches. It is covered with thick long hairs, reddish at the bottom, black at the end; some reach six inches beyond the tip.

The hairs on the head, back, and belly, are of the same colors, but much finer and softer. Before they are examined, the animal appears wholly black. The throat whitish, marked with black. Along the sides, from the shoulders to the tail, is a broad band of a ferruginous color: in several of the skins, brought from Hudson's Bay, I ob-

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*Nicholi's Russian Nations, i. 50.*
served this band to be white. The legs are black; the feet covered with hair on the bottom. On the fore feet of that which I examined were some white spots. On each foot were five toes, not greatly divided.

It hath much the action of a Bear; not only in the form of its back, and the hanging down of its head, but also in resting on the hind part of the first joint of its legs.

This is one of the local animals of America. I trace it as far north as the Copper river, and to the countries on the west and south of Hudson's Bay, Canada, and the tract as far as the straits of Michillimakinac, between the lakes Huron and Superior.

I have reason to think that the Glutton of the old writers is the same with this animal; and that in my History of Quadrupeds I unnecessarily separated them. Since I have received the late publication of Dr. Pallas, I am satisfied that it is common to the north of America, Europe, and Asia, even to Kamtschatka; inhabiting the vast forests of the north, even within the Polar circle. The Kamtschatkans value them so highly as to say, that the heavenly beings wear no other furs. The skins are the greatest present they can make their mistresses; and the women ornament their heads with the parts of the white banded variety. The Russians call these animals Rassomak; the Kamtschatkans, Tymi, or Tunmi.

It is a beast of uncommon fierceness, the terror of the Wolf and Bear; the former, which will devour any carrion, will not touch the carcase of this animal, which smells more fetid than that of a Polecat. It has great strength, and makes vast resistance when taken; will tear the traps often to pieces; or if wounded, will snap the stock from the barrel of the musket; and often do more damage in the capture than the fur is worth.

It preys indifferently on all animals which it can master. It feeds by night, and, being slow of foot, follows the track of wolves and foxes in the snow, in order to come in for share of their prey. It will dig up the carcases of animals, and the provisions concealed by the huntmen.
WOLVERENE.

hunt men deep in the snow, which it will carry away to other places to devour. About the Lena it will attack horses, on whose backs are often seen the marks of its teeth and claws. By a wonderful sagacity it will ascend a tree, and fling from the boughs a species of moss which Elks and Reins are very fond of; and when those animals come beneath to feed on it, will fall on them and destroy them: or, like the Lynx, it ascends to the boughs of trees, and falls on the Deer which casually passes beneath, and adheres till they fall down with fatigue. It is a great enemy to the Beaver *, and is on that account sometimes called the Beaver-eater. It watches at the mouth of their holes, and catches them as they come out. It searches the traps laid for taking other beasts, and devours those which it finds taken. It breaks into the magazines of the natives, and robs them of the provisions; whether they are covered with logs, brushwood, and built high between two or three standing trees †.

It lodges in clefts of rocks, or in hollows of trees, and in Sibiria often in the deserted holes of Badgers; never digging its own den, nor having any certain habitation. It breeds once a year, bringing from two to four at a litter ‡. Its fur is much used for muffs. Notwithstanding its great fierceness when wounded, or first seizure, it is capable of being made very tame §.

The skins are frequently brought from Hudson’s Bay, and commonly used for muffs. In Sibiria the skin is most valued which is black, and has left of the ferruginous band. These are chiefly found in the mountainous forests of Jakutsk, and used by the natives to adorn their caps. Few of the Siberian skins are sent into Russia, but are chiefly sold to the Mongols and Chinese.

The relations of the excessive gluttony of this animal; that it eats till it is ready to burst, and that it is obliged to unload itself by squeezing its body between two trees; are totally fabulous: like other animals, they eat till they are satisfied, and then leave off §.

* Debit, 40. † Mr. Graham. ‡ The same. || Edw. ii. 103.
§ Hist. Kamtsch. 385.
BEAR. With upper jaw larger than the lower; face shapely, and fox-like; ears short and rounded; eyes large, of a yellowish green; the space round them black; a dusky line extends from the forehead to the nose; the rest of the face, the cheeks, and the throat, white; the hair universally long and soft; that on the back tipped with black, white in the middle, and cinereous at the roots; tail annulated with black and white, and very full of hair; toes black, and quite divided: the fore-feet serve the purposes of a hand.

These animals vary in color. I have seen some of a pale brown, others white. Their usual length, from nose to tail, is two feet: near the tail about one.

Raccoons inhabit only the temperate parts of North America, from New England* to Florida†. They probably are continued in the same latitudes across the continent, being, according to Dampier, found in the isles of Maria, in the South Sea, between the south point of California and Cape Corrientes: It is also an inhabitant of Mexico, where it is called Mapach

It lives in hollow trees, and is very expert at climbing. Like other beasts of prey, keeps much within during day, except it proves dark and cloudy. In snowy and stormy weather it confines itself to its hole for a week together. It feeds indifferently on fruits or flesh; is extremely destructive to fields of maize, and very injurious to all kinds of fruits; loves strong liquors, and will get excessively drunk. It makes great havoc among poultry, and is very fond of eggs. Is itself often the prey of Snakes §.

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* Jeffreys, v. 35. † Account of Florida, 50. ‡ Kalm, i. 97. ii. 63.

Those-
Raccoon.

Those which inhabit places near the shore live much on shell-fish, particularly oysters. They will watch the opening of the shell, dextrously put in its paw, and tear out the contents; sometimes the oyster suddenly closes, catches the thief, and detains it till drowned by the return of the tide. They likewise feed on crabs, both sea and land. It has all the cunning of the Fox. Lawson * says, that it will stand on the side of a swamp, and hang its tail over into the water: the crabs will lay hold, mistaking it for a bait; which, as soon as the Raccoon feels, it pulls out with a sudden jerk, and makes a prey of the cheated crabs.

It is made tame with great ease, so as to follow its master along the streets; but never can be broke from its habit of stealing, or killing of poultry †. It is so fond of sugar, or any sweet things, as to do infinite mischief in a house, if care is not taken ‡.

It has many of the actions of a Monkey; such as feeding itself with its fore feet, sitting up to eat, being always in motion, being very inquisitive, and examining every thing it sees with its paws. Notwithstanding it is not fond of water, it dips into it all sorts of dry food which is given to it; and will wash its face with its feet, like a Cat.

It is sought after on account of the fur. Some people eat it, and esteem it as very good meat. The Swedes call it Siup, and Espan; the Dutch, Hespan; and the Iroqueses, Affigbro. The hair makes the best hats, next to that of the Beaver. The tail is worn round the neck in winter, by way of preservative against the cold. ||

* 121. † Kalm, i. 208. ‡ The same. || Kalm, ii. 97.
BADGER. With rounded ears: forehead, and middle of the cheeks, marked with a white line, extending to the beginning of the back, bounded on each side by another of black: cheeks white: space round the ears dusky: body covered with long coarse hair, cinereous and white.

The legs were wanting in the skin which I saw; but I supply that defect from M. de Buffon's description. They were dusky, and the toes furnished with claws, like the European kind. M. de Buffon observed only four toes on the hind feet; but then he suspected that one was torn off from the dried skin he saw.

These animals are rather scarce in America. They are found in the neighborhood of Hudson's Bay, and in Terra di Labrador; and perhaps as low as Pennsylvania, where they are called Ground Hogs*. They do not differ specifically from the European kind; but are sometimes found white in America†.

I do not discover them in northern Asia, nearer than the banks of the Taik‡. They are common in China, where they are frequently brought to the shambles, being an esteemed food§. In northern Europe, they are found in Norway and Sweden§.

Le Comte de Buffon imagines this animal¶ to be the Carcajou of the Americans, and not the Wolverine. The matter is uncertain:

* Kalm, i. 189. † Brison Quad. 185. ‡ Pallas. ¶ Bell's travels, fl. 83. § Ponsoppian, ii. 28. Faun. Suec. No 20. ¶¶ Suppl. tom. iii. 242.

yet I find that name bestowed on the latter by La Hontan; by Dobbs, who makes it synonymous; and by Charlevoix, though the last mistakes the animal, yet not the manners of that which he ascribes it to. On the other hand, Mr. Graham and Mr. Edwards omit that title, and call it only Wolveren, or Queequehatch.
OPOSSUM. With ten cutting teeth above, eight beneath: eyes black, small, and lively: ears large, naked, membranaceous, and rounded: face long and pointed; whiskers on each side of the nose, and tufts of long hairs over the eyes: legs short; the thumb on the hind feet has a flat nail, the rest of the toes have on them sharp talons: the body is short, round, and thick: the tail long; the base is covered with hair for three inches, the rest covered with small scales, and has the disgusting resemblance of a Snake.

On the lower part of the belly of the female is a large pouch, in which the teats are placed, and in which the young lodge as soon as they are born. The body is cloathed with very long soft hairs, lying usually uneven: the color appears of a dirty white; the lower parts of the hairs dusky: and above each eye is a whitish spot: the belly tinged with yellow.

The length of one I examined was seventeen inches, of the tail fourteen.

This species is found as far north as Canada*, where the French call it Le Rat de bois: from thence it extends southward, even to the Brazil and Peru. The singularity of the ventral pouch of the female, and the manner of its bringing up its young, places it among the most wonderful animals of the new continent.

As soon as the female finds herself near the time of bringing forth, she prepares a nest of coarse gras, covered with long pieces of sticks, near four feet high and five in diameter, confusedly put together.

* Charlevoix, v. 197.
OPOSSUM.

tgether*. She brings forth from four to six at a time. As soon as they come into the world they retreat into the false belly, blind, naked, and exactly resembling little foetuses. They fasten closely to the teats, as if they grew to them; which has given cause to the vulgar error, that they were created so. There they adhere as if they were inanimate, till they arrive at a degree of perfection in shape, and attain sight, strength, and hair: after which they undergo a sort of second birth. From that time they run into the pouch as an asylum from danger. The female carries them about with the utmost affection, and would rather be killed than permit this receptacle to be opened; for she has the power of contracting or dilating the orifice by the help of some very strong muscles. If they are surprised, and have not time to retreat into the pouch, they will adhere to the tail of the parent, and escape with her †.

The Opossum is both carnivorous and frugivorous. It is a great enemy to poultry; and will suck the blood and leave the flesh untouched ‡. It climbs trees very expertly, feeding on wild fruits, and also on various roots. Its tail has the same prehensile quality as that of some species of Monkeys. It will hang from the branches by it, and by swinging its body, fling itself among the boughs of the adjacent trees. It is a very sluggish animal; has a very slow pace, and makes scarcely any efforts to escape. When it finds itself on the point of being taken, it counterfeits death; hardly any torture will make it give signs of life §. If the person retires, it will put itself in motion, and creep into some neighboring bush. It is more tenacious of life than a Cat, and will suffer great violence before it is killed ¶.

The old animals are esteemed as delicate eating as a sucking pig; yet the skin is very fetid. The Indian women of Louisiana dye the hair, and weave it into girdles and garters ¶.

* Bartram’s journal E. Florida, 30. † The same. ‡ Du Pratz, ii. 65.
§ The same, 66. ¶ Lawson, 120. ¶ Du Pratz, ii. 65.
WEESEL. With small rounded ears: beneath each corner of the mouth is a white spot: breast and belly white; rest of the body of a pale tawny brown. Its length, from the tip of the nose to the tail, is about seven inches; the tail two and a half.

Inhabits the country about Hudson's Bay, Newfoundland, and as far south as Carolina. Mr. Graham sent some over, both in their summer coat, and others almost entirely white, the color they assume in winter. We meet with them again in Kamtschatka, and all over Russia and Sibiria; and in those northern regions they regularly turn white during winter. One, which was brought from Natka Sound in North America, had between the ears and nose a bed of glossy black, which probably was its universal color before its change. Dr. Irving saw on Moffen island, north of Spitzbergen, lat. 80. an animal, perhaps of this kind, spotted black and white.

WEESEL. With short ears, edged with white: head, back, sides, and legs, of a pale tawny brown: under side of the body white: lower part of the tail brown, the end black.

In northern countries, changes in winter to a snowy whiteness, the end of the tail excepted, which retains its black color: in this state is called an Ermine.

* Catesby, App.  † Phipps's voy. 58.

Length,
Length, from nose to tail, ten inches; the tail is five and a half.

Inhabits only Hudson's Bay, Canada, and the northern parts of North America. In Newfound land it is so bold as to commit its thefts in open view. Feeds on eggs, the young of birds, and on the mice with which those countries abound. They also prey on Rabbits, and the White Grous. The skins are exported from Canada among what the French call la menuz pelleterie, or small furs *.

It is found again in plenty in Kamtschatka †, the Kurili islands, Siberia, and in all the northern extremities of Europe. It is scarce in Kamtschatka; and its chase is not attended to, amidst the quantity of superior furs. But in Siberia and Norway they are a considerable article of commerce. In the former, they are taken in traps, baited, with a bit of flesh ‡; in the latter, either shot with blunt arrows, or taken, as garden mice are in England, by a flat stone propped by a baited stick, which falls down on the left touch, and crushes them to death §. They are found in Siberia in great plenty in woods of birch, yet are never seen in those of fir. Their skins are sold there on the spot from two to three pounds sterling per hundred †.

They are not found on the Arctic flats. The inhabitants of the Tschuktschi Nobs get them in exchange from the Americans, where they are of a larger size than any in the Russian dominions.

The excessive cold of certain winters has obliged even these hardy animals to migrate, as was evident in the year 1730, and 1744 ¶.

**WEESEL.** With white cheeks and tips of ears; yellow throat and breast; rest of the fur of a fine deep chestnut-color in the male, paler in the female: tail bushy, and of a deeper color than the body.

* Charlevoix, v. 197. † Hist. Kamtschatka, 99. ‡ Bell's travels, i. 199. § Pontoppidan, ii. 25. ‡ Gmelin Russ. Samling, 516. ¶ Nov. Sp. an. 188.
PINE MARTIN.

These animals inhabit, in great abundance, the northern parts of America; but I believe the species ceases before it arrives at the temperate provinces. They appear again in the north of Europe, extend across the Urallian chain, but do not reach the Ob.

They inhabit forests, particularly those of fir and pine, and make their nests in the trees. Breed once a year, and bring from two to four at a litter. They feed principally upon mice; but destroy also all kinds of birds which they can master. They are taken by the natives of Hudson’s Bay in small log-traps, baited, which fall on and kill them. The natives eat the flesh.

Their skins are among the more valuable furs, and make a most important article of commerce. I observed, that in one of the Hudson’s Bay Company’s annual sales, not fewer than 12,370 good skins, and 2,360 damaged, were sold; and in that year (1743) 30,325 were imported by the French from Canada into the port of Rochelle. They are found in great numbers in the midst of the woods of Canada; and once in two or three years come out in great multitudes, as if their retreats were overstocked; this the hunters look on as a forerunner of great snows, and a season favorable to the chase *.

It is remarkable, that notwithstanding this species extends across the continent of America, from Hudson’s Bay to the opposite side, yet it is lost on the Asiatic side of the strait of Tchukchi; nor is it recovered till you reach Catherinebourg, a district of Siberia west of Tobolsk, and twenty-five degrees west longitude distant from America. The finest in the known world are taken about Ufa, and in the mountains of Caucasus †. It is known that the Tchukchi ‡ procure the skins for cloathing themselves from the Americans; their country being destitute of trees, and consequently of the animals, inhabitants of forests, furnishing those useful articles.

The House Martin, Hiſt. Quad. No 199, is found neither in America, or the Arctic countries.

* Charlesv., v. 197. † Defer Pallas. ‡ Müller, Pref. xxix.
WEESEL. With ears a little pointed: body and head covered with hair of a mixture of grey, chestnut, and black, and beneath protected by a cinereous down: the lower jaw encircled with white: legs and tail black: on the breast, between the fore-legs, a spot of white, and another on the belly between the hind-legs: toes covered above and below with fur.

I saw this and the following animal at Paris, in the cabinet of M. Aubry, Curé de St. Louis en L’Ile. They were in glass cases, so I could get only an imperfect view of them. According to M. de Buffon, the length of this was a foot and a half French measure; the tail ten inches*. The fur is fine; and the skins were often imported by the French from Canada.

This seems to me to be very nearly allied to the European Martin, N° 15. Br. Zool. vol. i. It agrees very much in dimensions, and in the white marks. It is also the animal which Mr. Graham sent to the Royal Society from Hudson’s Bay, under the name of Jackass, which he says harbours about creeks, and lives on fish. Brings from two to four young at a time. Is caught by the natives, who eat the flesh and barter the skins.


* Le Pekan, tom. xiii. 304. tab. xlii. xliii.

Length
V I S O N.

Length from head to tail one foot four inches, French; tail seven inches, or to the end of the hairs nine.

Inhabits Canada.


W E E S E L. With head and ears whitish: the ears broad, inclining to a triangular form, and rounded at top, in the Asiatic specimens; in the American, rather pointed: whole body of a light tawny: feet very large, hairy above and below: claws white.

Length, from nose to tail, twenty inches; of the trunk of the tail, four inches; from the base to the end of the hairs eight: of a dusky color.

This description is taken from a skin sent from Canada: but it extends across the whole continent, being frequently found among the furs which the Americans traffic with among the inhabitants of the Tschuktsebi Nofs*. The American specimen, which I had opportunity of examining, was of the bleached, or worst kind; probably others may equal in value those of Asia.

The great residence of these animals is in Asia, beginning at the Urallian chain, and growing more and more plentiful as they advance eastward, and more valuable as they advance more north. None are found to the north-east of the Anadir, nor in any parts destitute of trees. They love vast forests, especially those of fir, in which those of most exquisite beauty are found. They are frequent in Kamtschatka, and are met with in the Kuril isles†. They extend from about lat. 50 to lat. 58.

They are very easily made tame: will attach themselves so to their master, as to wander a considerable way, and return again to their home.

* De Flor. Pallas. † De Flor. Kamtschatka, 275.

3 They
They abhor water: therefore the notion of their being the Satherion of Aristotele is erroneous.

Another way of taking them, besides those which I before mentioned, is by placing a piece of timber from tree to tree horizontally; near one end of this is placed a bait: over the lower piece of wood is placed another, suspended obliquely, and resting at one end on a post very slightly: a rod extends from it to a noose, to which the bait is fastened. As soon as the Sable seizes the meat, the upper timber falls, and kills the precious animal *. The hunting-season always begins with the first snows: but they are now become so very scarce, as to be confined to the vast forests of the extreme parts of Sibiria, and to the distant Kamischatka. Such has been the rage of luxury!

It was not till the later ages that the furs of beasts became an article of luxury. The more refined nations of antient times never made use of them: those alone whom the former stigmatized as barbarians, were cloathed in the skins of animals. Strabo describes the Indians covered with the skins of Lions, Panthers, and Bears †; and Seneca ‡, the Scythians cloathed with the skins of Foxes, and the lesser quadrupeds. Virgil exhibits a picture of the savage Hyperboreans, similar to that which our late circumnavigators can witness to in the cloathing of the wild Americans, unseen before by any polished people.

Most part of Europe was at this time in similar circumstances. Cesar might be as much amazed with the skin-dressed heroes of Britain, as our celebrated Cook was at those of his new-discovered regions. What time hath done to us, time, under humane conquerors, may effect for them. Civilization may take place, and those spoils of animals, which are at present essential for cloathing, become the mere objects of ornament and luxury.

* Découvertes dans le Ruff, &c. iv. 237. tab. vi. vii.  † Strabo, lib. xvii. p. 1184.  ‡ Epist. Ep. xc.  I can-
S A B L E.

I cannot find that the Greeks or old Romans ever made use of furs. It originated in those regions where they most abounded, and where the severity of the climate required that species of cloathing. At first it consisted of the skins only, almost in the flat in which they were torn from the body of the beast; but as soon as civilization took place, and manufactures were introduced, furs became the lining of the dress, and often the elegant facing of the robes. It is probable, that the northern conquerors introduced the fashion into Europe. We find, that about the year 522, when Totila, king of the Visigoths, reigned in Italy, that the Suetbuns (a people of modern Sweden) found means, by help of the commerce of numberless intervening people, to transmit, for the use of the Romans, fapphilitas pelles, the precious skins of the Sables*. As luxury advanced, furs, even of the most valuable species, were used by princes as lining for their tents: thus Marco Polo, in 1252, found those of the Cham of Tartary lined with Ermines and Sables †. He calls the last Zibelines, and Zambolines. He says that those, and other precious furs, were brought from countries far north; from the land of Darkness, and regions almost inaccessible, by reason of morasles and ice ‡. The Welsh set a high value on furs, as early as the time of Howel Dda §, who began his reign about 940. In the next age, furs became the fashionable magnificence of Europe. When Godfrey of Boulogne, and his followers, appeared before the emperor Alexis Comnene, on their way to the Holy Land, he was struck with the richness of their dresses, tam ex ostro quam aurifrigio et niveo opere barmelino et ex mardrino gri-soque et vario. How different was the advance of luxury in France, from the time of their great monarch Charlemagne, who contented himself with the plain fur of the Otter! Henry I. wore furs; yet in his dittrefes was obliged to change them for warm Welsh flannel ¶. But in the year 1337 the luxury had got to such a head, that Edward III. enacted, that all persons who could not spend a hundred a year, should absolutely be prohibited the use of this species of finery.

* Jernandes de Rebus Geticiis. † In Bergerot's Coll. 70. Purchas, iii. 36.
These, from their great expence, must have been foreign furs, obtained from the Italian commercial states, whose traffic was at this period boundless. How strange is the revolution in the fur trade! The north of Asia, at that time, supplied us with every valuable kind; at present we send, by means of the possession of Hudson's Bay, furs, to immense amount, even to Turkey and the distant China.

**WEESEL.** With ears broad, round, and dusky, edged with white: head and sides of the neck pale brown mixed with ash-color and black: hairs on the back, belly, legs, and tail, brown at the base, and black at their ends: sides of the body brown.

The feet very large and broad, covered above and below thickly with hair: on each foot are five toes, with white claws, sharp, strong, and crooked: the fore legs shorter than those behind: the tail is full and bushy, smallest at the end. Length, from nose to tail, is twenty-eight inches; of the tail seventeen.

This animal inhabits Hudson's Bay, and is found in New England, and as low as Pennsylvania. About Hudson's Bay they are called Wecacks, and Woodbocks. They harbour about creeks, feed upon fish, and probably birds. They breed once a year, and have from two to four at a birth. The natives catch them, and dispose of the skins, which are sold in England for four or six shillings apiece. Such is the account I received from Mr. Graham.

The late worthy Mr. Peter Collinson transmitted to me the following relation, which he received from Mr. Bartram:—"They are found in Pennsylvania; and, notwithstanding they are not amphibious, are called Fishers, and live on all kinds of lesser quadrupeds." I do not know how to reconcile these accounts of the same animal (for such it is) unless it preys indifferently on fish and land animals, as is often the case with rapacious beasts, and that both Mr. Graham and Bartram may have overlooked that circumstance.
STRIATED WEESEL.


WEESEL. With small and rounded ears: the ground color of the whole animal black, marked on the back and sides with five long parallel lines of white; one extending from the head along the top of the back to the base of the tail; with two others on each side, the highest of which reaches a little way up the tail; the tail is long, and very bushy towards the end.

This species varies in the disposition of the stripes, and I suspect the male is entirely black, as described by M. Du Pratz; who says, that the female has rings of white intermixed. If that is the case, the Coaxe, which M. de Buffon received from Virginia, is of this kind. It is of an uniform color; but what is a stronger proof of their differing only in sex, is the agreement in number of toes in the fore feet, there being four on each; an exception to the character of this Genus.

In size it is equal to an European Pole-cat, but carries its back more elevated.

These animals are found from Pennsylvania as far as Louisiana, where they are known by the name of the Pole-cat or Skunk; which is given indifferently to both of these foetid beasts.

Nature hath furnished this and the following a species of defence superior to the force either of teeth or claws. The French most justly call these animals enfants du Diable, or children of the Devil, and Bêtes puantes, or the stinking beasts; as the Swedes bestow on them that of Fijkatta. The pestiferous vapour which it emits from behind, when it is either attacked, pursued, or frightened, is so suffocating and foetid, as at once to make the boldest affailant retire with precipita-


M 2
tion. A small space is often no means of security; the animal either will turn its tail, and by a frequent crepitus prevent all repetition of attempts on its liberty; or else ejaculate its stifling urine to the distance of eighteen feet*. Its enemy is stupefied with the abominable stench; or perhaps experiences a temporary blindness, should any of the liquid fall on his eyes. No washing will free his cloaths from the smell: they must even be buried in fresh soil, in order to be effectually purified.

Persons who have just undergone this misfortune, naturally run to the next house to try to free themselves from it; but the rights of hospitality are denied to them: the owner, dreading the infection, is sure to shut the door against them.

Professor Kalm ran the danger of being suffocated by the stench of one, which was pursued into a house where he was.

A maid-servant, who destroyed another in a room where meat was kept, was so affected by the vapour as to continue ill for several days; and the provisions were so infected, that the master of the house was forced to fling them away†.

Travellers are often obliged, even in the midst of forests, to hold their noses, to prevent the effects of its stench.

The brute creation are in like dread of its effluvia. Cattle will roar with agony; and none but true-bred dogs will attack it: even those are often obliged to run their noses into the ground before they can return to complete its destruction. The smell of the dogs, after a combat of this nature, remains for several days intolerable.

Notwithstanding this horrible quality, the flesh is eaten, and is esteemed as sweet as that of a Pig. The bladder must be taken out, and the skin flayed off, as soon as the animal is killed‡.

I should think it a very disagreeable companion; yet it is often tamed so as to follow its master like a Dog; for it never emits its

* Kalm, i. 275. † The same, 277. ‡ Lawson, 119. Kalm, i. 278.
vapour unless terrified *. It surely ought to be treated with the highest attention.

The skin is neglected by the Europeans, by reason of the coarseness of the hair. The Indians make use of it for tobacco pouches, which they carry before them like the Highlanders.

It climbs trees with great agility. It feeds on fruits † and insects. Is a great enemy to birds, destroying both their eggs and young. It will also break into hen-roofs, and destroy all the poultry ‡. It breeds in holes in the ground, and hollow trees, where it leaves its young, while it is rambling in quest of prey.


WEESEL. With short rounded ears: sides of the face white: from the nose to the back extends a bed of white; along the top of the back, to the base of the tail, is another broad one of black, bounded on each side by a white stripe: the belly, feet, and tail, black. But the colors vary: that which is figured by M. de Buffon has a white tail: the claws on all the feet very long, like those of a Badger: the tail very full of hair.

This inhabits the continent of America, from Hudson's Bay § to Peru ‖. In the last it is called Chinche. It burrows like the former, and has all the same qualities. It is also found in Mexico, where it is called Conepatl, or Boy's little Fox ¶.

* Kalm, i. 278. † Catesby, ii. tab. 62. ‡ Kalm, i. 274. § Sent from thence by Mr. Graham. ‖ Feuillée Obs. Peru, 1714, p. 272. ¶ Hernández, Mex. 382.
OTTER. Genus XXIV.

Common. 

OTTER. With short rounded ears: head flat and broad: long whiskers: aperture of the mouth small: lips very muscular, designed to close the mouth firmly while in the action of diving: eyes small, and placed nearly above the corners of the mouth: neck short: body long: legs short, broad, and thick: five toes on each foot, each furnished with a strong membrane or web: tail depressed, and tapering to a point.

The fur fine; of a deep brown color, with exception of a white spot on each side of the nose, and another under the chin.

These animals inhabit as far north as Hudson's Bay, Terra di Labrador, and Canada, and as low south as Carolina and Louisiana; but in the latter provinces are very scarce. The species ceases farther south. Lawson says that they are sometimes found, to the westward of Carolina, of a white color, inclining to yellow. Those of North America are larger than the European, and the furs of such which inhabit the colder parts are very valuable. Their food is commonly fish; but they will also attack and devour the Beaver.

They are found again in Kamtschatka, and in most parts of northern Europe and Asia, but not on the Arctic flats: are grown very scarce in Russia. The Kamtschatkans use their furs to face their garments, or to lap round the skins of Sables, which are preserved better in Otter skins than any other way. They usually hunt them with dogs, in time of deep snow, when the Otters wander too far from the banks of rivers.

- *Lawson, 119, and Du Pratz, ii. 69.*
- *Dobbs, 40.*
- *Hist. Kamts.*

The
The Americans round Hudson's Bay shoot or trap them for the sake of the skins, which are sent to Europe. They also use the skins for pouches, ornamented with bits of horn; and eat the flesh.

Otters are probably continued along the Arctic parts of America, westward; being found on the most eastern, or the greater Fox Islands, which are supposed to be pretty near to that continent.

Lesser Otter, Hist. Quad. No 223.

O TTER. With a white chin: rounded ears: top of the head in some hoary, in others tawny: the body covered with short tawny hairs, and longer of a dusky color: the feet broad, webbed, and covered with hair: the tail dusky, ending in a point. This animal is of the shape of the common Otter, but much smaller: its length being only twenty inches from head to tail; of the tail only four.

It inhabits the middle provinces of North America, from New Jersey to the Carolinas. I did not discover it among the skins sent by Mr. Graham from Hudson's Bay; the animal described as one of this species differing from the many I have seen from the more southern colonies: yet possibly it may be found in a more northern latitude than that which I have given it, if the Fontereaux, an amphibious sort of little Polecats mentioned by La Hontan, be the same.*

It frequents the banks of rivers, inhabiting hollow trees, or holes which it forms near the water †. It has, like the Skunks, when provoked, a most excessively fetid smell. It lives much upon fish, frogs, and aquatic insects; dives admirably, and will continue longer under water than the Musk-beaver ‡; yet at times it will desert its watery haunts, and make great havoke in the poultry yards, biting off the heads of the fowls, and fucking the blood. At times it lurks amidst

* i. 62. † Kalm, ii. 62. ‡ Letter from Mr. Peter Collinson.
LES S E R  O T T E R.

the docks and bridges of towns, where it proves a useful enemy to rats *.

It is besides very destructive to the Tortoise; whose eggs it scrapes out of the sand and devours: and eats the fresh-water muscles; whose shells are found in great abundance at the mouth of their holes. It is capable of being made tame, and domesticated †.

The species is spread in Asia, along the banks of the Taik, in the Orenburg government ‡. None are seen in Sibiria; but appear again near the rivers which run into the Amur. Its fur is in those parts very valuable, and esteemed as next in beauty to the Sable. It is either hunted with dogs or taken in traps. In Europe it is found in Poland and Lithuania, where it is named Nurek; and the Germans call it Nurtz. It is also an inhabitant of Finland: the natives call it Tieburi; the Swedes, Munk §, a name carried into America by some Swedish colonists, and with a slight variation is still retained.

**36. Sea.**

*Caflor Marin, Hiſ. Kamtschatka, 444.*

Sea Otter, *Muller, 57, 58||.—Lev. Mus.*

**D e s c r i p t i o n.**

O T T E R. With hazel irides: upper jaw long, and broader than the lower: nose black: ears erect, conic, small: whiskers long and white: in the upper jaw fix, in the lower four, cutting teeth: grinders broad: fore legs thick; on each four toes, covered with hair, and webbed: the hind feet resemble exactly those of a Seal: the toes divided by a strong flagegreened membrane, with a skin skirting the external side of the outmost toe, in the manner of some water fowl.

* Kalm, ii. 61. † *Lawfon, 122.*  ‡ Dr. Pallas. § *Fauna Suec. N° 13.*

|| I here insert the synonyms; for in the Synophs of Quadrupeds, following *Linnaeus* and *Brieffon*, I confounded the *Brazilian Otter of Maregrave* with this animal.

The
The skin is extremely thick, covered closely with long hair, remarkably black and glossy; and beneath that is a soft down. The hair sometimes varies to silvery. The hair of the young is soft and brown.

The length, from nose to tail, is about three feet; that of the tail thirteen inches and a half. The tail is depressed, full of hair in the middle, and sharp-pointed. The weight of the biggest, seventy or eighty pounds.

These are the most local animals of any we are acquainted with, being entirely confined between lat. 44 and 60, and west longitude 126 to 150 east from London, in the coast and seas on the north-east parts of America; and again only between the Kamtschatkan shores and the isles which intervene between them and America. They land also on the Kuril islands; but never are seen in the channel between the north-east part of Sibiria and America.

They are most extremely harmless, and most singularly affectionate to their young. They will never desert them, and will even pine to death on being robbed of them, and strive to breathe their last on the spot where they experienced the misfortune.

It is supposed that they bring but one at a time. They go between eight and nine months with young, and suckle it almost the whole year. The young never quits its dam till it takes a mate.

They bring forth on land: often carry the young between their teeth, fondle them, and frequently fling them up and catch them again in their paws. Before the young can swim, the old ones will take them in their fore feet, and swim about upon their backs.

They run very swiftly: swim sometimes on their sides, on their backs, and often in a perpendicular direction. They are very sportive, embrace each other, and kiss.

They never make any resistance; but endeavour, when attacked, to save themselves by flight: when they have escaped to some distance, they will turn back, and hold one of their fore feet over their N eyes.
eyes, to gaze, as men do their hands to see more clearly in a sunny
day; for they are very dull-sighted, but remarkably quick-scented.
They are fond of those parts of the sea which abound most with
weeds, where they feed on fish, fepia, lobsters, and shell-fish, which
they comminate with their flat grinders.
They are taken different ways: in the summer, by placing nets
among the sea-plants, where these animals retire in the frequent storms
of this tempestuous coast.
They are killed with clubs or spears, either while they lie asleep
on the rocks, or in the sea floating on their backs.
Thirdly, they are pursued by two boats till they are tired, for
they cannot endure to be long at a time under water.
During winter they are brought in great numbers to the Kurilian
islands, by the eastern winds, from the American shore.
The hunter goes with a dog, who points them. He knocks it on
the head, and flays it, while the dog is beating about for another.
They are called in the Kamtschatkan tongue Kalan, in the plural
Kalani.
Their flesh is preferred to that of Seals by the natives; but the
unfortunate crew who were shipwrecked in the expedition in 1741,
under Captain Bering, found it to be insipid, hard, and tough as
leather; so that they were obliged to cut it in small pieces before
they could eat it. Others pretend, that the flesh of the young is very
delicate, and scarcely to be distinguished from young lamb.
But the valuable part of them is their skin. Few are brought into
Europe; but great quantities are sold to the Chinese, at vast prices, from
seventy to a hundred rubles apiece, or 14 or 251. sterling each.
What a profitable trade might not a colony carry on, was it possible
to penetrate to these parts of North America by means of the rivers
and lakes! The access to Pekin would be then easy, by sailing up
the gulph of Petcheli. At present, these valuable furs are carried by
land above three thousand miles to the frontiers of China, where they
are delivered to the merchants.

These
SEA OTTER.

These animals partake very much of the nature of Seals, in their almost constant residence in the water, their manner of swimming, fin-like legs, and number of fore teeth. In their ears they greatly resemble the little Seal of my History of Quadrupeds, No. 386, and seem the animals which connect the genera of Otters and Seals.

They are seen very remote from land, sometimes even at the distance of a hundred leagues.
DIV. II.  Sect. II.

DIGITATED QUADRUPEDS.

Without Canine Teeth: and with two Cutting Teeth only in each jaw.
DIV. II. Sect. II. Digitated Quadrupeds.

Without Canine Teeth: and with two Cutting Teeth only in each jaw.

Generally Herbivorous, or Frugivorous.

HARE.

HIST. QUAD. GENUS XXVI.

HARE. With the edges of the ears and tips black: the colors, in summer, cinereous, mixed with black and tawny: tail always white.

Mr. Graham says, that those of Hudson's Bay are of the same size with the common; but those which I have examined in Scotland are much less, weighing only six pounds and a half: the common Hare weighs upwards of eight.

This species inhabits Greenland, where alone they continue white throughout the year*; and are very numerous amidst the snowy mountains. They are usually fat; and feed on grass, and the white moss of the country. They are found about the rocks at Churchill, and the freights of Hudson's Bay; but are not common. They breed once a year, and bring two at a time†. They change their color to white at approach of winter. They are met with in Canada and Newfoundland; after which the species ceases to the southward, or at left I have no authority for its being continued; the Hare of New England seeming, by Josselyn's account, to be the following species.

* Crantz, i. 70. Egede, 62. † Mr. Graham.
The Greenlanders eat the flesh dressed, and the contents of the stomach raw. They use the excrements for wick for their lamps; and cloath their children with the soft and warm skins.

This species abounds from Livonia to the north-east part of Siberia and Kamtschatka; and from Archangel to Saratof, on the banks of the Wolga, in east lat. 49. 52, and even farther into the Orenburg government. In Siberia they quit the lofty mountains, the southern boundaries of that country, and, collecting in flocks innumerable, at approach of winter migrate to the plains, and northern wooded parts, where vegetation and food abound. Mr. Bell met with them daily in their progress*. Multitudes of them are taken in toils by the country people, not for the sake of the flesh, but the skins; which are sent to Petersburg, and from thence exported to various parts.

American Hare, Ph. Trans. ixxii. 4. 376. Hist. Quad. No 243.

* Travels, octavo ed. i. 246.

The Greenlander's VARYING HARE.

* Travels, octavo ed. i. 246.
These animals are found from Hudson's Bay to the extremity of North America; but swarm in countries bordering on the former. In the time of M. Jeremie, who resided in Hudson's Bay from 1708 to 1714, twenty-five thousand were taken in one season*. At present they are a principal winter food to our residents there. They are taken in wire snares, placed at certain intervals in small openings made in a long extent of low hedging formed for that purpose; the animals never attempting to jump over, but always seek the gaps. These hedges are removed, on the falling of the snows, to other places, when the Rabbets seek new tracks†. Their flesh is very good; but almost brown, like that of the English Hare.

From Hudson's Bay, as low as New England, these animals, at approach of winter, receive a new coat, which consists of a multitude of long white hairs, twice as long as the summer fur, which still remains beneath. About the middle of April they begin to shed their winter covering.

From New England southward they retain their brown color the whole year. In both warm and cold climates they retain the same nature of never burrowing; but lodge in the hollow of some decayed tree, to which they run in case they are pursued. In the cultivated parts of America, they make great havoc among the fields of cabbage, or turnips‡. In Carolina, they frequent meadows and marshy places; and are very subject to have maggots breed in the skin§. In that province they breed very often, and even in the winter months, and bring from two to six at a time; but usually two or four‖.

I know of no use that is made of the skins, excepting that the natives of Hudson's Bay wrap them round the limbs of their children, to preserve them against the cold.

* Voyages au Nord, iii. 344. † Drage, i. 176. ‡ Kalm, ii. 46.
§ Lawson, 122. ‖ Do For Garden.
**HARE.** Without a tail.


_HARE._ With short, broad, rounded ears: long head, and whiskers: fur dusky at the roots; of a bright bay near the ends; tips white: intermixed are divers long-dusky hairs.

Length nine inches.

Found from the _Altaic_ chain to lake _Baikal_, and from thence to _Kamtschatka_. They dwell amidst the snows of the loftiest and most dreadful rocky mountains, and never descend to the plains. They also are said to inhabit the farthest Fox or _Aleutian_ islands: therefore possibly may be met with in _America_.

The manners are so amply described in my History of Quadrupeds, that I shall not repeat an account of them.
BEAVER.

HIST QUAD: GENUS. XXVII.

40. CASTOR.

Hist. Quad. No. 251.—Smellie, v. 21.—LEV. Mus.

DESCRIPTION.

BEAVER. With a blunt nose: ears short, rounded, and hid in the fur: eyes small: very strong cutting teeth: hair of a deep chestnut brown: fore feet small, and the toes divided: hind feet large, and the toes webbed: the tail eleven inches long, and three broad; almost oval, flat, and covered with thin scales.

The usual length, from nose to tail, is about two feet four; but I have measured the skin of one, which was near three feet long.

Beavers vary in color. They are sometimes found of a deep black, especially in the north. In Sir Ashton Lever's museum is a specimen quite white. As they advance southward, the beauty of their fur decreases. Among the Illinois they are tawny, and even as pale as straw color *

In North America these animals are found in great plenty all round Hudson's Bay, and as low as Carolina † and Louisiana ‡. They are not known in East Florida §. The species also ceases before it arrives in South America. To speak with precision, it commences in lat. 60, or about the river of Seals, in Hudson's Bay; and is lost in lat. 30, in Louisiana.

From Hudson's Bay and Canada, I can trace them westward to 120 degrees of longitude, as far as the tract west of Lac Rouge, or the Red lake ¶. The want of discovery prevents us from knowing whether they are continued to the western extremity of this great continent opposite to Asia: probably they are, for the Russian adventurers got some of their skins on the isle of Kadjak, which the natives mult

* Charlevoix, v. 140. † Louisiana. ‡ Du Pratz, ii. 69. § Account. of East Florida, 50. ¶ De bek, 55.
have had from America. They certainly are not found in the islands of the new Archipelago; nor yet in Kamtschats*, by reason of the interruption of woods, beyond the river Konyma. From thence I doubt whether they are met with associated, or in a civilized state, nearer than the banks of the river Jenisei, or the Kondä, and other rivers which run into the Obÿ: but they are found scattered in the woody parts of independent Tartary; also in Casan, and about the Taik, in the Orenburg government. In the same unsociable state they inhabit Europe, and are found in Russia, in Lapland, Norway, and Sweden.

These are the most sagacious and industrious of animals. They live in society, and unite in their labors, for the good of the commonwealth they form. They erect edifices, superior in contrivance to the human beings. They usually live near, and shew a dexterity in their economy unequall'd by the four-footed race.

In order to form a habitation, they select a level piece of ground, with a small rivulet running in the midst. To effect their works, a community of two or three hundred assembles: every individual bears his share in the laborious preparation. Some fell trees of great size, by gnawing them asunder with their teeth, in order to form beams or piles; others are employed in rolling the pieces to the water; others dive, and scrape holes with their feet in order to fix them; and another set exert their efforts to rear them in their proper places. A fifth party is busied in collecting twigs to wattle the piles. A sixth, in collecting earth, stones, and clay; others carry it on their broad tails to proper places, and with their feet beat and temper the earth into mortar, or ram it between the piles, or plaster the inside of the houses.

All these preparations are to form their dwellings within an artificial piece of water or pond, which they make by raising a dam across the level spot they had pitched on. This is done, first by driv-

* The Sea Beaver (as it is called) Sp. of this work, must not be confounded with this.
ing into the ground flakes, five or fix feet long, placed in rows, and
securing each row by wattling it with twigs, and filling the inter-
spaces with clay, ramming it down close. The side next to the water
is sloped, the other perpendicular. The bottom is from ten to
twelve feet thick; the thickness gradually diminishes to the top,
which is about two or three. The centre of the dam forms a segment
of a circle; from which extends, on each side, a strait wing: in the
midst of the centre is usually a gutter left for the waste water to dis-
charge itself. These dams are often a hundred feet long, and nicely
covered with turf.

Houses. The houses these wise animals make, are placed in the water col-
lected by means of the dam, and are seated near the shore. They are
built upon piles, and are sometimes round, sometimes oval; the tops
are vaulted, so that their inside resembles an oven, their outside a
dome. The walls are made of earth, stones, and sticks, and usually
two feet thick. They are commonly about eight feet high above the
surface of the water*, and are very neatly and closely plastered on
the inside. The floor is a foot higher than the water. The house,
sometimes, has only one floor, which is strewn with leaves or moss;
on which each Beaver lies in its proper place; at other times there
are three apartments; one to lodge, another to eat in, and a third to
dung in†: for they are very cleanly, and instantly cause the filth to
be carried off by the inferior Beavers.

M. Du Pratz ‡ says, that those of Louisiana form numbers of cells,
and that each animal, or more probably each pair, possess one. He
says, that he has seen no less than fifteen of these cells surrounding
the centre of one house. He also acquaints us, that the Beavers of
Louisiana are a third less than the brown fort; are covered with a cin-
creous down, which is covered with long silvery hairs.

In each house are two openings; one towards the land; the other
is within, and communicates with the water, for the conveniency of

* Clerk, i. 142. † Mr. Graham. Catesby, App. xxx. ‡ i. 241.

going
CASTOR.

getting to their magazine of provision in frosty weather. This orifice is formed so as to be beyond the thickness of the ice; for they lodge their provisions under the water, and dive and bring it into their house according as they want it.

Their food is laid in before winter by the tenants of each house; it consists of the bark and boughs of trees. Lassen says that they are fonder of the sassafras, ash, and sweet gum. In summer they live on leaves, fruits, and sometimes crabs and cray-fish; but they are not fond of fish.

The number of houses in each pond is from ten to twenty-five: the number of animals in each, from two to thirty. They are supposed to associate in pairs; are therefore monogamous: another proof of their advances towards civilization.

I think I have heard that every family consists of an even number. Sometimes the community, within the precinct of a dam, consists of four hundred; but I presume this must be in places little frequented by mankind.

They begin to build their houses, when they form a new settlement, in the summer; and it costs them a whole season to finish their work, and lay in their provisions.

They are very attentive to their safety; and on any noise take to the water for their further security. They form vaults or burrows in the banks of the creek formed by the dam, into which they retreat in case of imminent danger.

They seem to be among quadrupeds, what Bees are among insects. They have a chief, or superintendent, in their works, who directs the whole. The utmost attention is paid to him by the whole community. Every individual has his task allotted, which they undertake with the utmost alacrity. The overseer gives a signal by a certain number of smart slaps with his tail, expressive of his orders. The moment the artificers hear it, they hasten to the place thus pointed out, and perform the allotted labor, whether it is to carry wood, or draw the clay, or repair any accidental breach.
They have also their centinels, who, by the same kind of signal, give notice of any apprehended danger.

They are said to have a sort of flavius Beaver among them (analogous to the Drone) which they employ in servile works, and the domestic drudgery.*

I have mentioned before their sagacity in laying in the winter provision. They cut the wood they prefer into certain lengths; pile them in heaps beneath the water, to keep them moist; and, when they want food, bite the wood into small pieces, and bring it into their houses. The Indians observe the quantity which the Beavers lay in their magazine at approach of winter. It is the Almanack of the Savages; who judge from the greater or less stock, of the mildness or severity of the approaching season †.

The expedition with which they cut down trees, for the forming their dams, is amazing. A number surrounds the body, and will in a few minutes gnaw through a tree of three feet in circumference; and always contrive to make it fall towards the spot they wish ‡.

Beavers have in America variety of lakes and waters in which they might fix their seats; but their sagacity informs them of the precarious tenure of such dwellings, which are liable to be overthrown by every flood. This induces them to undertake their mighty and marvellous labors. They therefore select places where no such inconveniences can be felt. They form a dam to support a refervoir, fed only by a small rill; and provide for the overflow of the waife water by a suitable channel in the middle of their bank. They have nothing to fear but from land floods, or the sudden melting of the snows. These sometimes make breaches, or damage their houses; but the defects are instantly repaired.

During the winter they never stir out, except to their magazines of provision; and in that season grow excessively fat.

They are strongly attached to certain haunts, there being places which they will not quit, notwithstanding they are frequently dis-

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* Mr. Graham. † Charlevoix, v. 151. ‡ Catesby, App. 30.
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There is, says Charlevoix, a strong instance on the road between Montreal and lake Huron, which travellers, through wantonness, annually molest; yet is always repaired by the industrious inhabitants.

In violent inundations they are sometimes overpowered in their attempts to divert the fury of the water. In those cases they fly into the woods: the females return as soon as the water abates; the males continue absent till July, when they come back to repair the ravages made in their houses.

Beavers breed once a year, and bring forth the latter end of winter; and have two or three young at a birth.

There is a variety of the Beaver kind, which wants either the sagacity or the industry of the others, in forming dams and houses. These are called Terriers. They burrow in the banks of rivers, and make their holes beneath the freezing depth of the water, and work upwards for a great number of feet. These also form their winter magazines of provision. Beavers which escape the destruction of a community, are supposed often to become Terriers.

Strange animal seen by Mr. Phipps and others in Newfoundland, of a shining black: bigger than a Fox: shaped like an Italian greyhound: legs long: tail long and taper. One gentleman saw five sitting on a rock with their young, at the mouth of a river; often leapt in and dived, and brought up trouts, which they gave to their young. When he showed himself, they all leapt into the water, and swam a little way from shore, put their heads out of the water and looked at him. An old furrier said, he remembered a skin of one fold for five guineas. The French often see them in Hare Bay.

Beavers have, besides man, two enemies; the Otter, and the Wolverine; which watch their appearance, and destroy them. The last is on that account called, in some parts of America, the Beaver-eater. They are very easily overcome; for they make no resistance: and have no security but in flight.

* Charlevoix, vol. i. p. 151.
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It is not wonderful that such sociable animals should be very affectionate. Two young Beavers, which were taken alive and brought to a neighboring factory in Hudson's Bay, were preserved for some time; and throve very fast, till one of them was killed by an accident. The survivor instantly felt the loss, began to moan, and abstained from food till it died.

They are taken several ways: sometimes in log-traps, baited with poplar sticks, laid in a path near the water. The Indians always wash their hands before they bait the traps, otherwise the fagacious animal is sure to shun the snare.

Sometimes they are shot, either while they are at work, or at food, or in swimming across the rivers. But these methods are used only in summer, and not much practised; for the skins in that season are far less valuable than in the winter. At that time they are taken in nets placed above and below their houses, across the creeks, on stakes. If the water is frozen, the ice is cut from shore to shore, in order to put down the stakes. When the net is set, the Indians send their women to the Beaver-houses to disturb the animals; who dart into the water, and are usually taken in the net, which is instantaneously hauled up; and put down again with all expedition. If the Beaver misses the net, it sometimes returns to its house, but oftener into the vaults on the sides of the banks; but the poor creature seldom escapes, being pursued into all his retreats, the houses being broke open, and the vaults searched by digging along the shores.

The value of the fur of these animals, in the manufacture of hats, is well known. It began to be in use in England in the reign of Charles I.†, when the manufacture was regulated, in 1638, by proclamation; in which is an express prohibition of using any materials except Beaver fluff, or Beaver wool; and the hats called demi-castors were forbidden to be made, unless for exportation.

This caused a vast increase of demand for the skins of the Beavers. The Indians, on the discovery of America, seem to have paid very little

* Drake's voy. i. 151. † Rymer's Fœdora, xx. 230.
little attention to them, amidst the vast variety of beasts they at that time possessed, both for food and clothing. But about the period of the fashion of hats, they became an article of commerce, and object of chase. The southern colonies soon became exhausted of their Beavers; and, of later years the traffic has been much confined to Canada and Hudson’s Bay. The importance of this trade, and the ravages made among the animal creation in those parts, will appear by the following state of the imports into the ports of London and Rochelle in 1743. I take that year, as I have no other comparative state:

Hudson’s Bay company sale, begun November 17th 1743.

26,750 Beaver skins.
14,730 Martins.
590 Otters.
1,110 Cats, i.e. Lynx.
320 Fox.
600 Wolverenes.
320 Black Bears.
1,850 Wolves.
40 Woodshocks, or Fishers.
10 Minx.
5 Raccoon.
120 Squirrels.
130 Elks, i.e. Stags.
440 Deer.

Imported into Rochelle in the same year.

127,080 Beavers.
16,512 Bears.
110,000 Raccoon.
30,325 Martins.
12,428 Otters and Fishers.
1,700 Minx.
1,220 Cats.

1,267 Wolves.
CASTOR.

1,267 Wolves.
92 Wolverenes.
10,280 Grey Foxes and Cats.
451 Red Foxes.

This great balance in favor of the French arises not only from their superior honesty in their dealings with the ignorant Indians, but the advantageous situation of Canada for the fur trade. They had both sides of the river St. Lawrence; the country round the five great lakes; and the countries bordering on the rivers flowing into them; and finally, the fine fur countries bordering on the Hudson’s Bay company, many of whose waters falling into the St. Lawrence, gave an easy conveyance of those commodities to Montreal, where a fair is annually kept, with all the savage circumstances attendant on Indian concourse.

The traffic carried on in Hudson’s Bay is chiefly brought from the chain of lakes and rivers that empty themselves into the bay at Nelson’s river, running southerly from lat. 56 to lat. 45. Lake Pachegoia is the most northerly: there the Indians rendezvous in March, to make their canoes for the transportation of the furs; for at that season the bark of the birch-tree separates very easily from the wood.


BEAVER. With a thick nose, blunt at the end: ears short, hid in the fur: eyes large: body thick, and in form quite resembles that of the Beaver: its color, and that of the head, a reddish brown: breast and belly cinereous, tinged with rust-color: the fur is very soft and fine.

The toes on every foot are distinct and divided: those of the hind feet fringed on both sides with stiff hairs or bristles, closely set together: tail compressed, and thin at the edges, covered with small scales, with a few hairs intermixed.

Length,
Length, from nose to tail, one foot; of the tail nine inches.

These animals are in some parts of America called the Little Beaver, on account of its form, and some parts of its economy. From its scent it is styled the Musk Rat, and Musquash. The Hurons call it Ondatra; from which M. de Buffon gives it the name of Ondatra. 

It is found from Hudson's Bay to as low as Carolina. Like the Beaver, it forms its house of a round shape, covered with a dome, and constructed with herbs and reeds cemented with clay. At the bottom and sides are several pipes, through which they pass in search of food; for they do not lay in a stock of provison, like the former. They also form subterraneous passages, into which they retreat whenever their houses are attacked.

These houses are only intended for winter habitations; are deserted, and rebuilt annually. During summer, they live in pairs, and bring forth their young from three to six at a time. At approach of winter, they construct their houses, and retire into them, in order to be protected from the inclemency of the season. Several families occupy the same dwelling, which is oft-times covered many feet with snow and ice; but they creep out and feed on the roots which lie beneath. They are very fond of the Acorus Verus, or Calamus Aromaticus. This perhaps gives them that strong musky smell these animals are so remarkable for; which they lose during winter, probably when this species of plant is not to be got. They also feed on the fresh-water Mussells. They feed too on fruit; for Kalm says, that apples are the baits used for them in traps. We may add, that in winter they eat the roots of nettles, and in summer, strawberries and raspberries, during which time it is rare to see the male and female separate.

The flesh is sometimes eaten. The fur is made use of in the manufacture of hats. The Musk-bag is sometimes put among cloths, to preserve them from worms or insects.

These animals, as well as the Beaver, seem to have their Terriers, or some which do not give themselves the trouble of building houses,
but burrow, like Water-rats, in banks adjacent to lakes, rivers, and ditches*, and often do much damage, by admitting the water through the embankments of meadows. They continue in their holes, except when they are in the water in search of food. They make their nests with sticks, placing a lining of some soft materials within†. Charlevoix ‡ adds, that they sometimes make use of a hollow tree for their residence.

When taken young, they are capable of being tamed; are very playful and inoffensive, and never bite.

* Kalm, ii. 56, and Charlevoix. † Kalm, ii. 58. ‡ v. 158.
PORCUPINE. With short ears, hid in the fur: hair on the head, body, legs, and upper part of the tail, long, soft, and of a dark brown color; but sometimes found white: on the upper part of the head, body, and tail, are numbers of strong sharp quils; the longest, which are those on the back, are three inches long; the shortest are towards the head and on the sides, and concealed in the hair; mixed with them are certain stiff straggling hairs, at left three inches longer than the others, t ipt with dirty white: the under side of the tail is white.

On each fore foot are four toes; on the hind five; all armed with long claws, hollowed on the under side.

The size of one, which Sir Joseph Banks brought from Newfoundland, was about that of a Hare, but more compactly made; the back arched; and the whole form resembling that of the Beaver: the tail is six inches long, which, in walking, is carried a little bent upwards.

This species inhabits America, from Hudson's Bay to Canada, Newfoundland, New England, and, but rarely, as far south as Virginia. Lawson makes no mention of it among the animals of Carolina. Du Pratz says, it loves the cold, and is found on the banks of the Illinois. It may therefore be ranked among the local northern animals.

They are found in great plenty about Hudson's Bay, where the trading Indians depend much on them for food. They are reckoned excellent eating, even by the Europeans, tasting, when roasted, like fuck-

* Charlevoix, v. 198.   † Catesby, App. xxx.   ‡ ii. 68.
ing-pig. The bones, during winter, are of a greenish yellow, owing, as is supposed, to their feeding during that season on the bark of the pine. It is observed, that the bones of animals sometimes take a tincture from their diet; for example, those of beasts which feed on madder become red. They are also very fond of the bark of juniper. In summer, they live on the wild fruits, and lap water, but will not go into it. In winter, take snow by way of beverage.

They nestle under the roots of great trees, and will also, in quest of fruits, ascend the boughs. When the Indians discover one in a tree, they cut it down, and kill the animal by a blow on the nose.

They defend themselves with their quills. They fly from their pursuer; but when they cannot escape, will sidle towards their enemy, in order to push their quills into him: they are but weak instruments of offence; for a small stroke with the hand against the grain will bring them from the skin, leaving them sticking slightly in the flesh. The Indians use them to make holes in their noses and ears, for the placing their nose and ear-rings, and other finery. They also trim the edges of their deer-skin habits with fringes of dyed quills, or make pretty linings with them for the bark boxes.

They are very indolent animals, sleep much, and seldom travel a mile from their haunts.

M. de Buffon gives two figures of this beast, under the name of Le Coendou and L'Urson. The first he makes an inhabitant of Brasir: the last, of Hudson's Bay: but the Coendou is a very different animal. The two figures he has exhibited are of our Porcupine in the winter and summer dress, the hair growing thinner as the warm season approaches. His Coendou shews it in the first state, his Urson in the second.

They are said to copulate in September, and to bring only one young, the first week in April; another, which it brings forth, being always dead.

* Phil. Trans. lixi. 374. † Drage's voy. i. 177. ‡ The same, 191. ¶ Mr. Graham, § See Syn. Quad, No. ¶¶ Edw. Hist. Birds, i. 52.

** Hist. Nat. xii. tab. liv. iv. †† Mr. Graham.
QUEBEC AND MARYLAND MARMOT.

HIST. QUAD. GENUS XXIX.

Hist. Quad. No. 259.
Mus empetra, Pallas Nov. Sp. Quad. fasc. i. 75.

MARMOT. With short rounded ears: blunt nose: cheeks swelled, and of a cinereous color: end of the nose black: top of the head chestnut: the hair on the back grey at the bottom, black in the middle, and the tips whitish: the belly and legs of a deep orange, or a bright ferruginous color.

Toes black, naked, and quite divided: four toes, with the rudiments of another, on the fore feet; five on the hind feet: tail short, dusky, and full of hair.

The specimen which I saw formerly at Mr. Brook's, alive, appeared larger than a Rabbet; but the specimen in the Royal Society's Museum* was only eleven inches long from nose to the tail, and the tail three inches. This probably was a young one.


MARMOT. With prominent dark eyes: short rounded ears: nose sharper-pointed than that of the last, and of a cinereous colour: head and body of a brown color, which is lighter on the sides, and still more so on the belly: the legs and feet dusky: toes long, and divided: claws long, and sharp: tail dusky, and bushy; half the length of the body: a specific distinction from the other kinds.

Size of a Rabbet.

* Phil. Trans. lxxii. 378.

Inhabits Quebec.

43. Quebec.

44. Maryland.
Inhabits the temperate and warm parts of North America, from Pennsylvania to the Bahamas. It feeds on fruits, berries, and vegetables. In the provinces it inhabits the hollows of trees, or burrows under ground, sleeping for a month together. The European species continues dormant half the year: whether it takes a long sleep in the warm climate of the Bahamas I am uncertain. It dwells there among the rocks, and makes its retreat into the holes on the approach of the hunters. In those islands it is very fond of the berries of the *Ehretia Beurreria*, called there *Strong Back*. The flesh is reckoned very good, but resembles more that of a Pig than a Rabbet.*

It is called there the *Bahama Coney*. By Mr. Edwards, who figures one from Maryland, the *Monax*, or Marmot of America †.

45. **Hoary.**

*MARMOT.* With the tip of the nose black: ears short, and oval: cheeks whitish: crown dusky and tawny: hair in all parts rude and long: on the back, sides, and belly, cinereous at the bottoms, black in the middle, and tipped with white, so as to spread a hoariness over the whole: legs black: claws dusky: tail full of hair, black and ferruginous.

Size of the preceding.
Inhabits the northern parts of *North America.*

46. **Tail-less.**

*MARMOT.* With short ears: color of the head and body a cinereous brown: the extremities of the hairs white: two cutting teeth above, four below: no tail.

About the size of the common Marmot.
Inhabits *Hudson’s Bay.*

MARMOT. Without ears: face cinereous: back, and hind part of the head, of a light yellowish brown; sometimes spotted distinctly with white, at others undulated with grey: belly and legs of a yellowish white: tail about four inches and a half long. Length, from nose to tail, about nine and a half. But there is a pygmy variety wholly yellow, and with a short tail, frequent near the salt lakes, between the mouths of the Taik and the Jemba.

Inhabits Bohemia, Austria, and Hungary, and in the Russian empire; begins to be common about the Ocea, east of Moscow; extends over all the temperate and open parts of Siberia, and about Jakutia, and in Kamtschatka. It is also on the island of Kadjak, and was seen in great numbers by Steller on Schamagin’s isles, almost close on the shore of North America, which give it place in this part of the work.

They burrow, and sink the pipes to their retreats obliquely, and then winding; and at the end is an arched oblong chamber, a foot in diameter, strewn with dried grass. The entrances, or pipes, of the males are of greater, and those of the females of lesser, diameters. Towards winter they make a new pipe to their nest, but that only reaches to the turf; and with the earth which is taken out they fill up the summer pipe.

They live entirely in a state of solitude, unless in the amorous season, when the females are found in the same burrows with the males; but they bring forth in their own burrows, and by that means prevent the males from destroying the young, as they cannot enter by reason of the narrowness of the pipes, the males being superior in size to their mates. They sleep all night; but in the morning quit their holes, especially in fine weather, and feed and sport till approach of night. If the males approach one another, they fight sharply. The females often set up a very sharp whistle; the males are, for the most part, silent. At the sight of a man, they instantly
MARMOT.

Instantly run into their burrows; and are often seen standing upright, and looking about them, as if on the watch: and if they spy any body, give a loud whistle, and disappear.

They are very easily tamed, and become very sportive and amusing; and are very fond of being stroked and cherished. In this state they will eat grain, and many sorts of herbs. In a wild state they prey on mice, and small birds, as well as vegetables. Gmelin says, that in Sibiria they inhabit granaries; but I do not find it confirmed by Doctor Pallas. Gmelin adds, that those who frequent granaries, seek for prey during the whole winter: as to the others, they certainly remain torpid all the severe season, and revive on the melting of the snows.

They bring forth from three to eight at a time. The young grow very quick, and desert the maternal burrows in the summer.

Their enemies are all sorts of Weevils, which dig them out of their holes. More males than females perish, as the latter are fiercer, and defend themselves much better. During day they are snatched up by hawks and hungry crows.

In some places they are taken in snares, for the sake of their skins, which are usually sent to China. The Kamtschatkans make most elegant garments and hoods of them; specimens of the latter are preserved in the Leverian Museum. In Sibiria their flesh is esteemed a great delicacy, especially in autumn, when they are a lump of fat.

The Russians call them Suflik; the Sibirians, Jevrafscha, and Jemu-ranka; the Kamtschatkans, Syreth.

* Voyage en Sibirie, i. 378.
MARMOT. With short oval thick ears: small eyes: upper part of the body greyish, mixed with long black and dusky hairs, tipt with grey: throat rufust-colored: rest of the body and inside of the limbs yellowish rufus: four claws on the fore feet, and a short thumb furnished with a strong claw: five toes behind: tail short, slender, and full of hair. Length sixteen inches: of the tail five.

Inhabits Poland, the Ukraine, Tartary, Sibiria, and even in plenty in Kamtschatka.

Its manners most amply described in the History of Quadrupeds.
SQUIRREL. Of a ferruginous colour, marked along the top of the back with a line of a deeper hue: belly of a pale ash-color, mottled with black, and divided from the sides by a dusky line: tail shorter and less bushy than that of the European kind; of a rufus-color, barred, and sometimes edged with black.

Inhabits the pine-forests of Hudson's Bay and Labrador: live upon the cones: keep in their nests the whole winter. Are found as high as the Copper river; yet do not change their colors by the severity of the winter, like the Petits gris of northern Europe and Asia, from which they form a distinct species. I know of only one exception in change of color in those of America, Sir Ashton Lever being possessed of a specimen of a milky whiteness; but he did not know from what part of the continent it came.

a. Carolina*. With the head, back, and sides, grey, white, and ferruginous, intermixed: belly white: the color divided from that of the sides by a rufus-coloured line: lower part of the legs red: tail brown, mixed with black, and edged with white.

Both these are rather less than the European Squirrels.

49. GREY. SQUIRREL. With hair of a dull grey color, intermixed with black, and frequently tinged with dull yellow: belly white. But they vary, the body being sometimes of a fine uniform grey.

This is the largest of the genus, and grows to half the size of a Rabbet.

In America I do not discover this animal farther north than New England*; from whence they are found in vast numbers as far south as Louisiana†. These, and the other species of Squirrels, are the greatest pests to the farmers of North America. They swarm in several of the provinces, and often descend in troops from the back settlements, and join the rest in their ravages on the plantations of mayz, and the various nuts and mast which that fertile country produces.

Those which migrate from the mountains generally arrive in autumn; instantly clear the ground of the fallen acorns, nuts, and mast, and form with them magazines for their winter provisions, in holes which they dig under ground for that purpose. They are often robbed of their hoards; for the colonists take great pains to find them out; and oft-times the hogs, which rove about the woods, root up and devour their magazines. It is from these that they supply themselves, from time to time, with provisions, quitting their nests, and returning with a sufficient flock to last them for some space; it being observed, that during winter they do not care to quit their warm retreat, unless on a visit to their storehouses; therefore, whenever they are observed to run about the woods in greater numbers than usual, it is a certain sign of the near approach of severe cold; for instinct directs them to lay in a greater stock than usual, least the inclemency of the weather should deprive them of access to their subterraneous magazines.

The damage which they do to the poor planters, by destroying the mayz, is incredible. They come by hundreds into the fields, climb up the stalks, and eat the sweet corn wrapt up in the heads, and will destroy a whole plantation in a night. For this reason they were proscribed. In some places the inhabitants were, each, obliged annually to bring in four Squirrels heads. In others, a sum was given,

* Johann's wy. 86. † Bosiu, i. 361. about
about three pence, for every one that was killed. This proved such an encouragement, as to let all the idle people in the province in pursuit of them. Pennsylvania paid, from January 1749 to January 1750, $8,000. currency: but on complaint being made by the deputies, that their treasuries were exhausted by these rewards, they were reduced to one half. How improved must the state of the Americans then be, in thirty-five years, to wage an expensive and successful war against its parent country, which before could not bear the charges of clearing the provinces from the ravages of these insignificant animals!

It has been observed, that the Squirrels are greatly multiplied within these few years, and that in proportion to the increase of the fields of mayz, which attract them from all parts; I mean not only the grey species, but all the others.

They are eaten by some people, and are esteemed very delicate. Their skins, in America, are used for ladies shoes; and are often imported into England, for lining or facing for cloaks.

They make their nests in hollow trees, with moss, straw, wool, and other warm materials. They chiefly inhabit trees of the deciduous kind; but sometimes in pines, whose cones are an article of their provision. They keep their nests for several days together, seldom stirring out, except for a fresh supply of food. Should a deep snow prevent them from getting to their storehouses, multitudes perish with hunger.

When they are sitting on a bough, and perceive a man, they instantly move their tails backward and forward, and gnash their teeth with a very considerable noise. This makes them detested by the sportsmen, who lose their game by the alarm they give. The Grey Squirrel is a difficult animal to kill: it sits on the highest trees, and often between the boughs, and changes its place with such expedition that the quickest marksman can scarcely find time to level his piece; and if it can once get into a hole, or into any old nest, nothing can
can provoke it to get out of its asylum. They run up and down the bodies of trees, but very rarely leap from one to the other.

They are easily made tame; will even be brought to play with cats and dogs, which in a state of domesticity will not hurt them. They will also attach themselves so far as to follow children to and from the woods.

They agree in their manner of feeding with the European kinds; and have all the same sort of attitudes.

**SQUIRREL.** With coarse fur, mixed with dirty white and black: the throat, and inside of the legs and thighs, black: the tail is much shorter than is usual with Squirrels, and of a dull yellow, mixed with black: in size equal to that of the Grey.

Inhabits Virginia. Mr. Knaphan, in whose collection I found it, informed me, that the planters called it the Cat Squirrel.

I suspect that this animal is only a variety. Lawson * says, that he has seen the Grey species pied, reddish, and black; but this point must be determined by natives of the countries which they inhabit, who, from observation, may decide by their manners, or their colors, in different seasons, or periods of life.

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*SQUIRREL.** With white ears, nose, and feet: the body totally black: the tail black, tipt with white: in size equal to the former.

These sometimes vary: there being examples of individuals which are wholly destitute of any white marks. The beautiful figure of one of these animals from *East Florida*, in Mr. Brown's Zoology, has ears edged with white, and a much longer tail than usual.

*Histo. Carol. 124.*

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Inhabits
FLYING SQUIRREL.

Inhabits neither Hudson's Bay nor Canada, but is found in most other parts of America, as far as Mexico*. It is equally numerous, and as destructive to the mayz as the Grey Squirrel, but breeds and associates in troops separate from that species†; yet makes its nest in the same manner, and like it forms magazines of provision against the severe season.

In Mexico, and probably in other parts of America, they eat the cones of pine-trees; and lodge in the hollows of the trees.

A. With membranes from leg to leg.


SQUIRREL. With large black eyes: round and naked ears: a membrane, covered with hair, extending from the fore to the hind legs: the hairs on the tail disposed flatways on each side: are long in the middle, short towards the end, which tapers to a point: that and the body of a brownish cinereous: the belly white, tinged with yellow.

Inhabits all parts of North America, and as low as Mexico, where it is called Quimiepatlan ‡. The natives of Virginia named it Assapenic ||.

They live in hollow trees. Like the Dormouse, they sleep the whole day; but towards night creep out, and are very lively and active. They are gregarious, numbers being found in one tree. By means of the lateral membranes, they take prodigious leaps, improperly called flying; and can spring ten yards at an effort. When they would leap, they extend the hind legs, and stretch

* Is the Quaubtechalleilititie, or TIlacotequillin, of the Mexicans. Fernandez, 8.
† Cathay, ii. 73.   ‡ Fernandez. Nov. Hist. 8.   || Smith's Virginia, 27.
out the intervening skin, which producing a larger surface, makes the animals specifically lighter than they would otherwise be: even with all this advantage, they cannot keep in a strait line, but are urged downward with their weight. Sensible of this, they mount the tree in proportion to the distance of the leap they propose to take, least they should fall to the ground before they had reached a place of security.

They never willingly quit the trees, or run upon the ground, being constant residents of the branches. They go in troops of ten or twelve, and seem in their leaps, to people unaccustomed to them, like leaves blown off by the wind.

They bring three or four young at a time. They use the same food, and form their hoards like other Squirrels.

They are very easily tamed, and soon grow very familiar. They seem of a tender nature, and to love warmth, being very fond of creeping to the sleeve or pocket of the owner. If they are flung down, they shew their dislike to the ground, by instantly running up and sheltering themselves in his cloaths.

_Hist. Quad. No 284._

SQ U R R E L. With the lateral skins beginning at the ears, uniting under the chin, and extending, like those of the former, from fore leg to hind leg: the ears naked, and rather long: the hairs on the tail disposed horizontally.

The color of the upper part of the body reddish: the lower part cinereous, ringed with yellow.

This species, according to Seba, who is the only person who has described or figured it, came from Virginia*. Linnaeus is very confused in his synonyms of this and the former kind; that of Mr. Edwards refers to the other species; and that of Seba, in his article of Sciurus Volans, to both†.

* Seb. Mus. i. tab. xlv. p. 72.
† Syst. Nat. 85, where he calls it Mus Volans; and p. 88, where he styles it Sciurus.
SEVERN RIVER SQUIRREL.

It is singular that there should be only one specimen ever brought of this species, from a country we have had such great intercourse with. It may perhaps be a monstrous variety, by the extent of the skin into a sort of hood. As to color, that is an accidental difference, which happens to numbers of other animals.

SQUIRREL. With the hair on the body and sides of a deep cinereous color at the bottom; the ends ferruginous: breast and belly of a yellowish white: the whole coat long and full: the tail thick of long hairs, disposed in a less flattened manner than those of the European kind; brown on the upper side, darkest at the end; the lower part of the same color with the belly: the lateral skin, the instrument of flight, disposed from leg to leg, in the same manner as in the first species, No. 51.

In size it is far superior to the common Flying Squirrel, being at least equal to the English kind.

This species is found in the southern parts of Hudson's Bay, in the forests of the country bordering on Severn river in James's bay.
continued through all the Arctic countries, wherever wood is found; abounds throughout Siberia, except in the north-east parts, and in Kamtchatka, where it ceases, by reason of the cessation of forests.

In all these countries they are red in summer, but at approach of winter change to various and elegant greys. Their furs are of exquisite softness, and are the sorts known to us by the name of Petit Gris. In the more southerly parts of these cold climates, they retain a tinge of the summer red, and are less valuable. The change of color is effected gradually, as is its return in spring to its ferruginous coat.

It is very singular, that the alteration is not only performed in the severity of the open air, but even in the warmth of a stove. Dr. Pallas made the experiment on one which was brought to him on the 12th of September, and was at that time entirely red. About the 4th of October many parts of the body began to grow hoary; and at the time it happened to die, which was on the 4th of November, the whole body had attained a grey color, and the legs, and a small part of the face, had alone the reddish tinge *.

The varieties are as follow:—A blackish one, with the fur footy tipt with red, and full black glossy tail, are common about lake Baikal, and the whole course of the Lena. Sir Ashton Lever is in possession of one of a jetty blackness, with a white belly: its ears, as well as those of all the Petit Gris, are adorned with very long tufts. These change in winter to a lead-color, and are taken in the thick Alpine forests, where the Pinus Cembra, or Stone Pines, abound. The skins of these are neglected by the Chinese, but greatly esteemed in Europe, especially the tails, for facings of dresses.

This variety is observed sometimes to migrate in amazing numbers from their lofty alpine abodes, compelled to it whenever there happens to be a scarcity of provision †. Swarms have appeared even

* Nov. Sp. Quadr. 373.  † Nov. Sp. an. 188.
in the town of Tomsk, in deserted houses, and in the towers of the fortifications; where numbers are taken alive, and of great size, by the children of the place.

A beautiful and large variety, about the Baraba, called the Teleutian, is in great esteem for its beautiful grey color, like a Gull's back, with a silvery gloss, and finely undulated. Their summer color is usually dusky red, and the sides and feet black. These are highly esteemed by the Chinese, and sold at the rate of 6 or 7l. sterling per thousand.*

A small variety of this, lesser even than the common kind, is met with about the neighborhood of the Kajym and Jet.

A variety is also met with which change to a white color; and others again retain a white color both in winter and summer.

The late navigators to the Icy sea brought home with them from Pulo Condor, a knot of islands in north lat. 8° 40. on the coast of Cambodia, a Squirrel totally black.

*SQUIRREL. With naked ears: flying membranes extending from the middle of the hind legs to the base of the fore feet, and spreading there in a rounded sail: tail full of hair, and round at the end: color of the upper part of the body a fine grey, like that of a Gull's back: the lower part white.

Length to the tail four inches and a quarter; of the tail, five.

Inhabits the birch-woods of Finmark, Lapland, Finland, Lithuania, and Livonia. Is found in Asia, in the woods of the Urallian chain, and from thence to the river Kolyma. Nests in the hollows of trees remote from the ground, where it makes its nest of the softest mosses. Is always solitary, except in the breeding-season, and never appears.

EUROPEAN FLYING SQUIRREL.

in the day-time. Lives on the buds and catkins of the birch, and on the shoots and buds of pines, which give its juices a strong refined smell; and its excrements will burn strongly, with a pitchy scent. The last are always found at the root of the tree, as if the animal descended to ease nature. It seldom comes out in bad weather; but certainly does not remain torpid during winter; for it is often taken in the traps laid for the Grey Squirrels. The skins are often put up in the bundles with the latter, so that the purchaser is defrauded, as their fur is of no value. They leap at vast distances from tree to tree, and never descend but for the purpose before mentioned. By reason of similitude of color between them and the birch bark, they are seen with great difficulty, which preserves them from the attacks of rapacious birds.

They bring forth two, three, and rarely four, young at a time. When the parent goes out for food, she laps them carefully up in the moss. They are very difficult to be preserved, and seldom can be kept alive, by reason of want of proper food. They are born blind, and continue so fourteen days. The mother pays them great attention; broods over them, and covers them with its flying membrane. The Russians call them Ijetaga, or the Flying.
DORMOUSE. With naked rounded ears: the eyes full and black; about them a whitish space: the head, body, and tail, of a reddish brown, deepest on the last: from neck to tail a black line extends along the top of the back: on each side run two others, parallel to the former, including between them another of a yellowish white: breast and belly white: the toes almost naked, and of a flesh-color; long, slender, and very distinct; four, with the rudiment of a fifth, on the fore feet; five perfect toes on the hind.

The length is about five inches and a half; of the tail, to the end of the hairs, rather longer.

Inhabits all parts of North America, I think, from Hudson's Bay to Louisiana; certainly from Canada, where the French call them Les Suifses, from their skins being rayed with black and white, like the breeches of the Switzers who form the Pope's guard.*

They are extremely numerous: live in woods, yet never run up trees, except when pursued, and find no other means of escape. They live under ground, burrow, and form their habitations with two entrances, that they may secure a retreat through the one, in case the other should be stopped. These little animals form their subterraneous dwellings with great skill, working them into the form of long galleries, with branches on each side, every one terminating in an enlarged apartment, in which they hoard their flock of winter provision.† Their acorns are lodged in one, in a second the mayz, in a third the hickery-nuts, and in the last their most favorite food,

* Charlevoix, v. 198. † Kalm, i. 322. 325.
the Chinquaquin, or chestnut. Nature has given to them, as to the Hamster *, a fine conveniency for collecting its provisions, having furnished them with pouches within their cheeks, which they fill with mayz, and other articles of food, and so convey them to their magazines.

Those of Sibiria live chiefly on seeds, and particularly on the kernels of the Cembra, or Stone Pine; and these they hoard up in such quantities, that ten or fifteen pounds of the most choice have been found in a single magazine †.

They pass the whole winter either in sleep or in eating. During the severe season, they very rarely stir out, at least as long as their provisions last; but if by an unexpected continuance of bad weather their provisions fail, they will then sally out, and dig underground in cellars where apples are kept, or into barns where mayz is stowed, and make great devastations. They will even enter houses, and eat undismayed, before the inhabitants, any corn they chance to meet with ‡. The Cat makes great havoc among them, being at all seasons as great an enemy to them as to domestic Mice. It is hunger alone that tames them. They are naturally of a very wild nature, will bite most severely, and cannot by any means be rendered familiar.

They are remarkably nice in the choice of their food, when the variety of autumnal provisions gives opportunity. They have been observed, after having stuffed their pouches with the grains of rye, to fling it out when they meet with wheat, and to replace the rye with the more delicious corn.

Their skins, form a trifling article of commerce, being brought over among le menue pelliterie, the small furs, and used for the lining of ladies cloaks.

In Sibiria they are killed with blunt arrows, or caught in fall-traps. About the Lena, the boys go out in the amorous season of these little animals, and, standing behind a tree, mimic the noise of the females, which brings the males within reach of their flicks, with which

they kill them. The skins are sold to the Chinese merchants. About the Lena, a thousand of their skins are not valued at more than six or eight rubles.

These animals are found in great numbers in Asia, beginning about the river Kama, and from thence growing more and more frequent in the wooded parts of Siberia; but these, and all the species of Squirrel, cease towards the north-east extremity of the country, by reason of the interruption of woods, which cuts them off from Kamtschatka.

55. English Dormouse. Mr. Lawson says that the English Dormouse is found in Carolina; but it has not as yet been transmitted to Great Britain. In order to ascertain the species, I add a brief description.

Dormouse. With full black eyes: broad, thin, semi-transparent ears: throat white: rest of the body and the tail of a tawny red. Size of the common Mouse; but the body of a plumper form, and the nose more blunt: tail two inches and a half long, covered on every side with hair.

In Europe, inhabits thickets; forms its nest at the bottom of a tree or shrub; forms magazines of nuts for winter food; fits up to eat, like the Squirrel; lies torpid most of the winter; in its retreat, rolled up into the shape of a ball; retires to its nest at approach of cold weather.

† A river falling into the Wolga about forty miles below Casan.
RAT. With head and body of a very deep iron grey, nearly black: belly ash-colored: legs almost naked, and dusky: a claw instead of a fifth thumb on the fore feet. Length, from nose to tail, seven inches; tail near eight.

Inhabits North America, not only the settled parts, but even the rocks of the Blue mountains*, remote from all human dwellings. There they live among the stones, and in the subterraneous grottos frequent in those hills. They lie close during day, but at night come out, and make a most horrible noise amidst these American alps. In violent frosts they lie torpid; and in the inhabited parts of the country they are observed to redouble their screeches before severe weather, as if they had some presage from their constitutions.

By Mr. Bartram's observations it appears very certain, that these animals are natives of America. They are found even at present in the most desolate places, as well as in the houses and barns of the inhabited parts. It is unknown in Europe, that either the common Rat or Mouse ever deserted the haunts of mankind, for rocks and deserts: they therefore have been there from the earliest times. It is likely, that if ever the Blue mountains become inhabited, the wild Rats will quit their rocks, and resort to those places where they find har vested food, and will quickly become perniciously domestic.

We are positively told, that South America was free from these troublesome animals, till they were introduced there from Europe, by the means of ships, in 1544†.

* Bartram, as quoted by Mr. Kalm, ii. 47. † Garcilasso de la Vega, 384.
BROWN, AMERICAN, AND WATER, RAT.

We find none of the species in Kamtschatka, nor any where to the east of the Urallian chain. America must therefore have been stocked with them from the side of Europe. They are very common in Russia. Towards Astracan they are very small, but of the same color with the others.

57. Brown.


RAT. Above, light brown mixed with tawny, dusky, and cinerea: below, of a dirty white: four toes before, and a claw instead of a fifth toe.

I have no authority for giving this species a place here: but must suppose that the new world could not possibly escape the pest, as it is universally become a most destructive inhabitant of European ships.

58. American.

Hist. Quad. No 299.

Characho, Jike Chebgomac, or Great Mouse of the Mongul.—Lev. Mus.

RAT. With the upper jaw extending very far beyond the lower: ears large and naked: tail rather shorter, in proportion, than that of the Black, to which it is rather superior in size: color a dusky brown.

The specimen, from which this description is taken, was sent from North America to Sir Ashton Lever; but I am not informed, whether it only frequented the deserts, or infested houses.

59. Water.


RAT. With small eyes: ears covered with the fur: teeth yellow: body covered with long hairs, black mixed with a few of a rust-color: belly of a deep grey.

Length
MOUSE, AND FIELD RAT.

Length of the head and body seven inches; tail five, covered with short black hairs. Weight nine ounces.

Inhabits North America, from Canada to Carolina *. In the first, varies to tawny and to white †: feeds on the fry of fish, insects, shellfish, frogs, and roots; burrows on the banks of ponds and rivers; and dives and swims as well as an Otter, notwithstanding it is not web-footed.

In northern Europe and Asia it is extremely common; from Peterburg to Kamtschatka in Sibiria, they are twice as large as in other places. They are found also from Lapland to the Caspian sea, and also in Persia; and are one of the animals which endure the cold of the Arctic circle.


This common animal needs no description. It is very abundant in the inhabited parts of America ‡, and is to be found from Peterburg perhaps as far as Kamtschatka.

Kalm imagines them to be natives of America; for he assures us that he has killed them in the crevices of the rocks in desert places, far from the haunt of man §.


RAT. With great, naked, and open ears: cheeks, space below the ears, and sides quite to the tail, orange-colored: back dusky and rust-colored, marked along the top, from head to tail, with a dark line: throat, breast, and belly, of a pure white: tail dusky above, white beneath: feet white: hind legs longer than those of the English kind.

Length about four inches and a half; of the tail, four inches.

Inhabits Hudson's Bay and New York.

* Lawson Carolina, 122. † De Buffon, xiv. 401. ‡ Kalm, ii. 46. § The same, 47.
62. **Virginian.**

**RAT.** With a black nose: fur short, and in all parts white: limbs slender: tail very thick at the base, tapering to a point, and clothed with long hair.

*Seba* alone, vol. i. p. 76. tab. xlvii. fig. 4, describes this species.

63. **Labrador.**

**RAT.** With a blunt nose: mouth placed far below: upper lip bifid: ears large, naked, rounded: fore legs short, furnished with four toes, and a tubercle instead of a thumb: hind legs long and naked, like some of the jerboas: toes long, slender, and distinct; the exterior toe the shortest: thumb short.

**Size.**

The whole length of the animal is eight inches, of which the tail is four and three quarters.

**Colors.**

Color above a deep brown, beneath white, separated on each side by a yellow line.

Inhabits Hudson's Bay and Labrador. Sent over by Mr. Graham.

**With short tails:**

64. **Hudson's.**

**RAT.** With soft long hair, dusky at the bottom, whitish brown at the points: along the middle of the back, from head to tail, runs a dusky line: sides yellowish: belly and inside of the thighs of a dirty white.

Legs very short: on the toes of the fore feet of the male only are four very large and sharp claws, tuberculated beneath; in the female smaller and weaker: on the hind feet five toes with slender claws.

Tail
MEADOW AND HARE-TAILED RAT.

Tail not three quarters of an inch long, terminating with long fluff hairs; it is scarcely visible, being almost lost in the fur.

Described from a skin which Doctor Pallas favored me with, which he received from the Labrador coast.

This is nearly a-kin to the Lemmus.


RAT. With a blunt nose: great head: prominent eyes: ears buried in the fur: head and upper part of the body of a ferruginous brown mixed with black: belly of a deep ash-color.

Length, from head to tail, six inches; tail only one and a half, with a small tuft at the end.

Inhabits Hudson's Bay and Newfoundland, in the last very numerous, and does vast damage in the gardens; resides under ground.


RAT. With small and rounded ears: head broad; color dusky and tawny brown: the belly of a dirty white: a dusky line passes from between the eyes, and extends obscurely along the back. Larger than the common Mouse. Described from so mutilated a specimen, sent to the Royal Society from Hudson's Bay *, that it was impossible to determine the species; only, by the dark line along the back, it seemed likest the Hare-tailed, an inhabitant of Sibiria, whose manners are described in the History of Quadrupeds.


* Ph. Tr. lxii. 379. Sp: 15.
RAT. With naked ears, usually hid in the fur: small eyes: teeth tawny: limbs strong: color, an intermixture of black and yellow, darkeft on the back: under side hoary.

Length four inches and a quarter, to the tail; the tail one inch.

Inhabits in vafit abundance Sibiria, from the east side of the Urallian chain, even within the Arctic circle, and quite to Kamtfsbatka. It is the noted Tegultfsbitch of that country, distinguished by its curious œconomy and by its vafit migrations.

They make their burrows with the greatest skill, immediately below the surface of the soft turfy foil. They form a chamber of a flattish arched form, of a small height, and about a foot in diameter, to which they sometimes add as many as thirty small pipes or entrances. Near the chamber they often form other caverns, in which they lodge their winter stores: these confift of various kinds of plants, even some of species poifonous to mankind. They gather them in summer, harvest them, and even at times bring them out of the cells to give them a more thorough drying in the fun. The chief labor refts on the females. The males, during summer, go about solitary, and inhabit some old nefts; and in that feafon never touch their hoards, but live on berries. They are monogamous, and the male and female at other times found in the fame neft. The female brings two or three young at a time, and breeds often in the year.
CECONOMIC AND RED RAT.

No little animals are so respected by the Kamtschatkans as these, for to them they owe a delicious food; and with great joy, about autumn, rob the hoards, and leave there many ridiculous presents by way of amends: they also never take the whole of their provisions, and leave besides a little dried ovaries of fish for their support.

But the migrations of these Mice, in certain years, is as extraordinary a fact as any in natural history: I will only mention those of Kamtschatka. The cause is unknown. Doctor Pallas thinks it may arise from the sensations of internal fire in that volcanic tract, or a presence of some unusual and bad season. They gather together in the spring in amazing numbers, except the few that are conversant about villages, where they can pick up some subsistence. This makes it probable that the country is overstocked, and they quit it for want of food. The mighty host proceeds in a direct course westward, and with the utmost intrepidity swims over rivers, lakes, and even arms of the sea: many are drowned, many destroyed by waterfowl, or rapacious fish; those which escape rest awhile, to bathe, dry their fur, and refresh themselves. If the inhabitants find them in that situation, they treat them with the utmost tenderness, and endeavour to bring them to life and vigor. As soon as they have crossed the river Penjchim, at the head of the gulf of the same name, they turn southward, and reach the rivers Jadoma and Osbot by the middle of July. The space is most surprising, on consulting the map of the country. The flocks are also so numerous, that an observer has waited two hours to see them all pass. Their return into Kamtschatka, in October, is attended with the utmost festivity and welcome. The natives consider it as a sure prognostic of a successful chase and fishery: the first is certain, as the Mice are always followed by multitudes of beasts of prey. They equally lament their migration, as the season is certainly filled with rains and tempests.

RAT. With bristly nose and face: ears oval, rising above the hair, naked, only tipt with fur: color, from forehead to rump, a bright red: sides light grey and yellow: belly whitish: tail dusky above, light below.

Length not four inches; tail more than one.

Grow very common beyond the Ob, and live scattered over all Sibiria, in woods and mountains, and about villages; extend even to the Arctic circle. It is the *Tschetanauflchetu,* or *Red Mouse* of the Kamtschatkans. It is a sort of drone: makes no provision for itself, but robs the hoards of the last species *. Lives under logs of trees; frequents houses; dares the severest weather, and is abroad amidst the snows; feeds on any thing, and is often caught in the traps set for Ermines, in attempting to devour the bait.


RAT. With small eyes and mouth: upper lip divided: ears small, placed far backwards: four slender toes on the fore feet, and a sharp claw, like a cock's spur, in place of a thumb: skin very thin. Color of the head black and tawny, of the belly yellow.

Length of those of Scandinavian Lapland, above five inches; those of the Russian dominions not four.

The manners and wonderful migrations of the *Lemmi* of Europe, have been fully treated of in my History of Quadrupeds.

They abound in the countries from the White Sea to the gulph of the Ob, and in the northern end of the Urallian chain; but differ in size and color from those of Europe. Like them, they migrate at certain periods; and tend from the Urallian mountains, sometimes towards Jenofei, sometimes towards Petzorab, and at those times re-

* Defer. Kamtschatka, 392.*
LENA AND RINGED RAT.

joice the Samoieds with a rich chase of the animals which pursue the wanderers. The Samoieds assert, that the Rein-Deer will greedily devour them; perhaps they take them medicinally, as Sheep are known as greedily to seek and swallow Spiders.


RAT. With short round ears: white whiskers: thick broad body, in all parts nearly of equal breadth: tail short, thickly covered with rude hairs: five toes on the fore feet, with claws very strong and white: four on the hind feet, with claws much weaker: the fur pretty long; three parts of its length, from the roots, cinereous, the rest white; so that the animal appears entirely white, except the cheeks, which are ash-colored, and the chin, which is dusky.

The length is three inches one-fifth, the tail four-fifths of an inch.

They are seen in great numbers in autumn, on the borders of the Icy Sea, and about the parts of the Lena that fall into it. They appear suddenly, and depart as expeditiously. They feed on the roots of mosses, and are themselves the food of Arctic Foxes. Perhaps they extend to the Jenjei: for it is said that there are two sorts of Mice found there; one wholly white; the other black, yellow, and white, which perhaps is the Lemmus *.


RAT. With a blunt nose: ears hid in the fur: hair very fine: claws strong and hooked: color of the upper part, sometimes ferruginous, sometimes light grey undulated with deep russet-color: a crescent of white extends on each, from the hind part of the head towards the throat, bounded on each side by a bed of russet-color.

* Nov. Sp. an. 197.

Length
T C H E L A G R A T.

Length to the tail little more than three inches; tail one, terminated by a bristly tuft.

Found in the Arctic neighborhood of the Oby. Makes its nest with rein-deer and snowy liver-worts, just beneath the turfy surface. Are said to migrate, like the Lemmus.


The author of the description of that great peninsula says no more than that it is a very small species; frequents houses; and will go out and eat boldly any thing it has stolen. The natives call it Tchelagatchitch.
SHREW. With the head and upper part of the body dusky: sides of a brownish rust-color: eyes very small, almost hid in the fur: ears short: nose very long and slender: upper mandible extends far beyond the lower.

Inhabits Hudson's Bay, and probably Carolina, as Lawson mentions a Mouse found there which poisons Cats * if they eat it. It is a notion in England that they are venomous: it is notorious that our Cats will kill, but not feed on them; probably those of America have the same instinct: so that their deaths in the new world must arise from some other cause, and be falsely attributed to these animals.

Mr. Graham sent over two other specimens, besides that described. They were of a dusky grey above, and of a yellowish white beneath: their size, rather less than the English kind; one being only two inches and a quarter long, the other only two inches; but they seemed not to differ specifically from the other.

The common Shrew is found in Russia; in all parts of Sibiria, even in the Arctic flats; and in Kamtschatka.

* Hist. Carolina, 125.
LONG-TAILED AND RADIATED MOLE.

MOLE. 

HIST. QUAD. GENUS XXXV.

68. Long-tailed.


MOLE. With two cutting teeth in each jaw, and two sharp canine: the grinders small and sharp: nose long, the end radiated with short tendrils: fore feet not so broad as those of the English Mole, furnished with very long white claws: toes on the hind feet quite separated: body not so thick and full as that of the common species: hair long, soft, and of a rusty brown: tail covered with short hair.

Length of the body four inches two-tenths; of the tail, two and a half.

Inhabits North America. Received from New York.

69. Radiated.

Hist. Quad. No 351.—Smellie, iv. 316.—Lev. Mus.

MOLE. With a long nose, radiated like the former: the body shorter, and more full: hair dusky, very long, fine, and compact: fore feet resembling those of the preceding; but the toes of the hind feet are closely connected.

Length to the tail three inches three quarters: the tail slender, round, and taper, one inch three-tenths long.

Received from New York.

MANNERS.

This species forms subterraneous passages in the fields, running in various directions, and very shallow. Their course may be traced by the elevation of the earth on the surface, in form of a little bank, two inches high, and as broad as a man's hand. These holes are unable to support any weight, so that walkers find it very troublesome.
fome to go over places where these animals inhabit, the ground perpetually breaking under their feet *.

These Moles have all the strength in their legs as those of Europe, and work in the same manner. They feed on roots, are very irascible, and will bite very severely.

Hist. Quad. No 553.—Lev. Mus.

MOLE. With a long and very slender nose: two broad cutting teeth in the upper, four sharp and slender in the lower, jaw; the two middlemost short: the grinders very numerous, strong, sharp, and separate: the fore feet very broad; those and the hind feet exactly like those of the European kind.

Length about six inches; tail one.

I received two specimens of this animal from New York. The hair in both soft, silky, and glossy: the hair in each dusky at the bottom; but in one, the ends were of a yellowish brown; in the other, brown: the feet and tail of both were white. I suspect that they were varieties of the kind described by Seba †, which he got from Virginia: it was totally black, glossed over with a most resplendent purple. I may here note, the Tail-less Mole, figured by Seba in the same plate, is not a native of Siberia, as he makes it; but is an inhabitant of the Cape of Good Hope.

These three species agree pretty nearly with the Shrew in the fore teeth; for which reason Linnaeus classifies the two he describes among the Soricæ. I call them Moles from their shape, which differs not from the European kind; but those who choose to be very systematic, may divide the genus of Shrews, and style these Soricæ Talpæ-formes.

* Kalm, i. 190. † P. 51. tab. xxxii.
MOLE. HEDGE-HOG.


MOLE. With six cutting teeth in the upper; eight in the lower jaw; and two canine teeth in each: color of the fur black.

Place. Inhabits Sweden; but does not extend farther than the south of Norway, where it is called Vend. Is frequent in the temperate parts of Russia, and even in Siberia, as far as the Lena. In Siberia it is twice as big as those of Europe. Is found there milk-white, but more usually so in the Verchoturian mountains.

HEDGE-HOG, Hist. Quad. Genus XXXVI.


HEDGE-HOG. With nostrils bounded on each side by a loose flap: ears rounded: back covered with prickles, white, barred with black: face, sides, and rump, with strong coarse hair: tail an inch long.

Place. Is found in Sweden, in the diocese of Aggerbuys; and in that of Bergen, in Norway *. It is called, in the Norwegian tongue, Bustedyvel. Is common in Russia, except in the extreme northern and southern parts. None in Siberia, or very scarce at left.

* Lems, 229. Pontoppidan, ii. 28.
DIV. III.

PINNATED QUADRUPEDS;

Or, with Fin-like Feet...
DIV. III. Pinnated Quadrupeds;
Or, with Fin-like Feet.

WALRUS. H I S T. Q U A D. G E N U S X L I.

Roformus, Zimmerman, 330.
Le Tricheque, Schreber, ii. 82. tab. lxxix.

Description. WALRUS. With a round head; short neck; small and fiery eyes, sunk a finger's depth in the sockets, and retraile from external injuries *: mouth very small; lips very thick, beset above and below with great whiskers, composed of bristles, transparent, and thick as a straw: instead of ears are two minute orifices, placed in the most distant part of the head.

Body is very thick in the middle, lessening gradually towards the tail. The skin in general is an inch thick, and two about the neck †, and much wrinkled about the joints: it is covered with short hair, of a mouse-color; some with reddish, others with grey; others are almost bare, as if they were mangy, and full of scars ‡.

The legs are very short; on each foot are five toes, connected by webs, with a small blunt nail to each. The hind feet, like those of Seals, are very broad: the tail is very short: the penis two feet long, and of a bony substance.

* Crantz, i. 126. † Crantz, i. 125. ‡ Marten's Spitzberg.
ARCTIC WALRUS.

In the upper jaw are two very long tusks, bending downwards. No cutting teeth; but in each jaw, above and below, four grinders, flat at top, and the surfaces of those which I examined much worn. The length of the largest tusk I have heard of, was two feet three inches, English measure, the circumference at the lower end, eight and a half; the greatest weight of a single tusk twenty pounds: but such are rarely found, and only on the coasts of the Icy sea, where they are seldom molested, and of course permitted to attain their full growth *.

The Walrus is sometimes found of the length of eighteen feet, and the circumference, in the thickest part, ten or twelve. The weight from fifteen hundred to two thousand pounds.

Inhabits, in present times, the coasts of the Magdalene islands, in the gulph of St. Laurence, between latitude 47 and 48, their most southerly residence in any part of the globe. They are not found on the seas of Labrador. The Esquimaux purchase the teeth, for the heading their Seal-darts, from the Indians of Nuckwank, about lat. 60; who say, that they are annually visited in the winter by multitudes of these animals †. They are found in Davis's Streights, and within Hudson's Bay ‡, in lat. 62. They also inhabit the coast of Greenland. I am uncertain whether they frequent Iceland; but they are found in great numbers near the islands of Spitzbergen, and on all the floating ice from thence to Cherry Isle, a solitary spot intermediate between the last and the most northerly point of Norway. In 1608, they were found there in such numbers, huddled on one another, like hogs, that a ship's crew killed above nine hundred in seven hours time §.

If they are found in the seas of Norway, it is very rare || in these days. Leems, p. 316, says that they sometimes frequent the sea about Finmark; but about the year 980, they seemed to have been so numerous in the northern parts, as to become objects of chase and

* Hift. Kamtschatka, 120. † Ph. Trans. lixiv. 378. ‡ Ellis's voy. 80.

U commerce.
commerce. The famous *Thor* the *Norwegian*, a native of *Helgeland* in the diocese of *Droneheim*, incited by a most laudable curiosity and thirst of discovery, failed to the north of his country, doubled the *North Cape*, and in three days from his departure arrived at the farthest place, frequented by the *Horse-whale* fishers. From thence he proceeded a voyage of three days more, and perhaps got into the White Sea. On his return he visited *England*, probably incited by the fame of King *Alfred’s* abilities, and the great encouragement he gave to men of distinguished character in every profession. The traveller, as a proof of the authenticity of his relation, presented the Saxon monarch with some of the teeth of these animals, then a substitute of ivory, and valued at a high price. In his account of his voyage, he also added that their skins were used in the ships instead of ropes.*

They are found again on the coasts of *Nova Zembla*, and on the headlands which stretch moft towards the north Pole; and as far as the *Tchutki* point, and the isles off that promontory. They scarcely extend lower than the neighborhood of the country of the *Anadyr*, but are seen in great abundance about cape *Newnham*, on the coast of *America*. The natives of the islands off the *Tchutki Nof* ornament themselves with pieces of the Walrus tusk through their lips or noses; for which reason they are called by their neighbors *Zoobatee*, or *large-teethed†*. The natives about *Unalaschea*, *Sandwich Sound*, and *Turnagain* river, observe the fame fashion. I entertain doubts whether these animals are of the fame species with those of the Gulph of *St. Laurence*. The tusks of those of the Frozen Sea are much longer, more slender, and have a twist and inward curvature.

They are gregarious, and sometimes have been found together in thousands; are very shy, and avoid the haunts of mankind. They usually are seen on the floating ice, preferring that for their residence, as their bodies require cooling, by reason of the heat which arises from their excessive fatness‡.

* Hacklott, i. 5. † Hist. Kamtschaka, 47. ‡ Nov. Com. Petrop. ii. 301.

They
They are monogamous; couple in June, and bring forth in the earliest spring*. They bring one †, or very rarely two young at a time; feed on sea-plants, fish, and shells, which they either dig out of the sand, or force from the rocks with their great teeth. They make use also of their teeth to ascend the islands of ice, by fastening them in the cracks, and by that means draw up their bodies.

They sleep both on the ice and in the water, and snore excessively loud ‡.

They are harmless, unless provoked; but when wounded, or attacked, grow very fierce, and are very vindictive. When surprised upon the ice, the females first provide for the safety of the young, by flinging it into the sea, and itself after it, carrying it to a secure distance, then returning with great rage to revenge the injury. They will sometimes attempt to fasten their teeth on the boats, with an intent to sink them, or rise in numbers under them to overtake them; at the same time they shew all marks of rage, by roaring in a dreadful manner, and gnashing their teeth with great violence; if once thoroughly irritated, the whole herd will follow the boats till they lose sight of them. They are strongly attached to each other, and will make every effort in their power, even to death, to set at liberty their harpooned companions §.

A wounded Walrus has been known to sink to the bottom, rise suddenly again, and bring up with it multitudes of others, who united in an attack on the boat from which the insult came $.

They fling the water out of their nostrils, as the Whale does out of its head. When chafed hard, they commonly vomit, and fling up small stones. Their dung is like that of a Horse, and excessively fetid, especially where they are found in large companies.

The tongue, which is about the size of a Cow's, may be eaten, if boiled fresh; but if kept, soon runs into oil. The teeth used to be applied to all the purposes of ivory; but the animals are now killed
ARCTIC WALRUS.

only for the sake of the oil. Seamen make rings of the bristles of the whiskers, which they wear as preservatives against the cramp. The French coach-makers have made traces for coaches of the skins, which are said to be strong and elastic *. The Russians formerly used the bone of the penis pulverised, as a remedy against the stone †. Bartholinus § recommends it, infused in ale, in fits of the stranguary. The Greenlanders eat the flesh and lard, and use the last in their lamps. Of the skin they make snares. They split the tendons into threads; and use the teeth to head their darts, or to make pegs in their boats.

Their only enemies, besides mankind, are the Polar Bears, with whom they have dreadful conflicts. Their feuds probably arise from the occupancy of the same piece of ice. The Walrus is usually victorious, through the superior advantage of its vast teeth ||. The effects of the battle are very evident; for it is not often that the hunters find a beast with two entire tusks §.

"The Walrus, or Sea Cow, as it is called by the Americans," says Lord Shuldbam ¶; "is a native of the Magdalene islands, St. John’s, and Anticosti, in the gulph of St. Laurence. They return, very early in the spring, to the former of these places, which seems by nature particularly adapted to the nature of the animals, abounding with clams (escallops) of a very large size; and the most convenient landing-places, called Echoueries. Here they crawl up in great numbers, and remain sometimes for fourteen days together without food, when the weather is fair; but on the first appearance of rain, they retreat to the water with great precipitation.

* De Buffon.  † Worm. Mof. 290.  ¶ As quoted in Museum Regium Hafnie, &c. pars. i. sect. iii. 9.  § Egede, 83.  || Crantz, i. 126.  ¶ Phil. Trans. lxv. part. i. 249.

The French call them Vaches Marines. Charlevoix, v. 216. That voyager says, that the English had once a fisheries of these animals on the Ile de Sable, a small island south of Cape Breton; but it turned out to no advantage.

"They
They are, when out of the water, very unwieldy, and move with great difficulty. They weigh from fifteen hundred to two thousand pounds, producing, according to their size, from one to two barrels of oil, which is boiled out of the fat between the skin and the flesh. Immediately on their arrival, the females calve, and engender again in two months after; so that they carry their young about nine months. They never have more than two at a time, and seldom more than one.

The Echoueries* are formed principally by nature, being a gradual slope of soft rock, with which the Magdalene islands abound, about eighty or a hundred yards wide at the water-side, and spreading so as to contain, near the summit, a very large number of these animals. Here they are suffered to come on shore, and amuse themselves for a considerable time, till they acquire a degree of boldness, being at their first landing so exceedingly timid as to make it impossible for any person to approach them.

In a few weeks they assemble in great multitudes: formerly, when undisturbed by the Americans, to the amount of seven or eight thousand. The form of the Echouerie not allowing them to remain contiguous to the water, the foremost are insensibly pushed above the slope. When they are arrived at a convenient distance, the hunters, being provided with a spear sharp on one side, like a knife, with which they cut their throats, take advantage of a side wind, or a breeze blowing obliquely upon the shore, to prevent the animals from smelling them, because they have that sense in great perfection. Having landed, the hunters, with the assistance of good dogs, trained for that purpose, in the night-time endeavour to separate those which are most advanced from the others, driving them different ways. This they call making a cut; it is generally looked upon to be a most dangerous process, it being impossible to drive them in any particular direction, and difficult to avoid them; but as the Walrusds, which are advanced above

* This word is derived from Echouer, to land, or run on shore.
"the slope of the Ecbouerie, are deprived by the darkness of the
night from every direction to the water, they are left wandering
about, and killed at leisure, those that are nearest the shore being
the first victims. In this manner have been killed fifteen or six-
teen hundred at a cut.

The people then skin them, and take off a coat of fat which al-
ways surrounds them, and dissolve it into oil. The skin is cut
into slices of two or three inches wide, and exported to America
for carriage traces, and into England for glue. The teeth make
an inferior sort of ivory, and is manufactured for that purpose;
but very soon turns yellow,"

HIST.
Common Seal.

HIST. QUAD. GENUS XLII.

SEAL. With a flat head and nose: large black eyes: large whiskers: six cutting teeth in the upper jaw: four in the lower: two canine teeth in each jaw: no external ears: hair on all parts short and thick: five toes on each foot, furnished with strong sharp claws, and strongly webbed: tail short and flat.

Usual length of this species, from five to six feet. Their color differs; dusky, brinded, or spotted with white and yellow.

Inhabits all the European seas, even to the extreme north; and is found far within the Arctic circle, in both European and Asiatic seas. It is continued to those of Kamtschatka.

These animals may be called the flocks of the Greenlanders, and many other of the Arctic people. I cannot describe the uses of them to the former more expressively than in the very words of Mr. Crantz, a gentleman very long resident in their chilly country.

"Seals are more needful to them than Sheep are to us, though they furnish us with food and raiment; or than the cocoa-tree is to the Indians, although that presents them not only with meat to eat, and covering for their bodies, but also houses to dwell in, and boats to sail in, so that in case of necessity they could live solely from it. The Seals flesh (together with the Rein-deer, which is already grown pretty scarce) supplies the natives with their most palatable and substantial food. Their fat furnishes them with oil for lamp-light, chamber and kitchen fire; and whoever sees their habitations, presently finds, "

finds, that if they even had a superfluity of wood, it would not do, they can use nothing but train in them. They also mollify their dry food, mostly fish, in the train; and finally, they barter it for all kinds of necessaries with the factor. They can few better with fibres of the Seals' sinews than with thread or silk. Of the skins of the entrails they make their windows, curtains for their tents, shirts, and part of the bladders they use at their harpoons; and they make train bottles of the maw. Formerly, for want of iron, they made all manner of instruments and working-tools of their bones. Neither is the blood wasted, but boiled with other ingredients, and eaten as soup. Of the skin of the Seal they stand in the greatest need; for, supposing the skins of Rein-deer and birds would furnish them with competent cloathing for their bodies, and coverings for their beds; and their flesh, together with fish, with sufficient food; and provided they could dress their meat with wood, and also new model their house-keeping, so as to have light, and keep themselves warm with it too; yet without the Seals' skins they would not be in a capacity of acquiring these same Rein-deer, fowls, fishes, and wood; because they must cover over with Seal-skin both their large and small boats, in which they travel and seek their provision. They must also cut their things or straps out of them, make the bladders for their harpoons, and cover their tents with them; without which they could not subsist in summer.

Therefore no man can pass for a right Greenland who cannot catch Seals. This is the ultimate end they aspire at, in all their device and labor from their childhood up. It is the only art (and in truth a difficult and dangerous one it is) to which they are trained from their infancy; by which they maintain themselves, make themselves agreeable to others, and become beneficial members of the community.

* Hist. Greenland. i. 130.
"The Greenlanders have three ways of catching Seals: either singly, with the bladder; or in company, by the clapper-hunt; or in the winter on the ice: wherefore may be added the shooting them with a gun.

"The principal and most common way is the taking them with the bladder. When the Greenlander sets out equipped according to the 7th Section, and spies a Seal, he tries to surprize it unawares, with the wind and sun in his back, that he may not be heard or seen by it. He tries to conceal himself behind a wave, and makes hastily, but softly, up to it, till he comes within four, five, or six fathom of it; while he takes the utmost care that the harpoon, line, and bladder, lie in proper order. Then he takes hold of the oar with his left hand, and the harpoon with his right by the hand-board, and so away he throws it at the Seal, in such a manner that the whole dart flies from the hand-board and leaves that in his hand. If the harpoon hits the mark, and buries itself deeper than the barbs, it will directly disengage itself from the bone-joint, and that from the shaft; and also unwind the string from its lodge on the kaják. The moment the Seal is pierced, the Greenlander must throw the bladder, tied to the end of the string, into the water, on the same side as the Seal runs and dives; for that he does instantly, like a dart. Then the Greenlander goes and takes up the shaft swimming on the water, and lays it in its place. The Seal often drags the bladder with it under water, though 'tis a considerable impediment, on account of its great bigness; but it so wearies itself out with it, that it must come up again in about a quarter of an hour to take breath. The Greenlander hastens to the spot where he sees the bladder rise up, and finites the Seal, as soon as it appears, with the great lance described in the 6th Section. This lance always comes out of its body again; but he throws it at the creature a Refresh every time it comes up, till 'tis quite spent. Then he runs the

* See the Sections referred to, and tab. v.

 See the Sections referred to, and tab. v.

" little
COMMON SEAL.

"little lance into it, and kills it outright, but stops up the wound
directly to preserve the blood; and lastly, he blows it up, like a
bladder, betwixt skin and flesh, to put it into a better capacity of
swimming after him; for which purpose he fastens it to the left-
side of his kajak, or boat.*

"In this exercise the Greenlander is exposed to the most and
greatest danger of his life; which is probably the reason that they
call this hunt, or fishery, kama'vock, i. e. the Extinction, viz. of life.
For if the line should entangle itself, as it easily may, in its sud-
den and violent motion; or if it should catch hold of the kajak,
or should wind itself round the oar, or the hand, or even the neck,
as it sometimes does in windy weather; or if the Seal should turn
suddenly to the other side of the boat; it cannot be otherwise than
that the kajak must be overturned by the string, and drawn down
under water. On such desperate occasions the poor Greenlander
stands in need of all the arts described in the former Section, to
disentangle himself from the string, and to raise himself up from
under the water several times successively; for he will continually
be overturning till he has quite disengaged himself from the line.
Nay, when he imagines himself to be out of all danger, and comes
too near the dying Seal, it may still bite him in the face or hand;
and a female Seal that has young, instead of flying the field, will
sometimes fly at the Greenlander in the most vehement rage, and
do him a mischief, or bite a hole in his kajak that he must sink.

"In this way, singly, they can kill none but the careless, stupid
Seal, called Attarfoak †. Several in company must pursue the
cautious Kassgiak ‡ by the clapper-bunt. In the same manner they
also surround and kill the Attarfoit § in great numbers at certain
seasons of the year; for in autumn they retire into the creeks or
inlets in stormy weather, as in the Nepijet found in Ball's river,
between the main land and the island Kangek, which is full two.

* See vol. i. 150. tab. viii. † See N° 77. of this work. ‡ Ditto, N° 72:
§ Ditto, a variety of N° 77.
leagues long, but very narrow. There the Greenlanders cut off their
retreat, and frighten them under water by shouting, clapping, and
throwing stones; but, as they must come up again continually to
draw breath, then they persecute them again till they are tired,
and at last are obliged to stay so long above water, that they sur-
round them, and kill them with the fourth kind of dart, described
in the 6th Section. During this hunt we have a fine opportunity
to see the agility of the Greenlanders, or, if I may call it so, their
hussar-like maneuvres. When the Seal rises out of the water,
they all fly upon it, as if they had wings, with a desperate noife;
the poor creature is forced to dive again directly, and the moment
he does, they disperse again as fast as they came, and every one
gives heed to his post, to see where it will start up again; which
is an uncertain thing, and is commonly three quarters of a mile
from the former spot. If a Seal has a good broad water, three
or four leagues each way, it can keep the sportsmen in play for a
couple of hours, before 'tis so spent that they can surrond and
kill it. If the Seal, in its fright, betakes itself to the land for a
retreat, 'tis welcomed with sticks and stones by the women and
children, and presently pierced by the men in the rear. This is
a very lively and a very profitable diversion for the Greenlanders;
for many times one man will have eight or ten Seals for his
share.

The third method of killing Seals upon the ice, is mostly prac-
tised in Dijko, where the bays are frozen over in the winter. There
are several ways of proceeding. The Seals themselves make
sometimes holes in the ice, where they come and draw breath;
near such a hole a Greenlander seats himself on a stool, putting
his feet on a lower one to keep them from the cold. Now when
the Seal comes and puts its nose to the hole, he pierces it in-
stantly with his harpoon; then breaks the hole larger, and draws
it out and kills it quite. Or a Greenlander lays himself upon his
belly, on a kind of a fledge, near other holes, where the Seals

X 2
come out upon the ice to bask themselves in the sun. Near this
great hole they make a little one, and another Greenlander puts
a harpoon into it with a very long shaft or pole. He that lies
upon the ice looks into the great hole, till he sees a Seal coming
under the harpoon; then he gives the other the signal, who
runs the Seal through with all his might.

If the Greenlander sees a Seal lying near its hole upon the ice,
he slides along upon his belly towards it, wags his head, and
grunts like a Seal; and the poor Seal, thinking 'tis one of its in-
ocent companions, lets him come near enough to pierce it with
his long dart.

When the current wears a great hole in the ice in the spring,
the Greenlanders plant themselves all round it, till the Seals come
in droves to the brim to fetch breath, and then they kill them
with their harpoons. Many also are killed on the ice while they
lie sleeping and snoring in the sun."

Nature has been so niggardly in providing variety of provision for
the Greenlanders, that they are necessitated to have recourse to such
which is offered to them with a liberal hand. The Kamtschatkan na-
tions, which enjoy several animals, as well as a great and abundant
choice of fish, are so enamoured with the taste of the fat of Seals,
that they can make no feast without making it one of the dishes.
Of that both Russians and Kamtschatkans make their candles. The
latter eat the flesh boiled, or else dried in the sun. If they have a
great quantity, they preserve it in the following manner:

They dig a pit of a requisite depth, and pave it with stones; then
fill it with wood, and set it on fire so as to heat the pit to the warmth
of a stove. They then collect all the cinders into a heap. They
flrew the bottom with the green wood of alder, on which they place
separately the flesh and the fat, and put between every layer branches
of the same tree; when the pit is filled they cover it with fods, so
that the vapour cannot escape. After some hours they take out both

* PP. 153, 4, 5, 6, 7.
fat and flesh, and keep it for winter's provisions, and they may be preserved a whole year without spoiling.

The Kamtschatkans have a most singular ceremony. After they take the flesh from the heads of the Seals, they bring a vessel in form of a canoe, and fling into it all the sculls, crowned with certain herbs, and place them on the ground. A certain person enters the habitation with a fack filled with Tonchitche, sweet herbs, and a little of the bark of willow. Two of the natives then roll a great stone towards the door, and cover it with pebbles; two others take the sweet herbs and dispose them, tied in little packets. The great stone is to signify the sea-shore, the pebbles the waves, and the packets Seals. They then bring three dishes of a hash, called Tolkouche; of this they make little balls, in the middle of which they stick the packets of herbs: of the willow-bark they make a little canoe, and fill it with Tolkouche, and cover it with the fack. After some time, the two Kamtschatkans who had put the mimic Seals into the Tolkouche, take the balls, and a vessel resembling a canoe, and draw it along the sand, as if it was on the sea, to convince the real Seals how agreeable it would be to them to come among the Kamtschatkans, who have sea in their very jurs, or dwellings. And this they imagine will induce the Seals to suffer themselves to be taken in great numbers. Various other ceremonies, equally ridiculous, are practised; in one of which they invoke the winds, which drive the Seals on their shores, to be propitious.

Besides the uses which are made of the flesh and fat of Seals, the skins of the largest are cut into soles for shoes. The women make their summer boots of the undressed skins, and wear them with the hair outmoft. In a country which abounds so greatly in furs, very little more use is made of the skins of Seals in the article of dress than what has been mentioned. But the Koriaks, the Oloutores, and Tchutsebi, form with the skins canoes and vessels of different sizes, some large enough to carry thirty people.

* Defer. Kamtschatka, 425.
† The same, 41, 42, 424.
COMMON SEAL.

Seals swarm on all the coasts of Kamtchata, and will go up the rivers eighty verst in pursuit of fish. They couple on the ice in April, and sometimes on the rocks, and even in the sea in calm weather. The Tungusi give the milk of these animals to their children instead of physic.

The Seals in this country are killed by harpooning, by shooting, by watching the holes in the ice and knocking them on the head as they rise; or by placing two or three strong nets across one of the rivers which these animals frequent: fifty or more people assemble in canoes on each side of the nets, while others row up and down, and with great cries frighten the Seals into them. As soon as any are entangled, the people kill them with pikes or clubs, and drag them on shore, and divide them equally among the hunters; sometimes a hundred are taken at a time in this manner.

The navigators observed abundance of Seals about Bering's island, but that they decreased in numbers as they advanced towards the straits; for where the Walruses abounded, the Seals grew more and more scarce.

I did not observe any Seal-skin garments among those brought over by the navigators, such as one might have expected among the Esquimaux of the high latitudes they visited, and which are so much in use with those of Hudson's Bay and Labrador. That species of dress doubtless was worn in the earliest times. These people wanted their Historians; but we are assured that the Massagetae * cloathed themselves in the skins of Seals. They, according to D'Anville, inhabited the country to the east of the Caspian sea, and the lake Aral; both of which waters abound with Seals.

Seals are now become a great article of commerce. The oil from the vast Whales is no longer equal to the demand for supplying the magnificent profusion of lamps in and round our capital. The chase of these animals is redoubled for that purpose; and the skins, properly tanned, are in considerable use in the manufactory of boots and shoes.

* Strabo, lib. xi. 781.
SEAL.  With long pellucid white whiskers with curled points; back arched: black hairs, very deciduous, and thinly dispersed over a thick skin, which in summer is almost naked: teeth like the common Seal: fore feet like the human hand; middle toe the longest; thumb short: length more than twelve feet.

The Greenlanders cut out of the skin of this species thongs and lines, a finger thick, for the Seal-fishery. Its flesh is white as veal, and esteemed the most delicate of any: has plenty of lard, but does not yield much oil. The skins of the young are sometimes used to lie on.

It inhabits the high sea about Greenland; is a timid species, and usually rests on the floating ice, and very seldom the fixed. Breeds in the earliest spring, or about the month of March, and brings forth a single young on the ice, usually among the islands; for at that season it approaches a little nearer to the land. The great old ones swim very slowly.

In the seas of the north of Scotland is found a Seal twelve feet long. A gentleman of my acquaintance shot one of that size on the coast of Sutherland; but made no particular remarks on it. A young one, seven feet and half long, was shewn in London some years ago, which had not arrived at maturity enough even to have scarcely any teeth*: yet the common Seals have them complete before they attain the size of six feet, their utmost growth.

A species larger than an Ox, found in the Kamtschatkan seas from 56 to 64 north latitude, called by the natives Lachtak†. They weighed

* Ph. Trans. Abr. ix. 74. tab. v. xlvii. 120.
† Nov. Com. Petroj. ii. 290.
eight hundred pounds: were eaten by Bering's crew; but their flesh was found to be very loathsome*. The cubs are quite black.

Steller has left behind him accounts of other Seals found in those wild seas; but his descriptions are so imperfect as to render it impossible to ascertain the species. He speaks in his MSS. of a middle-sized kind, universally and most elegantly spotted; another, black with brown spots, and the belly of a yellowish white, and as large as a yearling Ox; a third species, black, and with a particular formation of the hinder legs; and a fourth, of a yellowish color, with a great circle on it of the color of cherries †.

ROUGH SEAL.


SEAL. With a short nose, and short round head: teeth like the common Seal: body almost of an elliptical form, covered with lard almost to the hind feet: hairs closely set together, soft, long, and somewhat erect, with curled wool intermixed: color dusky, streaked with white; sometimes varies to white, with a dusky dorsal line.

Does not exceed four feet in length.

Never frequents the high seas, but keeps on the fixed ice in the remote bays near the frozen land; and when old never forsakes its haunts. Couples in June; brings forth in January, on the fixed ice, which is its proper element. In that it has a hole for the benefit of fishing; near that it remains usually solitary, rarely in pairs. Is very incautious, and often sleeps on the surface of the water, yielding itself a prey to the Eagle. Feeds on small fish, shrimps, and the like. The uses of the skin, tendons, and lard, the same with those of other Seals. The flesh is red, and fœtid, especially that of the males, which is nauseated by even the Greenlanders.

* Miller's voy. 69. † Dr. Pallas, and Defer, Kamtschatka, 420.

The
The Seal-hunters in Newfoundland have a large kind, which they call the Square Phipper, and lay weighs five hundred pounds. Its coat is like that of a Water-dog; so that it seems by the length of hair to be allied to this; but the vast difference in size forbids us from pronouncing it to be the same species.

Hist. Quad. No 381.
Phoca Leporina, Lepechin, A. Acad. Petrop. pars i. 264. tab. viii. ix.—
Hist. Quad. No 381.

SEAL. With hair of an uniform dirty white color, with a tinge of yellow, but never spotted; hairs erect, and interwoven; so soft as that of a Hare, especially the young: head long: upper lip swelling and thick: whiskers very strong and thick, ranged in fifteen rows, covering the whole front of the lip, so as to make it appear bearded: eyes blue, pupil black: teeth strong; four cutting teeth above, the same below*: fore feet short, and ending abrupt: the membranes of the hind feet even, and not waved: tail short and thick; its length four inches two lines.

Length of this species, from nose to tip of the tail, is six feet six; its greatest circumference five feet two. The cubs are milk white.

This kind inhabits the White Sea during summer, and ascends and descends the mouths of rivers † with the tide in quest of prey. It is also found on the coasts of Iceland, and within the Polar circle from Spitzbergen to Tchutki Nof, and from thence southward about Kamtchatka.

Like the others, it is killed for its fat and skin. The last is cut into pieces, and used for flaps and reins. The skins of the young, which are remarkably white, are dyed with black, and used to face caps, in imitation of Beavers skins; but the hairs are much stiffer, and do not soon drop off.

* Mr. Lepcehin compares the number of the teeth to that of another kind (our Harp Seal) which, he says, has only four teeth in the lower jaw.
† The same.
HOODED SEAL.

Hooded.  

Hist. Quad. No 384.

With four cutting teeth above, four below: fore feet like the human; the thumb long: the membranes on the hind feet extend beyond the claws: on the forehead of the male is a thick folded skin, ridged half the way up, which it can inflate and draw down like a cap, to defend its eyes against storms, waves, stones, and sand. The females and young have only the rudiment of this guard. It has two species of hair; the longest white, the shortest thick, black, and woolly, which gives it a beautiful grey color.

It grows to the length of eight feet. The Greenlanders call it Neitfek-foak *, or the Great Neitfek. It inhabits only the southern parts of their country, where it inhabits the high seas; but in April, May, and June, comes nearer to the land. Is polygamous; copulates with its body erect. Brings forth in April one young upon the ice. Keeps much on the great fragments, where it sleeps in an unguarded way. Bites hard: barks, and whines: grows very fierce on being wounded; but will weep on being surprized by the hunter. Fight among themselves, and inflict deep wounds. Feed on all kinds of greater fish. The skins of the young form the most elegant dresses for the women. The men cover their great boats with those of the old; they also cover their houses with them, and when they grow old convert them into sacks. They use the teeth to head hunting-spears. Of the gullet and intestines they make the sea-dresses. The stomach is made into a fishing-buoy.

It is also found in Newfoundland. Our Seal-hunters name it the Hooded Seal, and pretend they cannot kill it till they remove that integument. The Germans call it Klap-Mutz, from its covering its face as if with a cap.

The most dreaded enemy which this species has in Greenland, is the Physeter Microps; on the very sight of which it takes to the ice,
and quietly expects its fate *. The Greenlanders therefore detest this species of Whale, not only on account of the havoc it makes among the Seals, but because it frightens them away from the bays †.

It is entirely different from the Leonine Seal, or from that of the South-sea, called the Bottle-nose.

**HARPS SEAL.**  

_Hist. Quad. N° 385._


SEAL. With a round head: high forehead: nose short: large black eyes: whiskers disposed in ten rows of hairs: four cutting teeth in the upper jaw, the two middlemost the longest; four also in the lower, less sharp than the others: two canine teeth in each jaw: six grinders in each jaw, each three-pointed: hairs short: skin thick and strong.

Head, nose, and chin, of a deep chestnut color, nearly black; rest of the body of a dirty white, or light grey: on the top of the shoulders is a large mark of the same color; with the head bifurcated, each fork extending downwards along the sides half way the length of the body. This mark is always constant; but there are besides a few irregular spots incidental to the old ones.

The female has only two, retractile, teats; and brings only one young at a time. The cub, the first year, is of a bright ash-color, whitish beneath, and marked in all parts with multitudes of small black spots, at which period they are called by the Russians White Seals. In the next year they begin to be spotted; from that period the females continue unchanged in color. The males at full age, which Mr. Crantz says is their fifth year, attain their distinguishing spot, and are called by the Greenlanders Atarfoak ‡; by the Russians, Krylatka, or winged.

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* Faun. Greenl. p. 9. † The same, p. 45. ‡ Crantz, i. 124.
This inhabits the same countries with the Rough and Leporine Seal; but loves the coldest parts of the coast. Continues on the loose ice of Nova Zembla the whole year; and is seen only in the winter in the White Sea, on the floating ice carried from the northern seas. It brings forth its young about the end of April, and after suckling it a sufficient time departs with the first ice into the Frozen Ocean. The young remains behind for some time, then follows its parent with the ice which is loosed from the shore.*

It abounds in Greenland and about Spitzbergen, especially in the bottoms of the deep bays. Migrates in Greenland twice in the year: in March, and returns in May; in June, and returns in September. Couples in July, and brings forth towards the end of March or beginning of April: has one young, rarely two, which it suckles on fragments of ice far from land. It never ascends the fixed ice; but lives and sleeps on the floating islands in great herds. Swims in great numbers, having one for a leader, which seems to watch for the security of the whole. Eats its prey with its head above water. Swims in various ways; on its belly, back, and side, and often whirls about as if in frolick. Frequently sleeps on the surface of the water. Is very incautious. Has great dread of the Physeter Microps, which forces it towards the shore. It is often surrounded by troops of hunters, who compel it even to land, where it is easily killed.

It is found also about Kamtschatka, being the third species mentioned by Steller.

Size.

It grows to the length of nine feet. The measurements of one described by Mr. Lepechin are as follow—The length, from the nose to the tip of the tail, was six feet: the length of the tail five inches three lines: the girth of the thickest part of the body four feet eight.

Uses.

The skin is used to cover trunks; that of the young, taken in the isle of Solovki, on the west side of the White Sea, is made into boots, and is excellent for keeping out water. The Greenlanders, in dressing the skins, curry off the hair, and leave some fat on the inside to ren-
RUBBON AND URSINE SEAL.

der them thicker. With these they cover their boats, and with the
undressed skins their tents; and, when they can get no other, make
use of them for cloathing.
The oil extracted from the blubber of this Seal is far the most
valuable, being sweet, and so free from greaves as to yield a greater
quantity than any other species. The flesh is black.
The Newfoundland Seal-hunters call it the Harp, or Heart Seal,
and name the marks on the sides the faddle. They speak too of a
brown fort, which they call Bedlemer, and believe to be the young
of the former.

_Hist. Quad._ No 380. fig. at p. 513.

**SEAL.** With very short bristly hair, of an uniform glossy color,
almost black: the whole back and sides comprehended within
a narrow regular stripe of pale yellow.

It is to Dr. Pallas I owe the knowledge of this species. He re-
ceived only part of the skin, which seemed to have been the back
and sides. The length was four feet, the breadth two feet three;
so it must have belonged to a large species. It was taken off the
Kuril islands.

_Hist. Quad._ No 387.
   _tab xv._
_Sea Wolf*, Pernety, Engl. Tr. 187. tab. xvi._—_Ullea’s voy._ i. 226.
_Chart Marin, Hist. Kamtschatka, 433._

**SEAL.** With a high forehead: nose projecting like that of a
dog: black irides: smaragdine pupil: whiskers composed of
triangular hairs, thinly scattered: nostrils oval, divided by a _septum_: 

* The French generic name for the Seal is _Loup Marin_, and the Spanish, _Lobo Mar-
rino._

In.
In the upper jaw four bifurcated cutting teeth; on each side of these a very sharp canine tooth bending inwards; beyond these another, which, in battle, the animal strikes with, as Boars do with their tusks. Instead of grinders, in each upper jaw are six sharp teeth resembling canine, and very slightly exerted. In the lower jaw four cutting teeth, and canine like those in the upper; and on each side ten others in the place of grinders. When the mouth is closed all the teeth lock into each other.

The tongue rough and bifid: the ears short, small, and sharp-pointed, hairy on the outside, smooth and polished within.

Fore legs two feet long, not immersed in the body, like those of other Seals, but resemble those of common quadrupeds. The feet are furnished with five toes, with the rudiments of nails; but these are so entirely covered with a naked skin, as to be as much concealed as a hand is with a mitten. The animal stands on these legs with the utmost firmness; yet the feet seem but a shapeless mass.

The hind legs are twenty-two inches long, and situated like those of Seals; but are capable of being brought forward, so that the animal makes use of them to scratch its head: on each are five toes, connected by a large web; and are a foot broad. The tail is only two inches long.

The body is of a conoid shape. The length of a large one is about eight feet; the circumference near the shoulders is five feet, near the tail twenty inches. The weight eight hundred pounds.

The female is far inferior in size to the male: it has two teats, placed far behind.

The whole animal is covered with long and rough hair, of a blackish color; that of the old is tipt with grey; and on the neck of the males is a little longer and erect: beneath the hair is a soft fur of a bay color. The females are cinereous. The skin is thick and strong.

These animals are found in amazing multitudes on the islands between
between Kamtschatka and America*; but are scarcely known to land on the Asiatic shore: nor are they ever taken except in the three Kurilian islands, and from thence in the Bobrovoice More, or Beaver Sea, as far as the Kronofki headland, off the river Kamtschatka, which comprehends only from 50 to 56 north latitude. It is observable that they never double the southern cape of the peninsula, or are found on the western side in the Penfchinska sea: but their great resort has been observed to be to Bering's islands. They are as regularly migratory as birds of passage. They first appear off the three Kurili islands and Kamtschatka in the earlist spring. They arrive excessively fat; and there is not one female which does not come pregnant. Such which are then taken are opened, the young taken out and skinned. They are found in Bering's island only on the western shore, being the part opposite to Asia, where they first appear on their migration from the south. They continue on shore three months, during which time the females bring forth. Excepting their employ of suckling their young, they pass their time in total inactivity. The males sink into the most profound indolence, and deep sleep; nor are they ever roused, except by some great provocation, arising from an invasion of their place, or a jealousy of their females. During the whole time they neither eat nor drink. Steller declined numbers, without finding the least appearance of food in their stomachs.

They live in families. Every male is surrounded by a seraglio of from eight to fifty mistresses; these he guards with the jealousy of an eastern monarch. Each family keeps separate from the others, notwithstanding they lie by thousands on the shore. Every family, with the unmarried and the young, amount to about a hundred and twenty. They also swim in tribes when they take to the sea.

* They say that the Sea-Cat, or Sinwutsch, is found in those islands; but Sinwutsch is the name given by the Kamtschatkans and Kurilians to the Leonine Seal only.

Northern Archipelago, &c. by Von Stadlen. Printed for Heydinger, 1774, p. 34.
The males shewed great affection towards their young, and equal tyranny towards the females. The former are fierce in the protection of their offspring; and should any one attempt to take their cub, will stand on the defensive, while the female carries it away in her mouth. Should she happen to drop it, the male instantly quits its enemy, falls on her, and beats her against the stones till he leaves her for dead. As soon as she recovers, she crawls to his feet in the most supplicant manner, and washes them with her tears; he at the same time brutally inflicts her misery, talking about in the most insolent manner. But if the young is entirely carried off, he melts into the greatest affliction, likewise sheds tears, and shews every mark of deep sorrow. It is probable that as the female brings only one, or at most two cubs, he feels his misfortune the more sensibly.

Those animals which are destitute of females, through age or impotency, or are deserted by them, withdraw themselves from society, and grow excessively sullen, peevish, and quarrelsome; are very furious, and so attached to their antient stations, as to prefer death to the loss of them. They are enormously fat, and emit a most nauseous and rank smell. If they perceive another animal approach its seat, they are instantly roused from their indolence, snap at the encroacher, and give battle. During the fight they insensibly intrude on the station of their neighbor. This creates new offence; so that at length the civil discord spreads through the whole shore, attended with hideous growls, their note of war. They are very tenacious of life, and will live a fortnight after receiving such wounds as would soon destroy any other animal.

The particular causes of disputes among these irascible beasts are the following:—The first and greatest is, when an attempt is made to seduce any of their mistresses, or a young female of the family: a battle is the immediate consequence of the insult. The unhappy vanquished instantly loses his whole feraglio, who desert him for the victorious hero.

The
The invasion of the station of another, gives rise to fresh conflicts; and the third cause is the interfering in the disputes of others. The battles they wage are very tremendous; the wounds they inflict very deep, like the cut of a fable. At the conclusion of an engagement they fling themselves into the sea to wash off the blood.

Besides their notes of war, they have several others. When they lie on shore, and are diverting themselves, they low like a Cow. After victory they chirp like a Cricket. On a defeat, or after receiving a wound, mew like a Cat.

Common Seals, and Sea Otters, stand in great awe of these animals, and shun their haunts. They again are in equal awe of the Leonine Seals, and do not care to begin a quarrel in their fight, dreading the intervention of such formidable arbitrators; who like-wise possess the first place on the shore.

The great and old animals are in no fear of mankind, unless they are suddenly surpried by a loud shout, when they will hurry by thousands into the sea, swim about, and stare at the novelty of their disturbers.

When they come out of the water, they shake themselves, and smooth their hair with their hind feet: apply their lips to those of the females, as if they meant to kifs them: lie down and bask in the sun with their hind legs up, which they wag as a Dog does its tail. Sometimes they lie on their back, sometimes roll themselves up into a ball, and fall asleep. Their sleep is never so found but they are awoke by the left alarm; for their sense of hearing, and also that of smell, is most exquisite.

They copulate, more humano, in July, and bring forth in the June following; so they go with young eleven months. The cubs are as sportive as puppies; have mock fights, and tumble one another on the ground. The male parent looks on with a sort of complacency, parts them, licks and kisles them, and seems to take a greater affection to the victor than to the others.
Swift swimmers. They swim with amazing swiftness and strength, even at the rate of seven or eight miles an hour, and often on their back. They dive well, and continue a great while under water. If wounded in that element, they will seize on the boat, carry it with them with great impetuosity, and often will sink it.

When they wish to ascend the rocks, they fix their fore feet on them, arch their backs, and then draw themselves up.

Capture. The Kamtschatkans take them by harpooning, for they never land on their shore. To the harpoon is fastened a long line, by which they draw the animal to the boat after it is spent with fatigue; but in the chase, the hunters are very fearful of too near an approach, lest the animal should fasten on and sink their vessel.

Uses. The uses of them are not great. The flesh of the old males is rank and nauseous; that of the females is said to resemble lamb; of the young ones roasted, a sucking pig. The skins of the young, cut out of the bellies of the dams, are esteemed for clothing, and are sold for about three shillings and four pence each; those of the old for only four shillings.

Re-migration. Their re-migration is in the month of September, when they depart excessively lean, and take their young with them. On their return, they again pass near the same parts of Kamtschatka which they did in the spring. Their winter retreats are quite unknown; it is probable that they are the islands between the Kurili and Japan, of which we have some brief accounts, under the name of Compagnie Land, States Land, and Jefo Gefima, which were discovered by Martin Uriel in 1642*. It is certain that by his account the natives employ themselves in the capture of Seals†. Sailors do not give themselves the trouble of observing the nice distinction of specific marks, we are therefore at liberty to conjecture those which he saw

* He sailed from the east side of Japan in the ship Capricorn, visited the isle of Jefo, and discovered the islands which he called States Land and Company Land, the last not very remote from the most southern Kurili island. Recueil de voy. au Nord, iv. 1.
† The same, 12.
to be our animals, especially as we can fix on no more convenient place for their winter quarters. They arrive along the shores of the Kurili islands, and part of those of Kamtschatka, from the south. They land and inhabit only the western side of Bering's isle, which faces Kamtschatka; and when they return in September, their route is due south, pointing towards the discoveries of Uriel. Had they migrated from the south-east as well as the south-west, every isle, and every side of every isle, would have been filled with them; nor should we have found (as we do) such a constant and local residence.

Before I quit this article I must observe, that there seems to be in the seas of Jejo Gafimo another species of Seal, perhaps our little Seal, No. 386. Ulst. and ad. The account indeed is but obscure, which I must give as related by Charlevoix in his compilations respecting that island. "The natives," says he, "make use of an oil "to drink, drawn from a sort of fish, a small hairy creature with "four feet." If this account is true, it serves to point out the farthest known residence of this genus, on this side of the northern hemisphere.

Finally, the Ursine Seals are found in the southern hemisphere, even from under the line, in the isle of Gallipagos †, to New Georgia ‡, in south latitude 54. 15. and west longitude 37. 15. In the intermediate parts, they are met with in New Zealand ‖, in the isle of Juan Fernandez, and its neighbor Massa Fuera, and probably along the coasts of Chili to Terra del Fuego, and Staten Land. In Juan Fernandez, Staten Land, and new Georgia ¶, they swarm; as they do at the northern extremity of this vast ocean. Those of the southern hemisphere have also their seasons of migration. Alexander Selkirk, who passed three lonely years on the isle of Juan Fernandez, remarks

† Woodes Rogers's voy. 265. He says that they are neither so numerous there, nor is their fur so fine as those on Juan Fernandez, which is said to be extremely soft and delicate.
‡ Cook's voy. ii. 213. ‖ Cook, i. 72. 86. Forster's Obs. 189. ¶ Anson's voy. 122. Cook, ii. 194. 213.
that they come ashore in June, and stay till September *. Captain Cook found them again, in their place of remigration, in equal abundance, on Staten Land and New Georgia, in the months of December and January †; and Don Pernety ‡ found them on the Falkland islands, in the month of February.

According to the Greenlanders, this species inhabits the southern parts of their country. They call it Auvekejak. That it is very fierce, and tears to pieces whatsoever it meets; that it lives on land as well as in water, swims most impetuously, and is dreaded by the hunters §.

SEAL. With a large head: nose turning up like that of a pug Dog: eyes large; pupil emerald: the greater angle of each as if stained with cinnabar color. In the upper jaw four small cutting teeth; the exterior on each side remote, and at some distance from these are two large canine teeth: in the lower jaw four small cutting teeth, and the canine: the grinders small and obtuse: four on each side above, and five below: ears conic and erect: feet exactly like those of the Ursine Seal.

Along the neck of the male is a mane of stiff curled hair; and the whole neck is covered with long waved hairs, such as distinguish a Lion: the rest of the animal clothed with short reddish hairs: those of the female are of the color of ochre; the young of a much deeper. The old animals grow grey with age.

* Selkirk’s account in W. Roger’s voy. 136. † ii. 194. 213. ‡ His. voyage, Eng. Tr. 187. § Faun. Green. p. 6. The
The weight of a large male beast is sixteen hundred pounds. Length of the males is sometimes fourteen, or even eighteen feet*. The females are very disproportionately lesser, not exceeding eight feet.

Inhabits the eastern coasts of Kamtschatka, from cape Kronozki as low as cape Lapatka and the Kurili islands, and even as far as Matfmai, which probably is the same with Jesse Gosina. Near Matfmai Captain Spanberg observed a certain island of a most picturesque form, bordered with rocks resembling buildings, and swarming with these animals, to which he gave the name of the Palace of the Sea Lions†. Like the Urfine Seals, they are not found on the western side of the peninsula. They abound, in the months of June, July, August, and September, on Bering’s island, which they inhabit for the sake of quiet parturition and suckling their young. Steller also saw them in abundance in July on the coasts of America.

They do not migrate like the former; but only change the place of residence, having winter and summer stations‡. They live chiefly on rocky shores, or lofty rocks in the sea, which seem to have been torn away from the land by the violence of some earthquake.§ These they climb, and by their dreadful roaring are of use in foggy weather to warn navigators to avoid destruction.

They copulate in the months of August and September; go ten months, and bring only one at a time. The parents shew them little affection, often tread them to death through carelessness, and will suffer them to be killed before them without concern or resentment. The cubs are not sportive, like other young animals, but are almost always asleep. Both male and female take them to sea to learn them to swim; when wearied, they will climb on the back of their dam; but the male often pushes them off, to habitude them to the

* Narborough, 31. Penrose Falkland Isles, 28. Pernetti, voy. Malouines, 240. By his confounding the names of this and the Bottle-nofe Seal, No 288. His. Quad. he led me into a mistake about the length of this.
†, Descr, Kamtschatka, 433. ‡ Nov. Com. Petrop. ii. 365. § Muller’s voy. 60.
excise. The Russians were wont to fling the cubs into the water, and they always swam back to shore.

The males treat the females with great respect, and are very fond of their cubs. They are polygamous, but content themselves with fewer wives than the former, having only from two to four apiece.

The males have a terrible aspect, yet they take to flight on the first appearance of a human creature; and if they are disturbed from their sleep, seem seized with great horrors, sink deeply in their attempts to go away, fall into vast confusion, tumble down, and tremble in such a manner as scarcely to be able to use their limbs. But if they are reduced to a strait, so as not possibly to effect an escape, they grow desperate, turn on their enemy with great fury and noise, and even put the most valiant to flight.

By use they lose their fear of men. Steller once lived for six days in a hovel amidst their chief quarters, and found them soon reconciled to the sight of him. They would observe what he was doing with great calmness, lie down opposite to him, and suffer him to seize on their cubs. He had an opportunity of seeing their conflicts about their females; and once saw a duel between two males, which lasted three days, and one of them received above a hundred wounds. The Ursine Seals never interfered, but got out of the way as fast as possible. They even suffered the cubs of the former to sport with them without offering them the least injury.

This species has many of the same actions with the former, in swimming, walking, lying, and scratching itself. The old bellow like Bulls; the young bleat like Sheep. Steller says, that from their notes he seemed like a rustic amidst his herds. The males had a strong finell, but were not near so ferid as the Ursine fort.

Their food is fish, the lesser Seals, Sea Otters, and other marine animals. During the months of June and July the old males almost entirely abstain from eating, indulge in indolence and sleep; and become excessively emaciated.
LEONINE SEAL.

The voyagers made use of them to subsist on, and thought the flesh of the young very savoury. The feet turned into jelly on being dressed, and in their situation were esteemed great delicacies. The fat was not oily; that of the young resembled the uet of mutton, and was as delicious as marrow. The skin was useful for straps, shoes, and boots.

The Kamtschatkans esteem the chase of these animals a generous diversion, and hold the man in highest honor, in proportion to the number he has killed. Even these heroes are very cautious when they attack one of the animals on shore: they watch an opportunity when they find it asleep, approach it against the wind, strike their harpoon, fastened to a long thong, into its breast, while their comrades fasten one end to a stake, and that done, he takes to his heels with the utmost precipitation. They effect his destruction at a distance, by shooting him with arrows, or flinging their lances into him; and when exhausted, they venture to come near enough to knock him on the head with clubs.

When they discover one on the lonely rocks in the sea, they shoot it with poisoned arrows: unable to endure the pain of the wound, heightened by the salt-water, which it plunges into on the first receiving it, it swims on shore in the greatest agony. If they find a good opportunity, they transfix it with their weapons; if not, they leave it to die of the poison, which it infallibly does in twenty-four hours, and in the most dreadful agony.*

They esteem it a great disgrace to leave any of their game behind: and this point of honor they often observe, even to their own destruction; for it happens that when they go in search of these animals to the isle of Alait, which lies some miles south-west of Lapatka promontory, they observe this principle so religiously, as to overload their boats so much, as to send them and their booty to the bottom; for they scorn to save themselves, at the expense of throwing overboard any part †.


This
This species has been discovered very low in the southern hemisphere; but, I believe, not on the western side. Sir John Narborough* met with them on an island off Port Desire, in lat. 47. 48. Sir Richard Hawkins† found them on Pinguin Isle, within the second Narrow of the straights of Magellan. They abound in the Falkland Islands‡; and were again discovered by Captain Cook on the New Year's Islands, off the west coast of Staten Land§. In those southern latitudes they bring forth their young in the middle of our winter, the season in which our late circumnavigators§ visited those distant parts.

* Voy. 31. † Voy. 75. ‡ Pernet's voy. 182. tab. xvi. § Cook, ii. 194. 203. The months in which these animals were observed by the navigators, were January and February; but by Sir J. Narborough, in the straights of Magellan, about the 4th of March, O. S. §§ Forster's voy. ii. 514.
MANATI. With a small oblong squarish head, hanging down: mouth small: lips doubled, forming an outward and inward lip: about the junction of the jaws a set of white tubular bristles, as thick as a pigeon's quill, which serve as strainers to permit the running out of the water, and to retain the food: the lips covered with strong bristles, which serve instead of teeth to crop the strong roots of marine plants: no teeth, but in each jaw a flat white oblong bone with an undulated surface, which being placed above and below, performs the use of grinders to comminute the food.

Nostrils placed at the end of the nose, and lined with bristles: no ears, only in their place a small orifice.

Eyes very small, not larger than those of a Sheep, hardly visible through the little round holes in the skin; the irides black; the pupil livid: tongue pointed and small.

The whole animal is of great deformity: the neck thick, and its union with the head scarcely discernible: the two feet, or rather fins, are fixed near the shoulders; are only twenty-six inches long; are destitute of toes, or nails, but terminate in a sort of hoof, concave beneath, lined with bristles, and fitted for digging in sand.

The outward skin is black, rugged, and knotty, like the bark of an aged oak: without any hair; an inch thick, and so hard as scarcely to be cut with an ax; and when cut, appears in the inside like ebony. From the nape to the tail it is marked with circular wrinkles rising into knots, and sharp points on the side. This skin covers the whole body.
body like a crouf, and is of singular use to the animal during winter, in protecting it against the ice, under which it often feeds, or against the sharp-pointed rocks, against which it is often dashed by the wintry storms. It is also an equal guard against the summer heats; for this animal does not, like most other marine creatures, feed at the bottom, but with part of the body exposed, as well to the rays of the sun as to the piercing cold of the frost. In fact, this integument is so essential to its preservation, that Steller has observed several dead on the shore, which he believes were killed by the accidental privation of it. The color of this skin, when wet, is dusky, when dried, quite black.

The tail is horizontally flat; black, and ending in a stiff fin, composed of laminae like whale-bone, terminating with fibres near nine inches long. It is slightly forked; but both ends are of equal lengths, like the tail of a Whale.

It has two teats placed exactly on the breast. The milk is thick and sweet, not unlike that of a Ewe. These animals copulate more humano, and in the season of courtship sport long in the sea; the female feigning to shun the embraces of the male, who pursues her through all the mazes of her flight.

The body, from the shoulders to the navel, is very thick; from thence to the tail grows gradually more slender. The belly is very large; and, by reason of the quantity of entrails, very tumid.

These animals grow to the length of twenty-eight feet. The measurements of one somewhat lesser, as given by Mr. Steller, are as follow:

The length, from the nose to the end of the tail, twenty-four feet and a half: from the nose to the shoulders, or setting-on of the fins, four feet four. The circumference of the head, above the nostrils, two feet seven; above the ears, four feet: at the nape of the neck, near seven feet: at the shoulders, twelve: about the belly, above twenty: near the tail, only four feet eight: the extent of the tail, from point to point, six feet and a half.
WHALE-TAILED MANATI.

The weight of a large one is eight thousand pounds.

Inhabits the shores of Bering's and the other islands which intervene between the two continents. They never appear off Kamtschatka, unless blown ashore by tempests, as they sometimes are about the bay of Acwasfa. The natives style them Kapaftnik, or cabbage-eaters, from their food. This genus has not been discovered in any other part of the northern hemisphere. That which inhabits the eastern side of South America, and some part of Africa, is of a different species. For the latter I can testify, from having seen one from Senegal. Its body was quite smooth; its tail swelled out in the middle, and sloped towards the end, which was rounded *. To support my other opinion, I can call in the faithful Dampier; who describes the body as perfectly smooth †: had it that striking integument which the species in question has, it could not have escaped his notice. Let me also add, that the size of those which that able seaman observed, did not exceed ten or twelve feet; nor the weight of the largest reach that of twelve hundred pounds ‡.

I suspect that this species extends to Mindanao, for one kind is certainly found there ‡. It is met with much farther south; for I discover, in the collection of Sir Joseph Banks, a sketch of one taken near Diego Rodriguez, vulgarly called Diego Rais, an isle to the east of Mauritius; and it may possibly have found its way through some northern inlet to the seas of Greenland; for Mr. Fabricius once discovered in that country the head of one, half consumed, with teeth exactly agreeing with those of this species §.

These animals frequent the shallow and sandy parts of the shores, and near the mouths of the small rivers of the island of Bering, seemingly pleased with the sweet water. They go in herds: the old keep behind and drive their young before them: and some keep on their sides, by way of protection. On the rising of the tide they

* A figure of this species is given in De Buffon, xii. tab. livii. and in Schreber, ii. tab. lxxv.
† Ves. i. 33: ‡ Ibid. || Dampier, i. 321. § Fée. Greenl. p. 6.

A a 2 approach
approach the shores, and are so tame as to suffer themselves to be-stroked: if they are roughly treated, they move towards the sea; but soon forget the injury, and return.

They live in families near one another: each consists of a male and female, a half-grown young, and a new-born one. The families often unite, so as to form vast droves. They are monogamous. They bring forth a single young, but have no particular time of parturition; but chiefly, as Steller imagines, about autumn.

They are most innocent and harmless in their manners, and most strongly attached to one another. When one is hooked, the whole herd will attempt its rescue: some will strive to upset the boat, by going beneath it; others will fling themselves on the rope of the hook and press it down, in order to break it; and others again will make the utmost efforts to force the instrument out of its wounded companion.

Their conjugal affection is most exemplary: a male, after using all its endeavours to release its mate which had been struck, pursued it to the very edge of the water; no blows could force it away. As long as the deceased female continued in the water, he persisted in his attendance; and even for three days after she was drawn on shore, and even cut up and carried away, was observed to remain, as if in expectation of her return.

They are most voracious creatures, and feed with their head under water, quite inattentive of the boats, or any thing that passes about them; moving and swimming gently after one another, with much of their back above water. A species of louse harbours in the roughness of their coats, which the Gulls pick out, sitting on them as Crows do on Hogs and Sheep. Every now and then they lift their nose out of the water to take breath, and make a noise like the snorting of Horses. When the tide retires, they swim away along with it; but sometimes the young are left ashore till the return of the water: other wise they never quit that element: so that in nature, as well as form, they approach the cetaceous animals, and are the link between Seals and them.

They
WHALE-TAILED MANATI.

They were taken on Bering's isle by a great hook fastened to a long rope. Four or five people took it with them in a boat, and rowed amidst a herd. The strongest man took the instrument, struck it into the nearest animal; which done, thirty people on shore seized the rope, and with great difficulty drew it on shore. The poor creature makes the strongest resistance, assisted by its faithful companions. It will cling with its feet to the rocks till it leaves the skin behind; and often great fragments of the crusty integument fly off before it can be landed. It is an animal full of blood; so that it spouts in amazing quantities from the orifice of the wound.

They have no voice; only, when wounded, emit a deep sigh.

They have the senses of sight and hearing very imperfect; or at least neglected the use of them.

They are not migratory; for they were seen about Bering's island the whole of the sad ten months which Mr. Steller passed there after his shipwreck.

In the summer they were very fat; in the winter so lean that the ribs might be counted.

The skin is used by the inhabitants about the promontory Tchuk-chi, to cover their boats. The fat, which covers the whole body like a thick blubber, was thought to be as good and sweet as May-butter: that of the young, like hogs-lard. The flesh of the old, when well boiled, resembled beef: that of the young, veal. The flesh will not refuse salt. The crew preserved several casks full, which was found of excellent service in their escape from their horrible confinement.*

To this article must be added an imperfect description of a marine animal seen by Mr. Steller on the coast of America, which he calls a Sea Ape. The head appeared like that of a Dog, with sharp and upright ears, large eyes, and with both lips bearded: the body round and conoid; the thickest part near the head: the tail forked;

the upper lobe the longest: the body covered with thick hair, grey on the back, reddish on the belly. It seemed destitute of feet.

It was extremely wanton, and played a multitude of monkey-tricks. It sometimes swam on one side, sometimes on the other side of the ship, and gazed at it with great admiration. It made so near an approach to the vessel, as almost to be touched with a pole; but if any body moved, it instantly retired. It would often stand erect for a considerable space, with one-third of its body above water; then dart beneath the ship, and appear on the other side; and repeat the same thirty times together. It would frequently arise with a sea-plant, not unlike the Bottle-gourd, toss it up, and catch it in its mouth, playing with it numberless fantastic tricks *.

On animals of this species the fable of the Sirens might very well be founded.

I shall conclude this article with a recantation of what I say in the 357th page of my Synopsis, relating to the Beluga; which I now find was collected, by the author I cite, from the reports of Coffacks, and ignorant fishermen. The animal proves at last to be one of the cetaceous tribe, of the genus of Dolphin, and of a species called by the Germans Wit-Fisch, and by the Russians Beluga †; both signifying White fish: but to this the last add Morfkaia, or of the sea, by way of distinguishing it from a species of Sturgeon so named. It is common in all the Arctic seas; and forms an article of commerce, being taken on account of its blubber. They are numerous in the gulf of St. Lawrence; and go with the tide as high as Quebec. There are fisheries for them, and the common Porpette, in that river. A considerable quantity of oil is extracted; and of their skins is made a sort of Morocco leather, thin, yet strong enough to resist a musquet-ball ‡. They are frequent in the Dvina and the Oby; and go in small families from five to ten, and advance pretty far up the rivers in pursuit of fish. They are usually caught in nets; but are some-

† Pallas, Itin. iii. 84. tab. iv. Crantz Grænld. i. 114. Purchas’s Pilgrims, iii. 549.
‡ Charlevoix, v. 217.
times harpooned. They bring only one young at a time, which is dusky; but grow white as they advance in age; the change first commencing on the belly. They are apt to follow boats, as if they were tamed; and appear extremely beautiful, by reason of their resplendent whiteness *

It being a species very little known, and never well engraven, I shall give a brief description, and adjoin an engraving taken from an excellent drawing communicated to me by Dr. Pallas.

The head is short: nose blunt; spiracle small, of the form of a crescent: eyes very minute: mouth small: in each side of each jaw are nine teeth, short, and rather blunt: those of the upper jaw are bent, and hollowed, fitted to receive the teeth of the lower jaw when the mouth is closed: pectoral fins nearly of an oval form: beneath the skin may be felt the bones of five fingers, which terminate at the edge of the fin in five very sensible projections. This brings it into the next of rank in the order of beings with the Manati. The tail is divided into two lobes, which lie horizontally, but do not fork, except a little at their base. The body is oblong, and rather slender, tapering from the back (which is a little elevated) to the tail. It is quite destitute of the dorsal fin.

Its length is from twelve to eighteen feet. It makes great use of its tail in swimming; for it bends that part under it, as a Lobster does its tail, and works it with such force as to dart along with the rapidity of an arrow.

A full account of the fifth of the Whale kind, seen by the Reverend Dr. Borlase † between the Land's End and the Scilly islands, is a desideratum in the British Natural History. He describes them as being from twelve to fifteen feet long; some were milk-white, others brown, others spotted. They are called Thornbacks, from a sharp and broad fin on the back. This destroys my suspicion of their being of the above species.

* Faun. Groenl. 51. † Obs. Scilly Islands, 3.
NEW YORK AND LONG-HAIRED BAT.

IV. Winged.

B A T. With the head like that of a Mouse: top of the nose a little bifid: ears broad, short, and rounded: in each jaw two canine teeth: no cutting teeth: tail very long, inclosed in the membrane, which is of a triangular form: the wings thin, naked, and dusky: bones of the hind legs very slender.

Head, body, and upper part of the membrane inclosing the tail, covered with very long hair of a bright tawny color, palest on the head, beginning of the back, and the belly: at the base of each wing is a white spot.

Length from nose to tail two inches and a half; tail, one inch eight-tenths: extent of the wings, ten inches and a half.

Inhabits the province of New York; and discovered by Dr. Forster* in New Zealand, in the South Seas.

B A T. With long straggling hairs, and great ears.

The above is all the account we have of this species; which is said to be an inhabitant of Virginia.

Mr. Lawson says, that the common Bat is found in Carolina†.

* Observations, &c. 189.  † Hist. Carolina. 125.
BAT. With the nose slightly bilobated: ears small and rounded: on the chin a small wart: body of a cinereous red.

Extent of wings fifteen inches: body between two and three in length: tail, one inch seven-tenths.

Brought from Hudson's Bay in spirits. I saw it only in the bottle but it appeared to be this species.

THIS species is found in Iceland, as I was informed by the late Mr. Fleischer, which is the most northerly residence of this genus. In Asia I can trace them no farther eastward than about the river Argun, beyond lake Baikal.