





gen. Nat. Hist.  
ae-

2/27

2/15





T H E  
N A T U R A L H I S T O R Y  
O F  
N O R W A Y:

C O N T A I N I N G,

A particular and accurate Account of the Temperature of the Air, the different Soils, Waters, Vegetables, Metals, Minerals, Stones, Beasts, Birds, and Fishes; together with the Dispositions, Customs, and Manner of Living of the Inhabitants: Interspersed with Physiographical Notes from eminent Writers, and Transactions of Academies.

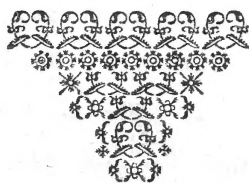
In T W O P A R T S.

*Parts I-II*

Translated from the DANISH ORIGINAL of the

Right Rev<sup>d</sup>. ERICH PONTOPPIDAN,  
Bishop of BERGEN in NORWAY, and Member of the Royal Academy  
of Sciences at COPENHAGEN.

Illustrated with COPPER PLATES, and a General Map of NORWAY.



*duplicate copy - other copy  
has old binding and map  
is uncoloured.*

---

L O N D O N:

Printed for A. LINDE, Bookfeller to Her ROYAL HIGHNESS the Princess Dowager  
of WALES, in Catherine-Street in the Strand.

MDCCLV.

1755

T H E

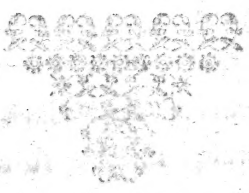
NATURAL HISTORY

IN O R W A Y :

A particular and accurate Account of the Temperature of the Air, the  
different Sorts of Waters, Vegetables, Metals, Minerals, Stones, Beasts,  
Fishes, and Insects; together with the Productions, Customs, and  
Manners of Living of the Inhabitants: Interpersed with the most  
Notes from eminent Writers, and Transactions of Academies.

IN TWO PARTS.

Translated from the DANISH Original of  
Right Rev. ERICH PONTOPIDAN,  
Bishop of Bergen in Norway, and Member of the Royal Academy  
of Sciences at Copenhagen.



Printed for A. LINDSAY, Bookseller to Her Majesty, in the Strand,  
OF WALES, in London: and near the Strand.

MDCCLXXV



168  
P82X  
E1755  
c. 2  
RB  
SI

---

## The AUTHOR'S PREFACE.

THE chief design of this preface is, to lay before the reader my motives for attempting a Natural History of Norway, together with the opportunities and encouragements which have concurred towards the accomplishment of my design; as such information may, in some respects, be necessary in the perusal of the work.

My principal motive was, to promote the glory of the Creator, by a contemplation of his works. In the instructive book of nature are many leaves, which, hitherto, no mortal has thoroughly perused; though the present times are blest with the happy advantage of all the important discoveries made in natural philosophy, since the commencement of this century, which are superior in number and merit to those of many preceding ages. These have been chiefly promoted by the learned Societies now flourishing in almost every country in Europe, who have liberally encouraged, directed, and excited enquiries into nature, and by the periodical publications of observations, objections, and experiments, have communicated to the world such important truths, as resulted from them.

It is not my present purpose to enquire, how these discoveries have been applied to various ends by persons of different opinions; I shall only observe, that devout men have taken occasion from them to express, in the fulness of their hearts, their faith and love to the great Creator, by applying their natural knowledge, to the support and illustration of this greatest of all truths, "There must be a God; and he must be almighty, omniscient, and infinite in goodness; and though he dwells

dwells in a light inaccessible to any mortal eye, yet our faculties see and distinguish him clearly in his works". In this respect I have the most profound veneration for a Boyle, a Nieuventyt, a Fenelon, a Scheuchzer, a Derham, and the like great and excellent personages; who having been no less conspicuous in the sanctity of their lives, than in their mental abilities, will doubtless find a place among those, or in preference to many of those, to whom the prophet Daniel promises a more exalted degree of glory.

It is true, that the rational part of the heathen world were not unacquainted with the first principles of natural religion, and consequently these are of themselves insufficient for the immediate and perfect conversion of sinners, or the attainment of any degree of that salvation reserved for the members of Christ's mystical body, who live in a more shining-light, and have more abundant offers of grace. But it is equally true, as the Apostle affirms, *he that cometh to God, must first believe that he is, and that he is a rewarder of those who diligently seek him.* A general belief in God, as the creator and preserver, as the rewarder and avenger, must be presupposed, before any faith in the Son of God, the Redeemer, can take place; consequently the first is the basis of the other articles, and though a minister of the Gospel is not to be lightly carried away by the stream, or ought not to follow the crowd of mere philosophic moralists, who pursue vain glory in science, falsely so called, and in contradiction to the mind and example of St. Paul, *are almost ashamed of the gospel of Christ, which alone is and will continue to be the power of God unto salvation*; yet it becomes them as little to deviate on the other hand, into a disregard and contempt of natural truths, and of the occasion which they may draw from them, of promoting the glory of God, among many whose taste and capacity reach no further than sensible objects: and not having been found faithful, even in these lesser matters, are not therefore intrusted with greater. *If, as our Saviour says, we believe not what is said to*

## The AUTHOR'S PREFACE.

v

*us of earthly things, how shall we believe when he speaks to us of heavenly things?*

I am therefore inclined to think, that neither I nor my brethren transgress the bounds of our ministerial office, by investigating and exhibiting natural truths concerning the works of God, which, like his word, are Jehova's. I am rather of opinion, that a supercilious neglect of such truths, in this critical age, is one of the causes of that contempt, with which the Freethinkers, as they arrogantly stile themselves, look on the ministerial function.

If physical knowlege be not, like godliness, *profitable to all things*, yet it is so to many, and in a certain degree to most things. A civilian, in order to a just solution of a point in law, must previously have a competent intelligence of the fact; \* and this is not always to be had from a formal deposition, which is frequently contradicted by others of equal authority; but in many cases, he may be considerably assisted by a perfect insight into the connexions of nature, which will teach him to reject impossibilities, which others would obtrude upon him for certainties, and not to attribute to any cause, however plausibly alledged, what may much more reasonably be supposed the effect of some other cause, though unknown.

The utility, I should say the absolute necessity of this science to medicine, needs no tedious proof, the alliance between natural philosophy and medicine being universally known, and the whole *materia medica* being properly *res physica*. This is sufficiently confirmed by our eminent physicians, Wormius, Bartholin, and Borrichius, who were also consummate naturalists. But my more immediate aim, is to represent the advantages of natural knowlege to those who apply themselves to theological studies, with a view of directing others in the way to salvation. The first knowlege requisite in them, is the knowlege of human nature; for grace and nature are the two great objects, which it is incumbent

\* See an ingenious piece in the Hamburg magazine, under the title of Arguments on the usefulness of natural philosophy in the study of the law, Vol. IV. p. 27.

upon them to distinguish on all occasions, when they undertake a cure of souls. In the next place, they must learn to know God from his other great works, which proclaim his being, and attributes, as well as from his wise and tender œconomy in the government of all his creatures. If they should prove unacquainted with this branch of knowledge, then they are more ignorant than even the heathens, according to the testimony of St. Paul himself, which is accomplished by the writings of Pagans. How admirably among others \*, Derham, and Nieuwentyt †, have applied natural philosophy to an unanswerable confirmation of revealed truths, is well known to those who have perused their excellent works with attention, and have from such perusal, either acquired their first belief and love of God, or found those religious habits greatly strengthened and animated. Moreover, a religious man, whose profession turns his attention to other secular sciences, must confess, that the delight of natural enquiries is greatly heightened to him, by an advantage which at first he did not expect, by the confirmation of his belief, and thus he is encouraged to pursue his researches, by the repeated satisfaction with which they are attended. Not to mention the occasion which a naturalist may take from his science, to remind himself and others of their duty towards God and their neighbour, and this agreeably to the method of the prophets, and the example of the great prophet Jesus himself, who referred those who are intemperately solicitous about worldly things, to the fowls of the air, and the lillies of the field; the disobedient to the oxen, and asses, which know their master; the slothful to the industrious pattern of the ant;

\* Particularly in his physico theology, or a demonstration of the being and attributes of God, from the works of creation, being the substance of sixteen sermons preached at the lectures founded by the honourable Robert Boyle.

† In that learned and devout work, the religious philosopher, or a right use of the study of nature to the conviction of atheists and infidels. This conviction should be an especial incentive to further researches; as, without the least hypocrisy, I can say of myself, that the γνώσις τοῦ Θεοῦ the knowledge of the eternal, invisible Being, who is the scope and spirit of all the truths delivered by the prophets and apostles, and the εἶναι αὐτῶν ἀναπολόγηται, by which others also may be gained, not only irresistibly drew me into the study of natural history, but sweetens all the labours with which it seems to be attended, and enlivens the conversation of persons of the same taste, Henkels Pyriologie, or history of fire, Cap. v. p. 300.

and the negligent to the bird which knoweth its season. Thus the works of God serve for a basis and confirmation of natural theology, even as revealed truths are grounded in his word; and this hath induced some able men of our times to follow Derham's excellent plan, whose physics, and astro-theology were no sooner published, than others adopted the system; every one was stirred up to apply his particular knowlege to the discussion of some point of natural history, and exhibit such an account of it, as should tend most to spread the knowlege and glory of the Creator. These endeavours by no means deserve to be considered as unnecessary or superfluous, for all who are desirous of a more intimate acquaintance with the works of God, as arguments of his existence and attribues, have no time, or opportunity for that circumstantial examination of every part, which hath been undertaken and executed by Fabricius, in his pyro- and hydro-theology; Alvard, in his bronto-theology; Zornius, in his pitano-theology; Rathleff, in his acrido-theology; Lesser, in his litho- and testaceo-theology, &c.

I heartily join with the celebrated Linnæus \* in wishing, that even those gentlemen in the universities, who are not peculiarly destined to physic, or the like, but to the study and promulgation of the word of God, in some ministerial office, were directed to apply such a part of their academic years to physics, as may equal, if not exceed the time spent in metaphysics, and logic, these last not being so indispensably necessary and useful as the former, especially to those who are called to attend a country parish. Here their natural knowlege will not only furnish them with many clear arguments, and edifying reflexions to themselves and their

\* Monsieur Linnæus commence par une harangue, que lui dicte la vivacité de son inclination, pour l'histoire naturelle. Il s'attache à la félicité des peuples, dès qu'elle a été portée à un certain degré de perfection. Il s'adresse aux puissances, et les supplie d'introduire une science aussi utile dans les universités. On y enseigne la logique, la métaphysique et d'autres sciences de théorie, dont l'utilité est extrêmement éloignée du bien public, pendant qu'on ne devoit pas négliger l'histoire naturelle, qui enrichit une nation, parce qu'elle lui fait connoître ses richesses. Il souhaiteroit surtout que les jeunes gens, qui se destinent à la vie ecclésiastique, pussent se procurer une teinture de cette aimable science. Elle leur adouciroit la solitude de la campagne, et elle leur feroit faire des découvertes, que les savans des villes ne sont pas à même de faire, Biblioth. Raifonnée, Tom. xxxviii. p. 15.

hearers,

hearers, of which we have instances in many religious books of that kind; but it will besides prove a liberal amusement in their solitude; it will enable them, by much greater opportunities than the learned enjoy in towns, to make useful discoveries or improvements, from the products of nature, to the lasting benefit of their country, which it is their duty to promote. I shall mention only one thing, which here in Norway might be of the greatest importance, I mean such skill in metallurgy, as to know the species of ores and minerals, to make little experiments by fusion, and thus to form a judgment of the intrinsic value of a mine, and how far it will answer the expence of opening. He who is possessed of superior knowlege and penetration, may in this country, ever meet with many latent things, which might long since have occasioned much thought and reflexion, had they been exhibited earlier to public view and examination.

This leads me to my other motive, for attempting a natural history of Norway, which carried me thro' it with infinite delight, though I wanted the materials, the time, and the opportunities requisite for an essay of this kind. In the annual visitations of my diocese, which lead me into every part of this province, and sometimes form a journey of an hundred Norway miles, I have heard authentic accounts of natural things, and sometimes have seen the originals themselves, which being unknown to me, put me upon enquiring whether they were so to others, or whether they had a perfect knowlege of them? The latter being seldom the case, it was natural to wish the improvement of that knowlege, especially as those mountainous countries are distinguished from others by containing many things, which are met with in the province of Dauphiné in France. I refer the reader to the ninth volume of the *Memoires de l' academie royale des inscriptions et belles lettres*, where he will find the following passage; " Nature has bestowed on every province some distinguishing advantage, and the curiosities of each country are proportioned to the number and nature of the alterations it has undergone. Consequently,

quently, in provinces full of mountains, rocks, grottos, subterraneous cavities, and minerals, the speculative mind is entertained with many such natural phenomena, as are not to be found in other parts.

This observation of M. Lancelot, is entirely applicable to Norway, and more especially to that part where providence has been pleased to settle me, which, according to its name, almost wholly consists of mountains, in which, few parts of Europe can be compared to it, and consequently, according to the above observation, few contain more remarkable naturalia. Even Norwegians themselves, who resort hither from the other provinces, imagine themselves in a foreign country, not only on account of the continual high mountains they meet with; but in respect of the different and very unwholsom air issuing from off the sea and settling between the mountains, from whence it cannot easily be dissipated.

But Norway, considered in general, in the singularia naturæ et providentiæ, surpasses most countries, and not only in its inanimate treasures, such as metals, minerals, and vegetables, but in the various kinds of beasts, birds, and fishes; and particularly of the last, scarce any parts of the universe afford such a diversity and abundance. But these superior advantages are not estimated as such by the inhabitants, who daily enjoy, and therefore are too apt to disregard them. Foreigners seldom visit us, unless they are seamen and merchants; and these have little else in view, than the lucre of their professions. Northward of us the people are too unpolished to encourage a traveller to take the tour of the country, which hath been the means of clearing up the natural history of other countries.

On this very account it seems the more expedient, that such of our Danish nobility, and of our literary youth, who travel at a very great expence to visit foreign countries, should be first obliged to take, at least, a half year's tour through this kingdom, which is so closely united with Denmark. If the travels of

these young gentlemen are said to be undertaken upon worthy motives, I hope their principal object is to qualify themselves the better for the service of their king and country, in those public employments which at their return they solicit, and to which they have some claim. Now if this be their object, it is more necessary for them to visit Norway and Sweden, than all the other countries of Europe. An acquaintance with the latter (Sweden) both in respect to its strength and its weakness, is unquestionably more necessary to our young statesmen, than to be able to decide which merits the preference, the Rhenish, Italian, French, or Spanish wines. As to the necessity of an accurate knowledge of Norway, I believe it must be immediately manifest, if not to others, at least, to a Norwegian, when he sees a person filling some eminent post either in the state, or in the law, with irreproachable integrity, who is totally ignorant of the particular circumstances and properties of Norway, and wherein they totally differ from those of Denmark. Thus the public, contrary to his intentions, may suffer great detriment, or many things be neglected, which would be happily executed, if his public spirited views were directed by his own discernment, which would enable him without seeing thro' the eyes of other men, throughly to sift and examine the grounds and consequences of a matter, which now becomes doubly difficult, it being not only foreign to him, but very remote perhaps from the purpose, to which he is meditating to apply it.

In this respect, I flatter myself, this first essay towards a natural history of Norway, will have its use with some, who never had an opportunity of personally visiting a country, with which, by virtue of their office, they are in a greater or less degree, perpetually concerned.

This work, moreover, with all its imperfections, may serve to enrich natural history in general with some particulars, of which, consummate naturalists were heretofore the only competent judges. I am very far from desiring to relate, or establish marvellous



lous things, merely to excite the admiration of the reader. On the contrary, I have endeavoured to rectify the erroneous idea which many, even among the learned, have, for want of better information, formed of several, in themselves very wonderful natural phænomena, here in Norway; such as a bottomless sea-abys growing in the Moskoe-ström, penetrating quite thro' the globe; of ducks growing on trees; of a water on Sundmoer, which in a short time turns wood into stone; and many other such things, which, some who have had no opportunity of enquiring further, or others who were not disposed to it, have received as undoubted facts. The reader will meet with many strange, singular, and unexpected things here, but all of them strictly true; some of them not discovered before, others confirmed; and, to the best of my ability, in some measure accounted for, and illustrated.

Perhaps, Norwegians by birth, to whom the nature of their country is better known, may, from their own particular experience in divers parts, produce something more complete and extensive. If they should be animated thereto by this work of mine, I shall account it among the accidental advantages which may result from it; and in this case, let no one imagine that a difference of opinion, decently delivered, will give me any offence, or trouble; the discovery of truth, is in this and every other respect, my chief end; and I live in an age, which not content with mere hypotheses, unsupported by proofs, requires that every fact or position, which is advanced as real, be at least demonstrated possible, and consonant to the nature of the things in question.

Physics, having never been my chief study\*, I am far from the arrogance of supposing, that I have always hit upon the true original cause, and laid open the connexion of every subject; and I am much farther from the presumptuous conceit, that I have, in

\* Si mihi homini vehementer occupato stomachum moveritis, triduo me jurisconsultum profitebor. Cicero in Orat. pro Muræna, cap. xxviii.

every particular, developed the abstruse measures, and discovered the secret designs of the infinite Creator, whose ways are past finding out. I hold with Bartholin. "*Officio suo satisfecit physicus, ubi rationes adduxit probabiles.*" It is not in one respect only that our Saviour's words hold good; *the wind bloweth where it listeth, and thou hearest the sound thereof, but thou knowest not from whence it cometh nor whither it goeth.* And the wise man does not exaggerate when he says, *we scarce perceive what lies upon the earth, or feel what is betwixt our hands.* However, our almighty and all-wise Creator cannot be displeased at an investigation of his works, with a pious and respectful docility, nor at the praises we give to his holy name for so much as falls within the extent of our faculties; resting assured, that what is beyond our reach in this state of probation, will be explained to us in that new heaven and new earth which we look for according to his promise.

I shall now, pursuant to my promise, give some account of the sources from whence I have drawn what is here offered to the public. These are partly writings relating to Norway, partly my own certain experience, as far as it extended, and partly the observations of some intelligent persons, communicated to me at my desire.

In the first class are our noted historians and chorographers, especially Peter Nicholas Undalin, formerly superintendant over the district of Lister, minister of Undal, in the diocese of Christian-sand, and a canon of the chapter of Stavenger, who, besides his translation of Snorre Sturlesen's annals, from the old Norwegian tongue into modern Danish, wrote a posthumous work, published at Copenhagen, in quarto, in the year 1632, intitled, *A True Description of Norway and the adjacent Islands.* Of this piece Dr. Christopher Steinkuhl, in 1685, published a German translation with additions. It gives a tolerable account of the extent of every province in general, its subdivision, and the names of the districts and parishes; with some particulars on the nature and qua-

qualities of the foil; but these are but few in number, it not having been his design to treat expressly of them. Mr. Jonas Ramus, heretofore pastor to the community of Norderhong in Rongerige, in the diocese of Aggerhuus, goes further. This writer, besides many other theological and historical compositions, has deserved highly of his country for his Description of Norway, published in quarto, at Copenhagen 1715. It is a chorographical improvement upon Undalinus's work, but having the same point in view with that author, he confines himself within the same limits, yet is fuller on the nature and products of the country, adding, particularly at the close, from page 240 to 274, an appendix, enumerating the several beasts, insects, birds, fishes, herbs and trees. This consists indeed of little more than the bare names of them, but was of use however to me, as it opened a large field for further enquiry. Arendt Berendsen's Fertility of Denmark and Norway, printed in quarto at Copenhagen, in 1656, is a book which exhibits a clear account of the different fertility of the respective provinces, and several particulars concerning the products of the country; but this again proceeds no farther than giving the names of things \*. In some certain points, I have been most indebted to Mr. Lucas Debes's Feroa Referata, or Description of the Ferro Islands, published at Copenhagen, in octavo, 1673. This gentleman, who was formerly superintendent of Ferro, was, for the times he lived in, and the opportunities he had, a good naturalist, and, as the islands he describes, lying parallel to the western coasts of Norway, have some analogy with them, especially on account of the sea-fish and water-fowls, his observations were of greater assistance to me than any other work. I have likewise gleaned some good materials from distinct treatises on single subjects, such as Wormius's Tractatus de mure Norvegico, Dethardingii Diff. de vermibus in Norvegia qui novi visi, Gartner's Hor-

\* The Norrigra Illustrata of Jens Lauridsen Wolf, hardly deserves to be ranked among the chorographies of the country, it containing little of any importance but what is historical.

*ticulturas Norvegica*, Lochstor's *Diff. de Medicamentis Norvegiæ sufficientibus*, Dasse's *Description of Nordland*, &c.

The loss of the manuscript history of the beasts of Norway, by the above-mentioned Mr. Peter Nicholas Undal, is exceedingly to be lamented; it happened in this manner. The author had transmitted his work to his intimate friend Dr. Worm, that before it was committed to the press, it might undergo the revision of that consummate naturalist †. With him it remained till his death, when it fell into the hands of Dr. Thomas Bartholin, who carried it to his seat at Hagested in Silland, where, together with many other valuable books and manuscripts, it was unfortunately burnt. Undal, page 83 of his *Chorography*, mentions another book, called *Speculum Regale*, to which he appeals for what is said concerning a hazle stick being petrified in Birkedal morass, in Sundmoer, from whence I conclude, this book must have turned upon natural history; but as probably it was likewise a manuscript, it was a great pity that the public was not benefited by it, before it was lost, as is unquestionably the case. But a greater calamity to the literary world, was the conflagration which happened 1734, in the city of Christianland, which destroyed that invaluable assortment of collections for a natural history of Norway, in which Mr. Jens Spidberg, an ecclesiastic of great eminence there, had with indefatigable application spent many years. He was a man consummately accomplished for so great an undertaking, as appears from the other monuments extant of his genius, which display a singular penetration and judgment, with an infinite compass of learning, especially in physics and mathematics. I shall here quote a passage from a letter, with which he favoured me, dated Dec. 10, 1750, concerning his design, which he relinquished after the unfortunate loss of his manuscripts and library. I should not have troubled the reader

† This, however, from the following mention made of it, by the said Mr. Worm, does not appear to have been a comprehensive or finished work: *Petri Undalini fragmenta historię animalium Norv. MSS. quæ penes me sunt. Tr. de Mure Norveg. page 3.*

with this extract, but it contains some things relative to my present purpose.

“ It is to be lamented that hitherto no person has ventured to undertake a natural history of Norway; for I am persuaded that no country in the universe affords more curiosities and wonders, out of the three kingdoms, of nature, than this; and consequently, there is not a subject more fit for the pen of a naturalist. Had M. Maupertius gone as far as to Wardehuus, or to the north-cape, and there made his dispositions for taking the figure of the earth, his calculations would have been attended with less difficulty, and more certitude than at Tornea. Had M. de Mairan taken care to procure from Norway, some accurate observations on the Aurora Borealis, his valuable *Traité Physique de l'Aurore Boreale*, had been much more complete and decisive; for the north light takes its rise from Norway, and particularly from the diocese of Drontheim. Considerable additions might have been made to Redi, Swammerdam, and even to M. Reaumur's *Memoires des insectes*, had they had the advantage of a communicative, and observing correspondent in Norway, where are several tribes unknown either in Italy, Holland, or France. Linnæus, by his observations in Sweden, has enriched botany more than Tournefort, by all the remarks he made in France, or in his travels to the Levant. I need only mention the article of metallurgy, in which Norway surpasses all other countries, producing all kinds of minerals and metals, from gold, to sulphur and lead. In like manner I pass over the numberless beasts, birds, and fishes peculiar to Norway; the rivers, hot springs, meteors, and the several alterations of the air, &c. but alas! all these things, such is the incogitancy and ignorance of the people, are still almost unknown; at least, I have not yet heard of any one equal to the task, who has attempted to place them in a proper light. Peter Nicholas Undal, to whom we owe a translation of Snorre Sturlesens, and a civil history of Norway, had, it seems, also composed a natural history, but it being sent to Copenhagen for approbation, was suppressed,

or at least not published; though a physical treatise written 130 years ago, would little sute the taste of these more enlightened times. The great Wormius in his Musæum, and Tho. Bartholin in his acta medica, and historica anatom. rariora, have, I know, introduced some of the curiosities of Norway, but their accounts are defective. Jonas Ramus was distinguished by a knowlege of the history and antiquities of his country, but was not eminent as a naturalist. About five or six years ago, Count Reufs, who was then governor here, ordered all the litterati in these parts to send in an account of every particular in their respective countries which might contribute to the melioration of the soil, or the improvement of agriculture. Some such memorials were delivered in; but of what use they were, or whether any measures were taken in consequence of them, I have not heard. It may be presumed that the like orders were issued in the other diocefes. Mathematics, and natural philosophy have always been my favourite studies, and in my late library I was possessed of most and the best physical writings published in Italy, France, Germany, and England. It was Scheuchzer's Natural History of Switzerland, that first induced me to undertake a work of the same kind on Norway; and I had an opportunity of personally making the best collections and observations for that purpose, being ordered by baron Lowendahl, who commanded in chief in Norway during the last war, to draw a map of the country, and frontiers betwixt Norway and Sweden; a copy of which, I am informed, is in the Collegium Curiosum at Copenhagen. This undertaking gave me an opportunity of travelling thro' the diocese of Christiansand, and of observing all the rivers, lakes, mountains, and every thing relative to natural history; but afterwards, whilst I was employing my leisure in augmenting and digesting my collections, in order for publication, that deplorable fire which happened in Christiansand 1734, deprived me, besides 6000 volumes in all languages and science, of all my collections and manuscripts, so that my whole stock was reduced to what I had treasured up in my memory,

mory, and I have since acquired by subsequent observations. I had before published two little pieces, one in Holland, de causa et origine ventorum, the other at Hall in Saxony, of the North-light. I can still amuse myself, with the entertainment I receive in my leisure hours, from books of Mathematics, and natural philosophy." So far M. Spidberg.

It is therefore a melancholy consideration, that so few having made any advances towards a natural history of Norway, their collections should be thus destroyed; which, from several causes, has been the fate of many excellent writings among us. Concerning the neglect of natural history, or the great scarcity of such writings in the northern countries, the learned Muller, in his *Isagoge ad Hist. Cherfon. Ambricæ*, cap. XI. p. 10. thus expresses himself: "*Historiæ chorographicæ cognata est naturalis, quæ licet infinita rerum ἀξιοθαυμάσιων varietate in regionibus hisce luxuriet, et curiosorum calamos atque ingenia provocet, pauci tamen hæctenus partem illius aliquam illustrandam sibi sumpserunt.*" This likewise is the complaint of Dr. Henry Lochstor, whose death in the maturity of life, and in the midst of many useful designs, was a public loss; in his dissertation *De Medicamentis Norvegiæ sufficientibus*, p. 20, he says, "*Monendum duxi, haud deesse Norvegiæ fontes medicatos, deesse autem, qui horum vires et principia inquirent solertes naturalium rerum studiosos.*" If we consider the natural cause of this, it will not appear matter of complaint, tho' the effect is so in a great degree. In a country so healthy as Norway, a few physicians will suffice, and consequently, there are few who devote themselves to physical researches.

From these several circumstances it will be easy to conclude, that I had not a multiplicity of sources from whence to draw many choice materials. The discoveries which I have been able myself to make, either by my own experience, or enquiries, or experiments, have furnished my principal aids. My annual visitations, as has been intimated before, gave me the best opportu-

nities, and great encouragement. Almost every inn in this extensive diocese, gratified my curiosity, and yet this is not the only province known to me from my own experience. The diocese of Drontheim is the only one I have never been in, the others I have travelled through, and in several places in that of Aggerhuus made some stay, and always took care to find out a person, who was able to satisfy me in any questions concerning the nature and circumstances of the country. But the diocese of Bergen, as will be easily imagined, is the country of which I have had the most perfect knowledge, both from experience and information. These circuits usually take up two or three months, and leaving me more vacant time than I could wish, I usually, according to the proverb, make a virtue of necessity, by spending part of the time in conversation with the guides and drivers, appointed at different stations to attend upon me with carriages. Their answers to my several questions, I afterwards examine with the ministers of the parishes, or some other person well acquainted with the country, and whatever I hear confirmed by several testimonies, or not controverted, or doubted of, I enter among my miscellaneous observations, and, at my return home, compare them with the descriptions of such countries, especially the mountainous, or which are in any other respect analogous to Norway. These annual tours I have also improved towards making a small collection of naturalia of Norway, such as stones, ores, fossils, sea-trees, corals, snails, muscles, uncommon birds, fishes, and the like; of the most remarkable of which, for the gratification of the reader, I have caused prints to be annexed.

Lastly, on the subject of the Norway-birds, and more particularly the fish, I have had recourse to the observations of men whose dwellings and employments give them opportunities of examining more minutely things, which do but seldom fall under general observation. As to fish and marine-animals, a greater variety, and stranger tribes are seen hereabouts, and off Nordland, than in any part of Europe; but a superstition which prevails  
among



among the lower class of people, deprives us of most of these, for, when they happen to catch a fish of a strange, singular figure, consequently the greater subject of curiosity, they are sure immediately to throw it over-board; to those of the monstrous species the peasants give the general appellation of troid, devil, or troid-fish, devil-fish, and are weak enough to imagine, that unless it be immediately set at liberty, their fishing will be unsuccessful, and something or other amiss will certainly befall them.

I have now, delivered what I principally intended in this preface, I shall only repeat the before-mentioned declaration, that I do not send this essay abroad as a master-piece, and shall rejoice to see it improved by more interesting articles, and more refined observations; and to see a complete superstructure raised on this foundation, by persons of more leisure and opportunity.

However, I own myself entirely in the sentiments of a very eminent writer on the like occasion, who, in his first essay of a natural history of Hungary, asserts the claim of an original writer to the indulgence of the public, in the following words; “*Res omnino remotas è sua, ut ita dicam, barbarie primus exemi; propterea veniam mereri videor mihi, si nec omnia eruerim, nec omnia correctè . . . sentio inesse multa quæ corrigi, deesse quæ valeant suppleri \**”. Had I not judged this work to stand in need, or to admit of any amendment, I should not so frequently have called it an essay in this preface; but it is, indeed, the first essay on this subject, and of course encumbered with difficulties too great for the application and talents of one man; and on this ground, I hope that every candid judge, who knows how little leisure my indispensable functions leave me, will not require more, or a more perfect work of this kind from one, who may appear to have performed more than could be expected, who has denied himself many hours of natural repose, if not suffered

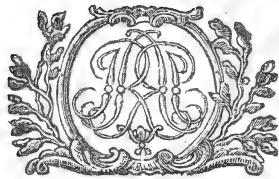
\* Aloysius Comes Marfilli in Danub. Panon. Myfic. Tom. 1. Præfat.

## The A U T H O R ' s P R E F A C E .

by his assiduity in other respects \*, but this I shall never regret, if, in any measure, I can contribute to promote the glory of God, and the public welfare.

Bergen, May 1. 1751.

\* Qui multa agit, sæpe fortunæ potestatem sui facit, quam tutissimum est raro experiri. Seneca de Tranquillit. Anim. Cap. XIII.



---

---

*A LIST of the AUTHORS quoted in this Work.*

A.

**A**BILGAURD Petr.  
Acta Medica Hafniens.  
Acta Societ. Reg. Hafn.  
Acta Uratislaw.  
Ælian.  
Aldrovandus Ulyffes.  
Anderson John.  
Arbuthnot John.  
Aristotle.  
Arreboe Andr.  
Athenæus.

B.

**B**ANG Oluf.  
Bartholin Thomas.  
Bellonius.  
Berndsen Arndt.  
Bertius.  
Bibliotheque Britannique.  
Bibliotheque Germanique.  
Bibliotheque Raisonnée,  
Bibliotheque Philosophique.  
Bochart Samuel.  
Boyle Robert.  
Bonnet Charles.  
Borner Nicol.  
Borrichius Olaus.  
Bremensis Adam.  
Brommel Magnus.  
Brown-Sir Thomas.  
Buchanan.  
Buchwald John.  
Buffon M.  
Burnet Thomas.  
Buffæus Andr.  
Buxbaum Jo. Christ.

C.

**C**AMBRENSIS Giraldu.  
Camererius Elias.  
Cartesius Renat.  
Careri Gemell.  
Chardin M.  
PART I.

Charlevoix Pere.  
Cicero.  
Cleffel Joh.  
Clercle Joh.  
Clufius.  
Cnoxen Jac.  
Commentarii Academ. Petropol.  
Condamike M.  
Cragius Nicol.  
Crantzius Albert.

D.

**D**ALECAMPS Jac.  
Dalin Olaus.  
Dampier.  
Dapper Odoard.  
Dafs Petr.  
Daubenton M.  
Debes Lucas.  
Delices de la Suisse Anon.  
Derham William.  
Desaguliers.  
Detharding Georg.  
Diodorous Siculus.  
Dolmer Jens.  
Duvernoi.

E.

**E**GEDE Joh.

F.

**F**EUSTKING Henr.  
Flemming Hans.  
Frantzius.

G.

**G**ARTNER Christian.  
Gefner Cunr.  
Glyfing Joh.  
Gram Joh.  
Grammaticus Saxo.  
Griffin Hugues.

Grotius Hugo.

H.

Du **H**ALDE P.  
Happelius Ewerb.

Hartfœker Nicol.  
Haffæus Theodor.  
Heitman Joh.  
Herbinus M.  
Henkel Joh.  
Hierne Urban.  
Holberg Ludov.  
Horrebow Nicol.  
Howel James.  
Hvitfeld Arild.  
Högström Petr.

J.

**J**ABLONSKY Theod. Joh.  
Jacobæus Oliger.  
Jonæ Arngrim.

K.

**K**ÆSTNER Abraham Gottf.  
Kircher Athanaf.  
Klein Jacob.  
Kraft Jens.

L.

**L**ABAT Pere.  
Lange Gottf. Henr.  
Leibnitz B.  
Lefser Frid. Christ.  
Linnaeus Carol.  
Löchstör Henr.

M.

**M**AGAZIN of Dantzick.  
Magazin of Hamburg.  
Magazin of London.  
Magnus Olaus.  
Margravius Georg.  
Marfili Aloyfius.  
Martens Fridr.  
Martin M.  
Mead Richard.  
Mejerus Michael.  
Memoires de l'Academ. des Scien-  
ces.

3

Mercator Gerhard.  
Molesworth M.  
Musckenbroeck.

N.

**N**EWTON Sir Ifaac.  
Neukrantz.  
Nickols M.  
Nova Litteraria Maris **Baltici**.

O.

**O**LAVIUS Stephan.  
Olearius Adam.  
Opian.  
Owens Dr.

P.

**P**ARÆUS Ambros.  
Paracelfus Theophrast.  
Paris Matth.  
Patrick Simon.  
Pauli Sim.  
Peirere Ifaac.  
Plato.  
Pliny.  
Plutarch.  
Polignac Cardinal.  
Pococke Rich.  
Pontanus Jo. Ifaac.  
Pontoppidan Erich, Sen.  
Pope M.

R.

**R**AMUS Jonas.  
Ramus Joach. Frid.  
Ray Joh.  
Reaumur Monfr.  
Reitzer Christ.  
Refenius Pet. Joh.  
Rhodius Ambros.  
Rohault J.  
Riccioli.  
Rollin Carol.  
Rondeletius.  
Rudbeck Olaus.

S.

**S**CALIGER Jul. Caf.  
Schachtius Hern. Matth.  
Sheffer Joh.

Scheid

Scheid Christ Ludov.  
 Scheuchzer Joh.  
 Schmidt Joh.  
 Schott Gaspar.  
 Schurtzfleisch Conr. Sam.  
 Schöning Gerrh.  
 Schönveld Stephan.  
 Seebald Henr.  
 Sevel Frid. Christ.  
 Shaw Dr.  
 Sibaldus Robert.  
 Silius Italicus.  
 Spelman Joh.  
 Sperling Otto.  
 Spidberg Jens.  
 Steinkuhl Christ.  
 Strabo.  
 Sturleson Snorro.  
 Svammerdam Jo.  
 Svedenborg Eman.

T.

**T**ACITUS Cornelius.  
 Tavernier Jo. Bapt.  
 Tilas Daniel.  
 Torfæus Thormod.  
 Tornæus Joh.  
 Transactions Philosoph.

Tulpius Nicol.  
 Tournefort Pitton.

V.

**V**ALENTINI Mich. Bernh.

W.

**W**ALLACE Dr.  
 Wentzky Georg.  
 Wetenzk. Academ. Swenske Af-  
 handl.  
 Whiston William  
 Willoughby Francis.  
 Windheim C. E.  
 Wolf Christ.  
 Woodward Dr.  
 Worm. Olaus.

U.

**U**NDALINUS Petr. Claud.

Z.

**Z**ELTNER Gustav.  
 Zornius Joh. Henr.



T H E

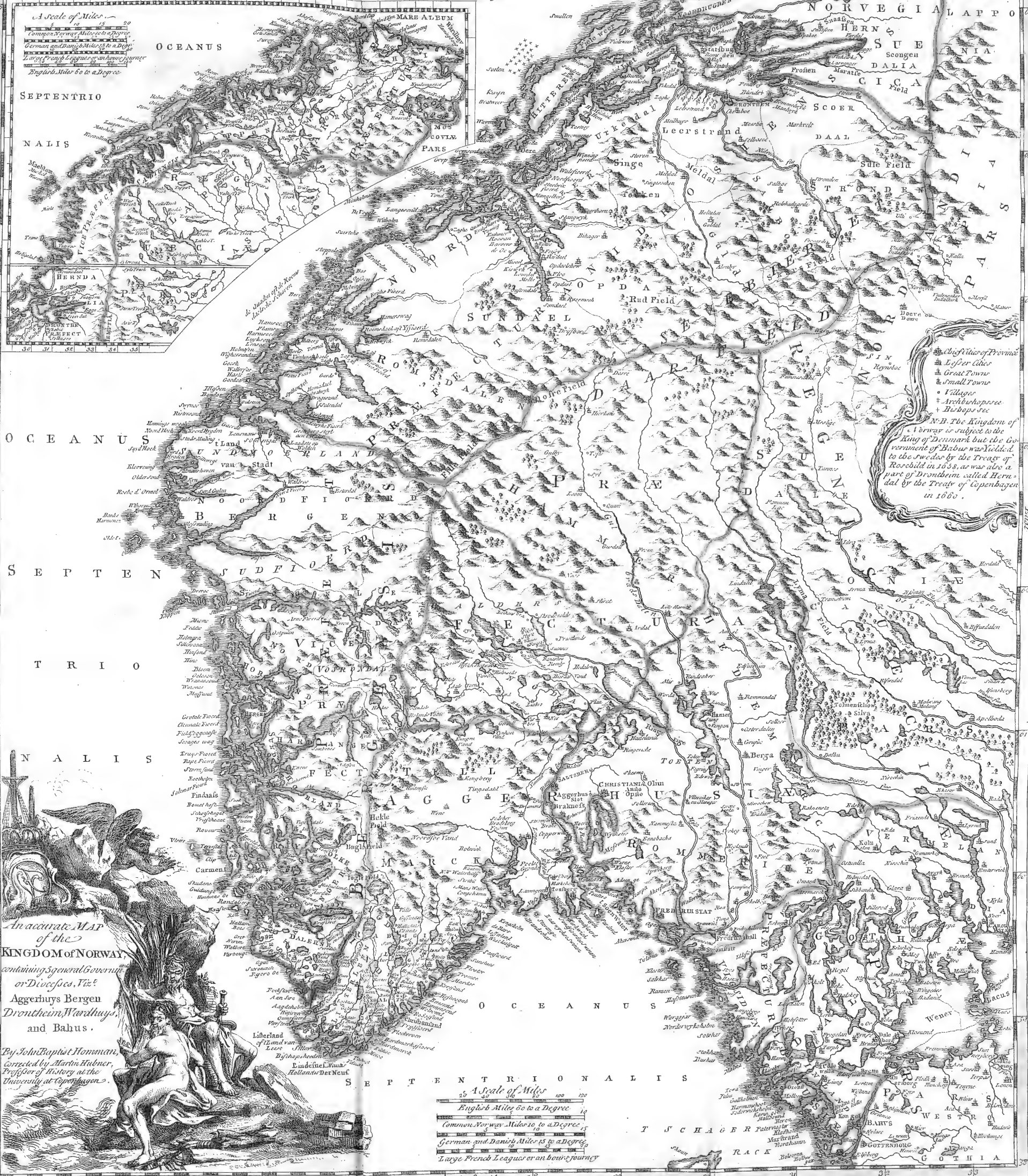
C O N T E N T S

T O P A R T I.

C H A P T E R I.	
Of the Air and its Phenomena.	Page 1
C H A P. II.	
Of the Soils and Mountains of Norway.	35
C H A P. III.	
Of the WATERS.	66
C H A P. IV.	
Of the Fertility of Norway in variety of Vegetables.	96
C H A P. V.	
Account of the Vegetables continued.	115
C H A P. VI.	
Of the Sea-Vegetables of Norway.	148
C H A P. VII.	
Of several kinds of Gems and curious Stones in Norway.	160
C H A P. VIII.	
Of the Metals and Minerals in Norway.	178



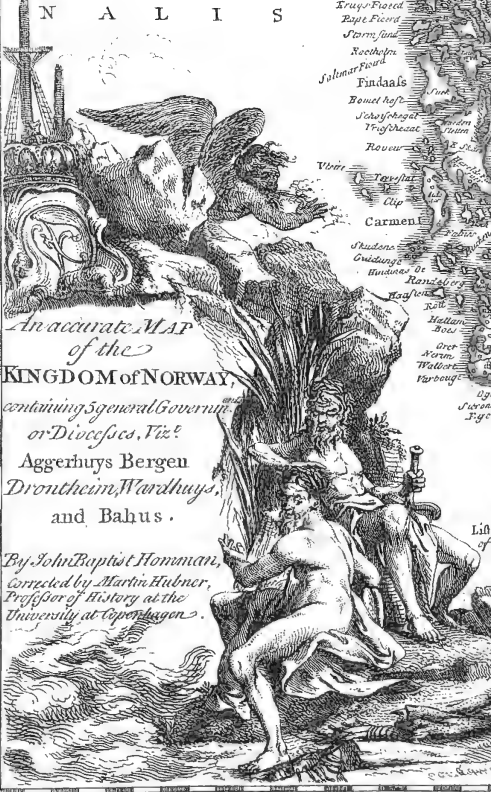




A Scale of Miles  
Common Norway Miles 10 to a Degree  
German and Danish Miles 15 to a Degree  
Large French League or an hours journey  
English Miles 60 to a Degree

Chief Cities of Provinces  
Large Cities  
Great Towns  
Small Towns  
Villages  
Archbishopssee  
Bishopssee

N.B. The Kingdom of Norway is subject to the King of Denmark but the Government of Bahus was yielded to the Swedes by the Treaty of Roschild in 1658, as was also a part of Drontheim, called Herdal by the Treaty of Copenhagen in 1660.



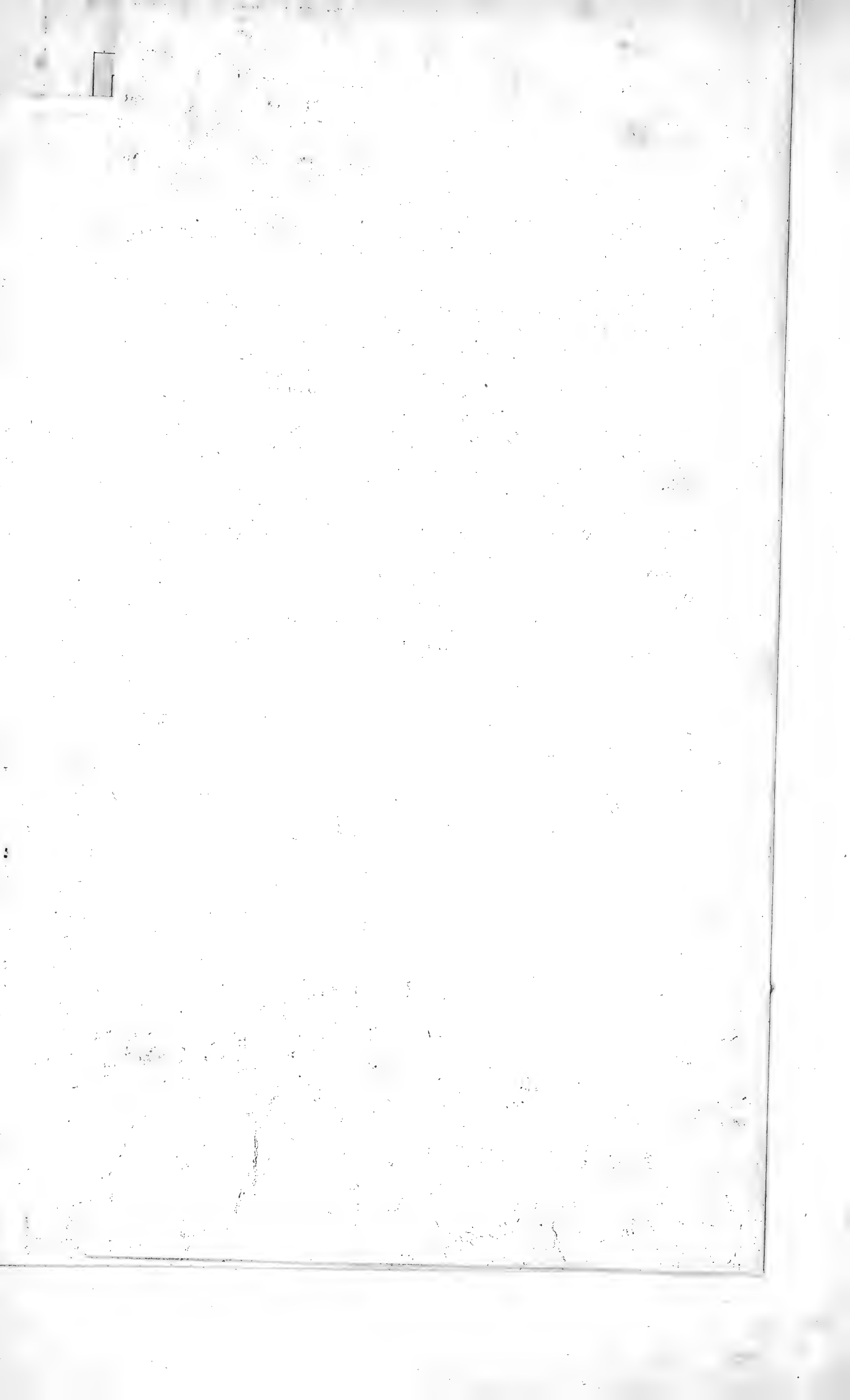
An accurate MAP of the KINGDOM of NORWAY, containing General Government or Dioceses, Viz. Aggerhuys Bergen Drontheim Wardhuys and Bahus.

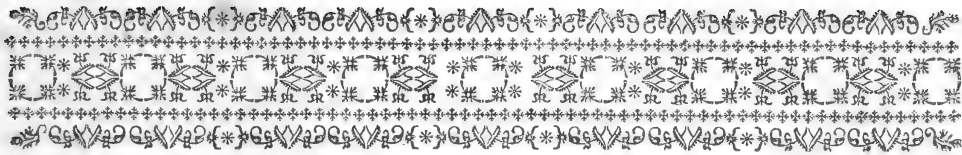
By John Baptiste Homann, Corrected by Martin Habner, Professor of History at the University at Copenhagen.

A Scale of Miles  
English Miles 60 to a Degree  
Common Norway Miles 10 to a Degree  
German and Danish Miles 15 to a Degree  
Large French League or an hours journey









T H E  
 N A T U R A L H I S T O R Y  
 O F  
 N O R W A Y.  
 P A R T I.


---

C H A P T E R I.

Of the Air and its Phenomena.

- SECT. I. *Of the climate of Norway, and diversity of the atmosphere in general.*  
 SECT. II. *Of the day-light and length thereof.* SECT. III. *Of the aurora borealis, and sea-light, in the night.* SECT. IV. *The winter very mild and seldom severe, or lasting, on the west side.* SECT. V. *The wise and bountiful design of providence in this.* SECT. VI. *Natural cause of it.* SECT. VII. *The winter most severe in the eastern parts.* SECT. VIII. *Cautions and preservatives against it.* SECT. IX. *Violent heats in summer, and their causes.* SECT. X. *False notions of foreigners concerning the air of Norway.* SECT. XI. *The property of that air with respect to health and sickness.* SECT. XII. *Rains, and a humid air, on the west side.* SECT. XIII. *Advantages arising from thence agreeably to the designs of the Creator.* SECT. XIV. *Difference of weather in countries contiguous to each other.* SECT. XV. *Deep snows, especially on the mountains, together with the advantages and detriment thereof.* SECT. XVI. *Regular and irregular winds.*

S E C T. I.

 HE air, together with the light, warmth, humidity, and other properties thereof, varies much more in Norway than in most European countries. This may well be concluded, without personal experience, from the vast extent of the country, of 300 Norway-miles \* from cape Lindesnaes south,

The climate, and various atmosphere of Norway.

\* The common miles of Norway are computed to be about one fourth larger than a German mile, at which rate they are near equal to five or six measured English miles.

to the north cape on the borders of Ruffia. Thus M. Ramus, so juſtly celebrated for his hiſtory of the civil tranſactions and antiquities of his country, in the Chorographical deſcription of Norway, computes its length from Lindefnaes in the dioceſe of Chriſtianſand, which lies in 58, or, more preciſely, in 57 degrees, 47 minutes latitude, to the north cape at the extremity of Finmark, at 71 degrees and half, to be in a direct line, or through the air, 202 miles and a half, but he finds that the circuit acroſs the mountains and vallies, or by water, from one cape to the other, increaſes it to above 300 miles, and its breadth from the frontiers of Sweden weſtward, to cape Statt near Sundmoer, in 21 degrees of longitude from the Canaries, is 65 miles, but from thence, the country becomes gradually narrower towards the north. I have no particular knowlege of that part of Norway called Finmark, which lies in the frigid zone, or near the polar circle. It is the country of Norway, properly ſo called, at the extremity of the temperate zone, that is here to be chiefly treated of, and it is the air of this country, which I affirm to vary conſiderably in reſpect of the degrees of heat and cold, light and darkneſs.

## S E C T. II.

Day-light  
and length  
of the day.

In this and moſt other points, I ſhall chiefly regulate my obſervations by the horizon of Bergen, not only as it happens to be the place of my reſidence, but as its latitude, being 61 degrees 15 minutes, with reſpect to north and ſouth, lies nearly in the middle of Norway \* properly ſo called. The longeſt day at Bergen conſiſts of 19 hours, the ſun riſing at half an hour paſt two, and ſetting at half an hour after nine; and the ſhorteſt is only ſix, the Sun not riſing before nine, and ſetting at three.

The gradations of the increaſe and decreaſe of day-light, are clearly exhibited in the following table.

\* At Bergen in Norway, Geſſe in Sweden, Nyſtaad in Finland, and Wyburg in Carrelia; as being at parallel diſtances from the equator, the days and nights are of the ſame length. But at Bergen it is noon at the very ſame inſtant, as at Utrecht in Holland, Marſeilles in France, and Conſtantine in Africa.

The

The rising and setting of the Sun in the horizon of Bergen, in the 61st degree of latitude, according to Pontanus.

January.			February.			March.			April.		
	Sun rises	Sun sets		Sun rises	Sun sets		Sun rises	Sun sets		Sun rises	Sun sets
1	8 $\frac{3}{4}$	3 $\frac{1}{4}$	4	7 $\frac{1}{2}$	4 $\frac{1}{2}$	2	6 $\frac{1}{2}$	5 $\frac{1}{2}$	5	4 $\frac{3}{4}$	7 $\frac{1}{4}$
11	8 $\frac{1}{2}$	3 $\frac{3}{4}$	10	7 $\frac{1}{4}$	4 $\frac{3}{4}$	6	6 $\frac{1}{4}$	5 $\frac{3}{4}$	11	4 $\frac{1}{2}$	7 $\frac{1}{2}$
20	8 $\frac{1}{4}$	3 $\frac{1}{4}$	14	7	5	11	6	6	16	4 $\frac{1}{4}$	7 $\frac{3}{4}$
25	8	4	19	6 $\frac{3}{4}$	5 $\frac{1}{4}$	16	5 $\frac{3}{4}$	6 $\frac{1}{4}$	21	4	8 $\frac{1}{4}$
30	7 $\frac{3}{4}$	4 $\frac{1}{4}$				21	5 $\frac{1}{2}$	6 $\frac{1}{2}$	26	3 $\frac{3}{4}$	8 $\frac{1}{4}$
						26	5 $\frac{1}{4}$	6 $\frac{3}{4}$			
						31	5	7			
May.			June.			July.			August.		
	Sun rises	Sun sets		Sun rises	Sun sets		Sun rises	Sun sets		Sun rises	Sun sets
1	3 $\frac{1}{2}$	8 $\frac{1}{4}$	2	2 $\frac{1}{2}$	9 $\frac{1}{2}$	4	2 $\frac{3}{4}$	9 $\frac{1}{4}$	4	4 $\frac{1}{4}$	7 $\frac{3}{4}$
7	3 $\frac{1}{4}$	8 $\frac{3}{4}$	7	2 $\frac{1}{2}$	9 $\frac{1}{2}$	9	3	9	6	4 $\frac{1}{2}$	7 $\frac{1}{2}$
12	3	9	13	2 $\frac{1}{2}$	9 $\frac{1}{2}$	14	3 $\frac{1}{4}$	8 $\frac{3}{4}$	14	4 $\frac{3}{4}$	7 $\frac{1}{4}$
22	2 $\frac{3}{4}$	9 $\frac{1}{4}$	18	2 $\frac{1}{2}$	9 $\frac{1}{2}$	19	3 $\frac{1}{2}$	8 $\frac{1}{2}$	19	5	7 $\frac{1}{2}$
28	2 $\frac{1}{2}$	9 $\frac{1}{2}$	23	2 $\frac{1}{2}$	9 $\frac{1}{2}$	24	3 $\frac{3}{4}$	8 $\frac{1}{4}$	25	5 $\frac{1}{4}$	7 $\frac{3}{4}$
						29	4	8	31	5 $\frac{1}{2}$	6 $\frac{1}{2}$
September.			October.			November.			December.		
	Sun rises	Sun sets		Sun rises	Sun sets		Sun rises	Sun sets		Sun rises	Sun sets
4	5 $\frac{3}{4}$	6 $\frac{1}{4}$	4	6 $\frac{3}{4}$	5 $\frac{1}{4}$	5	8 $\frac{1}{4}$	3 $\frac{3}{4}$	6	9 $\frac{1}{4}$	2 $\frac{3}{4}$
14	6	6	9	7	5	11	8 $\frac{1}{2}$	3 $\frac{1}{2}$	12	9 $\frac{1}{2}$	2 $\frac{1}{2}$
19	6 $\frac{1}{4}$	5 $\frac{3}{4}$	14	7 $\frac{1}{4}$	4 $\frac{3}{4}$	17	8 $\frac{3}{4}$	3 $\frac{1}{4}$	17	9 $\frac{1}{4}$	2 $\frac{3}{4}$
24	6 $\frac{1}{2}$	5 $\frac{1}{2}$	20	7 $\frac{1}{2}$	4 $\frac{1}{2}$	28	9	3	22	9	3
			25	7 $\frac{3}{4}$	4 $\frac{1}{4}$						
			31	8	4						

A particular herein observable, is, that as in the beginning of the year the day-light increases with remarkable celerity, so it decreases at the approach of winter in a like proportion. In the middle of February, I have been able to read without difficulty at six in the morning, which at the same hour in October was not possible; the cause of this, being manifestly the inclination of the earth towards the poles, needs no further explanation.

In the summer nights the horizon, when unclouded, is so clear and luminous, that at midnight one may read, write, and do every kind of work as in the day; this I have often experienced, even when age had brought me to the use of spectacles. Christian V. during his stay at Drontheim, in June, 1685, used to sup at midnight, without the use of lights. In the district of Tromsø, which is properly the extremity of Norway, towards the islands of Finmark, the sun is continually in view in the midst of summer, and is observed to circulate day and night round the north pole, contracting its orbit, and then gradually enlarging it, till at length it

Clearness of the summer nights.

it leaves the horizon, so that in the depth of winter it is invisible for some weeks \*, and all the light perceived at noon is a faint glimmering of about an hour and half's continuance, which, as the sun never appears above the horizon, chiefly proceeds from the reflection of the rays on the highest mountains, the summits of which are seen more clearly than other objects. However, this glimmering is not the only light with which the inhabitants of these northern provinces are provided for their fisheries, and other employments, in the open air. The wise and bountiful creator hath afforded them all possible assistance, for these and other purposes. Besides the moon-shine, which by reflection from the mountains, is exceedingly bright in the valleys and creeks, these northern people, as well as the peasants, and fishermen in the diocese of Bergen, when their day-light is contracted to six hours, find considerable relief from the north-light called *Aurora borealis*; it often affording them all the light necessary to their ordinary labors, especially as it is now both here and elsewhere more frequent and extensive than formerly.

## S E C T. III.

The *Aurora borealis*, and sea-light in the night.

This light in the air †, which here, and in Sweden, is known by the name of *Værljos*, *Lysnar*, *Lyfanigar*, and *Lottetskien*, is elsewhere generally called the north-light, as usually issuing from the north, and its appearance mostly known to the northern people, although the real cause of it be here, no less than in other parts, a very dark problem, and involved in many uncertainties. I shall the less presume to advance any thing as certain and decisive on this head, since counsellor Ramus, a native of Norway, and a celebrated mathematician, hath not ventured to

\* Even in these provinces, where, I have already observed the shortest day to consist of six hours, there are also some few parts so inclosed within the steep mountains, that for several months they cannot see the sun's disk, though its beams are visible to them. As I passed in my visitation through the island of *Laerdahl*, the master of the house where I lodged, assured me, that he, and his next neighbour, were blessed with the sun's appearance, not more than four months of the whole year, namely, from the middle of April, to the middle of August, yet others, at the distance of but a quarter of a mile, where the valley widens, could see it as usual. This must be the condition of some of the inhabitants of the Alps, especially about *Monte Cenis*, which separates Savoy from Piedmont, where, in some valleys, though the sun does not appear during the whole winter, yet the inhabitants enjoy the necessary day-light.

† In England, and especially in the north parts, where the north light is also well known, it is by reason of its desultory motion, called *Morrice-dancers*, *Merry dancers*, and *streamers*.

account for it, and nothing of this kind is found even in the *Acta Societatis Hafniensis*, T. I. N<sup>o</sup>. IX. and T. III. N<sup>o</sup>. VI. where it might most naturally be expected, as these pieces contain historical and physical accounts of this very light, with several plates, representing the observations made in many parts of Europe, on the various figures of the northern lights. In the year 1741, the son of Capt. Heitman, another great naturalist of Norway, published a posthumous piece of his father's, on the heat of the sun, &c. and likewise on the north-light. His system of the means and manner by which the sun influences our earth, and the other planets, at such an immense distance, through the æthereal expanse, is certainly very ingenious, but I am cautious of subscribing to it, as it opposes the doctrines of Newton, Wolfius, Reinbeck, and other eminent mathematicians; yet his thoughts on the north-light, as he was both a person of great erudition and experience in philosophy, deserve to be here inserted along with other conjectures, especially as he there treats of another phenomenon analogous to it, namely, a sea-light, or a luminous appearance in the water, called by the Norwegians, *Moor-Ild*. His sentiments on both these subjects are as follows: " Thus it is observed in the frigid zone, that the force which gives motion to the high winds, is there at its utmost height; insomuch, that sometimes the lower region of the air, which is filled with nitrous vapours, is whirled round, and then is formed that light in the air called the *Aurora borealis*, or north-light: yet this is a light void of heat, and of the same nature with that light which the people of Norway call *Moor-Ild*, and takes its rise nearly from the same cause as the *Moor-Ild*, the latter proceeding from an agitation of the salt-water in a dark night, which hath been every year observed by the herring-fishermen, when towing their nets along in a calm; for the sea appears in a kind of flame, as far as the nets reach, whereas before the motion of the nets, not the least glimpse of light was discernible. In fresh-water lakes, there is no such flame apparent; it being formed by the saline particles, which upon a motion of the sea begin to sparkle, and cause an effulgence \*. The same has been likewise observed in

\* This sparkling fire in the sea, shall be treated of more at large in chap. 3. sect. 8. when we come to treat of the sea, to which it properly relates.

navigation: for as in a dark, calm night, the course of a fish is perceivable by a long and increasing track of light upon the water, so the water, behind a ship under sail, appears luminous to a considerable distance.

It is not at all times, however, that this igneous effulgence is to be seen in the sea; but it frequently happens at an approaching alteration of the weather, and on the change of the winds to south-west, when the saline particles of the sea are thrown into a kind of fermentation. In like manner, the northern-lights do not always appear, but only at particular seasons, when the saline corpuscles of the air are agitated by a natural fermentation. But the proper rationale of this fermentation, and ascent of the saline particles of the sea and air, is best known to naturalists, whose researches turn on things of this nature. However, it is a general observation among expert northern navigators, and the fishermen who live along the coast of Norway, that when the north-light mostly appears to the westward, it is a prognostic of a south-west wind; which confirms the opinion of the naturalists, that some regions of the air, as well as of the sea, abound in saline corpuscles more than others, and these, at certain times, create a ferment, and diffuse a light through the air. Although this most frequently presages the above-mentioned change of weather, yet, there is often a considerable interval, before the change actually takes place. It is however certain, that the cold regions of the air contribute greatly to the change and boisterousness of the weather; particularly when the north-light has a copper-tinge, a violent storm, at west and north-west, may be certainly expected, though the weather may for a week after continue favorable to navigators, before the storm comes on. Of this I have seen many instances.

In this fermentation of the air the cold is abated, and if it extends so far as to rarify the air of the atmosphere, this is called mild weather: And when, by the elevation of the inferior air, it is the more compressed against that region, which is saturated with nitrous exhalations, so that the wind in the inferior air sets the lower part of the cold region in some motion, this causes those corruscations in the air, which are called the north-light. In those years, when the winter is unusually severe, these nor-



thern lights are seldom or ever seen; the air being too far oppressed and condensed by the intensity of the cold, to force itself upwards against the nitrous region, and communicate to it that motion which produces the north-light, before the lower air again expands itself by fresh fermentations."

Thus far M. Heitman, whose observations in some measure confirm the general opinion of its being a kind of fulgur brutum, or lightning without thunder; consisting, as lightning generally does, of inflamed sulphureous particles, but burning with much less vehemence. Dr. Nicholas Boerner, in his *Physics*, chap. xi. p. 284. is expressly of this opinion, viz. "that the north-light is nothing but saline, sulphureous vapours, kindled in the upper air, by a change it undergoes in autumn, spring, and at other times, when the sun has not power sufficient to rarify and disperse these sulphureous particles." Or, to make use of the words of the celebrated Wolfius, "it is a substance as yet immature for lightning; of which he treats in a particular dissertation; or, an imperfect tempest, as he calls it in sect. 335, of his *rational Reflections on the works of nature*." This opinion may be further corroborated by the following circumstance: Some persons of credit, who live in this country, have assured me, that these *Fulgura spuria*, are not always without a crack or sound, for in a glaring north-light, and calm weather, a distinct sound has been heard, with an explosion in the air, like the sudden breaking of the ice. Another opinion concerning the north-light, is, that it is no more than a mere refraction, or reflection of a flame issuing from certain volcanoes, which, in favour of this conjecture, are supposed to lie beyond Greenland, near the north-pole. But this position is too weak to build any thing on, or to be generally admitted. There are many, however, who consider the northern lights only as a mere reflection, or reverberation, tho' not from the flame of any volcanoes, but from the sun itself, when far below our horizon it meets with some evaporating clouds, at such a height as to be within the contact of the sun's beams in their ascent.

This is the opinion, for which Dr. Ventzky of Prentslau declares in his third publication of *Miscellaneous Observations*, drawn from the celebrated M. Euler's enquiry into the north-light,

light, which is to be found in the second part of the *Histoire de l'Academie*. This hypothesis requires the following concurrence of causes; first, there must be vapours in the upper regions of the air; next, some clouds of that sort, and these at a vast height, and in the north; and they must not only emit vapours, but be illuminated and irradiated by the sun, when it is invisible to us; and of consequence, the sun must be visible to us at such time, if we stood as far above the horizon as the said clouds. And lastly, there must be a north-wind in the same upper region of the air to set it in motion, and to give a disposition to the figures, which so suddenly change their appearance. It is possible, that the experience of posterity may suggest something more probable.

The author's opinion concerning the north-light.

If I may be allowed, or expected, to add any opinion of my own on this problematical subject; it may perhaps be not more improbable than what hath been already alleged, if we admit, that the original cause of the north-light lies in the electricity of the ethereal air; and, consequently, that it has existed at all times, and in all places, tho' not visible to us, without a concurrence of such concurrent circumstances and junctures, as I shall here exhibit. It is not above twenty years, since the electrical experiments have become generally known, and as they have excited the attention of all lovers of natural knowledge, they have likewise filled them with hopes, that this discovery would open a way to the solution of many more mysteries in nature. I flatter myself with the same expectation; but the first experiment of any importance, which has occurred to me, relates to this very point of deducing the north-light from the electrical, feeble, and subtile fire of the air, which by means of the more rapid circumvolution of the globe on its poles, or axis, excites a more vehement concussion, or agitation, in the air of the northern climates, and thus displays the electricity of the ethereal air most conspicuously in those parts. I was first led into these reflections sometime since by a conversation with a friend of mine, a very ingenious naturalist, who shewed me a remarkable passage in the *Bibliothèque Britannique*, Tom. XXI. P. II. pag. 336. where, among other extracts from the *English Philosophical Transactions*, is part of a piece of M. Desaguliers, intitled, A Dissertation

tion concerning electricity. The scope of his demonstrations is something different, viz. to shew the true cause of the ascent of rain-water, and the power by which it remains floating in the air, which is at all times much lighter than water. But as the investigation of one truth often proves introductory to another, so in this passage the writer seems to direct us to a clearer insight into the origin and nature of the north-light. I shall therefore insert so much of that passage here, as relates to our purpose. In order to apprehend his meaning, we must recollect with the learned writer, that Mr. Du Fay's observation, "that there are two sorts of electricity," is proved by observations and experiments; and that the electrical bodies of a vitreous electricity mutually repel one another, whilst they attract those of a resinous electricity; also that those of a resinous electricity repel one another, and attract those of a vitreous electricity.

"I suppose, says Dr. Defaguliers, particles of pure air to be electric bodies always in a state of electricity, and that vitreous electricity.

1st, Because particles of air repel one another without touching, as has been deduced from experiments and observations.

2dly, Because when the air is dry, the glass-tube rubb'd (or only warmed) throws out its effluvia, which the air drives back to the tube; from whence they dart out anew, and so move backwards and forwards with a vibratory motion, which continues their electricity.

3dly, Because the feather made electric by the tube, and darted from it, keeps its electricity a long time in dry air; whereas when the air is moist, the moist particles, which are non-electrics, floating in the air, and being attracted by the feather, adhere to it, and soon make it lose its electricity; which also happens even to the tube in a little time.

From this consideration it will be easy to account for a famous experiment of the late Mr. Hauksbee, which is this:

Having pump'd out all the air from a glass-globe, he caus'd it to turn on its axis very swiftly by means of a rope with a wheel and pulley; then rubbing the glass with his hand during its motion, there appear'd a great deal of light of a purple colour within the globe, without any light or attraction observ'd on the outside of the glass, which is observ'd when the air has not been pump'd

out. Then turning the cock so as to re-admit the air gently into the globe during its motion, the light was broken and interrupted, diminishing gradually, till at last it appeared only on the outside of the glass, where it was accompanied with attraction. Does it not appear that the external air, by its electricity, at first drives back the electric effluvia of the glass, which go then to the inside of the globe, where there is the least resistance? For we observe that as the air comes in, it repels the electric effluvia, that go inwards no longer when all the air is come in. If the fact be so, as the experiment shews, is not my conjecture proved, viz. that the air is electrical?

In the reverend and learned Dr. Hales's *Vegetable Statics*, several of his experiments shew, that air is absorbed, and loses its elasticity by the mixture of sulphureous vapours, so that four quarts of air in a glass-vessel will, by the mixture of those effluvia, be reduced to three. Will not this phenomenon be explained by the different electricity of sulphur and air? The effluvia of sulphur, being electric, repel one another: and the particles of air, being also electric, do likewise repel each other. But the air being an electric of a vitreous electricity, and sulphur of a resinous electricity, the particles of air attract those of sulphur, and the *Moleculæ* compounded of them, becoming non-electric, lose their repulsive force."

The judicious reader may, of himself, apply this passage to the north-light; and perhaps, by a mature discussion of it, strike out clearer ideas of that phenomenon, than I can develop, who only undertake to set down a few things, which have occurred to me.

The terrestrial globe, together with its atmosphere, may be considered as the glass-globe of the electrical machine. Upon the air being exhausted, and the globe whirled about with velocity, there appears within it a purple flame, and this is the colour of the north-light; now this flame must be the æther igneus. Upon the re-admission of the circumambient air, especially if thick and damp, the acid or æthereal fire within is expelled, and hovers for some time on the upper surface of the glass, till, mingling with the air, it is dissipated, and extinguished. Now this seems to intimate to us, that the north-light observed towards the pole or axis of our earth, does not only owe its origin to the æther, but is the very æther itself; which, being aggregated, gives way to the

the

the impression of the humid air, and mounts and floats above the clouds, whose motion likewise renders it variable. Whilst the air is dry, whether by the frosts of winter, or the heats of summer, no north-light is to be seen. But upon the weather's beginning to break, either by a thaw after a sharp frost, or by rains after heat, and when these are preceded by damp exhalations, the north-light breaks forth, as a certain prognostic of the change. For these exhalations have then nearly the same effect in the atmosphere, as the aforementioned intrusion of the air into the glass-globe; propelling upwards the lighter æthereal air, when for a time it appears like the purple coloured fluid issuing from the glass-globe, till it is dissipated, or mixed again with the ambient air. It is further observable, that the air near the poles is far more dense, and compresses more vehemently, as being repelled with less violence, than that in the middle of the globe, where the centrifugal power operates with a more direct and immediate force\*.

Should this hypothesis, as indeed I know of no better, be approved by superior naturalists, it will afford a very ready solution of a difficulty, which clogs all other systems; namely, It is well known among those people of the north, who have the best opportunities of observing these lights in the air, that the general region of them is not due north, but rather in the north-west quarter of the sky. Is it asked how this comes to pass? it may be answered, that as the ignorant imagine the sun daily to run from east to west, the more intelligent know, that, on the contrary, the earth daily revolves from west to east; thereby on one side a rarefaction may be caused in the air, and on the other a condensation. It is likewise observable and consonant to this, that from sun-set to a little past midnight, the Aurora borealis is strongest, and to the best of my knowledge not towards the morning. Let others who have more sagacity, investigate this matter farther.

I must ask the reader's pardon for dwelling so long on this particular, though I am not without apology, since it appertains

\* In locis polaribus vis centrifuga nihil de gravitate aeris tollit, cum in eam sub Æquatore directione perpendiculari agat. Quamobrem pondus atmospheræ supra æquatorem debet apparere minimum, prope polos maximum; quemadmodum observationes baroscopice quoque evincunt. Petr. van Muschenbroek, *Elementa Physicæ*, Sect. 1116.

to the phenomena of Norway, and of the north in general, and these are more immediately my subject, than natural philosophy in general; which, however, I flatter myself, may, in some respects derive some benefit from this work.

I cannot forbear adding, that the northern peasant, tho' he does not arrogantly pretend to inform us, what the *Aurora borealis* is, yet he is not so stupid as to imagine it to be some tremendous portent of wars, the deaths of princes, and other direful events, which has been the interpretation of those lights, even till modern times, when they have been seen in France, Spain, and Italy, and been made use of to circulate a general terror and anxiety, very seldom as the omen of any happy event. Yet a signal instance of the latter happened even in Norway, and no longer ago than the middle of the last century; which, among other things shews, the north-light formerly not to have been so very usual even here, or not so well known. But one extraordinary circumstance is, that the person who interpreted this light as an omen, was a professor of physics and mathematics, who, in the middle of the last century, was firmly persuaded of having seen an apparition, which probably was no other than the north-light; and this apparition revealed to him the important and happy revolution, which, within three years after happened in this kingdom, when the government was changed into an independent hereditary monarchy\*.

\* The authority to which I can appeal for this, is in J. H. Feustking's *Gynæceum Hæret. Fanat. p. m. 658.* in these words: "A few years since died here in Kemberg, in his 92d year, our learned and experienced physician Ambrose Rhodes, who, whilst professor of natural philosophy and mathematics, at Christiana in Norway, predicted from the appearances which were observed at Eger in Norway on the 1st of August, 1657, that Frederic III. who was then on the throne of Denmark, would be invested with an unlimited sovereignty, and that the kingdom before elective, would be thus made hereditary. An account of his thoughts and inferences from this phenomenon, he drew up in writing at the pressing request of Jens Bilkens, chancellor of the kingdom. I must own that some particulars in it are very astonishing, and appear so even to the celebrated C. S. Schurtzfleisch, who in his Latin letters (which are very well worth reading) mentions it in the following manner. "Memorable est in vicino oppido Kembergensi, medici et mathematici non inglorii iudicium de ostento quodam in Norvegia viso, unde præfagivit Regi Daniæ Frederico III. plenam et hæreditariam potestatem, quod eventus An. 1660, approbavit."

## S E C T. IV.

From the light, which is the first object of perception in the air, I proceed to its heat and cold. The degrees of these, as already observed, are very various; and this not only from the annual vicissitudes of the seasons, but in the very same season, and on the same day, the variableness is greater than strangers can well conceive to be possible. I shall the rather enlarge on this remarkable phenomenon, as it is a manifest argument of the power and wisdom of the Creator, and his tender care of his creatures\*. On the east-side of Norway, or from the frontiers of Sweden to Filefield, that is in most of the provinces, the winter's cold generally sets in about the middle of October, lasting till the middle of April, or, according to the computation of the peasants, from Calixtus's day to that of Tiburtus, when the air is here as cold as at the extremity of the temperate zone. The waters are frozen to a thick ice, and the mountains and valleys covered with snow. I shall hereafter produce some instances of the extreme intenseness of the cold. However, this is of such importance to the welfare of the country, that, in a mild winter, the peasants, who live among the mountains, are considerable sufferers; for, without this severe frost and snow, they can neither convey the timber they have felled, to the river, nor carry their corn, butter, firs, and other commodities, in their sledges, to market-towns, and after the sale of them, carry back the necessaries they are there supplied with. I must here mention a wonderful instance of the divine œconomy, which I should hesitate to commit to writing, did not thousands of witnesses confirm it: when the

The winter mild in the western parts, and the frost seldom severe or lasting.

\* According to the common opinion, and even the position of Ptolemy's *Geogr.* cap. viii. countries equally distant from, or equally near to, the line, should have equal cold and heat. But that this is not the case is proved by Professor Käestner in his *Explanation of Dr. Halley's method of calculating heat*, Hamburg Magazine, tom. iii. p. 426; but none of the instances adduced by him are so clear as what might have been brought from the natural state of Norway, had he been acquainted with it. The true cause of the want of heat, in the northern countries, is the vicinity of that part of the globe to the pole; the solar rays there falling more obliquely and, consequently, not acting with such force as near the line, where they fall in more perpendicular directions. The other cause, most current among the ignorant, namely, the greater distance of the sun, can occasion no great difference, if we consider the vast distance of the sun from the earth, consisting of so many millions of miles; for this being considered two hundred miles, more or less, cannot be supposed to affect us, at least not in any degree; especially as we know, that the sun is farthest from the earth in the height of summer, and nearest it about Christmas; but it then descends so very low, that, from the obliquity of its rays, it gives little or no heat.

winter rages with such feverity in the east parts of Norway, that all the fresh-waters are frozen, the lakes and bays are open on the west-side, though lying in a direct line with the eastern parts; the air is misty and cloudy, and the frosts seldom are known to last a fortnight or three weeks. In the center of Germany, which is two hundred leagues nearer the line, the winters are, generally, more severe, and the frosts sharper than in the diocese of Bergen, where the inhabitants often wonder to read in the public papers, of frost and snow in Poland and Germany, at a time when no such weather is felt here. The harbours of Amsterdam, Hamburg, Copenhagen, and Lübeck, are frozen ten times oftener than ours; for, with us, it is generally known not to happen above two or three times in a whole century; and, which is yet more extraordinary, when the harbour of Bergen is frozen, the Seine, at Paris, may be concluded to be in the same condition. Thus our winter at Bergen is so very moderate, that the seas are always open to the fishermen and mariners; and it is seldom that the bays and creeks are froze over, except those that reach far up the country towards Filefield, where they meet with keen and dry north-east winds, blowing from the land \*. In the other parts, towards the western coast, it is but seldom, as has been before noticed, that any hard winters, or lasting frosts, are heard of, though travellers, who perhaps come from, or beyond, Filefield, about 20 miles eastward, say, they have had severe winters there for some time past.

## S E C T. V.

The wife and bountiful design of providence in this,

This amazing difference is, according to the wise design of the creator, requisite for the well-being of the country; for, as I have already observed, the eastern parts require a hard winter for their subsistence, and a mild winter, and open weather is no less necessary to the western parts, where the inhabitants chiefly main-

\* As far as the 80th, or 82d degree, the north-sea continues open and navigable both winter and summer, except in the creeks, and along the shore, in Finmark, Iceland, and Greenland, from whence the large masses of ice being detached, are seen to float in the sea. In winters of extraordinary feverity, when the Baltic is frozen up, the swans, which otherwise are not to be classed among the birds of this country, transmigrate hither, to procure themselves water, which they are there deprived of; and I have been credibly informed, that the few swans, which are still to be seen at Syndfiord, and other places within my diocese, were refugees from Denmark, in the years 1708 and 1740.



tain themselves by their sea-fisheries. It is expedient for them, that the sea should be open during the whole winter; for from the middle of January, the herrings, skates, cods, &c. are chased by the whales towards the coast, when the peasants rally out in multitudes from the creeks, into the sea, and thus get a great part of their subsistence for the whole year; and several thousands of the northern peasants of both sexes, during January and February, pass the whole day upon the open sea, and only towards the approach of night betake themselves to their huts, in the neighbouring islands. This mildness of the winter is likewise necessary for curing and salting the fish, which in frosty weather would be spoiled and useless: for if the fish should freeze as soon as taken out of the water, the salt could not penetrate into them, being obstructed by the ice; and if carried home and kept till a thaw comes on, they soon become flaccid and putrified at the bone, and consequently unfit for use; a sufficient evidence of the absolute necessity, and great benefit of a mild winter, to the western parts of Norway.

Winter-  
fishery.

## S E C T. VI.

If it be farther asked, how is it possible that nature can regulate herself by the necessities of the inhabitants, and give them frosts and thaws at the same time, under the same climate; I answer, that it is no miracle, but purely the result of the primary natural disposition of things. It is a general rule, that Norway, from its situation on the globe, must have severe winters; but the exception from this rule lies here; the western side of Norway lying nearest to the great ocean, its air must be sensibly milder, the intense frost being warded off by the constant intermixture of warm exhalations, vapours, and mists from the sea, which in the lower region of the air, insensibly dissolve the almost imperceptible sharp particles of ice that proceed from the north pole, or congeal in the cold upper regions of the air, but are melted as soon as they fall in with the warm vapours of the sea. That these exhalations abate the natural rigour of the weather, cannot be doubted; but whether they arise from warm springs at the bottom of the sea, continually boiling by means of the central fire; or if this be denied, whether this ebullition be the effect of lesser subterraneous

The natural  
cause thereof.

vulcanoes resembling the mountainous ones on the surface of the earth, it would not be pertinent here to determine.

Woodward's  
Theory of the  
earth, p. 39,  
and 52.

Without entering into a prolix examination of these things, I shall only quote Woodward's opinion on this head, "There is a nearly uniform and constant heat disseminated throughout the body of the earth, and especially the interior parts of it; the bottoms of the deeper mines being very sultry, and the stones and ores there very sensibly hot, even in winter and the colder seasons; and 'tis this heat which evaporates and elevates the water of the abyss, buoying it up indifferently on every side, and towards all parts of the globe." And, page 151, he adds, "That the water resident in the abyss, is, in all parts of it, endued with a considerable quantity of heat; and more especially in those parts where these extraordinary aggregations of his fire happen. So likewise is the water which is thus forced out of it, inasmuch that when thrown forth and mixed with the waters of wells, of springs, of rivers, and of the sea, it renders them very sensibly hot." Thus far Woodward.

It is sufficient that experience shews the countries remote from the sea, tho' nearest to the line, to be subject to the hardest winters; and that among those countries which are actually encompassed by the sea, none have less of the winter, that is of the frost, ice, and snow thereof, than those which lie open to the great sea, or the main ocean, the mild and warm effects of its exhalations being mostly felt in winter, when they are most copious, having a large range in the atmosphere, which at that season is less crowded by the solar rays. It is almost inconceivable, tho' certainly true, that the winter of the year 1708, so remarkable for its destructive severity, was not remarkably different at Bergen from the other common winters. And so likewise Ireland, Scotland, and the Orkneys, all situated towards the western ocean, felt little of the extraordinary rigor of that winter; of which more particular accounts may be read in the English philosophical

\* To remove all doubts, which those who are not experimentally acquainted with this singular providence may entertain of it, I shall confirm it by the following passage from Derham's physico-theology, B. 4, C. 2. Of which defence against the most severe cold, (namely the warm exhalations from the sea,) we have lately had a convincing proof in 1708, when England, Germany, France and Denmark, and even the more southerly parts of Italy, Switzerland, and other countries, suffered severely; whereas

lofophical tranfactions \* N<sup>o</sup> 324. In relation to this truth, a certain French geographer muft be allowed to be in fome meafure right, though the affertion feems very fingular and unheard of, “ L’air eft fort doux en Norvegue, de forte que la mer n’y gele point, et la neige y eft fort peu de tems.” i. e. In Norway the air is very temperate, fo that the fea is never frozen, nor does the fnow lie long upon the ground.

Les Etats,  
Empires et  
Princip. du  
Monde, par  
Sieur D. T. V.  
x. p. 777.

## S E C T. VII.

The aforefaid writer probably had his account from fome Norwegian, who was acquainted only with the weft fide of the country; for the description by no means agrees with moft of the provinces, and efpecially all the eastern parts near Filefield. The intenfenefs of the winter is there extreme, particularly in the levels on the mountains; which are far more expofed to the feverity of the air than the valleys, and reach towards the upper region of the atmofphere which is much colder than the lower, as the reflexion of the fun is there lefs powerful, and the air more rarified. The ufual degree of the cold, efpecially in January and February, may be fufficiently conceived from hence, that the largeft rivers, with their roaring cataracts, are arrefted in their courfe by the froft, and the very fpittle is no fooner out of the mouth, than it is congealed, and rolls along the ground like hail. A farther instance of the extreme cold, not unworthy notice, efpecially as it raifes aftonifhment in foreigners, is, that no fooner has a horfe dropped his excrements on the ice, than the balls of horfe-dung move and leap on the ground: The caufe of this is the fudden change from heat to cold, which occafions a violent conflict, when the fharp and denfe air penetrates forcibly into the lighter, and expels it \*.

The cold  
moft fevere  
in the eastern  
parts.

It

whereas Ireland and Scotland felt very little of it, more than in other winters. But it feems this is what ordinarily befall thofe northern parts, particularly the iflands of Orkney, of which the learned Dr. Wallis gives the following account, “ there the winters are generally more fubject to rain than fnow; nor doth the froft and fnow continue there fo long as in other parts of Scotland; but the wind in the mean time will often blow very boifteroufly, and it rains fometimes, not by drops, but by fpofts of water, as if whole clouds fell down at once, &c.” Likewise M. Lucas Debes, in his description of the Ferro iflands, affirms, “ that the winters there are not very cold, though they lie in the 62d degree of latitude; the frofts feldom lafting longer than a month, and are withal fo moderate, that no ice is ever feen in an open bay, nor are the fheep and oxen ever brought under cover.

\* Of the fmall and piercing darts of ice, as they are called, which are particularly fhut forth by the north, and north-eaft winds, the very learned Jens Spidberg, deaf

on

It is necessary to use great caution in providing against such weather, in which an unexperienced or unguarded traveller may be deprived of his nose and ears; it is particularly expedient to cover the face, and for this the most approved method is to fix a piece of gauze under the hat; which both retains the warm effluvia issuing from the body, and keeps off the piercing air better than would be imagined; allowing at the same time sight enough, to guide the horse. Some now and then rub their faces with a handful of snow, as enabling it, better than by warmth, to bear the cold; but in long journeys over the highest mountains, where the air is much keener, and the winter quite insupportable, no precautions would avail, without the convenience of the mountain-Stoves, as they are called, which are kept at the public charge for the repose and warmth of travellers. Of the necessity of these, and the impracticableness of the mountainous and desert parts in the winter-months, the Swedes afford a melancholy instance; and as the like is scarce to be found in the history of any age, I shall here give a short account of it. In February 1715, seven thousand, some say nine thousand Swedish soldiers, together with their officers, perished in a most deplorable manner on the mountain of Ruden, or Tydal, which separates Jemtland in Sweden, from the Diocese of Drontheim, without any other enemy than the extreme cold; which surprised them on the ridge of that mountain, where nobody could come to their assistance. The affair happened in this manner:

Several thousand Swedes perished in the frost.

In the autumn of the preceding year, this corps, which then consisted of ten thousand men, had penetrated into the country, and appeared to have a design upon Drontheim; thereby to clear a passage for the main army, which was at that time under the command of the king in person, and had made an irruption near Frederickshall, and to facilitate its farther progress into

of Christianland, bears the following testimony, "It cannot be denied, that the air towards the north is in winter-time full of innumerable particles of snow and ice, which are frequently so large and sensible, that when the wind blows fresh, they dart into the face, and give it a pain like the smart of a switch; and they are not only felt, but when the cold is very intense, and the sun shines clear, these particles may be visibly discerned, glittering like so many little Stars." And this accounts, why the north wind is of a more penetrating coldness than any other, that in its passage, it sweeps along the snowy mountains of the north, and thus becomes impregnated, as it were, and loaded with these particles, or lamellæ niveæ et glaciales, which among us occasion such a sharp cold. Supplem. II. Acton. Vratisl. Art. 4. p. 71.

Nor-

Norway, but the gallant Danish general Budde, who, in the last invasion of the Swedes, had done his country great service, made such good dispositions against the enemy, that they laid aside their design of attempting Drontheim, and cantoned themselves among the peasants, till the beginning of the year 1719; when, though late, they received an account by express of the unexpected death of the king before Frederickshall. Soon after, advice coming that Count Sponeck was in full march towards them, they had orders to make the most precipitate retreat over those desert and lofty mountains; but just as they had reached the frontiers of their own country, they were overtaken by a storm, accompanied with an extreme cold, and much snow, which so bewildered them, that the greatest part of them perished. A company of two hundred Norwegian sledge-men, under major Emahus, which followed them close to observe their retreat, found the enemy dead upon the mountains; some sitting, some lying, and some in a posture of prayer, all frozen to death. How great their distress must have been, may be judged from their cutting their muskets to pieces, in order to burn what little fuel they could raise from them. The generals Labarre and Zoega were among the dead, but the generals Adlerfeld and Horn barely escaped with their lives; and of the whole body only two thousand five hundred, or, according to others, no more than five hundred, survived this dreadful catastrophe\*.

## S E C T. VIII.

From this accidental digression I now return to the cold in Norway, which led me into it, and shall shew, according to my design, that the wise and provident Creator has not left the inhabitants of these cold climates without a greater variety of preservatives against the weather, and more means of keeping themselves warm, than other countries afford. 1. The country abounds in large forests, affording them plenty of fuel, and timber for building strong houses: 2. The wool of the sheep, and the furs and

Preservatives  
against the  
cold.

\* Whoever considers this great loss, which was inflicted by the hand of God, and the many other defeats, particularly at Mofs, Frederickshall, Ringerige, Crogtoven, Lid, and elsewhere, cannot but wonder that Mr. Nordberg, an historian of great merit in other respects, should in the second part of his life of Charles XII. affirm, that the war was carried on with equal advantage, or rather on the Swedish side with considerable superiority. "Par là les forces de Charles XII. furent assez égales à celles de son ennemi. Il fit trois campagnes en Norvegue avec un avantage assez égal et même avec supériorité." An assertion without the least truth. But the circumstances of this last war were never rightly understood by foreigners.

skins of wild beasts, furnish them with warm linings for their clothes, and good bed-covering: 3. The innumerable flights of wild fowls supply them with down and feathers: 4. The mountains themselves serve them for fences, and retreats; their summits, indeed, are uninhabitable, on account of the cold and barrenness; but the shelving sides, or interstices, especially where the exposure does not face the north or east, enjoy weather that is at least supportable. But above all it is to be observed, that even the cold air occasions warmth in the bodies of men; its compressive force rendering the body more firm and compact, and fortifying it against external injuries: and thus the natural warmth is by the closeness of the pores repelled towards the inner vital parts, and more particularly concentrated in the stomach; so that the northern people are known to digest smoked flesh, dried fish, and other food hard of digestion, better than any other nations\*. In short, in this as in every other respect, the œconomy of the Almighty towards his creatures is full of wisdom, goodness, and harmony. I can even venture to affirm, that were the Norwegians tempted by any thing to change countries with the Italians, the winter's cold would not be the motive to the exchange: for this is the least of their complaints; and, for my own part, I cannot say that the cold here has ever been more painful to me than in other parts.

## S E C T. IX.

Great heat in  
summer, and  
its causes,

After this account of the cold in Norway, it is proper to speak of the heat. Here I apprehend many would interrupt me with a question, whether it is ever actually warm in Norway? I answer from experience in the affirmative: for in the best summer-months it is not only warm, but sometimes to such a degree, that according to the vulgar phrase, *it may make a raven gape*; and persons, who have been born and educated in hot climates, might fancy themselves suddenly transported home. Particularly in this present year 1750, on the last day of July and first of August, the

\* That the particles of the atmosphere are more condensed near the poles, and consequently press more forcibly on bodies, than in the expanded and rarified air of hot climates, insomuch that 1010 pounds of copper at Drontheim, weigh only 1000lb. at Rouen, is demonstrated and explained by J. Rohault, *Traité de Physique*, Tom. II. P. III. C. III. § 9. where he also shews, that the mercury rises higher in Denmark and Sweden, than in France and Italy.

heat was so excessive, that M. Haar, minister of Waas, and formerly chaplain in the East Indies, declared he hardly ever felt it hotter in that country; tho' I am inclined, partly, to impute this, to the much stronger impression made on the mind by present sensations, than by the recollection of any past\*.

The cause of these violent heats (which however are but of short duration) may be partly derived from the valleys inclosed within high mountains, where the rays being compressed and confined, the reverberation of them from all sides must occasion such heats, as were the summer of any considerable length, would bring grapes, and other fruits and vegetables, to the like exquisite perfection as in other countries. The second, and which is the chief cause, is, that in the midst of summer, the sun's absence below the horizon, is so short that there is no night, at least no total darkness; consequently neither the atmosphere nor the mountains have time to cool, but often retain part of the heat of the preceding day; and if the general opinion of naturalists, that a mineral soil emits sulphureous and hot effluvia, be true, this may come in for a third cause of the heat, the country being almost every where full of mines.

There cannot be a more decisive proof of the summer's heat Early harvest. in Norway, than that several vegetables, and particularly barley, grows up and ripen within six weeks or two months; which, besides the great profit, is of very considerable advantage to the peasant, as it enables him to begin threshing when he will, which he is often under a necessity of doing very early. It is said, that the same happens in Sweden within a much shorter space, namely, 36 days; but this I mention only on the authority of the celebrated Olaus Magnus, who has the following passage concerning it, "Quoad Aquilonares hoc certum est, in plerisque agris Westrogothorum, parte objecta meridionali plagæ, hordeum spatio 36 dierum a semine projecto maturum colligi; hoc est, a fine Junii ad medium Augusti, aliquandò celerius" †. It is certain that, where nature has but a short time to work, she accelerates her opera-

\* It appears, that in the countries lying far north, the great length of the days often renders it warmer than with us. Wolffius's *Physic.* Part. II. Chap. VIII. p. m. 180.

† On my visitation in the year 1750, I saw at Indwigen, in Nordfiord, barley ripe and mowed on the 29th of July. Of the vegetables of the country I shall hereafter speak more at large.

tions,

tions, and acts with greater energy. In our northern gardens, it is indeed seldom that the winter fruits can attain to their proper maturity; but those of the summer keep pace with those of Denmark, where strawberries, cherries, and the like, are ripe so early as the first of July. Counsellor Carbiner has more than once had ripe figs, in his garden at Bergen; and in Christiana, M. Wilster, an apothecary, has several years brought grapes to a degree very little short of perfect maturity.

## S E C T. X.

Falſe notions  
of foreigners  
concerning  
the air in  
Norway.

From theſe inſtances, I preſume, foreigners will have the candor to admit, that however natural and laſting the cold may be in Norway, yet the impartial Sovereign of nature has not ſo far neglected us, but that we may paſs our days agreeably; eſpecially, if it be conſidered, that what the climate of Norway denies, it abundantly compenſates in other advantages; of which I ſhall hereafter have occaſion to adduce ſeveral proofs, partly in praiſe of the Creator, and partly for the information of foreigners, and the confutation of that very falſe idea, which, even in my own country, men entertain of the rigorous and unpleaſant climate of Norway; which is ſeldom mentioned but with a commiſeration, of which it is not a preſſing object. But no conceit is more abſurd than that of Simon Patrick, a native of England, and in other reſpects a writer of great learning and worth; who repreſents a Norwegian as one who had never ſeen a roſe (which is a very common flower in Norway) and was afraid to touch it, imagining it to be fire \*. Who would have thought, that an European could be ſuch a ſtranger to Norway, and an Engliſhman too, who ought to know it better from the equality of its ſituation with the North of Scotland, this being nearly in the ſame degree of latitude with the biſhopric of Bergen; not to mention the frequent

\* This paſſage occurs in a piece of his, in which he inſtructs and cautions a friend againſt lukewarmneſs and apoſtaſy from the Chriſtian religion. His words are to the following import: "The poor Norwegian, as hiſtory informs us (I aſk what hiſtory?) was afraid at the firſt ſight of a roſe to touch it, being apprehenſive of burning his fingers; he was aſtoniſhed that trees, as he imagined, ſhould produce flames and fiery flowers; he moved his hand towards it to warm himſelf, but could not be prevailed with to touch it; but as he was over-joyed to be delivered from ſuch a groſs miſtake, being afterwards brought not only to touch but to ſmell this innocent flower, which at firſt appeared to him to be a fire, ſo it will be with us, &c." And juſt ſo would it have been with the worthy author, had it been his fate to have come to Norway, and there to have ſeen the roſes growing every where.



voyages of the English to Norway, some of whom are very well pleased to settle there; or the constant voyages of Norwegians to England, who, if the trade would turn to any account, might furnish the English abundantly with rose-water.

## S E C T. XI.

If the air of Norway be considered in respect to health and sickness, particularly as to the natives, it will appear to be pure and salubrious from many instances of persons of a very advanced age, especially among the peasants. Mr. Jonas Ramus, in his Chorographical Description of Norway, is of opinion that a more healthy air in summer is hardly to be met with any where than in Norway; though I must confess, that this varies according to the situation of places. The most pure and kindly air, I judge to be, in the middle of the country, especially about the mountains, where the inhabitants have hardly an idea of sickness, unless it be hereditary, or contracted by intemperance. It is reported, though I will not warrant the truth of it, that in the vale of Guldbrand, which is regularly visited by very salubrious gales, especially in the parish of Læssøe, there are persons of such an extreme age, that from a lassitude of longer life, they get themselves removed elsewhere in order to die the sooner; that farther in the province of Valdres, and in other parts, meal may be kept many years without being worm-eaten, or any other damage; which amounts to a demonstration of the purity, wholesomeness, and dryness of the air. But on the other hand, on the sea-coasts, and here in Bergen, I account the air to be less healthy from the abundance of humid and saline vapours from the sea, especially in winter, when the mists and rain are more frequent than clear frost; yet with the asthmatic, this moist air agrees better than a finer or drier, which may be more piercing; a proof of this I had in an intimate acquaintance of mine, who found his breast and lungs considerably eased after his arrival from Denmark, which I attribute to the air here, as more humid than that of Copenhagen, tho' the latter in winter is not without frequent fogs and rains\*.

Quality of the air in respect to health and sickness.

\* This may possibly be the cause that a very dry air hurts consumptive persons, by too strong a tension of their weak lungs, and by detaching and carrying off too

Generally speaking, experience, the best instructor, shews the air in most places of Norway to be pure and salubrious, and even more so than in many other countries, as persons of regular lives, all circumstances duly considered, arrive in these parts to the utmost extent of the age of man. I shall produce many memorable instances of this hereafter, when I shall particularly treat of the inhabitants of the country; and the same is evident from the yearly bills of births and burials, which, by his majesty's order, I transmit to Copenhagen. I shall here only mention, that next to their plain and simple food, the Norwegians owe their permanent health and longevity more to their air, than to medicinal arts and precautions; for medicine is very little understood here; the little we know of it is learnt from foreigners; and whilst the lawyers are never at a loss for clients, practitioners in physic meet with very few patients.

It is only in the chief towns that physicians are commonly to be found, and there they are established with a public salary, as Provincial physicians, and in general have but very little employment; even in this populous city of Bergen, among thirty thousand souls, (some indeed carry the number higher, but I believe they are mistaken) there is but one, or at the most two physicians, and these are found sufficient; whereas in a German city of the same extent, such as Lubeck, or Rostock, ten or more may find an ample support. Norway, indeed, cannot be said to be entirely exempt from pestilential distempers, for the Black-death, known all over Europe by its terrible ravages, from the years 1348 to 50, was felt here as in other parts, and to the great diminution of the number of the inhabitants. I likewise find accounts of great numbers of people of all ranks, swept away in the years 1618, 1630, and 1654. But the piercing colds of winter, and the storms seem to be a divine disposition for purifying the air, and stopping the progress of an epidemical disease. The like good effect is produced by thunder and lightning, which dissipate the sulphureous and nitrous particles in the air. It is a general notion; that storms and tempests are more violent here than else-

much of the inward moisture. The most robust persons suffer sometimes by this extreme ficcity of the air. The people of the eastern coast of the Red-sea are sometimes obliged to sprinkle water up the air to moisten it, and when they breath, hold a wet cloth to their mouths. Hamburg Magazine, B. 11. page 38.

where,

where, but in this I am inclined to think the sound imposes on our judgment, the noise and echo of winds and thunder being much louder among the lofty mountains than in the plain country. This difference I have found, that sometimes, tho' seldom, thunder is heard at Bergen in the winter, doubtless because that season of the year is, as hath been already shewn, attended with very little pure cold, but rather with a raw air, and of course with more rain than snow and hail.

## S E C T. XII.

As to the humidity of the air, rains being so unusually frequent at Bergen, and for some miles round, as to be proverbial among the Dutch; I apprehend the cause may be derived not only from the high mountains, there being in other parts of this diocese much higher mountains, with much less rain, but rather from the many narrow valleys and creeks in the neighbourhood, which become soon filled with their own evaporations as well as those from the sea, and these are not soon dispelled by the wind or sunshine, except in the heat of summer, when the sun has sufficient power to draw them up into the open air above the summits of the mountains, there to be separated and dispelled by the wind. Whereas, on the contrary, in other seasons of the year, when the power of the solar rays is weakened, the vapours cannot rise to any considerable height above the horizon\*. Hence we see them hover like rain-clouds, and rest not only on the tops of the mountains, but often hang about their sides, insomuch, that the top may be clear, and the middle of the declivity be covered with these rain-clouds: and when travellers or peasants happen to be surprized among them, which is a common case, their sight is so obstructed, as not to see their way; they breathe with difficulty, grow wet and cold, and un-

Rains and  
damps on the  
west-side.

See a view of  
Bergen, fig. 1.

\* If the old opinion, of the sun's exhaling the vapours upwards, should not prevail against the new, which holds, that small vesicles of air are impelled upwards, and being lighter than the lower air, float in it. Wolff's *Physic*. Cap. v. Sect. 247. Yet my conjecture on the rain at Bergen still keeps its ground; for the eminent naturalist just cited, allows that the winter-vapours are heavier, and as such sink lower into the atmosphere, or cannot ascend so high, the teguments of their small vesicles being then condensed, so that the effect produced is the same. His words are, Sect. 254, "The vapours being rarified in the heat of summer, they then rise to a great height in the air:" Again, "the grosser vapours, having a thick tegument and a small cavity, are heavier, and remain in the lower region of the air, this being of a more dense nature than the upper; thus in winter, the vapours being condensed by the cold during that season, remain in the lower parts of the atmosphere.

less

less they speedily reach the open air their health is endangered. These rain-clouds are like sponges swelled with water, and on any pressure, or when driven against the mountains, discharge their waters in heavy rains, and cause that constant humidity \*. On this account, indeed, Bergen is not so pleasant to live in as several other places in Norway are; and the women, who seldom have the use of coaches, are in all weathers obliged to wear a woollen or filken black veil over their heads, whilst the men secure themselves from the rain by rain-hats, made like umbrellas.

## S E C T. XIII.

The wise disposition of Providence in this.

As one of my chief views in this work is, according to my shallow knowledge and insight into the harmony of things, to shew that all the works of God are full of loving kindness, I must here observe that the moist and rainy weather, which prevails all over the western coast of Norway, but chiefly about Bergen, is excellently adapted to the necessities of the country, and in several respects contributes to its welfare. First, it is of great benefit to the countryman in his corn and hay-harvest, for the thin surface of earth on the high rocky mountains, which line the western coast, requires a great deal of moisture, otherwise it would not yield even grass, and much less would it produce corn; it would literally answer to the parable of the seed, *which fell on a rock and withered away, because it lacked*

\* Edward Dapper, in his voyage to Africa, page 56—58, thus accounts for the heavy rains in Ethiopia, which cause the famous inundations of the Nile, “the fun-beams, says he, exhale the vapours; afterwards the middle air, which is cold, and adheres to the cold summits of the mountains, dissipates the clouds which the north-wind has aggregated, or discharges them in rain.” What this writer attributes solely to the north-wind, professor Kraft, on better grounds, judges to be an effect of that attraction which is most discernible on high mountains, but in some measure affects the whole globe, which revolving like a wheel, has an attractive power: His words are these, “I have often observed in fair weather the high mountains to be covered with a thick cloud, as soon as there is the least haziness in the air, and from hence it is that in mountainous countries, the rains are both more frequent and more violent, than in a champain country.” The single cause of this, is, the attraction of the mountains, for the attractive power of large mountains, may in some measure be proportionate to the attractive power of the earth; therefore when neither of these attractions are impeded in their operations, and the proportion is adjusted, the direction in which a particle floating in the air moves towards the mountain may be determined. This is proved from the ingenious observation made by Mess. Bouger and de la Condamine, on a mountain called Chimborazo, in Peru, when their plummet was by the mountain drawn aside from its perpendicular direction. The springs found on the tops of mountains are produced by this attraction; and as many particles of matter as are seen in connection, so many instances are there of this attractive power. Reflections on the Newtonian and Cartesian Systems, by professor Kraft, in Actis Soc. Hafniens. Tom. III. p. 284. sq.

*moisture*. Thus these deficiencies, in respect to vegetation, are supplied by the rain which continually moistens the little earth we have. Indeed, in most places, the rain would not be sufficient without the masses of snow on the tops of the mountains, or when these are wanting, the many pieces of standing-water on their ridges, which sometimes by subterraneous courses, sometimes by gentle streams, thoroughly water the earth, and afford a constant refreshment to the parched sides of the mountains. Whereas, in the vale of Guldbrand, and other parts where the rains are not so frequent, and the mountains not so steep or thick set as here, the water is conveyed into the fields by trenches, and thrown upon the cultivated ground with shovels, as is practised in Persia, and other hot countries. A second benefit of this wet and rainy weather, especially when calm withal, and chiefly in spring, is, that it gives fishermen the advantage of larger draughts; for in clear and open weather the herrings, skates, &c. which are every year taken here, and in Nordland, to the amount of many tons of gold, are generally shy of venturing near the shore, and into the bays, but in rainy or hazy weather, the fishermen meet with numberless shoals of them.

## S E C T. XIV.

In the preceding articles, I have shewn the diversities of the northern air, in respect to cold and heat, frost and thaws, both in those provinces which are equidistant from the line, and in the east and west parts of the country, and it is the same in respect to fogs and rains. Field usually makes a very remarkable difference betwixt us and our nearest eastern neighbours, in the province of Valder, insomuch that when it is foul weather with them, with us it is fair, and so vice versa. The course of the air, when impelled against the highest mountains, is checked, for it seldom ascends to pass over them. Of this I was an eye-witness in my return from Christiania in 1749, when travelling on the 24th of June over the highest part of those mountains, I observed thick rain-clouds hanging over Valdars, which we had left, and where it had been rainy for several days; upon the hill we had a little fleet, but in the valley of Laerdale, where we arrived at our descent from the mountain, the weather was

Diversity of  
weather in  
parts contiguous  
to each  
other.

warm and dry, and had been so for a considerable time before. But this case is common to Norway, with other mountainous countries, which I shall here take occasion to illustrate by some parallel instances: We are informed \*, that whilst the summer season lasts, from cape Comarin to the coast of Coromandel, it is winter during that time, from Diu to the aforesaid cape. In like manner, on one side of the mountain called Gates, or Ballagates, the fields are clothed in their verdure, and the country appears in all the gaiety and luxuriance of summer; whilst, on the other, it is covered with fogs and rain. Something similar to this is also observed from Ormus to Cape Rofalgate, where the ships may harbour and enjoy the most delightful weather imaginable, whereas beyond the cape they meet with hard gales, rain, &c. A further account of these remarkable particulars the reader may meet with in Paul van Caarden's voyage to the East Indies.

## S E C T. XV.

Deep snows on the mountains; their advantages and detriment.

From the consideration of the rain, I am naturally led to speak of the snow, especially as both are the same in substance, differing only in texture and figure, which depend on the warmth or coldness of the air, as I myself experienced in coming down a mountain, where, till about half way, we had snow, but a little lower the flakes of snow were melted into drops of rain. Now in Bergen these snows seldom lie long; for it must be a very extraordinary winter, when the sledges are used a fortnight successively; whereas in the other northern provinces the snows are very thick and lasting, and lie long; and on the summits of the mountains, or in the cavities far north, which are inaccessible to the sun-beams, the snow lies throughout the whole year; and the contrast betwixt the lively verdure of the fields and the glistering whiteness of the mountains is not disagreeable. The upper region of the air, (where the atmosphere being thinner than near the earth, the sun-beams are less intercepted and reverberated) is always extremely cold, even in the warmest countries. This is the case in Switzerland and Italy, and even in Persia, according to Taver-

\* Concerning this I refer the reader to the northern voyages with Mr. Robert Boyle's Instructions for travelling with advantage, where we find the above observations on the difference of the air in hot countries at a small distance from each other.

nier; and in Ethiopia, according to Ludolph and others, the tops of the mountains, as here in Norway, are covered with snow both in winter and summer. In some places far north the undermost lays of snows, by long lying, turn to a bluish ice, called in our language, *Jisbrede*, which sometimes slides down to a considerable distance over the lower grounds, to the no small detriment of the peasants. In *Justedale*, which lies high among the mountains, one of these *Jisbreds*, detached from an ice-mountain, destroyed some farm-houses and lands, and further damage is yet to be apprehended\*.

However, both here, and in other parts, especially in the eastern, the snow is highly beneficial to the peasants, partly in forming a passable road in the winter, without which all traffic and intercourse with the champaign country would be cut off; yet here they are often obliged to put on their *Truvers* † (a kind of snow-shoes, broad and round, made of withies, for keeping the feet from sinking in the snow) and sometimes they must even be put on the horse's hoofs. Another contrivance for travelling on the snow are *skie*s, or long and thin pieces of board, and so smooth, that with them the peasants wade through the snow with all the expedition of ships under full sail. In war time a corps of 4 or 600 of these *skie*-men are very serviceable as light troops, for reconnoitring, procuring intelligence, or for any sudden enterprize; no place being inaccessible to them, and they being always sure of coming upon the enemy by surprize. The snow also improves the fertility of the soil, and is supposed in spring, to answer the ends of manuring; it likewise serves for a fence and shelter against severe colds and winds. When the snow is not off the ground early enough in the spring, for the husbandmen to begin the work of that season, they spread over the snow a kind of rich black mould, which, in a few hours, entirely dissolves it. But, on the other hand, the peasants are often sufferers by the snow, which, when it falls in great quantities, and lies

\* *Nix jacet et jactam nec fol pluviazq; resolvunt.  
Indurat Boreas perpetuamq; facit.* OVID.

† Some entertaining accounts of these *Truvers*, or snow-shoes, which in other parts are also called *Rackets*, are to be seen in *Hennepin*, Tom. II. cap. 27. and in the several histories of the countries and nations of America.

long on the ground, destroys thousands of young trees: likewise when it falls late in the spring, and after the trees begin to put out their leaves, which, however, happens very rarely, some trees, and especially the alders, wither and die; a prognostic of which is the leaves turning to a brownish hue. It has been known, and particularly in the year 1742, many people were eye-witnesses of it, that a species of black maggots fell along with the snow, whereby extreme damage was done to the grain and pasture. But among the mischiefs occasioned by snow, the greatest are the Snow-falls. Snee-skreed, or Snee-fond, that is, when a mass of snow, falling from a precipice, overwhelms both men and cattle, oversets boats in the lakes\*, and, which is but too often the case, demolishes cottages and houses, insomuch that even whole villages are born down, crushed, and totally destroyed; but this last calamity is rather an effect of the incredible violence of the wind, driving on the masses of snow, when they begin to give way, than of those masses themselves, houses having been seen to fall some seconds before the snow had reached them. These snow-falls are of two kinds; the first, when in frosty weather the light snow is suddenly set in motion, and in its progress scattered over all the country, which the peasants call Meel-fond, and is not attended with such damages as the other, which is known by the name of Kremfond; these happen, when by the mists and rains in spring, the snow, which by moisture is consolidated, falls in a mass, which, tho' slower in its descent, leaves stronger impressions on the sides of the mountains, bearing down every thing in its way, even the strongest new buildings.

Snow-falls.

A whole parish lost in the snow.

By a snow-fall of the first kind, a whole parish, situate between Quindherret and Hardanger, a century or two ago (for the precise time is not certainly known) was wholly covered, and so re-

\* These accidents it seems are not unknown in Switzerland: "Souvent il tombe du haut des montagnes des masses de neige prodigieuses, que les allemands appellent Lawinen et les Romains Avelanches, qui tombant avec impetuosité, font un bruit aussi grand que celui du tonnerre. Non seulement elles enveloppent gens et betes, mais elles entraînent et emportent des arbres et des maisons entieres. Le poete Claudien qui vivoit au iv. siecle, nous apprend qu'on connoissoit deja ces choses de son tems :

———— multos hausere profundæ  
 Vasta mole nives, cumque ipsis sæpe juvenis  
 Naufraga candenti merguntur plaustra Barathro;  
 Interdum subitam glacie labente ruinam  
 Mons dedit, &c. Delices de la Suisse, Tom. 1. p. 27.

manis



mains to this day; the snow which had thus fallen from the adjacent mountains, not dissolving the year after, was further gradually increased, and hardened by lying, the situation being high, and hemmed in among the mountains. Many lives were lost in this disaster, of which no memorial would remain, were not the truth of the story, which was at first much doubted, still confirmed by several utensils, as scissars, knives, basons, &c. brought to light by a rivulet which runs under the snow; an incontestable evidence that this spot was formerly clear of snow, and inhabited. Such disasters, God be praised, are seldom heard of; and the perpetual snows which always cover the summits of the highest mountains, may, notwithstanding, be justly said to be rather necessary and advantageous, than absolutely detrimental; and thus may be reckoned among the blessings of providence. Experience silences all cavils on this head, the snow being known, by age, to become so firm and indurated, that a horse's shoe makes no impression on it; and as it yields very gradually to the sun, it is thus sparingly dispensed for the daily benefit of the inhabitants beneath, except in a damp southerly wind, which penetrating the snow, the mountains pour down whole torrents. These accumulated snows thus become constant springs for promoting vegetation in the champaign grounds, and when these springs are too early exhausted, the grass and corn inevitably suffer, and are sometimes withered for want of moisture. Another convenience of these currents, and likewise of their impetuous descent, is, that they drive great numbers of little mills, every farm-house\* having its own mill. A third advantage of them redounds to the oxen, cows, sheep, and goats, which in summer are turned out upon the mountains for pasture, where they are so extremely tormented with the heat, with gnats and musketoës, that they run about regardless of danger, and in this frenzy many have lost their lives, falling down the precipices; this lays the peasants under a necessity, where no snow is near, of building sheltering places for the cattle; but if any snow-hill be in sight, the cattle move towards

\* In the eastern provinces, which are less mountainous, the people not only labour under a great scarcity of water, but in several parts, the mills are at a great distance; but this evil might be remedied, if hanging wheels were used instead of fixed ones; there are but few places where a sufficient water might not be found for those, which require so much less than the others now in use.

it, knowing they shall there be relieved by the coolness, which it communicates to the air. A further remarkable instance of divine goodness in this case is, that just as far as the snow melts, and runs from the mountains, the very best grass is observed to grow, and in the greatest plenty; its warm covering, so far from being an obstruction, both forwarding and improving it. Such are the effects of infinite power, wisdom, and goodness, even where at first sight they are least expected.

## S E C T. XVI.

Regular and  
irregular  
winds.

It will not be improper to subjoin some account of what I have collected in my annual circuits, by my own experience and that of others, relating to the winds in Norway. The winds which most prevail here at Bergen, and all along the western coast, are the south, south-west, and south-east, which last is usually called the Land-South. And in most winters, when on the other side of the mountain called Filefield, the north, the east, and north-east winds usually bring on and continue the hard frosts, they seldom last a fortnight on the north of the mountains called Nordenfield, towards the sea. Here we generally enjoy a southerly wind, which together with the warm vapours, are, as I have already observed, subservient to the provident end of the Creator, in keeping open the sea for the fishermen, and warding off the severity of the winter, of which we have less than they who live in the middle of Germany; altho', in exchange, we have rain and foul weather, which is not so pleasant as a clear frost. It is seldom that the wind here is directly west, it is generally south-west, or south-east, which fills the creeks with the sea-vapours in abundance, which afterwards, floating among the mountains, become rain-clouds. A north, north-west, and especially a north-east wind, are little known here; but when they blow, they verify the words of Solomon, *the north-wind driveth away rain.*

The east winds, which frequently come from the shore, and drive the watry clouds out of the creeks, are besides very temperate, and so are accounted the most salubrious winds, and are the more welcome to us, as usually causing dry weather, but on the contrary, southward, beyond the mountains, they commonly bring rain. The inhabitants of the large province of Nordland, who,  
in

in not less than two hundred barks, visit Bergen every year, at the fair and the affizes, and most of whom have upwards of an hundred leagues to sail, are often favoured with the north and south winds, like regular trade-winds, though not so infallibly to be depended on. The wind which is, with the greatest certainty, expected towards harvest, is the north-east, called *Hambakke*, which name it derives from the melting of the snow at that time from the summits of the mountains; but there is also here, in summer time, and in a clear sky, another kind of a daily trade-wind along the coast, and in the creeks, known by the general appellation of *Soelgangs-Veyr*, the weather of the sun's course; and in *Northland*, *Soelfar-Vind* (the wind of the sun's course) the wind then following the sun. *Nic. Hartsoeker* attributes this alternative to the sun, which in the morning heats the coast, and consequently rarifies the air, but on its declension in the evening, the air cools, and consequently recovers its gravity, and being thereby become heavier than the sea-air, its own weight carries it thither, and occasions a kind of ebb and flood in the air, the fluid parts whereof undergo the same agitation as water\*. A little before noon in the summer time, comes on a west, south-west or north-west breeze, and holds till towards midnight; it is called *Hafgul*, (sea-cooler) as coming from the sea, and indeed it tempers the heat, which otherwise in the creeks and narrow valleys, would be insupportable. Opposite to this is the *Landgul* (land-cooler) or easterly breeze, which beginning at midnight, or two hours after, continues till within two hours of noon, when it usually ceases; towards harvest the land-cooler begins to get the ascendant, and the sea-cooler to relax, and then the former is called the *Korn-moen*, i. e. *Corn-mother*, bringing a sensible warmth along with it.

Besides these regular winds, the coast is subject to *Field-flagers* Sudden forms. (mountain squalls) or gusts from the land, by which, without the

\* To these vicissitudes of the summer winds, which are in some degree regular, is applicable what *Aristotle's* disciples write of the *Etesiaë*, which were known in Greece, "Quod ad *Etesias* attinet, causam harum ajunt esse resolutionem nivium in hyerboreis suppolaris regionis montibus, quæ uti à solis radiis verberatæ atque in exhalationes resolutæ, interdiu ventorum suppeditabant materiam, ita noctu dicta nivium resolutione cum sole quibusdam quasi induciis constitutis, ventos partiter filere cogebant." *Athan. Kircherus in mundo subterr. P. I. L. iv. Sect. II. cap. III. p. 196.* Likewise *Dr. Arbuthnot* in his *Treatise of the Effects of the Air upon the Human Body*: "The winds, when strong, correspond to each other; but, when they relax, they differ, as this proceeds from local causes. It is also clear that the *Alpine snows* influence the weather in *England*, as well as that at *Zurich*."

utmost

utmost precaution a vessel is suddenly lost in the security of fine and calm weather; for these blasts issuing in a narrow and violent current from the clefts of the mountains, or from the vallies, behind a cape, or from the points of the high mountains, and being violently impelled against an opposite mountain, this reverberation causes a kind of hurricane in the air, which, for a time, may deprive the unwary of his sight\*.

Hurricanes  
and whirl-  
winds.

But the real hurricanes, or whirlwinds, which arise, though seldom on the open sea, are known to be extremely dangerous to ships, by their sudden and rapid vortex, which throws the sea at a small distance into such an agitation, that the water in drops flies up into the air like smoke. The common people, from an old superstition, call them Ganskud, conceiving that a necromancer, of Fin-lapland, has then sent out his Gansfly, as they call it, to do mischief; but the true cause of the hurricane, is the sudden explosion of a wind confined and agitated in a thick cloud, which being impetuously discharged upon the water, the surface is separated, and rises up into the air like dust or smoke, and hence, amongst us, this hurricane is very properly called Roeg-flage, i. e. smoke-squall.

Water-spout.

I shall take this occasion to mention another wonderful phenomenon of the air, which likewise proceeds from dense, and violently agitated clouds, not as any thing new and unknown in the warm climates, but as being, however, somewhat rare, and by experience very well known in the north. I mean the water-spout, or Trompe de mer, of which a credible person, who spent his younger years at sea, gave me the following account; that on the wide sea, betwixt Shetland and Norway, he and his crew, to their great astonishment, observed, in clear weather, and an easy breeze, a cloud gradually descending towards the water, and in the shape of a funnel, or rather a spiral snail-shell, attracting from the surface of the sea a column of water of a considerable diameter; and this suction continued all the time they were in sight. Some hours after came on a very violent rain, which, unquestion-

\* Whether it be possible that a man and horse may be carried forward by such a whirlwind, and driven back by another stronger wind meeting him, without any damage to either man or horse, must rest upon the authority of a very credible writer, Mr. Lucas Debes, in his Description of the Island Faro, p. 97.

ably consisted of the water, which that spiral cloud had a little before exhaled from the sea\*.

Filled with astonishment at the many and stupendous works of the Almighty (especially in the air and its phenomena) I close this subject with his own words in the xxxviiiith chapter of Job, verse 24, &c. *By what way is the light parted which scattereth the east wind upon the earth? Who hath divided a water-course for the overflowing of waters, or a way for the lightening of thunder? To cause it to rain on the earth where no man is, on the wilderness, wherein is no man? To satisfy the desolate and waste ground, and to cause the bud of the tender herb to spring forth? Hath the rain a father? or who hath begotten the drops of the dew? out of whose womb came the ice? and the hoary frost of heaven, who hath gendered it?* Conclusion.

CHAPTER II.

Of the soils and mountains of Norway.

- SECT. I. *Of the soil of Norway in general.* SECT. II. *Several kinds of soil; as mould, clay, sand, turf, mud, &c.* SECT. III. *Two kinds of mountains.* SECT. IV. *Extensive chains of vast mountains, as Koelen, Seveberg, Dofre, and Filefield.* SECT. V. *Many lesser mountains in all the provinces.* SECT. VI. *Deep and long cavities, like secret passages, in some mountains, with conjectures on the origin of them.* SECT. VII. *Effect of the deluge in dissolving and softening substances, which are at present of the hardest kind, but appear manifestly to have been soft heretofore.* SECT. VIII. *The origin of mountains, rocks, and smaller stones, deduced from the foregoing argument.* SECT. IX. *Detriment of so many rocks and mountains to Norway.* SECT. X. *Advantages of them, according to the wise and bountiful design of the Creator.*

SECT. I.

THE diversity which I have shewn in respect to the air, light, heat, cold, rains, and winds of Norway, is no less observable in the various soils of the earth, in the mould, sand, Of the earth and soil of Norway in general.

\* Mr. Lucas Debes, p. 12, of his Description of Ferro, says, that such a cloud, amongst the Greeks, called Typhon, and among the northern people Oes, for it absorbs the water, making a deep vortex in the sea, drew up some lafts of herrings, and afterward dropt them on Kolter, a mountain about twelve hundred feet in height, page 14. He imagines that it is these Oeses which in Norway attract stones, flesh, mice, and, what is more remarkable, lambs, and afterwards throw them down again; of which a further account will be given in its place.

rocks, stones, and mines. These I shall treat of according to my ability, till some superior pen gives a more perfect account of them, to which this imperfect Essay may prove an inducement.

As the mountains of Norway, in general, consist of rocks, intermixed with quarries of marble, free-stone, sand-stone, slate, mill-stone, &c. which, towards the sea, are almost stripped of earth, by the force of the winds, and in the creeks, and further in the country, are covered indeed with earth, but not more than a few yards deep, and very often less, one would be apt to think, that below this slender covering, the whole kingdom of Norway is but one solid stone, only of a different nature, figure, and height. But the error of such a conclusion is evident, not only from the many deep creeks running up the country, but fresh-water lakes, swamps, and fens, in some of which, though founded with lines of several hundred fathoms, no bottom has ever been found. And to this may be added, that however mountainous and craggy Norway in general is thought to be, yet it affords many champaign well cultivated tracts of six, eight, or ten leagues, and more in extent, as Jedderen, the lordship of Nedenaes, Hedemark, and other parts, which are a considerable exception to the general rule.

## S E C T. II.

The soil of  
several kinds.

The soils, as in other countries, are very different here, consisting of a black mould, sand, loam, chalk, gravel, turff, mud, &c. In many places, when the inhabitants are digging deep for a spring in dry ground, all these kinds are found lying over each other in unequal strata, and three or four successions of them. The black mould which generally lies uppermost, is exceedingly fine and mellow, and fit for all sorts of vegetables; inso-much, that if not damaged by the cold, which seldom happens in the diocese of Bergen, the husbandman finds his labour amply compensated; for the ground yields five, six, or seven fold, and sometimes even more. His harvest consists for the most part of barley and oats, with some rye, and here and there peas and buck-wheat; but of these I shall treat more fully when I come to the vegetables, or products of the earth. I have only to add here concerning the soil of Norway, that betwixt the mountains, and in the diocese of Bergen, it mostly consists of an assemblage  
of

of such earth as from time to time hath rolled down with the fragments of the rocks, or been washed off from the mountains, and settled either at the foot of the mountains, or on the sides, and by these accessions the vallies in many parts have been considerably raised. This appears evidently from one remarkable circumstance, that the fields in the vallies are naturally formed like a camp, the regular eminences and gentle slopes looking like the ramparts of a fortification. A strong instance of this, is the famous valley of Viig in Sognefiord, and Eidet in Nordfiord, where, a stranger, at first, would imagine the corn fields, as they lie raised above each other, to be so many batteries erected by art, though with some irregularity. All these terrasses have gradually risen from fragments of rocks, and eruptions of springs, which have repaired the loss and damage sustained in some places, by depositing the soil in other adjacent parts in these regular squares, which were thus formed by the light earth and sand, brought thither by the course of the waters\*.

The sand of Norway is seldom of the white kind, which is at the same time the finest, but it is usually brown or greyish; and that on the sea-shore is of the coarsest, being rather particles of stone, as may indeed be said of all grains of sand, but particularly of these, their substance being so hard that they are not so easily dissolved, nor fit to be strewed about like the other. The little fine or white sand we have in Bergen, is never pure, but very much mixed with powder of muscle-shells, that is, with the finest chalky substance.

Syndfiord, Justedale, and some other parts afford a kind of shining sand, as if mixed with antimony, or with iron or tin-dust. This is mostly used for writing-sand, and as such exported. Tavernier, Chap. xxiii. p. 284. of his Travels to Persia, relates, that the Portuguese carried some of this glittering sand from Ormus to Lisbon, and at first made cent per cent of it; but this trade being founded on a false expectation, soon came to nothing. The

\* Relative to this is the following passage from Baron Leibnitz's *Protogæa*, Sect. xxxix. pag. 71. *Cætera ingentium naturæ mutationum vestigia non nihil tangamus, habitatoribus fortasse antiquiora. Non illis tamen immorabimur quæ in nostris oris expressa non habentur. Ægyptum Nilo, Arelatensem agrum Rhodano deberi Aristoteles et Peiresius credunt; Nannius Bataviam munus esse Boreæ Rhenique. Certe flumina materiam advehentia spoliant superiores terras, frisque quotidie nostris detrimentis ditantur.*

usual grains of sand, or little round smooth and pellucid stones, are supposed, by Mr. Buffon, in his Natural History, lately published, to be only glass particles grinded, or a vitreous substance, the remains of the great universal dissolution, and of the vitrification consequent thereupon, which our earth appears formerly to have undergone: But on this we shall enlarge in the sequel.

Clay, both yellow and blue, is to be found in the creeks, but in greater plenty every where further up the country, particularly in Hedemark, and near Christiania and Drontheim, where they have lately begun to use it for earthen-ware, and if the same manufacture was carried on in other parts of the country, we might have a sufficient supply without importations from abroad. It is not much used for bricks, as most of the houses are built of timber, or of a kind of building-stone, which the Dutch, and other foreigners, bring hither as ballast, and sell them here. However, clay will, by degrees, come to be used for tiling, especially in the country, as the price of *næver*, or birch-bark, which has hitherto been the usual covering for houses, rises every year, and great numbers of trees suffer by the use of it. Other finer and richer clays of a dark brown and yellow colour, and used by painters, are also met with in several places, and particularly at Ringerige, is a kind of black clay, not inferior in its fineness to *Terra-figillata*, and by the peasants used as blacking.

Turf, both brown and black, which is the best, is found in many parts, and chiefly where the wise Creator foresaw, that in the course of time it would be most necessary, namely, in the lesser and greater Peninsula's, or *Udoers* (tracts of land projecting into the sea to a considerable extent, and joined to the continent only by a small neck) where the west-winds hinder the growth of woods, which are further thinned by ship-building, so that without turf, the peasants and fishermen would be very much distressed, especially as they are obliged to fetch the greatest part of the timber for houses and barks from the continent. Now, as amongst the turf, both here and elsewhere, there are at the depth of some yards, branches and roots, and many very large, even stocks of firs and pines, which the turpentine has preserved, this shews the earth to have been gradually filled and as it were grown up from a mixture of leaves, twigs, moss, reeds, and the like;



and the sentiment of some philosophers attributing to it a vegetative or self-renewing power, by which it grows again, tho' slowly\*, is confirmed by experience, the best instructor; for sufficient instances of it appear in Denmark, Luneburg, Friesland, Holland, England, and Picardy in France. On this occasion, I must observe, concerning the large bodies and parts of trees so frequently found among this vegetating turff-ground, that they are not such convincing testimonies of the deluge, as some account them; a much better proof may be drawn from other fossils, which never could be natives of the places where they are found; of this kind, particularly, is that entire skeleton of a whale, accidentally found in 1687, in Tistedale, near Frederickshall. It was buried with earth and sand, at least 240 feet under ground.

Skeleton of a  
whale found.

The swamps and marshes, or Myrs, as they are called here, lie both on the ridges of the mountains, and in the vallies, at the foot of the steepest precipices; these, in many places, render the roads very unsafe, they being passable only in the driest summer months, and sometimes not even then, unless a kind of causeway is formed over them at the public charge, with thousands of logs and large pieces of timber laid across the marsh, which are soon rotten. In these places the ground is as soft as dough, yielding and moving under the foot, there being, probably, beneath these marshes, an abyss of standing water, which is thus weakly vaulted over. Near Læssøe, in the diocese of Christianland, this timber causeway is carried on for near a mile, and if a horse, or a much less animal, happens to make the least wrong step, he sinks beyond recovery.

That there are coal-mines in Norway, and especially in the diocese of Aggerhuus, where the late governor Ditlef Wibe, a gentleman ever attentive to the prosperity and improvement of the country, employed some skilful persons in a search of them, not altogether unsuccessful, is what I have been informed of, but not with a certainty to advance any thing positive on the subject. The yellow, clear, and ropy substance on the surface of the water in

\* The excellent, though not infallible philosopher, Baron Leibnitz, falls into a mistake, when he says, in his *Protogæa*, Sect. XLIV. pag. 82. *Torfam excisam renasci nondum compertum est, etsi aquæ advehant in vicinis locis jam natam.* And pag. 83, *Longum esset expectare dum torfa renascatur, nec forte hoc continget, nisi in orbe alio post Platoniam rerum revolutionem.*

the fens, which is said to be an indication of coal-mines, appears in great quantities in several places. If coal could be found in those provinces, which are not overstocked with wood, it might encourage the opening of more mines, the country almost every where abounding in metallic mines, besides those already wrought.

## S E C T. III.

Two forts of mountains.

From treating of the low and level soil of Norway, we are naturally led to the mountains and rocks, with which the greatest part of Norway is covered. For the more accurate description of these they must be divided into two forts; some being general, and extending themselves thro' the whole length of the country, whilst others are scattered about, or surrounded with a level country, tho' many of these may be considered as branches or excrescences springing from the roots of the former.

## S E C T. IV.

The first fort of these mountains are such, as are properly called *Juga Montium Concatenata*, or a long continued chain of mountains; the direction of them here is not transversal, but from the south towards the north pole\*. M. Emanuel Suedenborg, in his *Miscellanea Observata*, p. 7 & 9, assigns the cause to the winds prevailing at the time of the deluge, which gave this position and figure to the matter first hardened: "Observari potest plerorumque horum montium dorfa a septentrione versus austrum tendere, &c. Extendi dorfa versus austrum et boream indicio est, eisdem ventos dominium tenuisse in oceano diluviano, qui jam in nostro oceano." At the extremity of Finmark begins that ridge of high and rocky mountains called *Koele*, inhabited by the wandering Finlappers, who dwell sometimes on the west-side of the ridge which belongs to Norway, and sometimes on the east-side which appertains to Sweden †. This ridge, which in its course goes by several names, according to the several places contiguous to it, separates itself as it were into two arms; the first of which, in its progres-

\* This is contrary to the other European chains of mountains, which in Hungary, Switzerland, France, and Spain, &c. run east and west. But the American Cordilleros, are in the same direction as our northern. Buffon's Nat. Hist. B. I. Article 9.

† A worthy acquaintance, who when young was a missionary in Finmark, informs me, that the *Koelen* ridge, in many places, breaks into large vallies, and consequently is not so continued as further towards the south; and that it seldom reaches above four leagues in a continued chain.

tion, serves almost for a boundary betwixt the two aforementioned northern monarchies, and is called Rudfield, Sudefield, Skarsfield \*, or more generally Sevebiery, or the Seven mountains. The modern Swedish historian, Olaus Dalin, in his history of Sweden, Tom. I. p. 11. speaks thus of the progress of the chain, "it proceeds as it were under water from Gottenburg, to a promontory in Jutland, called the Skager Riff, and forms a bank, or mound, not so deep as the sea about it, where is the best fishing in all those parts." The other main arm of the Koelen chain, begins likewise to change its name in the diocese of Drontheim, where, at some distance, it likewise alters its position for the space of ten Norway miles, first bending westward, as far as Roemfdal, and afterwards re-assuming its progress towards the south, betwixt the dioceses of Aggershuus, Bergen, and Christiansand; and in the latter, about three Norway miles from Lister, terminates in a prodigious precipice, the like of which is to be seen in very few parts of the world. This arm, as has been observed, goes under different appellations, according to the adjacent countries, the first is Dofrefield, near Guldbrandfdall, then follow in order Lomsfield, Sognefield, Filefield, Halnefield, Hardangerfield, Joklefield, Byglefield, Hecklefield, and, lastly, Langfield, which last is likewise a general appellation comprehending the whole chain, as far as Dofre, and is by some called only Langfieldene, i. e. the long mountains. This mountain it is which divides Norway into the district called Soendenfields, i. e. the south mountains, comprehending the diocese of Aggershuus, and half that of Christiansand; and the district called Nordenfields, i. e. the northern mountain, tho', with respect to its situation, it might as well be called Westenfields, i. e. West-hill, consisting of the other half of the diocese of Christiansand, and those of Bergen and Drontheim. The height and breadth of this extensive chain are both very different, the mountain Hardanger being fourteen Norway miles over, whereas Filefield, computing from Laerdale, is scarce ten. Dofrefield is accounted the highest mountain of this country, if not of all Europe. Its perpendicular height indeed is not easily determinable, without calculating it by the

\* Olaus Magnus, in Hist. Sept. Lib. II. Cap. XII. says, that an entrance or passage through it to the rocks was here cut out by the labour and industry of man; but this is very much doubted, and rather looked upon as a *Somnium de porta Eburnea*; at least it is what no Norwegian ever informed me of.

Barometer; for the levels on the side of the mountain, according to Peter Undalin's Description of Norway, in one place reach eighteen Norway miles, and in another twelve; and the road is so winding, that in the winter-road, one meets no less than nine times with the river called Drivaæ, which winds in a serpentine form along the side of the mountain. The bridges across this river make a dangerous appearance, as they are laid over roaring cataracts, or waterfalls, and but indifferently fastened to the steep rocks, which deters the better sort of travellers from choosing this road, tho' the shortest. The road over Filefield is the only one I am acquainted with from my own experience. This is a tedious ascent, thro' many windings, from Laerdale to the summit of the mountain, of about six Norway miles and a half, which in a perpendicular height towards Laerdale, may be computed at half a Norway mile, or 9000 ells. A proof, among others, of the great elevation of this mountain above the horizon of the champaign country, is the change from heat to cold, which within a few hours becomes so sensible, that the traveller may very well suppose himself suddenly transported from a hot summer to a piercing winter. I crossed it on the 28th of May 1749, having the day before, at my leaving Laerdale, observed the barley to be in some forwardness, and in the narrow vallies thereabouts, the heat was so sultry that at noon I was obliged to shelter myself at Borgen chapel: But after a few hours progress farther up the mountain of Filefield, I found myself rising as it were into the upper region of the air, towards the pure and subtle æther, and as much in the depth of winter as if it had been new-year's day; surrounded with snow and ice, which were the more painful to the eyes, as having so lately enjoyed the pleasing verdure of the fields and woods. The sun shone out very bright, but with so little heat, that tho' it was within three weeks of midsummer, all the waters, and particularly the fresh-water lake there, called Utreen, were frozen. I was very desirous of returning, being diffident of the assurances of my guides, that the ice would bear; for as the snow-water lay upon it, I apprehended it might give way: However, I got over in my sledge-chaise, which, as is here customary, was drawn by peasants, and not by horses.

Another

Another proof of the great height of this mountain, is the extensive prospect from it, in clear weather; for from Soeltind, a rock standing in the middle of the road, I had a view of the cataract of the river Bang, in Valdres, a distance of about twelve Norway, or fifteen Danish miles, but on the other side my eye reached beyond Hallingdale, on the borders of Waas, consequently the crest of this mountain affords a prospect of thirty Danish or German miles. Another proof of the prodigious height of this mountain, is, that it causes a very sensible difference, in wind and weather, betwixt the north and south side, of which I have already observed in another place, that the inhabitants on this side the mountain seldom have the same weather or air, as those beyond it, the clouds, in striking against the mountain, being repelled. Hence also it is, that the winds, which in the diocese of Aggershuus cause fair weather, in that of Bergen bring rain, and so vice versa.

The highest parts of this whole chain of mountains are every where so smooth and level, that if they were not constantly covered with snow, carriages might travel much easier than in the lower parts, especially on the mountain near Hardanger, over which lies the road to Kongsberg, along which road large herds of cattle are driven, and great quantities of goods carried. But the utmost caution is necessary here, on account of the large chasms in the snow, which hath lain there before the memory of man, and is consolidated; these chasms, in winter, are covered with loose snow, and many persons not being aware of them, have irrecoverably sunk into an abyss, from whence the only chance of an escape, is thro' holes made by the birds for their retreat\*; therefore part of the mountain towards Quenherret, being frequented by fowlers and sportsmen, is therefore called Fuglefang, i. e. the place for bird-catching. Peter Undalin, in his Description of Norway, p. 75, says, that all travelling over this mountain is prohibited, except from the invention of the cross, which is the third of May, to St. Bartholomew. Over Filefield, which is the post-road, and the road for the king's

\* Such chasms in the snow are also seen in the mountains of Switzerland: "Il se trouve en divers endroits des montagnes de glace, &c. Les allemands les appellent Gletscher nous les appellons des glaciers, &c. Il arrive quelques fois qu'elles se fendent de haut en bas, ce qui fait un bruit horrible. Souvent la neige couvre tellement ces fentes que les voyageurs ne les decouvrent points y tombent et perissent." Delices de la Suisse, Tom. I. p. 23.

carriages \*, the way is marked all along with posts, at two or three hundred paces distance, that in snowy or dark weather, the traveller may not lose himself in these desert wilds, where no living creature is to be met with, except here and there a few rein-deer, and which cannot be constantly inhabited, unless by Finlappers, who, as their dwelling is among the Koelen chain in Nordland, and Finmark, 100 miles farther north, may live very commodiously here. In the valley called Smiddedal, there were formerly iron-works, but they have long since been discontinued, sufficient quantities of iron-ore having been found in other more convenient places; for besides the scarcity of birch and alder, the extreme cold, and the snow, with which the ground is covered nine months of the year, stunt the growth of trees.

Mountain-  
stoves.

In some measure to relieve and refresh the traveller, two mountain-stoves, or resting-houses, are maintained on Filefield at the public charge, and three on Dofrefield, and furnished with fire, light, and kitchen utensils. There is but one way of avoiding this chain of mountains in the road from Sweden to Nordenfelds, where it seems as it were interrupted by a long and deep valley, reaching from Romfdale to Guldbrandfdale; and this road many prefer in their journies from the highlands towards the sea-coasts, to Romfdale market with corn, butter, hides and furs, which they barter for fish. It was in their march through this long defile, that a body of 1000 Scotch, sent over in 1612, as auxiliaries to the Swedes, were, together with Sinclair their commander, put to the sword by the peasants of Guldbrand, who never give quarter. In these precipices and narrow passes consist the best fortifications of Norway, and to them it was owing, that in the last war numbers of Swedes met with the same fate as those Scotch; particularly, in the hollow-way near Krogkoven, where 200 men were cut off by lieutenant Cocheron, assisted by the peasants.

\* At a small distance from the road is a chapel called St. Thomas's, one of the Votive-churches, as they are called, it having been an ancient custom, in sickness, or any other distress, to vow an offering there. There is still a sermon once a year, on the Visitation of the Blessed Virgin, which institution possibly arose from the history of this day, that Mary was gone early upon the mountain. Some superstitious, tho' possibly, well meaning people, resort hither with their offerings, in discharge of their vows; whilst others make the journey, as the minister complained, a pretence for carousals, affignations, and all manner of licentiousness and disorders.

## S E C T. V.

To the other class of mountains, according to my former division, belong those which stand single, and are dispersed over the country, though they may in effect be considered as branches or shoots springing from the extended roots of the chains. These, likewise, are generally long in their form, and, like the others, stretch away from north to south, but with fruitful vales betwixt them, watered with convenient rivers, by which the floats of timber are conveyed to the sea-side for exportation. The inhabitants find these little mountains much more convenient for dwelling, they being exceedingly fruitful, the sides of them covered with fields and woods, whilst their summits afford plenty of pasture for the cattle and wild beasts; besides which, their bowels are treasures of silver, copper, iron, and other metals, which, both here and in Sweden, are lodged in the smaller, and not in those vast mountains; certainly a gracious disposition of the Creator, to facilitate the labour of mining. Tind and Gule in Tellemark, are said to be the highest mountains in that part, called Soendenfields. The diocese of Bergen, unquestionably, derives its name (which signifies hills) from the height and great number of this class of mountains, which are chiefly among the creeks, and on the sea-coast, and of these Siken, Ulrich, and Lyderhoorn, are the highest in this diocese, though Meldisk in Rosendale, Smoer-stak in Hougfield, Alden, or the horse in Sundfiord, Hornel in Nordfiord, Sneehorn and Skopshorne on Sundmoer, Romdalfhorn, and others too many to be here enumerated, are more distinguished by their height\*. The perpendicular height of these steep mountains, according to appearance, and the report of the people living near them, may be computed at betwixt 9 or 1200 yards, consequently they are higher, than if ten common church-steeples were placed one over the other. Strabo thinks the measure of the highest mountains in the whole world to be 30 stadia; Kircher, 43; Pliny extends it to 400, and Riccioli to 512; but M.

Many lesser single mountains in all the provinces.

\* It is observable, that as many northern mountains are from their great height called Horn, some of the most distinguished mountains in Switzerland bear the same appellation, as Schreckhorn, Wetterhorn, Roemischhorn, Buchhorn, &c. which shews mankind to agree universally in their images and metaphors, even where they have no communication with each other.

Scheuchzer, in a particular tract, shews this measure to be vastly exaggerated.

Philosophical  
Transactions,  
Vol. 35, No  
L.

The height of the highest mountains in Switzerland, which Julius Cæsar terms, *summas alpes*, is according to his conjecture, no more than 987 ells. Floeyfield, in the neighbourhood of Bergen, which, however, I do not imagine to be half so high as Hornel or Sneehorn on Sundmore, was by a trigonometrical mensuration performed last winter, found to be 200 fathom, or 600 ells high; consequently, Ulrich, which stands close by it, cannot be less than 800 ells.

Some of these mountains are peculiarly remarkable for their figure and appearance. On the left hand, sailing up Joering creek, one sees such a groupe of crests of mountains, as resembles the prospect of a large city, with towers and old gothick edifices, and some of them being continually covered with snow, whilst the chasms in others make a way for the light to penetrate, the prospect fills a stranger with astonishment. Not far from thence, in the parish of Oerfkoug, is the mountain called Skopshorn, of which the mariners and fishermen have a view at 16 leagues distance, when they have lost sight of the rest. On the highest crest of this mountain, it has the appearance of a complete well-built fort, or old castle, with regular walls and bastions. It is an old tradition, that a girl who was attending a flock or herd, for a wager climbed up to the top, and according to agreement, there blew her horn, but was never seen after; upon which, her relations, according to an ancient superstition, imagined she had fallen into the hands of the pretended subterraneous inhabitants of the mountains. Perhaps the truth is, that the girl was not so fortunate in coming down as in getting up, and that she fell into some cavity, where her body never could be discovered.

See plate 11.

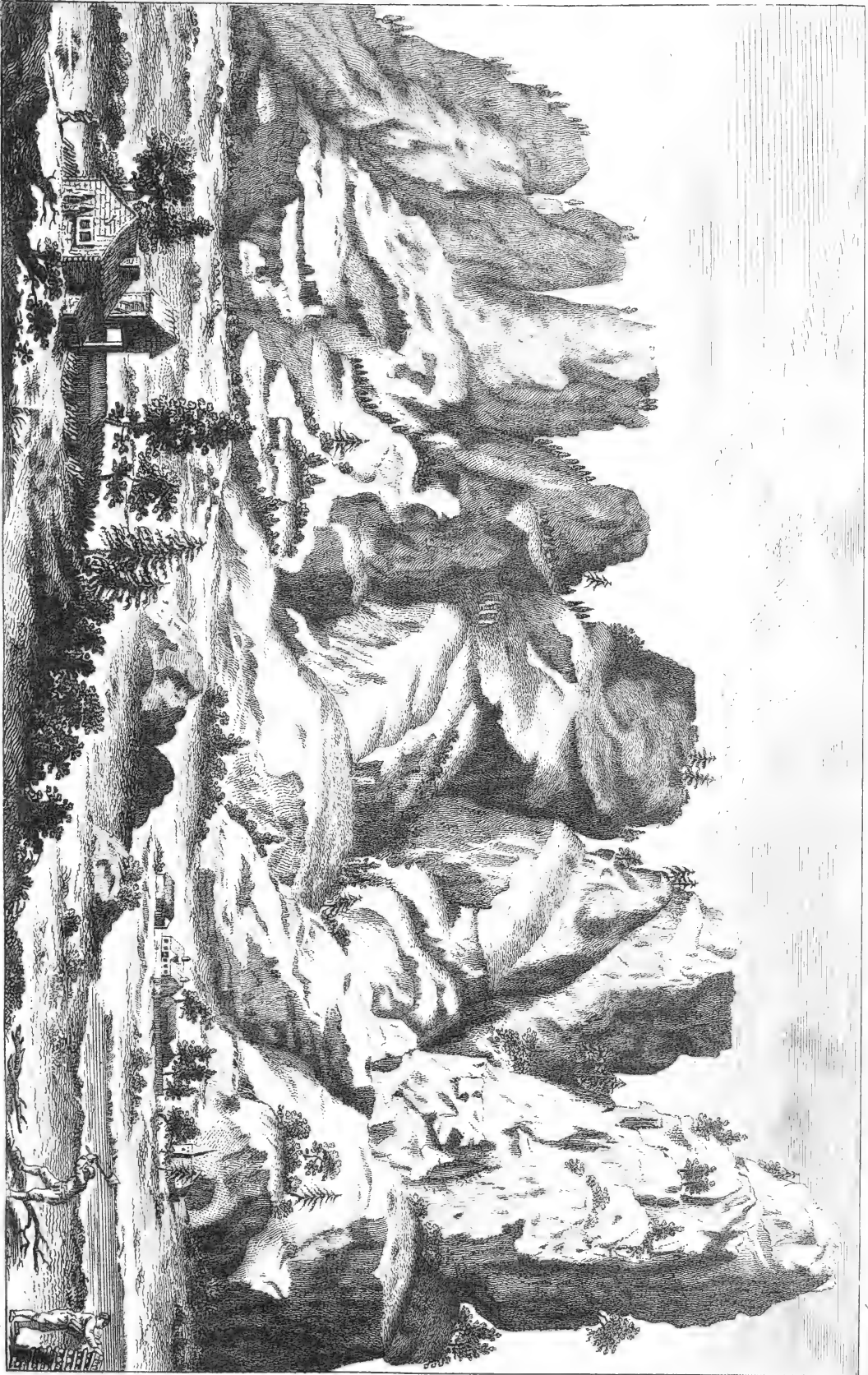
The Seven  
Sitters.

Near Alstahoug, in the district of Helgeland, is a range of mountains of a very singular aspect, having seven high pinnacles, or crests, known by the appellation of the Seven Sisters, and which are discernible sixteen miles off at sea. A friend of mine, who ventured to the top of the highest of these crests, thinks their perpendicular height to be something above a quarter of a league\*.

\* This appears a very extraordinary height, for one of these separate hills, which have always been accounted but small in comparison of those of Dofre and File. I have besides been informed by several maritime persons, that towards the north, the height of the mountains, immediately beyond Sundmoer and Nordmoer, decreases, as it increases after passing Stavanger, and approaching towards Bergen.



front

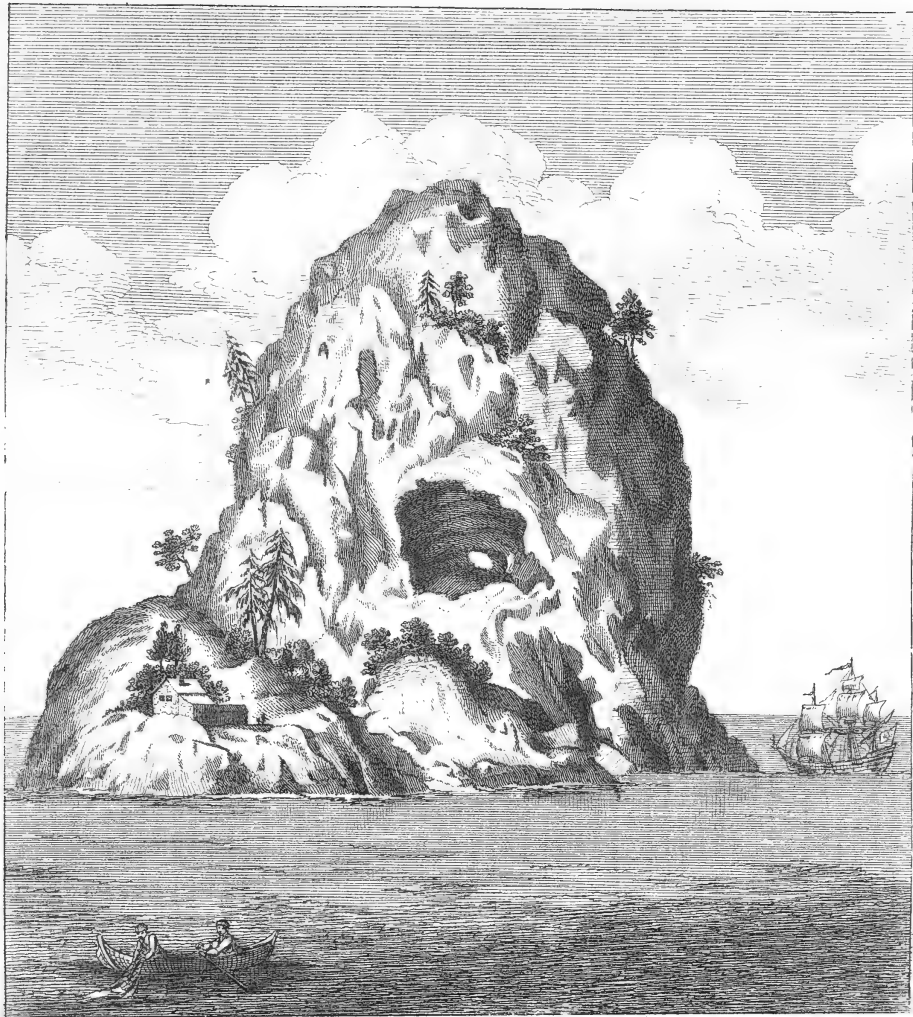


back

1  
*A View of the Mountain of the Seven Sisters near Westbury, Montgomery Co. N.Y.*







*The Rock of Torge Hatten in Norway.*

*Le Roc de Torge Hatten*

In the same district southward is the noted mountain of Torghatten, so called from the likeness of its top to a man's head with the hat on, under which appears a single eye, which is formed by an aperture, passable throughout, an hundred and fifty ells in height, and three thousand in length, thro' which the sun may be seen; it likewise affords a coarse kind of agate, but which will admit of a polish. On the top of this mountain is a piece of water, or a reservoir, of the dimensions of a moderate fish-pond. The rain-water, which gathers there, trickles down the mountain thro' fissures and cracks on its side. In the lower part of this mountain is also a cave, full of rugged windings. A line of four hundred fathom, being tried out of curiosity, to measure this hiatus, did not reach the bottom; and it was thought too dangerous to proceed further.

The mountain of Torghatten.  
See plate 111.

## S E C T. VI.

Such secret passages, and wonderful caverns in the mountains, are far from being uncommon here. At Herroe in Sundmoer, I heard much talk, from the common people, of a cavern called Dolsteen, and, as they are apt to magnify all such things by their own imaginations, they conceit that it reaches under the sea, all along to Scotland. I desired the two ministers of the place personally to inform themselves of the nature of it, and they accordingly sent me the following written account.

Deep and long cavities, and as it were secret passages in some mountains, and conjectures on the origin of them.

“ Pursuant to our promise of taking a view of the cavern in the mountain of Dolsteen, we went thither on the 16th of July 1750; its entrance was the height of a full-grown man, and it is two fathoms in breadth; but we immediately found it to increase in both dimensions, even higher and wider than Herroe church. The sides were perpendicular, like the wall of a house, rising into a kind of vaulted roof. It stretched itself S. W. and N. E. till about the middle, where we met with a descent like the steps of stairs, and there it inclines more to the east, but this deflection is not above three or four fathom long, when it again falls into its north-east direction. On each side, at the bottom of these steps, was as it were a bank of clay, on which we rested ourselves, and at the end of these banks, likewise on each side, was a kind of door with an oval top, but upon viewing it with our

Cavern in Dolsteen.

lights, we found it to be but half an ell lower than the other part of the mountain. Hitherto the height and breadth continued as before; but now it began to contract itself, and at the same time to descend lower. There we could hear the dashing of the waves, and the sea was at least an equal height with us, if not over our heads. Soon after we came<sup>o</sup> to some more steps, but being not inclined to venture further, we threw down a stone, and heard its eccho for the space of a minute; but whether it fell into the water, or on the dry rock, we could not distinguish. Some conjecture may be formed of the length of this cavern, from our having burned two candles in our progress and return."

Another remarkable instance of a like secret passage in a mountain, I shall produce from my own experience. Hearing at the parsonage of Oerfkoug, that in the district of the annexed chapelry of Strande, not far from thence, a stream had been found, which issued through a rock from the side of a mountain called Limur, and over it a cavern which probably followed the stream, but of the length of which I could procure no account; I resolved to examine it myself, as on my visitation to Nordal I was to pass near it. I furnished myself with a tinder-box, candles, a lanthorn, and a long line to serve me instead of Ariadne's clue. My boat put me ashore at the foot of the aforesaid mountain of Limur. But it being extremely steep, we were obliged to climb with our hands as well as feet, and sometimes were hard put to it to clear our way through the hazle and alder-bushes. On the side of this laborious ascent, we met with a rivulet, streaming out, which directed us to the cavern. It is indeed something wonderful, being a kind of natural conduit, formed purely by the force of the water through the solid rock, which was a compound mass, mostly consisting of grey pebbles, but about the conduit, of a clear grey marble with bluish veins; had this natural structure been raised by human skill, it would have been a work of no small expence, for a few paces after getting through the thicket, which almost hides the aperture of the cavern, one is surprized with a vaulted passage of pure marble, without the least flaw or breach, but with several angles and protuberances, all so polished, as if it had been a paste mouldered into smooth globular forms. About a hundred paces forward, the passage continues in a straight direction,

rection, then winds off to the right with ascents and descents, and in some places growing narrower, and in others widening to double its former breadth, which, according to my admeasure-ment, was about four or five ells, and the height about three; thus two persons could go abreast, except that they were now and then obliged to stoop, and even creep, and then they felt a damp vapour like that of a burial-vault. This prevented my penetrating so far as I had intended. Another thing remarkable, was the terrible roaring of the waters under us, the course of which was what most excited my wonder, as over it lies a pavement of smooth stone, inclining a little like a vault on each side, but flat in the middle, and not above three fingers thick, with some small crevices, through which the water may be seen. If it be asked how far this covered-way reaches? I make no question but its length is equal to the course of the stream, and that it has been produced by the falling of the water, which in length of time, has perforated these rocks agreeably to the ancient maxim,

*Gutta cavat lapidem, non vi, sed sæpe cadendo.*

And this is more particularly confirmed by the many projections which have been levelled, or undulated figures, which, as I have before observed, are to be seen on the roof, and along the sides. If it be asked again, where is the spring of this stream? the peasants hereabouts say, that on the uppermost ridges of the mountain, which is at least a hundred fathom high, almost perpendicular above the cavern, there is a standing-water of about a quarter of a league in circumference, and unquestionably formed and supplied by the frequent accession of the rain, and the melted snow from the other parts of the mountain. It is no difficult matter to judge how the uppermost dry vault comes to be of such a height over the channel of the river, by which it is caused; for the cavity in its beginning could not have been so high, but by length of time, the stream, of which the upper vault was then the bed, penetrated to its present depth, and perforating the mountain, the particles which it detached, as sand and gravel, settled on the ground, forming as it were a small and level pavement, which is now a cover to that stream, of which it had been the bed. I am the more confirmed in these thoughts, by a second view I took of  
this

this cavern some days after, on my return from Nordal, when I ventured further in, though not so far as two men whom I had with me. We then perceived, by the help of a lanthorn, through an aperture under our feet, that the stream had made itself another flat and smooth bed of little stones, or a gravelly bottom, like that under which it now runs, consequently in time, it will likewise penetrate through this new vault, which will then become its roof, and thus in another bottom, proceed to lay the foundations of another new vault :

Tantum ævi longinqua valet mutare vetustas.

However easily those caverns, through which there is a water-course \*, may be accounted for, yet it is more difficult to explain the origin of the many dry caverns and secret passages in the rocks, like that of Dolsteen, of which more instances might upon inquiry be found in other mountains. The opinion that carries the greatest weight with me, is that of Woodward, in his Theory of the Earth, p. 85, that the whole mass of terrestrial matter, after its dissolution by the deluge, and its subsequent reunion, was soon after, when dried and hardened, by some secret cause in the earth itself (a universal earthquake, or the like) again separated and thrown into such confusion, that the several strata, or layers, sunk in some places, and rose in others: this naturally gave the surface of the earth the appearance of a cracked or shattered building, with many chasms betwixt its ruins, till at length the earth shall be entirely levelled.

#### S E C T. VII.

Effects of the deluge in the dissolution and softening of the hardest bodies, in which their former softness is plainly discernible.

However true it be that this opinion of Woodward deserves the preference, beyond any of the conjectures of Burnet, Whiston, or other theorists on the effects of the deluge, yet it has not been exempt from opposition, and particularly is combated by Elias Camerarius, and but lately by Mr. Buffon. My reason for adopting it here, is, that of all others, it most facilitates the discovery of the origin, not only of the cavities, but of the mountains themselves: He does not deny, as Burnet does, the existence of mountains and hills before the deluge, but is of opinion, that they

\* Of this kind is that so remarkable cavern in the Peak in Derbyshire.



were all dissolved, and as it were liquified, and that the whole terrestrial mass, with its detached and intermingled parts, at last came to a coalition above the abyss, in the form of a convex vault, one stratum above another, stone, earth, sand, chalk, and other substances, subsiding quicker or slower, according to their specific gravities; the several substances thus obtaining their collected strata, the outward shell of the earth was smooth and level; and Burnet, in his Theory of the Earth, holds this to have been the state of things from the creation to the flood, when the water broke up and demolished the smooth shell, and this disruption mingling different bodies, threw all things into their present disorder; though the wisdom of a divine œconomy be still universally conspicuous. Woodward, in answer to the question, how the surface of the globe, which, according to his opinion, was rendered smooth by the deluge, fell into its present irregularity? how the middle or lowest strata were thrown uppermost, and such a general confusion prevailed? supposes, that immediately after the deluge, the abovementioned great change and dissolution\* took place, by which some detached strata stood with one end in the air, and the other submerged, that the place of the depressed was filled by the elevation of parts or fragments of different layers. Tho' this be but an hypothesis, yet it appears to me the only one, which accounts for and illustrates what I have most wondered at, in my speculations on the stupendous structure of our northern rocks, and particularly the strata of their different parts. In these rocks, which are composed of masses very different in colour and figure, it is plainly seen that the substances thereof have been as it were liquified, and afterwards subsided stratum super stratum, yet not always horizontal, according to the laws of motion and gravity, but rather in general, oblique, or in various, and in some places, even in perpendicular directions. The cause of this position cannot be cleared up without admitting the aforesaid opinion of Woodward, at least till some more rati-

\* Several causes of this may be alledged, but in my opinion this appears the most plausible. As a new wall, if the foundation gives way ever so little, cracks, and even sinks and falls to ruin; the like must have happened soon after the flood, when this new mixture came to be dried; and this siccidity must occasion crevices and apertures in the lower part, and consequently in its upper surface, which necessarily followed the sinking foundation, upon the water discharging itself from the other parts into the ocean.

onal solution shall be hit upon. What I most lament, is, that this learned and ingenious writer has not fulfilled his promise so often repeated, of demonstrating both the possibility and reality of his several hypotheses, and confirming them by experiments. He had for this end projected a large work, of which his Theory of the Earth was to be only introductory. The chief objection, which I could have wished to have seen answered by him, relates to the hard substance of stones, which he takes for granted to have been also dissolved and liquified.

Conjecture on  
the dissolution  
of the earth.

I ask, by what means this liquefaction was wrought at the time of the deluge? if recourse be had to the supposed central fire, from which the globe derives its levity, &c. and it be said that this by coction could dissolve the hardest quarries of marble, (the veins and streaks whereof sufficiently shew its former softness, and the loco-motion of its parts, not to mention the heterogeneous things found in it) then Noah and the animals in the ark must have suffered, unless we take the liberty of forming a new hypothesis, that this coction was not universal at once, but affected only a certain part of the globe, and certain tracts of its surface\*: Strange and novel as it may appear, to assign such a vehement heat to the water of the deluge, yet this was a very ancient tradition, if we pay any regard to the words attributed to the devout Pionius, who suffered martyrdom in the year 250, under the emperor Decius, and among other things spoke thus to his unbelieving persecutors, “Ye yourselves, from your old traditions, acknowledge that the deluge of Noah, whom you call Deucalion, was mingled with fire, yet do you but half understand the real truth of this matter.” Now though no great stress be to be laid thereon, yet is this conjecture far from being so improbable as that of Burnet, who makes the chaos of our globe to have been the remains or ashes of a consumed and vitrified comet, which by the creation, acquired a new life, form, and disposition †.

But

\* Who knows whether any volcanoes existed before the deluge, especially, whether it did not previously accumulate vegetable and animal fragments from the resinous slime of the bottom of the sea, or at least great quantities of fuel, to the sulphureous and otherwise inexhaustible ore already deposited there? Who at least will dispute the probability that the sea, furnishes fuel to these dreadful and incessant subterraneous fires, all volcanoes being near the sea. D. Joh. Friederich Henkel's *Pyritologia*, Cap. v. p. 308. seq.

† The celebrated naturalist Mr. Buffon, in several parts of Tom. i. of his *Natural History*, in some measure closes with this hypothesis, tho' he differs very much from him

But whenever this fusion happened, or whether the Almighty made use of it as a means or not, or whatever means he chose for that end, for I do not concern myself with those chimeras; yet nature and experience speak sufficiently plain to the point, and shew first \* the possibility of it, no kind of stone whatever, whether pebble, marble, or flint, having ever been of such a hardness, as not to be capable of being resolved into its most minute particles, melted, liquified, and again vitrified, especially by a good burning-glass †. In the next place, the reality of the matter appears beyond all doubt, to those who have an opportunity of viewing the various figures and colours of the stones, in the rocks and mountains, some ignited, others striated, and many heterogeneous bodies intermixed with them, of which Norway affords multitudes, especially on the sea-coast. If we consider these attentively, they manifestly evidence, that anciently their matter was soft and liquid, but again indurated, and that after this induration, or petrification, they were in many places again detached and confounded, as if hewed through, broken, split, and raised from their first horizontal state to an oblique, and in some parts a perpendicular position. If the before-mentioned profound theorists had taken a view of this country, it would have furnished them, far beyond any other, with the strongest experimental proofs and illustrations of their hypotheses.‡ I shall, however, adduce some remarkable proofs from the heterogeneous solid bodies, so frequently found entombed as it were in other solid bodies,

Wonderful mixture in the mountains.

him in the circumstances. He turns our globe into a fluid or liquified matter, shorn from the sun by a comet, which mixed itself with it. Could this have been expected from a man who treats all hypotheses with the utmost contempt?

\* *Incendiis et inundationibus varie transformata sunt corpora, et quæ nunc opaca et sicca cernimus, arsisse initio, mox aquis hausta fuisse, tandemque secretis elementis in præsentem vultum emeruisse, credi par est. Omnis ex fusione scoriæ vitri est genus, scoriæ autem assimilari debuit crusta, quæ fusam globi materiam, velut in metalli furno obtexit, induruitque post fusionem.*—*Ipse magna telluris ossa, nudæque illæ rupes atque immortales filices, cum tota fere in vitrum abeant, quid nisi concreta sunt ex fufis olim corporibus, &c. Leibnitz Protogæa, § III. p. 3, 4.*

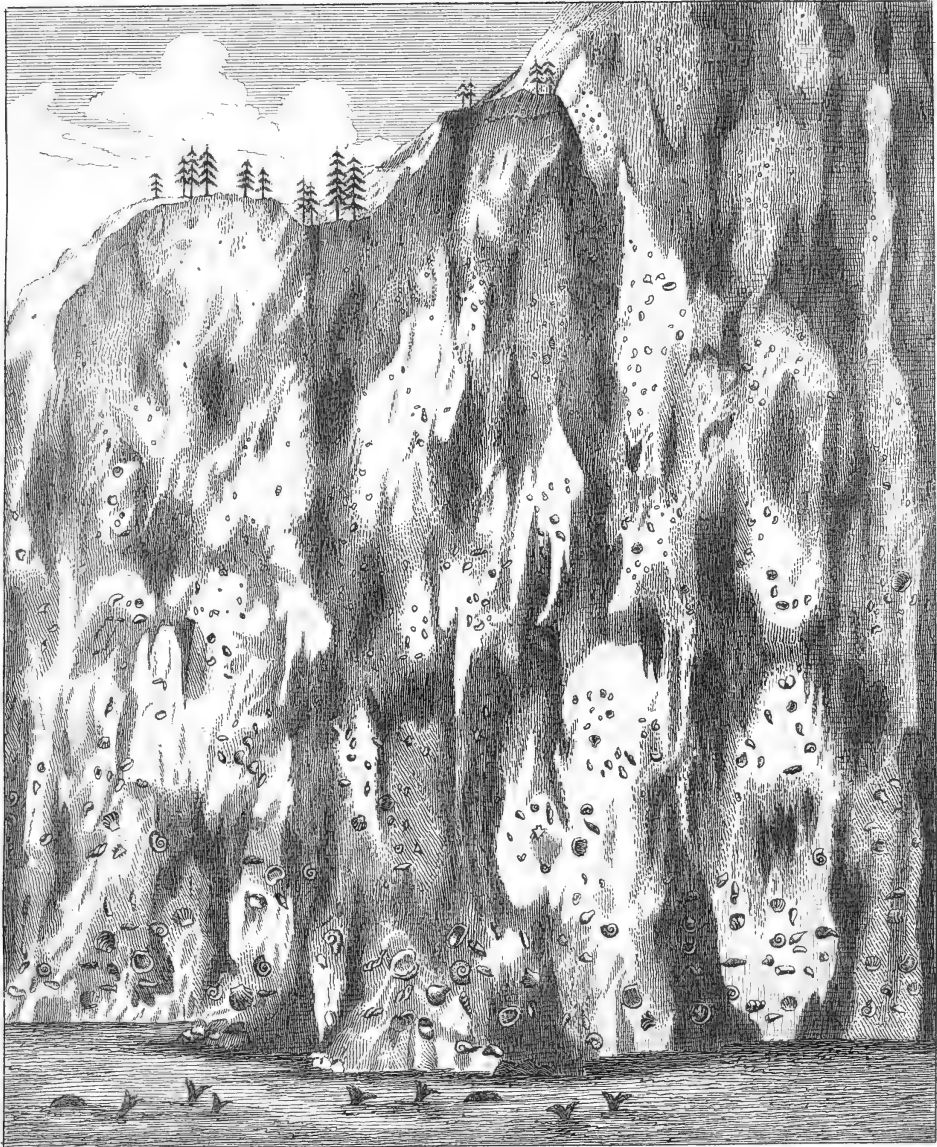
† Mr. Becher, in his *Physic. Subterranean*, shews, that the hardest stones are dissoluble by water and fire: “*Solius ignis et aquæ ope, speciali experimento, durissimos quosque lapides in mucorem resolvo, qui destillatus subtilem spiritum exhibet.*” Again: “*Est etiam certa methodus, folius aquæ communis ope, filices et arenam in liquorem viscosum, eundemque in sal viride convertendi et hoc in oleum rubicundum.*” This last method, which does not require the use of fire, is most agreeable to Woodward’s System, which on that account, among others, appears the most eligible.

‡ That all stones were anciently a soft or slimy paste, is admitted as a tried and unquestionable certainty, in the *Memoires de l’Academie Royale*, ad A. 1716, p. 14.

See plate IV.

(*solida intra solida*.) In the district of Evindvig, six leagues north of Bergen, is a place called Stenefund, where the mountain, for half a quarter of a league, abounds with such petrified bodies, as are sought for in the cabinets of vertuosos; many kinds of *Cornua Hammonis*, large and small snakes, muscles, worms, insects, and many others. This cannot be called a *Lusus naturæ*, which expression, in this sense, is rather a *Lusus poeticus*, and amounts only to a paltry evasion, invented by persons who are disposed to deny what is undeniable. All these figures appear there as if they had been impressed into a paste, or dough, and no rational inquirer can entertain any doubt, that the rock was as soft as dough, or paste, when first these bodies were intermixed with it. I shall pass over many lesser examples of this kind, such as St. Olave's serpent in Nordal creek, which, as far as it concerns the faint, is fabulous, the monks having made use of it to attribute to St. Olave the miracle of encountering this huge serpent, and throwing it up against the place where it is now seen; but that it has hung there ever since the deluge, is not incredible, unless its dimensions of many fathoms render it so. But this doubt will likewise vanish, when I come in order, to speak of the northern sea-reptiles, and other extraordinary sea-animals. In the quarry of marble near Mufferhaun, seven Norway miles south of Bergen, in the surface of the rock, which is as it were the outward crust of the marble, or a porous slime, called *Dogstein*, we see several small round holes, like those observable in tallow, or in wax, when congealing after fusion; and that the whole mass of this quarry, together with its veins, were formerly in that state, appears to me unquestionable from the answer of one of the workmen, when I asked him, if he had never met in the marble with something else, or some substance which had the appearance of a different substance? his answer was, "This happens very seldom, yet both myself, and others of my trade, have sometimes met with it, and we have found in the middle of blocks of marble, snakes, muscles, sand, stone, and other such things, so inclosed in on all sides by the marble, as if they belonged to it, although they immediately loosen and drop out as a foreign substance. When this happens, it is usually followed by such a violent stench, as over-powers us, unless we turn immediately aside from it." This last circumstance

I im-



*The Mountain near Stone Sund*  
*La Montagne près Stone Sund*



I impute to the long confinement of the air. In my little collection of northern and other natural curiosities I have several such petrified pieces, which exhibit *solidum in solido*, and other indications of a sudden induration of these formerly fluid substances, by which fishes, worms, snakes, and other creatures have been inclosed in stones, as we meet with insects and the like in amber\*.

Instead of dwelling on these things I shall corroborate the matter by a conjecture of my own, relating to three cavities in a rock in the district of Rake, three quarters of a Norway mile from Fredericshall. These cavities at their entrance are round, and each not above two ells in circumference. Two of them are not very deep, and so are not particularly remarkable, as they might have been formed by human hands with instruments; but the third cavity, on that account, deserves the more admiration from the curious; for tho' not wider than the other two, and so smooth and regular, that it might be mistaken for a work of art, yet it would be absurd to suppose this, on account of its unfathomable depth; for when in order to form a computation of it, a small stone is dropped down, the echo does not in less than two minutes give any room to conclude that the stone has reached the bottom; and the sound it returns is quite melodious and pleasant, not unlike that of a bell. This profound cavity, which is too narrow to receive a human body, much less to allow room for the motion of the hands, could not therefore possibly have been dug or bored by human art, consequently it must be of equal date with the world itself, or, which indeed is most probable, it was formed by the deluge, and possibly in this manner; the substance of the rocks being supposed soft and impressible like a paste, a round stone, previously indurated, might fall on it from some eminence, and by its own weight force a passage quite through. And if the two other cavities, which are not very deep, proceeded from a similar cause, the stones which fell in there must have been lighter, or have met with a more inspissated or harder matter.

\* I am not little pleased that Mr. Buffon has found the like, and other adventitious bodies in marble and chalk. *Natural Hist.* Tom. I. Art. VIII.

## S E C T. VIII.

The origin of  
all mountains,  
rocks, and  
lesser stones,  
deduced from  
the premises.

This position being established, it opens a way to an easy explanation of the origin, both of the rocks, mountains, and hills, after the first plane had been formed by the deluge. The hills, of which few here are of such dimensions as to be classed among the mountains, might very easily be aggregated by the mere force of the water, but the rocky mountains being of a denser substance, seem to have been elevated from beneath, in a convex form, by a violent force of subterraneous wind, water, and fire, heaving them up, and scattering them about in so many protuberances\*; and if this happened, before the substance of the stones became indurated and fixed, then the external wind did likewise, according to the conjecture before quoted, from M. Swedenburg's Observations, leave so many vestiges of its violence both in the extent and figure of them. This accounts, unquestionably, for the innumerable fissures, disruptions, and chasms, which appear like so many mountains fawn asunder, across or lengthways †. And hence many such apertures in the mountains are filled with a slimy matter, of a subsequent induration, and by the country-people called Hejeitel. This projects in a range of about an ell, or half an ell in breadth, betwixt the other lapideous strata, and throughout the whole length or bulk of the mountain, which thus from the variety of its colours makes a very pleasing appearance. Of these Hejeitels, or separate veins, some consist of marble, or alabaster, some of agate, and some of other white, red, blue, or brown kind of stones, which, especially towards the sea-coast, where the rocks are bare, form many curious variegations. Hence likewise remain on the surface the many detached blocks and

\* Scio quosdam suspicari intumuisse aliquando terram ab erumpente spiritu, furxiffe montes ex planitie, erupisse insulas ex mari, qualis apud Cedrenum in historia miscella memoratur insula nata sub Leone iconomacho.—Ego etiam facile admittam initio, cum liquida esset massa globi terræ, luctante spiritu superficiem varie intumuisse, unde illi mox indurescenti primæva inæqualitas; neque etiam diffiteor, firmatis licet rebus, terræ motu aliquando vel ignivoma eructatione, monticulum factum. Leibnitz Protogæa, Sect. xxii. p. 36. seq.

† Mr. Buffon, Part I. p. 64, according to his system, assigns the following cause of the perpendicular fissures and chasms in the mountains; that the waters gradually subsiding, and the paste of the rocks being dried, the shafts thus contracted, necessarily separate, and leave an aperture betwixt them, as the like daily happens when mortar, starch, &c. harden. Whereas the horizontal rents in mountains, which are much fewer, run according to the several strata of the substances, which are observed to lie over each other, like the leaves of a book.



fragments, like lumps of mortar, or a soft paste, scattered not only in the vallies and creeks, where they are called Sciffars and Flies, but also on the tops of the highest mountains; many such being found here of the bulk of a common house, consequently too ponderous to have been raised to such a height by the hands of men, and besides of no visible use.

This likewise is the origin of most of those pebbles, which are found scattered in all parts of the globe, and which by length of time become somewhat smooth and even. I say most of them, and allow that some sandy stones may be said to grow, and from this cause, that a superficial layer of sand or clay was indurated by the sun. But that stones in general, especially the hard pebbles, grow, and consequently are endued with a vegetative life, or internal power to imbibe their nourishment from the earth, this is certainly one of the most absurd notions that ever was received among judicious men, and especially in an age in which the causes of things are so minutely and accurately investigated. If after clearing a piece of ground of the small stones, there appears to be a succession of them, this is owing to a hard frost within the earth, and the swelling of the earth by the ensuing thaws, whereby, every year, the stones are carried up to the surface. That mountain-crystals, and possibly more valuable gems, may grow like sap or juices, which gradually become tinged with the colours of the minerals, and according to the quality and arrangement of the saline particles, concrete and shoot into cones, I am very willing to admit; likewise, that the water carrying away some lapideous particles, here and there in the cavities of the mountains, reduces them to a paste, which afterwards being dropped, remains suspended like icicles; and there forms what is therefore called the Drop-stone or Stalactites.

Stones not vegetative.

#### S E C T. IX.

Before I take my leave of the mountains, and particularly of our Norvegian rocks, I must, agreeably to my purpose, mention something further to the praise of the great Creator, and to incline the people of Norway to be gratefully contented with the habitation which God has assigned them. I previously grant, as

The inconveniencies and detriment to Norway from so many rocks and mountains.

all

all earthly enjoyments are mixed with bitter, according to the poet's saying,

Omnis commoditas sua fert incommoda secum,

so the inhabitants of a mountainous country may in general be said to labour under more inconveniencies than others; as the country, in the first place, is less fruitful, the arable ground being but little in comparison with the wastes and deserts. The disproportion in many provinces, especially those which are entirely over-run with mountains, betwixt their produce and the inhabitants is very great, they being under a necessity of procuring one half of their sustenance out of the sea. In the next place, the villages cannot be so large, compact, and convenient as in other parts; but the houses lie scattered among the vallies, generally at half or a quarter of a league distance, although up the country the farm-houses are both larger, and stand thicker than in the vallies of Bergen, where they are the smaller, from the vast extent of the mountains. In some places, as in the creeks in Ulland and Nordal, the peasants houses stand so high, and on the edge of such a steep precipice, that ladders are fixed to climb up to them; so that when a priest is sent for, who is unpractised in the road, he risks his life, and chiefly in winter when it is slippery. In such places a corps must be let down with ropes, or be brought on men's backs, before it is laid in the coffin. The mail likewise in winter must, at some distance from Bergen, be drawn up over the steepest mountains. Under this head of inconveniencies we may also reckon the very difficult roads, extremely so to the day-labourers, but particularly to travellers, who cannot without terror pass several places even in the king's road, over the sides of steep and craggy mountains, and on ways which are either shored up or suspended by iron bolts fastened in the mountains, and tho' not above the breadth of a foot-path, without any rails on the side, as indeed it is impossible to fix any; not to mention the sudden rising of the rivers, which they must either wade thro', or cross over on ruinous bridges\*. In this diocese the bridges are  
not

\* In the narrow pass of Naeroe, leading to Waas, is a very remarkable piece of antiquity, being a way suspended on iron bolts, which the famous king Suerre, in the year 1200, or above six hundred years ago, caused to be fastened into the rocks,

not built of any extraordinary strength, being used only by foot-passengers, or horsemen; for there is no road for carts, and many peasants here who have not so much as seen a cart, when they come to Bergen, look with amazement at it, as a curious machine. A fourth evil resulting from the mountains, and especially in this province, is the shelter their cavities and clefts afford to wild beasts of prey, which renders it difficult to extirpate them. It is not easy to describe what havoc lynxes, foxes, bears, and especially wolves, make among the cattle, the goats, hares, and other useful animals. In the chapter of the wild beasts we shall give a more particular account of this. Another very pernicious evil is, that the cattle, goats, &c. belonging to the peasants, often fall down the precipices, and are destroyed. Sometimes they make a false step into a projection called a mountain-hammer, where they can neither ascend nor descend; on this occasion a peasant cheerfully ventures his life for a sheep or goat; and descending from the top of a mountain by a rope of some hundred fathom, he flings his body on a cross-stick, till he can set his foot on the place where his goat is, when he fastens it to the rope to be drawn up along with himself. But the most amazing circumstance is, that he runs this risk with the help only of one single person, who holds the end of the rope, or fastens it to a stone, if there be one at hand. There are instances of the assistant himself having been dragged down, and sacrificing his life in fidelity to his friend, on which occasion both have perished\*. The sixth,  
and

to make a passage for his army, doubtless for his cavalry, which could not possibly have passed it, had they not been Norway horses, these being accustomed to climb the rocks as nimbly as goats. I add, that the most dangerous, tho' not the most difficult road I have met with in my several journies in Norway, is that betwixt Skogstadt and Vang in Volders; along the fresh-water lake called Little Mios, the road on the side of the steep and high mountain, is in some places as narrow and confined as the narrowest path, and if two travellers meeting in the night, do not see each other soon enough to stop where the road will suffer them to pass, and chance to meet in the narrowest parts, it appears to me as it does to others whom I have asked, that they must stop short, without being able to pass by one another, or to find a turning for their horses, or even to alight. The only resource I can imagine in this difficulty, is, that one of them must endeavour to cling to some corner of this steep mountain, or be drawn up by a rope, if help be at hand, and then to throw his horse down headlong into the lake, in order to make room for the other traveller to pass.

\* Of these melancholy, and not unfrequent accidents, of a man or a beast falling some hundred fathoms from the precipices, it is observed, that the air presses with such force against the bodies thus falling, that they are not only suffocated and deprived of life long before they reach the ground, but their bellies burst,

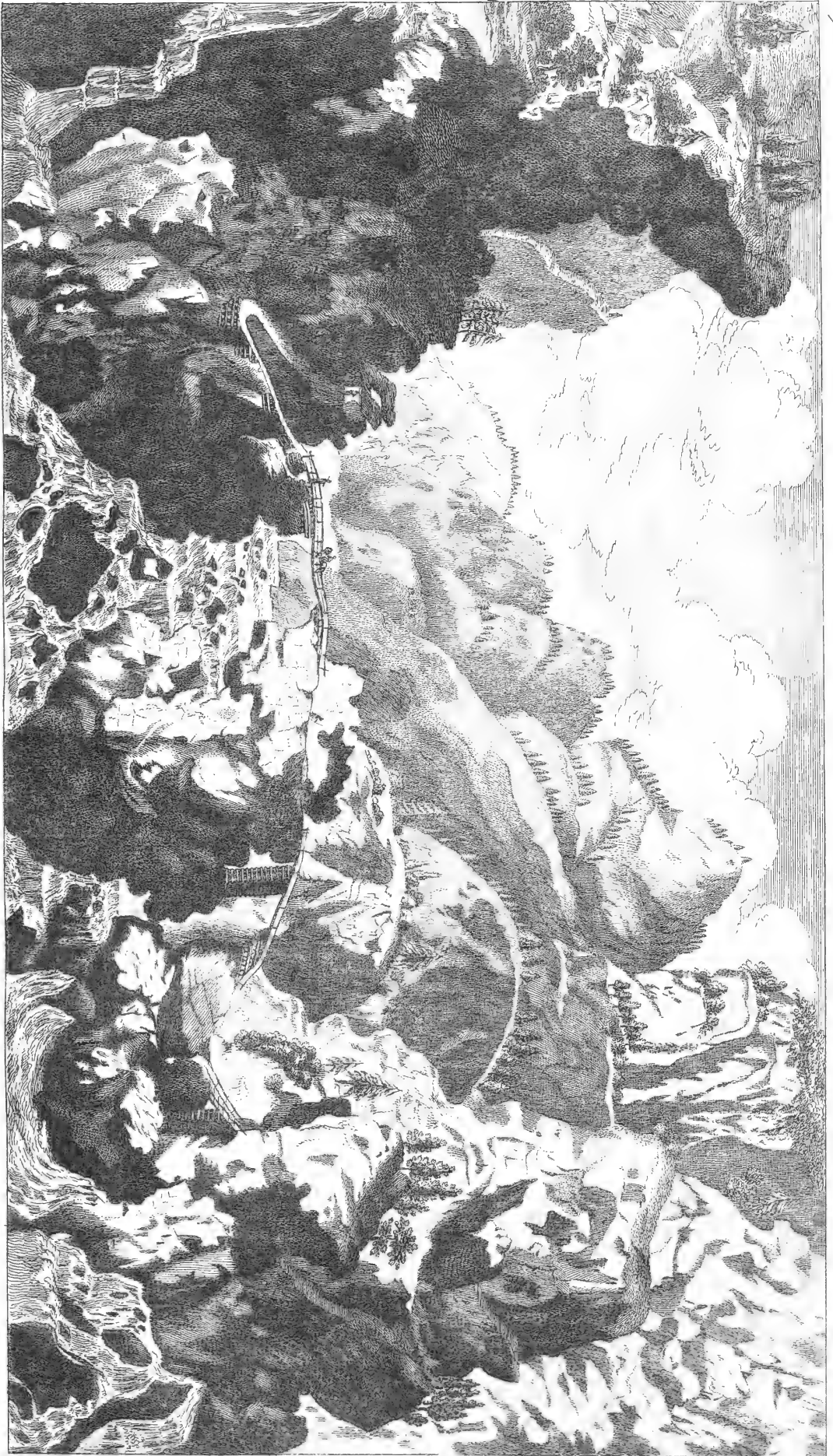
and not the least danger, to which the inhabitants in this and some other provinces, tho' seldom in Osterland, are exposed, is, that sometimes by a sudden disruption of a rock, great damages are done to the cattle, fields, and woods, and sometimes houses and families are involved in the destruction. These disruptions (called Steenskreed) generally happen in the spring, when the dilation of the strata of earth, occasioned by the thaws and rains on the summits of the mountains, loosens some adjacent small stones, which as they roll down, gradually gather more, and carry before them, or after them, such heaps of stones, sand and rubbish, that all the trees in the way are torn up, and the mountain is so stripped of all its covering, that it has the appearance of a beaten road; and if the earth chance to lie too deep for this mischief, many deep trenches, or long and narrow vallies are formed, the soil of which is thrown on the contiguous fields and pastures, which in time, tho' it requires some years, recover their verdure and fertility. The greatest and most destructive fall of stone as well as snow, of which I have elsewhere made mention, happened in this diocese about Candlemas, in the year 1679, when many cultivated tracts of land were destroyed, several houses demolished, and, only in the district of Sundmoer, 130 souls perished, and all this as suddenly as in other countries by earthquakes.

There is another much more terrible, and a more extraordinary natural accident, which in some degree resembles this last; it is distinguished by the name of Bergrap; the mountain being as it were convulsed, gives way, separates, and falls down on the country; sometimes in small pieces, and then the damage is but slight; but sometimes, tho' seldom, entire crests of rocks some hundred fathoms in length and breadth have fallen; which occasions a violent agitation in the air, and has all the appearance of a prelude of a general destruction of the world. The vestiges of such a Bergrap, are most evidently to be seen at Steen-broe, in Laerdale, in

See plate v.

and their entrails immediately gush out; which is plainly the case, when they happen to fall into a creek, or any other water, for all the limbs remaining whole, but the belly is burst. The certainty of this matter throws a light upon an obscure passage, especially in Luther's and our Danish translation of the Bible, where it is said, Acts, chap. i. 18. *he banged himself, and burst in two, and all his bowels fell out.* On the contrary, the words are, *πεννης γενομενος ελαχησε μεσος*, *præceps factus est, falling headlong, he burst asunder in the midst*, is the English translation, and agrees perfectly well with the sequel, according to the above observation, which in this country is but too often exemplified.

the



# The Galleries a dangerous way under the Mountain of Silchester.



the gallery, as it is called, where a mass bigger than any castle in the whole world appears to have fallen from the rock; the pieces are, some of the bulk of a house, some less, but all as pointed as if millions of pieces of broken glass lay there. The river roars prodigiously as it passes through these stupendous ruins, over which, however, a way has been laid with infinite labour, but certainly one more difficult is not to be met with throughout the world.

When such a Bergrap falls into a creek, or any deep water, the fragments indeed are out of sight, but their submerision causes such an agitation of the water, as to overflow and carry away the adjacent houses, and even churches; of which, on the 8th of January 1731, there was a remarkable instance in the parish of Oerskoug, and in the annexed parish of Strand, on Sundmoer, where a mass, or promontory, called Rammersfield, hanging over Nordal-creek, being undermined by the water, suddenly fell down, whereby the water, for the space of two miles, swelled with such force, that the church of Strand (which has since been rebuilt on a higher spot) though a direct half league on the other side of the bank, was entirely overflowed, several barks carried up the country, many houses destroyed, and some people drowned; yet the creek was so far from being filled up, that the fishermen say, they find no difference in the bottom, which, thereabouts, is no less than 900 fathoms deep\*. And in the beginning of the present century, something similar happened to a mountain in Julster, which falling into a lake occasioned an inundation, whereby the neighbourhood sustained great damages.

## S E C T. X.

From these inconveniencies and disasters to which Norway and all mountainous countries are exposed, I proceed, on the other

Conveniencies and advantages arising from them to the inhabitants, according to the Creator's wise and bountiful design.

\* M. Hans Hiort, superintendant at Sundmoer, in his letter to me of the 30th of November 1750, is of opinion, that this was chiefly occasioned by the defluxions of water from a spring on the summit of the rock, through its clefts and fissures; and it being then a hard frost, the ice widened the clefts and forced them asunder. I close with this reason, and find it confirmed by Mr. Rohault, Princip. Traité Physique, Tom I. chap. xxiii. p. 201, " Si un corps dur a ses pores assez grands pour contenir beaucoup de liqueur, et si ces pores sont remplis d'eau, comme l'eau ne peut se geler sans se dilater, il peut arriver qu'en se gelant elle eclatera le corps qui la renferme ?"

hand;

hand, according to promise, to recite the advantages of mountains; and these also are very many, and some very considerable, so that the kind Creator has universally, in some things, compensated the want of others, which he has thought fit to withhold from mankind.

The first benefit of mountains is, that they collect the clouds and dissolve them in rains, as I have already shewn; likewise that the masses of snow, reservoirs, and springs in the mountains, send down large and small currents of water, whereby the fields, woods, and cattle are refreshed, and even the subterraneous veins of water and springs, which do not immediately issue from without the mountains, owe their origin to them, especially where the veins are large and rapid, as has sufficiently been made out by Ray, Scheuchzer, Wolff, and other naturalists. I would only remark here, that several level heaths remain barren and uncultivated, merely because, after digging deep for springs, men can scarce procure water sufficient for their own use, and have no fodder for their cattle at all. I am also of opinion that mountain-water is more fertilizing than common rain-water, and whether from salt-petre effluvia, or some other cause, has in it a particular vegetative power, as is manifest not only from the quickness of the growth, and vigor of all kinds of young trees, particularly pines, ashes, oaks, and other trees on the sides of mountains, where is very little earth, and sometimes even in arid clefts, where they are known to thrive better than when planted in other parts; but the same is likewise visible in the cultivated parts, which indeed are small, but in such fecundity, as both in straw and grain greatly to surpass the champaign country, the marsh-lands and the like excepted. It is also well known, that the surface of the hard mountains, tho' unfit for the plough, affords large and excellent pasturages, and the property of the northern peasants in oxen, cows, sheep, and goats, would be reduced very low, were it not for their spacious range on the sides of the mountains; not to mention that wild-fowl, and beasts, do as well as the several hurtful animals find more refuge and food in the mountains, than in the level country. Besides, the mountainous countries may be considered as the store-houses or treasuries of providence, where are laid up, and from whence he kindly dispenses, according to the exigencies of the world in every age,

Mountains  
the store-  
houses of pro-  
vidence.



those metals and minerals, which are become so indispensable in human life, and the want of which, as a medium in commerce, obliges some nations to exchange their commodities for a small bit of iron. Norway, till a century and a half ago, appears from all accounts to have wrought but few mines, consequently, the country contained treasures out of knowledge. Since that time, matters are so improved by the assistance of German miners, that the silver, copper, and iron mines, have produced to the amount of several millions. Olaus Magnus, would be agreeably surpris'd, if he were a witness of the increase of mines, both in his native country, and here, beyond what he had ever imagin'd; for in his time he could say, “*Montes excelsi sunt, sed pro majori parte steriles et aridi, in quibus nil aliud pro incolarum commoditate et conservatione gignitur, quam inexhausta pretiosorum metallorum ubertas, qua satis opulenti fertilesque sunt in omnibus vitæ necessariis, forsitan et superfluis aliunde, si libet, conquirendis, unanimique robore ac viribus, ubi vis contra hæc naturæ dona intentata fuerit, defendendis. Acre enim genus hominum est, &c.*” These last words, which may confirm the opinion, that the inhabitants of Sweden and Norway derive their natural vigour and bravery, from the proximity of these rocky mountains, remind me of the third advantage to be considered here; namely, that the mountains afford a shelter and defence, not only against the inclemencies of the weather, but likewise against invasions. They serve, as has already been said, for boundaries betwixt Norway and Sweden; for from Kolen, a long chain of mountains, of an amazing height, separates these two kingdoms. But the experience of all ages shews the many mountainous tracts in the country to be natural fortresses; for the Norway peasants, who are excellent marksmen, post themselves in time of war, on the steep inaccessible rocks, where, animated purely by a zeal for their country, they gall the enemy incredibly. Some provinces are also by nature utterly inaccessible to an army encumbered with artillery. On this account the city of Bergen, tho’ fortified by no more than two castles towards the sea, is thought to be in no great danger, if threatned only by a land-force; for the peasants living in Justedale, and other places of the same kind, where the only passage is thro’ a narrow defile, could, with a handful of men, keep

Olaus Magnus, in Hist. Sept. Præf. Lib. vi.

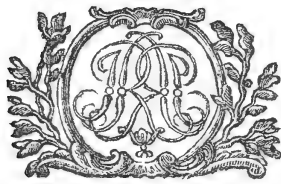
off a numerous army. Whether mountains be universally a natural girdle or band for strengthening the compages of the globe, as some conceive, I leave absolutely undetermined, it being immaterial to my purpose to adopt such conceits for my own\*.

Pleasant  
landscapes.

Lastly, these natural fortifications seem also to be an ornament and decoration to the country; the diversified figures, and alternate eminences, and other varieties, according to the taste of most people, form a much more agreeable landscape than a flat and even country, which is almost every where the same. In this respect our country affords the most delightful contrasts in the diversity of its prospects. And these most magnificent structures of the great architect of nature, raise and animate the mind of man, by inspiring him with the most agreeable and the most sublime sentiments. Towards the extremities of the sea-coast, those who sail along the bare rocks and towering mountains of Norway, will be apt to conclude, that the country can afford nothing but wretched cottages, and extreme penury; but this opinion soon vanishes upon their coming into the creeks, and observing that here, according to the German proverb, *there are people behind the mountains*, and that in the vallies and narrow interstices they live very agreeably, amidst such delightful landscapes, that within a few miles, a painter might have choice of incomparable originals. It is certain that nature has been more profusely favourable to the situation of some farm-houses, than to most royal palaces in other countries, tho' assisted with all the embellishments of groves, terrasses, cascades, canals, and the like. Some trading places, as Bragnes and others, are charmingly situated betwixt the mountains at the mouth of the rivers. A predecessor of mine is said to have given the name of the northern Italy to the district of Waas, which lies some leagues eastward of Bergen; and certainly to one who desires no more than a regular assemblage of the beauties of nature (tho' of mere nature) there cannot be a more enchanting prospect; for all the buildings in it are Wang-church, the parsonage, and a few farm-houses scattered on different eminences. But the beauty of the prospect is much heightened by two uni-

\* Quod ossa in microcosmo, hoc in geocosmo montium structura facit, qui totam terreni globi molem ita stringunt, ut dissolui minime possit atque hoc modo perfectam consistentiam consequatur. Athanas. Kircherus in *Mundo Subterraneo*, P. 1. pag. 67.

form mountains, gradually rising in the same proportions to a vast height, betwixt which runs a valley near half a league in breadth, and a river sometimes spreading into little lakes, and sometimes precipitating itself down the rocks, in foaming and sonorous cascades. On both sides it is bordered with the finest meadows, intermingled with little thickets; and the easy declivities of the verdant mountains covered with fruitful fields, and farm-houses standing above each other in a succession of natural terrasses. Between these a stately forest presents itself to the view, and beyond that, the summits of mountains covered with perpetual snow, and still beyond these, ten or twelve streams issuing from the snow-mountain, and forming an agreeable contrast in their meanders along the blooming sides of the mountain, till they lose themselves in the rivers beneath. In other places, especially Osterland, and even beyond Drontheim, in North-land, in the districts of Salten and Senien, there are likewise very pleasant spots, besides other advantages, which the inhabitants reap from the mountains, of which, to avoid prolixity, I now take my leave. But if any want further motives or informations on this head, to lead their meditations to God, as *the God of the mountains*, I refer them to the ivth chapter of Derham's Physico Theology.



## C H A P. III.

## Of the W A T E R S.

SECT. I. *The sea-coast, islands, and harbours of Norway.* SECT. II. *Bottom of the sea along the coasts.* SECT. III. *Bottomless depths even in the narrow streams and creeks which run up the country.* SECT. IV. *Weight of the sea-water.* SECT. V. *Its colour.* SECT. VI. *Its saltness.* SECT. VII. *Its fatness.* SECT. VIII. *Its coruscations, and brightness in the night.* SECT. IX. *Its agitations by winds, ebb, and flood.* SECT. X. *The Moskoe river in Nordland, is not what it appears to be at a distance.* SECT. XI. *Fresh-water, particularly springs, in Norway.* SECT. XII. *Rivulets, currents, rivers, fresh-water lakes, and floating islands in them.* SECT. XIII. *The great advantage of such waters for the conveyance and exportation of timber.* SECT. XIV. *Water-falls, or Cataracts, from the rocks into the rivers.* SECT. XV. *Bridges over the rivers, and the wonderful construction of some of them.* SECT. XVI. *Easy way of travelling in the winter over the frozen waters.*

## S E C T. I.

The coasts, islands, and harbours of Norway.

**I**N our survey of the element of water, in and about Norway, the first object which presents itself to us is a part of the north or large Atlantic sea, which follows the coasts of Norway for three hundred leagues, and by many narrow channels forms a multitude of small and large islands, some of them being from three to six or nine leagues in length, and not barren; but most of them are so small, that they are inhabited only by some fishermen and pilots, who keep a few heads of cattle, which they send out for pasture to the nearest little islands, rocks, and Sheers. By such a rampart, which possibly may consist of a million or more of stone columns, founded in the bottom of the sea, the capitals whereof scarce rise higher than some fathoms above the waves, almost the whole western coast of Norway is defended; and thro' the providence of the wise Creator, there are many advantages which arise from them. Among these the first is, security against any naval power of an enemy, whose ships, without a pilot from the country itself, would not dare to venture within the Sheers, and then they are in danger from the least storm, which hereabouts gives no warning, insomuch, that in an instant, unless they have the good fortune of securing themselves in a good harbour, they may be dashed to pieces in the creeks, which are all inclosed  
I with

with steep rocks. This coast, indeed, affords so many and such good harbours as few other maritime countries can boast of; and this is another advantage of these numberless rocks and Sheers. Yet a large ship, which cannot make use of oars, will be in danger of not reaching the harbour, before the wind, or the current, which are very violent in the Straits, dash it against the steep rocks in the neighbourhood. In order to prevent this danger, several hundreds of large iron rings, have, by order of the government, especially here about Bergen, been fixed in the rocks more than two fathoms above water, as moorings to the ships, when there is not room for anchorage. The coasters find the advantage of so many Sheers and rocks, as these protect them in a calm water, against the violence of the waves, which is greatly abated by breaking against the rocks. On the other hand, a few open places, such as the harbour of the town, and that directly before Jeder, are so dangerous to pass, that many lives are lost there every year, the waves of the western ocean, when driven by a storm towards the land, making a very hollow and terrible entrance.

The bottom of the sea is here, as every where, full of inequalities, and in this respect, not less varied than the land, which is frequently an alternate succession of high mountains, and deep vallies. The analogy is the same in the substance of the bottom of the sea, according to the observation of pilots, from the end of their leads, where they sometimes find stones, sometimes clay, chalk, mud, and sometimes white or brown sand; and in many places it is over-run, not only with all kinds of sea-grass, but with several sorts of sea-trees, some of which are pretty large, with corals, and the like stony vegetables\*. A clear view of these, and likewise of the incredible multitude of sea-animals, monsters, &c. most of them unknown, to which these vegetables partly serve as aliment, could not but excite in us the greatest astonishment; for from the sea-vegetables, which sometimes hang at the lines, or other implements of the fishermen, and of which I have a large collection, we must conclude, that the bottom of

Bottom of the  
sea.

\* Sylvas esse submarinas mare rubrum fat superque docet, ex cujus fundo subinde ingens a piscatoribus corallarum arborum copia, ceraso nostro vix cedentium uti ab Arabibus rubri maris accolis non semel audivi, eruitur. Kircherus Mund. Subterr. P. I. pag. 97.

the sea, in its plains, mountains, and vallies, has forests of different kinds of trees, which, from the size of some branches which have been drawn up, may be conceived at least equal to the largest fruit-trees in our gardens; but I reserve my own observations upon these, till I come to treat in their order, of the Norway plants and vegetables.

## S E C T. II.

Bottom of the sea along the coast.

The Norway shore is in very few places level, or gradually ascending, but generally steep, angular, and impendent, so that close to the rocks the sea is a hundred, two hundred, nay, three hundred fathoms deep; whereas, on the long and uneven sand-banks, which are generally called Storeg, or by others Haubroe, sea-breaks, the bottom is much more sloping. These protuberances run north and south along the coast of Norway, like the Sheers, tho' not within them; in some places they are but four or six leagues, in others twelve or sixteen from the continent, that from thence it may be concluded, that the bays are formed by them. These Storegs are another disposition of the wise Creator, from the abundant fisheries they afford, like the Dogger-bank betwixt Jutland and England; in a bottomless deep the fish would be out of reach, but here is as it were their daily rendezvous, and the depth being from ten to fifteen fathoms, they are taken with great ease.

## S E C T. III.

Unfathomable depths, even in the rivers and creeks.

From the sea, particularly on the west-side of Norway, several large and small creeks run six, eight, or ten leagues up the country; in these the bottom is found to be very different, tho' in general as deep as that of the sea without; but as to the depth under water, the peasants pretend, that the nearest steep mountains are the measure by which to judge, they corresponding in their height above water, with the depth of the sea: Whether this rule be exactly right I shall not determine\*. This, however, is certain from general experience, that in the middle of these westerly creeks, runs another narrow channel of a quite disproportionate depth, which therefore is called Dybrende, i. e. the deep courses; the breadth

\* This is confirmed by experience in many other countries. Dampier's Voyages, P. II. p. 476.

is from fifty to a hundred fathoms; but all the fishermen agree, that the depth is seldom less than four hundred fathoms, and they are very careful in spreading their nets, to cast them as near this deep channel as possible, for the fish are caught in the greatest plenty on its banks, it being as it were a place of their daily resort; but herein they are obliged to use no less caution, that their nets be not carried into these depths, for the current, on account of its narrowness being very rapid, they are hardly recoverable; and, besides, their line and nets will not suffice for a gulph of three or four hundred fathoms. The depth of the water on both sides of this channel, is commonly about an hundred fathoms, to which, if according to the above-mentioned rule, the height of the steep rocks on the sides be added, tho' many of them are twice or three times higher, the whole space from the crest of the mountains to the bottom of these narrow depths, is at least five hundred fathoms, or fifteen hundred ells. This great depth appears to me very worthy of observation, to those who would investigate the effects of the general deluge, these deep creeks, and other deep vallies, being, as I conceive, formed by the ebb of the waters, in the substance of the rocks, which has been shewn to have been soft and impressible, as a paste, or a mass of mud, which gradually subsided and became a solid bottom to the waters, through which the large streams and floods in their impetuous ebb must have made an incision, more or less deep, according to the height of the place from whence they issued. Now if it be considered, that the long chain of high and extensive mountains, reaching, north and south, the length of fifty Norway miles from the middle of the diocese of Christianland to Dofrefield, is about sixteen Norway miles from the furthest sea-coast, likewise that all the western creeks run across from the root of that chain into the sea; we shall conclude, that the great depth of the creeks is little to be wondered at, the places, from whence the last waters fell, being of such an enormous height, consequently the many waterfalls, which gradually depressed the eminences, and the edges of the sides of the mountains, must have been of extreme rapidity, and strong enough to occasion these deep channels. The benefits of them are such, that to them the diocese of Bergen may be said to owe its being habitable, and the communication it enjoys

joys with the sea. For the many insurmountable rocks and precipices, the roots of which are penetrated by these navigable creeks, would else have rendered it impossible to dwell any where but on the sea-coasts, many tracts on this account being wild and uninhabited, in the mountains of Tyrol; and divers parts of this diocese, distinguished by the name of Uddale, i. e. inaccessible vallies, are, for want of communication with other countries, either without inhabitants, or they are destitute of conveniencies, tho' here and there in no want of fuel and pasture. Concerning this depth of the sea, I must further add, that in some places no bottom can be found, as in Floge creek, a Norway mile from Drontheim, where, after measuring it with a line of a thousand fathoms, the search proved fruitless, so that unquestionably the bottom of the sea has an opening or communication with this immeasurable abyss.

## S E C T. IV.

Weight of the  
sea-water.

Altho' the sea-water, towards the north, contains less salt, than that near the line, as shall hereafter be shewed, yet its weight is much greater than in the warm countries, the cause of which is by Isaac Peyrere, in his letter concerning islands, to M. de la Mothe le Vayer, attributed to the aqueous particles, which are here more dense and impure than elsewhere. But as this creates another inquiry, he might more pertinently have said, that the air near the poles being condensed by the cold, compresses close whatever it touches, and consequently the particles of the water, and as by this compression they adhere closer to each other, consequently they have force to bear up heavy burdens, which in lighter waters would sink.

Rohault  
Traité de  
Physique,  
Tom. II. p.  
III. cap. III.  
§ 9.

## S E C T. V.

Its colour.

According to the observation of Mr. Urban Hiernes, the water of the north-sea is of a bluish tinge, as that near the Green Cape and Florida partakes of the colour of the sea-grass, which grows in great abundance thereabouts; near Vera Cruz it is white, from the chalky bottom, and near Maldivia it is as black as ink, probably by reason of the effluvia from the coal-mines, or some other black substance at the bottom. But that the water of the north-sea, has in itself a blue tinge does not appear, and I am



inclined to believe that this blueness is no further real, than as the eye is apt to represent to itself the air, or any object at a great distance, of that colour. Peyrere, in the place before cited, affirms, that the ice in the north-sea is blue, and therefore by the ancients termed *Cerulea Glacies*. The snow, which on the summits of the mountains gradually hardens into ice, is of this colour, and therefore commonly called *Blaabreen*.

## S E C T. VI.

Altho' the sea-waters of Norway be much saltier than those of its softness, the Baltic, where the sea is refreshed by abundance of rivers running into it, yet it has not the saltiness of that in warmer countries, especially under the torrid zone. And this is no more than natural; for where the vehement heat of the sun occasions a more Lowthorp. Abridgm.vol. 11. p. 297. copious evaporation and exhalation, as in the salt-pans, there the saline particles in the remaining water become the more closely united, and consequently the saltiness of it more pungent; for that the sun itself should convey in its scorching rays innumerable atoms of salt to the sea, and consequently most there, where it strikes the greatest heat, is contrary to all experience, altho' the long since rejected principle of Aristotle \* is again discussed and espoused by that very ingenious and diligent naturalist in Sweden, In the above-mentioned work, p. 83. Mr. Urban Hierne. It seems of more importance here to enquire, why the saltiness of the sea-water, here decreasing towards the north, increases at some distance higher towards the north-pole, so that the water, no further than Iceland, is saltier than the water on our Norway coasts, according to M. Anderson's remark in his Description of Iceland? The cause is plainly this, that a very intense cold, sublimates by evaporations greater quantities of the superficial and freshest sea-water, and partly dissipates them by frost. Thus here the cold has, tho' in a less degree, almost the same effect as the heat in hot countries; but this effect it cannot produce on the west-coast of Norway, where, for the most part we have damp weather, and know very little of the clear cold

\* Je dirai ici en passant, que c'est un erreur d'affurer avec Aristote, que la salure de la mer depend de ce que les eaux sont brulées par les rayons du soleil, car l'on n'a jamais experimenté que la chaleur de cet astre, ou meme celle de la flamme ait converti de l'eau douce en de l'eau salee. Rohault Physique, T. II. p. 111. cap. iv. Sect. 34.

of winter, as I have shewn in the first chapter, together with the causes of it. Further, that the sea-salt dissolves and detaches itself from the adjacent salt-grounds, and, partly, is carried thither by subterraneous currents, running thro' the deep salt-mines; of which kind some are to be found in Poland, and other parts, seems to me preferable to any other opinion, although the sagacious Baron Wolfe cannot entirely come into it. But what I alledge in answer to the question, why the sea-water does not continually grow falter, is this; that exclusive of the immense quantity of salt, which the sea daily loses by the many salt-works in France, Spain, and other countries, exclusive of the rain, and the fresh-water rivers discharging themselves into the sea, by which, according to the disposition of the wise Creator, the balance is continually maintained; exclusive of all this, it is highly credible, that fresh-water springs issue out of the bottom of the sea. The possibility of this admits of no doubt; but to demonstrate the reality by any experiment, will be attended with some difficulty, yet the fishermen living under Sund-moer, have more than once informed me, that they often find, in the body of a skate, water entirely fresh; which must always be such, if this freshness be the result of a kind of filtration, which the water has undergone within the body of the fish; but this freshness not being common, I conclude that the fish has drank in this fresh-water from a spring breaking out in the bottom of the sea. It is observable, by the way, that the sea-water on the coast of Norway, but mostly on the west-side, is known to be pretty full of salt particles, the peasants finding no small quantities of salt in the clefts and apertures of the rocks, where, by the egress and regress of the water, some salt is left with the remaining surr, such as might on occasion be collected and purified. In Hardanger, on Nord-moer, and several other places, particularly in the diocese of Drontheim, the peasants extract salt from the sea-water by boiling; but as this operation is forced, and consumes great quantities of wood, therefore the law of Norway prohibits the boiling any more salt than is necessary to every one for his domestic uses, without the express permission of the magistracy to make that use of the fuel. About ten years ago, a large salt-work was begun at Tonsberg on the king's account, and the sea-water, after being first refined, is there boiled in such quantities, that  
several

Fresh springs  
in the bottom  
of the sea.

Salt-pans.

everal ship-loads are annually exported; tho' this is but a small matter in comparifon with fixty, or more, fine large fhips laden with falt, which come every year from Spain and France, for the fifhery and other ufes.

## S E C T. VII.

Next to its faltnefs, the oil, or fatnefs, or unctuousnefs of the north-fea, is a remarkable property of it, efpecially as the innumerable shoals of large and fmall fifh, which are both ingendered and nourifhed there, ferve both for food, and for the benefit of light, to almoft all countries in Europe. For it is not merely by devouring one another that the fifh are fattened, or by the aliment they receive from an infinite number of worms, and other infects, likewise fea-grafs, fea-trees, and fuch vegetables, which are the food appropriated to particular kinds of the inhabitants of the fea; the falt-water itfelf, is from its faltnefs fo fat and oily, that when a fhip is on fire, the fea-water, fo far from extinguifhing, encreafes the flame. The Chemifts know how to extract oil from falt, and Aristotle fays, *Quoniam mari fuum pingue eft, quod oleum demonftrat quod in fale eft.* Besides this, in many places the bottom of the fea is covered with a kind of unctuous loam, or flime, which, unqueftionably, is formed from the fuperfluous roes and fpawn of the fifh, which cannot all produce young, nor can they be all confumed by the other fifh whilft they are frefh, altho' they hunt for it with the greateft eagernes. It is moreover not improbable, that fmall fprings or currents of rock-oil, naphtha, fulphur, or pinguous effluvia of coals, and other flimy and oleaginous juices, may arife in the fea as well as the earth.

The fea-water oily.

Arist. Probl. § xxiii. Qu. 32.

## S E C T. VIII.

This unctuousnefs of the fea has probably fome connection with its effulgence and fcintillations, when the water being ftirred by rowing, or otherwife, appears all on fire, which by our mariners is called Moorild. I have already in the firft chapter, in treating of the Aurora Borealis, or north-light, taken occafion to quote Captain Heitman's opinion concerning this phænomenon, and fhall only obferve here, that Mr. Urban Hierne, the Swedifh naturalift, who in a paffage before cited, derives the fea-falt from the fun, judges

Nocturnal corufcations and effulgence of the fea.

judges this sea-light to be a kind of phosphorus, formed from the luminous particles of the sun, and even of the moon, impregnated by water; as is the case in the Lapis Bononienfis, and Baldwin's phosphorus. But instead of resting in these, or other conjectures, I am much more inclined to declare my opinion, that this otherwise inexplicable phænomenon in the sea, has been best illustrated (tho' with room for many additions) by a little piece lately published at Venice, with the title of *Nuovo Scoperto Intorno di luci Notturme dell' Aqua Marina*. Having no opportunity of seeing the original, I am the more obliged to the diligent and ingenious authors of the *New Copenhagen Literary Journal*, who have given us the substance of it in the xxxixth part, of the 24th of Sept. 1750, in the following words, "Our author is the first who has explained the true cause of this coruscation: He has observed, that in the gulph of Venice, the water is luminous only from the beginning of summer till the end of harvest, and that this light is most copious in places abounding with sea-grafs; and still more when the water is put in motion, either by the winds, ships, or oars. In 1746, the author filled a flask with this scintillating water, and carried it home; but it emitted no light, except only when stirred in the dark, it immediately sparkled. He closely inspected it in the day-time, in order to discern whether the water had any thing heterogeneous in it, from whence these emanations of light proceeded; but nothing of this kind appeared to the naked eye: he therefore strained the water through a close fine cloth, the consequence of which was, that the cloth shone in the dark, but not the water, however shaken or stirred. This inclined him to judge, that the lucid substance in the water was something distinct from the water itself, especially as he perceived the light, which the cloth emitted, to consist of innumerable lucid particles or points; but not having a microscope at hand, he could take no minute view of them. Having some time after procured a microscope, he gathered some sea-grafs, which is most apt to glitter in the night, and upon examining it in a dark place, he discerned above thirty of these lucid particles on one single leaf. He shook this grafs over a sheet of paper, when one of these particles fell off; it was as subtile as an eye-lash, and about as long, and the colour a black yellow: he now made use of the microscope,

scope, and plainly saw it to be a living worm, or annular maggot, consisting of eleven wings, like most of the larvæ, with as many mamillæ on the sides instead of feet, and both at the head and rump, four trunks or feelers (antennæ or tentacula.) In the prosecution of his researches, he found that all these lucid appearances in the water, arose from these minute and almost invisible maggots; their whole bodies were lucid, and not some particular part only, which is the case of some kinds of reptiles; tho', when at rest, their effulgence was considerably fainter. In spring these luminous animalcula confine themselves to the sea-grass, but in summer they are dispersed all over the sea, and mostly on the surface. When these nocturnal scintillations are unusually strong and frequent, the fishermen account it a sure prognostic of a storm, or foul weather; and this proceeds from the greater agitation of the worms, already sensible of the approaching changes. This experiment puts it beyond all question, that the glittering of the sea, in a ship's course, is occasioned by these worms; and it is no less certain, that they are the cause of the light in the Penna-marina, (a large muscle) of which Dr. Shaw writes, that they are frequently caught by the Algerine fishermen; and in the night their radiations are so strong, that the fish nearest to them in the net are discernible without any other light. It were to be wished, that the author had been more precise in his description of these animalcula; if his eyes may be relied on, one cannot but judge, that they are only a species of the Genus *Aphroditæ*." Thus far this author; to which all my present addition shall be this; the *Ignes lambentes*, or lambent flames, so well known, which by their hovering about the ships rigging, and often settling on the masts, tho' without doing any damage, strike a terror into the seamen; and likewise those *Ignes fatui*, or jack-a-lanterns, which deceive the traveller by land, must, according to this principle, be no more than worms, bred in the above-mentioned sulphureous oil, with which both land and sea is filled, but which is too subtle to be discerned by day, when even the light of the stars is seemingly invisible.

## S E C T. IX.

Motion of the  
sea by cur-  
rents, ebb, and  
flood.

My subject brings me at last to the several motions of the water in Norway, by the ebb and flood, and by other perpetual currents; the motion of the sea by winds, or by the impulse of the corpuscles of the air, having already in some measure been considered in the first chapter. The motion of the sea is generally from east to west, tho' it be not always apparently so to us; for the earth revolving round its axis with a constant rapidity, and in an opposite direction from west to east, and the water as a more lax element, not being capable of equal velocity, but somewhat slower in its progression, the surface thereof seems to be in a contrary and retrograde motion. The motion of the water is in some measure influenced by the sun, but not to such a degree here as in the warmer countries; where its rays being more perpendicular, act with the greater force\*.

Another motion in the sea is interrupted, and mixes with the general stream, occasioning the water alternately to rise and fall within the twenty-four hours, when the flood proceeds from the east, and the ebb from the west, and these alternatives fall out regularly according to the course of the moon, so that they are very little varied by the shifting of the winds. The greatest height of the flood here is eight feet, but much more usually from four to six, which is far short of the height in the Netherlands, and England, the water being checked in the strait betwixt Calais and Dover, but having more room to extend itself in the north-sea†. That this motion, in other respects one of the greatest mysteries in nature, is, as to its original cause dependent on the moon, cannot well be controverted: But whence this influence of the celestial bodies on the waters of our globe; whether, according to the sentiment of the ancients, the rays of the moon leave the sea im-

Hartf. Conj.  
Phyiq. L. 1.  
Disc. I. p. 52.

\* The current in some places is remarkably strong and impetuous, as where it is extremely straitened and confined at the bottom by ledges of sheers, rocks, or sand-banks, at a small distance from the shore; and being thus contracted into a narrow channel, is so difficult to stem, that a boat must either be drawn along by hands on shore, or wait some time till the current abates.

† Mr. Lucas Debes, in his description of the island of Faro, relates something strange of a freshwater-lake near Famoye, a town on a hill of a middling height, that it regularly keeps time with the ebbing and flowing of the sea. As the impression of the moon upon our atmosphere cannot be stronger on this fresh lake than on others, this must be supposed to have a subterraneous communication with the sea, through some vast and extraordinary hiatus.

preg-

pregnated with an intumescent or fermenting power, by which it begins to work alternately, with different forces, like new liquor in a cask; or whether Descartes comes nearer the truth, in advancing, that it is only the atmosphere of the moon, which makes an impresson on all sublunary bodies (of which patients in certain diseases have very sensible experience) but most on the sea, where, accordingly the impresson is most observable: this must, as it has hitherto been, remain a difficult problem \*, even to our inquisitive age. And, indeed, there is no absolute necessity that our great Master should in this life admit us, as his scholars, and the most knowing are but novices, into all the arrangements and operations of his almighty power and inscrutable wisdom. I rather think it were best to rest in a devout admiration of these things, than to subject them to an arrogant and presumptuous decision.

## S E C T. X.

There is another kind of current, or motion of the water in the sea of Norway, remarkable, and somewhat relative to the ebb and flood, namely the *Malestrom*, or *Moskoestrom*, in the 68th degree, in the province of *Nordland*, and the district of *Lofoden*, and near the island *Moskoe*, from which the current takes its name. Its violence and roarings exceed those of a cataract, being

The Moskoe-  
strom not  
what it is ta-  
ken for at a  
distance.

\* “ Le fluide pesant et elastique, dont nôtre terre est environnée, doit comme tous les liquides, s’élever ou s’abaisser dans les endroits, où des causes étrangères détruisent l’équilibre, d’où viennent, dans les tems réglés, des changements dans la pression de l’air. Le flux et reflux admiré de tout tems, mais inexplicable avant Newton nous fournit la résolution de ce problème. Nous voyons cette grande masse d’eau s’élever deux fois toutes les vingt-quatre heures, dans le tems que la lune est ou directement au dessus de nous, ou dans le point opposé. Nôtre air, par la même raison, et dans le même tems doit aussi changer sa figure sphérique en celle d’un spheroidé allongé dont le grand diamètre passe par la lune. Le soleil, qui de même qu’elle traverse tous les jours deux fois, nôtre méridien, produiroit le même effet, si sa distance plus grande ne mettoit entre son action et celle de la lune le rapport de 1 à 4  $\frac{1}{2}$ . Le concours de ces deux astres dans les tems de la pleine et de la nouvelle lune augmente les elevations de la mer, et doit augmenter de même les marées invisibles de l’air, et elles doivent être plus petites dans les quadratures, lorsque les actions des deux luminaires sont opposées entre elles. Elles sont d’ailleurs proportionnées à leur distance plus ou moins grande de la terre. Et les déclinaisons de la lune dans de certains lieux rendent tous les jours l’une des deux marées, tant dans l’air que dans la mer plus grande que l’autre.” *Biblioth. Raisonnée de l’an 1746, T. xxxvii. p. 299, 300.* This extract from Dr. Mead’s treatise, *De Imperio Solis ac Lunæ in Corpora Humana, &c.* is the most apposite of any, and I can confirm it by the instance of a lady but lately dead at Bergen, the calves of whose legs, in the time of her pregnancy, so punctually swelled and abated with the efflux and reflux of the sea, that the time of tide could be determined without looking towards the sea.

heard

heard to a great distance, and without any intermission, except a quarter every sixth hour, that is, at the turn of high and low water, when its impetuosity seems at a stand, which short interval is the only time the fishermen can venture in: but this motion soon returns, and, however calm the sea may be, gradually increases with such a draught and vortex as absorb whatever comes within their sphere of action, and keep it under water for some hours, when the fragments, shivered by the rocks, appear again. This circumstance, among others, makes strongly against Kircher and others, who imagine that there is here an abyss penetrating the globe, and issuing in some very remote parts, which Kircher is so particular as to assign, for he names the gulf of Bothnia. But after the most exact researches which the circumstances will admit, this is but a conjecture without foundation; for this and three other vortices among the Ferroe islands, but smaller, have no other cause, than the collision of waves rising and falling, at the flux and reflux, against a ridge of rocks and shelves, which confine the water so that it precipitates itself like a cataract; and thus the higher the flood rises, the deeper must the fall be; and the natural result of this is a whirlpool, or vortex, the prodigious suction whereof, is sufficiently known by lesser experiments. But what has been thus absorbed, remains no longer at the bottom than the ebb lasts; for the suction then ceases, and the flood removes all attraction, and permits whatever had been sunk, to make its appearance again. Of the situation of this amazing Moskoeftrom we have the following account from Mr. Jonas Ramus, “The mountain of Helseggen, in Lofoden, lies a league from the island Ver, and betwixt these two, runs that large and dreadful stream called Moskoeftrom, from the island Moskoe, which is in the middle of it, together with several circumjacent isles, as Ambaaren, half a quarter of a league northward, Iflesen, Hoeyholm, Kieldholm, Suarven, and Buckholm. Moskoe lies about half a quarter of a mile south of the island of Ver, and betwixt them these small islands, Otterholm, Flimen, Sandflesen, Skarholm. Betwixt Lofoden and Moskoe, the depth of the water is between thirty-six and forty fathoms, but on the other side, towards Ver, the depth decreases so as not to afford a convenient passage for a vessel, without the risk of splitting

In *Mundo Subterr.* C. x. Lib. iii. p. 147.

Nordisch Chorograph. p. 233, 234.



ting on the rocks, which happens even in the calmest weather : when it is flood, the stream runs up the country betwixt Lofoden and Moskoe, with a boisterous rapidity, but the roar of its impetuous ebb to the sea, is scarce equalled by the loudest and most dreadful cataracts ; the noise being heard several leagues off, and the vortices or pits are of such an extent and depth, that if a ship comes within its attraction, it is inevitably absorbed and carried down to the bottom, and there beat to pieces against the rocks ; and when the water relaxes, the fragments thereof are thrown up again. But these intervals of tranquillity are only at the turn of the ebb and flood, in calm weather, and last but a quarter of an hour, its violence gradually returning. When the stream is most boisterous, and its fury heightened by a storm, it is dangerous to come within a Norway mile of it, boats, ships, and yatches having been carried away, by not guarding against it before they were within its reach. It likewise happens frequently, that whales come too near the stream, and are overpowered by its violence ; and then it is impossible to describe their howlings and bellowings in their fruitless struggles to disengage themselves. A bear once attempting to swim from Lofoden to Moskoe, with a design of preying upon the sheep at pasture in the island, afforded the like spectacle to the people ; the stream caught him, and bore him down, whilst he roared terribly, so as to be heard on shore. Large stocks of firs and pine-trees, after being absorbed by the current, rise again, broken and torn to such a degree, as if bristles grew on them. This plainly shews the bottom to consist of craggy rocks, among which they are whirled to and fro. This stream is regulated by the flux and reflux of the sea ; it being constantly high and low water every six hours. In the year 1645, early in the morning of Sexagesima-Sunday, it raged with such noise and impetuosity, that on the island of Moskoe, the very stones of the houses fell to the ground." So far Mr. Ramus, whose account perfectly agrees with those given me by others, especially Mr. J. Alhand of Ethne, who in his younger years was chaplain there, and consequently had many opportunities of observing variety of circumstances. Mr. Peder Dafs, who lives on the very spot, will admit of no other cause of this natural prodigy ; and in contradiction to the opinion of the Danish poet Arreboe, in his stanzas on subterraneous watery abysses, he

affirms this vortex to arise only from the violence and rapidity of the daily ebb and flood, occasioned by the contraction of its course betwixt the rocks, whereby, in calm weather, but much more when the sea is roused by the wind, this Moskoeftrom is rendered so dangerous and dreadful, both on account of its sound, and the furious agitation of its mountainous waves.

The like vortices in Ferroe. Ferroe Referrata, cap. i. P. 45.

For the illustration of this strange phenomenon, I shall add a description of three vortices, equally rapid, but not bottomless, here in the north-sea, near the island of Ferroe: What the late Rev. Mr. Lucas Debes, superintendent there writes of them, deserves to be read in his own words: "In Ferro are three whirlpools, one betwixt the islands of Vider, Suine, and Bord, but here is no great danger: the second is off the island of Sand, near Dalsflaes; it is distinguished by the appellation Quærne, i. e. mill-wheel, and in blowing weather, or a high tide, is dangerous; but the greatest danger lies in the third, which is southward of the Suder island, and runs round Sumboe-munk. These, and the like whirlpools, are not occasioned by any extraordinary abyss, or subterraneous cavities, into which the water is violently attracted in the time of ebb, and again ejected at the time of flood; as some imagine the flux and reflux, over the whole ocean, to result from the like causes; for if this were the case, it would not be attended with such a terrible sound, a deep bottom making a still water; but the real cause lies in the convexity of the bottom, intersected with canals or trenches.

I have made the most diligent research into these whirlpools, having been sent from Ferroe with two persons, deputed with public powers, to negotiate some provincial matters; and, on this occasion, one of them, John Joensen, an inhabitant of Suderoe, informed me, that he was the first, who ventured in a row-boat on the southern whirlpool, which runs from Suderoe round Sumboe-munk, and from his own certain and long experience, gave me the following account: This stream, is in itself very dreadful and dangerous, especially in a storm or strong tide, it absorbs every thing near it, and immediately plunges it to the bottom, insomuch that a large ship, within its draught, is infallibly swallowed up. It is but a few years since the above-mentioned John Joensen, about Christmas, saw a large ship driven into this stream by a storm,

first

first it mounted with its prow foremost, then was reverted with its stern uppermost, the surf flying over the mast head; but in a very short time he saw no more of it. That expert navigator Bagge Vandel, makes mention of this vortex, adding in particular concerning Peter Oddevald, master of a vessel, that both he and the ship's company informed him, that the ship was tossed about in it before he had any sense of the danger, and instantly he lost all power of steering her; that the water broke on all sides into the ship, flying up to the mast head; that the sails were of no service to extricate him, the weather being quite calm. To which the master added, that he had never before been in any danger like it; but that at last God was pleased to help him, and that by the turn of the tide he got without the draught, and arrived safely at Thorshaven, the place of his destination.

But, according to the report of the said John Joensen, the bottom, near this vortex, lies about eighty or ninety fathoms deep, over which the stream runs smooth and silent; after this is another circle, compassing the vortex, at the depth of from twenty-five to thirty, or thirty-five fathoms, and here the sea, fermented by the stream, begins to be agitated, to attract, and whirl round; afterwards the bottom rises so as to be but eight, ten, or twelve fathoms deep, and rises in a winding circle, which increases gradually in four spiral windings: on this shallow ground, are likewise protuberances like the crests on mountains, not more than eight fathoms deep from the surface of the water, whereas, the space between is from ten to twelve fathoms deep; and hence it is, that fishing-boats which come into this unequal bottom, are, by the stream circulating round these rocks, whirled about like a mill-stone, with such rapidity, that young persons who are not used to the whirling, grow giddy, and lay themselves down in the bottom of the boat; and besides this motion, the boat likewise undergoes a rotation round the large spiral circle, formed by the nature of the bottom.

In the third place, there are betwixt these four spiral shallows, three canals, or trenches, where the sea moves gently round in small circles, and beyond them, eastward, where the shallows commence, is a draught like a sluice, thro' which the stream is carried, tho', within, its force and agitations are not so violent.

The depth of these canals is from twenty-five to thirty and thirty-five fathoms; and from the disparity of the depths, and the easy whirling of the water in them, the bottom appears to resemble the land, that is, to consist of eminences and vallies.

Fourthly, in the middle of this vortex is a deep pit, which on its banks measures from fifty to fifty-eight fathoms deep; but in its middle is generally not less than sixty-one. This innermost water is on its surface perfectly calm and smooth, only moving in a gentle circle, as is manifest from the foam of the sea; which, on its devolution from the vortex, moves in a circle. On the south side of this pit, a rock, ten fathom high, rises out of the water; it is called *Sumboe-munk*, and here the depth of the water is but fifteen fathoms. North of this rock lie six sheers, betwixt which, and the rock, the depth of water is three or four fathoms. And what is very remarkable (and which I have accordingly taken notice of elsewhere) among these sheers the compass turns round, in the manner of the vortex, and is spoilt by the motion. Likewise, at some height on *Sumboe-munk*, there is this singularity, that in the midst of summer, and in a strong sunshine, the people who go thither to catch birds, can hardly stand in their ambuscades for cold; besides, the very birds which breed and live there, are so extremely bare of flesh, that their whole substance is little more than their feathers; but of the cause of this singular cold, I can only form uncertain conjectures. The water about *Ferroe*, however essentially cold, yet by its saltness and agitation, usually attemperates the winter's severity in *Ferroe*; I cannot therefore comprehend, how the frequent agitations of this stream against the rock, should by an effect quite opposite, occasion such an extraordinary cold. It might, by way of a solution, be said, that there being a magnetic power in these sheers, as the centre of these round shallows, there must in the other round shallows be a strong magnet, which, besides the force of the current, rapidly draws large ships from their course; and if it be granted, that such magnets are there, then I submit it to the judgment of others, whether the cause of this singular cold is to be sought for in these magnetic powers.

Fifthly, north of the vortex, towards the *Suder* island, there are other protuberances in the bottom, against which the current

is in like manner impelled, and the agitation attended with a very dreadful noise. A clear idea of what is described in the foregoing account cannot be perfectly conveyed by a description. The judicious reader will readily conceive, what a perilous place such a vortex must be in a hard gale of wind, and a full tide; since even in a calm, when the current is most gentle, and at the turn of the tide, which is the only time fishermen can venture out, the boats are whirled round on the surface of it.

The whirlpool, below the isle of Sand, continues circulating to its innermost centre, and is of no great depth in the middle. The third whirlpool, betwixt the northward islands, I have visited twice myself; and upon approaching it, the boat was attracted towards it, with such force, that it was with great difficulty the people prevented the stream from getting the better of us, labouring at the oars on one side, and steering with them on the other. If a boat be caught by the stream, the current first whirls it twice round, and then twice round in a contrary direction, this alternative continuing four or five times; from which the nature of the bottom becomes easily determinable.

These abysses have engaged the attention of many ingenious heads, the depth of the waters being such, that no one could, for a long time, venture to sound the bottom, so that the general opinion among the learned was, that they were gulphs, or abysses, such as caused the ebb and flood. Among others, Kircher writes of the famous vortex in Norway, called Moskoeftrom, that it is a sea-vortex, attracting the flood under the shore of Norway, where, thro' another abyss, it is discharged into the gulph of Bothnia; which opinion is embraced by M. Herbin, in a dissertation delivered by him at Copenhagen, 1670. But as this opinion is only founded in weak reports, it is totally erroneous, as will appear from the following arguments. First, this Moskoeftrom runs along the country, betwixt two shores, or islands, where the bottom, or ground of the sea, is full of eminences, and without any pits. Of the like nature also are all the vortices, both in Ferroe and in Bothnia. Kircher likewise affirms, that many such abysses are to be found throughout the whole world; but always near the continent, or betwixt small islands. Such is the situation of Scylla and Charybdis, in the sea of Sicily, the one be-

Lib. iii. Hydrog.

In Tabula Geographico-Hydrographica.

low Sicily, and the other at the point of Calabria; and for the greater confirmation of this matter, Kircher mentions a high rock standing out in the middle of this current, like the rock before described, in the vortex called *Sumboe*; and certainly these high rocks, in the midst of such perilous streams, are no other than natural marks set up by God himself, that navigators, having timely notice, may avoid the danger.

Next, Mr. Peter Clauffon, in his description of Norway, writes, that the gyration of the water is attended with such roaring agitations as to be heard many miles off. This would not be the case were this vortex occasioned by the extraordinary profundity of the bottom; for it is deepest in still waters; but these roarings proceed from the water being retarded, by its contraction betwixt two islands, in its progress towards the land at the time of flood, and likewise in its regress thro' the same narrow passage at ebb; and, moreover, the flood is obstructed by spiral hills, or protuberances, and lofty angular rocks; from whence it is natural to conclude, that such violent collisions must cause a terrible noise. Thirdly, Mr. Clauffon writes, that this stream absorbs whole trees, and after submerging them, they come up again with their roots and branches stript and torn, which is occasioned by these round and angular rocks, which in the rapid gyrations of the trees round them, strip the bark, and tear the roots and branches; and many of these mangled trees are driven to *Ferroe*, whereas in an abyss, they would be carried another way; for then the cavity would be large and deep, and the water circulate gently, and whatever was absorbed would pass through the abyss without any damage; as may be seen from the plain instance of a piece of wood put into a funnel, afterwards filled with water." Thus far Mr. Debes.

It is evident, from the premises, that some ancient and foreign writers, who could not minutely examine the circumstances, mistook these vortices as the cause of the ebb and flood; of which they are, on the contrary, in reality the effect. I must not omit here, that Mr. Jonas Ramus, in the above-mentioned place, page 220, &c. labours to shew it probable, that *Scylla* and *Charibdis*, which have always been accounted to lie upon the coast of Sicily, were no other than this *Moskoestrom*, whither *Ulysses* was actually

actually driven in the course of his wanderings; the inundations of the water (in the Danish language, Vandens Skyllen) and the island Skarsholm, having given occasion to the names of Scylla and Charybdis. Though I can by no means agree to the opinion of this ingenious Gentleman, concerning Ulysses's voyage, yet, in proving the probability of it in another learned piece, it must be confessed, that he has given proofs of an uncommon erudition and genius, and as to the Moskøestrom, I shall exhibit his opinion in his own words, that then the reader may adopt as much and as little of it as he pleases.

Singular opinion concerning the situation of Scylla and Charybdis.

“Halogaland appears to be one of the first inhabited provinces in Norway; for soon after the Trojan war, Ulysses, whose name was Outin, sailing to the extreme limits of the great ocean, arrived in a dark country, of which he gives the following description; it was full of high mountains, reaching to the very clouds, and perpetually covered with mists and thick darkness, so that they never enjoyed the benefit of the sun, neither at its rising nor setting, and there he met with two horrible sea-vortices, Scylla and Charybdis, the noise of which struck him with terror, before he came near them; and then he saw a violent ebullition of the sea, like a boiling-kettle, throwing up froth and smoke, which were rapidly carried up in the air. All this has by many been falsely interpreted of the strait near Sicily, though that island has none of those high mountains, covered with dark clouds, nor that gloominess impenetrable to the rays of the sun, nor a perillous roaring stream, so as to be impassable without extreme danger. But all this perfectly coincides with Moskøestrom, near Helleland, where there are, on the side of Lofode, those high mountains called Helfeggen, the summits of which, according to Homer's description, were inaccessible to any man, tho' he had twenty hands and feet, and in winter involved in continual mists and darkness; for from the 27th of November to the 25th of December, old stile, the sun is never seen there. There, likewise, are those terrible ebullitions, and horrible sounds, which so terrified Ulysses at Scylla and Charybdis; circumstances quite similar to the roaring fall betwixt Helfeggen and Moskøe, where the stream overflows the intermediate rocks and islands, and thus came to be called Scilla, from Skillers; and on the other side of

3

Moskøe,

Moskoe, are also islands and rocks, against which the stream breaks, among these, particularly, is the island Skarholm, which may be taken for Charybdis.

The ancient geographers are known to have had some information of sea-vortices in the north, and according to their opinion, lying under the north-pole, as Jacobus Cnoxen of Buscodun, in his *Itinerarium*, and Mercator in his *Atlas*, pretend, whose opinions also Bertius has followed, and given a representation of some sea-abysses under the north-pole, together with an island, which he calls Ruft; but as we are now sensible that there is no going within several degrees of the north-pole, on account of the extreme cold, and of the ice-mountains; therefore this sea-abyss, of which they had heard, can be no other than this Moskoeftrom, which lies no farther north than a little beyond the sixty-eighth degree; and the navigators, who frequent the more northern seas, have hitherto met with no other vortices. And as for the island Ruft, near which this sea-vortex is placed, the similitude of the name shews it to be the island Roest, which is but four Norway miles from the Moskoeftrom. This island of Ruft, may possibly be the same neck, or cape, in the north, to which Pliny gives the name of Rubeas.

Ulysses afterwards reports, that ten days after sailing by Charybdis, he came to the island Ogygia, which he describes, as divided by four rivers, each having its particular outlet. This remarkably corresponds with the island Hinde, which is so intersected by deep creeks, in the south, north, and east parts, as to be divided into four parts, of which the southern belongs to Salten, both the western parts to Lofoden and Westeraalen, and the north part to Sennien. One of these creeks is called Oegursfiord, or Agisfiord, an appellation which has some affinity with that of Ogygia; and that Ulysses, whose name was Outin, lived seven years in this island, married and had children there, agrees with the account of our chronicles concerning Outin, where his genealogy is called Haleigatal, because his descendants lived in Halogaland, from which Outin's Hagen Ladejarl derives his origin, and according to Sturlesen, this genealogy has thence obtained the name of Haleigatal.

Plutarch,



Plutarch, likewise, in his treatise *De Facie in orbe Lunæ*, makes mention of some Grecian people, who lived in the islands of the north, where the sun was visible for thirty days together; and did not, during that time, descend above an hour beneath the horizon. This can be applicable to no other islands, than those in Helleland and Salten; for to this present time, neither in the east or west, has any island been discovered, with any such phenomena; but on the island of Dum, in Helleland, the sun, in summer, about the longest day, is clearly seen both day and night, which shews this island to lie in the  $66\frac{1}{2}$  degree under the arctic polar circle, where the frigid zone begins; but the farther one advances towards the north, the higher the sun is seen at midnight, above the horizon. It is very possible that Pliny might have intelligence of this island of Dum, if that, which he calls Dumna, be the very same island. And when Plutarch further writes, that the Greeks on that island, were persons of abstemious lives, and accounted a most venerable race, this tallies with Sturlesen's relation of Outin, and his retinue, namely, that they were held to be gods, and that divine honours were paid to them." So far I have cited from Mr. Ramus.

Another remarkable particular in the waters of the north, and withal, to me more unaccountable, than what has hitherto been mentioned of the Moskoeftrom, is the Kùlftrom, as it is called, four Norway miles off Bergen, in the parish of Lindaas, running betwixt the continent and many small islands, and to which we may properly apply the motto, *Semper contrarius esto*, from the continual opposition of its course to that of others, flowing when they ebb, and ebbing at their floods. Whether this irregularity be owing to the length of its course, in several small channels between the islands, the water being so long detained as not to ebb, till it returns from the sea in other places, or what other cause further experience may suggest, I pass over; concluding, with this admonition, that on this Kùlftrom, the inadvertency of a The Kùlftrom. pilot is extremely dangerous, of which there was once a melancholy instance in the loss of seven northland barks.

## S E C T. XI.

Fresh-waters,  
particularly  
springs, in  
Norway.

From the north-sea, and the salt-waters, I now proceed to the fresh springs, rivers, and lakes. Here, as in other places, these are not equally light, pure, and wholesom, their qualities depending on their bottom, or the strata of earth or stone which they meet with in their course, generally bringing with them particles of what they have carried off by the way. As to this circumstance, our Norway springs are not much to be boasted of; for their beds, or bottoms, shew them to have so much chalk, clay, or oaker in them, that a drop on a plate, leaves a white, brown, or yellow spot. However, the fresh-water in Norway, in general, may be considered as good and salubrious, I may say, very good, in comparison with others, as the water, together with the air, unquestionably, contributes greatly to the vigour of the inhabitants, who enjoy an uninterrupted health, to a length of days, more general and far beyond the period allotted to the inhabitants of most other parts of Europe. The common people especially, hold out to a very advanced age; for they live more upon water, than wine and other strong liquors. The metal, of which there is most abundance, both here and in Sweden, and which consequently most of all tinges the fresh-waters, is iron, for the aqueous particles being analysed, there remains a ferruginous matter subsided, which the magnet attracts, and which has upon most people a laxative effect.

There is likewise, no doubt, that our country affords several kinds of medicinal springs, tho', for want of due search, few such are become known; as the learned M. Lochstor complains in the following words, which I the rather insert, as they at the same time mention one of the afore-mentioned medicinal springs.

In Dissertati-  
one de Medi-  
camentis Nor-  
vegiae suffici-  
entibus. Hafn.  
1744.

“*Coronidis loco monendum duxi, haud deesse Norvegiæ fontes medicatos, deesse autem, qui in horum vires et principia inquirant, solertes naturalium rerum studiosos. Memini enim, me vidisse fontem (quem paucis abhinc annis invenit sedulus naturæ scrutator avunculus meus Carolus Robsham in diæceses Christianienfis districtu, cui nomen Hackedalen, circa villam quam habitat vulgo Buraas dictam) minerali quadam aqua scaturientem, a cujus usu convaluere variis morbis laborantes, ita ut etiam fama*

ad

ad exteros venerit, qui magnam hujus aquæ copiam sibi apportari curarunt." About two years ago, when I made a visit to Counsellor Swerdrup, proprietor of the iron manufacture at Hakkedal, he carried me to a spring, which is probably that mentioned by M. Lochstar; upon tasting it, I found the water light and palatable, and, as the proprietor informed me, it is very salubrious; especially in hypocondriac cases, by attenuating and rectifying the inspissated blood.

Mr. Peter Nicholas Undalin, in his description of Norway, relates from an old book, called *Speculum Morale* (doubtless a manuscript now lost) that the water of Birkedal fen in Sundmoer, in this diocese, has a petrifying quality, and that within three years it turns hazle into stone, but not elder, which grows near it. As such a power is inherent in some waters\*, and I myself have several undeniable petrefactions of beech, hazle, willow, and other wood, I made no difficulty of giving credit to this account; and tho' it appeared a little suspicious, when I first received some of this pretended petrefaction from the fen of Sundmoer, yet I suspended my judgment, till last summer; when on my visitation, I had an opportunity of informing myself more particularly from the minister of the place, Mr. Jver Munthe, at Volden. I found that there was no such thing as petrifying water in Birkedal-fen, but that on one side of it, there is a piece of an Amianthus, or Asbestos rock, which being divisible into long pliant threads, like flax, and being more like wood than stone, has been given out for petrified wood; and brought the neighbouring morafs into great and undeserved honour and reputation. This is so far from being any thing new, that it is a very ancient tradition, and many intelligent persons have been deceived by it; among others, Girald Cambrensis, as appears from his *Topograph. Hibern.* cap. viii. where he says, "Est et in Norvegia fons similis naturæ, sed tanto tamen efficacæ majoris, quanto ad frigidam zonam magis accedit. In hoc enim non tantum ligna, sed et lina lineæque telæ per annum impositæ durissimum in lapidem congelantur;

\* The water doth actually pervade, either longitudinally or transversally, the minute interstices of the wood, fills it with lapideous particles, dilates it, and when by a caustic corrosive power, which it derives from lime, it has destroyed the wood, it then appears in the form of the vegetable into which it penetrated. *Hamb. Mag.* Vol. II. p. 162.

unde et Waldemaro Danorum regi nostris diebus regnanti, quidam episcopus Norvegiæ Afloensis, quod anno præterito probandi causa ab eodem susceperat, naturæ jam retulit bipartitæ: parte enim media fonti imposita lapis erat, altera parte, qua extra jacuerat, in sua permanente natura."

## S E C T. XII.

Brooks, Rivers, rivulets, fresh lakes, and islands floating in them.

From the many springs issuing out of the mountains in Norway, and from the vast masses of snow accumulated on the summits of them, whence, at times gently dissolving, they send down great quantities of water, I have already taken occasion to observe the providence of the wise and good Creator, in these innumerable supplies of water, which streaming down the mountains, water their parched sides, and in their further progress, refresh the vallies and the level country beneath. By the junction and confluence of several of these rivulets, are formed those large streams and rivers, which in the old northern language, were called by the general name of Elven, from whence one of the largest rivers in Germany, by way of eminence, derives its name of Elbe (Elven.) I shall here speak of some of the most noted of these Elven, according to the best informations I could procure.

The Nied, is a river issuing from Tydalen, on the Borders of Sweden, runs westward into the lake Selboe, afterwards, winds to the northward, passing by the city of Drontheim, to which it anciently gave the Latin, as well as a Norwegian, name of Nideros, or Nidrosia.

Sule-Elv, so called from the mountain Sule (Sulefield) from whence, descending in a rapid course, it runs through Nordale into the sea.

Gaulen, or Gulen, has its rise eastward, near Skarsfield, a mountain in the north, on this side Roraas, and after running about twenty leagues westward, through Aalen, Hlotaalen, Storen, and Melhuus, discharges itself into the sea, about a league to the west of Drontheim. In the year 1344, great damages were done by a surprising inundation of this river, which, to the astonishment of the country, seemed totally drained, but in the mean time had buried itself under-ground, from whence it again burst forth with such violence, that the earth and stones thrown up by the

the eruption, filled the valley, and made a kind of dam, which, however, was broke through, and washed away by the force of the water: On this occasion, besides some churches, forty-eight farm-houses were destroyed, and two hundred and fifty persons drowned.

Otteroen is the largest river on the side of Agde, running thirty leagues from the mountain, through Sætterdale and Efte, to the cataract of Wiland, into which it empties itself.

Syre, or the river Sire, rises near the mountain Lang, runs thro' the vale of Syre into the lake of Lunde, in the diocese of Christianland, afterwards it discharges itself into the sea, not through a broad mouth, or by a gentle fall, as usual to other rivers, but shoots into it like an arrow, through a very contracted strait betwixt rocks, with such an impetuosity as creates, even in the calmest weather, a great agitation in the water, for the length of two leagues, and from my own experience, I can say, that the seamen must be very careful of coming too near it\*.

Nid, which gives name to the lordship of Nedenes, and Skeen, from whence a town is so called, both issue out of Tellemark; and are equally large. Great quantities of timber for saw-mills being floated on them, the falls have, with infinite labour, been diverted, by canals and passages cut through the rocks.

The river Tyrefjord, or Dramme, discharges itself into the sea near Bragnes, whither it also brings timber; near Honefoss, it is joined by two large rivers, of which one comes from Oedale, and the other from Hadeland.

Loven, or Laven, rises in the highest part of Nummedal, and after watering Kongberg, loses itself in the sea near Laurwig, which derives its name from it.

Glaamen, or Glommen, is the largest river in all Norway, and as such distinguished by the name of Stor-Elven, the great river; from the foot of the mountain of Dofre it runs a long way thro' Oesterdale and Soloe, afterwards joins the Vorme, another large river, which comes out of Mioes and Guldbrandsdale; then traversing the lake Oeyeren, it hastens to Sarp, near Friederichstadt, whose chief dependance is the timber trade.

\* It is unquestionably from some such confinement of a narrow outlet, that the Rhone protrudes its waters into the lake of Geneva, with such rapidity, that to a considerable distance, they retain their natural freshness, without any mixture of those of the lake.

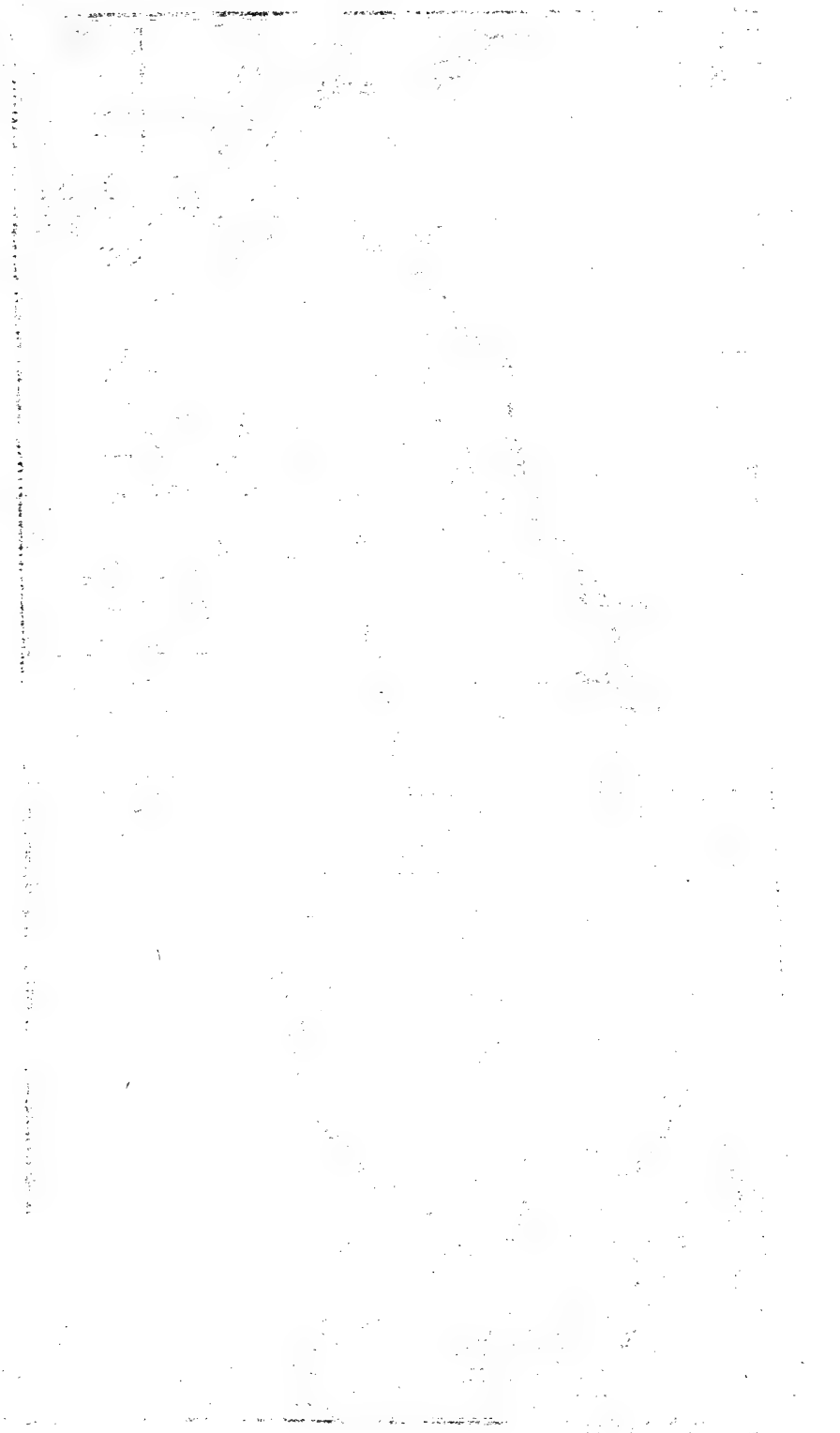
Among the fresh-water lakes\*, through which these rivers run, the most noted are Ryffvand in Nordland, Snaafen, the lake Selboe, the greater and lesser Mioes, Slirevand, Sperrille, Rand, Vesten, Saren, Modum, Lund, Norfoe, Hvidfoe; Farisvand, Oeyevand, and several others, the situations of which may be found in the maps. My present design requires me only to observe, that these lakes abound in fish, and are navigable, in case of necessity, for large vessels. The history of Norway even informs us of fleets fitted out, and wars carried on in these inland seas, betwixt the kings and their competitors †. In some of them are also floating islands, or parcels of land about thirty or forty ells in length, with trees growing on them, which having been separated from the main land, are driven about as the wind sets, and when close to the shore, are shoved off with a pole. They are said to grow, as it were, by the accession of reeds, grass, weeds, and the like substances. Both the Plinys, especially the younger, mention the like curiosities in Italy, which Kircher has also thought worth notice, in his *Mundus Subterraneus*, lib. v. cap. 2. particularly the floating islands on the lake di Bagni, or Solfatara, four miles from Tivoli; and, in my opinion, they are not different from those which I have several times seen in this country, particularly in 1749, on my return from Christiania, when the rains had swelled the river near Nitfund to such a degree, that it overflowed a considerable tract on both sides of the valley, rising above the tops of the middling trees, and carrying away great quantities of earth and wood, some of which floated along side of my boat. Yet this is not a matter of so much wonder as what is called the Mardyne, which is frequently met with on the salt-water, in the creeks; these are level clods composed of sea-grass, twigs, and the foam of the sea, upon which, the fishermen say, certain sea-fowls lay their eggs. If this be matter of fact, it must be acknowledged another instance of the providence and wise disposition of the Creator.

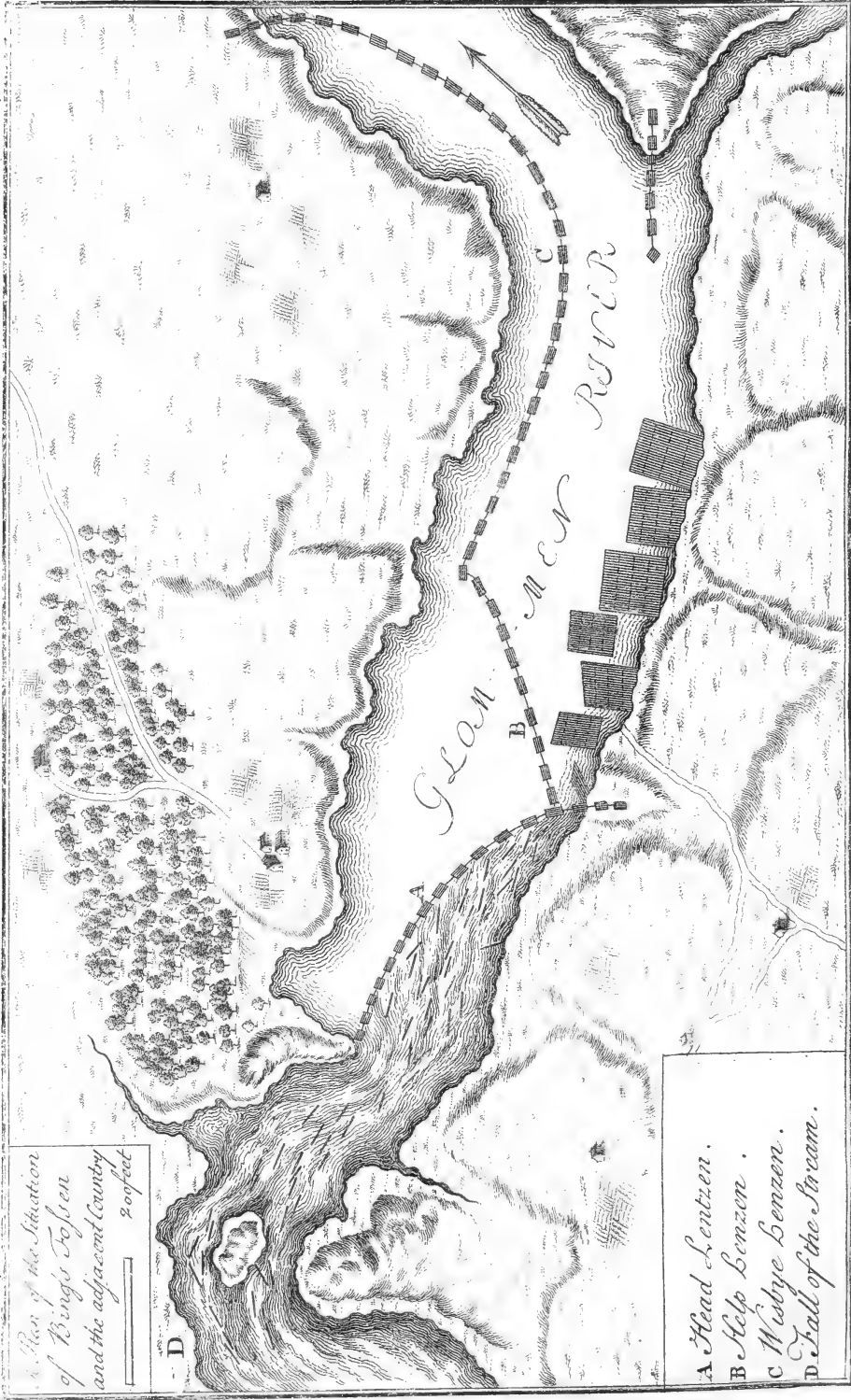
Floating  
islands.

Lib. ii. Ep.  
20.

\* M. Scheuchzer, in his treatise on the Mensuration of the Height of Mountains, judiciously shews the wise disposition of Providence, in providing for rivers, especially in mountainous countries, room to subside and break the violence of their fall or course, in the lakes where they spread their waters. Without this provision, they might by their inundations in summer, when the snows melt on the mountains, occasion great damage to the grass and corn in the vallies beneath. *Philosoph. Transact.* Vol. xxxv. N<sup>o</sup> 1.

† Several vessels of considerable burden are still used in Faris-Vand, and some others, for the carriage of goods, especially for the use of the founderies.





A Plan of the Situation  
of King's Troop  
and the adjacent Country  
20 feet

A Head Lenzren.  
B Help Lenzren.  
C Wisbye Lenzren.  
D Fall of the Stream.

Plan de la Situation de King's Troop.

Plan de la Situation de King's Troop.



## S E C T. XIII.

At any great distance from the sea, the rivers of Norway are not navigable for vessels of considerable burden; for though in many places, there be a sufficient depth of water, yet the waterfalls, caused by the intervening rocks and cliffs, are unsurmountable obstacles, the stream precipitating itself from a height of 6, 8, or 10 fathoms, where only mafts and such timber can be floated down, and many of these are destroyed; yet the greatest part get safely through, and being marked by their owners, are secured at the Lentzes. These are large booms, fortified with iron bolts, and laid across several parts of the river for stopping the timber. The breaking of a Lentz is of such ill consequence to the timber-merchants, that in 1675 such an accident which happen'd by an inundation of the Glommen, occasioned many bankruptcies among them \*. As these and other rivers perform the capital service of conveying from the mountains and forests those mafts and timbers, which without such conveyance would be absolutely useless with respect to commerce, so by their several waterfalls they are of a further utility, in driving several hundred saw-mills, where, with little labour, planks and boards are sawed to all dimensions.

Great advantages of these waters for embarking and forwarding the timber.

See plate VII.

## S E C T. XIV.

The vast force of rivers in some mountainous countries, where the fall from lofty rocks redoubles the motion of the water, may in some measure be conceived from what I have already related of the sudden subterraneous course of the river Gule, and the inundation occasioned by the subsequent eruption. But I shall here add another instance of this kind still more wonderful, which, according to the authentic account from whence it is taken, happened in the year 1702. I mean the sudden immersion of the family seat of Borge near Friderickstad into a deep abyfs. The particulars of this unhappy and singular accident may be read in the 'nova literaria maris baltici ad ann. 1703. maj. p. 3. where is annexed a draught of the situation of the place. In the night of the

Water-falls from the rocks into the rivers.

\* The yearly charge of such a Lentze or Boom, may in some places amount to three or four hundred Rix Dollars, but in return it yields to the owner no less than a thousand or eleven hundred, for at least thirty thousand dozen of large pieces of timber pass through it, of which each makes six or eight planks.

fifth of February, of the said year, that superb edifice, which was situate over against Hafflund, together with every thing in it, sunk down into an abyss of an hundred fathom deep, the gap being instantaneously filled up by a piece of water, betwixt three or four hundred ells long, and of half the breadth. The house was doubly walled, but of these, as well as several high towers, not the least trace was to be seen; with it perished fourteen souls, and two hundred head of cattle. The lord and lady Wærnskiold, two children, and the steward had the good fortune providentially to save themselves. The lady being then near her time, was attended by a midwife, who in a great consternation came to acquaint them, that the house and ground began to give way, upon which they immediately crossed the water to a seat of her lord's brother, where the very next day the lady was delivered. The cause of this so extraordinary catastrophe, was no other, than the aforementioned large river Glaamen or Glomen, which precipitating itself down the waterfall near Sarp, had probably for a long time, in its subterraneous concealment, undermined the foundation, \* for its course there is extremely rapid, and the water-fall near Sarp, driving no less than seventeen mills, is so violent, that besides the roarings thereof, which are heard four or five leagues off, its water is thrown up into the air to such a height, that at some distance, in dry weather, it looks like rain; consequently a rainbow may always be seen here when the sun shines, its rays being frequently refracted among the drops of water, and thus is exhibited the clearest idea of the formation of that meteor. These water-falls in Norway which are of different height and rapidity, tho' none equal to this, are no less dangerous, on too near an approach to them than the above-mentioned Moskoestrom. Captain Wærnskiold had fatal experience of this in the year 1735, when, by inadvertency, the current of the Sarp water-fall overpowered him, and overset the boat. In these places swimming will not save the life of any animal, the ducks only excepted, who, after continuing for some time out of sight, emerge alive without any hurt, according to the report of those who have diverted themselves with the experiment. In ancient times this cataract is said to have been made use of for

\* An instance of the like happened in Switzerland, 1618, when the whole town of Plurs suddenly sunk in and was never seen afterwards.

the execution of traitors, rebels, chiefs of feditions, and the like pests of fociety; they were thrown down alive to be dafhed by the boifterous waters againft the points of the rocks, that they might perish in a tumult, by a violence analogous to that, to which they had infligated others; a punifhment, which, however fevere, muft be owned to have been very adequate and emblematical. The Egyptian water-falls or cataracts, mentioned by Pliny, were probably not fo remarkable as thefe, and fome others, in Norway, the fall of them from the rocks not exceeding feven or eight feet. And as the noife of our cataracts, how great foever, has never yet deprived any one of the fenfe of hearing, Cicero's account of the Egyptian Catadupa, may be confidered as vifionary \*; though the learned Dr. Richard Pocock, who in his defcription of the Eaft, animadverts on this account, may not have recollected other and larger cataracts, which may be further up the country.

## S E C T. XV.

The bridges over the rivers in Norway, to the beft of my knowledge, are not any where walled, but framed merely of timber, of which are made the ftone-cafes; thefe are large and quadrangular, and ferve as pillars or fupporters, being filled with ftones in order to fettle them. The largeft of this kind, hereabouts, is the bridge of Sunde in Guldbrandfdale, where the water of the Great Mioes, which at firft is called Oten and Laagen, begins to increafe. This bridge, of which it is faid that it is never finished, fome repairs being continually neceffary, is a thoufand paces long, and confifts of forty-three Stone Cafes. Here in the diocefe of Bergen, where carriages can be very little ufed, it is not thought worth the while to build ftrong and lafting bridges. In many places, the manner of their conftruction is thus; where the narrownefs and rapidity of the current will not admit of finking any ftone cafes, thick mafts are laid on each fide of the fhore, with the thickeft end faftened to the rocks of the mountains; one maft being thus laid in the water, another is placed upon it, reaching a fathom beyond it, and then a third or fourth in the like progreflion to the

Many of the bridges over the rivers are of a furprifing conftruction.

\* Ubi Nilus ad illa, quæ catadupa nominantur, præcipitat ex altiffimis montibus, ea gens, quæ illum locum accolit, propter magnitudinem foni, fenfu audiendi caret. Somn. Scipion. 5.

middle of the stream, where it is joined with another connection of mafts from the oppofite fide, and this without any other cement than their contact, fo that in the paffage over it, epecially in the middle, the bridge appears to fwing, which, to thofe who are not ufed to it, appears fo dangerous, that they alight from their horfes till they imagine themfelves out of danger.

## S E C T. XVI.

Eafy way of travelling in the winter on the fresh-water.

The beft paffage in winter is by the rivers, epecially up the country. As they are every where deeply frozen, the peafants find a very great conveniency in them for conveying their goods to the towns in their sledges, carriage being fcarce practicable over the heights of the mountains. The travellers are conveyed in thefe sledges with great eafe and expedition, for though the Norway leagues are very long, yet they go fe curely at the rate of one league in an hour. Thefe winter roads, likewise yield an agreeable profpect, in the contraft of the green valleys of pine and fir trees, with the fnow, though the glaring of the latter, epecially in funfhine, foon offends the eye, and here a piece of crape over the face is of double fervice, as it likewise preserves the fkin from the piercing froft.

## C H A P. IV.

Of the Fertility of Norway in variety of Vegetables.

S E C T. I. *Great difference in the nature and quality of the foil.* S E C T. II. *The Fertility greater than foreigners imagine, and chiefly from two caufes.* S E C T. III. *Method of Agriculture and poffibility of its improvement.* S E C T. IV. *Different kinds of grain, as Rye.* S E C T. V. *Barley.* S E C T. VI. *Oats.* S E C T. VII. *Peas and Vetches.* S E C T. VIII. *Wheat and Buck-wheat.* S E C T. IX. *Hops, Flax and Hemp.* S E C T. X. *Graizing and Hay.* S E C T. XI. *Excellent roots and garden vegetables.*

## S E C T. I.

Great difference in the nature and quality of the foil.

**H**AVING hitherto difcourfed in general of the air, foil, and water of Norway; and having under farther confideration, the animate and inanimate fubftances exifting in thofe elements, it appears moft regular to proceed to the natural fertility of the earth.

earth, in corn, grafs, roots, trees, and every other kind of vegetables. I fhall give accounts of all thefe from my own knowledge, or the credible informations of others, not doubting withal, but my fucceffors in this work, will finish it with much lefs trouble, and much greater perfection; tho' to give univerfal fatisfaction, is beyond the moft extenfive knowledge, and the moft correct judgment.

Having fpecified the diverfities of the foil and air in Norway, which poffibly are greater than in any other country, it will appear, that vegetable products, as dependant thereon, vary in like manner. Norway is almoft every where fo unfit for agriculture, tho' not for pafure, that upon a meafurement of the plowed lands, I do not think, the proportion, in refpect to the meadows and woods, the wafte and barren mountains, would be greater, than as one to eighty; and if the peafants of Norway were not confiderably affifted by the great fisheries on the fea-coafte, and the timber and charcoal-trade for the mines, the graziery, and the liberty they have of killing game, the country could not be fuppofed to furnifh fubfiftance for above half the inhabitants; for as thefe vifibly increafe, and fpread themfelves year after year, fo feveral tracts of uncultivated land, have been broke up and tilled; and feveral woods likewise have been burnt, and the land turned to husbandry; yet, with all thefe expedients, there would ftill be a fcarcity in thofe places, where the nature of the earth and the rocks are not capable of any cultivation. Another misfortune is, that in fome parts of the moft fruitful provinces, as Gulbrandfdal, Ofterdal, Soloer, and elfewhere, the grain is fubject to miscarry by fudden frofts, fo that one day it may feem in a flourifhing ftate, and afford the pleafing promife of a plentiful harveft, but by the nipping cold of one night, it appears withered the next day, and drooping, fo as never to attain to its proper ripeneff. It is to be obferved, moreover, that in every century, as far as can be afcertained from tradition, the country is vifited with fome unfruitful years, which are remarkably fo, and happen two, three, or four, fucceffively; fuch were the years from 1740 to 1744; when the fun feemed to have loft all its heat and genial power, the vegetables grew, but fhort of their natural height, and budded, and bloomed, without bearing. In thofe years, the trees, likewise,

Pernicious  
night frofts.

failed in their growth and usual verdure, having no shoots at all, at the tips of the twigs. Most of the grain, that was sown, also perished, yielding only empty ears, inasmuch that the disappointed peasant was reduced to extreme distress, from the uncertainty of any advantages in the labours and charges of the ensuing year. Something like this, tho' in a less degree, was felt in other places, during the above-mentioned calamitous years\*.

Abundant  
corn harvests  
in some  
places.

All these disadvantages do but furnish more matter for admiring, with the greater admiration, the impartial benignity of the Almighty Creator, in his provision for the sustenance of the people of Norway, not only in the variety of other means of support, which shall be specified in their proper place; but by their harvests, and success in agriculture, which, however inconsiderable, in respect to those of other countries, are much larger than a foreigner would conceive, till informed by an actual sight of them. Who would imagine, that Norway, in most years, should have some thousands of tuns of its own grain and produce, to spare for the adjacent provinces of Sweden? And who would imagine the fact, which Arn. Bernsen reports in his book on the fruitfulness of Denmark and Norway, that some farms, even in the district of Nordland, beyond Drontheim, expend forty, nay, some an hundred tuns of barley in seed, and that of a good kind, tho' not equal to the rye of this part of the country, which is accounted preferable to that of Poland? This fertility of Norway, even in its most northern Provinces, as far as Finmark, to the 68th degree, cannot but excite the admiration of thinking persons, since a line being drawn from the midst of this fruitful province of Nordland, that is, from the district of Salten, eastward, over the mountain Kolen, into Swedish Lapland, namely, Pitha-Lapmark, or even more to the south, the country is one wild barren waste, tho', according to Mr. Hogstrom's most ingenious and authentic description of Swedish Lapland, lately published, colonies, or new inhabitants, have, at the public charge, and by order of the government, been sent to cultivate these barren parts.

\* If we recollect the weather from the year 1740 to the present year 1747, it must be allowed very extraordinary. The winters were long and severe, the summers but moderate, with little rain in many places, an almost continual strong wind at north-east. It were to be wished that the naturalists would favour the public with their thoughts on so interesting a subject. Hamb. Mag. B. 1.

For the cause of such a great difference, in point of fertility, at an equal distance from the line, the reader must be referred to what I have said in the first Chapter, Sect. VI. concerning the difference of the cold and warmth, the sharp and mild air in the dioceses of Aggerhuus and Bergen, which, tho' manifestly in a parallel latitude, differ as much in respect of cold and heat, as if they were situate ten degrees from each other. This, as I have before observed, is to be attributed to the warm vapours of the sea, which, spreading themselves over the western side, moderate the winters there, and have the same effect in all the maritime districts, to a hundred Norway miles north of Bergen; so that in fruitfulness, Nordland surpasses even this diocese, though with the additional advantage of better vallies, and larger tracts for tillage\*; whereas, Swedish Lapland, which lies in a direct line behind Nordland, is deprived of these warm vapours by the Koelen range of mountains, which intercepts them, as Filefield does in the diocese of Bergen.

Next to that of Nordland, the most fruitful provinces in the diocese of Drontheim, are Inderherre and Nummedal; in that of Bergen, Sognifjord and Vaas; in that of Christiansand, Jelderer, Ryefylk, Raabygdela, and the lordship of Nedenes; in the diocese of Aggerhuus, Hedemark; all which are not in the least inferior to the best corn countries in Denmark; and besides these, are Hadeland, Toten, Romerige, Ringerige, and Gulbrandfdale. All these territories usually yield grain enough, not only for the support of their inhabitants, but a large surplus, which they dispose of among their neighbours, and even among the Swedes. On the other hand, in many places, a third or fourth of the inhabitants are not in a capacity of laying up a necessary quantity; which deficiency, however, is otherwise compensated to them.

## S E C T. II.

It is moreover, remarkable, that the corn-grounds throughout the diocese of Bergen, which, on account of the many mountains, Norway more fruitful than foreigners imagine.

\* Agreeable to this, is what Thomas Bartholin says of the cause of the mild winters in Ferroe, which lies in the middle of the north-sea: "Aqua infulas Ferroenses allabens, quanquam per se frigida sit, falsedine tamen sua ex perpetuo motu plerumque producit hyemem temperatam." Acta Med. Hafn. ad ann. 1673. Vol. III. p. 371.

are few, as to the best of my knowledge they, in most places, never lie fallow, but are every year plowed and sowed, bear all kinds of grain, barley and oats especially, and not only six, eight, or ten fold, but in some places with a much greater increase\*; and the corn is generally allowed to be longer, and the ears fuller, than what is imported from Denmark and Germany, being inferior only to the English corn, which the Norwegians prefer to any other. I shall soon come to treat of every sort of grain, under its particular head.

Cause of this  
fertility.

As to the cause of this fertility, which may appear very strange to foreigners, tho' it be strictly true, I shall give them the following indisputable account of it: The Almighty Creator, so wise and bountiful in his œconomy towards mankind, and whose greatness appears most conspicuously in the slender means he seems to make use of, appears to confer a double blessing on those small parcels of good land called closes and fields, which in other parts are looked upon only as little inclosures, and separated spots; yet he does not effect this in any supernatural or immediate manner. We know, that moisture and heat, are the two great promoters of fertility, and the fields of Norway enjoy a sufficiency of both †. They are not liable to such frequent and long droughts as other countries, being supplied either by rains or springs, gently issuing from the mountains, or the meltings of the masses of snow on the tops of the mountains. Besides, the snow-water, as well as the snow itself, is of a rich nature, so as by some to be thought a kind of manure. And when the fields begin to be parched, which is chiefly in the vallies, by the reflection of the sun, they are more easily refreshed by watering than in other countries, as being few, and of no great extent. In some parts, particularly Guldbrandf-

\* Mr. Lucas Debes, in his account of Ferroe, p. 196, says, that a tun of corn-feed often yields twenty or thirty tuns of corn, yet is this in the main but a small matter, amidst such a scarcity of corn-ground, and where few can sow above a tun or two.

† “Tanta est foli cœlique fœcunditas interrupes boreales, ut femina terræ commissa multiplici fœnore agricolæ beent. In insulis Ferroensibus, ex unico hordei grano, quinquaginta culmi cum totidem spicis excrefcunt, granis turgidi, paucitatem terræ N. B. uberi proventu refarciente natura. Non fabulas narro. Ipse culmos vidi et manibus hic palpavi.” And in another passage soon after: “Ratio fertilitatis borealis ex nivibus repetenda terram imprægnantibus, et ex folis radiis, qui inter rupes fortius agunt. Et quanquam rupibus superstrata terra profunda non sit, ea tamen recipiendis fovendisque radicibus frumenti sufficit, quoniam, ut Theophrastus docet, Lib. 1. de Caul. Plant. c. xxii. plures quidem frumentum radices capeffit, sed non alte descendunt.” Th. Bartholin, Act. Med. Hafn. Vol. 1. p. 66.

dale,



dale the peasants, which according to Tavernier, is also practised in Persia, have contrived aqueducts from the upper grounds to the lower, These aqueducts are formed of hollowed timbers, which are not very expensive, and are carried on from the nearest spring to the field; out of these the water is thrown in shovels over the field, after the manner used at sea for wetting the sails, that they may draw the better and hold more wind.

As to the other principal cause of this fertility, I have, in the first chapter on the climate, shewn, that by the compression of the rays of the sun, collected betwixt the mountains, as betwixt the lofty houses in Copenhagen, the sun is extremely hot, or rather so intense, that without the summer breezes daily blowing from the sea along the creeks, whereby this heat is tempered, it would of all things be the most pernicious to the ploughed land. Hence our harvest is as forward, as theirs in Denmark or Lower Saxony; though our seed-time be later; yet the nights being short, the ground remains in a continual warmth, thus the growth of the corn advances without any check or intermission, that within the space of nine weeks the farmer has housed his corn. For the better clearing and confirming this point, I shall set down the words of a consummate Swedish naturalist, the celebrated Linnæus, in his dissertation on the natural planting of Vegetables. “Towards the pole the summers are shorter, and the days longer. The summer in France being longer than in Lapland, the fruits ripen sooner in Lapland than in France. About Paris the cool nights are longer, during which the growth being checked, they require the longer time for their full maturity; whereas in Lapland, the summer having little or no night, the fruits are in an uninterrupted progress. In 1732, for instance, corn was sown on the 31st of May, and in the barn by the 28th of July, having attained its due ripeness in 58 days. In the same year rye was likewise sown on the 31st of May, and cut the 5th of August, ripening in 66 days; this happened in Lulaa Lapland, whereas further south there was no such forwardness.”

Heat betwixt  
the moun-  
tains.

Transactions  
of the Swedish  
acad. of sci-  
ences, Vol. 1.  
p. 22.

### S E C T. III.

Agriculture in Norway, is not so burdensome to the farmer as in other parts; for here he does not toil in the fields of an oppressive

five

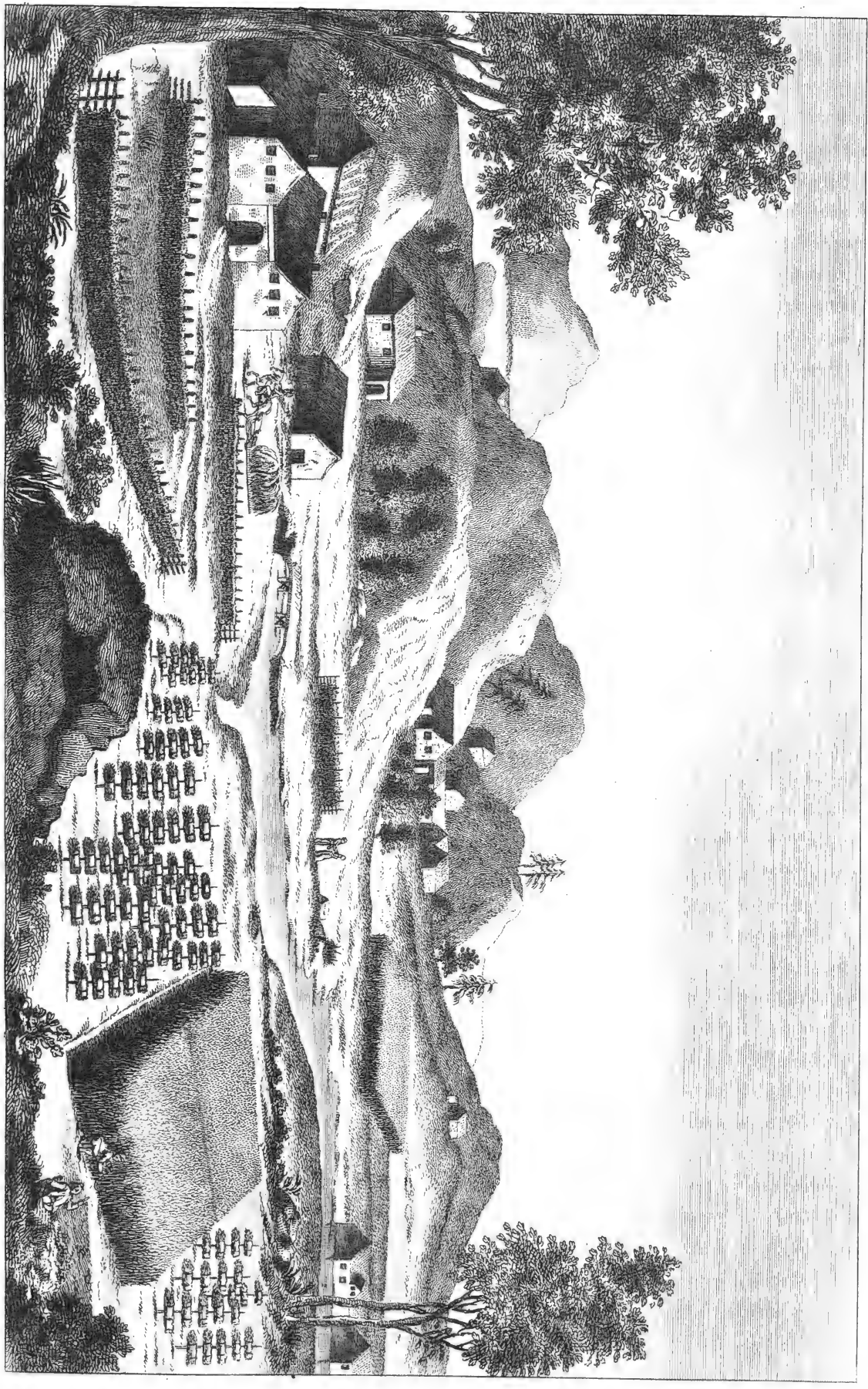
five lord, but the fruits of his labour are his absolute and certain property. But, on the other hand, it happens in many places to be attended with great labor and inconvenience, the fields consisting of little spots of ground among the rocks, many of which must be dug, instead of being plowed, and particularly here, in the diocese of Bergen, where the soil is less fruitful, and affords but few places, where the plow can be used, as it is in the eastern provinces\*. The harvest also is not without its difficulties; the grain, according to the old custom of the peasants, not being mowed with a scythe, except about Christiania, where it is lately come into use, but cut with a sickle; and this is their practice even in those few places where the ground is level and clear of stones; for the corn often grows so thick and close, and the stalks are so apt to bend under the weight of the ears, that the reapers, both here and in the marsh-lands, grasp the stems with one hand, cutting them with the other, and immediately bind them in sheaves, which never lie long on the ground; for, that they may be thoroughly aired and dried, a great number of poles five or six ells long are set up in the field, and six or eight sheaves hung to each pole, so that several days rain, if it should fall, would soon be exhaled and discharged, and then the corn is housed. In this part of the harvest-work no waggons are used, except on the frontiers, where waggons have been introduced, but instead of them, the Norway peasants use sledges, for they are prejudiced against any other vehicles, even in places where waggons might easily travel, and though their work would be performed with greater ease and expedition. But in this and every thing else, they are so superstitiously tenacious of the usages transmitted to them by their forefathers, that they will not venture to remove a stone, which their fathers had suffered to lie. This rustic bigotry, which, more or less, prevails every where, is a great obstruction to public utility, counteracting all improvements in agriculture, the peasants here being more inclined to fell timber to serve in the fisheries, and the like, than to clear and improve their lands. However, this error gradually loses ground, since from the peaceable state of

Plate VIII.

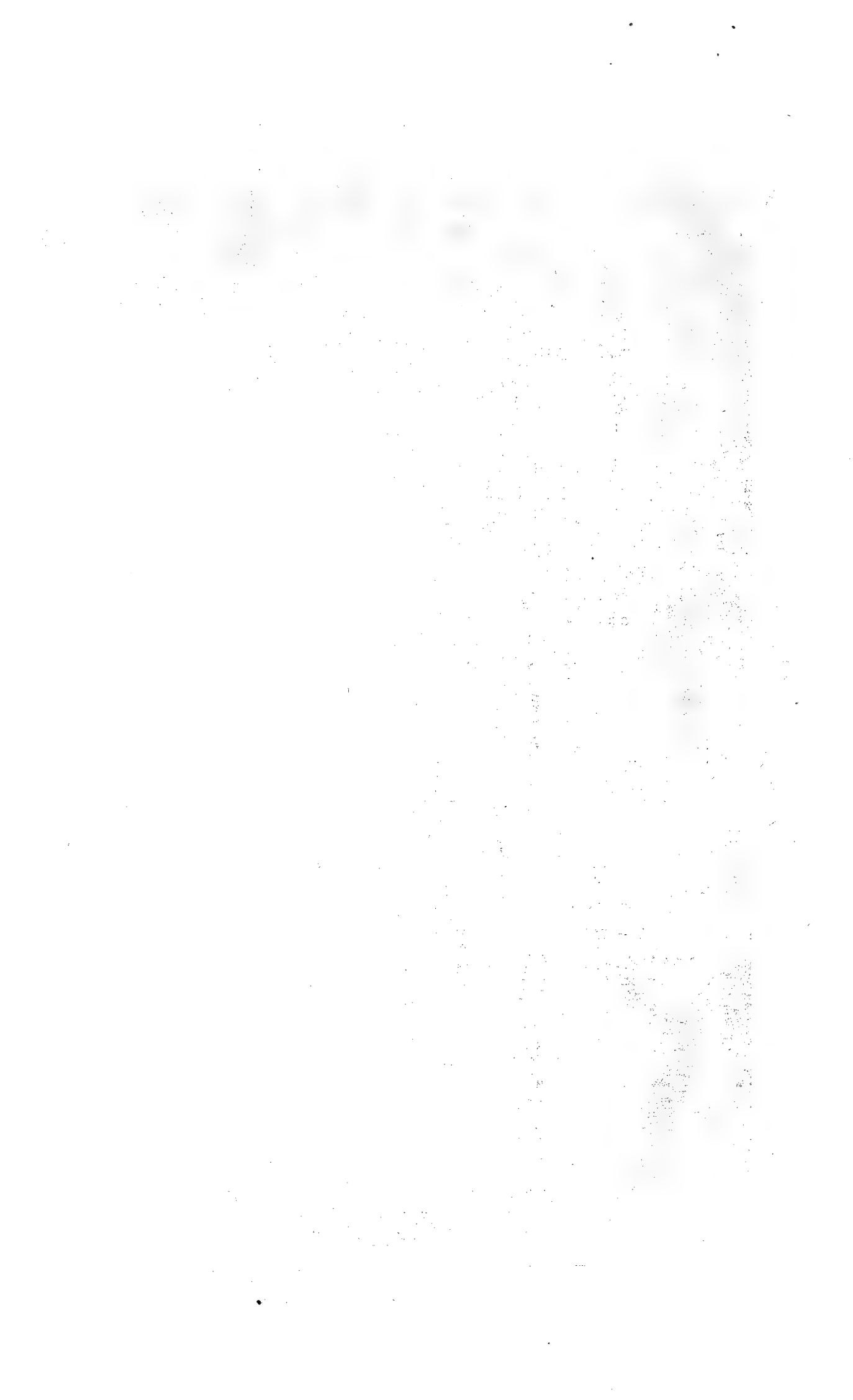
\* In some places where the ground is very stony, a crooked stick with an iron at the end is made to serve instead of a plow, as this yielding easier to the stones, is not so subject to break.

Figure 1.

PLATE 2.



6  
Fencing & Division  
Hay and Corn Harvest



affairs, an estate is come to be divided into several parts, three or four families now procure a comfortable support from a farm, which before was a subsistence only for one \*. This has encouraged a diligent enquiry after spots of ground proper for sowing; stones begin to be removed, fens and morasses are drained by trenches, which are here called Veiter †, for carrying off the water, and are used in the newly cultivated grounds in many places, transversally, underneath them, an ell or two deep in the ground, where they are covered with earth, and lined with stones. The peasants are likewise improved in their knowledge of manures, and diligence in the use of them, such as fern and other large weeds, heath or moss, sea-grass, and other sea vegetables, likewise a kind of reddish earth, all which hath in many places had the good effect of enriching the worst and most unpromising lands. With respect to this signal increase and advancement of agriculture in this century, Mr. Peter Schrøder, superintendant and minister of Karmen, in the diocese of Christianfand in a letter to me, among other things, mentions the following particulars; “the advantages this country has received from the indefatigable application of the inhabitants, within these forty or fifty years, in the improvement and augmentation of their arable lands, is beyond credit. Heretofore the farmer, who by his yearly tillage could support his family till Christmas, was accounted a notable man and in good circumstances, whereas now, in those years, when God does not punish the land with any remarkable scarcity, the inhabitants throughout this district, are, from their own grounds, not only plentifully provided with malt, barley and oats, throughout the whole year; but send some hundred tuns to market to Bergen, Hardanger, and Stavanger, &c.” In another letter this gentleman, who is well experienced in husbandry, communicates to me, at my request, some observations on the proper application of the several kinds of manure to the quality of soils,

\* Even in this Diocese, where we have but little room for tillage, large farms are parcelled out to several farmers, and from the number of houses make the appearance of no mean village; Oppedal, for instance, an estate in the parish of Knitzerviig in Hardanger, which in the land-tax is assessed at 12 lobs of corn, that is 24 tuns; maintains 16 families, and these, according to the report of the minister, consist of 130 souls.

† An experienced countryman, told me, that, by introducing these veiters in his lands, he had doubled their produce.

which I likewise esteem worthy of public notice: “ If the situation of a swampy field be such, that the cold moisture cannot be carried off by veiters, the natural resource is the warm and dry dung of horses and swine. Where the soil is dry and deep enough, sheeps-dung is the manure for barley; as cow or ox dung for oats; but if very hungry, sandy or hilly, for such there is no better manure than the earth of molehills in the swampy countries, which at harvest is collected for this purpose. By this distribution of every kind of dung or manure, varied according to the soil, all the plowed lands may in time be improved doubly, and be brought nearly to an equal goodness.

## S E C T. IV.

All kinds of grain are sown in Norway, though not every where to equal advantage. In Hedemark, Jeddern, and in Nordland, rye thrives best, but the very best is the burnt rye, which is sown where woods have been burned for that end, and the ashes left as manure: They likewise sow vœrling or spring-rye, and great quantities of both are used in Sondenfield, since the arrival there in 1624 of some Rye-finlanders, as they were called; for these instructed the peasants in this method of converting their woods to arable uses, and manuring the land with the ashes. However profitable this may be, where the woods will bear such a consumption, yet it is detrimental and prohibited in other parts. The apparatus or method of proceeding is as follows. A peasant having found out a spot, which will answer to the sowing of half, or a whole tun of seed, he fells the wood, and leaves it on the ground two years, till it be thoroughly dried. When he proposes to set fire to it, which is generally about midsummer, he waits till he observes clouds, which promise him rain, his success in this case, depending thereon. Yet it frequently happens, that many are the dupes of a weatherwise neighbour's conjectures, for one has no sooner set fire to his wood, than another, relying on his judgment, does the like, and so on, that sometimes the flames and smoak of these fires are seen at once throughout a whole country. The wood being burned as much as possible, the greater pieces quenched, and the lesser, together with the surface of the soil, the moss, and small roots being reduced to ashes, without staying till the  
earth

earth be cooled, the seeds are thrown on the ashes, still so hot that they give a smart crack, denoting that the husks are split. What remains is the expected rain to soak them; and if this actually happens, the peasant may sit down in the certain hope of such an exuberant rye-harvest, as will scarce appear credible to foreigners, tho' upon enquiry it will be found an undoubted matter of fact; for, without any extraordinary accident, a single bushel of burnt rye, will produce six, sometimes ten tun of the choicest rye\*. This is certainly the effect of the concentration of the vegetative spirit in the ashes, which, before it can evaporate, impregnates the corn with such wonderful fecundity. And it is on this vegetative spirit that the chemists ground their regeneration of burnt plants, tho' in such an open place, a great part of them must certainly be dissipated by the intenseness of the heat. These conflagrations sometimes prove the occasion of dreadful mischiefs, as in the year 1739, at Oeyer in Guldbrandsdale, some houses were burned, and seven persons perished in them, proper notice not having been given to the neighbourhood. The knops of the pines shoot along the air like rockets, and have been known to set fire to houses at a considerable distance. When the fire first seizes the green wood, it is not only very violent, but attended with a boisterous wind and dreadful roarings.

## S E C T. V.

Every part affords barley; but the best places for it are Nord-<sup>Barley.</sup>land, the diocese of Aggerhuus, the lordship of Nedenes in the diocese of Christianсанд, and Sognefiord in that of Bergen, where excellent malt is made of the common, and likewise of a particular kind, called David's-barley, or Heaven's-corn. This barley, which in threshing loses its husk, and very much resembles wheat, the peasants term Thor-barley, possibly from the opinion of the ancients, who, in their chimerical ideas of the Heaven, or Walhalla of the idol Thor, where the Cup of Health went briskly round, imagined this corn to be fit for the banquets of the gods, and heroes. Dr. Lochster, in his *Dissertation de Medicamentis Norvegiæ*, &c. extols the liquor made of it, both as palatable and

\* A bushel, or in Danish a *skiepp*, is the eighth part of a tun, thus the produce of one bushel in seed is forty-eight, sixty-four, or even eighty.

Page 294.

Wonderful  
changes.

wholsom. Palmam, says he, quoque reliquis præripit decoctum hordei cœlestis, vulgo Himmelbyg grato tam sapore quam effectu se commendans. Arn. Bernsen, in his book above quoted, on the Fruitfulness of Denmark and Norway, pretends that sometimes in wet years, the Norway barley degenerates into oats; whilst others imagine, that good oats, especially in Hedemark, improve into barley. But, without further proof, such anomalous metamorphoses appear to me scarce credible\*, and my opinion is, that what first gave rise to this notion, was an accidental and unobserved mixture of a little barley with oats, or of oats with barley, which in some years, happened to thrive better than the intended grain, and this unexpected increase was mistaken for a transmutation.

## S E C T. VI.

Oats.

Oats, are the grain of the most general use in Norway, both for the peasant's bread, which is made of it, and in some places for a kind of malt. It is also much larger, whiter, and mellow, than in other countries, and thrives in those lands, where, by reason of moisture or poverty, no other grain will answer. That oats are no less nutritive than rye, may be judged not only from the horses, but the singular strength and vigour of the Norway peasants. But amidst the great benefits derived to our peasants from good oats, in some places, especially in Ryefylke, they complain loudly of a kind of wild or spurious oats, which the French call folle avoine. Where once this takes root, it is extremely difficult to be extirpated, over-running large tracts of land, destroying the good grain, and proving as mischievous, as those complained of in Virgil,

Infelix lolium, et steriles dominantur avenæ.

\* This however is espoused by Mr. Frederic Hoffman in these words, "Who has ever perspicuously demonstrated, by what means some plants come to be transformed into other kinds, for instance, wheat into tares, good oats into wild, a nutmeg in Europe into a walnut, &c." See his Rational Physical Theolog. Sect. xxvii. p. 96. Whilst I am writing this, a worthy friend of mine assures me, that to satisfy himself in this doubt, he sowed a can of the finest barley, without a single grain of oats among it; yet, at the harvest, of two cans of barley, one and a half proved oats. So I leave the matter without further discussion.



## S E C T. VII.

White; grey, and green peas are sowed, tho' not to any great <sup>Peas.</sup> quantity, both in Suden and Nordenfield, the soil being loomy; but the best are produced in the district of Sognefiord in this diocese, where they were introduced by a clergyman, about the middle of the last century; and his experiment having recommended itself to imitation, I shall here insert a short account of it. Mr. Jacob Kirsebom, minister of Sognedal\*, reading in Sim. Paul's Flora Danica, of an American small pea, under the name of *Pisum de gratia*, one of which being set in M. Klingenberg's garden, near Hamburg, had yielded 324, resolved to send for some, and on trial found the fertility of his Norway-garden far superior to that near Hamburg; it yielded him 610 peas for one †. Since which time the peas of those parts have been very much in vogue here.

Vetches, of which such quantities are sown in Denmark, as pro- <sup>Vetches.</sup> vider for horses, Mr. Jonas Ramus classes among the vegetables of Norway; whence I conclude that it must be far up the country where they grow, having, to the best of my remembrance, never seen any in these parts. In Valdres they are said to grow spontaneously, and sow themselves, but in no great plenty.

## S E C T. VIII.

Wheat, and Buckwheat also grow here, but not in many <sup>Wheat.</sup> places, tho', it is not improbable, that upon trial, the growth of it might be considerably increased. Mr. Hans Casten Atche, minister of Leyerdal, in this diocese, being a native of Lolland,

\* There is likewise a parish in the diocese of Christiansand, which bears the name of Sognedal, and which I am apt to think was M. Kirsebom's residence, and consequently where he first brought peas in vogue, as I do not meet with his name among the clergy of this diocese.

† *Pisum minus*, quod de gratia rocant, ex America ad Europæos translatum centuplum fructum ferre fama est. Attestatur D. Simon Paulli, vir magnæ famæ et experientiæ, Class. III. Quadripartit Botan. in viridario nobiliss. Klingenbergü prope Hamburgum, succrevisse pisum hoc de gratia trecentorum et viginti quatuor pisorum fertile. Quo exemplo invitatus Dom. Jacobus Joach. Kirsebom, pastor in Sognedal Norvegiæ, ex Hollandia ista pisa sibi afferri curans, recepit in Norvegia ex singulo pisa terræ ibidem commissæ, 610 pisa, quemadmodum ad venerandum suum parentem scripsit, d. 2 Junii 1672, cum D. Joach. Paulli laudabili proposito patriæque inserviendi voluntate Indos Danicos Orient. Navi petiturus prope Hitteroë Norv. vento contrario subsisteret. Thom. Barthol. Acta Med. et Philos. Hafn. vol. I. p. 66.

which is celebrated for its wheat, procured some from thence to sow in his grounds, where he tells me, it answered both in quality and quantity to the produce of Lolland. As to Buckwheat, the sowing of it here, appears too hazardous, both from the shortness of the summers and the night-frosts, particularly towards the east, which this wheat cannot stand, being of Oriental origin, in respect of the southern countries, and as such, is by the French called Blé Sarazin. However, some very good of this kind has been produced in Hedemark, and even in this diocese.

## S E C T. IX.

Hops. Both the north and south parts have hop-gardens, but the best are those of Hedemark and Solloer. I have also seen very good at Sundmoer. Flax and hemp likewise grow here, but in a very small proportion to the demand for them. The west side, particularly, affords little or none; tho' here it would be well worth while to encourage the sowing hemp, on account of the great quantities used in making fishing-nets.

Flax and hemp.

## S E C T. X.

Grafs. From the corn-land, I proceed to the pasturages or meadows, with which Norway is so liberally blest, as not only to equal other countries, but to surpass many. A proof of this is, that in most of the provinces no flesh, butter, cheese, &c. is imported, except some bacon from Denmark, the good lands being too valuable to turn swine into them; whereas, every year from several parts, and chiefly Bergen, there is a very considerable foreign exportation of those commodities, especially suet and butter. The best and most nutritive pasturages are in Lofoden, Vesteral, Vas, Valdres, Hallingdal, Telemark, and the lordship of Nedenes. The Norway-cows are not indeed of the size of those in Denmark, and a consequence of this is, that they also yield less milk; but as to their fatness, those of the marsh-lands excepted, Denmark does not afford better; and accordingly the farmers here keep a greater number of cows. The best dainties among the Norway peasants consist in milk-meats, and variety of cheeses, on which they

they spread butter as on bread ; besides which, they regale themselves with Draule, Myffebrüm, Gummegræd, and other white meffes.

How well the Norway grafs agrees with the fheep, appears from Mr. Berndfen's book of the fruitfulness of Denmark and Norway, where he fays, that it is no uncommon thing for twenty-four or thirty-two pounds of fuet to be found in one ram ; and it is a ftriking instance of the fucculency and increafe God has been pleafed to beftow on the Norway grafs, that a very fmall valley, or dale, fuffices for the fupport of feveral families, and their cattle ; Davigen in Nordfiord, for instance, is not above half a Norway mile in circumference, yet as Mr. George Krog the minifter there affirmed to me, it feeds very near two hundred people, and twelve hundred cattle of different kinds.

It is however to be obferved, that in the fpring the cattle do not graze in the vallies and on the fskirts of the mountains after Whitfuntide ; for when the feed time is over, and the people can be fpared, they are driven on the fides of the mountains to Sacters, or to Stols, as the country phrafe is, which at that feafon afford them fufficient fodder, the fnow being no fooner melted than the grafs appears, at leaft a quarter of an ell high, grown under the mafles of fnow, from which it derived both warmth and moifture. When the diftance is within a Norway mile, the milk is brought home twice a day ; but if the diftance be two or three miles to thofe paftures, they keep Sæterboe or huts on the mountains, where a maid-fervant, diftinguifhed by the name of Buedye, constantly lives, for the fecurity of the cattle againft wolves, bears, lynxes, and other wild beafts, who generally fly from fuch a weak keeper. She is at the fame time employed in making butter and cheefe, with which fhe goes down to the houfe once or twice a week. Regulations againft difputes and quarrels with neighbours or borderers, concerning this general right of common on the mountains, are laid down in the Norway Statute-book †.

† According to Dr. Shaw, both the milk and fleft of the eastern cattle, fed on the mountains are the beft ; besides, that thus the whole country is turned to ufe, another confiderable benefit is, that the milk of cattle thus fed is much fatter and fweeter, as the fleft is likewife more palatable and nutritive. Travels to the Levant, Tom. II. chap. iii. p. 62.

The grafs in the vallies, or near the houfes, is cut for hay, and though in moft places it be mowed with a fcythe, yet in fome, like the grain, it is reaped with a fickle; after which it is hung to dry on hefgiers. Thefe hefgiers are a moveable garden, confifting only of poles faftened together, both in the length and breadth, by birch twigs, where the hay dries much better, and the rain evaporates fooner, than when left to lye on the ground \*. The peafant dungs his meadows as well as fields, though the former but flightly. When the mofs is grown fo high, as to obftruct the growth of the grafs, whereby very great damages are done in many places, the experienced hufbandman is not without a remedy, either plowing up the meadow to deftroy the mofs, or ftrewing it over thick with fand, if any can be had in the neighbourhood. But according to the before-mentioned Mr. Peter Schroder, who is a very experienced hufbandman, nothing is more certain and effectual for this purpofe, than turf-afhes, where turf is burnt, or in a woody country to burn turf merely for the fake of the afhes, and lay them on thick over the meadows, which are thus damaged by the luxuriancy of the mofs. For the firft year indeed this method makes no great alteration, but in the following it is recommended by the moft happy effects, producing the fineft and melloweft grafs, intermixed with many falubrious flowers. The feveral kinds of greens growing here befides the common fort, are holly, quick, wild tanfy, rufhes, fedge, goofe-oats, bienfen, (rufhes) fheer-grafs, iglegras, ftoergras, (large grafs) or tourgras, of which fome particulars fhall be obferved in the fequel.

I am not acquainted with the kind of grafs or plant with fhort broad leaves, to which fome here give the name of *Viola Canina*, but by it, and fome leaves of forrel, the lives of two brothers were wonderfully fupported for feveral days. The fingularity of this ftory is fuch, that I cannot forbear inferting here a fhort abftract of it, for however it may appear a digreffion, yet it is not very unufual, in an account of the feveral plants of a country, and it is befides an interefting fact, as it furnifhes more than one instance of the care of providence over perfons in the extremity of diftrefs. It may be read more at large in Oluf Bangs collections, p. 508.

\* I have fince been informed, that thefe Hœsgier are ufed only in the diocefe of Bergen, they not being fo neceffary in other parts, where the rains are not fo frequent.

Olave and Andrew Engelbrechtsen, born in the farm-house of Toxen, in the parish of Guldsdal in Gulbrandsdal, brothers and students, set out on the first of August, 1652, from the said house of Toxen, to take the diversion of shooting and fishing for a few days, in the high mountains, which separate Gulbrandsdal from the province of Valdres. On the second of August, after proceeding about four Norway miles, they came to a large water called the lake of Ref, where they stayed four days. On the sixth of August they were for returning home, but first rowed away to a very small island in that lake, being but sixteen paces long and half as broad, to draw up a net which they had spread there. Whilst they were on this island, by a sudden storm at east, their skiff broke loose, and was carried over to the other shore; by this accident, as neither of them could swim, they saw themselves in extreme danger of perishing with hunger. After having fasted the first day, they were for the space of twelve days, destitute of any kind of subsistence, except only the wild vegetable, which introduced this story, the *Viola Canina* and sorrel. Besides hunger, they had also severe winds and colds to struggle with, especially in the night, and being but thinly clothed, as their travelling necessaries were on the banks of the lake, they must soon have perished with cold, had not the invention of one of them suggested to build a little hut of stones, where they might in some measure be sheltered from the weather. Their next care was to search, if this little spot did not afford some succulent vegetables, their appetite now beginning to grow keen towards the end of the second day; but their first searches were fruitless, at last they alighted upon a kind of broad leaved grass, without doubt *Viola Canina*, of which, twice a-day, each ate about an ounce, that being all they could find at one time, and as in this extremity they frequently implored the assistance of heaven, so their slender repasts were constantly attended with a prayer. They tried also the leaves of some bushes but found them too bitter. After thus devoutly eating their pittances of that grass, their spirits and stomachs were refreshed, and the acute pains they felt in their arms and shoulders abated. But the most remarkable circumstance in this sustenance was the happy proportion in which it was dealt out to them, and the sudden reproduction of it; for, according to their own account, which they

themselves published, from a principle of gratitude to God, and consequently cannot be supposed to have adulterated it with a deliberate falsehood, they daily found no more than the above-mentioned very small portion; on the following day, their search was duly answered, though they had but the day before torn up all the other grass, and the moss itself, to form a kind of a bolster, in their store-hut, and towards the period of their misery, they met with more than at first, but on the twelfth day, when their deliverance was at hand, this esculent entirely failed them, so that not a blade of it was to be seen. But on that day they met with something, which had hitherto escaped their eyes, tho' their search was confined to so narrow limits. This was a little spot, all overgrown with sorrel, which they cleared, and fed on it with a devout cheerfulness; yet, when in the evening Andrew Engelbrecht- sen crept thither, being unable to walk, he found it fresh grown. It may be surmised, that this was another spot which had not been touched, but to obviate this, he says, that they had taken exact notice of the place, having observed a piece of wood lying near it. In the mean time, these distressed young men, did not give up all hopes of being delivered by some persons who might resort, as many did, to these desert mountains for the diversions, which had drawn them thither. The instrument which providence made use of for their preservation was their dog, who after continuing eight days with their little baggage on the shore, had returned home howling and moaning: From the grief of this faithful creature it was concluded they had met with some misfortune, and a man was immediately dispatched to the mountain in search of them; coming thither on the eleventh day, he could get no sight of them, but found their clothes, &c. and from several marks, he conjectured they had not been there for a considerable time, upon which he immediately returned with the melancholy news, that they were probably drowned. On the twelfth day, being the 17th of August, Olave Engelbrecht- sen, appearing to be at the last gasp, his heart throbbing with a violence so as to be heard, they sunk into despair, and Andrew, the younger, with what remains of strength he had, cut out on some pieces of timber which were most in sight, a concise relation of their unhappy fate; and the text, upon which he chose their funeral sermon should be preached,

Pſalm lxxiii. verſ. 22. and 26. After this they mutually encouraged each other in the hope of eternal felicity, to patience, and perfeverance in faith, jointly recommending themſelves to God, and totally deſpairing of all temporal relief, ſince the above-mentioned herb had failed them. But in the night between the twelfth and thirteenth day of their famine, being the eighteenth day of Auguſt, their hearts were revived, by the ſound of horſes galloping up the mountains; upon which they called out, and being heard, the riders flew to their aſſiſtance, and putting off in their boat, which, as another inſtance of God's paternal care, had received no damage, brought them aſhore. Food being offered to them, the elder brother could eat very little of it, and the little he did eat, threw him into ſuch a diſorder, as after his return home confined him eight days to his bed; however, he ſurvived it thirty-ſeven years. The younger brother found himſelf leſs incommoded, and in the year 1691 drew up this relation, particularly thanking God, that their dog, the ſubordinate means of their deliverance, had not ſwam over to them when they called, and made all the ſigns imaginable, with a view of killing him for their ſuſtenance. I beg pardon for this digreſſion, and reſt the truth of the fact upon the authority of the party himſelf.

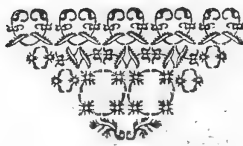
## S E C T. XI.

After thus treating of grain and graſs, the chief ſuſtenance of men and other animals; the culinary and garden vegetables are the next in order for our conſideration. The common people here, and eſpecially in the country, have very little taſte for theſe, and even the towns and cities uſed to be ſupplied from England and Holland with cabbage, leeks, and other roots. But in this century, eſpecially within theſe forty years, a foreign ſupply is become leſs neceſſary, as gardening grows more into vogue, for which the country is partly indebted, to a very uſeful little piece, intitled, *The Norway Horticulture*, publiſhed at Drontheim, by Chriſtian Gartner; and a happy experience has ſhewn, that all kinds of eſculent vegetables thrive in our gardens; they produce cabbage of all kinds and colours, green, white, or red, likewise green peas, common and french beans, aſparagus, artichoaks, melons, cucumbers, garlic, parſley, ſellary, marjoram, thyme, ſage,

All kinds of eſculent and garden vegetables.

sage, penny-royal, purslain, sorrel, lettuce, spinnage, endive, cresses, charvil, dill, fennel, and cummin, the last growing wild, especially in Nordenfield; accordingly it has no place in gardens, increasing spontaneously to such quantities, that from Christiania, it is exported abroad. Our gardens likewise furnish us with all kinds of roots, as yellow, red, and common carrots, parsnips, radishes, potatoes, together with a particular kind of northern turnips called Naper, which the peasants endeavour to raise more than any other, and sell by tuns in the cities. These are sometimes very large, and as flat as a dish. A man of veracity has assured me, that not many years since, he had in his garden one of these Napers, weighing twenty-seven pounds. They keep best in the little hillocks to be met with among the swamps, where they continue entirely fresh, even so late as spring time.

In order to forward the growth of certain vegetables, where the summers are short, the example of burgo-master Jurgens of Drontheim, is recommended to imitation in the above-mentioned *Horti Cultura*, p. 23. This gentleman, at harvest time, set in his garden at his seat of Harli, several plants, which might be sown early in the spring, but which being covered by the snow during winter, were alive, and very forward in spring. But this method, however adviseable in the inland parts of the country, will not hold good in the maritime parts, for want of such lasting snows, the winters here being rather wet than cold.





## C H A P. V.

## Account of the Vegetables continued.

SECT. I. *Medicinal and other plants and flowers.* SECT. II. *Noxious herbs.*  
 SECT. III. *Wholsom and palatable berries.* SECT. IV. *Of the Norway woods  
 in general.* SECT. V. *A catalogue of Norway trees.* SECT. VI. *Moss upon  
 the trees and stones.*

## S E C T. I.

FROM the common esculent vegetables, I come to treat of <sup>Medicinal  
and other  
plants.</sup> several other kinds of plants and flowers, which Norway affords, some salubrious, others agreeable to the sight or smell; some planted in gardens, others growing wild; and I shall gather my informations either from books, especially that of the accurate Mr. Ramus, or from the epistolary correspondence I enjoy, with persons of parts and candor. Among the written helps, I must acknowledge the preference due to an *Herbarium Vivum*, written by Mr. Godfrey Henry Langen, who, for various purposes, but particularly to acquire a knowledge of the Norway plants, hath visited several provinces, making some stay in Nordland, an hundred Norway miles beyond Bergen \*. From these authorities, I have set down the following, with remarks where I thought them proper and requisite, omitting remarks upon those plants that are common and generally known.

*Abfinthium maritimum* (likewise *pratense*.) Sea-wormwood.

*Acetosa major, minor, fontana.* Sorrel.

*Acetosella.* Petty-sorrel, sheep-sorrel.

*Aconitum magnum.* Wolfsbane.

*Adiantum aureum.* Golden maidenhair.

*Agrimonia.* Agrimony, liver-wort.

*Alchimilla f. pes leonis, item minor mathioli, foliis divisis et  
 subtus albicantibus.* Ladies mantle; Pa-de-lion.

*Allium montanum latifol. Sylvestre, tenuifolium.* Broad-leaved mountain-garlick. This, in some places, is so intermixed with the grass, that it gives a disagreeable taste to the milk, as if

\* This *Herbarium Vivum*, is the more valuable for the lively freshness of the colours of the several plants and flowers, beyond any thing of the kind I ever saw; but whether this be the effect of the air, or of the plants themselves, I cannot determine.

garlick had been boiled in it. This species of garlick, has some appearance of may-flowers, and is accounted a better medicine for the scurvy, than even scurvy-grafs.

*Alfine vulgaris, longifol. nemorum hirsuta, folio Euphrasie rotundo et crenato, facie spergulæ.* Chickweeds.

*Althea.* Marshmallows.

*Alysson Germanorum.* Madwort.

*Anagallis aquatica.* Brook-lime.

*Angelica vera officinarum, feu Archangelica,* grows here and there in the vallies, but delights chiefly in the mountains, where it is as plentiful as in Switzerland. The highland peasant, not only chews it in a morning dried, but likewise makes a snuff of it. The bears likewise are very fond of the stem till it grows tough and sapless.

*Anserina, Argentina,* likewise called *Potentilla*, from its anodyne and vulnerary property. Wild tansey.

*Anonis non spinosa, flore purpurascente.* Restharrow.

*Anthyllis leguminosa.* Kidney-vetch, or lady's-finger.

*Antirrhinum angustifol. cærul. item flore luteo.* Snap-dragon, or calves-snout.

*Aparine et gallium album.* Cleavers, and white ladies-bed-faw.

*Apios Hieron. Bock.* Earth-nuts.

*Apium palustre, et Sylvestre.* Smallage.

*Aquileja flor. cærul. simpl.* Columbines.

*Arnica Zogea lupi:* Motherwort. It is in great use among the Norway peasants, against pains in the back or limbs, a decoction of it in stale beer operating by perspiration.

*Artemisia vulgar. it. tenuifol.* Mugwort, or white-wort.

*Asperula odorifera.* Woodroof.

*Asphodelus palustr. luteus.* Kingspear.

*Astragalus flore flavo, radice bulbosa.* Silk-vetch, or wild tares.

*Astrantia Sylvestris, aquatica, fol. angustis, parum hirsutis.* Black masterwort.

*Atriplex major, minor, maritima, fol. scutato, foetida.* White and stinking Orache.

*Auricula muris.* Moufe-ear.

Barba caprina, S. Tragopogon, fl. luteo. Goats-beard.  
 Bardana. Burdock.  
 Bellis major, Buphtalmos. Ox-eye.  
 Betonica. Betony.  
 Bifolium, latifol. sine testiculis et palmis. Tway-blade.  
 Bistorta minima. Small-bistort, or snake-weed.  
 Bonus Henricus. English Mercury.  
 Branca ursina, Branckursine. Bears-breech.  
 Brassica Sylvestris, S. Lampfana fol. integr. et laciniatis. Nipple-wort.

Bryonia. Bryony, Hedge-plant.

Buglossa vulgar. it. maritima: Bugloss, or ox-tongue. This plant grows along the shore in Northland, so as to be often overflowed, and thereby contracts a saline taste. Its leaves and stem nearly resembles purslain, and it runs along the ground to a great distance. Mr. Lange does not mention his having seen it any where else. It is a good vulnerary, and corrects the motion of the blood.

Bursa Pastoris. Shepherds-purse. Experience shews it to be an excellent medicine for attenuating the blood, and abating a fever.

Calamus aromaticus.

Caltha palustris. Marsh-marygold. The Norway peasants, judge by the appearance of this flower, when to turn their cattle to graze.

Campanula major et minor cœrul. Hedge-bells.

Caprifolium. Honeyfuckle, woodbind. See Periclymenum.

Carduus aculeat. et non, caule angulari et spinoso, it. folio lævi lactescente, it. maritimus, it. pratensis flore purpureo et albicante. Thistles of different species, some of which bear corn, which in a time of dearth, may be grinded and baked instead of bread; and thus the curse, *thorns and thistles shall it bring forth to thee*, is amongst us converted into a blessing. When the thistle-tops are full, the peasant depends upon a good harvest.

Cariophyllata, flore nutante, it. flore luteo, radice odorata. The herb avens, likewise called the herb of St. Benedict.

Cariophyllus marinus. Sea-gilliflower.

*Cauda muris.* Moufe-tail.

*Chamæmelum vulgare.* Camomile.

*Chamæbalanus.* Pignuts.

*Chelidonium majus flore luteo et min. f. rotundo.* Celandine,  
or fwallow-wort.

*Cherofolium.* Chervil.

*Chryfanthemum fegetum.* Corn-marygold.

*Cicuta.* Hemlock.

*Cicutaria.* Bastard-hemlock.

*Cochlearia.* Scurvy-grafs. This grows every where in Norway in great plenty, and of feveral kinds, as, *repens et furgens, ramofa, punctata, et nen punctata, it. folio crenato et incifo*, particularly the *Cochlearia maritima*, which grows along the fhore, and from the ebb and flood undergoes an alteration, being alternately wet and dry. Its leaves are fmall, round, and thickifh, and are juftly efteemed the fovereign anti-fcorbutic; and the further north it goes, the greater its value; in the fpring the leaves are very fmall, but fowing itfelf again in the fummer, its leaves towards winter are large and juicy.

*Confolida major.* Black-root, or comfrey. This, in fome places, grows wild.

*Confolida aurea.* Another vulnerary herb, ufed for confolidating wounds.

*Convolvulus major et minor.* Great and fmall bin-weed.

*Conyza major.* Greater flea-bane.

*Coriander.* Coriander.

*Coronopus maritimus.* Sea-plantain.

*Cotula foetida et non foet.* Sweet and foetid wild-camomile.

*Criſta galli.* Cockfcomb.

*Chriſtophoriana, fol. Ranunc.* Crowfoot-leaved, herb  
Chriſtopher.

*Crocus.* Saffron.

*Cufcuta.* Dodder.

*Cyanus.* Bluebottle.

*Cynogloffa flor. cærul. et purp.* Hounds-tongue.

*Cupreffus fylveſtris.* Wild-cyprefs.

*Dens leonis.* Dandelion.

*Digitalis*

*Digitalis flore albo et vario.* Foxglove.

*Doronicum.* Leopard's-bane.

*Dulcamara.* *S. amarà dulcis* *S. folanum scandens.* Bitter-sweet.

*Echium, facie Buglossæ it. scorpioides majus et minus, flore cærul.* Vipers-buglossæ, and greater and lesser mouse-ear. Scorpion-grass.

*Equisetum ramosum et non.* Horsetail.

*Erisimum.* Hedge-mustard.

*Eruca sylvestris flore luteo.* Wild-rocket.

*Efula vulgaris et major.* Great-spurge.

*Eupatorium cannabinum.* Hemp, agrimony.

*Euphrasia.* Eyebright.

*Filix mas et foemina, mollis, cornuta.* Several kinds of Fern.

*Filicula aperta, ramosa, florida.* Osmund-royal, and other Ferns.

*Filipendula.* Dropwort.

*Flos Africanus.* African marygolds.

*Flos Trinitatis.* Harts-ease.

*Fænum Græcum sylvestre flor. luteo.* Wild-fenugreek.

*Fæniculum.* Fennel.

*Fritillaria variegata.* Fritillary.

*Fumaria latifolia.* Fumitory.

*Galeopsis major et minor.* Hedge-nettle.

*Gallitrichum Sylvestre.* Wild Clary.

*Gallium flore albo.* White Ladies-bedshaw.

*Gentiana.* Gentian, grows in great quantities; is such a bitter, that when eat by the cattle, with whom it is a favourite root, it communicates its taste to the milk, but withal makes it particularly wholesom.

*Gentianella.* Bastard-gentian.

*Geranium gruinum, caule rubic. it. sylvestre fuscum, it. flore cærul.* Several kinds of Cranesbill.

*Glyzyrrhiza filiquosa.* Liquorish. An infusion of it in brandy is used as a cordial among the peasants.

*Gnaphalium flore vario.* Lions-foot, or sea-cudweed.

*Gramina diversa.* Many kinds of grasses.

*Hedera terrestris.* Ground-ivy.

*Helleborus niger.* Black-hellebore, bears-foot, fetterwort.

*Hepatica nobilis*. Noble liverwort.

*Herba Paris quadrifol.* Herb true-love.

*Herba flammula jovis*. Spearwort. A pestilential herb, pernicious to the cattle in those parts, where it grows plentifully, particularly occasioning tumors in their mouths.

*Herba mercurialis*. Mercury, or dogs-cole.

*Herba trientalis fl. albo.* White triental.

*Herniaria*. Rupture-wort.

*Hieracium facie dent. leon. it. hirsutum, laciniatum, minus ramosum, spinosum, alpinum.* Hawk-weed.

*Hirundinaria*. Swallow-wort.

*Hispidita, si pes cati.* Several kinds of cats-foot.

*Hyacinthus racemosus juncifol.* Hair-bells.

*Hyoschiamus albus et niger.* Hen-bane.

*Hypericon vulgare, it. minus ramosum.* St. John's-wort. It is administered here both inwardly and outwardly, in many cases, and with very good success.

*Hyssopus.* Hyssop.

*Jacea nigra, fol. purpureo.* Knap-weed, or mat-fellon.

*Impatiens si noli me tangere.* Touch me not.

*Imperatoria.* Master-wort.

*Iris palustris fl. cœrul et luteo.* Bulbosa, gladialis, Flag-flower.

*Juncus varii generis.* Several kinds of Rushes.

*Lagopus.* Hares-foot.

*Lamium purp. et alb.* Dead-nettles.

*Lapathum, acetosum, it. aquaticum minus.* Red and white Sorrel, and water-dock.

*Lappa perforata.* Great-burdock.

*Lavendula.* Lavender.

*Laureola, fol. deciduo, baccis atrovirentibus.* Surge-laurel.

*Lens palustris.* Duckweed.

*Lilium convallium, it. minus, f. bifol.* Lilies of the vallies; these flowers are succeeded by a species of berries, ripening about harvest, in colour and figure like small cherries, of a grateful bitter, an infusion of them in brandy is by some accounted very wholesome.

*Linaria fl. luteo.* Toad-flax.

Lithof-

*Lithospermum vulgare*. Grummell or graymill.

*Lolium*. Darnel, and from its causing vertigos called in Norway Svimling.

*Lunaria vulgar*, et *racemosa*. Moonwort.

*Lupinus* fl. albo, cærul. luteo. Blue and yellow Lupines.

*Lupulus fylvestris*. Wild hops.

*Lychnis latifol. glabris*, fol. purpur. it fol. hirsutis, fl. albo, et purpureo, it. viscosa flor. purp. it parva faxatilis fl. candido it. minima fl. albo. Campions of several kinds.

*Lycopodium*, officinar. Wolfs claw-moss.

*Lyfimachia lutea spicata*, it. vario flore, spicata, galericulata. Yellow and hooded willow herb.

*Malva. hortens. fl. luteo. fylvestr. crispa*. Yellow and other Mallows.

*Marrubium nigrum*. Black hoar-hound.

*Matricaria*. Fever-few.

*Melilotus vera*. Melilot.

*Melissa turcica*. Turkey-balm.

*Mentha arvensis hirsuta*. Field-mint; *crispa*, curled-mint; *aquatica*, water-mint.

*Millefolium*. Yarrow, milfoil.

*Morus diaboli*, f. *fuccifa foliis glabris*, it. fol. parum hirsutis. Devils-bit used here for dying yarn green.

*Morus gallinæ*. Chick-weed.

*Myrica*. Tamarisk; this herb though known to be extremely heady is made use of in brewing by some peasants, and supplies the place of hops in their liquor.

*Narcissus*. Daffodil.

*Nasturtium*, varii generis, agrarium, aquaticum, pratense, minus scutatum, pumilum. Cresses of several kinds.

*Nigella*. Fennel-flower.

*Nummularia fylvestris repens*. fl. albo. Money-wort. To this tribe probably may belong a Norway-herb, the name whereof I never could learn, but it deserves notice, a tea being made of it, which is a noble pectoral; its leaves are nearly orbicular, with a very small incision, at the fore part, being but half as big as a Danish shilling, and growing by pairs on a long, thin, round and hairy stalk, its flowers are little campanulæ, or bells of five leaves, white on the outside, but their inside beautifully variegated with

with red spots. The before-mentioned Mr. Lange, a person of universal experience and curiosity in botany, affirms, that he never met with it out of Norway, and recommends it for pectoral disorders.

*Nymphæa alba, lutea, it. fl. unifol.* White and yellow water-lily, its root is used in many cases.

*Ocymastrum, flore albo et purpureo.* Wormgrafs.

*Omnifolium.* Leaf-wort.

*Ononis spinosa et non.* Restharrow, prickly, and not prickly.

*Ophioglossum.* Adders-tongue.

*Orchis latifolia, flore albo, binis et uno teste, it. tenui fol. fl. albo.* Several kinds of satyrion.

*Origanum.* Wild marjoram.

*Oxytriphylon.* Sheep-forrel.

*Pæonia nobil.* Male piony.

*Papaver, erratic. et hortens.* Wild and garden poppey.

*Parietaria.* Pellitory of the wall.

*Pastinaca sylvestris, latifol. et tenuifol.* Wild parsnip.

*Pedicularis.* Red rattle.

*Pentaphyllum petræum, palustre, repens.* Cinqfoil, or five-fingers, several kinds.

*Periclymenum parvum.* Little Woodbine, called in Norway devils-berries, the eating of them being pernicious, on which account, I have omitted them in the different species of berries, which I shall speak of in the sequel \*.

*Perfoliatum.* Thorough-wax.

*Perficaria maculosa et non, it. aquatica.* Arfmart several kinds.

*Phu vulgare.* Common valerian.

*Pilosella repens.* Common mouse-ear.

*Pimpinella saxifraga, fol. rotundo. it. prof. inciso.* Pimpernel: saxifrage.

*Pinguicula.* Butter-wort.

*Piper aquaticum.* Water-pepper. So the ingenious Mr. Lange in his herbarium vivum, calls this vegetable, saying at the same time, that he never met with it any where but on the sea-coasts

\* John Christopher Buxbome makes this vegetable originally a native of Norway, in a little memoir concerning it, which is to be found in the *Commentar. Academ. Petropol.* Tom. 3. p. 268. with this title, *De Periclimeno humili Norvegico.* Simon Paulli in his *Flora Danica*, p. 37. mentions it under the name of *Caprifolium*, Woodbine; annexing a good advice to those who are for making a medical use of it.



in Norway, and that he gave it this appellation on account of the taste of its leaves, which are of a middling length and breadth, rounding towards the end, with small carnation flowers with seeds in the calyx like the *femen psylli*.

*Plantago major*, caule spicato et capitato, minor latifol. it. longifol. it. hirsuta, it. aquatica. Several kinds of plantaine.

*Polium montanum*. Mountain-poley.

*Polygala fl. cæruleo*. Milk-wort.

*Polygonatum latifol. it. angustifol.* Narrow, and broad-leaved Solomon's-seal.

*Polygonum*. Knot-grafs.

*Polypodium*. Polypody, wall-fern.

*Potamogeton*. Pondweed.

*Primula veris fl. cæruleo*. Blue Primroses. Possibly Norway is the only country which produces them of this colour.

*Ptarmica hortenfis*. Sneese-wort.

*Pulmonaria*. Lung-wort.

*Pyrola spicata florida et minor uniflora*. Two kinds of winter-green.

*Radix rosea*. Rose-root: However scarce in other parts, here it grows spontaneously, and besides its fragrancy and fightliness, is highly serviceable in the scurvy, though this property of it be little known.

*Ranunculus, varii generis, vulgar. et dulc. fl. luteo, it. fl. globofo, it. palustris, it. vernus, feu anemone fl. albo ampliff. it. aquatic. fl. albo.* Several kinds of Crowfoot.

*Rapistrum agreste*. Charlock.

*Rapunculus vulgar*. Rampions.

*Regina prati f. ulmaria*. Meadow-sweet.

*Reseda marina lutea*. Yellow Base-rocket.

*Rhamnus solutivus*. Buck-thorne.

*Ros folis, rosa folis*.

*Ruta hortenfis*. Garden-rue.

*Sabina fylvestris*. Savin; used by the peasants as a dye.

*Salvia fylvestris et hortensf.* Sage.

*Sanicula alpina*. Sanicle.

*Saponaria maj. et min.* The greater and lesser Soap-wort.

*Satyrium latifol. flor. purpur. et tenuifol. it. maculat.* Three kinds of orchis.

- Saxifraga aurea*. Golden saxifrage.  
*Scabiosa hortens.* et vulg. Scabious, an herb applied to fores  
 and imposthumes.  
*Scorzonera*. Vipers-grafs.  
*Scrophularia*. Fig-wort.  
*Sedum majus*, it. *vermiculare* fl. lut. et albo. Great and little  
 Houfe-leake.  
*Sempervivum*. Wall-pepper.  
*Senecio*, f. *erigeron*. Ground-fell.  
*Serpillum*. Mother of thyme.  
*Sideritis heraclea*. Iron-wort.  
*Sigillum solomonis*. Solomons-feal.  
*Sinapi agreste*. Wild mustard.  
*Sifymbrium aquat*. Water-creffes.  
*Sonchus asper laciniat.* fl. lut. it. *lævis lactescens*, it. *latifol.* fl.  
*cærul.* Three kinds of Sow-thistle.  
*Sophia chirurgorum*. Flix-weed, a vulnerary herb.  
*Spina crispa*. The barberry-bush.  
*Spinachia*. Spinnage.  
*Stæchas*. Silver-knap-weed.  
*Tabacum*. Tobacco. In the diocese of Aggerhuus endeavours  
 have been used for the cultivation of it.  
*Tanacetum album*. White Tanzy. It. *vulgare* fl. luteo. Com-  
 mon yellow Tanfy.  
*Taraxacum minus*. Lesser dandelion.  
*Telephium* f. *crassula*. Orpine.  
*Teucrium pratense*, it. *minus*. Wild-germander.  
*Thalictrum*. Meadow-rue.  
*Thlaspi scutatum*, it. *minus*, *acerrimum*. Two kinds of treacle  
 mustard.  
*Tormentilla*. Tormentil.  
*Trichomanes ramosa*. Branched-maidenhair.  
*Tricolor.* spec. *violæ*. Pansies or hearts-ease.  
*Trydactylites. alpina*, *filicis* genus. Fingered-fern.  
*Trifolium* var. gen. *acidum* fl. albo, it. *aquatic. fibrinum*, it.  
*corniculatum*, it. *hepatic. aur.* fl. *cærul.* it. *pratense* fl. *minuto*  
*albo*, it. *rotundifol.* flor. *purpur.* Seven kinds of trefoils.  
*Tuba rubra Turcica*. Turkish trumpet-flower.  
*Tubera* var. gen. Truffles, several kinds.

Tulipa

*Tulipa* var. col. Various tulips.

*Tunica*. Pinks.

*Tuffilago*, f. *ungula equina* fl. luteo. Coltsfoot: Dr Lockstor thinks its effects are like those of tobacco, and that it might be a good fucedaneum to it; but besides the common Coltsfoot, here grows also another different from the other in the shape of the leaves, being tapering and very narrow towards the stem. Mr. Morten Ruus informed me, that the latter were particularly beneficial for recent wounds, the peasants, when especially in harvest-time they happen to cut themselves with a scythe, apply nothing but this herb to the wound, which it closes as it were instantaneously.

*Valeriana græca* maj. et minor. Greek Valerian, the greater and lesser.

*Verbascum* mas et fœmina, candid. et nigrum, Mullein, white and black.

*Veronica* maj. min, et minima, faxatilis. Speedwell; it is also called Norway-tea, and grows every where in great plenty.

*Viola matronalis*, alba et aurea, it. *fylvestris* fl. luteo. Dames violets, the garden and wild.

*Umblicus veneris* caule sanguin. fol. linguar. Red stalk'd Navel-wort.

*Unifolium*. One-blade.

*Urtica* maj. et min. mortua fl. albo. Nettles, and dead nettles.

In the before-mentioned Herbarium vivum, there are above twenty more very sightly flowers and herbs, which the collector Mr. Lang, was at a loss under what kind of known exotics to place, and much less has he presumed to give them any name. I shall mention some others presently, which I have had several opportunities of knowing, previously observing, that the foregoing list, is a manifest evidence, how the infinitely wise Creator has abundantly furnished this land with such plants and herbs, as the diseases of the inhabitants most require. The distempers, especially towards the sea-coast, being scorbutic, there accordingly, as has been observed, grows not only angelica, rose-wort, and gentian, preferable to any in Europe, but likewise several other kinds of excellent cresses, trefoils, sorrels, and scurvy-grafs. Among the latter, Mr. Christopher Steinkul, ranks Erich's grafs, a thick leaved herb

The herbs of  
this country  
adapted to its  
diseases.

herb, of which I had never heard before, which is to be found in great plenty on the islands of Northland, and of which the inhabitants of the continent are said to fetch away boat-loads, preserving it in tuns for winter provision, as a succedaneum to cabbage.

## S E C T. II.

I now, pursuant to my promise, proceed to give an account of some vegetables growing in Norway, which are little, if at all known out of this country, but are chiefly noxious. In the parish of Vaage in Guldbrandfdale, particularly in the chapelry of Sel, and possibly in more places\*, though unknown to me, grows a very singular and poisonous root, sometimes longish and knotty, sometimes rounder, and generally of the thickness of a half-crown. The leaves are a species of grass, resembling sedge, the name of it is Selfnape, whether, as some think it be the water-parsley of the Germans, or whether Mr. Ramus more justly styles it *Astrantia sylvestris aquatica*, Masterwort, I shall not determine, especially as the worthy author himself speaks with diffidence, saying; *Astrantia forte eadem, quæ aliis Selfnape, et forte ad cicutæ genus referenda* †. Such is the force of its poison, that if a beast happens to eat any of it, which they are very apt to do, he dies immediately, his belly bursting; and the very fowls who prey upon the carcase, soon after drop down dead, as is particularly related in a letter of colonel Reishwein to doctor Simon Paulli, which is to be met with in the *Acta Medica Phil. Hafniens. Th. Bartholin.* ‡ A learned friend of mine has communicated to me a copy of a letter which he lately received from a clergyman, where, in compliance with his desire, he gives him

Vol. II. p.  
129.

\* Mr. Ramus thinks that Oere-land is the chief place where they grow; but this proceeds from his mistaking them from *Gramen ossifragum*, which will be shewn to be a very different thing.

† In a letter of my learned ancestor Er. Pontoppidon, to Simon Paulli, *idib. April. 1675*, I find this herb to be also called *Sprengrod*; his words are these: “*Exsiccatum mitto tibi herbam illam, quæ Sels Nœpe et Sprengerod appellatur.*” This last name unquestionably alludes to its poisonous quality.

‡ Vol. II. p. 128. *Similis est Apionis, sed radices habet crassas et nodosas instar radicum seu raparum Botfeldianarum. Si bestia, ut equus, vacca, bos, ovis vel porcus illam devoret (cujus tamen appetunt escam, unde rustici, ubi hæc herba crescit, ista loca circumsepunt, in quibus copiose luxuriat) statim moritur et dirumpitur. Venenum ejus quoque tam vehemens, ut avis, si cadaveri involet, pariter concidat confestim, et si inde repellatur, statim ex ære decidat moriaturque. Hanc plantam hujus regionis incolæ appellant, Syllenabbet.*

N<sup>o</sup>. 1.

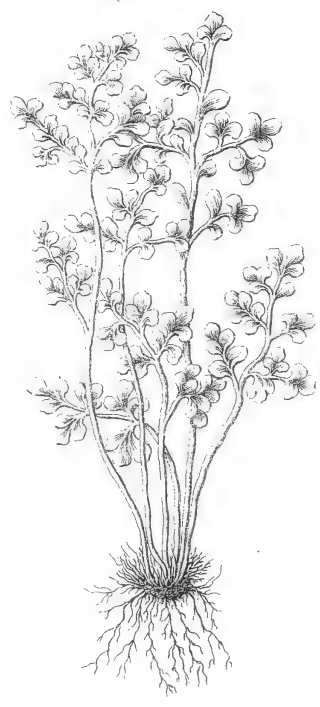


Branch of the Oxel Tree

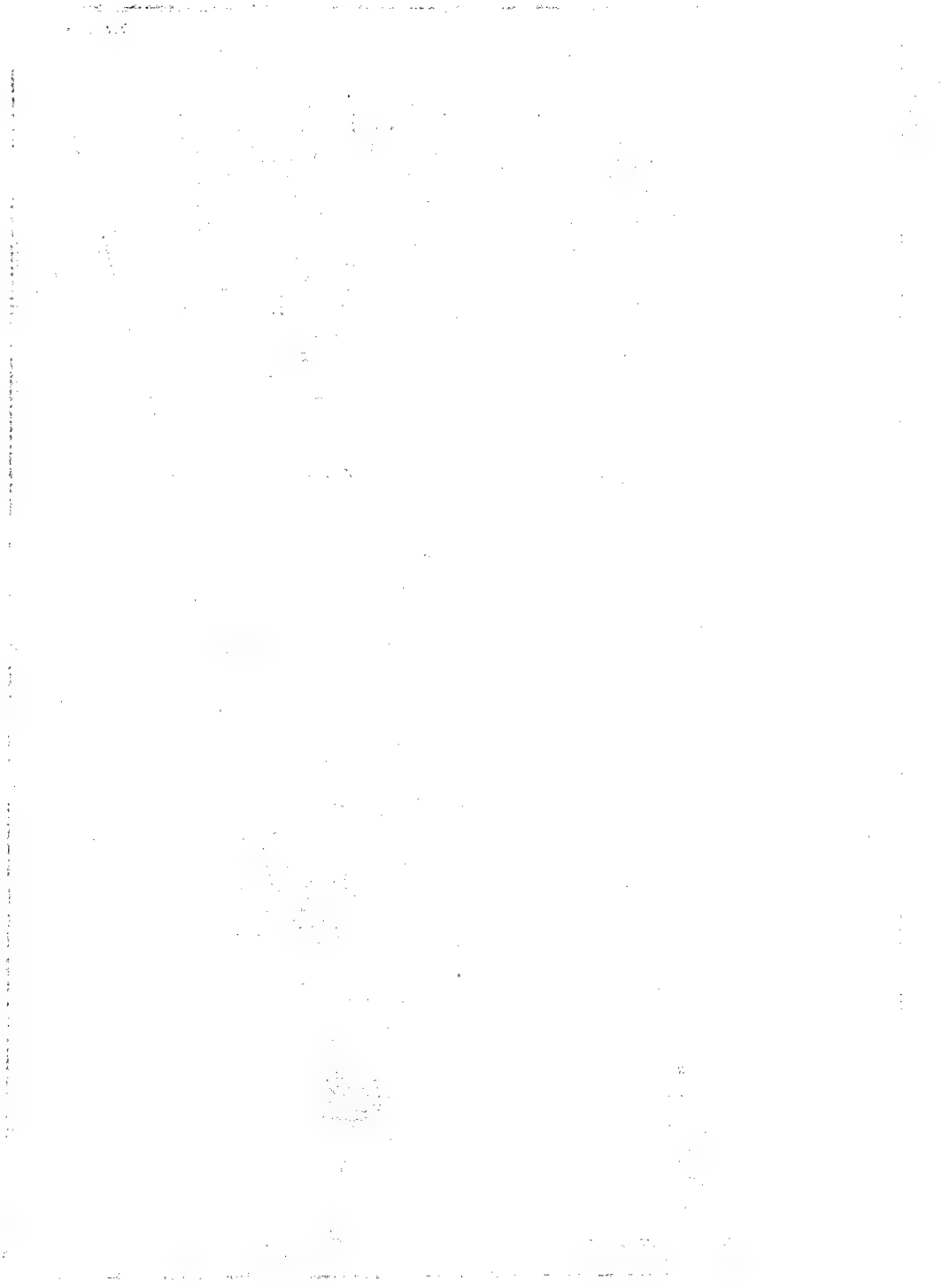
p. 146.



Stur-grass p. 128



Torboe p. 131.



him a more accurate tho' not compleat account, of its good and bad effects in the following words: " This plant derives its name from the place of its growth, which is here in Guldbrandfdale, in the parish of Waag, and the chapelry of Sels. It delights in swampy places, and begins to shoot towards the close of June, or the beginning of July, when the swamps are entirely divided. It bears a kind of grass like the Norway Masterwort, and its root is about the circumference of a half-crown, some round, others oblong, as in the figure. None of the several medicinal dictionaries, which I have searched, mention either its use, or so much as its name, possibly from its being unknown to the authors; tho' a certain writer of Magdeburg speaks of the *Apium raninum*, which he interprets water-parsley, in the following manner; *Affectat ovicula ex paludibus apium raninum, cum tamen inter ovem et hanc herbam talis ἀντιμαθεία fit, ut ovicula statim moriatur, et in signum mortis ex Apio comestæ, in hepate ovis reperitur vestigium instar folii de Apio jecori animalis quasi impressum.* Which description evinces water-parsley and Selfnape to be the same; the latter being present death to the sheep; whereas in swine it is known to operate so beneficially, that it is the best medicine which can be given them. The poison of it is equally fatal to men, as the inhabitants of Sels know from many melancholy instances, and within my time, two children, having ignorantly eat of it, died soon after. Upon cutting a fresh root into slices, and throwing it into fresh water, it emits rays of different colours, and this water being put up with the Nape in a bunged cask, contracts a smell more loathsome than any carrion. As to the virtues thereof, it is found to be a specific in arthritic cases, for which it is used in the following manner; being sewed up in a piece of fine linen, it is fastened to the shirt so as to be placed on the part affected, either the arms, the loins, or other limbs; upon its being warmed by the natural heat of the body, the pain is immediately assuaged, and without any return, whilst the Nape remains applied to the body. This is known by taking it off, when the pain immediately returns, especially if the distemper be chronic, or if recent, the use of this remedy has been known totally to remove the distemper within a quarter of a year. Another singular virtue has also been found in it; an

inhabitant of the above-mentioned hamlet of Sel, had for several years been afflicted with an inward weakness, but whether it proceeded from the stomach or the breast was doubtful; the man however was in great misery, and at length confined to his bed; in his impatience he determined, without consulting any one, to eat a bit of Selfnape, and soon found himself relieved; upon the return of the fit he applied it with the same remedy, which effectually expelled it, and at length he was restored to a confirmed state of health, lived several years after, and this many credible witnesses can testify. However, I will not recommend this as a medicine, frequent experience having discovered the fatal operation of it, as a poison on the human constitution. This is the substance of what I know concerning the good and bad properties of the Selfnape."

Gramen Offi-  
fragum.

Plate 1x. b.

Another vegetable, pernicious to the cattle, tho' not so fatal, growing in the manor of Sundbord, and in other parts of Norway, is a kind of stur-grass, or large grass, the leaves broad and pointed, with very little yellow flowers, its name among botanists is Gramen Offifragum Norvegium. It has a very remarkable effect on oxen and cows, if they happen to eat of it; their strength totally decays as if their bones were fractured, or rather mollified, that without the strange remedy of administering to them the bones of other cows, which they devour with the utmost greediness, they quickly die. The before-mentioned letter of that eminent botanist Mr. Reichwein, to Dr. Simon Paulli, contains a description both of it, as well as of the Selfnape: Among other things he says, "Confringit et conterit statim omnia ossa, ita ut fracta inter pellem circa bacillum, circumvolvi possint. Non statim tamen exspirant, sed curari possunt, si illis exhibeamus ossa contusa alterius alicujus bestiae ex esu hujus herbæ mortuæ." This last circumstance, that the bones used for the cure must be of such cattle as have died by eating this grass, is contradicted in another letter of Mr. J. Fred. Marschalch, in the above-mentioned work, wherein is this passage: "Non enim audivi exhiberi illis ossa animalium eodem gramine occumbentium sicut Reichwinus beatus scribit." A gentleman of this country, who from his own observation is acquainted with this stur-grass, and sent me the original from which the annexed figure was

taken,



taken, informs me further of this remarkable particular, that a cow with calf received no damage by eating this grass, tho' such a violent corrosive in the bones of other cows; but whether, according to the above-mentioned expression of Mr. Reichwein, they become so mollified that they might be twined round a stick, which (upon the death of such a beast would be no difficult matter to try) he could not venture to assure me. And Dr. John Treubler, formerly city-physician, in his letter to Dr. Simon Paulli\*, doubts of it; and as this greatly confirms and throws a light upon this point, I shall not hesitate to transcribe his words from the before-mentioned valuable collection: "Mitto unà cau-<sup>P. 133. seq.</sup> lem graminis desiderati in frustra dissectum, ut angustia epistolæ caperetur, quod rustici nostri (quorum hac de re non paucos examinavi) Strotografs, dicunt, flores flavos jam amisit, plenos fæminibus, adhuc tamen immaturis, locis paludosis et humidis cre- scit inter alia dumeta; prope omnes villas colonorum primum gramen est, quod vere prodit, unde avida sunt pecora ad decer- pendum, quam primum vero alia gramina copiosius prodierint, hoc gramen averfantur, forsan propter caulem duriusculum. Ex esu hujus pecora male habent, macie confecta, spina dorsi extra protuberante (unde rustici dicunt, quod dorsum sit fractum) pe- dibus ossibusque debilibus, ut ægerrime incedere queant. Quod autem prorsus mollia fiant ossa, vix fieri potest, alioquin omnia animalia perirent et humi prosternerentur: Pro antidoto rustici semper habent exsiccata ossa in promptu, quæ quotannis conser- vant ad hunc usum, quando carne prius abrasa usi sunt, eadem quoque ossa in plateis et ædibus colligunt, quæ exsiccata confrin- gunt, et mox ab animalibus magno appetitu, in minima dentibus comminuta devorantur, unde quasi salivatio subsequitur, multum-

\* However some naturalists, on the other hand, make no manner of doubt of the possibility of an emollescence of this nature, an instance of which is the following passage from Biblioth. Raisonnée de l'An. 1746, Tome xxxvii. p. 262. "M. Petit a eu bien des combats à soutenir au sujet de l'amollissement des os, que cet habile homme avoit un peu trop crû avoir decouvert le premier. Plus de vingt Auteurs avoient décrit avant lui cette cruelle maladie, qui détruit en peu de temps ce que la nutrition, et l'acroissement ont fait en bien des années, et qui remet les os dans le degré de moleste qu'ils avoient eu dans le fetus. Monf. Bevan en a donné un nouvel exemple. Une femme fut attaquée d'une diabete, qui apparemment avoit extrêmement derangé les sucs nourriciers; dixhuit mois apres ses os s'amollirent, se pretèrent à l'action de muscles, et se plierent à tous les mouvemens, que la superiorité alter- native des muscles extenseurs et flechisseurs peut produire.

que

que aquæ ex ore profluit, ut statim melius habeant pecora et profus convalescant. Alii pro remedio in pharmacopoliis emunt radicem tormentillæ; plerique tamen et pene omnes ossibus acquiescunt. Videtur (quia rustici rationem nullam dare sciunt) quod pecora plerumque primo vere, terra adhuc humoribus nimis fœta, ex hoc gramine præcoci tantam in se humiditatem superfluum forbeant et devorent, que deinde per ossa exsiccare debet. Unicuique tamen suum relinque iudicium." That according to this learned gentleman's opinion, the bones of the cows are mollified by nothing but the extreme moisture of this grass, is what I must join with Simon Paulli in doubting; yet, I cannot positively assent to the opinion of the latter, that the soil where this plant grows must contain either quicksilver or lead ore, and that it is the mercurial spirit insinuated into this plant, which thus corrodes and dissolves the bones. But others may form a better judgment of the matter than I can.

Among this class of noxious roots in Norway, must be ranked *Iglegrafs*; the peasants in many places are very apprehensive of the mischiefs of this plant, especially in the government of Nordfiord, where they spare no pains to clear their meadows of it, as it operates on the sheep and goats by a violent spasmus or contraction, of which they die in extreme torture. Its root is large, shooting up a kind of bush of thick stems, or twigs; the leaves narrow, oblong, and indented, with blue flowers at the end of the stems, which about harvest produce a hollow bud of twice the bigness of a pea, containing the seed, and sometimes it is found full of worms and other insects. It grows chiefly in a cold, watery soil. I have compared it with several figures, and find that it has some affinity with the *Anemone*; likewise, according to *Lonicer's* description of it, with the *Sideritis* or ironwort, except that instead of white or yellowish flowers, it has blue. The eating of this plant in sheep and goats, and sometimes, tho' seldom, in cows, is followed by the *Virdsygee*, a kind of vertigo, the symptom of which is such a contraction of the nerves, towards one side, that the neck and head are violently distorted towards its hind-parts, under which distortion the beast continues turning round till it falls, and soon after dies. Sometimes, though not often, a sheep is saved by opening a vein in the neck, whereby

the head is restored to its natural position. The relief for a ram or a cow is to perforate its horns, from whence a purulent matter issues.

Another kind of noxious plant is known under the name of Tourgrafs, which is probably derived from its effect, the word signifying the magic, or bewitching grafs; it consists of long thin stalks, extending themselves upon the ground, with little roundish leaves about the bigness of a Danish-shilling, in other respects like mouse-ear. This plant affects horses and cows with an unusual torpor, or a kind of lethargy, so that the most mettlesom horse immediately hangs his head, and becomes so dull and tractable, as to be managed at will. It is a known practice among jockeys, when riding together to a fair, to watch an opportunity of conveying some Tourgrafs into the mouth of another's horse, if he chances to be so much preferable as to prejudice the sale of the latter. The resource of the peasants against this distemper, and others incident to horses and cattle, is either castoreum, or a piece of an adder, put into dough, and thrust down the throat of the beast. If it be not the adder's head, but some other part, then the adder must be killed before midsummer, and be set apart for this use.

In some places, particularly in Hardanger, the mountains produce a plant not unlike rue, but with fewer leaves, called Torboe, Plate ix. fig. c. likewise Heste-spring (the horse-plant) from its particular fatality to horses, and it is only in extreme hunger that they will touch it. Upon the first symptoms of having eat any of it, a strong purge of yeast, or any other cathartic, generally relieves them, or likewise violent exercise, to breath them; without this relief, they are immediately seized with a prodigious swelling in their belly, and a kind of lethargy. This herb, which is flatulent in the highest degree, is no wise detrimental to cows, sheep, or other ruminative cattle, as in chewing their fodder they draw in the air. There is in Vaas a plant called Turte, and from the little difference of the name, and the similar torpid effects, for which the poor creatures are often misused by the inconsiderate peasants, I was inclined to think it the same as the former; but being very well acquainted with the Torboe, having an exact draught of it, I find no manner of resemblance betwixt it and the Turte, which

has much of the appearance of Angelica. The Bears are said to be extremely fond of it, and when by excesses in eating of it, they contract an oppilation, they seek for relief from the flesh of animals. Mariahaand and Fandenshaand, i. e. Devils-hand, are two roots somewhat resembling a hand with five fingers, but distinguished by their colour; the last is black and useless, and the first white, and good for sore heads, and other eruptions in children.

I shall close this subject of the plants in Norway, and their similarity with the plants, in other mountainous countries, with the following passage from the celebrated Linneus, "those mountains which reach the upper region of the air, and the surface whereof are continually covered with snow, produce their peculiar plants, of which the Alps in Switzerland, in Wales, the Pirenees, the Olympus, Baldus, and Arrarat, are instances, the like not growing in lower situations; as may be seen in Flor. Lappon. The plants are no where so exposed to strong concussions of the wind, as on the mountains, by which the growth and maturity of them is considerably accelerated. This is an expedient of nature to supply the shortness of the summer. Tournefort, in his hazardous ascent to the top of mount Arrarat, at the foot of it, met with the same vegetables, which he had found all over Armenia; a little higher he found several which had not occurred to him since his departure from France; in his further progress, he found *conyza cœrulea acris*, *cotoneaster folio rotundo*, *hieracium fruticosum angustifolium majus*, *jacobea senecionis folio rag.* *euphrasia vulgaris*, and others which are common in Sweden; but on the summit, he found the very same plants which are produced on the mountains of Switzerland, and Lapland." The plants which are described by Cæsalpin, Tournefort, Columna, and Pontedera, as growing on the lesser hills of Italy, abound in every meadow with us, all which proceeds from the air, and the altitude of the soil.

### S E C T. III.

Wholsom  
and palatable  
berries.

A great variety of wholsom and well-tasted berries are to be found in Norway; first, here are, as in Denmark, and other places, cherries of several kinds, of which, particularly the peasants in Sognefiord, and Hardanger, sell great quantities dried. Hagebar, probably a kind of sloes, an infusion of which in wine, like cherries,

cherries, makes pleasant and cooling liquor. Ribs, i. e. currants, red and white, which are here called vinbar, i. e. wine-berries; foelbar, fun-berries; hindbar, raspberries; likewise red and white sticklesbar, Gooseberries; brambar, blackberries; biornebar, barberries; hyben, a kind of berries, which also are here called clunger; blaabar, bilburnes; and a large sort of them called blaakbar, or krakebær, cranberries, and especially the wholesom and delicious jordbær, strawberries; of which there is great plenty, besides many other kinds of such berries as are hardly to be met with in any other country than Sweden and Norway: The first of these is oexel or afaldbær, of which a farther account shall be given in the article of trees; tegebar or teyebar, by Lockstor called uvænorweg, growing on long stalks which run along the ground, and hanging at the end of them in bunches like grapes; the leaves are like those of the cherry-tree, the blossom white, small and conical, the berries in appearance like currants, but far surpassing them in taste\*.

Tranebær, myrtillus repens, likewise grow on long small stems, spreading themselves along the ground; the berries are red and four, and, like the floe, do not ripen till winter, or rather the spring, when on removing the snow, I have gathered them on the mountain Filefield in their perfection, yet did not find in them that high flavor which the rein-deer seem to enjoy in eating them, and perhaps it is for their refreshment that the God of nature may have particularly intended them.

Crakebær grows upon a spinous stem of a middling height, not unlike the juniper-berries; the fruit has some affinity with the

\* In Chinese Tartary grows a root called ginseng, which from the description and figure of it in father du Halde, Descript. de la Chine, T. II. p. 182. seems perfectly to correspond with the Norway teyobær, though it is not the berries but the root, which the Chinese esteem so rare and valuable, that it is sold by weight against silver; it is universally used by the physicians of that country, as a medicine for the great men who alone are able to pay for it, and one of the emperors sent a body of ten thousand Tartars into the woods only to gather ginseng. L'Empereur avoit donné ordre à dix mille Tartares, d'aller ramasser tout ce qu'ils pourroient du ginseng, à condition que chacun d'eux en donneroit à sa majesté deux onces du meilleur, et que le reste seroit payé au poids d'argent fin.

The virtues of this root are in the highest degree of esteem, a decoction of it being a most powerful restorative, invigorating the faculties, dissipating humours, imparting a regular motion to the blood, strengthening the lungs, preventing nausea, strengthening the œsophagus, recovering the appetite, dissipating fumes and preventing vertigo's: Now whether so many valuable properties can center in the tegebar, I leave to the investigations and experiments of the faculty.

bilberries,

bilberries, but the juice thereof is white and sweetish: The Finlanders in Nordland are very fond of these berries, and use them as a powerful antiscorbutic.

Aaker or agerbær, land-berries, derive their name from growing under the grass in the ridges betwixt the furrows, but they are only found in the northern provinces, being of such a nature, like the tranebæ, as to require a sharp cold to ripen them instead of heat. In colour and figure they are not unlike bilberries, only something blacker and larger, the taste of them is a pleasant acid. In Sweden, particularly the province of Middelpad; abounds in them, and great quantities are carried to Stockholm, where they are chiefly used to put in wine, like cherries, for a pleasant and cooling summer-draught. Linnæus, in the above cited passage, recommends, that in transplanting them, during winter they should be covered with snow to cherish them, as without this fence they infallibly perish.

Plate X. fig.  
c.

Tyltebær a very wholesom and pleasant red berry, growing on the moss in high situations. The stem is short, the leaves small like those of box, the flowers of a lively red. These berries grow so thick that they are plucked off by handfuls, they are in such vogue in Denmark, as to be sent thither preserved for the table, and though their sweetness and acidity be mixed with a bitter, yet this is very pleasant, and greatly promotive of digestion, which has recommended it to be used at tables. Their juice is thick, but when mixed with wine is exceeding palatable and wholesom.

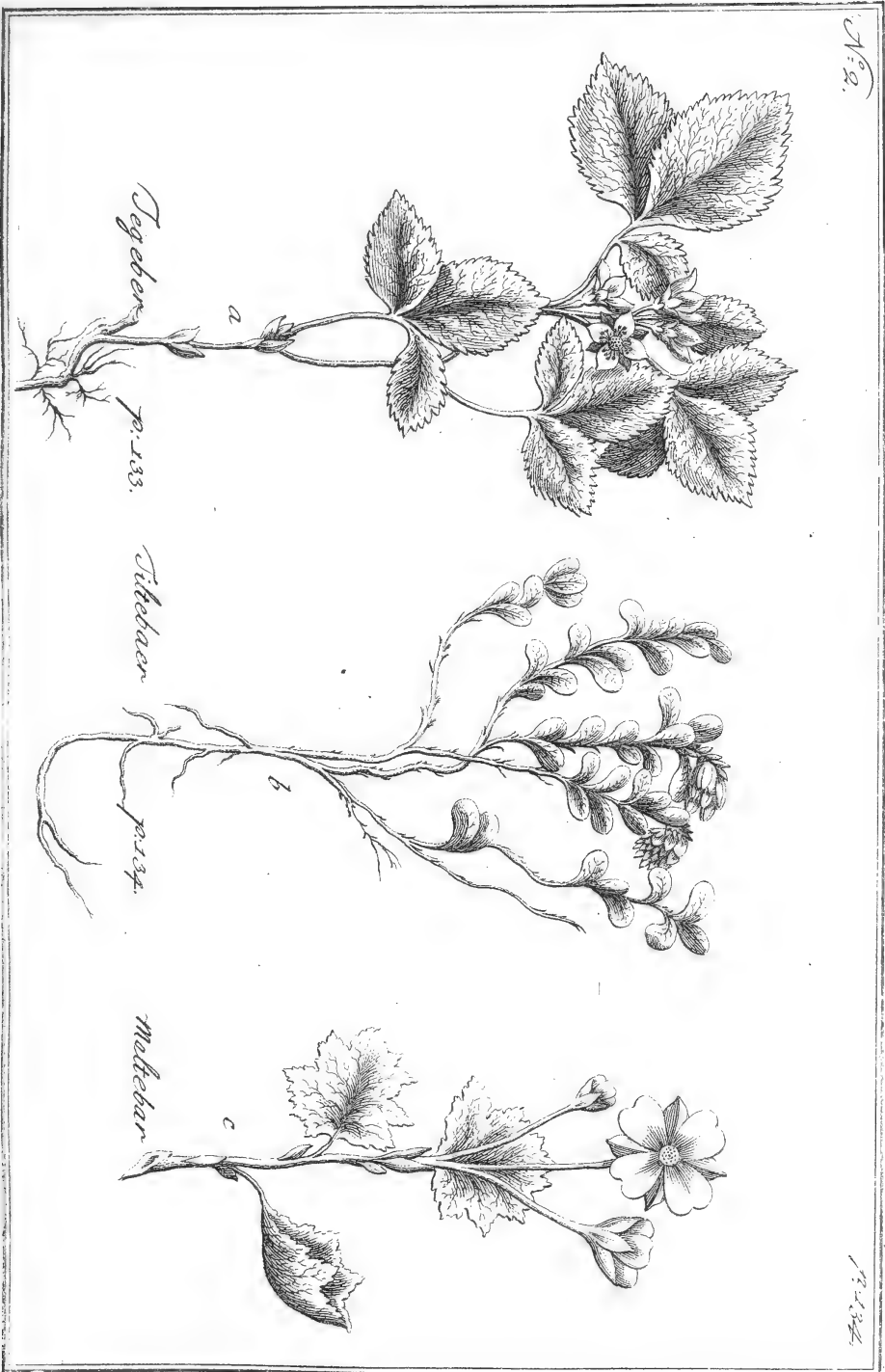
Meelbær.

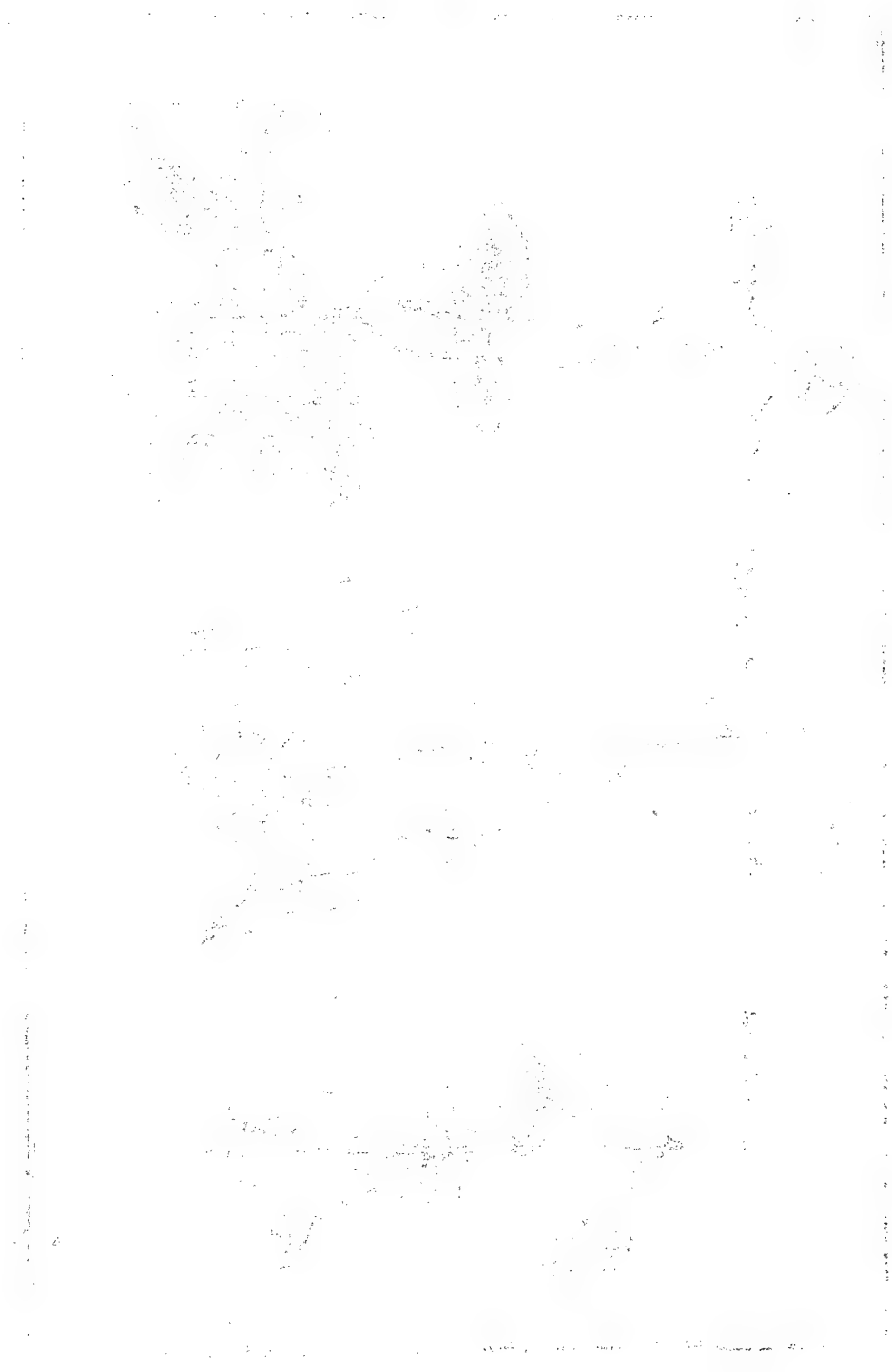
Among the tylteberries grows another tribe called meelbær, all the difference betwixt these is, that the stem of the meelbær is a little thicker, and the berries a little flatter, but of no manner of value, and full of little white grains like sand.

Chamæmo-  
rus Norve-  
gica.  
Plate X. fig.  
c.

Moltebar, Chamæmonus Norvegica, the Norway-strawberry, grows in swampy or mossy places, on stems something larger than the common strawberry, the flower whiteish, with a round indented leaf, about the circumference of a half-crown, if it happens to thunder whilst they are in bloom, the produce of the berries is greatly diminished thereby, otherwise, such is the abundance of them, that they are carried as a pickle by barrels, and even tuns, to Germany, and Denmark; where, according to Thom. Bartholin, in Med. Danor. domest. by order of Christian IV. great pains were taken to propagate this fruit in his gardens,

but







but hitherto to no purpose, though I have been informed that in Jutland, in the province of Vendfyffel, they grow spontaneously, but neither so good nor in such plenty as in Norway; in shape they something resemble the mulberry, though not quite so long, of a flame-colour, their original taste is much sweeter, than after exportation, or when kept throughout the winter, tho' the acidity still retains its agreeableness; and is withal so salubrious, that our physicians are unanimous in commending it as an incomparable antiscorbutic. Thus are these, and other berries, together with the before-mentioned scurvy-grass, angelica, trefoil, &c. an ample provision, which, according to the paternal views of the Creator, nature has pointed out to the Norwegians for relief in their scorbutic disorders. Thom. Bartholin says, "Confectio et spiritus mororum Norvegicarum omnium vota superat. Mori hujus ea in profligando scorbuto deprædicatur virtus, ut eo affectu laborantes, Norvegi amendantur ad virgulta, ubi uberrima hujus fructus est messis, ut illis folis baccis vescantur, testaturque experientia, sanos ad suos post illum reversos." I omit the description given of the moltebær by Simon Paulli, in his *Flora Danica*, page 139. because Lochstor, in his already-cited dissertation, charged it with inaccuracy, and promised one more correct, but was prevented by his untimely death; unquestionably something more authentic concerning the Norwegian plants might have been expected from him, than the little which is hitherto \* known, tho' the knowledge of it be very far fetched. However, what I have set down is so far intitled to credit as having experience for its basis, though I must withal observe, that in the figure of the moltebær, the flowers are made a little too big in proportion to their leaves; in the other figures of the Norway vegetables, I cannot discern any considerable oversight, and the greatest care has been taken for their exact resemblance to the originals.

In Medic.  
Danor. Do-  
mest. p. 160.

De Med.  
Norv. suffi.  
c. 2. p. 15.

Several kinds of plumbs attain to a tolerable ripeness, which can very seldom be said of peaches and apricocks, it being mere matter of curiosity to plant and estimate their trees, as is in most places here the case with vines.

\* In T. 1. p. 56. No. 66. Of Olai Wormii epist. is a letter to Nic. Paschasius, bishop of Bergen, which gives us to understand that the famous Otto Sperling in his younger years, travelled over this his native country for making a collection of Norway plants and vegetables, the loss of which is greatly to be lamented.

Apples and pears of several kinds are found all over the country, and the peasants now begin to apply themselves to the cultivation of them both, with more skill and more diligence; but the greatest part of these are summer-fruit, which ripen early, the winter-fruit seldom comes to perfection, unless the summer proves hotter, and the winter sets in later than usual. In this diocese, Sognefiord, Nordfiord, and Hardanger, are the best parts for the growth of fruit-trees, many of the peasants there being able to clear their yearly assessments from their apples and cherries. Of the choicest-apples, likewise, a cyder is made, but not to any great amount.

## S E C T. IV.

Of the woods  
of Norway in  
general.

But tho' in the article of fruit-trees, Norway must be acknowledged inferior to most countries in Europe, yet this deficiency is most liberally compensated in the blessings of our inexhaustible forests, a blessing of such importance, that in most provinces immense sums are received from foreigners for masts, beams, planks, boards, and the like, not to mention the home consumption, for houses built entirely of wood, beam upon beam, ships, bridges, piles, moles, &c. likewise for the infinite number of founderies, which require such an immense quantity of small-coal in the fusion of metals, besides the demands for fuel and other domestic uses; to which must be added, that in many places the woods are felled only to clear the ground and be burnt, the ashes serving for manure, and sometimes by negligence, in the drought of summer, the fire spreading along the moss, thousands of trees are weakened at the roots, and afterwards blown down by the first high wind. Nor is this all; the peasants also use an infinite number of young trees for inclosures and fences for their houses, gardens, and roads, tho' there be no want of stone to answer that purpose. These, and all other circumstances considered, the want of wood in Norway must have been at least as great as the present abundance of it in most provinces, had not nature indued the soil, even in the most barren mountains, with a most singular fecundity in the spontaneous production of trees; an evidence of which are the many shoots from the smallest fissures of the rocks, which thrive much better than when carefully planted in a good foil.

foil. However, here, as in other things, the difference in different provinces is very great. On the western-coast, some house and ship-timber are exported to Scotland \* and Spain, but this cannot come into account in comparison with the exports from Drammen, Fredericshall, Fredericstادت, Christiania, Skeen, Arendal, Christianfand, Christian's-bay, and Drontheim, where the produce of the woods supplies an immense trade; the masts and large beams being floated down the rivers, and the latter divided into boards at the saw-mills. Sometimes piles of it are seen in the ports like little mountains, that one would imagine it must require a very long time to remove them, whereas a single embarkation for England, Holland, France, or Spain, in a few days sweeps them all away; yet in a few weeks these places are again covered with mountains of timber. The saw-works are the best manufacture in Norway, an infinite number of families get a comfortable maintenance from them, together with the felling and floating of the timber. Before the year 1530, saw-mills were not known in Norway, the stocks were hewed down, and with the ax split into two planks, whereas now they are sawed into seven or eight, so that most of the wood was wasted into chips, which is the case to this day in some places, where saw-mills are not yet introduced, particularly at Sundmoer and in the province of Nordland, where great numbers of boats and barks are built of these hewn planks; they are indeed much stronger, but consume too many trees, the greatest part of which is left on the ground to rot. The tenth of all sawed timber belongs to his majesty, and makes a considerable branch of the revenue, Nic. Cragius in Vita R. Christiani III. informs us, that this duty was established in the year 1645, and further, that even in those times, the large exportations to the Dutch, were at that time apprehended to be detrimental to the national timber: "*Regi compertum magnam vim materiæ undiquaque ex Norvegia in varias partes Europæ exportari, ita ut sylvæ ad vastitatem multam*

\* The Schot-last, as it is called, annually exported out of the diocese of Bergen, unless brought under timely restrictions, is a manifest destruction of the forests, as it consists entirely of young pine-trees, all so straight and pliable, that if left to grow to masts, they would yield an hundred rix-dollars each; whereas now they are sold for two marks and a half the dozen, and when larger, about twelve ells in height, the dozen usually goes at five marks, which, exclusive of the wood, of which so much pains is taken to clear the country, does not so much as pay for the labour.

redigerentur. Quod malum ne licentia nimia exitiosum regno tandem foret, edicto statim vetitum, materiam quoquam, nisi in Daniam evehi." Upon this, the Dutch made a heavy complaint to the emperor, who at that time was their sovereign, and he accordingly sent remonstrances to the king, but received for answer, that the necessary preservation of the timber required such restraint, especially as the peasants totally neglected tillage and husbandry, for the more easy way of maintaining themselves by felling of timber; Deferente plebe rustica agrorum cultum, præ faciliore opera materiæ cædendæ, jacere possessiones steriles et infrugiferas.

These complaints are heard in many places, for altho' the increase of tillage be at present double to what it was at that time, yet on the other hand, from the increase of the inhabitants, and division of estates among several sons, the northern peasants still chiefly give themselves to timber-labour. This could not possibly long subsist, without that remarkable fecundity in the soil for producing trees in those places, where the young trees are permitted to reach their full growth, by the prudence of the proprietor, or by the situation of the wood, rendering the exportation of it difficult; for it is my opinion, that more wood rots in Norway, than is burnt in a whole year in Denmark. Indeed the vast and thick forests seem to contradict any apprehensions that ever the country can be in any want of common timber; but as to the fir-trees, and oaks, it is to be feared that posterity will be at some loss for them, unless the forest-laws are more strictly executed, particularly with respect to young trees, of which the continual exportation must be attended with very bad consequences. The best wood for timber (for of other wood there is plenty every where) is in the following provinces; Saltan, Helleland, Romsdale, Guldbrandsdale, Osterdale, Soloe, Valdars, Haltingdal, Sognfiord, Tellemark, the lordship of Nedene, Buskerud, and in the counties.

#### S E C T. V.

A catalogue  
of the Nor-  
way trees.

As to the several species of trees, of which the woods in Norway consist, the principal are the fir and the pine-tree. However I shall endeavour to enumerate them all, according to the

best of my knowledge, in the same method, in which I have already delivered a catalogue of our vegetables.

Alm or Elme, *Ulmus*, the elm-tree, is not very common here, but grows to a pretty considerable height. The bark is dried, grined, and mixed by the poor among their meal; it is likewise boiled and washed in meal\*.

Afald, see Oxel.

Ask or Esk, the ash grows almost universally here. Among divers other uses of this tree, the peasants distil a balsam from it, called *Aske-Smittel*, or *Aske-Smalt*, which every man knows how to prepare, and serves for a domestic medicine both in internal and external cases. Dr. Lochstor, in his *Dissertat. de Mædic. Norv. suff.* p. 16. bestows the following encomium upon it; *Euporiston pro utroque scopo Norvegis est oleum empyreumaticum, vel potius balsamum, vulgo Aske-Smalt dictum, è fraxino paratum, quod tam interne datum, quam externe adhibitum mirabili se ubique commendat effectu.*

Barlind very much resembles, both in kind and appearance, the foreign yew-tree †, but seldom grows so large, and is rather of use in hedges, than for single pillars or posts. The trunk, which is of very moderate bulk, is strong, and was formerly made use of for shooting-bows. The veins of this tree are so fine and reddish, that the makers of violins in Hardanger, use it for that and other musical instruments, and the joiners apply it to the purposes of finearing and inlaying. The young shoots are sometimes carried to Denmark, to be planted in the gardens of persons of distinction. There are beautiful hedges of it near Fredericberg.

Beenved is a tree not very common, of the same kind with the Privet. It is made use of for fine work, being hard and solid, which very well suits the cutting instrument used by the joiners and turners in Norway. It grows on the highest mountains. The peasants make a decoction of this wood, which is esteemed good for a consumption.

\* This powder of the bark of elms is boiled up with other food to fatten hogs, who thrive so much upon it, that the virtues of the bark of elms are even proverbial here.

† This tree is divided into two kinds, the summer-yew, whose leaves are somewhat lighter, and the winter-yew, which is of a darker green. Our Norway Barlind is of the latter kind.

Birk, birch, grows in most parts, and in the greatest plenty. It is of two kinds, the common birch, and a lesser sort with small thick leaves. Birch is made use of here for various purposes \*. It is more generally used for fuel than any other wood, and is carried to the great towns for that use, and sometimes exported abroad from thence. But the bark is of greater utility, and that in two respects. The extreme white bark, which is distinguished by the particular name of Never, or rind, and sometimes grows again upon the same tree from which it hath been peeled off, provided this was done carefully, is so fat and firm in its parts, that it will escape putrefaction for many years, even in the dampest places. It is on account of this quality, that every peasant spreads it over the fir planks with which his house is covered, and upon this Never he lays green sward or turf to a considerable thickness for the sake of warmth. The inner, or the dark brown bark, is applied, like the bark of oaks, to tanning of skins and hides, and even fishing-nets and sails, which it renders more durable. The Scotch likewise use it for tanning their hides, and pay eight Danish shillings for thirty-six pound weight of it. Besides all this, those who like it, draw a wholesome and pleasant juice from the trunk of this tree, as in the eastern countries the same is practised with palm-trees. They bore a hole in the trunk †, and the juice distills into a flask hanging under it, without the least damage to the tree, provided the hole is immediately stoppt by driving in a wooden peg.

Boeg, beech, is rather scarce here, except in the counties of Laurvig and Jarlsberg. And it does not appear, that beech grows spontaneously at a certain distance northward, for according to the observation of Linnæus, in the transactions of the Swedish academy for the year 1739, vol. I. p. 22. it doth not grow in

\* Valbirk, the maple-tree, which springs from the roots of some birch-trees, is used in several neat and polished works, being hard, firm, veiny and spotted, and was thought beautiful, when heretofore the drinking mugs were made of it.

† Dr. Buchwald, in his specimen Botanicum, p. 51. says of this birch-juice, "in scorbuto, ictero, podagra, nephritide, calculo, ac cunctis aliis chronicis morbis tartareis, tam præservativum quam curativum singulare est remedium." A certain friend assures me from his own experience, that from the buds of birch, gathered just when they are full of their resinous and viscous sap, and distilled with birch water, or for want of this in other good water, may be drawn a milky juice, which when it subsides and clarifies, leaves in the bottom and on the sides of the glass, a pretty thick balsam, which being duly separated is in point of consistence, colour, smell and taste, exactly like the precious, tho' frequently counterfeited balsam of Mecca.

Sweden beyond East and West Gothland, consequently not very far north.

Eeg, oak, the strongest and most durable of all trees, was heretofore in great abundance in this diocese of Bergen, as well as elsewhere, but is of late become scarce. The best oak-forests are in the diocese of Christianland, particularly in the lordship of Nedene, from whence great quantities are every year carried to Arendal and Christiandsland, for ship-building, and many ships are loaded with it every year for Holland, tho' the exportation be prohibited. Norway-oak excels that of all other countries, except the Danish, which is preferred to it. A decoction of oak-leaves in beer is used by the peasants in Norway, as a cure for the gout or rheumatism, by dipping a cloth in the decoction, and applying it warm to the part affected.

Elle, which is likewise called older and oor, the alder-tree, is of two kinds; viz. the roedor, or red alder, this is the most common, and the leaves of it are somewhat rough; and Svartoor, black alder, whose leaves are smooth and shining; the latter grows chiefly in marshes and other swampy grounds. The twigs of it are judged wholesome food for the sheep in spring, as it expels the water, which is apt to lie in their bodies, and to cause a kind of dropsy. The bark is used for a black dye. If it happens to snow after this tree has put out its leaves, then the leaves turn brown, dry and wither, together with the trunk, which is occasioned by a species of small worms, which are said to be in the snow, and affect no other tree. But if it be cut down immediately, the root will shoot again.

Enebær-tree, (which is here commonly called sprake, and in other parts of the country, brisk and bruse) the juniper-tree, grows in abundance almost every where, and by the spreading of its branches over the ground, serves to cover and cherish the young shoots of firs and other trees, but at the same time kills the grass. The body of this tree, which seldom exceeds six or seven ells in length \*, is used for poles and hedge-stakes, as also for paling, it

\* In the church of Trovør, in the province of Nordland, and district of Senjen, there are, according to common report, two pillars of juniper-tree eighteen ells high from the ground, which, if true, and if the pillars are not composed of several pieces, is very extraordinary. It is more notorious, that the trunk of a juniper-tree is sometimes thick enough to be sawed into small boards, which are used for chests and cupboards, and always give an agreeable smell in a room.

being on account of its fatness more durable than any other wood. In Nordfiord and elsewhere, a very valuable juniper-oil is extracted from the fruit, and sometimes exported to Holland. The same use is made of the berries, but not so frequently now as heretofore.

Esp or bever-esp, the aspen-tree, whose leaves shake and tremble at the least motion. The twigs are, like those of the birch and alder-tree, given to the cattle, particularly horses, when other fodder is scarce. This tree, which in other respects is very weak and tender, proves to be almost incorruptible, in the water or humid ground, when it is laid down without being stripped of its bark, and is therefore much used for water-pipes and gutters under ground.

Fyr, or as it is here called fure, the fir-tree, is of two sorts; the red and hard fir, which grows upon the mountains, and contains the greatest quantities of resin; and the whitish sort, which grows quicker in low and moist grounds, but is of much less value, consisting only of the bare timber. The fir-tree in general, which grows almost every where in Norway, is the richest produce of the country; for this single tree yields annually at least, I speak within compass and from the strongest assurance, above a million of rixdollars, especially if we include the advantages of the saw-mills, and the masts, some of which are sold from one hundred to two hundred rixdollars each \*. These trees, excepting those on the mountains, from whence they cannot be so easily removed, are now seldom suffered to grow so large as in former days, of which we have the strongest evidence in modern houses, for a peasant's apartment, which heretofore used to be raised by four sticks of fir-trees laid upon each other, requires now commonly seven or eight. The richness of the sap of the red fir-tree may be concluded, among other arguments, from the age of some of our Norway-peasants houses, which are supposed to be three or four hundred years standing, if not more. We even read in Mr. Jon. Ramus's history of Norway, that in the farm of Næs in

\* A choice mast-tree, which when standing may be estimated at sixty, hundred, or hundred and twenty rixdollars, cannot, after it is cut down, be conveyed to the sea-ports for less than double the prime cost; for besides the many other trees it requires to form a kind of bed for it to float upon, lest it should be torn to pieces by the rocks, sometimes an hundred trees or upwards must be fell'd to make a way for it, and laborers are employed to haul it in places impassable for horses.



Guldbrandale, the house is still subsisting, in which king Oluf lodged five nights in the year 1022, above seven hundred years ago, when he took a circuit round the kingdom to convert the people to the christian religion. From the roots of the fir-trees the peasants burn tar, even an hundred years after the trunk has been cut down. This tar is a very profitable commodity, and so excellent in its kind, that bishop Berkley, in his treatise on the virtues of tar-water, recommends the Norway-tar in preference to any other. An eminent merchant in this place has assured me, that the dispensaries in London apply to him yearly by letters for forty casks of tar, the produce of Nordfiord, which is of a more reddish colour than any other. In like manner the fir-trees from Norway and Sweden are in much higher esteem, than trees of the same name and appearance in the warmer countries, in Spain, for instance, about Tortose, in Tuscany, in Dalmatia, and other countries on the Mediterranean, which may indeed content themselves with their own for want of better, but could not sell them in their own ports, if a Norway-man should import a cargo of ours. There have been attempts made to sow the Norway fir in England and other parts, but the difference of soil and climate will not suffer the trees to equal those of Norway. In respect to the soil, it is not the good, rich and black earth, that favours this tree, nor the clay-soil, but rather the gravelly, sandy, or moorish lands. The method of sowing other trees will not succeed with this. It chuses to grow independent, and to sow itself at pleasure. The best method therefore is to hang up here and there, on a pole erected for the purpose, some of the ripest pine apples, by which the small subtil seed which lies concealed between the knots, may be thrown out by the motion of the wind, and drop wherever that carries it. In the fens, the marrow or resin of the fir-tree is naturally transformed into an incense, which may be called the Norway-frankincense, and is found in the fenny grounds. The buds or pine-apples of the fir-tree, boiled in stale beer, make an excellent medicine for the scurvy, and not so unpleasant to the palate, as the tar-water, tho' in effect of the same kind. In Sundmoer, and perhaps in other parts, some branches grow upon a certain species of fir-trees, which appear quite monstrous and strange in comparison with the rest, for they are not

round, but entirely flat, and shaped in such manner, as almost to resemble the horns of a Deer.

Gran, the pine-tree, is, together with the fir, the most universal wood of this country's growth. It is more beautiful than the fir, in figure, height and colour, but far inferior to it in sap and strength, which occasions the boards or planks of it to be sold at a lower rate. The Norway peasants have so little mercy upon their pine forests, that they seem to think it their duty to destroy them, insisting upon it, that they cannot possibly be extirpated in the vast tracts of land, which continually produce a fresh supply. In the spring, when forage is scarce, the peasant is permitted to cut thousands of young pines, but in autumn he is not allowed to give his cattle more than the small shoots.

Hage-forn, the cornel-tree, and sloe-forn, the sloe or bullace-tree, grows indeed in these parts, but is not planted in the green hedges, as in other parts, for the Norway peasant is not dextrous at planting, and thinks it a merit, if he does not destroy the free produce of nature.

Hassel, hable-trees, are here pretty large, and in such abundance, that it is no uncommon thing for a hundred tun of nuts to be exported from Bergen alone. On the other hand, the walnuts here are not of a spontaneous growth, but must be set, when they thrive very well, especially in the barony of Rosendal.

Hyld, elder, with its salubrious berries, is also of Norway growth, but is neither here nor in Denmark, esteemed or made use of according to its worth. *Sambucus aquatica*, in Danish called Vand-hyld, water-elder, the flowers whereof look like snow-balls, and upon that account in German are called snowball shrubs, is likewise to be met with though not every where.

Ivenholt, or ebentra, ebony, is by J. L. Wolfe, classed among the trees which grow in Nordland, under the mountain of Kolen, but being without any additional confirmation of this, I cannot deliver it as a certainty; I must observe, however, that the following words of Wormius, may have given rise to this opinion, though he delivers himself with some doubt; "Ab hoc ebene fossili diversum est, quod in islandia reperitur, et laminatim eruitur, colore nigerrimo, quandoque subfusco, ponderosum et fragile, exsiccatum ubi fuerit, quanquam mercator, qui ejus mihi copiam fecit,

lentum

lentum adeo et flexile esse, cum primum è terra eruitur, retulerit, ut viminis instar, in quamvis partem trahi possit ac flecti. Fibris constat obliquis ex nodis hinc inde, plane instar radicis majoris cujusdam arboris. In iis locis islandiæ, ubi magna copia eruitur, terra ad duas ulnas effossa, nullæ plane sunt arbores, aut fuisse unquam, animadverti potest. Quo circa nescio, an eorum probari possit opinio, qui existimant, hic olin sylvas fuisse, quæ relictis radicibus, incendio conflagraverint. Radicum vero truncos à fuccho subterraneo vitriolato colorem nigrum contraxisse verosimilius. Muf. Worm. p. 169.

Lind, lime-trees, great quantities of these are found in certain places, both with large, clear, and small dark leaves. The peasants with the bark make very elegant butter-baskets, or other vessels for the carriage of the butter; likewise lines for husbandry, and also for fishing.

Lon, acer major, the maple also grows here, but little use is made of it.

Piil, willows of several kinds are to be found in many places, but made no account of, except by the goats, who feed with pleasure on its juicy and bitter bark; though of one kind called salina, the bark is used for tanning skins; the broad-leaved kind, the leaves whereof underneath are woolly, goes here by a very long and strange nick-name, Traet somfanden flaaede geden under, i. e. the tree under which the devil flead the goats. What traditional fable gave occasion to this, I know not, but probably it arose from hence, that as the goats delight in stripping these trees, as has been said, some one has conceited, that the devil by way of retaliation, under this tree strips or fleas the goats, in their turn. But whilst I am writing this, I have received from an ingenious hand a more probable conjecture on the causes of this name, that several small threads, or filaments like goats-hair, lie betwixt the wood and the bark. He further informs me, that a decoction of these fibrillæ is of a singular virtue in curing the scurvy. Whether this tree is to be found in other countries I cannot say\*.

Rosentrae, the rose-bush, bears here, as well as in other places, red, white and yellow roses, both double and single.

\* Some attribute the properties of this tree to the sambucus aquatica before-mentioned, but how justly, I cannot determine, for want of personal experience.

Ronne,

Ronne, the wild *Sorbus-fylvestris*, the wild Service-tree, grows every where, even on the parched sides of the mountains, nourishing with its berries, not only the field-fares or cock-thrushes, of which we have many, and in great perfection, but even the bear, though the latter, generally, to the ruin of the tree, the weight of his body breaking and damaging the tree in his climbing up. The young twigs are gathered with the berries on, and used medically, in winter, against the belly-ach.

Tindveed, the name of the tree called the *Spina-Christi*, or Christ-thorn, is pretty common, and being an ever-green, is frequently planted near houses.

Oexel, or *Axel forbus terminalis*, a kind of service. This tree is one of the particular natives of Norway, and little known to foreigners. Mr. Christian Gartner, who visited several countries, and had thorough knowledge in his profession, says, page 47, of his *Horti Cultura*, that he first met with it in counsellor Shultz's garden in Drontheim, on which account I have annexed a draught of one of its branches with the leaves and flowers; Linnæus makes the following mention of it, *Oexel, cratægus, foliis ovalibus inæqualiter ferratis*, Hort. Cliff. 187. *Cratægus scandica, foliis oblongis, non nihil lacinatis et ferratis*. Cels. Upf. 17. It grows in Oeland and Guland (Gothland) but except in Sweden and Norway, it is hardly to be met with growing spontaneously\*. Some places in the neighbourhood of Bergen produce this tree, but not in great numbers. The stock and branches bear some resemblance to the service-tree, but bend more; the bark is of a greyish brown, and veined; the leaves of a finger's length, half as broad, and indented, the points towards the extremity being small, but the indenture within the leaf is so deep as to make the appearance of other distinct leaves on the same stem. At the extremity of every branch, and betwixt three leaves, hangs a bunch of thirty or forty berries, oblong, red, and, when ripe, distinguished with a black speck; their stones small; the juice red; and when infused in wine very pleasant. Valerius Cordus, in his Dispensary,

See plate ix.

Transactions  
of the Swe-  
dish Acad. of  
Sciences for  
the year  
1741, Book ii.  
p. 93.

\* In some few parts of Germany, especially in the district of Fouringen, grows a kind of tree, which is there called *Arlsbeer-tree*, and which by its description, has a great affinity with our Oexel. See *Allgem. Œconom. Lexicon*. p. 124.

commends these berries, as a cooling, and at the same time an astringent, medicine †.

## S E C T. VI.

Among the vegetables of this country, we must further class what by many is looked upon only as a conflux of effœete ordure, but is in reality, and especially when examined thro' a microscope, a regular vegetable, furnished with root, seeds, and leaves; I mean the several kinds of moss, with which this country is overrun, not only on the meadow-ground, where it is very detrimental, but also on the trees, from which, after a shower it is easily detached, tho' at other times adhering very closely. This moss, upon a narrow inspection, is very different in colour, white, grey, brown, yellow, black, and speckled; in figure, being either entangled like wool, or with long filaments; or again with leaves regularly disposed, tho' of different figures, and it is sometimes full of small round capsulæ, as receptacles of the seed\*. This mean and despised vegetable, which seems to die under a long continuance of heat and drought; immediately recovers new life from the rain, and is not made in vain by the wise Creator, it being the support and fodder of many thousands of rein-deers, on the barren summits of the mountains, thro' all the severity of the winter; they remove the snow with their feet to get at this delicious food; and they can neither thrive nor live to any time, if, as has been often tried, they are removed into another country

Moss on trees  
and stones.

† Thus has the Sovereign of nature liberally dealt out particular vegetables and trees to every country, according to the climate and soil thereof, and the necessities of its inhabitants.

Nec vero terræ ferre omnes omnia possunt.  
Fluminibus falices, crassisque paludibus alni  
Nascuntur. Steriles saxosis montibus orni,  
Littora myrteis lætissima. Denique apertos  
Bacchus amat colles. Aquilonem et frigora taxi  
Aspice et extremis domitum cultoribus orbem,  
Eoasque Arabum pictosque gelonos  
Divisæ arboribus patriæ.

VIRGIL. Georg. Lib. II. Ver. 109.

\* J. Chr. Buxbaum in Commentar. Acad. Petropol. Tom. III. p. 271. Treats of several kinds of moss, and particularly gives the following account of a Norway-moss: "Genuina musci species est muscus Norwegicus, umbraculo ruberrimo insignitus, musci Petrop: quem Tournefortius incongrue Lichenibus accensuit et Lichenem capillaceo folio, elatiorem pelvi ruberrima vocat, deceptus forte a scuto, quod hic in summo fert pediculo, quum sciret multos ex Lichenibus esse scutigeros. Sed hoc scutum in hoc immusco vires gerit calyptræ, summo nempe capitulo pyri-formi positum, et est calyptra quasi expansa.

PART II.

Q 9

where

where they may have their fill of the best grafs. Without plenty of mofs, and seeking for it in their natural freedom, they fenfibly linger away. Befides this, our peafants make a decoction from many kinds of mofs, which is difpofed of to the dyers; this is here called Borke, and makes a good red and brown dye for vad-mel, the coarfeft fort of cloth ufually worne by the peafants. There is moreover a certain kind of yellow mofs hanging on the branches of firs and pines, which is very venomous, yet applied to a neceffary ufe, for being mixed in pottage, or with flefh, as a bait for the wolves, they infallibly die of it.

Of fungous vegetables, which are called by the general name of Skuroe-harre, or Champignons, i. e. mushrooms, feveral forts are to be found here, as in Denmark and other places, particularly thofe which are dried and fold by the name of Markler (the fame which in England are called mushrooms.) Thefe grow in the neighbourhood of Bufkerud in Hedemark and other places, and are bought up by the curious to fend abroad ‡.

## C H A P. VI.

### Of the Sea-Vegetables of Norway.

SECT. I. *Sea-vegetables little known to us.* SECT. II. *Several fpecies of fea-grafs.* SECT. III. *Various kinds of fea-trees.* SECT. IV. *Great and fmall corals.*

#### S E C T. I.

Sea-vegetables little known to us.

**H**ITHERTO, I have, to the extent of my knowledge, given an account of the land-vegetables of Norway. As to thofe of the fea, it would give me pleafure if I could gratify the reader's curiofity with fome new discoveries in this latent part of the kingdom of nature. However, the little I have to offer is grounded on my own experience in voyages, and the reports of intelligent fea-faring perfons. But left this fhould be thought a fubject of no utility, I fhall introduc it with the following paffage from

‡ This kind of fungus is ufually found under birch-trees. They are of a reddifh colour, with little white fpecks, penetrating through them, fome call them Fluefvamp, i. e. fly-fponge, they being boiled in milk and fet out to deftroy flies; this fungus being a ftrong poifon.

that ingenious naturalist M. Anderson of Hamburg: "It is to be lamented that the botanists, especially the Germans, for want of opportunity, being remote from the sea, have not, nor can apply themselves with a precision becoming the subject, to make a collection of the marine-vegetables about this country, distributing them in proper classes, with descriptions of each. For since I have entered upon these speculations, and collected as many kinds as I could, they appear to me, matter of fresh wonder and most exquisite delight to a devout naturalist, in the consideration of their inexpressible, and to a stranger incredible, variety, figure, colour, production, without roots, &c. and when I reflect, that nothing but what is good and useful comes from the hand of the wise Creator. I will affirm that these vegetables, however useless they may be accounted, not only afford nourishment to innumerable living creatures, but might for the most part be serviceable to mankind, not only as food, especially in time of necessity, but likewise for powerful medicaments; did not our infatuation for what is foreign and costly incline us to under-value them. Mr. Martin, in his description of the Western Islands of Scotland, a book well worth reading, has, in page 148, &c. thrown together some very valuable observations upon them, which he made among the inhabitants of those islands, who live in the utmost simplicity, and in a rational enjoyment of the little, which the author of nature has bestowed on them; instances which should raise a blush in the effeminate and luxurious." Thus far Mr. Anderson. As part of the inhabitants of the sea bear in their figures a resemblance to those of the land, as is seen in the sea-cow, the sea-horse, the sea-dog, and sea-hog, &c. so fishermen, and divers who have opportunity of knowing these things inform us, that the eminences and declivities in the sea, like the mountains and vallies, are over-grown not only with sea-grass and plants of several kinds, but that likewise they produce bushes, trees, and coral-shrubs. In the chapter on the waters, I have already quoted the testimony of Kircher, grounded on the information of Arabian fishermen. The bottom of our northern-sea, likewise affords variety of such marine plants, some of which must be unknown to the curious in other parts, and for their satisfaction I have caused exact figures of the most remarkable ones to be annexed.

Account of  
Iceland,  
Greenland,  
and Davis's  
Streights.

Chap. xi. § 1.

But,

But as it is not my concern to assign proper appellations to these marine vegetables, so to distribute them into their respective classes and genera, with that accuracy I could wish, is, I confess above my capacity. I shall only, agreeably to their figures, make two general divisions of them into herbs and trees; the third class being the corals or stoney vegetables, which by some are confounded with the sea-trees \*. Mr. J. C. Buxbaum, in *Commentar. Acad. Petropol.* among other observations on marine plants, speaks as follows, “ *Plantæ submarinæ paucae fuerunt antiquioribus notæ botanicis, quarum numerum valde auxerunt Rajus Plukenetius aliique, qui his observationes suas communicarunt. Distinxit in aliquot has classes modo laudatus Rajus, sed si accuratius inspicias, ipsum invenies confusum, nullos veros terminos constituentem inter fucos et algas et muscos marinos, quæ illi promiscue nunc sub hoc, nunc sub illo nomine proponuntur, meliorem plantarum submarinarum in genera certa divisionem debemus Tournefortio, qui tamen in eo reprehendendus, quod sub fucorum et corallarum nomine, plantas inter se parum convenientes comprehendat.*”

## S E C T. II.

Several kinds  
of sea-grass.

Since my arrival in this country I have made a collection of vegetables growing in the sea of Norway, and by it I perceive, that what is commonly called tong, sea-weed, or in Norway, tarre-alga; which is partly found growing on its root †, partly detached by the wind, and by the agitation of the waves is drove ashore, or among the apertures and corners of the rocks, is sometimes green, sometimes of a dark brown, sometimes narrow and flat, like a blade of grass, and two or three ells in length, sometimes slender and round, but much longer, I myself having pulled up a piece of no less than ten ells, consequently, they exceed many trees in height, and even this might possibly be one of the short-

\* In some parts at the bottom of the red-sea, the coral-trees gradually increase to such a degree, that the vessels and boats are put to no small difficulty to clear their way through them.

† So by way of an analogy, I call those short stems by which all those vegetables are connected to some stone or other, which generally is drawn out along with the vegetable; for properly the sea-vegetables have no roots, being on all sides surrounded with their alimentary matter, and thus standing in no need of a root to imbibe their nutriment, so that the entire plant may be said to be a root.

est;



est; sometimes they are found with a short, roundish stem, and leaves about two or three fingers broad, with small semicircular indentures like the oak leaf, sometimes they are longer, and at the end resemble peacocks feathers; sometimes plain, sometimes scabrous, with hollow tubercles, but, as far as I could find, without any seeds in them. A sea-weed is sometimes found here, with leaves of such a length and breadth, and withal even and smooth, that I do not know of any of our land vegetables to be compared to them; I have taken out leaves four ells and a half long and one in breadth, and so perfectly even and smooth, that at first sight a stranger would have taken them for green satten; and among these weeds, the lobster finds both food and shelter. Whether this tarre blossoms like other vegetables, I cannot affirm from my own knowlege, but a person of curiosity has assured me, that he has seen the flowers swimming on the surface of the water, and that they resemble white lilies; and promised at the same time to procure me some. I here mean only the genera, not doubting, but upon further search, several particular species of them may be found on the coast of Norway, and other coasts, especially in Iceland, where the poverty of the inhabitants has taught them to turn the sea-weeds to various uses, every kind according to its nature, even to the grinding it to a kind of meal <sup>Its use and benefits.</sup> for gruel or pottage, which at the same time proves a gentle cathartic \*. The peasants on the sea-coast in these parts, who understand their business, make use of sea-weeds for manure in the improvement of their ground, and in the province of Nordland, where in summer-time the cattle find plenty of pasture on the mountains and among the meadows, but where on that account they are the more pinched in their winter fodder; it is a common practice to supply this scarcity with dried tang, and likewise with the heads of cods and other large fish bones; they also make what they call a caw-soup, of which the best ingredient is tang or sea-

\* Concerning the species of the alga saccharifera as it is called, which when dried, looks and tastes as if sugar had been strewn over it, and among the Icelanders, in many cases, is used for sugar. See Thom. Bartholini Acta medica, Hafn. Vol. III. p. 174. Vol. IV. p. 33. Multa saxi marinis adhæret algæ copia, quam vere colligunt, aliquo tempore interjecto album acquirit colorem, cujus est etiam in commendatione sapor, cum dulcedine non inferior sit saccharo. Hanc quoque cum butyro comedunt Islandi. See also p. 159. relat. Borrichii.

weed. \* In England and Scotland, where this vegetable is generally called clep, the poor people on the coasts turn it to a good account, burning great quantities of it to ashes, for which they are sure to meet with a market at the glass-houses; likewise by reason of the saline particles contained in these weeds, they are boiled for pot ashes, and the sediment is known to be a good manure.

## S E C T. III.

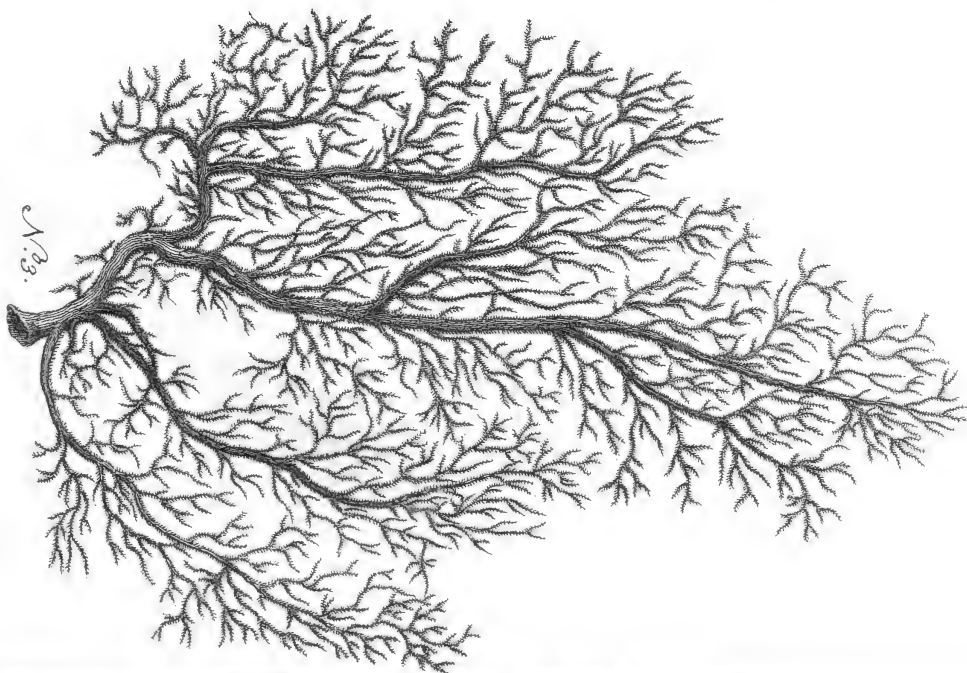
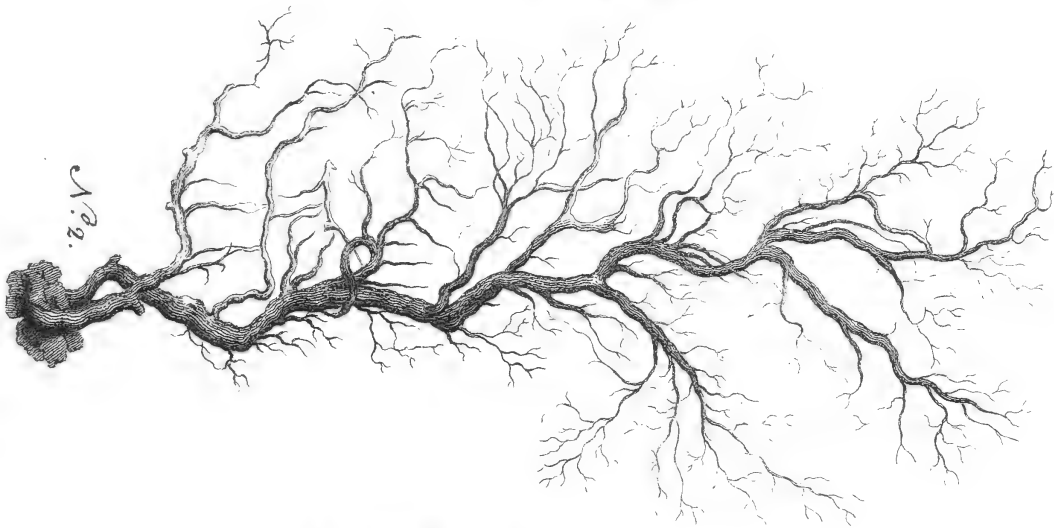
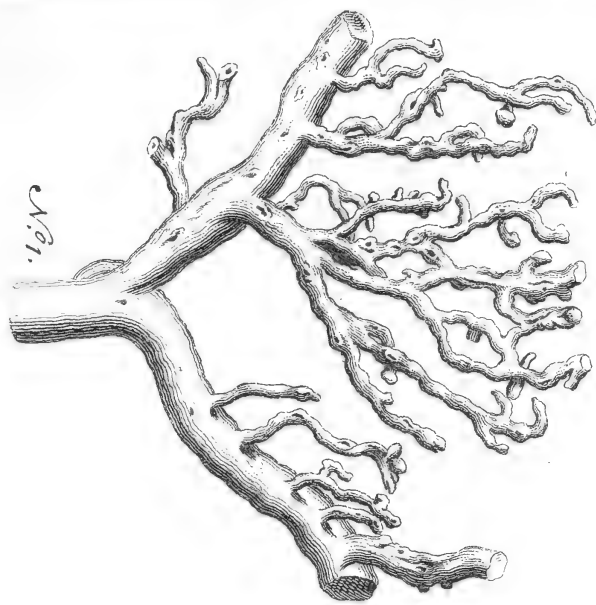
Sea-trees.

Besides these smaller marine products, plants or weeds, the ocean here produces various species of large vegetables, which are known by the name of sea-trees, and though of such as grow in a bottom, a hundred or two hundred fathom deep, none except young shoots can be drawn up entire, yet the nets, or lines of the fishermen entangling in the tops of such trees, some of the lesser branches are torn away and pulled up to the surface; and these branches are such as may be concluded to come from large trees, I having one seven inches diameter, though indeed it is the only one of that dimension, the others being but two inches and a half or under, like the slenderest shoots of cand-trees. If I were better acquainted with the latter, it would enable me to undertake a comparison betwixt the congenial products of the earth and water, and thus afford higher entertainment to those of my readers, who have a taste for botany. But as Burgermaster Anderson, in the passage above cited, corrects the great deficiency herein, I shall add a short description of those in my collection, which were all drawn up from the bottom of the sea along the coast of Norway. I must previously observe, concerning the use and benefit of sea-trees, that the peasants hold them indiscriminately to be very serviceable against a diarrhoea, in which, however, they may be as greatly deceived, as they too often are in their superstitious practice of hanging up a branch of a sea-tree in their houses, as a kind of talisman or preservative against fire, inferring, in their way of

Use of them.

\* Some also accustom their swine to eat the sea-weed, and for them it is likewise boiled, being otherwise too hard of digestion; more particulars on the use of it are to be met with in the Swedish transactions, worth the knowledge of the industrious farmer, who lives near the sea, and is for making the most of every thing.

1804



1852



reasoning, that these being natives of another element will repell fire \*.

I. This is the above-mentioned largest branch, seven inches diameter, but only on one side, the other being somewhat smaller, so as to form a flat cube. The lesser twigs of an ell high, which stand parallel to each other, and form a pretty intexture, are of the same figure. The bark or thin rind which may be peeled off is of a carnation colour. The wood is of a clear white and very porous, with orifices large enough to admit a larding-pin without hurting the wood. In what manner the branch terminated, is unknown to me, it being broke towards the end, and without this accident, proportionate expansion must have render'd it not only too big for my musæum, but possibly for my house.

Plate XI.  
And from  
hence the  
number  
according to  
order.

II. This piece is two ells in length, and entire, as are all the following. The wood is compact as if without bark or rind, the spread of the twigs like that of a currant bush, here and there a little more incurvated, perfectly smooth, of a clear yellow, and towards the tips or ends, as slender as a bristle, with small mossy filaments hanging here and there among the twigs.

III. This is three ells and a half long, with thin and soft twigs, resembles the artemisia, only expands itself more on the sides, which is usual in marine trees: In the thickest part of this branch the wood is pretty firm, with invisible pores, but the twigs to their very extremities are studded all over with little bosses, of the bigness of half a pea, and these again spotted with dark bosses; the general colour is a darkish brown. In one of the cavities of this branch, I found a small white capsula, of a chalky substance, and in it an insect like a bug, which upon the capsula's being opened, was immediately in motion. This branch pretty much resembles those mentioned by Wormius, in his Musæum, p. 234. under the name of *Plantæ Marinæ facie resedæ*, likewise Clusius Exot. L. VI. C. 6. In the branches of this kind of marine wood,

\* The natural and proper use of these sea-trees, and the like marine vegetables, is unquestionably for the retreat and nourishment of the fish; of which, some, as on the land, are predatory, living by slaughter; whilst others of more peaceable dispositions, feed among the trees and vegetables, which are particularly known to be an exquisite dainty to the fish called Brofmer. The learned Theodore Hase, mentions a north-sea whale, the stomach whereof being opened, was found full of tang or sea-weed, *Bibliothèque Germanique*, Tom. XV. p. 157. Thus are none of God's works superfluous or unnecessary, though often disregarded or not understood.

which

which is the most common in these seas, is often found the sea-star, which shall hereafter be described under the name of *Stella Arborefcens*, or, if my fancy may take place, of *Caput Medusæ*, and this creature from its delight in this vegetable may be conceived to make it vital food, at least I have met with it in several branches of this species.

IV. This is an ell and half in length, a full inch diameter, extremely porous, the twigs scabrous and curled towards their extremities; bearing round nuts of the bigness of a small nutmeg. This branch is of a straw colour, but I have another of the same kind, which, though of nearly the same growth and figure, is very different in colour, being of a deep red, which renders it very sightly.

V. This piece is two ells and half long; and the only one I could obtain immediately after its being taken out of the water; and consequently saw it full of sap, fresh in colour, and in all its vigour. It was then far more beautiful than since it was dried, being then of a lively red, or a fiery yellow. The chief limb is as thick as a child's arm, and the twigs as a finger. At each extremity is an oblong excrescence, like a small pear, but this fruit or leaf, I know not which to call it, is of the same substance as the stock itself, a circumstance common to all sea-trees, none of them bearing thin leaves. Having laid it in the window to dry, it distilled a mucilaginous liquor of the same colour, but of a strange unpleasant smell. Whilst this vegetable retained its moisture, it had some resemblance to human flesh, with some minute interstices like pores, but upon the stems being dried and shrivelled, they became larger, so that now both in colour and figure it resembles ginger.

VI. This branch is not so sightly, and something less than the former, to which both in colour and substance it is similar, but not in figure, it being, as the plate shews, flatter and coarser.

VII. This branch again is less than the former, but far more sightly, consisting of a bushy assemblage of many small twigs. It is not thicker than a quill, spongy within and woolly without, as if covered over with the finest cloth. Its colour is a pale yellow: It has a flat root, preserved better than any of the rest, by which, this species is connected with the rock.

VIII.

Fig. 1.

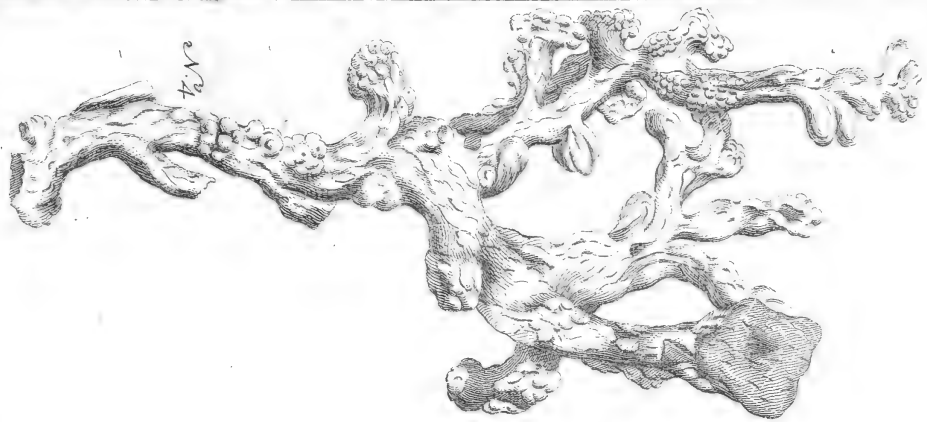


Fig. 1.

Fig. 2.



Fig. 2.

Fig. 3.

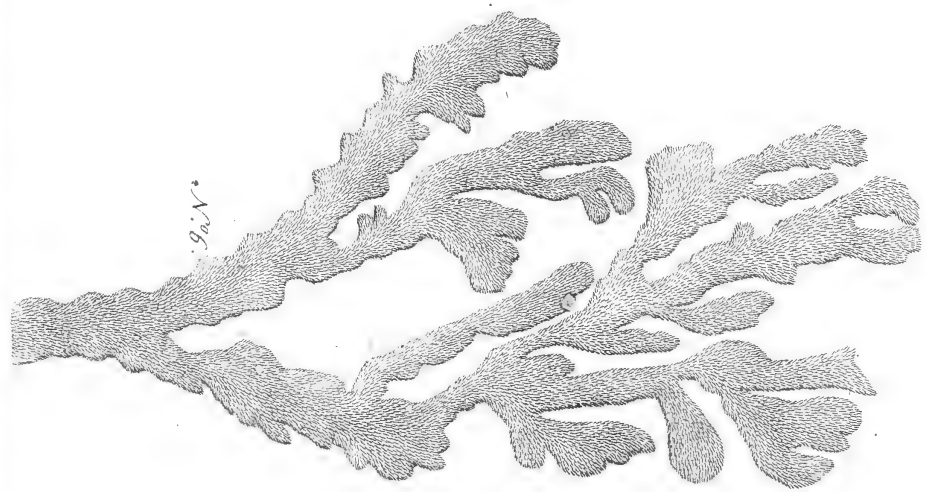


Fig. 3.

Fig. 4.

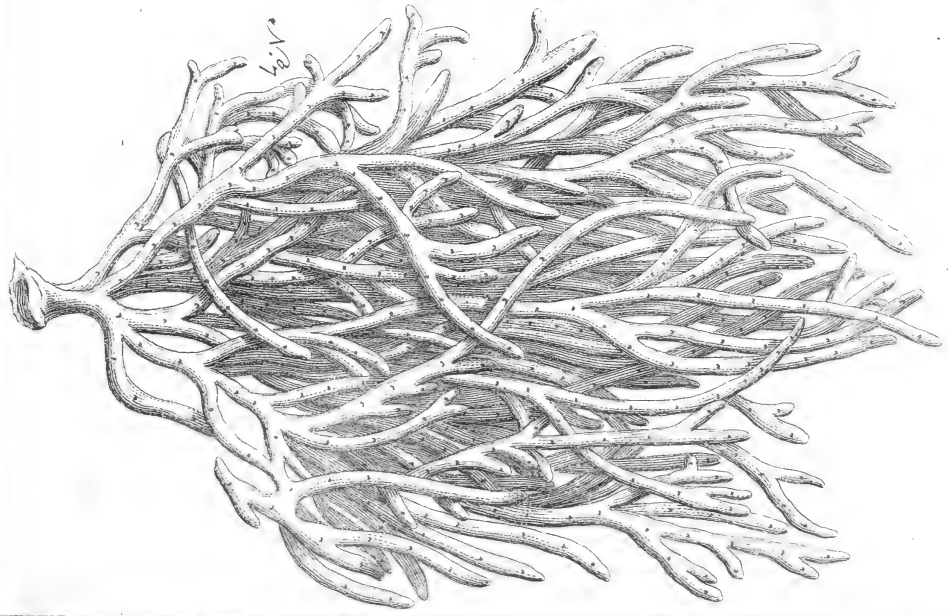
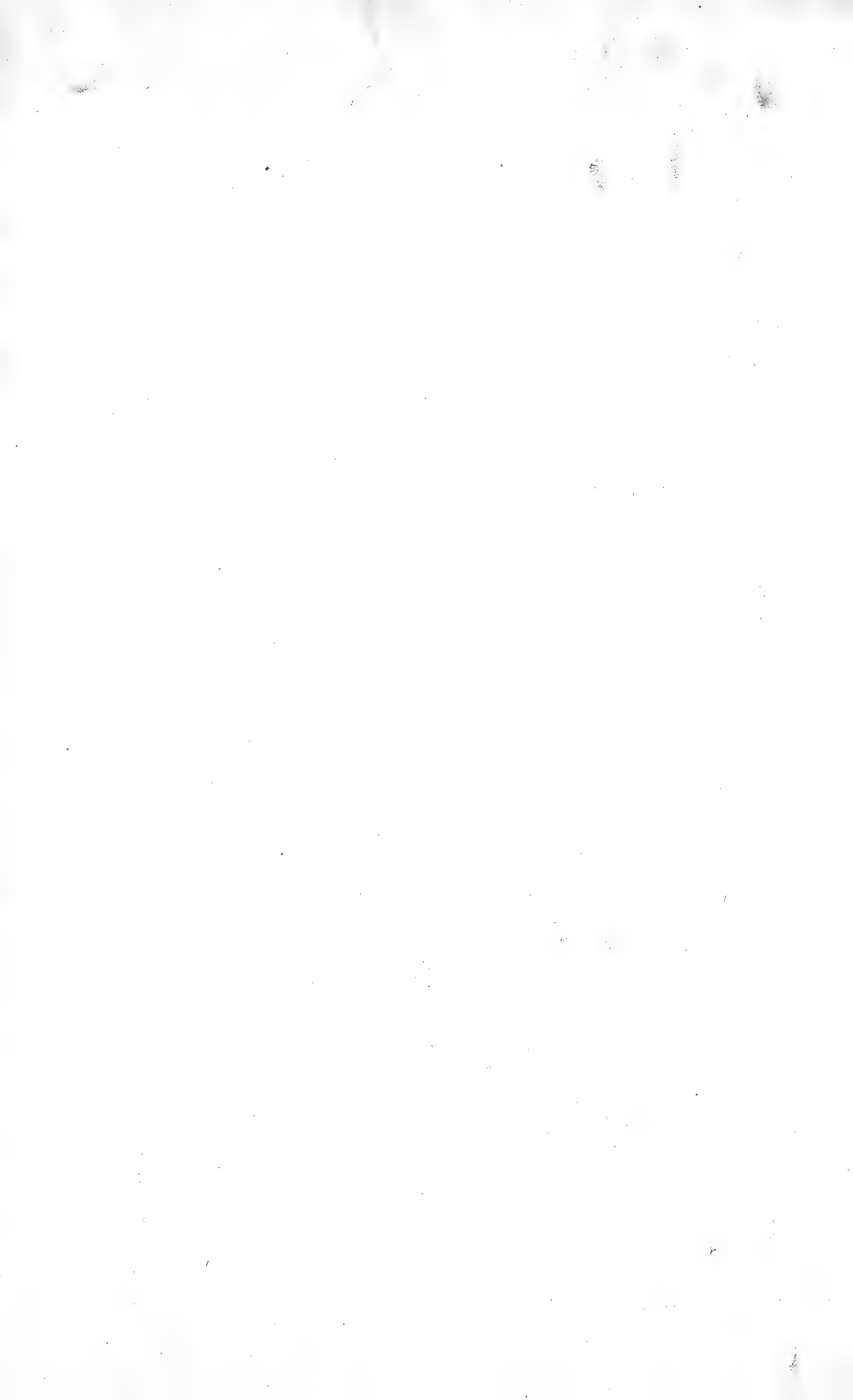


Fig. 4.





1875

1876

1877

1878

1879

1880

1881

1882

1883

1884

1885

1886

1887

1888

1889

1890

1891

1892

1893

1894

1895

1896

1897

1898

1899

1900

1901

1902

1903

1904

1905

1906

1907

1908

1909

1910

1911

1912

1913

1914

1915

1916

1917

1918

1919

1920

1921

1922

1923

1924

1925

1926

1927

1928

1929

1930

1931

1932

1933

1934

1935

1936

1937

1938

1939

1940

1941

1942

1943

1944

1945

1946

1947

1948

1949

1950

1951

1952

1953

1954

1955

1956

1957

1958

1959

1960

1961

1962

1963

1964

1965

1966

1967

1968

1969

1970

1971

1972

1973

1974

1975

1976

1977

1978

1979

1980

1981

1982

1983

1984

1985

1986

1987

1988

1989

1990

1991

1992

1993

1994

1995

1996

1997

1998

1999

2000

2001

2002

2003

2004

2005

2006

2007

2008

2009

2010

2011

2012

2013

2014

2015

2016

2017

2018

2019

2020

2021

2022

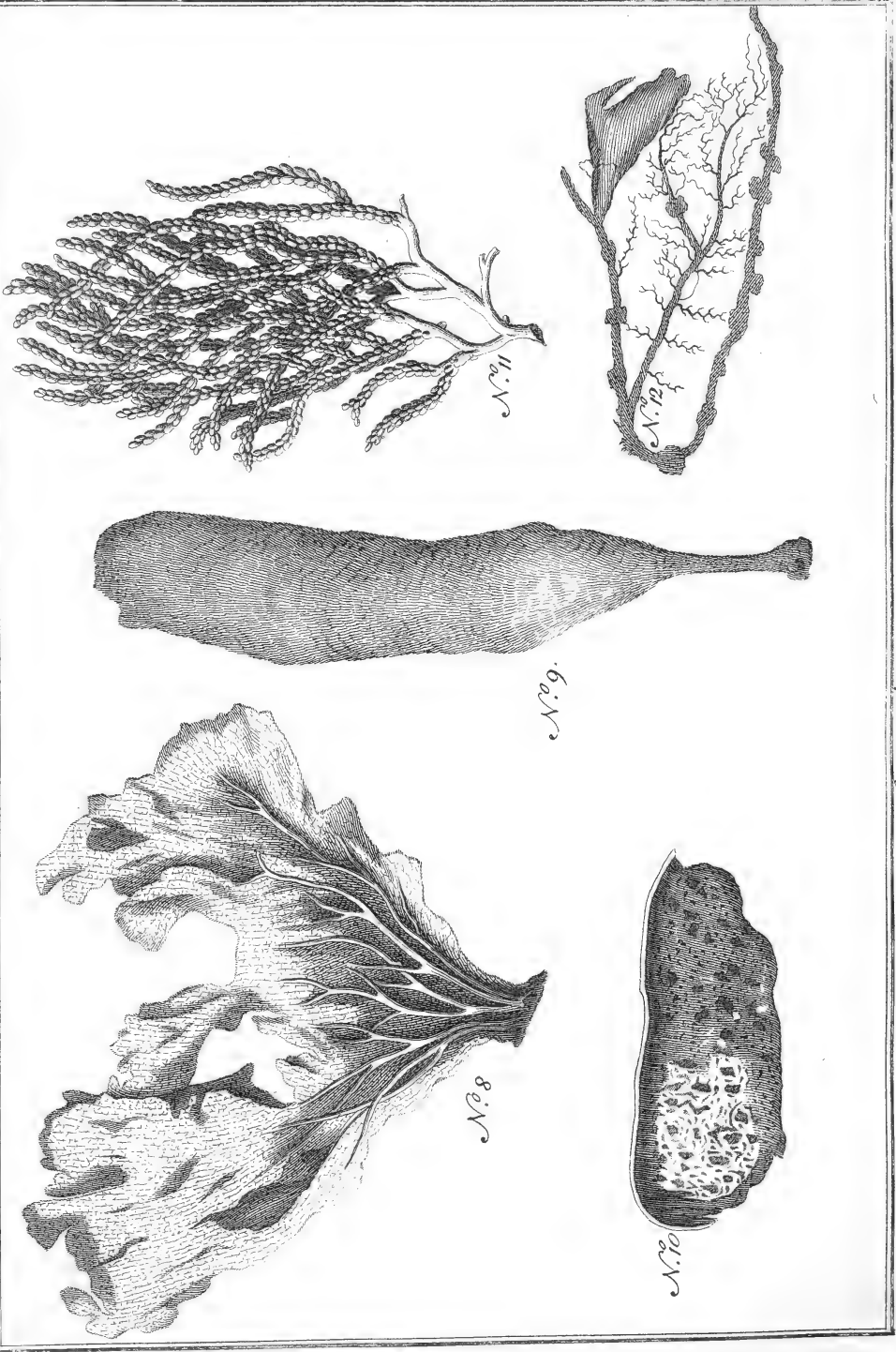
2023

2024

2025

1853

front.



Sea Trees

11.

VIII. This is of the same colour, and but very little larger, as Plate XIII. likewise of the same soft woolly substance, but without any twigs, and consists in one flat thin and extended piece, not unlike the ear of a dog, full of pores and subtle branches, like green leaves when viewed against the light.

IX. This is an orbicular fungous vegetable, of the colour of the former, but not a quarter of an ell long. At one extremity is a round pedicle two inches long, and at the other extremity an aperture, running quite through like the pith in elder. This vegetable is compressible, but elastic, immediately recovering its roundness; in softness and delicacy, it exceeds any which I have seen, and unquestionably might be made use of by surgeons, if they could have it at pleasure\*.

X. This vegetable is somewhat harder, but smooth and fungous. Its colour is a dark brown; it is covered with a thin bark, the inside of which is full of imperceptible, yet very sharp points, of a vitreous nature, so that it may be used in polishing, but not with the naked hand; these points easily penetrating into the skin, and being as difficult to be got out. This grows, like the mushroom, in deep grounds, and sometimes weighs thirty-two pounds. The fishermen draw it up with their lines or nets.

XI. A vegetable three half-quarters of an ell in length, in figure not unlike the *Ligustrum*, covered all over with multitudes of small angular nodes, so close, and at the same time so slenderly joined, that on the least shaking of the branch some of them fall off. These small nodes, which to the naked eye appear like so many grains of buck-wheat, make a very splendid appearance thro' the microscope, as if they were silver and gold laminæ, or shields curiously embossed with figures. The branch itself is round, black, and smooth.

XII. This is a very tender incurvated branch, whose shoots likewise are full of glittering points and angles, but its extremity perfectly resembles the *Conchæ anatifera*, of which I shall speak in another place, the only difference being that the muscle-shell is invested with a thin brownish tegument, and but of half the

\* Concerning these spongy marine substances, some relate that they have a kind of Systole, and Diastole, are that in its most subtle parts these are discernible long after its being taken out of the sea, till the total evaporation of all its moisture.

bigness of these; tho', in time, it might have equalled it; three other long, but smaller muscles, doubtless of the same kind, but thin and soft as a herring-scale, hanging on the side of this branch.

Concerning the quickness or slowness of the growth of these several vegetables, nothing can be advanced very positively; but of a certain sort used in the West-Indes for burning lime, father Labat relates, that he observed the branches to grow four or five foot in two years, tho' never above the surface of the water, yet growing there upon much higher grounds than hath fallen within our observation here. The branches on reaching the surface of the water, spreading themselves as it were to avoid the air, for which their porous bodies are not adapted. If it be asked, whether these sea-trees bear any thing, which may properly be called a fruit or seed, though nothing like it has occurred to me or any of my correspondents, yet along our sea-coasts one meets sometimes with substances which favour the affirmative. Among these I particularly reckon one, to which I shall take the liberty of giving the appellation of *Faba-marina*, a sea-bean. It is of the size of a chestnut, orbicular, yet flat, or as it were compressed on both sides. Its colour is a dark brown yet in the middle, at the junction of the shells, it is variegated with a circle of a shining-black, and close by that another of a lively red, which have a very pretty effect. The inside of the shell is entirely black, but the kernel is of a pale yellow, and in taste, when dried, not unlike a French-bean, so that could they be had in great quantities, a very good use might be made of them. Mr. Frederic Arentz, superintendent in Syndfiord, who lately sent me a sample of them, says, that they were found among the Tang, and other sea-weeds, which had been thrown up, and driven ashore by the wind and waves, from whence they might be concluded to belong to the sea, unless they are to pass for an Indian vegetable of the tribe called *Pediculus Elephantinus*, which, by the loss of some ship, was, in the course of time, brought to this coast. But having received some of these beans from another virtuoso, who lives some miles from hence, the arrival of them on this coast, is more usual, than agrees with any such opinion. As to bringing this vegetable from the opposite coasts of America, whence wood and the like are known to be

Voyage aux  
Isles de l'A-  
merique,  
Tom. II. P.  
557.

Sea-bean.

driven towards Iceland, this is so long a voyage, that the beans would infallibly putrify, or at least be damaged before their arrival, which however is not the case, the taste being, as is already observed, exactly that of the French-bean, without the least mixture of the saline property. An account of this exceeds my comprehension, but it is so with the sea-trees themselves, or with their shoots and buds, which may be looked upon as their leaves. They are quite insipid, tho', till dried, not without smell. Concerning these sea-beans, I shall further add, that the famous Hap-  
In Mundo Mural. T. 1. Lib.iii.cap.6.  
 pelius mentions some marine berries without taste, growing on those weeds, which the Spaniards call Sargasso, and the Dutch, sea-parsley, with which the sea near Cape Verde is overgrown for several miles.

S E C T. IV.

From the description of the above marine vegetables, or trees, especially the pieces four, five, and six, they may be premature corals, the consequence of their inward and outward parts being such, that the principal or only difference lies in the want of hardness. If I could be convinced that the corals are not originally hard, but gradually become so, by a kind of petrefaction, I also should subscribe to that conjecture, but what suspends my assent is\*, that among the northern corals, some plants, which from their smallness may be judged to be young, yet in their first vegetation seem of a compleat hardness. This is confirmed by Pelschoor,  
Tyrocin. chyrocin. Lib. 11. cap. x. p. 153.  
 who says, "That the divers, who have been among the coral bushes under water, found none soft, but of the like hardness as afterwards." Thus it is not the air which indurates them as O. Wormius imagines: *Soliditatem demum debitam, ab aere am-  
In Mus. p. 231.  
 biente acquirit.* This from the two following verses, appears to have been also the opinion in the times of Ovid.

Sic et corallium, quò primùm contingit auras,  
 Tempore durefcit: mollis fuit herba sub undis.

Metam. Lib. xv.

\* Sir Thomas Brown in his *Pseudodoxia, or Enquiries into Vulgar Errors*, Lib. II. cap. v. p. 72, where he justly rejects the opinion of corals hardening after being brought into the air, yet believes that the saline petrific spirit in the water, does not at the same time operate universally on all the parts of a plant. All coral is not hard, and in many concreted plants, some parts remain unpetrified as wood.

Among

Among the Greeks they were not improperly called λιθοδένδρα, i. e. stone-trees, stone in substance, and trees in growth and figure. Among the branches of the several northern vegetables in my possession, hang several soft filaments, about three inches in length, and the bigness of a straw; these I look upon to be other marine plants different from the coral, tho' their colour, like that of the coral, is of a pure white. I have also perceived a brown oil or sap to distil from the orifices of a coral capsula; which, as far as it reached, made a visible alteration in the whiteness of the coral. I shall now exhibit a concise view of my collection of northern coral-plants, which were halled up in the fishing-nets, both here and in Sundmoer.

Description  
of several co-  
rals.

1. A piece half an ell in length, and a quarter and half in breadth, its shoots open and expanded, with pretty large flowers, or stones; its colour perfectly white.

2. A thick piece almost round, with its twigs intermingled like a thorn, the stones small and black, all the other parts yellowish.

See plate xiv.  
fig. A.

3. This is a quarter and half long, and a quarter of an ell in breadth, implicated almost like the former, but flatter; entirely white, the flowers much larger than the former, some of them even exceeding a shilling; and likewise expanded like a flower in full bloom, for which singular beauty I caused a draught of it to be taken.

4. A piece of considerable thickness, the main shoot much stronger than the former, with a large and globular node, like the capsula of a flower before its bloom; but the other twig has open stellated flowers, with a cavity larger than the former.

Fig. B.

5. A small elegant coral shrub, with flat shoots, being an exact representation of the extremities of a stag or rein-deer's antlers, adhering to a stone.

Fig. C.

6. Another of the same kind, likewise growing from a stone, of a greyish colour, as is the former.

Fig. D.

7. This is very slender, being a plant just beginning to open the stone.

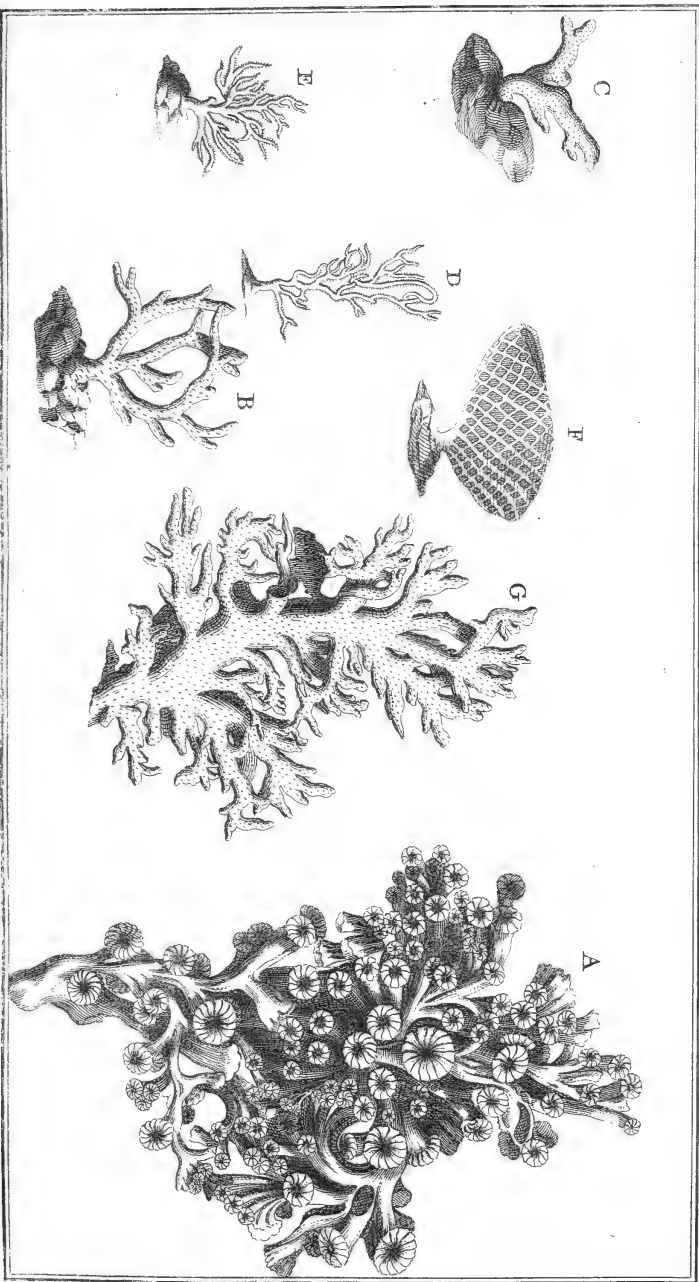
Fig. E.

8. The like, but more expanded.

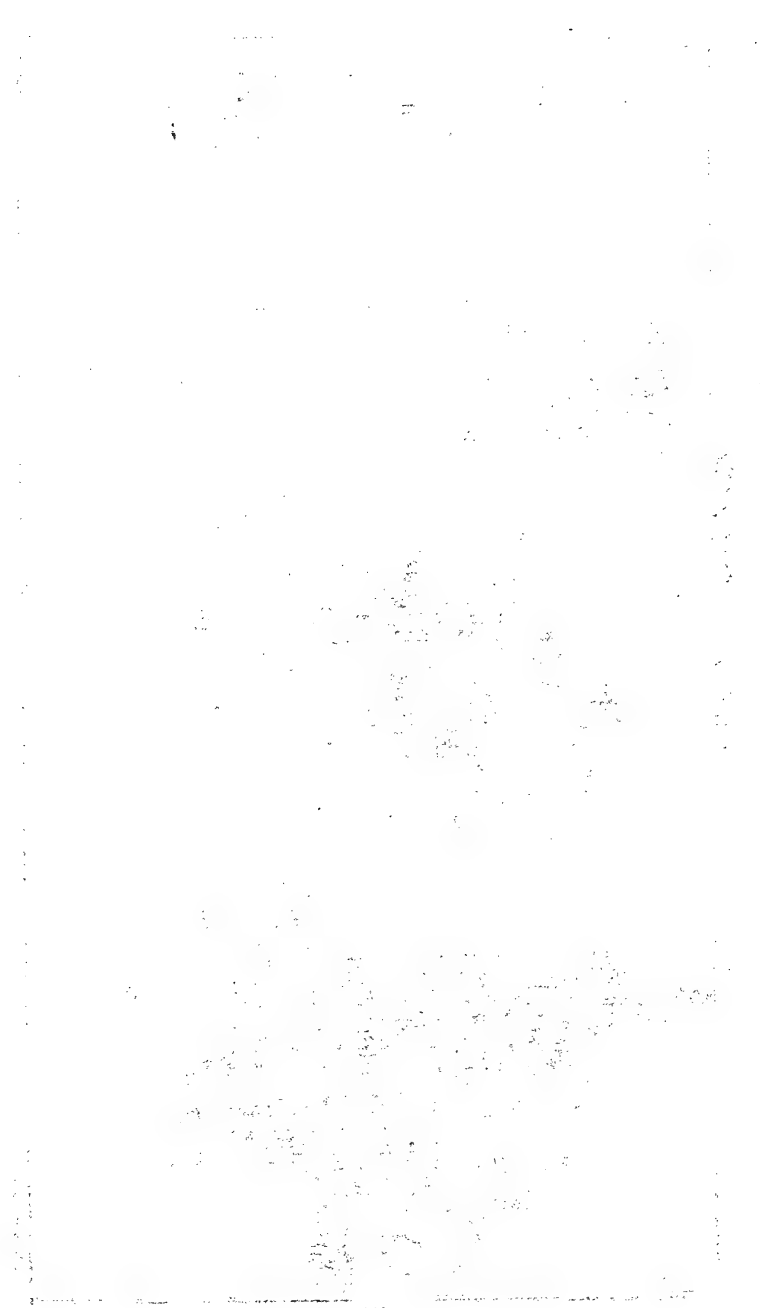
Fig. F.

9. This is no bigger than the tip of the finger, but formed in a manner, the like of which I have never seen. It somewhat re-

fembles



*Branches of several kinds*





sembles a small funnel, and its sides form a beautiful web like the finest filigrin work, of a straw-colour.

10. Of the same colour as the former, flat, with several pretty Fig. G. indented shoots, about a finger in length, and half as broad, but appears to have been much larger before it was detached from the body of the plant; which, when entire, must make a very beautiful appearance.

In Nordland are sometimes found coral plants or shoots, of which one side is red and the other white, but, having never seen any, I cannot warrant the certainty of it; but I have a brown stone of the bigness of two fists, incrustated with coralline substances, the external colour of which is carnation; but within it is of the whiteness of snow; it consists of some hundreds of great and small round bosses or buds close to each other, and forming an agreeable figure. Very probably these would have been bigger had they remained longer in the water. This piece I account a *Madrepora abrotanoides tuberculis horizontaliter positis*, and in a collection of the naturalia of Norway, I have since seen larger and taller plants of this nature. Some other kinds.

The fishermen often sell coral bushes to the apothecaries at Bergen, and, upon being asked, what is their opinion about the origin and growth of this marine vegetable; they answer, that sometimes a white drop is observed to fall from the branches of the old coral, as well as from the sea-trees, as if it were milk or feed, and where this falls a vegetable is produced according to its species. This account is in some measure, confirmed by this, that the vegetable, number seven, has under it a white and flat macula like a root, spreading to the extent of the plant. The same likewise is further attested by Tavernier, in his travels to India, where he speaks of the coral-fisheries in the Mediterranean, but he is mistaken, in imagining that not the least sprig of it was to be found in the whole ocean, our northern coasts manifesting the contrary: As to its medical uses it has the character of being absorbent, refrigerative, emollient, astringent, and strengthening, which may be true, when the tincture of it, consisting of the extracted salts or oil, is administered inwardly; but, that the little beads, made of the coral (they not being as some imagine, fruits or little berries growing thereon,) are endued with any such fin-

gular virtue that when applied externally, or hung about the neck, they are a preservative against the apoplexy, the plague, and other contagions, I cannot admit, having no evidence of it, but must leave it to rest upon its own credit. It is certain that the dealers in coral at Genoa, and Marseilles, have a great vent for their commodities in the eastern countries. Tournefort says, that all over the east they wear necklaces and bracelets of coral beads brought from Marseilles. Possibly could white coral be brought into fashion, a diligent search might procure as great a quantity in our seas\*.

## C H A P. VII.

Of several kinds of Gems and curious Stones in Norway.

SECT. I. *Of Pebbles.* SECT. II. *Marble of different fineness and colour, Spar, or glittering stones, Alabaster, Chalk-stone, and the like.* SECT. III. *Sand-stone, Mill-stone and Slate.* SECT. IV. *Talk.* SECT. V. *The Magnet.* SECT. VI. *Amiantbus, or Asbestos.* SECT. VII. *Pyrites, and Quartz or Marcasite.* SECT. VIII. *Crystal and Isinglass.* SECT. IX. *Granate, Amethyst, Chalcedony.* SECT. X. *Jasper and Agate.* SECT. XI. *Thunderbolts, and other figurated stones.* SECT. XII. *Some stones plainly indicating their substance formerly to have been soft and fluid.*

**I**N the order I proposed after the vegetables and plants in Norway, follow the several species of stones, with the several metals and minerals resident in them; but in this seventh chapter, I shall confine myself to the former, referring the metals and minerals to the ensuing.

### S E C T. I.

*Of Pebbles.* It is the less necessary to dwell upon the common pebbles, of which the mountains here and in other parts chiefly consist, they being well known; and I having offered my thoughts concerning them in the second chapter, on the origin, formation, and different figures of the said mountains; but one particular concerning these pebbles must not be omitted; which is, that a certain brown

A perishable kind of pebble.

\* Concerning the white coral fished for in the lakes of Numidia, and which differs only in colour, Doctor Shaw, in Tom. II. App. p. 124. of his travels, says, that it is scarce, but whether it bears a higher price there, I am not informed.

kind of them decays with age so like old wood, to which, in its incurvated veins and channels it is not unlike, dissolves between ones fingers; drops from the mountains into the sea, and sometimes occasions the afore-mentioned calamity of a disruption; so that the traveller round the Norway-coasts, may find sufficient proof to confute those visionaries of all ages, who have imagined the world to be eternal; and these proofs may be drawn a priori: For if the world were eternal, its decline could not be so conspicuous as it is, within the few centuries, which we can compute with certainty. Time, the voracious consumer of all things, exerts its corrosive power every where on the hardest rocks, but more remarkably in certain places; and whoever has lived any time on these coasts must have observed the stones dissolved, and the separation begin in the veins, where the pores and softer substance sooner yield to the daily impressions of the air and sun. In many places the northern grey and black pebbles are intermixed with iron, copper, lead, silver, and even gold; of which we shall treat in the sequel. Great quantities of these pebbles are at present used for building houses, walls, and inclosures, especially in and about Bergen, the neighbouring mountains furnishing them with little labour, nature itself having as it were prepared them by fissures, into which, the wedges being driven, such flat angular pieces fall off, that without being shaped by the chissel, they suit one another so well, as to form a compact wall. In some places, especially at Gloppen in Nordfiord, I have been amazed to see whole mountains consisting of these pebbles naturally divided, and as it were cloven, almost of equal sizes, that is, from two to three cubits each, as if they had been sawed both longitudinally and transversally. These pieces are easily lifted with two hands, and resemble the ruins of an old wall. Mr. Buffon speaks of a mountain of the same nature near Fontainebleau. These northern fragments lie near the creeks, and being easily embarked, might load several thousand ships, the quantity being sufficient to build large cities. How these regular fissures and separations may most rationally be supposed to have happened, soon after the deluge in the originally soft, and afterwards gradually indurated pebbles, I have offered some conjectures in the second chapter, which treats of the soil and mountains in general,

Steenur.

general, where I likewise considered the disruptions or breaks of mountains. When a part of a rocky mountain, being undermined and detached, falls from its vast height, and in its fall happens to strike on a hard ground, and is broke into some hundreds of smaller pieces, this collective body of fragments is called *Steenur*, and the innumerable points and angles of those broken stones render the roads extremely troublesome, tho' sometimes they are observed to lie in such symmetry, that their former cohesion may be judged from their concave and convex sides. In the parish of *Houg*, three Norway-miles from *Bergen*, about twenty years ago, a very surprising accident happened to a man, who walking under a mountain, was on a sudden entirely covered with the fall of such a congeries of large stones, which formed a kind of vault around him. Here he remained unhurt for several weeks; his friends, who by his outcries had found the place of his confinement, knew not how to extricate him, the stones being immovably large. They reached him meat, and drink, for some time by means of a pole, thro' the crevices, but at last, the stones fell in and crushed him.

## S E C T. II.

Marble of  
several kinds.

Marble, which in most countries is so scarce, and bought up at so great a price, is found here in several places, and in such quantities, that if all Europe were to be supplied from hence the quarries would not be exhausted; for several ridges of mountains consist almost wholly, or, however, chiefly of marble, upon breaking the lapidious incrustation, which is a porous substance, and about an ell or two deep, as a tegument to the more precious marble, in comparison with which, it appears to have a kind of foam or froth, interspersed with small orbicular cavities, as the surface of melted wax, or the like after its induration. I have elsewhere confirmed the opinion of the liquefaction of the rocks, as built on other unexceptionable grounds, exclusive of these incrustations. Had the inquisitive Mr. *Tournefort* reflected better on this truth, and the consequences which may be drawn from it, he would not have been under a necessity of assenting to the strange position of the vegetation of marble, to account for some shoots and excrescences of marble found in a cave on the island of *Antiparos*,  
some

some depending from the roof of a cave, others shooting out of the ground like trees or plants, which he actually represents them to be. His words are, *Il semble, que le nature nous avoit voulu montrer par-la comment elle s'y prend pour la vegetation des pierres, il semble, que ces troncs de marbre vegetent, car outre qu'il ne tombe pas une seule goutte d'eau dans ce lieu, il n'est pas concevable, que des gouttes tombant de 23 ou 30 brasses de haut ayent pu former des pieces cilindriques terminées en calotte, &c.* So far he is right, that another origin of those figures must be sought here, than these Stalactites, as they are called, or drop-stones, which are frequently found in subterraneous caverns; yet there is no necessity of recurring to the vegetation of marble; a third cause offering itself, that these long shoots and drops are unquestionably an immediate work of nature, and may, or rather must have been produced at one time, and if they must be called vegetables, they may have sprung up in a night, like mushrooms, or perhaps, in an hour, or even a minute; and that during or immediately after the deluge, when the detached or liquefied stony substances began again to settle and consolidate. In that case, it is not in the least improbable, that some of the softest part of the marble, consolidating last, should meet with a resistance from these parts of the marble, which had already subsided, and run into these shoots, clusters, and other figures, in which they appear at present. This is most evident in marble and other hard stones, not only from other indications, for they manifestly contain *solidum intra solidum*; but particularly from the beautiful blendings of their colours, and spots, veins and streaks, like a dried mixture of oil colours, which, when cut through, shew the like intermingled streaks, as in our marble quarries. I myself am possessed of such a piece of artificial marble, though I confess it is much dearer, and deficient in solidity, which only it can obtain in the laboratory of the supreme master of nature\*.

\* Possibly the ancients had the art of giving it its proper hardness, as must have been the case, if we suppose those vast columns and obelisks of Egyptian marble forty eight ells in height not brought to Rome in one entire piece, which appears difficult if not impossible, but to have been such an artificial granite. Dr. Shaw, in his travels to the Levant, T. II. Ch. IV. p. 81, 82, says, some have imagined Pompey's column and the obelisks of Rome, and Alexandria, to be an artificial composition of cement and sands, cast in a mould.

Most of the Norway marble-mountains are still unknown as such, and will in great measure continue to be of no advantage, except those which are contiguous to the sea or the creeks, for the ready shipping of the marble. I omit the mention of those marble-mountains which I have observed in my journies, particularly at Lillemios in Walders, and elsewhere, much less shall I take upon me to give an account of the new marble-quarries undertaken at the charge of colonel Eigtveds, architect to his majesty, and other proprietors, not far from Drammen, in the diocese of Aggerhuus. But, instead of these, I shall take notice of those marble-quarries in the diocese of Bergen, which have been broke up within this century, chiefly by the family of Lilienschiold, and partly carried on by others, of the produce of which the palace of Christiansberg at Copenhagen is an illustrious instance. Some thousands cubic feet of northern marble, have already been exported for that edifice, especially from Musterhaven, and continue still to be carried thither, besides the demands from England, Holland, Germany, and the countries on the Baltic, and even from Sweden itself, which is in no want of good marble, tho' the Norway is esteemed better, notwithstanding its extreme hardness renders it very difficult to be wrought; and tho' it cannot, as some pretend, to vie in whiteness with that of Carrara in Italy, or in fineness with that of Sicily and Egypt. The chief marble-quarries hitherto opened in this diocese, and their several kinds, are as follows:

Account of  
the principal  
marble.

1. Hoppeholm, not far from Bergen, produces marble of a good white, likewise blue and white, also a greenish kind, with red streaks.

2. Wikeness in Storoe, six Norway-miles south of Bergen. The marble of this quarry is red and white, very fine and solid, but very difficult to be hewn into squares; likewise white intermixed with green with sulphur-coloured veins, a kind of grey and white jasper; green, with red streaks of agate; lastly, black and white; all very difficult to the workman.

3. Musterhaven, seven Norway-miles south of Bergen, not far from the noted high mountain Siggen. This quarry yields blue marble with white streaks, dark blue with the like variegation,  
green

green with greyish veins, likewise an azure marble. This is easier to the chissel than in most places\*.

4. Salthellen, four Norway-miles from Bergen, affords a white marble, and easily wrought, but is not so firm as that of Hopeholm, and breaks into longish blocks; it also affords a grey and white, likewise a dark grey streaked with white.

5. Hillebrud, seven Norway-miles from Bergen, the marble of this quarry is white, with a yellowish tinge; it likewise produces a light-blue and white, both kinds very compleat, and in large blocks.

6. Stoursoen-quarry, one of our miles from the monastery of Halsnoe, yields black-marble studded with white spots, and its blocks are large and compact.

7. Selloe, on the other side of this monastery, produces blue and white marble, in larger blocks than are to be met with any where.

To this tribe of stones belongs likewise the touch-stone, *Lapislydius*, being a kind of black-marble; also alabafter, which I have met with in my journey to Sundmoer, near Borgenfund, but of a greyish cast, and only in small pieces, lying as an infused adventitious matter betwixt the strata of hard pebbles; by the peasants it is called Hejetel, under which name I have already spoke of it in the 2d chapter, concerning the origin of mountains. Under this species may also be comprehended the several kinds of spar, or other shining stones, like what is called *Katzenfilber*, which are easily reducible to a white powder, as are the chalk-stone, cement-stone, and stucco-stone, to which use likewise the strictures of marble, which fly off in the quarries are applied.

### S E C T. III.

Sandstone is found in several places, of a clear and dark grey, yellow and brown, of a fine and coarse grain, and is used either for building or for grind-stones, which last are in greatest perfection at Hædemark; but on account of the situation, the exportation of them is difficult, tho' considerable quantities are brought

\* I was lately presented with a piece from this quarry, in which red, green, and white veins were intermixed, in a more beautiful manner than any I had ever seen; the only defect is the softness of the green veins, which hinders a perfect polish.

to Skeen, and from thence carried abroad. The parish of Odde in Hardanger, affords as fine and firm sand-stones as ever I saw, but not in any great quantities. I have been lately informed, that in the parish of Nordal in Sundmoer, there are large mountains entirely consisting of yellow and red sand-stones.

Mill-stone.

Mill-stone, which indeed is but another sort of sand, consisting of grosser substances, but the texture thereof is both more compact and smooth; is exported from Guldbrandsdale, Syndford, and other places.

Baking-stone.

Hardanger likewise affords the best Bagsteheller, i. e. Baking-stone, a flat thin and smooth stone, which being rounded, bread is baked on them, which is likewise done on iron plates. These flat and thin stones likewise begin to be used for covering houses and churches, as slate is in other places.

Slate.

This in some parts is found in such prodigious plenty, that not only the whole ground on which the city of Christiania stands, but the adjacent country is little else than slate, *Collæa lapis filifilis*, splitting into laminæ, or consisting of a succession of laminous strata. But hereabouts the pieces are so small, as not to be applicable to any particular use; nor have coals been found under it either here or elsewhere, as was supposed; from the similarity of the substances, and the black loom intermixed with it being somewhat like coal, besides the circumstance of its splitting in the same manner as coal.

#### S E C T. IV.

Veeg-steen (soft or Talc-stone) both light and brown, and the finest sorts of it otherwise called Talkstein, Grytstein, and by some Blodgryte and Cloverstein, being very soft and easy to be cut, hewn, or sawed, are to be found almost throughout this and all other provinces of Norway, but not every where in such large pieces as at Stavenger, and the lordship of Sunderhord, from whence some shiploads were lately carried for the palace at Copenhagen\*, and the late famous and stately cathedral of Dront-

\* The Talkstein is sometimes found in and along with the hardest pebble-stone. Near Malmanger is a deep cavern in a mountain, now almost exhausted, but formerly full of it. This corroborates what I have before said, *De solido intra solidum*, and shews the probability that all lapidous masses were formerly soft and intermixed.



heim was said to be built of this stone, as I have here found several churches, and other buildings of the same. This stone does not consist of sand or loomy particles, but of a fine slimy compact substance, which may be pulverized, when it shines like soap or tallow, but in the air becomes porous, and loses its gloss, as I have observed on the outsides of old churches, which, by length of time, looks as if they had been built of pumice-stone; this stone however is almost imperishable, even in fire, and on that account is by some used for hearths, ovens, and beacons. In Gulbrandsdale, cups, pans, pots and kettles, to the bigness of half a tun are made of it, as vessels of this kind not only retain the heat, but according to Bromel, give a better taste to what is boiled therein, than utensils of any other substance. Of the dark green Talc, which is likewise used for casting variety of figures; I have seen images, and other kinds of sculpture, with as fine a polish, and in every respect as tightly, as if of marble or serpentine, yet the latter would have taken up thrice the labour and time; for the Talc-stone, especially of a good kind, is worked much easier than wood itself. Near Stavenger, is found a kind of Talc-stone, of such a whiteness, that it is begun to be used there for powder, as it may be pulverized to an impalpable fineness; and I am inclined to think it would succeed better in painting than ceruse. I also recollect to have read, if I mistake not, in Tavernier, that the principal persons in Armenia, make use of a white shining Talc-stone for painting, and as it were laquering their best apartments, and this Talc seems to be of the kind in question. Of the powder of Talc-stone, which is like to the finest soap, and Talc-oil, an ointment is made for rendering the skin close and smooth. The Museum Wolmianum mentions a kind of Norway Talc, with gold veins, but this must be extremely scarce.

In Litographia sua Cana, p. 26.

## S E C T. V.

In the iron-mines near Kongsberg and Skeeen, and likewise in some other places, is found that wonderful substance called the magnet, or loadstone, and in such quantities, that some tuns of it are exported, especially to Amsterdam. Ol. Worm, bestows on the northern loadstone, the epithet of *Viribus insignem*, what

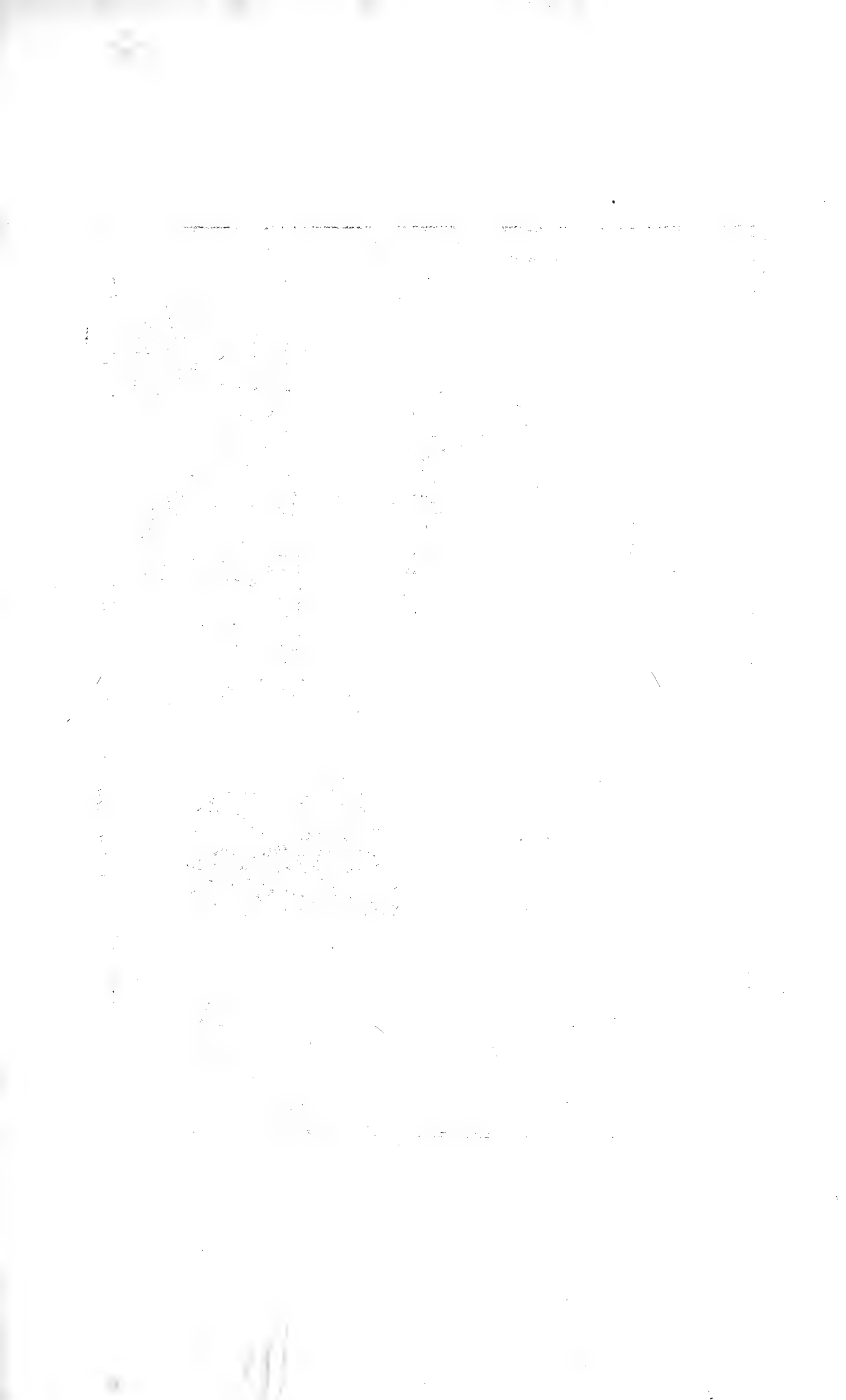
The magnet, or loadstone.

might further be said on it does not belong to this place; I therefore proceed to insert what little I know of the lapis fuillus, or swine's stone, a production peculiar to Norway and Sweden. It derives its name from its efficacy in the orafuuke, a distemper incident to swine; it is also with as good reason by some called lapis fætidus, as when rubbed against any substance, it emits a nauseous smell. The nature and texture of its parts is vitrious, nearly like the crystal; it likewise shines, but is brown, with a large mixture of sulphur, which may be the cause of its fætid smell. In an island in Great Mios upon Hedemark, are whole mountains of this stone, which when galloped upon by shod horses emit a violent stench.

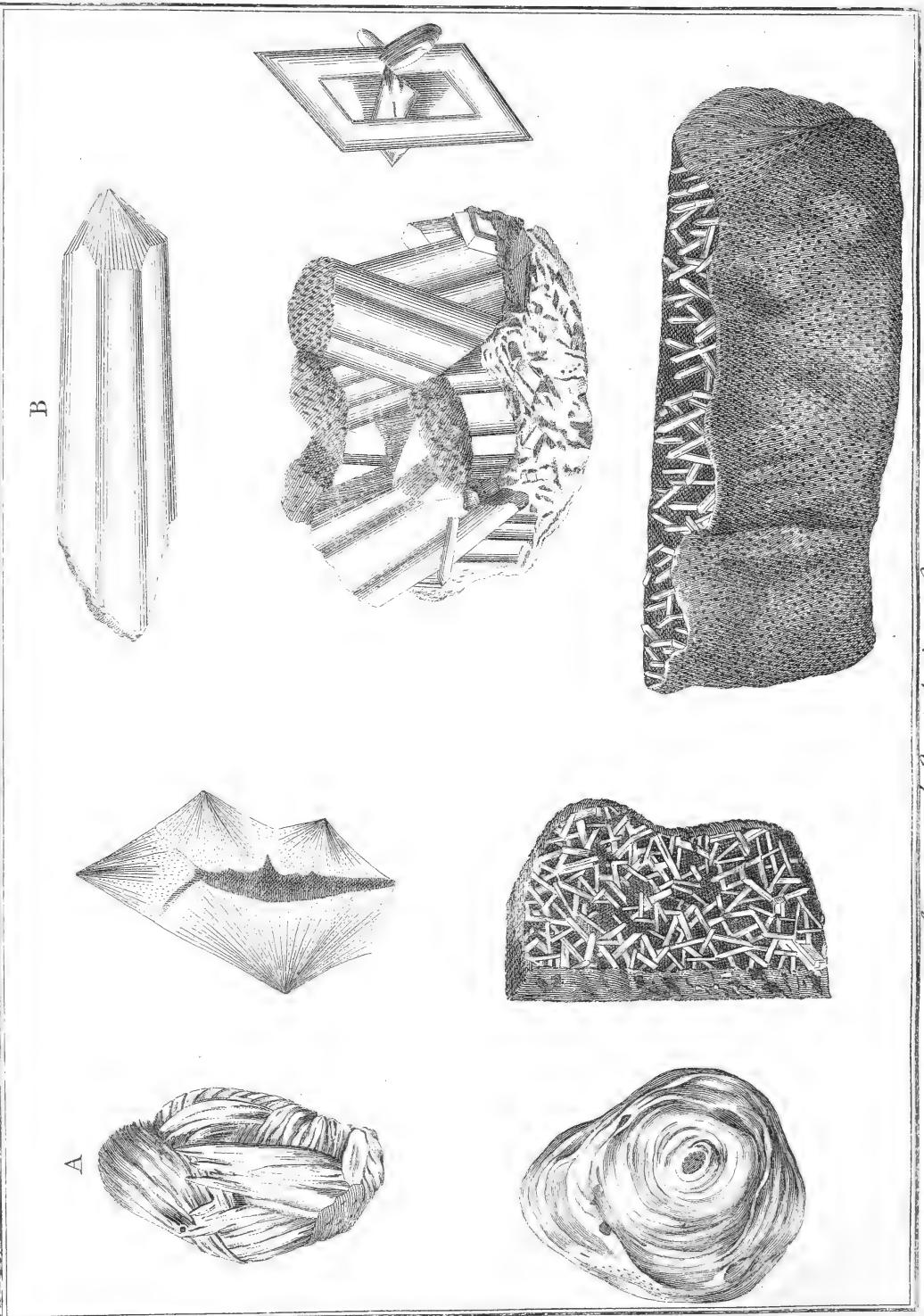
## S E C T. VI.

Amianthus,  
or asbestos.

That the amianthus or asbestos, which makes an incumbustible linnen or paper, is to be found in the parish of Waldens, I can affirm from my own experience on this occasion; I had sent for some samples of that wood, which was said to be petrified by a certain water before-mentioned: Accordingly a large parcel of it was sent to me, and at first I could have compared it only to hazle, which had lain a long time in the water, but upon a narrower inspection, and drawing out some of the filaments, I found it was no petrified substance, but an amianthus, and far finer than the Greenland stone-flax, which the Rev. Mr. Egede, in his account of his mission, relates to be there used as wicks in the lamps, without being in the least wasted whilst supplied with oil or fat: This Sundmoer amianthus which is produced in a mountain in Birkdalswamp, deserves like that of Siberia, and even better, to be called stone-filk, rather than stone-flax, its fibres being both softer and finer; I also made a wick for a lamp of it, and it was not consumed, but its light being much dimmer than that of cotton, I laid it aside. I have also in my possession a piece of paper of this asbestos, which when thrown into a fierce fire is not in the least wasted, excepting only that what was written on it totally disappears. The manner of preparing this stone-filk, or stone-flax is briefly this; the stone after being softened in water, is beaten with a moderate force, till the fibres, or long threads separate from each other, afterwards they are carefully, and repeatedly



rub.



B

A

*Stones and Crystals in Norway.*

peatedly washed till cleared of all terene particles; then the flax is dried in a sieve that the water may run off the sooner; all that remains now, is to spin these fine filaments, wherein great care is required, besides which, the fingers must be softened with oil, that they may be the more supple and pliant. That Kircher and others should have mistaken this stone for the *alumen plumosum* \*, and imagined it to be an *allum* fire-proof, appears hardly probable, especially as *allum* has a very acrimonious and peculiar taste, which this stone is so far from having, that it is as void of taste as any other stone can possibly be.

## S E C T. VII.

A physical singularity here, is, that a country thus abounding in stones has no flints, so that those used in fire arms are imported from Denmark, or Germany. In all my circuits, I have never seen a flint-stone in Norway, and all whom I have enquired of agree that if there are any, they never have been discovered: But on the other hand, the mineral mountains produce a kind of pyrites or fire-stone, namely, the quartz, as it is called, which at first sight resembles the before-mentioned spar, or such glittering vitrious stones; but that it is of a different kind appears from hence, that in the fire it is not reduced to lime or stucco as those are; but becomes fluid, and is therefore used in the glass-houses.

## S E C T. VIII.

This quartz or marcasia, is of very near affinity to the Norway crystal, of which there are great quantities both here and in the other provinces, and of a larger size than most of those in Switzerland, Bohemia, and other parts. The mountains are the proper native place of the crystals, which sometimes are seen suspended on them, and glitter in the sun to the amazement of strangers; but these are liable to be washed away into the rivers, and from thence into the lakes; and this is the only way I can account for crystal being found in the great mios, as it certainly is. Mr. Peter Underlin in his topography of Norway, mentions

\* Dico itaque hunc lapidem esse compositum ex certa aluminis seu talci specie, ut proinde eum multi *alumen sciffile* aut *alumen plumæ* nominandum putarint, est enim multo mollioribus filamentis etc. *Mund. subterran. Lib. VIII. Sect. III. cap. 1. p. 67.*

his having a piece of crystal as a very extraordinary curiosity, of four ounces weight taken from thence, but this is trifling in comparison with a piece found in Hardanger, and now in my hands, which is within an ounce of five pounds in weight, twelve inches in length, and seven in thickness, and I never saw so large a frustum of the angular and conical kind, tho' it must have been larger, with little projections from its sides, which the former owner confesses he broke off for presents, so that now there remain only four uniform angles; but two of them have since had the fate of the former. I have several smaller pieces of an hexagon figure, with the extremity terminating in a point\*; these regular, sexangular, and conical crystals are by our peasants called *duergnagler*, dwarfs-nails, from an old notion, that these were nails which the dwarfs, who, they imagine, formerly dwelt in the mountains, threw away as quite unnecessary to them, as being without heads. But the general name for the crystals here are *biergdraaber*, mountain-drops, which name corresponds with the accounts of the naturalists of the origin of crystals, and happily expresses that sort which hang on the mountains, in the shape of grapes, or other indeterminate figures. On the other hand, I know from experience, the afore-mention'd. long and regular pieces, which are all sexangular, are generated in a chalky porous stone, in shape like a drop-stone, having a piece of it which was found in a mountain, near the parish of Forde in this province of Sundfiord; this is a little larger than a hand, though twice as thick, but filled both longitudinally and transversally with these minute prismatic crystals, hundreds of them projecting, as if drawn through with a larding-pin; so that I place a great value

\* How this moisture of the quartz, or marcasia, dropping from the mountains becomes indurated, and in time produces a vitrification or crystalization, is in some measure illustrated by J. Fr. Henken, in his *pyrotology*, chapter 5. page 354. and likewise the cause of its hexagon figure, in the manner of the saline rays, *ibid.* p. 362. Likewise Kircher, in *Mundo subterr.* Lib. VIII. Sect. 1. p. 25. *Act. Societ. Hafn.* Tom. III. p. 281. Leibnitz *Protog.* Sect. XXVIII. p. 44. Within these mountain-drops, is sometimes inclosed another heterogenous substance shining like silver, and by the ignorant thought to be so. I have some such pieces, which I accounted first rare curiosities, till a more experienced friend of mine shewed me, that upon being rubbed or pulverized their lustre vanished, and the supposed silver turned into a terrene sediment. *Argentii flores appellant fodinarum magistri, albas guttulas, quæ crystallis atque mineris insident et quasi sementum essent argenti, apud eorum nonnullos maximam habent estimationem etiam raritatis titulo. Quamvis autem haberi et esse forsitan possint inchoamentum argenti, nondum tamen id penitus observationes persuadere voluerunt.* Aloys. Com. Marfili. Danub. Panon. T. III. page 168.

upon this piece of stone, as a manifest mother of crystal \*. Were it not for the yellowish cast, too common in these northern crystals, like those of Bohemia, and Hungary, they might justly deserve the appellation of Norway-diamonds, which Mr. Arent Berendsen confers on them; for the original essence and formation of the diamond, namely, a filtrated, vitrified, dense, indurated mineral juice is likewise that of these crystals, the whole difference being, that the filtration here is less perfect. It appears, however, that as nature in other things sometimes deviates from her general rule, working either more delicately or coarsely than usual, so the northern crystals may be accounted such deviations, from her general rule in the formation of diamonds, or Norway mountain-drops. A certain officer of reputation of the district of Hardanger, a few years ago sent to London two stones found there, in order to have them made into a pair of ear-rings for his lady. When the merchant to whom he had given this commission, called upon the lapidary for them, he was asked what he looked upon those stones to be, the merchant answered, Norway-crystals, then replied the lapidary, give me a note of hand that they shall not be passed for real diamonds, which the merchant very readily did. I mention this little story, partly to shew quantum est in rebus inane, and how, in matters which are highly estimated, and sometimes deserve so to be, the world is more governed by imagination than reality, as otherwise there could not be at least that

\* *Crystallus montana* (prout ex pluribus observationibus feliciter didicimus) non est aliud quam ramificatio seu propagatio durissimi filicis, quartz, lactei sæpius coloris ac opaci, cujus dorsum si compluribus compressum stratis, interius tamen aliquid vacui sortiat, intra quod libere valeat in ramulos propagari, tunc generatur crystallus (non vero ex aqua gelu in montibus vehementiore concreta, (ut Plinius, Seneca alii- que non pauci tradiderunt.) Quod si cinnabris effluvia ipsius sese commisceant vegetati- oni (quod nobis plerumque videre contigit in argentifodinis) tunc eidem amethysti colorem non tam rarè impertiunt. Et rem sane verosimiliter sic se habere, per Hel- veticas Alpes ad montem S. Gotthardi, anno 1682, iter facientes amplius intelleximus ac edocti fumus ibi à fossoribus crystallos eruentibus. Hi siquidem in pluribus nobis monstrarunt ventriculum seu cavitatem quandam, cujus parietibus majori ex parte substernebatur filix seu quartz, intra illam cavitatem vegetans, cujus puriores ac tenui- ores partes filtratione quadam à reliquis segregatæ ac sensim concretescentes assurgebant seu distendebantur in conos crystallo- rum angulares, Aloyf. Com. Marfili Danub. Pa- non. Tom. III. p. 89. This is further worth observing, that as the effluvia of cinnabar veins in the mountains, by the tinge, which they communicate to crystals, make amethy- sts of them, the turquoise and emerald in the like manner owe their colours to vi- triol. P. I. page 100. The absurdity of that opinion of Pliny, Seneca, and other an- cient naturalists of the formation of crystal like ice, by an intense frost, has been more than sufficiently exposed by Sir Tho. Brown in his vulgar errors, Lib. II. cap. 1. p.

immense disparity in the price of our native and the Oriental stones. I have among my small collection of Norway-crystals, a piece so clear and pure, and withal not vitrious, that in the judgment of the connoisseurs, it might be cut into a very exquisite jewel\*.

Marienglas.  
Ifinglas.

Among the Norway-crystals is also reckoned the Marienglas, Ifinglas, or Rysglas, as it is called here, being mostly found in Russia, where, on account of its transparency, it is used for window-panes. This is a particular species of stone lying in strata, or flakes, or like so many sheets of paper, and as easily separated. I have a piece of dark red, which is very uncommon, it being generally clear or greyish. Wormius, who had never seen any of this colour, page 56 of his Musæum, says, that this Russian-glass is sometimes found in marble, and sometimes in hexagon figures, like the above-mentioned mountain-crystals.

#### S E C T. IX.

Granates.

Granates, which derive their name from the similitude of their dark red colour, with that of the kernels of the pomegranets, are found at Kongberg, in Gulbrandsdale, Ostërdale\*, and other parts, and not seldom inclosed in other masses of stone; and Mr. Bromel says, that in Norway, as Jempteland, many mill-stones are mixed with granates, but the few in my possession, or which I see elsewhere, and are of the size of a middling hazle-nut, with many angles, have no particular lustre, and are foul, or as the phrase is, not ripe. Those mentioned by Olig Jacobeus, among the northern curiosities in the Museum regium, I suppose, make a better appearance.

In Litho-  
graph. Suec.  
P. 45.

Page 34.

Amethists.

Norway amethists are likewise mentioned there, but with the addition that they want the hardness of the Oriental. The same author, page 32, likewise mentions another stone, which he thus describes, *Pyrites aureus tessellatus, maculis purpureis ac hyacinthinis hinc inde distinctis ex osterdalia Norvægiæ.*

\* Crystallos puriores Americanis suppeditat Norvegia nostra, ut ex specimine transmissio videbis. Ep. Ol. Wormii, Tom. II. p. 820.

† Reperiuntur etiam Norvegia dodecalatorum impuriore, vena talci plerumque infecti, colore ad nigredinem tendentes, ut eò primum genus Orientalium æmulari videantur, natura quandoque politi. Tantæ magnitudinis mihi unus est, ut ovum columbinum superet. Crescunt in vena talci tanta copia, ut ex iis cum vena sua junctis, lapides molares conficiant. Ol. Worm. Mus. p. 104.



The Ferro-islands afford plenty of Chalcedonies, but which are <sup>Chalcedony:</sup> not above twice the bigness of a pea, very seldom reaching that of a hazel-nut, of which size I have some in my collection. The Museum Womianum, page 98, mentions two of an oblong figure, and of the bigness of a man's thumb, and he also speaks in the following manner of those of Iceland: "Chalcedonium islandicum cristalloidem voco lapidem. Massa est unciarum duarum longitudine, totidem latitudine, qua latior est. Parte qua cauli adhæsit, faxo constat albo, duro, cui nigredinis quidpiam permixtum, ex quo efflorescit crusta quædam calcedonica, crassitie calami scriptorii: Hæc verò ex se papillaceas quasdam strias protrudit ejusdem substantiæ, externa superficie asperas instar sacchari candidi, granulis minutis micantes. Parte anteriore tres sunt papillæ, quarum mediâ reliquis longior, una reliquis minor, versus latiore partem una duplicata. Omnes hæ papillæ, ut et corporis ipsius tota superficies superior quasi conglaciata est, splendentibus granulis crySTALLINIS aspera. Elegans certe est, a nemine, quod sciam, descripta." Of these glittering and angular little grains, which are said to adhere to the island Chalcedonies, there are frequently found deep in the earth many white muscle-shells, quite full; an indisputable effect of the deluge; these bodies, when liquid, having insinuated themselves into these shells, where they afterwards became indurated; and I myself have some of this kind in my museum.

## S E C T. X.

Agate of several kinds are produced here, and I have some <sup>Agate,</sup> pieces of red and yellowish, which were found in Sundmoer, and the same abound in other places. The ground near the parsonage of Findaas, is said to be full of large veins of agate; but generally so hard as not to be wrought in any other manner than by grinding. Baron Holberg, in his Present State of Denmark and Norway, says the like of a kind of hard but beautiful jasper, found in a mountain two Norway miles N. W. of the parsonage of Sillejord, of which governor Wibell, in the year 1726, had a set of tea-cups made, for a present to his majesty Frederic IV.

Among several small pieces of green jasper, found in the Ferro-islands, Ol. Wormius mentions the following: "Quedam Turco-<sup>In Mus. p. 94.</sup>ides, æmulantur, quædam Malachites, quædam in matricibus suis

existentes jucundum dispicientibus præbent spectaculum---Inter jaspides ex infulis Ferroënsibus allatas, reperiuntur etiam jasponiches numero haud exiguo, videtur enim natura in istis infulis intenta esse, ut onichen viridi colore tingat, verum opus suum ubi impedita non absolvit remanet jasponix, quin et jaspidis capnitis hic visuntur specimina.

## S E C T. XI.

Figurated  
stones.

Of figured stones I have several, some of which were found in Norway, but shall not enlarge on these, as not being peculiar to the country; yet, I cannot suppress the observations of a judicious person on some small circular, and flat stones, perfectly smooth, and of a mixed substance, dark brown, yellow, and grey roundish specks being blended among one another; but they are sometimes found as big as a hen's egg, and by the peasants called lospesteen, loosening-stones, from their opinion, that they are beneficial to women in hard labours. They also pretend, that this stone is the supposed thunderbolt, it being found where the lightning has penetrated, and as it were plowed up a furrow on the mountains. I leave this without any comment, yet I beg leave to insert the words of the above-mentioned person, Mr. Fred. Arndtz, superintendent at Sundfiord, and minister at Itskevold, in a letter to me, of the 22d of September, 1750.

“ My Lord, I take the liberty to send you in the box which comes along with this, a small stone lately come into my hands, and of which, I own the curiosity to consist only in the account which the peasants have given me of it. They say, that the thunder darts down such stones, aiming them at the Troll (a kind of witches, or infernal spirits of the night) who otherwise would destroy the whole world, and it makes use of these stones for bullets. The reason on which they attribute these stones to the thunder, is, that they are commonly found in those places, where the earth has been torn up by a violent thunder-clap; the usual size of this stone is like that before you, though the largest, both in figure and dimensions, entirely resemble a hen's egg. That the thunder tears up the earth into a kind of long furrows is very certain. I have seen it myself here in Sundfiord, and in such furrows these stones are found: this the people affirm very positively, offering several in-

stances

stances in proof of it. I am aware, that all that is said of these thunder-stones, is by many looked upon as mere fables, and I myself cannot entirely come into many of these traditions; as that in a violent tempest, these stones have struck against a ship's sail and dropped down upon the deck, or that a woman who was at work at her quilting-frame, when the whole house was suddenly destroyed by a clap of thunder, but she not in the least hurt, found such a small stone lying on her frame. However some maintain the truth of these things, and have not the courage to refuse historical credit to accounts of this nature, and indeed they are not entirely destitute of all verisimilitude, if the production of the stone be considered, its primordial element being a slimy water, mixed with matter and inspissated by fire, whence a petrifying juice. The stucco works are supposed to afford a specimen of such a mixture, which are somewhat hardened by the infusion of a small quantity of water, but by the infusion of oil acquire the solidity of stone. That such a *materia lenta et viscosa* may ascend into the air is undeniable; that the lightening may have very wonderful effects in the atmosphere must also be granted, and that a solid compressed body by its own gravity descends is natural. But there seems, notwithstanding, less difficulty to comprehend the thunder-stones formation in the earth for the wonderful force of thunder, of which there are so many incontestible evidences, and of which I myself have seen some in the bayliff's house at Turre, should easily induce us to subscribe to the following words of a learned man, *Radios fulminares terram penetrantes, arenam, quam forte offendunt, in talem aliquam massam lapideam per vitrificationem quandam colligere.* I suspend my judgment herein, and only add, agreeably to my design, that this stone is by the peasants called *laafnesteine*, i. e. loosening-stone, from the effects attributed to it; for the women, and especially the old nurses, imagine this stone to be something exceeding sacred; and it is with great difficulty they can be brought so much as to shew it, much less to part with it; from their persuasion, that beer drawn in a cup with this stone in it, being given to a woman in labour, facilitates the delivery; or as the peasants phrase is, *dælaafne*, i. e. the foetus is loosened, *solvitur vinculum rumpitur.*" So far this letter.

Thunder-  
stones.

The *ceraunei lapide*, thunderbolts, which were formerly accounted thunder-stones, are now unanimously allowed to be stones artificially wrought into axes, hammers, wedges, and knives, which in the heathenish times were used at such sacrifices, as, according to their superstition, did not admit the use of a tool, or instrument of any other substance; they are found both here and in Denmark, and chiefly on such eminences as were appointed for sacrificing. I have them of different substances, colour, size, and figure. The last has the strongest marks of being the work of art and not a natural form, especially in those which have a circular hole where the handle or grasp was inserted.

Eagle-stone.

*Aetites*, or the eagle-stone, is found here as in other parts in the nests of eagles, who, probably, lay it there, to moderate the violent heat exhaling from the breast of the dam, the eagle being a bird of extreme heat. They are generally of a dark yellow, oblong, and conical at both ends. I have one, which when shook, rattles, some solid body unquestionably being inclosed therein. Of the several virtues ascribed to it, *Ol. Wormius* discourses more than becomes him, fancy and superstition having in my opinion the greatest share in them.

Meseurs,  
P. 78.

## S E C T. XII.

Stones plainly shewing their substance to be soft and fluid but suddenly indurated.  
Plate 15.

I shall now in a few words mention some pieces of stone in my collection, which at first sight confirm what I have before said on the origin of rocks, namely, that the substance of marble, and of the most dense and solid stones were formerly, and probably at the time of the deluge, soft and fluid, but afterwards coagulated or subsided into their present situation, like metals after fusion. Of this I say, four pieces of stone are palpable proofs; the first has very much the appearance of a small parcel of hog's-bristles, with their thick ends inverted against each other, and with a straightness which shews the rapidity of their fluid motion, this piece is white; the second piece is a connexion of several very remarkable distinct quadrangular parts, each of the length of a larding-pin, but of the thickness of a straw, passing through each other sometimes longitudinally, sometimes transversally; it is of a dark brown, and vitreous. The third piece consists of long, fine, light-grey *friae*, ten and more in a succession, and others of a like figure

gure in an opposite direction, compressed together like rays. In the fissures are some small sparks of metal. The fourth piece has coalesced into the roundness of a cake, and is composed of many circles, gradually contracting themselves, and proceeding one from the other to the center, so that the last motion of the matter of this stone must have been circular; this stone is dark grey.

The different shapes of these lapidous substances, by casual alterations, remind me of a particular in Osterdale in the mountain of Svuku, on the borders of Sweden, which never fails to excite the admiration of the curious, and it may justly be looked upon as one of the most singular monuments of the deluge. Mr. Dantilas gives a good account of it in a memoir which he read in the year 1742, before the royal academy of sciences in Sweden, and has since been published, of which the following is an extract, “ The highest crest of the mountain of Svuku in Oesterdalen, a province of Norway, lies, according to a survey taken by the barometer, above two thousand ells higher than the lake of Famund, a water betwixt the mountains. This mount consists of one solid, hard sand-stone; on the top of the mountain stands a solid huge mass of the same stone, which bears in it many marks of a dissolution and disruption, which can be attributed to nothing but water. For at the foot of this mass, yet on the summit of the mountain towards the south, are several parallel channels, three or four fingers deep, and of the like breadth, which at last meet; they appear to be the work of some miner, but upon viewing them on the summit, the most manifest indications shew themselves, as if the water had cut itself a passage along some heaps of clay, so that unquestionably the true cause of this singularity is to be sought in the impetus and agitation of the waters.

Remarkable  
figure of a  
stone on the  
mountain of  
Svuku.

## C H A P. VIII.

## Of the Metals and Minerals in Norway.

SECT. I. *Of the mines in general.* SECT. II. *Several gold-mines formerly opened, but discontinued.* SECT. III. *Silver-mines of more ancient times.* SECT. IV. *The present flourishing silver-works at Kongsberg.* SECT. V. *The silver-works at Fjarlsberg.* SECT. VI. *Copper-works at Noraas.* SECT. VII. *The like at Meldel, or Lykken.* SECT. VIII. *Also at Einsett, or Quikne.* SECT. IX. *At Selboe.* SECT. X. *At Fongdal.* SECT. XI. *In Aardal, and Oedal.* SECT. XII. *Of Norway-iron in general.* SECT. XIII. *Account of several iron-works.* SECT. XIV. *Some lead-mines.* SECT. XV. *Quick-silver.* SECT. XVI. *Sulphur.* SECT. XVII. *Salt.* SECT. XVIII. *Vitriol.* SECT. XIX. *Allum.* SECT. XX. *Oaker, and several other kinds of dyes.*

## S E C T. I.

Of the mines  
in general.

**T**HAT the lapideous kingdom, in Norway, contains a vast treasure of metals and minerals, is not unknown, especially in this century, when the breaking, removal, and fusion of the silver, copper, iron, and lead, especially in the dioceses of Aggerhuus and Drontheim, employ many thousand hands, besides the great profits accruing from them to the proprietors, or sharers, exclusive also of the advantages to the peasants and other landmen by burning charcoal, and bringing it to the founderies belonging to those mines. That the use and advantage of the Norway subterraneous treasures, has been so greatly improved within the last hundred years, that the produce has been doubled, is unquestionable, and what further prosperity it shall please providence to grant to the minors, for their direction and continual progress in these dark subterraneous tracts, where the guidance of an all-wise hand is as sensibly requisite, as in any undertaking whatever, must be left to him, whose providence in its own time, distributes to every generation those blessings, or establishes its welfare on those things of which it stands most in need; and there is not a more striking instance than this, of the superintending wisdom, and œconomical goodness of God, throughout the whole system of nature. I know not what account to make of Paracelsus's pompous prediction of a golded age to the northern countries, affirming that betwixt the sixtieth and seventieth degree of northern latitude, time should display a store of wealth

in metals, superior to all the treasures that ever the east afforded\*.

## S E C T. II.

Should time verify this prediction, the generation then in being must construe it an accomplishment of the words of Job, xxxvii. 2. *from the north cometh gold*; for in the year 1697, when, although prematurely, Paracelsus's golden age was thought to be at hand, a golden mine being discovered, the abovementioned words were the impression on one side of the ducats, with the image of Christian V. on the other. The number of them however was inconsiderable, the mine soon failing, but in fineness the gold was equal to that of Hungary. And sometime before, namely in 1644, and 1645, Mr. Berensen relates, page 274, that near Aggeside, or in the diocese of Christianland, on the estate of Mr. Christopher Gios, gold ore was found †, from which those ducats were struck, which the foreigners would by no means believe to be of Norway-gold, from a false prepossession that Norway afforded no such precious metal. However, Christian IV. to avoid the charge of an ostentatious parade, in decking himself with foreign feathers, in the year 1647, ordered other ducats to be struck of the same gold, which were called Spectacle-ducats, the reverse of them being a pair of spectacles with this legend, *Vide mira domi ‡*.

The

\* I cannot specify the place in his writings, having only met with it in Scaffer's Lapland, quoted from Turnæus, and it is repeated by Mr. Peter Hogstrom, in his Description of Lapland.

† Anno 1644, Nobiliff. D. Jo. Sigfrid de Lutichau, rei metallicæ in Norv. Præfectus generalis, minera auri invenit in tractu Nedencensi prope portum Arndalensem et curiam Barlo, nigram talcofam, frequentibus splendentes micis, in cujus bonitatem cum inquisivisset, invenit pondo centenarium ejus mineræ præbere auri puri marcas triginta octo, et insuper centum quadraginta sex marcas argenti.—Aliam alterius venæ massam Anno 1646, quæ ignibus depurata, ex libra una, auri puri dedit drachmas sex, præfente Reg. M. frustrum quod teneo minutioribus splendet micis et priori magis ad rubidinem vergit. Adductæ sunt ex eodem loco mineræ talcofæ itidem ex frequentibus granatis prægnantes, quas auro scaterere multi existimant. Hanc mineram Anno 1646, Regi ipsi detexit rusticus quidam Gammel Grodewyn, i. e. old Grodewyn, dictus. Sita fodina est ad portum Marede dictum (this must be Mardoe) extractu Nidrosiensis lapis quidam arenosus aureis scaterens scintillis et granulis minutis, mihi allitus et talci aurei nigrescentis squamulæ, ex quibus aurum erui volunt. In argentifodinis Norv. prope Regiomontum putens Brunswig dictus, aurum præbet, refert namque D. Normand, quod A. 1630, d. 3. April. 7, marcæ et sex uncia cum dimidia, auri unciam semis obtulerit. Ol. Worm. in Musæo, page 115.

‡ These are, doubtless, the gold-mines meant by Olig. Jacobeus in his Musæum Regium, p. 31, Mineræ duæ auri e fodinis Norveg. quarum una intermixtam sibi

The before quoted authentic writer Mr. A. Berendsen, in the same place, says, that a large specimen of the gold ore found on the side of Agde, being sent to Copenhagen, the conclusion was, that it would barely answer the expence of working it; upon which it was discontinued. The like may be said of that small mixture of gold, which is often seen, not only in the Norway-silver, but even in the copper. The charges of separating and refining it, leaving no prospect of further advantage; and therefore the work is neglected. However, my subject being rather the nature of things than the benefits of them, I must here take the liberty to contradict a writer, in other respects of the highest merit, I mean the celebrated Aleyfius, Count Marfilli, whose works have gained him such an extensive reputation, who says, that Hungary is the only country where silver is found intermixed with gold; of which our miners know the contrary\*.

### S E C T. III.

As to the northern silver-mines, which are unquestionably one of the greatest distinctions of this country, I must premise, that exclusive of those at present in work, namely, Kongsberg and Jarlsberg, some were found formerly, and more of late, but have not been rightly searched, or the working of them has been discon-

habet materiam, quæ quartzum metallurgis appellatur, altera pyritis speciem, quæ kies vulgo dicitur, A. 1644, rei metallicæ in Norvegiæ præfectus mineram quoque auri in tractu Necedensi (this must be Nedeneceusi) prope portam Arndalenfem invenit nigram et talcosam referente Wormio. Here I add, from good information, that some years since, persons skilled in mining, were by his majesty's order sent to Finmark to examine into the truth of a report, that the river, otherwise famous for its salmon-fishery, had a kind of gold-sand at its bottom like the Niger in Africa; but it was found to be a mistake, this supposed gold being only particles of sulphur, of a good lustre, but of no value. But about two years ago, a considerable quantity of little bits of gold were found near the district of Salten, in Nordland, among a heap of stones near Konsvüg, formerly the palace of a petty prince; this having been magnified by report, orders were given for further search, but these were also found not to be of the natural produce of that spot where they were found, nor of any other in this country, but had been left there, some ages since, by the inhabitants in those times; for they were little golden images, but made with a more than Gothic simplicity, unquestionably like the Simulacra aurea Bornholmensia, treated of by Jacob von Mellen, and Christopher Democritus, three such pieces are in my possession; the gold is not the best, and the figures are thin laminæ, with golden images on them, one is of about the bigness of a finger's joint, another bigger, and the third less, the first, has on the upperpart, a wheel with a ring in it.

\* Hac igitur gaudet prærogativa Hungariæ regnum, quod scilicet in tot regionibus, nempe Bohemia, Saxoniis aliisque septentrionalibus locis argentum solummodo, non vero nobili societate istius metalli (de auro sermo est) locupletatur. Secus vero in Hungaria. Danub. Panon. Myfic. Tom. II. p. 107.



tinued. Of this kind are the several old mines in upper Tellemark, long over-grown with moss and grass, but which were formerly wrought in the same manner as those of Kongsberg. They are mentioned by Baron Holberg, in his present state of Denmark and Norway, and as he is of opinion that they are of very ancient date, he expresses some surprize, that not the least mention is made of them by historians, since by their remains, they appear to have been a work of vast charge and extent, perhaps not inferior to any of the silver-works in Kongsberg. This complaint of the Baron's is the more excuseable, as at the first publication of his book, the *Annales Nic. Kraggei*, which had long lain dormant, had not yet seen the light, but there he would have seen that these deserted mines were of no longer standing than the reign of Christian III. and worked at the expence of that monarch; but the Norway-peasants raising a tumult against the Saxon miners, to whose command they would not submit, as speaking a foreign tongue, for which some were capitally punished; and likewise on account of the floods which broke out from the caverns, this work was soon deserted, at a very great loss. The words of the aforesaid *Nic. Kraggei*, concerning this affair, in his *Vita Christ. III. in Annal. ad A. 1539, p. 204*, are as follows: " *Coeptum erat superiore anno in Tilemarchia, provincia Norvegiæ, e visceribus terræ, argenti, cupri et plumbi metalla eruere, ac probata materia, Electori Saxonix aliisque ejus rei peritis, ad quem super hoc negotium aliquoties Scriptum, magna spe arcessitæ ex Misnia operæ, mandata cura et inspectio primum stigoto Baggoni, inde Antonio Bruschio, moderatore operarum Johanne Glassone, ac immunitates indultæ, prout in fodinis misnicis tum jura condita, quibus operæ regerentur. Nihilominus tamen illæ rusticis abutentes insolentius agebant. Eo magis dolebat miseris, quod præter solitum onera imponerentur, nullo emolumento: Simul quia res erat cum hominibus, quibuscum nullo linguæ commercio tam brevi familiaritas intercedere potuit, alienati magis animi. Itaque coierunt aliqui paroeciarum rustici, ut operantes aut affligerent, aut iis locis expellerent. Sed petulantia ipsorum a præsidibus, quos dixi, refrenata. Ac pauci quidam post, mandato regis, extremo supplicio affecti, reliquis alia multa irrogata, prout quisque culpæ affinis, aut à noxa immunis reperiebatur,*

tur, quum de sceleris autoribus est inquisitum. Verum, quum initia fodinarum laeta fuerint operæ pretium, diu tamen non admodum factum. Nam in paucis annis rex fatigatus sumptibus illi inexhaustis laboribus ceptum distruere. Causa ferebatur quod emanabat tantum aquæ à cavernis terræ, ut penetrari, quo neceffe esset, sine submergendi periculo non potuerit.

Afterwards, page 282, ad an. 1545, he speaks of another tumult in opposition to the oppressive violations of the liberties of the peasants on account of the mines. It is possible that the same turbulent spirit with which at that time, under the pretence of christian liberty, the peasants in Germany were animated to take arms against their superiors, in their famous rustic war, might also have spread its infection here; though nothing certain can be advanced on this head.

Formerly, likewise, a silver-mine was worked at Heddemark, which according to the account of A. Berndsen, in the year 1630, yielded a stone of fine silver, and gave hopes of opening more grooves in that country, but nothing further has been heard of it. Likewise in Eger, and Telemark, silver-ores have been found producing eight ounces and a half of pure silver per quintal. Of other conjectures and reports of silver-ore discovered in Ryefkelt, Hardanger, Sundfiord, and other northern provinces, there is no speaking positively, till they have undergone the examination of persons versed in those matters, nothing being more common here than upon a peasant's growing suddenly rich, a whisper flies about that he has found a rich ore, and conceals it for his own private profit, though this is generally no more than the suggestion of envy. That near Solein in the manor of Lavigen, on the borders of Sundfiord, there is a river in which is found the scoriæ of silver-ore, I have unquestionable information from the present minister there, Mr. Thomas Sommer, in a letter of the 16th of October, 1750. There is likewise a dubious report concerning such a river in Sundmoer, in the parish of Oerfkoug. An exhausted silver-mine in the parish of Ranen in the government of Helgeland, has also long been talked of, but this was only copper-ore, and so poor, as never to requite the charge and labour. However, at the inland extremity of this district, on the borders of Sweden, is a mine containing both silver and lead-ore, and discovered by the

Swedes

Swedes in the last century, but since, by order of the lord of Aluen, demolished by the Norwegians; not to mention, that from its situation it was difficult to be wrought. Likewise some copper-ore has been found with mixtures of silver, as that lately discovered at Odal, where, in the groove called Langaasen, every quintal of ore yields sixty or seventy pounds of copper, and four ounces of silver intermixed, but less in other parts.

But without dwelling any longer on these, I shall proceed to give an authentic account of the two rich silver-ore works, which are now carrying on, to the vast advantage of the sovereign and community; and these are the works of Kongberg and Jaresberg.

## S E C T. IV.

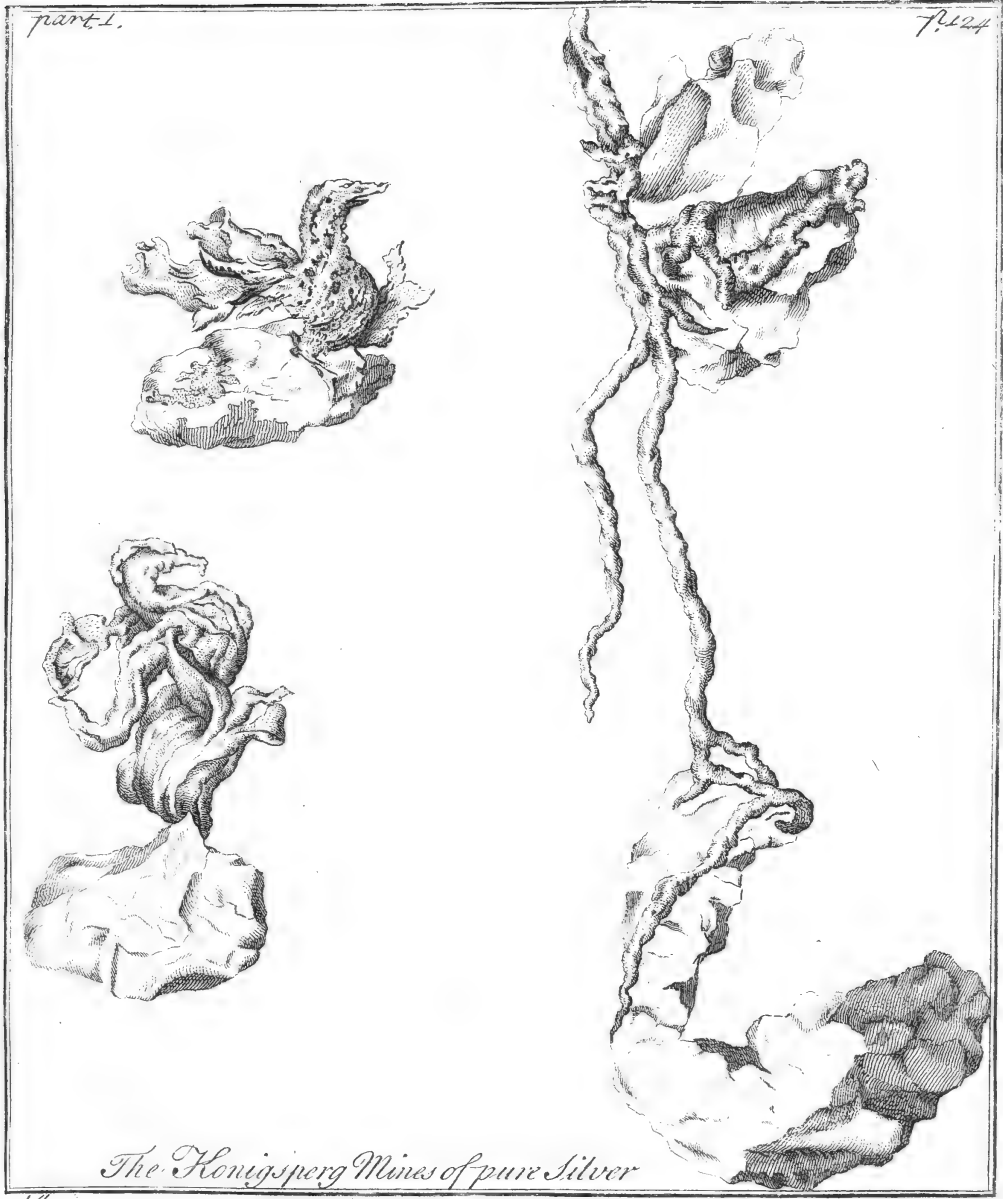
The first mine which lies near Sandswerd in Numedale, four Norway miles from Drammen, is, at present, to the best of my knowlege, the most considerable and of the greatest profit of any in Europe, and in respect of pure massy-silver veins, quite inexhaustible, whereas the German silver-ore is in a great measure invisible, and must be extracted from the lead and copper, in which it is concealed. This work began in the year 1623, and was discovered in the following manner; two peasants, by name Jacob, and Christopher Grofwaltd, attending their cattle on those steep mountains, which separate Telemark from Numedal, found the first silver-ore in some lapideous fragments fallen from the mountain, and which by way of pastime they used to throw at one another; when they heard a jingling sound! the metallic substance it yielded they imagined to be lead, and carrying it home, attempted to melt it into bullets, buttons, and the like, but their fusion not rightly succeeding, they sold their store to a goldsmith of Tonsberg, who used to sell his goods about the country. He informed the government of it, and the affair being laid before the king, orders were given for a further survey of those parts, which was attended with such success, that at a small distance from a church which then stood there, besides the rich veins of stone, a lump of pure massy silver of a pound weight was found. Hereupon Christian the fourth, was pleased to give his name to the first groove, and miners were sent for from Germany. These were the first inhabitants of the new built mine-town of Kongberg,

The present  
flourishing  
mine at  
Kongberg.

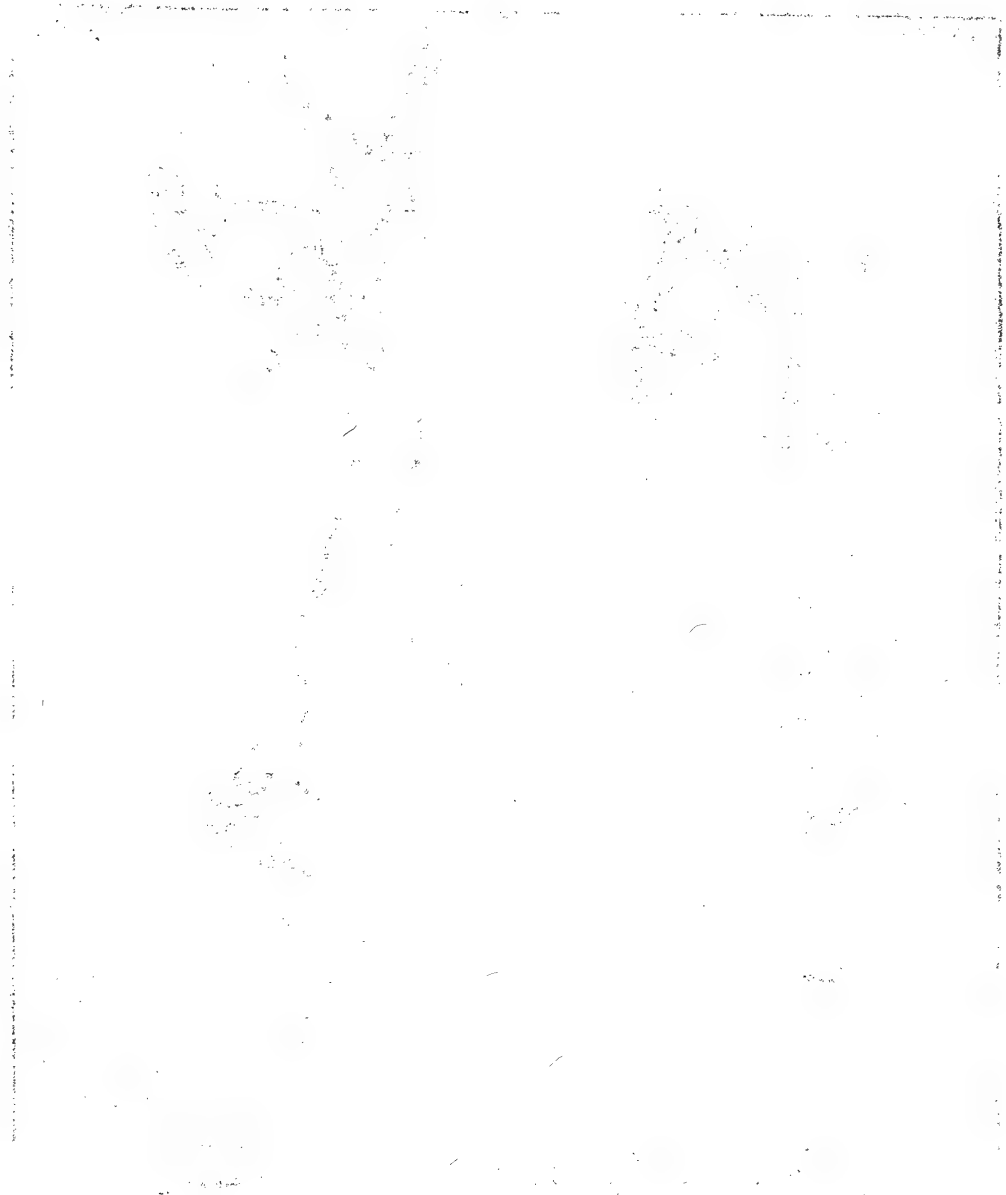
berg, and the ancestors of the many thousands at present living there, who in process of time mixing with the Norwegians, each nation to this day performs divine service in its own language; but all are under the direction and government of the college of miners. This last however, has been subject to several changes and revolutions, the work having been carried on sometimes by a company of sharers, and sometimes, as at present, by the king alone. A more particular account of these things, as it has no necessary relation to my present design, is to be found in Baron Holberg's present state of Denmark and Norway; and instead thereof, I shall subjoin some physical remarks communicated to me, at my desire, by persons of unexceptionable knowledge and judgment.

The first method used for the discovery of the mines, was by the motion of the *virgula divinatoria*, when it was perpendicular over the ore; but this was soon laid aside, as sometimes misleading the searchers, and occasioning a fruitless labour. They then followed the way discovered by the springing of the rocks, which was naturally pointed out by the strata of the mountains, and the streaks of the veins. A remarkable particular here, is, that whereas in Germany, and Bohemia, the ore-streaks run north and south, here in Norway their direction is east and west, except in that of Gottsgave, which departs from this rule, and takes the course of the foreign mines. Though some are of a different opinion herein, and affirm, that the finest veins of ore here are without any order or regularity, so that they cannot properly be said to be of any certain direction. The Kongsberg-ore is likewise different from the foreign in largeness, formation, and solidity, for whereas the silver mines in other parts contain some, though but a little silver, and that loose and dispersed, the northern mines, as has been said, produce massy lumps or veins, or streaks. In these we frequently meet with very curious *lusus naturæ*, as they are called, of several figures; a piece of that of Kongsberg, which was in my possession, but is now in the royal museum, has some likeness to a ship with masts and sails; and another which I still have, with the help of a little imagination, represents a cock, or some such fowl. These solid lumps of silver, which are so far unknown in other parts, that foreigners will believe no such

Veins of  
solid silver.  
See Plate 16.



*The Honigsberg Mines of pure Silver*



such thing without ocular proof \*, being soon interrupted and dwindling to nothing, the miner must continue to dig through the barren rock, till he has the good fortune to find more, which in one day will reward the labour of a whole month, or even of some years, so that hope may be said to be the spirit of this work, through so many interstices, by which the workman must not be discouraged, but persevere in his search in a full persuasion, that ore leads to ore. Were it not for these barren interstices all the silver-works in Europe together could not come in competition with that of Kongsberg, the immense riches of which may be inferred from this, that after the discouragements of a long, fruitless labour, it suddenly exhibits several thousand pound weight of silver, and thus discharges all arrears and embarrassments, and animates to further prosecution. The labour therefore is never in vain, not even, when it most appears so, for some thousands of hands, who are employed therein, and of whom a list shall be given in the sequel, always earn their daily support. If this were all the profit, which however is very far from being the case, yet it would not be inconsiderable, for the acquisition of the silver by which so many families are maintained, and which thus circulates all over the country, must be esteemed a great emolument to the public. In proof of the large and rich masses of silver contained in the mines of Norway, I shall only observe, that in the royal museum at Copenhagen, a piece is preserved, which the whole world cannot produce an equal, its weight being five hundred and sixty pound, and its value five thousand six dollars †. Be-

\* Non in omnibus argenti fodinis hoc invenitur, adeo ut, an tale detur, dubitasse videatur Plinius alique veteres. Non occurrit in Rhetia, Norico, Dacia, sed in quibusdam Misensæ fodinis, licet non in omnibus, et in Norvegia in Regio monte frequentissime et in magna copia, ut ex inde massæ quandoque excindantur pondere aliquot centenarum librarum, Ol. Worm. Museum, p. 115.

† Of this mass of Norway-silver, Olig. Jacobeus in his Museum Regium, page 31, gives the following description, Minera ingens argenti ex fodinis Norvegiæ, pedum quinque et pollicum sex longitudinem æquat, crassitiem vero in circumferentia pedum quatuor. Anno 1666. d. 24. Augusti ex fodina Norv. Regiomontana, quæ novæ spei appellatur vulgo, nye Forhaabnings Grube, extracta est 560 librarum pondere, et à præfecto fodinæ memoratæ, pretio 5000 imperialium estimata. Huic non dissimilis massa, anno 1630, regnante in Dania divo Christiano quarto ex fodina Norvegica quæ benedictio divina vulgo, Seegen Gottes appellatur, eruta est, quæ 3272. Imperialium pretio estimata; to which I shall add, that in the year 1719, in the shaft called Saint Andrew, was found a piece of pure silver of two hundred and seventy nine pound, as was in the year 1727, one of two hundred and forty-five pounds, in the mine called Prince Royal, and in the same year another weighing three hundred and four pounds was found in the God's-blessing shaft, these foreign miners who have come into these parts, made a difficulty of believing it, till their own eyes convinced them of the truth.

fides the eighteen oldest grooves, the names whereof are specified by Arnd. Berndsen, more are opened from time to time, but I shall here only set down those which are worked in the present year 1751, which are the following.

List of the  
shafts at pre-  
sent worked.

In the first Revier.

A shaft near Aschebeck.  
A shaft near old Stadsmyhr.  
Bratte shaft.  
God's Gift, a mine.  
A shaft near Justice-dale.  
Poors mine.  
Christian the fourth's mine.  
God bless king Frederic, a mine.  
God's help in distress, a mine.  
Keller, a mine.  
Else, a mine.  
Saxony, a mine.

In the second Revier.

King Frederic the fifth's mine.  
Shaft near the above mine.  
Prince Royal's mine.  
Brunswick mine.  
Juel's mine.  
Old God's blessing, a mine.  
Sophia Magdalena's mine.  
Prince Christian's mine.  
Frederic the fourth's mine.

In the third Revier.

Samuel's mine.  
Sophia Hedewig's mine.  
First shaft at Samuel's mine.  
The silver track.  
Second shaft on Samuel's mine.  
First holy Trinity mine.



Second holy Trinity mine.  
 Duke Ulric's mine.  
 Old duke Ulric's mine.  
 Johannes, a mine.  
 First Concordia mine.  
 Second Concordia mine.  
 Glory to God alone, a mine.  
 The Salutation mine.  
 The Lady Christiana mine.  
 First Solomon's mine.  
 Leadstreak mine.  
 Gravel-mine, at Eger.

In the Fourth Revier.

Christian the Sixth's mine.  
 Queen Sophia Magdalena's mine.  
 A shaft near it.  
 A shaft near Lucky-mine.  
 Princess Louisa's mine.  
 Ulrica's mine.  
 A shaft near it.  
 Mitlere's Winchren.  
 The new God's blessing, a mine.  
 N<sup>o</sup> 2. ditto. N<sup>o</sup> 4, 5, and 9, ditto.  
 Ramberg shaft.  
 Shaft near old Anna Sophia.

Of these mines, the best at present are the following :

God's help in distress.  
 Samuel's mine.  
 Old God's blessing.

These have for many years past yielded great quantities of metal, but there are among the rest many valuable mines, tho' not so constant in their breakings as these. In the fourth Revier, seven or eight years ago, the mines of Christian VI. and princess Louisa, have yielded very fine silver; but these, as of most of the mines in the fourth, the richness of their breaches has diminished

in the progress of the working; yet they are carried on with the usual diligence, in hopes of their proving better.

The deepest  
mines.

It has been found that the silver-ore is not, as was at first imagined, limited to this single mountain, which lies between the river Jordal and Kongsberg; but extends its veins for some miles throughout the adjacent districts, which is proved by the new mines which are from time to time undertaken in several places, and most of them, by the blessing of Providence carried on, very prosperously. Old God's blessing, one of the most ancient and rich among all the mines, which, sometimes, within a week, has yielded some hundreds of pounds of rich ore, never fails to strike the beholder with its astonishing depth, being no less than one hundred and eighty perpendicular fathoms, and the circumference at the bottom forms a clear of some hundred fathoms. The sight of so many piles of wood burning on all sides, thirty or forty in number, in this gloomy cavern, and continually fed in order to mollify the stone, in the prosecution of the mine, seems, according to the common idea, an image of hell, and the swarms of miners bustling about in habits according to their several occupations, may well pass for so many devils, especially, when as a signal that a mine is going to be sprung in this or that course, they roar out, Berg-livet! Berg-livet! Take care of your lives! I shall here briefly repeat the words of a gentleman well skilled in mining, Mr. Eman Suedenborg, in the preface of his book called *Regnum Subterraneum*, where he says of these Kongsberg silver-mines, which are visited by the travelling German-miners, as a lycæum in their science, to which Europe has not an equal; "Quid Norvegiæ in fodinis Kongsbergensibus, ubi jam per seculum vix nisi argentum nativum et semel iterumque etiam aurum, tanquam auræ melioris progenies, in lucem et diem gelidissimum plenissimo sæpe cornu prodierat, cujus annuum proventum ab anno 1711, ad 1724. sistere volupe est, ut inde miranda naturæ phænomena in regno subterraneo existentia luculentius contemplari liceat. Ex illis fodinis ductæ sunt argenti multam partem nativi.

Anno

Anno	Libræ			Thal.	Imper.
1711,	15483	12 fem.	inpretio	172144	56
1712,	15490	10 fem.	3 gr.	174157	
1713,	12630	14 fem.	3 gr.	141246	87
1714,	12689	15 fem.	1 gr.	148316	45 $\frac{5}{8}$
1715,	9034	10 fem.	2 gr.	108154	73
1716,	12744	11 fem.	3 gr.	154194	69 $\frac{3}{4}$
1717,	21793	2 fem.	3 gr.	276428	65
1718,	19685	6 fem.		257149	19 $\frac{3}{4}$
1719,	14824			193948	65 $\frac{1}{2}$
1720,	12760	15 fem.	3 gr.	168992	42 $\frac{3}{4}$
1721,	13671	10 fem.	3 gr.	178181	3 $\frac{3}{4}$
1722,	16884	2 fem.		222285	32 $\frac{1}{4}$
1723,	16722	8 fem.	3 gr.	210273	7 $\frac{5}{8}$
1724,	14384	10 fem.	4 gr.	186796	5 $\frac{1}{4}$

A comparison of these several sums shews the annual produce of these works to amount to a tun of gold and a half, and sometimes three quarters\*; and the Almighty has in a signal manner been pleased, for some years past, to prosper these silver-works, since they came under the prudent management of Mr. Stuckenbruch, who by his penetrating genius, has greatly improved them by several mechanical inventions, which, likewise to the honour and advantage of the country, have invited great numbers of curious foreigners, who with admiration here behold wonders, both in nature and art, such as probably no other country can parallel.

The number of the officers of all ranks, the daily miners, labourers, and pensioners, exclusive of their children and families, who have their daily support here, according to the establishment, amount to near five thousand persons.

In the mine of Kongsberg, the following are actually in constant work :

	Men.
In the first Revier	650
In the second	600
In the third	980

\* From the Vienna article in the news of June 18, 1751, it appears, that, all the silver and gold mine-works, in the Imperial hereditary States, are not equal to the single mine-works of Kongsberg, the words are these: " Since the commencement of the reign of the empress queen, or from the year 1741 to 1751, 1,398,364 guilders have been coined at her Imperial majesty's mints of gold and silver, produced by the mines in the Austrian hereditary dominions.

NATURAL HISTORY of *NORWAY*.

	Men.
In the fourth	900
Sawyers	60
In the founderies	40
In the mint	16
Carpenters	80
In the spring foreign peasants are taken into work for wood and coal; and in winter, when day-labour ceases, an hundred men are employed in mining, besides sixteen men kept in constant pay for repairing the flat-boats, and the like, amounting to	116
In the summer, the day-labour commences in June, and continues till the close of November, when the men employed are at least	200
Disabled and sick, receiving pensions from the mine-chest	300
Miners widows, likewise pensioners	500
Officers widows	30
Officers on pension	20
Officers actually in service	50
Issuers	40
Total	4582

The number of all the inhabitants of the town of Kongsberg, amounts to betwixt ten and eleven thousand souls.

The principal officers are the following:

The governor of the mine.

The comptroller of the mine.

Three assistants.

A secretary.

A superintendant.

A clerk of the mine.

An officer to fix the boundaries.

Four jurats.

Four head-refiners.

Two purveyors.

- A clerk of the huts.
- A master of the huts.
- An assay-master.
- A master of the mint.
- An engraver.
- A keeper of the laws.
- A chief forester.
- Three under foresters.
- A forest-clerk.
- A physician and furgeon.

## S E C T. V.

The other Norway silver-mine was discovered in the year 1726, and begun by the families of Hufmann and Cicignon, and afterwards, in the year 1734, devolved to count Wedel. It lies near Bragnas, and for wood, water, and other necessaries, is very conveniently situated; and its ore likewise is very rich, but without such solid veins or masses of pure silver as those at Kongsberg, the ore, like that of the German-mines, having a large mixture of lead and copper, which, in the phrase of the miners, must be *made good*, and separated by fusion. This operation has hitherto been inexpressibly difficult and laborious, and the prosecution of the work has been greatly obstructed by the tedious labour, and excessive charges occasioned by the hardness of the metal, or rather by the adhesion of the metal, and its intimate conjunction with the stone. Whether this arises from a large mixture of arsenic and antimony, or from what other cause, has been a controverted point, and I must refer the decision to better judges. The hand-stones which I have of this, contain, as I have said, copper, iron, and lead, intermixed with the silver, yet the silver in such abundance, that when experience shall have improved the present method of fusion and separation, and this mine comes to be wrought with more skill and attention, I am of opinion it will prove no less profitable than that of Kongsberg itself. In the mean time the silver and lead found here, is sold to the royal mint at Kongsberg at a settled rate. The names of the mines hitherto found, and now wrought at the depth of forty-five fathoms, are upwards of twelve in number. In copper-mines this kingdom has likewise been providentially and remarkably distinguished, especially in the

The Jarlsberg  
silver-works.

mountain Nordenfield, which most abounds in this metal, as Sondenfield doth in silver and iron. The excellency of our copper hath recommended it so much among foreign nations, that many shiploads of it are annually exported, tho' for the most part unwrought, which is contrary to the maxim of our neighbours the Swedes.

## S E C T. VI.

The copper-works at Roraas.

The first, and hitherto the richest copper-work in Norway, and since that of Falun in Sweden, is said to be near exhausted; possibly the richest in all Europe, is that of Roraas, twenty miles N. E. of Drontheim, and discovered in 1644, by Laurence Loffius, refiner at the mine of Quickne, and who at the expence of his father-in-law M. Andrew Olfens, superintendant of Dalerne, and in concurrence with him opened, and forwarded this great undertaking. There are some other particulars relating to this work recited in a printed sermon of Mr. Peter Abildgaard, on occasion of a jubilee celebrated on the 9th of October 1744, by the inhabitants of Roraas, which is now a considerable mine-town, in gratitude for the uninterrupted prosperity of their mine during the course of a hundred years; and it is remarkable, that in this jubilee year, a new shaft of excellent slate was discovered not far from the old mine of Storvart, which is one of the oldest and best courses. These courses of the copper-veins, agree in their direction with those of other parts, neither ascending nor declining, but like other strata, traversing the mountains horizontally, tho' thinnest towards their centre, like a lump of dough, which pressed betwixt two stones, is thinnest where the pressure lays greatest. From the nature and disposition of the parts, Mr. Daniel Tilas, in his discourse before the Swedish Royal Academy of Sciences 1742, borrows a very ingenious argument, and shews from some other correspondent instances, what I presume has been already evinced by me, to some degree of probability, in the second chapter. He likewise applies those instances to Dr. Woodward's hypothesis on the alterations of the terraqueous globe by the deluge. And this entertaining little piece not coming into my hands till after I had discussed that subject, to which it properly belongs, I shall here insert that part of it which speaks of the copper-mines now under

consideration. The passage in a free translation runs as follows: "A more than convincing proof that the mountains once were soft and fluid, is the horizontal and expanded direction of the copper-veins near Roraas in Norway, especially those in Hestefield, likewise the mines Christianus V. Myr, and Hesteklet. This mountain is of a vast breadth, and rises with a very steep acclivity, with several protuberances on it. On the south end, several courses of ore spread themselves east and west, the eastern being carried on by the mine king Christianus V. and the western by that of Hesteklet; and these two mines, in length of time, would certainly meet, so as to open a passage quite through the mountain, had it not lately been observed of the ore-courses, that the greater the height of the mountain is over them, the more they are compressed. They are already so near to each other, that the workmen in one can hear the strokes of those in the other. But the mine Christianus V. being advanced to the highest part of the mountain, the ore-course is already too narrow to be worked, and that of Hestekler is also gradually approaching to the like contraction; a circumstance which has heretofore shewn itself on all the mines, that, on coming under an eminence, the ore-course beneath has been compressed, &c. Besides, the body of the mountain itself, under these eminences, shews itself to be much more compressed, and, vice versa. I see no other cause to which this can be imputed, than to the primordial fluidity of this substance, and the subsequent compression increasing from the weight of the superjacent strata." So far Mr. Tilas, wherein he seems to predict to posterity a want of ore in these parts; but they who are thoroughly acquainted with the affair, are of opinion that the country near Roraas contains a store for many generations, and that a want of fuel is more to be apprehended, the neighbouring woods being already consumed, which occasions the coal to be brought from some distance; and consequently raises their price. This should incite those, of whom it is the more immediate concern, to promote the growth of young woods, and to restrain the keeping of goats, which do so much damage among the saplings; for how many thousand last of coal, beside stacks of wood, this copper-work requires, may in some measure be conceived only from this circumstance, that only the calcination  
of

of the ore requires a fresh fire, six, seven or eight times. That there are in this place, which not very long since was a wild desert, great numbers who now earn a comfortable subsistence, is observed by M. Peter Abildgaard, in his before-mentioned Jubilee sermon, where he says, "It is not much above a hundred years since the only inhabitants of these parts consisted of seven or eight families, making about thirty or forty persons, and these led a savage life, and derived all their support from hunting; whereas, now, the number of this congregation exceeds two thousand, exclusive of the neighbouring, which contain many more; and all subsist by the working of the mine."

To the Roraas copper-work belong several founderies, which for the conveniency of a ready supply of wood are built at a distance from each other, and in places, to which in winter, when the morasses and rivers are frozen, the ore may be conveniently carried. Particularly at one place called Tolgen, four miles from Roraas, are three founderies, and of the copper for some years melted in them, I shall here set down an account taken from Mr. Schwedenborg.

Regnum sub-  
terraneum,  
p. 124.

Year.	Ship pounds of pure copper.	
1698	-	700
1700	-	1140
1702	-	975
1704	-	1510
1706	-	1467
1708	-	1460
1712	-	1353
1718	-	933
1722	-	1087
1723	-	1102
1724	-	1128

These founderies annually consume betwixt 12 and 15000 lafts of coals, and 5 or 600 fathoms of wood.

#### S E C T. VII.

Next to Roraas is the medal or lykken copper-work, four Norway miles and a half from Drontheim. It is said to have been discovered in 1654. Its founderies lie near Svarkmæ, and Grud-

The medal,  
or Lykken  
copper-work.

fetter,



fetter, and according to the same writer the produce of them has been as follows;

Year.	Svarkmæ.		Grudfetter.	
		Ship-pounds of pure copper.		Ship-pounds of pure copper.
1720	-	722	-	120
1721	-	694	-	261
1722	-	566	-	263
1723	-	478	-	210
1724	-	401	-	215

S E C T. VIII.

The Indfet or Quickne copper-work lies ten Norway miles from Drontheim, and though discovered in 1635, was not wrought to any great effect till 1707. Its ore is of easier fusion than the former, and has less stone in it, but on that account is the more saturated with sulphureous particles. A quintal of the ore yields 12 ship-pounds of copper, which require a 100 lasts of coal, and its annual produce is betwixt 3 and 400 ship-pounds of metal. The former director, M. Brostrup Fax, found out a method here, by precipitation, to transmute iron into copper; the process of which is thus: Near the caverns lie heaps of marcasites and scoriæ, through which water is made to run into little channels filled with bits of iron laid lengthways one below the other. This vitriolic-water carries with it the copper sediment, and sometimes copper itself, and permeates through the iron till at length it becomes copper. I have a specimen of this transmutation, though so far imperfect, that the internal part is still iron, and the surface on all sides copper. Half a year is the term of a complete transmutation; but it must be carefully attended, particularly with respect to the time, for if it should lie a few days beyond the regular period, it would be spoiled by the dross and metal intermixing. The iron suffers a diminution in its weight, but this is compensated in the profits of the transmutation. I remember Count Marfilli, in his before-cited work, mentions a practice of this nature at one of the copper-works in Hungary, where the vitriolic-water, running from channel to channel, produces a like effect, and has illustrated his account of it with a copper-plate.

The Indfet,  
or Quickne  
copper-work.

## S E C T. IX.

The Selboe  
copper-mine.

The Selboe copper-work lies six Norway miles eastward from Drontheim, and was discovered in the year 1712. The ore at first had a greater mixture of stone and sulphur than at present, for it is now arrived to greater purity. It is carried, the distance of three Norway miles, to Mollenaar, where three foundaries are erected. Seven ship-pounds and a half of pure copper are extracted from a hundred tun of ore. Which, of the before-mentioned copper-works, the curious M. de la Martimire took a view of, I know not, and much less with what truth he could mention a silver-mine within two Norway miles of it; this indeed, throws a suspicion upon his whole narrative. However, I shall here insert it from Happel's translation in *Mundo mirabili*.

Tom. III.  
L. XIX. c. 2.

“ Upon our arrival at Drontheim, we waited on the superintendent-general of the mines, to deliver him our letters, and desired that our corn might be unloaded with all convenient dispatch; but his answer was, that all his inferior officers being at the mines he must send a messenger thither, before our business could be transacted. Upon this I desired our captain's leave to go along with the messenger, which being readily granted, we set out early the next morning on horseback, and came to Steckby, a large town six Norway miles from Drontheim, where we thought it advisable to spend that night, which was coming on so early as about three o'clock, for we were to pass through a large wood, infested by wolves, bears, and linxes, which being very ravenous, made it more dangerous to travel in the dark. We were mounted by break of day to continue our journey to the mine, and about dusk reached the founderies, where, according to the custom of the country, we were liberally entertained with great plenty of beer, brandy, and tobacco. It was my good fortune here to meet with an officer, who having attended a Norway nobleman in his travels, spoke very good French. I told him, that a curiosity of seeing the mines had brought me thither, and that I should take it very kindly, if he would be pleased to assist me in it, which he promised I might depend on the very next day, and after cementing our acquaintance with a hearty carouzal, we betook ourselves to bed. The messenger who left

me and returned to Drontheim, having recommended me to one of the mine officers, who the next day proposed to carry me with him to the mine. My first business the next morning was to go to my new acquaintance, who had prepared a good breakfast both for himself and me, and the officer, my guide, whom, during our repast, he desired to shew me the several parts of the works. Accordingly we left the foundery, which stands upon a high mountain near the entrance of the mine-works, and on the top of which is a crane, worked by two men, each in a wheel. These draw up from the mine large masses, sometimes of ore, sometimes of earth, as the free-stone, and potter's clay is drawn up at Paris. The officer and I having seated ourselves in a wooden vessel, compacted with iron and cords, were let down into the shaft, to the depth of fifty fathoms. Upon reaching the bottom, I could not forbear imagining myself in a kind of hell, nothing appearing but dismal dark caverns, large fires, and the workmen looking like devils, all in black leathern coats, and leathern caps, like those our clergy wear in winter, sloping towards the lower part, and widening upwards to fasten over the nose to keep out the smook, with aprons of the same. The work in these mines is various, some breaking the ore, others busy with their instruments in seeking for copper-veins or water-courses, which sometimes suddenly break out, as not long since was the case, and with so much violence, that without the greatest activity in stopping it, the whole mine had been under water. The officer who had accompanied me in this descent, observing me to be seized with shivering, rung a bell as a signal to draw us up again, which was done in as short time as we had been let down. We then returned to the foundery, where my generous interpreter had provided a good dinner ready for us, and after a cheerful meal, he, the officer, and myself, set out on horseback to take a view of the silver-mine works, at two miles distance from thence. Upon our arrival there, we went up to the chief overseer's house, who very jovially bid us welcome in a glass of brandy, which he afterwards filled round, and this was succeeded by tobacco and beer in plenty. After this regale he conducted us to the foundery, which was about a quarter of a mile from his house, and nearly of the same construction as a copper-foundery. Here the workmen were all busy in various employ-

employments, some separating, some washing, some melting, some refining, and some forging; all for the king's use. From the founderies we went to the mine works, which were in an opposite mountain, the officer and I went down; but I found no manner of difference betwixt this and the former, the shaft, fire, and garb, the method and time of working were entirely the same; as to the latter, it was three hours before noon, and three hours after, but in summer four. In their leisure they are full of mirth, dancing to a lyre of their mode, and other instruments, I had the pleasure at the copper-foundery to be a spectator of one of their revels. In the winter all work stands still, but they receive their daily pay of five Danish shillings as in summer when at work."

The importance of this copper-work may in some measure be conceived from hence, that besides the many millions which for these hundred years past have accrued from them to private persons, the tenths alone being an annual revenue to the crown of thirty or forty thousand rixdollars, and on the last Swedish invasion, a draught of five thousand effective men was made out of the workmen in these mines.

## S E C T. X.

Fandal  
copper-work.

Last year a copper-work was opened at Fandal in Gulbrandsdale below Dofrefield, and which the proprietors have a prospect of turning to very good account, but as I have no particular information of it, I shall pass it over with saying, that the name of the main groove is Frederic's gift.

## S E C T. XI.

The copper-  
work of  
Aardale.

The copper-mine of Aardale, in the district of Sundfiord, in the diocese of Bergen, being discovered at the beginning of this century, has been wrought first by private persons, and afterwards on the king's account, the ore being esteemed very fine and good, and not without some mixture of gold; which induced king Frederic the fourth, to purchase the mine for thirty thousand rixdollars; but afterwards, by the variation of the ore and other accidents, it has been for a long time suspended; however, pursuant to a proposal laid before the revenue-chamber, it is soon to be set on foot again.

About thirty years ago a society undertook the working of a copper-mine found on the island of Smolen, not far from the lesser Fosen, now called Christianfand, but dissensions, and other causes have put a stop to it. On the island of Smolen.

On the other hand, in the year 1741, a society undertook a copper-mine at Oedal, nine Norway-miles from Christiania, which turns out to their great advantage, every quintal of ore yielding, besides some silver, sixty or seventy pound of copper. Oedal.

## S E C T. XII.

Iron, which Pliny justly calls, optimum vitæ pessimumque instrumentum, abounds all over Norway, but chiefly in the diocese of Christianfand, where the spiritus vegetativus, seems to have impregnated \*, all kinds of earth, according to the frequent observations made from chymical analyses of water, stone, and moorish earth. Dr. Nichols, in a letter of his, says, that, among all the several substances of which our earth is composed, none is more generally found than iron, this metal being resident not only in all kind of stones, but also in loam. This he proves by the colours of loam, and the iron marcasite; by the facility of vitrifying loam, and by the similitude between vitrified loam, and the iron lamellæ, by the dark red colour, which loam acquires by calcination, and lastly, by this, that when burnt with a mixture of Of iron in general.

Philosophical transactions, Vol. xxxv. N. 402.

\* Concerning the vegetation of all metals by means of a vitriolic spirit, which, according to the Creator's disposition, emanates in vapours from the center of the earth to its utmost extremities, and particularly resides in the mountains for the gradual growth of new metals, a great deal has been written by those who believe such a vegetation, though, by what I can see, experience is not on their side; no miner saying, that he has ever observed any appearance of new metal to have grown in mines after being exhausted an hundred years or more: But a more decisive confutation of it is, what I have mentioned concerning the ore-drifts, the copper-mines at Roraas, in the same large flat strata, as at the creation, or at the deluge. However, as matter of further reflection for those who may be of another opinion, I shall here add, what the very eminent Count Marfilli writes on this subject, the rather, as from the price of it, his work is not in every body's hands, in Danub. Panon; Tom. 112. p. 117. he says, "Metalli hujus (ferri) ex primo illo, juxta nostram hypothesein reliquis etiam nobilioribus metallis communi principio, seu spiritu metallico deducendo videtur, sub vario tamen respectu seu gradu maturitatis, juxta majorem minoremve matricum ac succorum ibi occurrentium aptitudinem. And further, p. 129. Attentis observationibus, quas hactenus recensuimus, visum nobis est, posse probabiliter statui, communem quendam halitum metallicum seu spiritum ex penitioribus terræ (veluti semen ibi lege conditoris reconditum) ad superficiem usque elevari, tamque montium partes pervadere, quam ipsas planities, verum tamen congruam ipsius fixationem potius in montibus fieri, ratione peculiaris structuræ lapideæ ac secretionis succorum ibi concurrentium ad differentiam structuræ ac porositatis terræ componentis planities.

oil, it becomes pure iron. It is certain, however, that iron is not universally of equal goodness, or equally malleable, and on account of its extreme hardness requires an immense quantity of wood, and tho' not inferior in real value cannot be attended at so low a price as in Sweden: the lower class of people there are under a necessity of working for small wages, and a poor peasant, often undertakes a little foundery of his own, being sure of a quick vent; whereas in Norway, all the iron-ore in general is wrought at a great expence, and the several branches of it require a very opulent proprietor, or even a society of proprietors. Out of the moor-iron, which is found in large lumps among the morasses, the peasant himself makes his domestic tools and utensils \*. However next to the timber, iron is one of the most profitable products of Norway, several hundred thousand quintals being annually exported, partly, and chiefly in bars, partly in cast iron, as stoves, cannon, pots, kettles, and the like; the national profit of which is estimated at three or four hundred thousand rixdollars: These iron works are the following.

## S E C T. XIII.

List of the  
iron-works.

Bareboe, likewise called Baafelands-works, lies two Norway-miles from Arendal; this is one of the oldest, and still in a good condition.

Barums-work, like the former, and close to it. Its ore is by Mr. Swedenborg accounted the best in Norway.

In Regn.  
subter.  
p. 169.

Bolvig's-work, not far from skeen.

Dikkemarks-work near that of Barum, is at present discontinued.

Edsvolds-work in Over-rommerige, its founderies and machines are to be seen in the above-mentioned place, of Mr. Swedenborg's work, page 165.

Egelands-work in the parish of Gierstadt, is but a little undertaking.

Eidsfos-work in the county of Jarlsberg.

Fossam-work near skeen, is one of the best, and famous for the great number of cannon cast there.

\* In the parish of Vinia in Waas, is a kind of moor-iron, as hard as steel, of which the peasants make excellent axes, scythes, knives, and the like.

Hakkedals-work in Hadeland, four Norway miles from Christiania.

Kongfberg-work has for some time been intermitted on account of saving the coals for the silver-mines.

Laurwigens-work belonging to the county of that name, is the largest and of the greatest produce throughout the whole country.

Lessæ in Gulbrandfdale below Dofrefield, was opened a second time in 1710, Mr. Swedenborg describes it in pag. 168.

Mossæ-work near the town of Mofs.

Nefs-work not far from Laurvigen, and belonging to the same proprietor.

Oudals-work in the district of Solfer; the ore of this is poor.

Vald near Kragerø.

Ulefos, likewise called Haldens-work, one Norway-mile and a half from Skeen. A particular circumstance of this work is, that the iron-mines run under a lake, so that for a quarter of a mile, the roof of the mines has a deep water over it, the motion of which may be plainly heard within the mine.

It remains to be observed, that iron was the first metal wrought in this country, and many hundred years before the working of the more precious metals was thought of, and by all accounts the oldest works are those of Eilefield near Saint Thomas's church, and in Lessæ and Edfwold; but the moor-iron was certainly the first discovered. Ol. Wormius says, " Tacitus refert, Gotthones coluisse ferri fodinas. Agricola eas celebrat, quæ inter segnedaliam et osterdaliã sunt, ut et in Telemarchia ad tertium à seida oppido lapidem eruuntur.

#### S E C T. XIV.

By all the intelligence I have been able to acquire, tin has not Lead-works. yet been found in this country, but in the county of Jarlsberg, lead is found mixed with the silver-ore, as I have before mentioned; this lead is said to have a hardness in it, which renders it not so fit for use in the Kongfberg founderies as could be wished; and therefore it is generally disposed of to the English. The old grooves near Christiania or Aggerhuus-castle, are said to have been worked in search of lead and copper, and not for silver-ore, as Agricola pretends.

De Metall.  
lib. ii. cap. 8.

Cragii Annal.  
p. 204.

But Mr. Arnd. Berndsen, in his book on the fruitfulness of Denmark, and Norway, page 276, relates, "that in the year 1630, copper and lead-ore were found intermixed at Tellemark; and according to Nicholas Cragius, a hundred years before, and in the same country, a like discovery was made. I have been informed by credible persons, that near Fossand-house, in the parish of Strand, besides the iron-ore, several rich veins of lead have been found. I lately had a specimen of lead-ore sent me, which, upon fusion, proved very rich and good. It came from Ryefylke, not far from Stavanger. If the vein, upon farther search, should be found large and answerable, it will be found very well worth working. The lead-ore, mixed with silver, belonging to the district of Helgeland, on the borders of Sweden, has already been mentioned.

Eger, not far from Kongberg, also affords lead-ore, and of the Jarlsberg kind; and the proprietors of the copper-work of Oudal, in the district of Soloer, have lately begun to open some lead-mines.

#### S E C T. XV.

Quicksilver.

Of the other minerals, which are commonly denied the appellation of metals, and of several kinds of fossils, used for dying and painting, some intelligent persons inform me that there are some to be found here and there in Norway, but others not at all. Great searches have been made after quicksilver, or mercury, but hitherto without success, except at one place, where it is matter of great doubt whether it was originally produced there. A few years ago, counsellor Stockfleth, found in a clod of earth near the house of Viul, as much quicksilver as would have filled a basin; but, as after a great deal of laborious digging and searching no more could be found, it occurred to some, that this mineral was not native there, it being possible that the quicksilver of several looking-glasses, destroyed in a fire some time since, and thrown thereabouts, might have run together and coalesced in this lump of earth. The conjecture of Th. Bartholin, is still more uncertain on the Gramen Offisragum, found in this country, which he supposes to be an indication of lead or quicksilver being contained in the earth where it grows.

In Actis Med.  
et Philof.  
Hafniens. ad  
A. 1673, vol.  
ii. p. 127.



## S E C T. XVI.

Sulphur is likewise to be found among our mines in great <sup>Sulphur.</sup> plenty, but it is not thought worth melting and depurating, as is done at Dylta in Sweden, the Iceland Vulcano's ejecting whole torrents of sulphur \*, which the company's ships carry to Copenhagen, in sufficient quantities to serve all the powder-mills; which is the chief demand for it.

## S E C T. XVII.

Norway affords no visible salt-mines; but near Fredericstادت is <sup>Salt.</sup> a saline spring, tho' for several reasons it is neglected. Whether this spring arises from the sea or from any subterraneous mine is not clear, though from its distance of a Norway-mile from the sea, it can hardly be supposed to derive from thence. I have already spoke of the salt, which in several places is boiled out of sea- <sup>Chap. iii.</sup> water, yet shall here add the following short account of the royal salt-work near Tonsberg, to be found in Mr. Müller's description <sup>Page 109.</sup> of Tonsberg, lately published.

In the year 1739, his majesty was pleased to order salt-works <sup>Of the salt-works near Tonsberg.</sup> to be erected in the peninsula of Valoe, a Norway-mile and a half from Tonsberg, which in the year 1742, was compleated under the direction of Mr. Van Beuft of the privy-council. It has two refining-houses, each two thousand feet in length, and divided into six reservoirs, to which the water is conveyed out of the sea by a wheel worked by horses, and running in channels

\* Among all the mountains of Norway no volcanoes have hitherto, God be praised, been known, though, from the following circumstances, some such dreadful phænomena may in the course of time break out. In Hardanger, near Diodnehouse, in the parish of Kinzerwüg, is a mountain about two hundred fathoms in height, the summit of which, as old people affirm, a little above a hundred years ago began to split and separate, though then the clift was so narrow that an active man could leap across it, but in time it gradually enlarged to nine or ten ells; upon which the owner of the houses, according to the devotion of this country, made a vow of a yearly offering to Kinzerwüg-church, since which the apperture is said to have continued as it was; but on the other hand, that part of the mountain which lies toward the south, has sunk perpendicularly, and is gradually sinking; this side, as I myself have seen, is six or eight ells lower than the other: whether this be not a symptom of a subterraneous fire, I will not take upon me positively to pronounce. The Turin article, in the public papers of August 21, 1751, informs us, that the mountain Plainjou, near Passi in Savoy, had lately burst in the like manner, with a very copious evaporation of sulphur, which diffused its smell all over the country, and occasioned the people to expect fiery eruptions, like those of mount Vesuvius.

through wears from one reservoir into another, till it has attained its proper pungency. The salt-pans, or the large kettles in which the water is boiled, yields in two or three days two and twenty tuns of salt, large measure, the tun being computed at twelve bushels, and each pan requires every time four or five fathoms of wood. But in spring, or the beginning of the summer, where, by the melting of the snows, the rivers carry a greater quantity of fresh-water into the sea, which somewhat diminishes its saltness, the boiling requires longer time, and consequently more wood. Mr. Müller accounts this salt better than that of Lunenburgal, tho' some, possibly from conceit or partiality, assert the contrary. This salt-work has a separate jurisdiction, from which, however, an appeal lies to the minery-court at Kongsberg.

It was imagined that arsenic had been found in the silver-mines of Jarlsberg, and to this, among other things, the hardness of the ore was attributed, but persons better versed in these matters, deny any such thing.

## S E C T. XVIII.

*Vitriol.* Vitriol, the inseparable concomitant of copper and iron, might be had here in great plenty if the preparation of it could be brought to turn to good account. The Norway-company, some years ago, begun to establish, near Kongsberg, a vitriol-work, which they called the Loft-Sons; but that, antecedently to this, there had been vitriol-works in Norway, appears from the following words of Ol. Wormius: "In Norvegia simile vitriolum elaboratur arte, magis ad cæruleum quam ad viridem tendens colorem, verum non in massis, sed in granulis asperis et inæqualibus prostat. Viribus et facultatibus nulli cedit." The English prepare their vitriol from a kind of yellow-veined pyrites, which, after being exposed three months to the open air, becomes fit for yielding vitriol. It is hardly a question, whether the like might not also be done here?

*In Mus. cap.  
x. p. 25.*

## S E C T. XIX.

*Allum.* Allum, which has so near an affinity with the former, and contains it, is found in great plenty under Egeberg, near Christiania, betwixt the slate-flakes, and works have also been set up there, which yield plenty of vitriol as well as Allum; but the latter is  
not

not easily separated from its sediment, so as to be brought to a proper transparency, and on this account is so much the cheaper\*. However, this sediment makes a fine brown dye, like the well-known English oker, and some spots of this kind are found in Morasses; this, when carefully taken up, so as to be clear of sand, is found fit for painters. I myself accidentally alighted upon such a kind of brown oker in the parish of Sund in these parts; and the island of Carmen is also said to produce the like; but in the parish of Quælfjorden in Nordland, it is sold at a rix-dollar the tun, and used for painting houses. Ol. Wormius, in his Mus. cap. III. p. 4. makes some mention of two kinds of red earth in Ferro, which are of use in painting.

## S E C T. XX.

Cinnabar, or Minium-nativum, by all that I can learn, has not yet been found here, but several places produce very good okra, or oker, which belongs to the iron species, or is a kind of iron-rust. The samples in my possession are of Sulen on Sundmoer, Qualœ in Ryefylke, and from Gedderen. Out of the gates of Christiania, near the place of execution, a vein of very good oker runs along the side of the declivity of the mountain.

## S E C T. XXI.

It may be presumed from the copper-mines, that by a diligent search, rightly directed, a blue colour, like the ultramarine, or some such, might be found, but the country near Wardehuus in Finland, on the borders of Russia, produces a fossil of a fine sky-colour, of which a gentleman lately brought a specimen, by which it appears very well to deserve a further inspection, the connoisseurs being unanimous in their high estimation of it.

Near the before-mentioned house of Viul in Ringerige, is found a very black shining fine loam, and so fine that it follows the pencil with the smoothness of soap, and may be stiled the Norway Indian-ink †. Near Stavenger, as also at a greater distance from

\* In some places urine is made use of for precipitating the sediment, which hinders the allum from attaining its genuine clearness: whether this process has been introduced here I know not.

† I have been lately informed by Mr. Gabr. Heibeg, superintendant at Nordfjord, and pastor at Gloppen, that near the houses of Ryg and Eide, if not in other places, a kind

from the town, is dug a kind of black colour, which, in appearance, nearly resembles dried coals, and by some has been introduced for painting.

A fragrant  
white loam.

Near Aalgaard in the parish of Giesdal, in the above-mentioned province, in the bottom of a little fresh spring, is found a kind of white loam, like *Terra-figillata*, and also very ductile; but the most remarkable property is, its agreeable smell like that of musk.

Terra anti-  
scurbutica.

In the *Epistolæ Ol. Wormii*, particularly in the second part 717, in a letter to T. Bartholin, mention is made of a kind of mineral-earth beneficial against the scurvey, and found near Bergen; but the particular place is not specified, and all of whom I have enquired know nothing of it; which shews the utility of placing in a permanent and conspicuous light what minute discoveries are gradually made in any part of natural philosophy. The words of this learned person, in that place, are these: “*Terra illa anti-scurbutica, cujus mentionem facit catalogus, prope Bergas in Norvegia reperitur; eam mihi attulit Fabricius Medicus Regius, qui ait, ejus civitatis---Poliatrum, non sine successu ad sudores in scorbuto movendos ea uti, drachma una in aqua appropriata: cum effoditur, impura valde est, radiculis et sabulo repleta: munda lentorem et pinguedinem nullam habet, sed formam pulveris refert, colore Turpethi-mineralis, ex mercurio confecti.*”

a kind of black earth is found, of which the peasants make a very good dye for their stuffs, which shews that it is likewise proper for painting, and might be used instead of lamp-black.

*End of the FIRST PART.*

THE  
NATURAL HISTORY  
OF  
NORWAY:

CONTAINING

A particular and accurate Account of the Temperature of the Air, the different Soils, Waters, Vegetables, Metals, Minerals, Stones, Beasts, Birds, and Fishes; together with the Dispositions, Customs, and Manner of Living of the Inhabitants: Intersperfed with Phyfiological Notes from eminent Writers, and Tranfactions of Academies.

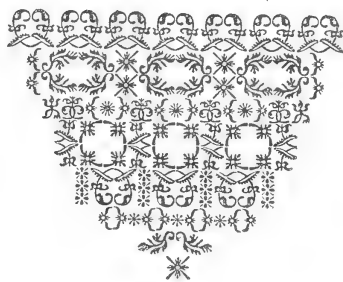
PART II.

Translated from the DANISH ORIGINAL of the

Right Rev<sup>d</sup>. ERICH PONTOPPIDAN,  
Bifhop of BERGEN in NORWAY, and Member of the Royal Academy  
of Sciences at COPENHAGEN.

Illustrated with COPPER PLATES, and a General Map of NORWAY.

---



L O N D O N:

Printed for A. LINDE, Bookfeller to her ROYAL HIGHNESS the Princefs Dowager  
of WALES, in Catherine-Street in the Strand.

M.DCC.LV.



---

---

# The AUTHOR'S PREFACE.

## T O T H E S E C O N D P A R T.

**L** A S T year, when I published the First Part of the Natural History of Norway \*, concerning the climate, the air, and the inanimate and vegetative productions of that country, I purposed that the Second Part, which treats of Animals, should, by all means, go along with it: but unforeseen accidents prevented my intention: particularly a dreadful fire, which consumed a great part of this city, in August, 1751. My house was in imminent danger at the same time, of being involved in this calamity, with all my manuscripts, &c. but, by the mercy of God, the conflagration did not reach so far.

This accident, which might have prevented me from ever completing this work, has made me less scrupulous in publishing this and other manuscripts, in collecting and compiling of which I had taken so much pains; tho' they might not be so accurate and correct as I could have wished.

'Tis true, the poet says,

— Nonum premantur in annum.

But it seems to me more reasonable that every member of the republick of letters should contribute, as far as lies in his power,

\* The Author published this work in two volumes Quarto; the first was printed in 1752, but the second was not committed to the press till the year following, for the reasons mentioned in the preface.

to the improvement of the world, rather than let his works lie useless, and perhaps be destroy'd at last by some sinister accident.

The First Part of this present work has had the happiness to receive the approbation of the public, even to a greater degree than I think it deserves: but whether the Second Part will meet with the same favour and indulgence, time will discover.

However, it has been my intention to render this part as instructive and entertaining as the former; and I presume it is more worthy of our notice, as the subject, namely, the animal creation, is of more importance than the inanimate and vegetative.

In the first seven chapters I have treated of Quadrupeds, Snakes, Insects, Birds, and Fishes, especially those that are peculiar to Norway. I flatter myself that those who can take a pleasure in contemplating the admirable oeconomy and contrivance of the great Creator with regard to the brute creation, will find so many glaring instances of his consummate wisdom, paternal care, and almighty power, that he will be ready to say, with the wise son of Sirach, "Great is the Lord that made it." Ecclus. viii. 5.

The eighth chapter, which treats of the Norwegian Sea-monsters, or those Animals of enormous size and uncommon form, which are sometimes seen in the ocean, may contribute as much to this good end as any of the preceding.

I have endeavoured as much as possible to avoid the imputation of being over-credulous, and, upon that account, often decline giving my opinion of some relations, the credit of which I have no reason to doubt. I mention this, because I foresee that when some readers come to read the contents of the eighth chapter, concerning the Mer-maid, the great Sea-snake, of several hundred feet long, and the Krake, whose uncommon size seems to exceed belief, they may suspect me of too much credulity. If it should so happen, I am content patiently to submit to their censure, till they have read the chapter through, and then I flatter myself that I shall have no need of an apology.

Since



Since the microscope has been brought to such a degree of perfection, that not only the minutest animals, but even those which before entirely escaped our sight, are now discovered, and become the subject of our examination; what a new scene of things is presented to our view, and how vast the extent of Nature's empire \*! Great discoveries in this way might be made in Norway. If there was but a SWAMMERDAM or a REAUMUR amongst us, provided with the best glasses, and sufficient time and opportunity.

If we turn our eyes to the other extreme, how amazingly large are some of the animal species! The largest of these are in a manner peculiar to the Northern Ocean, and the contents of the eighth chapter are so much the more remarkable, as the world has stood so long, that the most formidable and bulky of its inhabitants have been hardly known to any of the human race, excepting a few Norwegian fishermen \*.

However, those creatures are very well known to them; and if the many unquestionable witnesses, whom I have strictly examined with regard to this affair, are not to be credited, then we must set aside almost all human testimony.

If my account of these extraordinary Sea-animals should not displease the philosophers of the present age, I willingly submit my thoughts, as far as they are only my own, to their judgment; whose corrections and observations tending to the amendment of this work by a new edition, or by translations into other languages, will be always agreeable to me, and the favour will be received with gratitude.

\* What can we think of the Animalcule, which De Lisle, in the *Histoire de l'Academie Royale*, ad Ann. 1711, p. 18, says he saw through a microscope, which, in the space of a second of time, or one pulsation of the artery, advanced forwards three inches, taking 540 steps. But when we suppose that every living creature, the least as well as the greatest, is a hydraulic and pneumatic machine, composed of various parts, for various purposes, it raises our admiration of the works of the all-wise Creator still higher.

\* Veniet tempus, quo ipsa quæ nunc latent, dies extrahet, & longioris ævi diligentia. Ad inquisitionem tantorum ætas non una sufficit. Veniet tempus, quo posteri nostri tam aperta nos nescivisse mirabuntur. Seneca.

The other classes of Sea-animals, and various kinds of Fishes, might perhaps have been something more compleat in this work ; but I have compared it with more accurate and particular accounts than I have been able with certainty to give, from my own, or my correspondents experience. However, I have been very exact and careful in observing those limits ; and what extends beyond them I don't affirm for a certainty. Of Birds and Quadrupeds there are found here also such sorts, as in other European countries are little, or hardly known ; and therefore I have been more prolix in the description of them. As for the account of the rational inhabitants of Norway, I did not at first intend to touch upon it ; but, upon further consideration, I found nothing in it that was inconsistent with the plan of a Natural History. For this reason I have, in the two last chapters, collected as many particulars, as might be sufficient to give the reader some idea of the genius and qualities of the Norvegian nation.

I have one thing to observe in this place with regard to a literary article mentioned in my preface to the first part of this work : I there reckoned the antient treatise, called *Speculum Regale*, amongst the books that are lost, and lamented the want of intelligence that might have been collected from it ; but I have been since informed, with the greatest pleasure, to the contrary, in a letter from the honourable Mr. Luxdorph, councellor of state, dated the 20th of January last. I find likewise, (tho' too late) that a copy of that antient manuscript is to be found in the university-library at Copenhagen, among many other manuscripts given to the university by the late professor Arnas Magnæus ; a catalogue of whose donations deserves to be printed, at least, for the information of foreigners and others.

I am further informed in that learned gentleman's letter, that the old notion of the *Speculum Regale* being written by the wife and valiant king Sverre, or at least by his order, and consequently in his time, is entirely without foundation: for Mr. Luxdorph observes that it was written about the latter end

of

of the thirteenth, or beginning of the fourteenth century. The author calls himself one of the first in rank at the king of Norway's court, and informs us that he lived in Helgeland, in the diocese of Trondheim. This book is written in the manner of a dialogue betwixt a father and son, containing, besides many good rules, both political and civil, several observations in natural philosophy, relating to the Northern countries; but not so much of Norway in particular, as of Ireland, Iceland, and Greenland.

I have nothing farther to observe; but shall conclude with this ardent wish, ' That the eyes of the Lord, which behold  
' all the nations upon earth, may always look favourably upon  
' this country and people, both in all spiritual and temporal  
' affairs : ' " of him, and through him, and to him are all things:  
' To him be all honour and glory for evermore." Amen !

Bergen, April  
24, 1753.

E. P.

T H E

THE

# C O N T E N T S

## T o P A R T II.

C H A P T E R I.	Page
Of Four-footed Beasts, or Quadrupedes.	1
C H A P. II.	
Of Serpents and Insects.	34
C H A P. III.	
Of B I R D S.	56
C H A P. IV.	
Continuation of Birds.	79
C H A P. V.	
Concerning Fish and Fisheries.	103
C H A P. VI.	
A Continuation of the former, concerning Fish and Fisheries.	130
C H A P. VII.	
Concerning exsanguious Fish, or those without Blood; which are either inclosed in a shell, or are naked and defenceless.	161
C H A P. VIII.	
Concerning certain Sea-monsters, or strange and uncommon Sea-animals.	183
C H A P. IX.	
Containing an Account of the Norwegian Nation.	221
C H A P. X.	
A Continuation of the former, concerning the Norwegian Nation.	266



THE  
 NATURAL HISTORY  
 OF  
 N O R W A Y.  
 PART II.

CHAPTER I.

Of Four-footed Beasts, or Quadrupedes.

SECT. I. *Norwegian Horses.* SECT. II. *Oxen and Cows.* SECT. III. *Sheep and Goats.* SECT. IV. *Swine, Dogs and Cats.* SECT. V. *The Deer, the Roe-buck, Stag, Hares and Rabbits.* SECT. VI. *The Elk and Rein-deer.* SECT. VII. *Bears.* SECT. VIII. *Wolves.* SECT. IX. *The Lynx.* SECT. X. *Foxes.* SECT. XI. *The Glutton.* SECT. XII. *The Marten.* SECT. XIII. *Squirrels.* SECT. XIV. *Ermines.* SECT. XV. *Beavers.* SECT. XVI. *Otters.* SECT. XVII. *Badgers.* SECT. XVIII. *Porcupines and Moles.* SECT. XIX. *Rats and Mice.* SECT. XX. *Leming.*

S E C T. I.



THE four elements, and the inanimate creatures of Norway, have been described in the first part of this Natural History: I now come to the description of those endued with animal life; the quadrupedes, reptiles and insects, birds, fishes; and to the consideration also of the human species. Speaking of quadrupedes (or four-footed beasts) I shall first describe the tame, and those destin'd for the service of mankind: among these first is to be considered the horse\*.

PART II.

B

The

\* I observe, in classing the beasts, the rule which Monsieur Buffon, in his *Hist. Nat. T. i. Disc. i. p. 33.* calls the most natural. He founds it upon the service mankind have

## NATURAL HISTORY of *NORWAY*.

The Norway horses are not uncommon in Denmark, for they are carried thither, where they are admired for their neat and elegant make, and their strength; they are generally small, but well-proportioned, plump and round; the largest and best are from Guldbranddal, Surendal and Larendal; the peasants breed them, for I never heard there was one stud here. Their colour is generally a deep bay, with black manes and tails; and a black, brown, grey, or lightish mouse-colour streak along the back; but black is seldom seen; in fifty hardly one. They are kept on poor and scanty food, but are in as good condition as others that live better. A peasant's horse hardly ever tastes corn, yet, tho' they live on nothing but hay, they are spirited and swift.

Hormod Torf remarks in his *Hist. Norv.* p. 4. lib. 8. cap. 3. that Anno 1302, a man, whose name was Augmund Hughleickson, and who was afterwards hanged at Nord Næfs near Bergen, was the first who gave his horses oats in this country, whence he had the nick-name of Horse-Corn, Quod in Norvegia primus equos avena paverit.

The horses here are not subject to so many diseases as in most other countries; and in particular the staggers, which they seldom have naturally, tho' some get it by extreme labour and old age. It is not usual here, as in most other places, to geld horses; for which reason they are full of spirit and strength, and are preferable to geldings. But as stone-horses often are vicious, his excellence the stadtholder Guldenloue, in his time, ordered that most of the horses should be gelded; that there should be only two stone-horses in each village. This made as much mischief among the peasants, as was done before by the horses; for the commonality do not love to have new customs introduced; and if they do come amongst them, they must get in very gradually. These orders of the stadtholder were executed in but very few towns, and are now quite neglected; it was, however, a well-grounded law, as may be observed by this: in the fields and closes, for two miles (ten English miles) about Bergen, according to an antient custom, no peasant dare keep a

have of them, first naming horses and oxen. According to Aldrovand's opinion, these have the general name of Jumenta a juvando. This rule should be observed in human society; the most serviceable member should have the preference. Hr. Jac. Theod. Klein, in his lately published *Dispositio Quadruped.* p. 33. is not satisfied with *Monsi. Buffon's* method, but classes quadrupedes rather according to their parts; and agrees in that with H. C. Linnæus in his *Fauna Suecica*, who, in that respect, ridicules *Buffon* rather too severely. Jo. Jac. Schmidt, in his *Phisico Biblico*, p. 424, & seq. treats largely on the distinctions, preference and pre-eminence of beasts.

mare ;

mare; so that there are nothing used but stone-horses. The reason is, that there are no coach-roads fit for horses to draw in yoked; but all that comes to town by land, is brought in pack'd upon the horses back, and the peasants drive two, three, or four at a time before them, as in other places they do asses. Were these loaded horses to meet with mares, there would be frequently mischief; as it is managed, the horse-man must take great care, and sit fast in the saddle, for when these horses meet in the narrow roads, they seldom pass without a signal of animosity.

As they do in the west of England, where they have no coach-roads.

The Norway horses are better for riding than drawing; their walk is easy; they go dancing along, and they are always full of spirit; they are very sure-footed, a circumstance highly necessary in these bad roads. The fine Danish horses could not go in them, without hazarding their own lives and their Riders.

When they go up and down a steep cliff on stones like steps, they first tread gently with one foot, to try if the stone they touch is fast; and in this they must be left to their own management, or the best rider that is will run the risque of his neck: when they are to go down a very steep and slippery place, they, in a surprising manner, draw their hind legs together under them and slide down.

They show a great deal of courage when they fight with the wolves and bears, which they are oft obliged to do, particularly the latter; for when the horse perceives any of them near, and has a mare or gelding with him, he puts the weaker behind him, and attacks his antagonist with his fore-legs, which he uses like drumsticks to strike withal; and comes off usually the conqueror.

Many of the people of fashion would not believe this, till stadtholder Wibe, in king Frederic the fourth's presence, made the experiment, with one of his coach-horses, at Fredericberg. This creature fell upon a bear let loose against him, and laid him presently dead: but sometimes the bear, who has double strength, gets the advantage, and especially if the horse happens to turn about to kick with his hind-legs. If he attempts this he is ruined; for the bear instantly leaps upon him, and fixes himself on his back: in this case he gallops off with his angry rider, till by loss of blood he drops down.

## S E C T. II.

The Norway oxen and cows are in general of a yellow colour, as the horses; they are small, but like the Danish in their make. Mr. John Anderson, in his Description of Island xxvii. ascribes this littleness to the extreme cold and dense air, in those countries towards the north pole; which he thinks, altho' it does not hinder the fish from growing to the largest size, may hinder the parts of land animals from dilating themselves, as in milder and lighter air. For this reason, in the hottest climates are found the largest beasts; as elephants, rhinoceros, dromedaries, camels, &c. but I don't know that this reason has any force here: of this I shall not determine, but of a certainty it is not applicable to all beasts; for the elk and stag, I believe, are hardly any where larger. Not to mention the people, who, as to the principles of animal life, would certainly be subject to the same accidents. In that it does not hold, for the men of Norway yield to those of no other nation for bodily growth and strength of limbs \*. On the other hand we will agree with the curious author in his Account of Greenland §. xxxvi. wherein he observes, on this head, the peculiar providence of the Creator: for in the coldest climates the beasts are generally fuller of blood, and their fat grows on the outer parts, that is, betwixt the flesh and the skin, for their greater warmth. On this head I shall add an observation of my own, confirmed by others that I have consulted about it; which is, that the white membrane, which lies across the loins of our cattle, is much thicker and larger than elsewhere; and, without doubt, this is intended to keep in the natural heat.

In our Norway cows is found very little tallow; and the most of that which is transported is goats, as shall be shewn hereafter. The meat, after good grazing, towards the winter is sufficiently fat, and very tender and delicate; fine grained, juicy, and

\* If what this author advances had foundation in nature, then the beasts in the parish or district of Trondheim, which is much farther north, should be smaller than in the parish of Bergen; but this is found quite the contrary, for they visibly exceed them, the tame, as well as the wild; and also the birds. On the many small islands on the western coast of Norway, I must observe there are yearly bred many oxen much larger than those on the continent, and some almost as big as the Danish; but perhaps that may proceed from the very fine pasture they have, and the liberty they enjoy; for they run wild there, and when they want them against the season of slaughtering, they either shoot them, or lay snares to catch them. These cattle are commonly joined by, what they call *Udgangsvadre*, or Rams, (which are kept there as guides to the other cattle that are put there) they become old and strong on the spot, and generally herd with the cattle; and in the winter they help them to scrape away the snow and clear the grass: but as they have the command, they don't suffer the other cattle to feed, till they have pretty well satisfied themselves.



well-tasted \*. As for milk and butter, our cows afford but little, according to their size, about a gallon of milk a day at most, but this is very good; yet that depends upon their grazing; and, as I have before taken notice, we have as good butter as any where, excepting in Mark Landeme. The peasant prepares for himself milk, butter and cheese, in different quantities, according to his palate and fancy; and, particularly in summer, his common drink is whey. As the cows each give a little, they keep so many the more, and turn them out in the summer several miles distant, to places called sæters, on the high rocks; where they keep a woman-servant in a hut to watch them. In the spring, when they are first turn'd out, they make a large fire, which they call Boe Ild, in the fields, to which the cattle, from their farm-yard, all run, particularly in the cold nights, and lay themselves round about it; this uses them to keep together, and to look for the house when they are to be milked. The small spot of ground that these peasants have, is not sufficient for winter provender for their stock of cattle; to supply which, in summer they cut off for them the boughs of several trees, by cart-loads, and dry them tied up in bundles; and, in the spring, they throw them the leaves and young branches, sprouts and boughs.

In the Northland Manor, and some towns in this diocese, the Stranfiddere, which are those settled on the coast, who have large fisheries, for want of other food or provender, mix cods heads, and other fishes bones together, which the cows eat with a good appetite; but the milk is not good, for it has a very fishy smell †. It is not only fish bones the cows here eat, but likewise the bones of their own species, which they swallow greedily, and gnaw them with their teeth as the dogs would. This singular circumstance was doubted, and the privy-counsellor Van Osten, who has been governor here at Bergen, took with him a Norway cow to court, and gave proof of the fact, to the astonishment of the beholders. Nay, the eating of bones is a cure for the cows of this country, when they have broke their legs; eating also the herb which Th. Bartholin calls Gramen Ossifragum Norv. and in the description of which I have before said more on this subject.

Stranfiddere, are a sort of people that live by fishing; they are not farmers, nor are they free of any city.

\* The English, who are so partial to their own country, that they will hardly allow any other to have the advantage in these respects, when they come to Norway, must allow our veal is not inferior to theirs.

† The Arabians at Balsora, and Indians in the fields of Gomron, also feed their cows with heads of fishes; tho' I don't say our Norway people have learnt it of them. J. Bapt. Taverner takes notice in his Persian Travels, cap. viii. p. 93, and cap. xxiii. p. 287. Necessitas maxima magistra is not seldom also Communis magistra gentium remotissimarum.

The peafants ufually give the cows daily a little falt, which faltens the teeth, and whets the ftomach \*; and fometimes a falt herring, which they apprehend is a treat to the cow, as well as to an human creature. But on the contrary, a falt mackarel, tho' it be his food, is found pernicious to them, as well as the pickle.

## S E C T. III

Sheep are called here Smaler †, and in fome places Souer; they differ, fo far as I obferve, but little from the Danish; I therefore fhall not detain myfelf with a description of them. There are fome brought over from England; this has been done with a view of propagating the Englifh Kind, but they degenerate here, and in the third or fourth generation they are but very little preferable to our own. Mr. Peter Dafs acquaints us, in his Poetical Description of Nordland's Amt. p. 106, that there are found in the iflands quantities of wild fheep, which never go into any houfe, or have any thing to do with mankind, excepting when they are annually caught to be fheared ||. He confirms alfo what has been faid about their fat; that it is found on the external parts, and that it covers the flefh like a warm cushion.

In regard to the fheep in Farfe, according to Hr. Lucas Debe's Account, p. 116, ftanding in the winter under the fnow, and eating one another's wool, which is perceived above the fnow by the warm damp that arifes, I fhall not affirm it on my own knowledge, tho' it may be believed from many analogous accidents; and is ftrengthened by Mr. Anderfon, L. C. §. xxix. who fpeaks of a Topho Ovino Norvagico, or a hair-ball, which is found in the ftomach of the Norway fheep. It is to be obferved, that the fame kind of ball is alfo found in cows, and

\* As for the pernicious epidemic difeafe, which has raged feveral years thro' moft parts of Europe, Norway has, thro' the mercy of the Almighty, been hitherto free from it; but that the fame, or fome other has been known here (when it pleased the Almighty to punifh) is to be feen in Olaus Wormius's Account in his Mufeum, p. 333, where it ftands, that Anno 1642, died alone in Nordefjord, which has five parifhes, upwards of 4000 oxen and cows of the peafants, exclufive of the clergy's and others.

† According to D. Nic. Horrebow's account, this is the name of a fhepherd in Ifland; but here we call the fheep So.

|| Concerning the before-named Udgangsvadre, or the rams, they take their food, winter and fummer, on the Nordland Iflands; and I am affured by one of my correpondents, that they grow much larger and fatter than any other, and that their wool is cleaner and better; fo that the owner has the greateft profit or advantage of them; and that, by a natural inflinct, they take up their quarters at that corner of the land, from whence the wind will come the next day; which fignal or mark the fea-faring people find to be invariably true.

is composed of the hair swallowed, which sticks to the tongue, when these creatures lick one another. Of sheep's dung, and the middle bark of Elder boiled in cream, the Norway peasant prepares a good salve for burns: if the sore be full of matter or water, then they strew the dried dung powdered upon it, which helps greatly. Goats and kids are hurtful animals to the woods and trees; the country people here are very fond of, and keep too many of them\*; for they, before all other creatures, labour to get at food and nourishment, climbing the rocks, and, to men, inaccessible places in the mountains and cliffs, and steep heights. Wherever grass is to be found they will get at it, where no other grass-feeding creature can; but sometimes they get themselves into such a dangerous situation, that they can neither go backwards or forwards, up or down. In this case the goat runs to the very edge, and there stands braying; the Norway peasant then, to save his goat, ventures himself often in such a manner, as another man would not for the best friend; they suffer themselves to be let down by a rope of a hundred fathom or more, as I have already mentioned in another place.

The best goats are in Nordland and in Sundmoar; they run wild in many places, winter and summer, in the fields, till they are ten or twelve years old; and when the peasant, their owner, is to catch them, he must either do it by some snare, or shoot them †. They are so bold, that if a wolf comes toward them alone they wont go out of his way; and if they have dogs with them, they will resist a whole herd. They frequently attack serpents; and when they are bit by them, the owner warms their own milk, and washes the sore with it: they commonly revenge themselves severely upon the serpent who bites them; for they eat him up, tho' they plague themselves a great while

\* From Bergen alone there is shipp'd off annually 70 or 80,000 raw goats skins, exclusive of several thousand which are dressed here for Suffian, Corduan, and Russia leather, sent hence very good; which manufacture might here be greatly encouraged, by dressing all the skins here before they are sent out.

† Near Rostad, in the manor of Lattens, there is a flat and naked field, the soil almost white, with grey stripes. The earth here is found, by experience, to have somewhat in it of a poisonous quality, fatal to goats and kids, and to them alone. Other creatures may safely go over it, but these must not set a foot upon it; so soon as they do they drop down, stretch out their legs, and their tongue hangs out of their mouth; and they die if they have not instant help. Neither grass or any green thing grows upon it; the very stones have that quality. The Consistorial Assessor Frises assures us, that in the midst of winter it has not that effect; in autumn it is the strongest. I don't know whether this may be ascribed to a damp, as the famous Grotto del Cane, near the lake Agnano in the Neapolitan dominions, according to Misson, and others; who say, that a dog no sooner steps in than he dies, if not immediately dragged out and thrown into that lake.

before

before they can get him down. After this, they don't find themselves well for several days; but I don't hear they ever die.

The peasants dry the goats blood, and dissolve it by boiling it in oil, which they hold to be a good remedy for the Lumbago.

#### S E C T. IV.

There are hogs in Norway, both of the long and short-bodied kind, but few, since they cannot, like the rest of the peasant's stock, be drove to a distance to fæters, but must be kept near the house, where their food comes too dear; particularly in those grounds where there are no oak or fir-woods for them to feed on the fruits; for which reason a great deal of bacon is brought hither from Denmark.

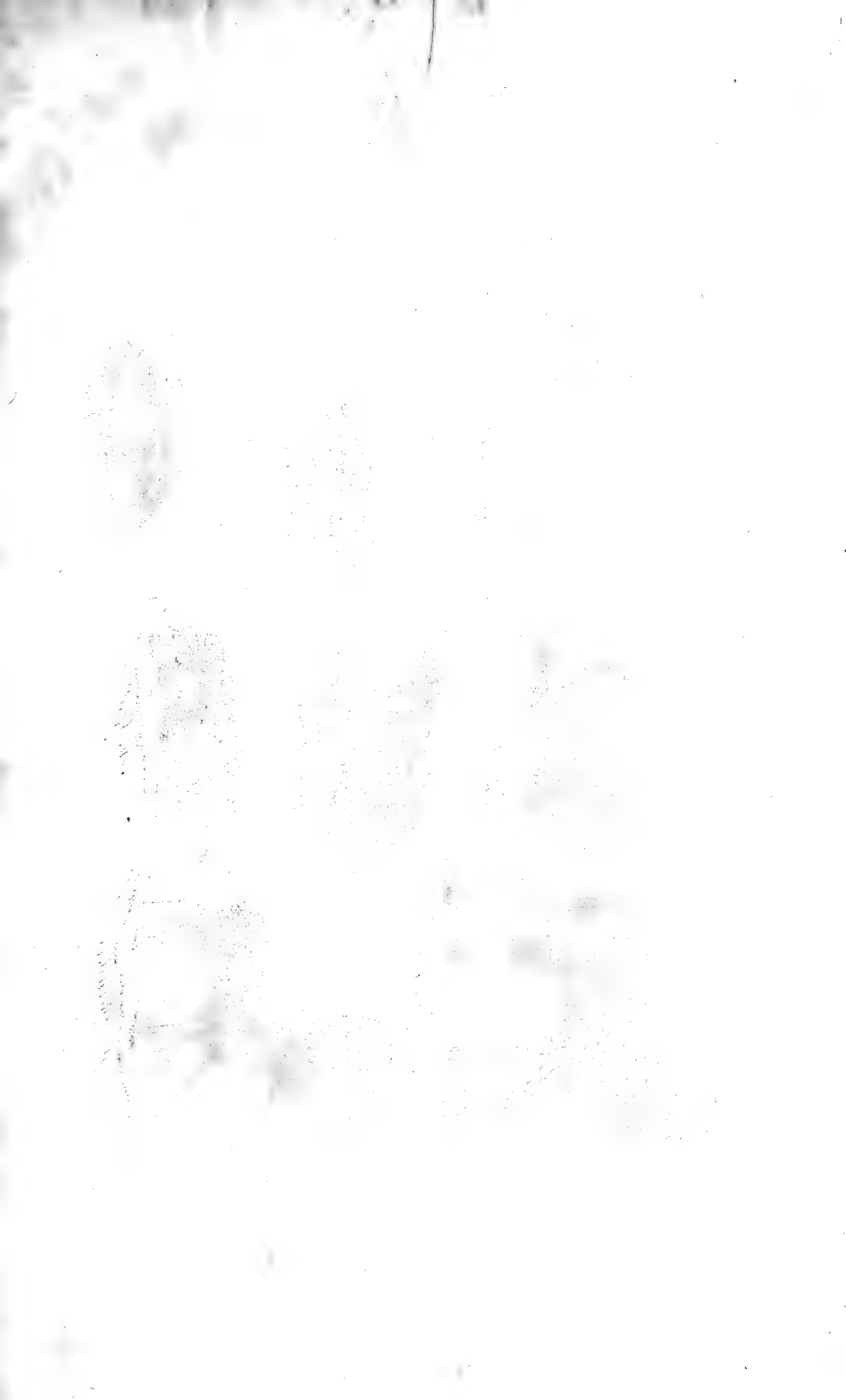
Leaves and boughs of elm-trees are used for winter food here for many beasts, but the hogs thrive upon them better than any. There are no wild hogs here.

Of dogs we have here, as in other places, both large and small, brought up to be house-dogs, to watch and to drive the cattle, and to protect them against the wild beasts. Some are raised for the chase, and particularly for bear-hunting: for this purpose they use small dogs, for the creature can't so easily lay hold on them; and they are also most afraid of such, for reasons I shall give when I come to treat of the bear.

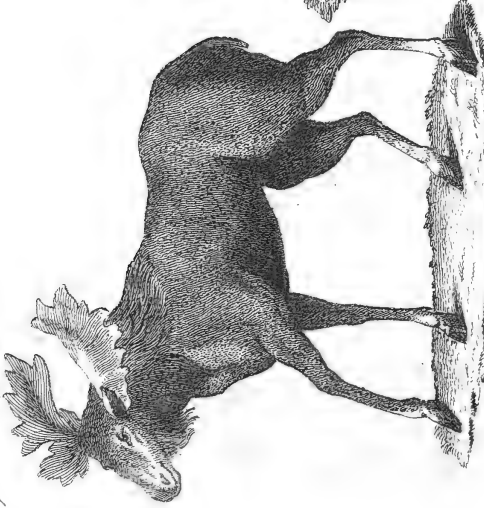
In Nordland they chiefly train up their dogs to catch birds, and to go where a man would not be able to follow them, on the steep slopes on the sides of the fields\*. They are likewise used to watch, in the night, the Bergen merchants counting and warehouses, as they do in Dantzic and St. Malo's. The large and furly kind are kept for this Purpose; in the day-time they are peaceable enough, but when on the watch as furious as wolves. We have cats both tame and wild; the latter are very large, and their skins bear a good price; they live by catching birds upon the trees; they steal upon them, and then seize them by a sudden leap†.

\* At Rost Værven, and other places in Nordland, where they have very advantageous birding, each farmer keeps twelve, fourteen, or sixteen such bird-dogs; they are small, long and lank, with short legs. This kind of hunting is sometimes the best part of the maintenance of many of these farmers; and they quarrel very often about the number of their dogs. See farther relating here to cap. iv. §. 2. in the Description of the Landfugle.

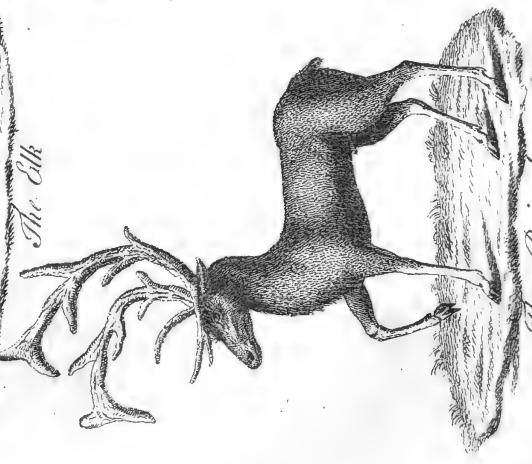
† Lakatt fera maculosa folis Norvegis nota hoc nomine, tot enim Catti regionis Norvegicas obsiderit tam varii generis ut vix nominibus inveniendis sufficere possimus. O Sperling in Notis ad Testament. Absalonis, p. 147.



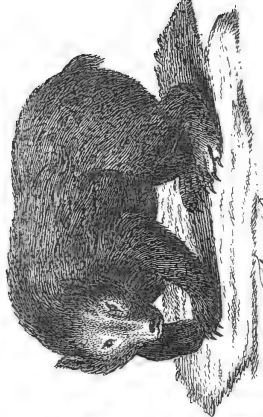
part 2.



The Elk



The Reindeer Anne



The Bear  
Bear



The Lynx  
Lynx



The Gullon  
Gullon

no. 9.



The Lemming

The Ermine



The Martin  
La morte



The Beaver  
Castor

15.

## S E C T. V.

Wild beasts serviceable to mankind for food or cloathing, and <sup>Deer.</sup> those intended for his punishment by rapine, are found also native in Norway. And first I shall speak of the common Deer, which live in (Osterlandet) the east country, only on the west side towards the sea. In the diocese of Bergen and Tronheim, where they formerly were frequent, they are of late years much scarcer; for the wolves have almost entirely destroyed them in Oplandene; and have now, for about thirty years, crossed the File-Field, a vast mountain, and annually devour numbers; and we frequently find the skeletons well-pick'd in the open fields. There are, however, some still both on the islands and on the continent. The fine Adel-Hiorte, or Red-deer, is as large as a middle-sized horse, with considerable large horns. The farmers shoot them in winter, being the best time to keep them, and carry them to town; and if they have no opportunity, they hide them under the snow\*, and live upon them themselves, and have a good price for the hide and horns. Sometimes it happens that the harts and hinds, in little herds, swim over pretty broad waters, betwixt the continent and the islands; to accomplish which, they very orderly help one another, by resting their heads on each others rumps; and when the foremost is tired he retreats to the last, leaving the next to him foremost. Raadyr † are only found in Borgelyffel and Nummedale.

Hares are frequent in Norway, and are very cheap in winter. They are smaller than in Denmark, and change colour, in the cold season, from brown or grey, to snow white.

In the woods they catch mice like cats, and pursue them under the snow; they otherwise in necessity live upon the birch catkins. Rabbits, which are of the hare kind, are found but in very few places; we have them white and grey.

## S E C T. VI.

Elfdyr, Elkdeer, which are also called Elling||, are seen in <sup>Elk.</sup> the parish of Fiorden, viz. at Ringerige and Romerige, but not

\* Sometimes they make use of subterraneous caverns to this purpose, where the cold is excessive; particularly the Hardanguske Poachers make use of a cave in the parish of Odde, near Sandvend-house, which answers to its name Kold-Hull, for nobody can go in, in the hottest summers day, 100 steps, before their breath is taken away, and they must instantly return. This is a fine place to keep the game or venison a long while.

† Rodiur of the Swedes; the Roe-buck. The Capra, Capreolus, and Dorcas of authors.

|| Ælge of the Swedes; the Elk. Alce of authors.

in great quantity: their make is betwixt the horse and stag, and they are hence called by some Equicervos. They are very long-legged, infomuch that a man may stand upright under their belly: they are of an ash-colour; and on their head they have horns like the deer, but not so long and round; but flat and broad, with small points about the edge. It is a harmless innocent creature, and keeps near the houses in winter. The meat tastes pretty much like venison, and the hide sells for a good price; it is counted the finest and strongest leather for soldiers habits, in the place of buff; but the price is less since horse and oxen hides are dressed the same way for buff-leather. The hoof of this creature is cloven, as cows; and there are often rings made of it, which are said to be good for the cramp, and for epileptic disorders. This is on the principle of *Curatio per contrarium*; for this beast is often troubled with that disorder, and cures itself, they say, by stretching his right hind-foot to his ear\*, and scratching himself with it. Their principal food is elm and asp-leaves, as long as they can be had. That *Monf. Martiniere*, in his voyage on Nord, cap. xiv. and several other places, confounds the Elk-deer with the Rein-deer surprizes me, for the difference is very great and evident.

Rein-deer.

*Reensdyr*, Rein-deer, or, according to the old manner of writing, *Hrein Dyr*, is a species of stag, that properly belongs to these northern countries; and, as far as I know, are not found any where else; they will not thrive or generate any where else. Tho' the naturalizing them has been often attempted, and they have been transported abroad to the great and rich for their curiosity, and to propagate their kind in other parts. This will always be a vain attempt, for no nourishment can be found any where else that will keep them alive; so that they have all perished. Perhaps also the want of their native air, such as they find in the high hills and mountains here, has been destructive to them. See *Happelel Relat. Curios. Tom. IV. P. II. p. 595, & seq.* The shape or make of the Rein-deer resembles the hart, and their horns † are covered with a furr, and

\* *Doct. Mich. Bernh. Valentini*, in his *Museum Museorum*, p. 429, declares this to be a fable, and cautions (upon the same occasion) all preachers, that they do not borrow of *Frantzio*, in his *Histor. Animalum*, and other credulous authors ill-founded families; for such misunderstandings weaken the word of God, where it is intended to be confirmed or established.

† *Errat omnino Thevetus*, qui in *Cosmographia sua*, apud *Norvegos*, *Finmarkos* & *Moscovitas*, unicornem facit rangiferum: errant similiter *Olaus Magnus*, *Gesnerus*, & *Jonstonius*, qui tricornerum depingunt. *Olig. Jacob. Mus. Reg. Sect. 1. p. 7.*

When the Rein-deer sheds his horns, and gets new ones in the stead, they appear at first to be covered with a sort of skin; and, till they come to a finger's length, are  
so



and the branches are turned forwards as well as backwards. In this diocese, as well as other places, they run wild about the country, and are shot and sold like other game; their flesh is very delicate, something drier than the hart; and their hide, which is fine and soft, is very much sought for by the curriers, tanners, and leather-dressers. They run at Harangerike Snee-field in flocks of one, two, or three hundred together; so that with one shot you may kill three or four. If they are shot in the middle of the flock the dead will then be trod to pieces, and be of no benefit; for which reason they generally watch the stragglers, and those that run at the sides. The Rein-deers generally take their course against the wind; so that when there is a west wind, the Hardankerike farmer is sure enough of having good sport with them; they come then from the east side of the country. When he has killed a number, what he cannot sell fresh, he salts for winter provision, thereby saving his cattle (or, as they express it, their Slaughter-Creatures, which are oxen and cows). In Finmark, particular in that long country called Kolen, which borders upon Sweden, the Rein-deer abound most, not only wild, but also tame; and they are the Finlappernes, or Finlaplanders greatest, and almost only riches; for they live upon their meat, milk and cheese; they make cloathing, tents, and bed-coverings of their skins; of the tendons they make their sowing-thread. Many a man has from six or eight hundred to a thousand of these creatures, which never come under cover; they follow the Finlap wherever he strolls, and when they are put to a sledge, transport his goods from one dwelling to another. They provide for themselves, and live chiefly upon the leaves and buds of trees, on the birch catkins, and upon moss\*, which in winter they scrape for under the snow, and at last get it. They are a neat, clean, brisk, entertaining creature, and support themselves on very little nourishment. Dogs brought up for the purpose are their leaders, protectors, and even are as masters to correct them. The wolf is their greatest enemy, yet they will defend themselves, in some measure, with their horns, as long as they keep together.

so soft, that they may be cut with a knife like a sausage, and are delicate eating, even raw. This we have from the huntsmens account; who, when they are far out in the country, and are pinched for food, eat these; which satisfy both their hunger and thirst. When the horns grow bigger, there breeds within the skin a kind of worm, which eats away the root. The Rein-deer has over his eye-lids a kind of skin, through which he peeps, when otherwise, in the hard showers of snow, he would be obliged to shut his eyes entirely: a very great proof of the Creator's omniscience and benevolence, in providing for each creature's wants, according to its destin'd manner of living.

\* Particularly a white dry moss, called thence Rein-deer moss.

In warm weather they are tormented with a sort of fly, which lays its eggs under their skin, which produces a worm, which eats itself out; and then is transformed into a large fly, according to Hr. de la Mortray and Linnæus's observations. More relating to their nature and manner, and the Finlaps œconomy with them, may be found in Hr. Peder Hogstrom's Account of Lapmarck, p. 223, & seq.

## S E C T. VII.

Bears.

From useful creatures I proceed to the hurtful, which we call here by the name of Udyr; and I shall first treat of the Biorn, or Bears; the male of which, according to the peasant's dialect, is called Bamfin, and the She-bear, Bingsen.

They are found all over the country of Norway, but are most frequent in the diocese of Bergen and Tronheim: there are here two species of them, viz. the Heste Biorn, or Horse-bear, the largest; and the Myre Biorn, the least\*. Both of these are a fierce, ravenous, strong, and cunning creature; the countryman allows them too much, and himself too little, by giving them the wit of two, and strength of seven men. The colour of the hair of the Norwegian Bear is either dark, or a light brown; sometimes silyer grey at the ends, which is the beautifullest. Their head is something like a hog's, and they have much such a snout. They have small eyes, short ears, a wide swallow, and strong loins; but their greatest strength is in their fore-legs and paws. On my annual visitation-journies, which have mostly contributed to my collection for this work, I have been used to stop by the way, and amuse myself with the farmers, entering into conversation with them concerning the properties of various

\* Ol. Wormius gives three sorts of Bears to Norway: In Norvegia tria genera urforum observarunt; primum maximum quod non plane nigrum sed fulvum est, non adeo nocuum ut reliqua genera, graminibus enim & arborum foliis vescitur unde illis, Græis-dyr vocatur, & in locis desertis & sylvis vastissimis stabulari. Sequi nucibus & glandibus faginare solet, antequam ingruat hiems. Secundum genus minus est & nigrius, carnivorum equis aliisque animalibus, infestum, Ildgiers Dyr vocant voracissimum animal, quod licet graminibus & foliis etiam vescatur, circa autumnum tamen armentis insidiatur. Tertium minimum nocuum tamen Myre Biorn vocant, quod formicis delectetur earumque nidos evertere solet iis ut potiatur. Nos quartum genus addendum censemus alborum nempe urforum, quod aquaticum vel amphibium est piscibus gaudens, & Groenlandia peculiare, Museum Vormian, p. 318.

This last sort, i. e. the white Bear, is said to be very fierce and ravenous. Thorm. Torf says, that Anno 1321, one of those killed and devoured eight men before they could destroy him, N. P. IV. L. IX. p. 455. Frid. Martens gives an account in his Spitzberg Travels, cap. iv. p. 73, that these white Bears have very long hair hanging down; are larger, and in the shape of their limbs differ somewhat from the rest of the kind. They float about at sea upon great flakes of ice, and sometimes land in countries they don't belong to.

beasts,

beast, birds and fishes, found among them: but tho' sportsmen and anglers histories are liable to be doubted, and ought not to be admitted as authentick, without very full and further proof; yet I have, from many corroborating accounts, gathered among these people several credible facts, as will be seen in the following pages.

The Bear, which occasioned this short digression, is said to carry her young but a month; and therefore, like the dog-kind, which also hastes for the birth, brings forth two or three in number, blind and naked, and small as mice, each in form like a mere lump; which the mother continually licks, till it expands or unfolds itself, according to the proverb, *Lambendo sicut ursa catulos*. Then they say she holds them in her paws to her breast, to warm them, according to the manner of birds, which Ol. Magnus has also observed; but some are of opinion it is to give them suck, as their paps stand pretty high on the fore-part of their body. While these young ones are bringing up it is most dangerous to meet the old ones, for then they will attack, whilst at other times they are only upon the defensive against mankind, excepting it be a pregnant woman, whose condition they know by scent or by instinct, and with all their might will strive to get the foetus, which is a delicious morsel to them, if it happens to be a male. A certain clergyman that related this to me, would not believe it himself, till he saw an experiment with a young and tame Bear, which he had fastened in his yard; and till then had not perceived that he had been guilty of any mischief: but one time leading a woman with child almost up to him, he began to make an uncommon noise; he roared, and tore about him so, that they were obliged to shoot him instantly. A clergyman's wife also, in Sogne-Fiorden, related to me the danger that her husband found her in (she being also big with child). He returning home on a Summer's evening, saw a Bear trying and taking all the pains he could to break open the door of her bed-chamber, where she lay in the greatest anguish, hearing him roaring and jumping in vain up at the window, which fortunately was too high from the ground for him. From this it is to be observed, that if any of those shepherdeses, or Giate-Tous, which I have mentioned, who are a whole Summer in the country in their sæterhut, loses her virtue, and becomes pregnant, she then endangers her life, as well as the child's doubly.

Particularities  
of the Bear.

Dangerous  
time of meet-  
ing the Bear.

Otherwise these poor creatures are so hardy and intrepid, that they will often pursue a Bear, hollowing, with sticks in their hands, and hunt him till he leaves his prey behind, and

which he seldom fails to do. So the all-wise God has ordered it, that in some measure the very fiercest creatures shall be under a fear for mankind\*.

The Bears  
manner of  
feeding.

It has never been known, that a Bear hurts any child; his food in necessity is roots, grass, and greens, and particularly the Angelica or Quanne, which grows here, and the Multeboer, Tytteboer, Bramboer and Ronneboer, when he can lay hold or reach them, on the extremity of the bush; and tho' he sometimes tumbles down in the attempt, he breaks off the branches. However, what suits his palate best is animal food; the flesh of sheep, goats, cows and horses; which last, as I have before observed, often conquer him.

His attack is made with his fore-paws, and he uses not his mouth till he is master of the creature, and then he sucks the blood, and afterwards drags the carcase to his den: if the road to this be up hill, or through bushes, that he cannot drag the prey easily along, he then has been seen to take the whole carcase in his fore-paws, walking on his hind-legs only. He has been seen also going upright, on plain ground, hugging the whole body of a large animal; from which, among other things, you may judge of his great strength.

He does not lay hold of any strange dead carcase, like the wolf, but chuses to be butcher to himself, where he is to eat. He does not bite and tear like the wolf, and is not near so much dreaded: He masters the wolf, and corrects him; and therefore that creature does not like to stay in his neighbourhood. I was told from Bordne in Rogfund, that an old Grass-bear was many years known to follow the herds like their guard, and stood often tamely by, as the maid was milking; and always drove the wolf away. He did no hurt to any, only in Autumn, when he was almost going to look for his den, he would take a kid or a sheep, as if, per contractum tacitum, accorderade summer's wages; but I doubt if there are many of his kind that use that discretion. They say, however, for certain, that in his proper jurisdiction, or the place where he usually resides, he will take but one piece from a man.

\* 'Tis said, that the African lions are sometimes in such a temper, that the shepherds may hunt them, and drive them about with a stick. J'ay lu dans quelques descriptions de ce pays-cy, que les femmes peuvent se familiariser avec le lion sans danger, & qu'en prenant un bâton & l'appellant Tahanne, ce qui signifie cocu, ou de quelque autre nom semblable, elles luy font perdre sa ferocité, &c. Il est possible, que cela arrive lorsque ces animaux ont bien repu, car alors perdent leur courage. Shaw Voyages du Levant, T. I. p. 316.

Of this creature's prudence and discretion, they give innumerable instances: among many, this seems to me most singular and most credible; out of the whole flock of cows, he picks out that which hath the bell round her neck, which, by running, generally gives the signal of danger. At this bell he is mightily offended, he tears it off, and if it is not a cast bell, but a hammer'd one, he'll strike it so flat, with his paw, that it shall never speak or vex him again. He will fire off a gun, when he has taken it from the huntsman; and he shews a great deal of cunning in saving his life, when set upon by two or three huntsmen together.

Prudence and  
discretion.

When the first has missed his aim, or slightly wounded him, he then lays hold of the unarmed man, and hugs him, retreating upon his hind legs as far as he can; knowing very well the others will not shoot him, for fear of shooting their companion; he then throws himself down a bank, a hill, or into a ditch, and there leaves the man, dead or alive; sometimes it kills both. If he finds himself mortally wounded, then he endeavours to rob the huntsman of his hide, which he knows he comes for, and therefore lays hold of a very large stone, and if there be a deep water near him, he plunges himself into it.

Bears are likewise good swimmers; they often go into the rivers, and catch fish: their broad paws are very fit to row with.

I shall not determine whether it is possible, that the white Bears, seen in Finmarck, according to Hr. J. Rami. his account, are of Greenland extraction; or on the possibility of their ever having swam over the sea such a great way, his clumsy body growing tired swimming cross a water of a league; and if he sees a boat by the way, he will go after it, if it be only to rest himself; if he gets in, he will sit in the stern quite quiet and peaceable; the farmer however does not care to let him in, if he can play his oars fast enough; but if he has an ax in the boat, the Bear's paws are sure to smart, or pay for it, as soon as he touches the vessel.

Soon after Michaelmas the Bear seeks his den, which is his Winter quarters; this he finds under some mountain, where the rocks hangs over, or in some natural cavern. Here he makes himself a large and soft bed of moss leaves, and the like. He hides the opening with branches and boughs of trees, and lets it snow up, so that he is not easily found, but by those that are taught, or have thoroughly learnt, his customs. In his den he shall be taken, sometimes for a week, with a heavy sleep, that by shooting at him, and even wounding him, he'll hardly awake;

Winter re-  
treat.

awake \*; and what is most surprizing is, that he will lye there the whole Winter, without eating or drinking; and yet, according to all accounts, when he goes out in the Spring of the year, he is found to be fattest: according to the common saying, he has suck'd his paws, or held them to his mouth; he sucks them till they make a white froth, which makes them sore and tender; so that, in the spring, when he goes out, he can hardly bear to tread upon a stone; he is at this season lame, and hops about for some time; and of this the huntsmen takes advantage.

Bear hunting. His stomach is also sick at this season, and drawn up of his long fasting; and to cure it, he looks out for an ant's hillock, of which he swallows up the whole; this scowers his inside, and cleanses and strengthens his stomach. As long as the Bear lies in his den or hole, he is the property of the proprietor of the wood, according to the Norway law, p. 832. When the farmers go out a Bear-shooting, they go commonly two or three in company, that they may assist one another, if they miss their aim: they force him, and tire him, first with their small dogs, which are broke or brought up to that sport; and of this kind he is most afraid, for they can run under his belly, and will lay hold of his genitals; larger dogs he lays hold of at once, and tears them to pieces. But when the little ones have tired him, with their running and jumping about him, he then gets up to the side of a tree, or rock, and sets his back against it, and tears up the stones and earth, and throws some at one, and some at another, to defend himself. At this time it is that the marksman is to give him a ball or two with his rifled gun: if he receives it in his chest, or under the shoulder, or in his ear, he falls: but any other wound makes him the fiercer, and he will fly upon the shooter, who must defend himself, as well as he can, with his empty gun, in which he ought to have a bayonet fixed, as is customary in Switzerland and Tyrol, to keep him off.

If the shooter or huntsman wants this, and have not a second at hand to send another ball at him, he has nothing to defend himself with but his knife, which is like a dagger, and hangs by a brass chain, always on the side of a Norwegian farmer; this he takes cross ways in his hand, to run down the Bears opened throat. If he does not succeed in this, his life is lost, the Bear fleas his skin off, and pulls the hair and flesh over his head and ears, face and all.

\* Concerning this, Ol. Berrichius has given us his judicious thoughts, in oratione de animalibus hyeme sopitis.

Sometimes, however, the Bear is contented with beating his conquer'd enemy with his paws, till he seems to be dead; and when he perceives that he draws no more breath, he'll leave him; sometimes that way a life is saved. If the farmer conquers, which generally happens, he then fleas the Bear, and fixes up the head, as a trophy of victory, and proof of his courage, on his house. I have sometimes seen farmers houses, ornamented with three or four at a time. A hide will sell for four, five, or six rixdollars. They say the flesh does not taste badly, but 'tis rather too much like liver, excepting when it is salted; a fine fat Bear ham is generally commended, and does a host as much honour, at a wedding, as it gives pleasure and satisfaction to the guests\*.

## S E C T. VIII.

The Wolf, *Ulven*, which is otherwise called *Varg*, alias *Graa-* The Wolf. been, is now become the plague and torment of this country. In former times it is not known that a Wolf ever was seen in the diocese of *Bergen*. Filefield was then the bound of this creature's devastations; he never passed that mountain, till about the year 1718, or at the end of the last war, at which time the armies marched; and all manner of necessaries of life were transported over that mountain in the Winter, and the insatiable Wolf followed the scent of the provision. By that means this creature was first drawn over those mountains, and now we are no where secure, except on the islands: for the Winters are not near so sharp (as I have before observed.) Near the sea it is much milder than elsewhere, and seldom so severe as to freeze over the water to the islands, with ice enough for them to go upon.

The Wolf is shaped not unlike to a large dog, but its teeth and claws are much stronger: they are in colour commonly grey, but in the mountains in Winter white; they have five or six young at a time; and we set ourselves most earnestly to destroy them. The old ones are very careless, and don't seek for safe places in the woods to hide themselves, as the bear does; but run about in flocks on the mountains, and barren places †. The Wolf's food. The Wolf's proper food or subsistence is prey of all such creatures as he can conquer, even dogs; for in hard Winters he will run into the farmers yards after, and sometimes devour them at the kennel,

\* Bear's flesh is reckoned one of the greatest rarities among the Chinese. According to *Pere du Halde's* account, the emperor will send 50 or 100 leagues into *Tartary*, to fetch them, against a great entertainment.

† *Hr. C. Linnæus* is of another opinion, according to his *Fauna Suecia*, p. 5. where he says, that the Wolf's proper habitation is in woods, *Habitat hodie vulgaris in silvis, ante 26 annos rarius animal in Suecia.*

if chained to it; and, in other cases, instead of taking a piece, and going away with it, he kills every thing he can, and leaves what he don't eat behind him. Fierce as the Wolf is, he is daunted when he meets the least resistance; and only bold and daring against those that he puts to flight: to those that are afraid of him he is merciless: but as long as even the deer is upon the defence he does not attack him; and it has been often seen, that not only a cow, but even a goat, when it has turn'd against him, and butted at him, or pushed at him with its horns, have maintained their ground against him, and put him to flight. In this case the Wolf is not unlike the evil spirit, whom the word of God represents to us to be a coward, and only to appear bold against the unbelievers fear; as it stands in scripture, Stand up against him, and he shall fly from you; resist the devil, and he shall flee from you.

God's providence.

The Wolf can suffer hunger and hardships a long time, which is common for beasts of prey, according to the Creator's wise institution; for their provision is uncertain, and comes accidentally, and at irregular times†. When his hunger becomes too great he'll eat clay, if it be to be had; and this, as it is not to be digested, remains in his guts till he gets flesh, and that works it off violently; and then he is heard to howl most dismally for pain; and if he is watched upon this, and his excrements are found, they are mixed with a woolly matter, which many have assured me. Near Vandelven on Sundmoer a farmer saw a Wolf that appeared very sick, and so faint, that he could hardly move along. It gave the farmer double courage, who mended his pace, got up to him, and killed him. He had the curiosity to open him and see what was the matter, and he found his stomach filled with moss from the cliffs, and birch tops.

Danger.

Hunger, sharp as a sword, makes the Wolf, in the Winter season, much bolder than I ever knew him to be; so that he will often, and particularly upon the ice, take away a horse from a sledge: for this Reason travellers, at that time of the year, are generally provided with fire-arms. The late bishop Munck in christianity would not believe there was any occasion for these; and persuaded a clergyman of his diocese, whose name was Hr. Kolbiorn (Father of the eminent Kolbiorns, so distinguished in the late war by their valour and courage at Fridrickshald) that it did not become his function to carry a gun with him when he

† Inediam diutissime tolerat Lupus, ut & alia omnia carnivora licet voracissima magna, utique natura providentiâ quoniam esca non semper in promptu est. Ray Synop. Quad. p. 174.

travelled



travelled to church, or on ecclesiastical affairs. But the bishop got the better of this prejudice, on being taken over the ice by this very minister, on one of his visitation journies. They were in expectation of seeing a Wolf, which accordingly appear'd. The bishop, at sight of him, began to be frighten'd, and ask'd Mr. Kolbiorn if he had not his gun; and, from this day, he was convinced that it was both necessary and becoming. \* To destroy the Wolves we use the same means as against the Bears; instruments to blow them up, charg'd guns, laid by a carcase, that go off with the least touch; which is called Gildre, and is spoke of in the Norwegian Law Book, p. 834. Sometimes, tho', at present, not very often, they have recourse to what they call Ulve Huer: these are very deep and steep holes, dug in the ground, with a narrow place to pass through, and hid with a false cover, like a trap door, which falls down, and shuts up again of itself. In these pits the Wolf is sometimes found in a corner, along with other beasts, whom, out of fear, he does not touch; and it sometimes happens that the peasants, having fallen in the trap, are found there, sitting along with him: for this reason, there are strict orders to give notice in all the neighbourhood, when and where such an ulve huer is dug.

Manner of destroying them.

Another way of destroying them is by means of a sort of yellow moss, found upon the fir-trees, which has a poisonous quality; this is always fatal to Wolves; it is put into a carcase and laid for them. In some places in this province, where there is found an Eid, that is, a small isthmus, or any other narrow passage, we are used to tie a straw rope a-crofs, which the Wolf at first avoids; tho' some say it is not long before it becomes familiar to it, and then he loses the fear.

Some people make a powder of dried Wolf's flesh, and say it is good to create an appetite; whether it is so, or not, I do not pretend to know; but that Wolves, as well as foxes lungs are good for a consumption, is to be concluded from the pectoral syrups as is sold at the apothecaries, by the name of Loch de pulmone vulpis; wherein the principal ingredients are Wolves and foxes lungs, tho' there are many other things. We may also look for the virtues of Wolves lungs in Paracelsi qualitatibus occultis; but this now meets with but little approbation.

Formerly the most valiant of our heroes in this country made their doublets, or cloaks of war, called here Beerfercke, of

\* To frighten the Wolf and bears from the herds, the shepherdesses have a horn to blow, which is heard a great way; and on hunting the Wolves, they use the same, as well as pipes and drums.

Wolves skins, to appear the more terrible; so says Thorm. Torf. In primis Berferki pellibus Lupinis, ad terrorem hostibus incutiendum, induti, & externi amicti, quoties pugnandum esset, univcrsum agmen, ante acei principia præibant, ut hostilem insultum propulsarent ac procul dimoverent. Hist. Norv. P. II. L. I. c. v. p. 9. In another place the same author tells us these furr'd skins were used for a coat of armour; because they could not easily be cut through.

## S E C T. IX.

Goupe, or  
Loffen.

\* Loffen, which in Norway dialect is called Goupe, is the third among this country's hurtful creatures. It is something smaller than a wolf, but as fierce and dangerous: it bites and tears all to pieces that it can master. This creature's skin is of a light grey or white, with dark spots; a single skin is sometimes sold for 8, 10, or 12 rixdollars, according to the goodness: their claws are very sharp and crooked, turning in like a cat's. They are, indeed, of the cat or tyger kind; their backs bend like them, especially when they are in their holes looking for prey among the creatures that pass by; they throw themselves at once on their prey, as soon as in reach. When a Goupe is attacked by a dog, he throws himself immediately on his back, in the manner of a cat, and turns up his fore legs, to be the better able to defend himself: the dog on this lays hold, and thinks himself conqueror; but the Goupe then makes use of his sharp claws so effectually, that he fleas the enemy alive.

Their proper-  
ties.

We have in Norway three sorts of Goupes; the Wolf-Goupe, the Fox-Goupe, and the Cat-Goupe; so called from their resemblance to these several creatures †. They go out like the wolf, excepting that they don't, like him, appear so publickly in the open flat country, but keep more in the woods, and lurk in holes in the earth, which they dig for themselves, deep and winding; but they are drove out of them with fire and smoak. In the day-time they'll lie hid, and steal upon their prey, as has been already observ'd, which they can see at great distance; for their sight is sharp.

\* The Lynx. The *Lupus Cervarius* and *Lynx* of authors.

† The last has the finest and most precious skin; but 'tis scarce half so big as the Wolf-Goupe, and is more grey than white, but cover'd with beautiful black spots, nearly like the panther or tyger. See Shaw's *Voyages du Levant*, Tom. 1. p. 318. a comparison betwixt the Loffen and leopard. Hr. Gabriel Heiberg, pastor in Nordfiord, and minister in Gloppen, takes notice, among other observations, that according to several informations, there is another sort of Loffen, whose heads are like a Fell, these are called Foll-Goupe.

They

They are very nice, and of a sheep or goat don't eat more than the head or udder; and by this circumstance one knows that the Loffen has been there. Tho' they always kill, yet they eat very little in the encreasing moon; but in the decrease they are more ravenous, and will hide or bury the carcasses like the bear. The wild cat, which seems, from its aspect, to be of their kind, is their worst enemy. Its almost continual employment is to look out for them in their holes, and steal their prey from them. They are very cunning in undermining a sheep-fold, where they help themselves very nobly.

It happened lately in some of these that a Goupe was found out by a sly he-goat, who perceived his subterraneous work, watched him narrowly, and as soon as his head came forth, before the body could be got out, butted him, and gave such home pushes, that he laid him dead in the grave of his own making. It is said that the Loffen's claws are good for the cramp, when wore round the neck; but I cannot affirm it, or assure it to be so.

## S E C T. X.

Foxes, called Ræve, are found here frequently; they are of <sup>Fox.</sup> different colours, white, red, and black; the last are the fiercest, and their skins most valuable: some of the others, which have two black strokes across their backs, sell also at a good price\*. This well-known creature's other properties I need not here describe; for thro' the whole I intend to treat largely upon those creatures only which are peculiar to this country, and distinct from those of Denmark, and most other places; nevertheless, as there are certain general things, known by more instances or examples in one country than another, I shall so far take even these into consideration.

And here I must observe, that the Norwegian farmer can relate <sup>Cunning.</sup> most stories of the sagacity and cunning for which the Fox, in all countries, is famous; so that if we, with certain philosophers, would judge all creatures, notwithstanding their several degrees of sense, or what appears in some degree of reflection, to be machines, this would hold probable least of all of the Fox; some of the before related stories of the Bear shew also the folly of such a philosophy †.

\* From Bergen are exported annually 4000 Foxes skins, more or less.

† Melius philosophari illi videntur, qui rationem aliquam brutis tribuunt. Certe, nullo negotio, eorum variarum & mirabilium actionum rationem reddunt. Jo. Clericus Phys. l. iv. cap. xii. §. 4. It may not be ill applied here to divide with Hr. Heumann, in Act. Philos. Tom. xviii. p. 818. the numbers of souls under gold, silver and copper.

The Swedish archbishop, Ol. Magnus, Hist. lib. xviii. c. 39, 40. says of the Fox, All that and much more have we heard or seen of our own observation; more strange things have been related to me than all authors have written.

When he wants to get rid of his fleas without disturbance, he takes a bunch of moss or straw in his mouth, and goes backwards into the water, wading by slow steps deeper and deeper; by which means the fleas have time, and can retire gradually to the dry places; at last to the part of the neck and head which he alone keeps above water; and to crown the work, he gathers all his enemies into the before-said bunch of straw, and then drops them in the water, and runs away well washed and cleaned. This project is so cunning, that mankind could not teach him better.

His long hairy tail, with which nature has not supply'd him in vain, he uses in Norway, amongst other purposes, to catch crabs. They are fond of any thing hairy, and generally will lay hold of it; by which means he draws them ashore.

\* When he sees the otter is out on fishing, he hides himself behind a stone, and when the other comes ashore to eat his prey, he comes upon him by a quick and high leap, that the otter, who otherwise fears not the Fox, is startled, and leaves him the booty.

A certain person was surprized on seeing a Fox near a fisherman's house, laying a parcel of turks, or cods heads, all in a row, and could not conceive what he was going to do, till he saw that he hid himself behind them, and made a booty of the first crow that came for a bit of them.

## S E C T. XI.

Jerven, or Erven, is one of the beasts in Norway which few other countries know farther than by report. In some places, particularly Fronhiemke, where they are most frequent, they are called Kola; but the common name Jerv, or Gierv, is given them *Sensu nativo, per excellentiam*; from their violent, greedy, and voracious disposition. The Germans have given this creature also the name of *Vielfrafs*, or Great Eater; and some in Latin *Gulo* †. Its size and shape is something like a long-bodied dog,

Jerv, or  
Vielfrafs.

\* When the She-Fox is pursued by dogs, and they come pretty near her, she pisses on her tail, and winks it in their eyes, which makes them smart; and then she escapes. Hans Frids Flemming German Huntsman, p. 112.

† The Glutton, a creature of the weasel kind. The *Gulo* of authors; the *Mustela rufa fusca medio dorso nigro*. It is a wild notion that the people here in general have conceived; which is, that Jerven is the Bear's third cub; though she brings but seldom forth more than two at a time.

with

with thick legs, very sharp claws, and teeth; and he has the boldness to attack every thing he can possibly conquer among other creatures. Shiffero says, that he fishes in the water; but in that he is contradicted by Hr. P. Hogstrom, in his Description of Lapmarck, p. m. 372. He is black, variegated with brown and yellowish streaks: his skin shines like damask; it is covered with soft hair, and is very precious, and is well worth the huntsman's while to kill them without firing, or wounding the skin, tho' difficult: they shoot him with a bow and blunt wooden arrows, that the skin, which is the only thing that is valuable, may not be cut. The best opportunity of catching him, is when he, according to his custom when gorged, presses and squeezes himself between two trees which stand near together. By this practice he eases and exonerates his stomach, which has not time to digest what he has so voraciously swallowed.

If this creature finds a carcase six times as big as himself, he does not leave off eating as long as there is a mouthful left; he must therefore be tormented with such an insatiable hunger, that even a cramm'd belly does not abate it; and for this reason he is obliged to ease himself by the artifice I have mentioned.

Perhaps he is created for a moral picture, or an emblem of those people, of whom the Apostle says, That their belly is their God\*.

## S E C T. XII.

† Haaren, which is also hunted on account of it's skin, is like a <sup>Maar.</sup> great brown forest cat. The head or snout is rather sharper, and more pointed; under it's belly it is of a dark but shining yellow, with a fine gloss; but those which have this in perfection are scarce: their bite is bad, and they smell very disagreeably; they hide themselves in hollow trees, and subsist by catching wild mice or birds; after which last they'll jump from one branch of the tree to another. There are two sorts of them; the Espe Maar, which is the biggest, and of the lightest colour; and the Birke Maar, smallest and darkest; this is the scarcest.

\* A friend of mine, a man of probity, has assured me from ocular demonstration, that when the Jerven is caught alive, (which seldom happens) and is chained to a stone wall, his hunger does not decline the stones and mortar; but that he'll eat himself into the wall. He is a greedy, but by no means a nice creature; he eats all that he can get.

† The Marten, a creature also of the weasel kind. The Martes of authors; called also Fæyna: and by Linnæus, *Mustela fulvo nigricans gula pallida*.

## S E C T. XIII.

## S E C T. XIII.

Squirrel.

Egernet, the Squirrel, called here also Ikhorn. This is a well-known creature: it feeds chiefly on hazle-nuts, and other dry fruits, which it gathers in large quantities during Summer, for the Winter provifion. This little creature is grey, and its well-known skin, called Graa Werck, is much valued by the ladies\*. They are shot with blunt arrows, and are catch'd also in snares and traps, in this manner: they raife a pole againft a tree, which the Squirrel readily runs up, without regarding the trap at the end, as it has a bird's head, or something of that kind, for a bait. Some have dogs to catch them with; on a chip, or piece of wood, they'll fail crofs a fmall water on this expedition, and make ufe of their tail for a fail; and with one foot they'll paddle, and fteer themfelves with the other; and thus they efcape fometimes thofe that wait afhore for their landing, and find themfelves miftaken, by thinking they muft come with the wind †.

## S E C T. XIV.

Ermin.

|| Hermelin Ermin, called here Roefe Cat, because it hides itfelf in the cracks of rocks, and among heaps of ftones. Some are of opinion it is the fame which Pliny calls Ponticus Mus; and I am under fome doubt whether it is different in Kind from the Danifh weafel; the fhape and fize may be known from its well-known precious white skin, which has a black fpot on the tail: this fur is now become commoner than in former times; for now in Bergen there is fcarcely a woman but has a cloak ornamented,

\* In Chronico Norvegico, p. m. 94. Haraldum Erici regem Graafell, a pellibus iftis grifeis cognomen tuliffe dicitur, quod veftem fuam grifeis pellibus forratam gestare cepit. O. Sperling in notis ad Teftam. Abfolon. p. 115. It ftands in the fame place that in Vendfyffel is found a fort of Black Egerne, or Squirrels, which is introduced in Frifers arms.

† In Ruffia there is a particular fort of fquirrel, that has fuch wide fkins at their fides, that, by the help of them, they fly through the air from tree to tree, uſing them as wings. J. G. du Vernoi has published ſome Anatomical Obſervations relating thereto; they are to be found in Commentar. Academ. Petropolitanæ, Tom. v. p. 218. under this title: De Quadrupede Volatili Ruffiæ. And more is to be found in the Englifh royal ſociety's Philoſophical Tranſactions, Tom. xxxviii. Art. iv. I think that flight is nothing but a long jump, or leap, which is helped by the long and light tail, as well as the long hairs and looſe fkins on the fide. I have not been affured that this fort is native of Norway; though by Car. Linnæus's words, it is to be prefumed, who has found them in Lapland. *Sciurus hypochondriis prolaxis volitans habitat in Finlandia & Lapponia.* Fauna Suecica, p. 6. The common fort of Squirrels are found here in large quantities, and the fleſh is not deſpifed by the farmers in Valdres: it looks white, they make ſoup of it, and ſay that the meat is not bad taſted.

|| The Ermin is of the weafel kind; and indeed ſcarce differs at all from the common weafel, except in colour. It is called Hermellanus and Ermeneus by authors.

faced,

faced, and many thoroughly line them with it. The Norway ermin keeps its colour better than any; it does not grow so yellow as the Muscovy; for which reason it is preferred even at Petersburg. When king Christian I. made his pilgrimage to Rome, he had a mind to make the pope a handsome present of the produce of his country; amongst which were several Ermin skins, very excellent.

Ermins run after mice like cats; they drag away what they catch, particularly eggs, which are their nicest delicacy: for this reason, it is frequent, in calm weather, to see the Ermins along the shore, swimming to the small islands, where the water-fowls eggs are found in great quantities. I have been informed as a certain truth, by those that have seen it, that when they have their young on any of these islands, they'll bring them ashore to the Continent on a piece of chip, or little bit of wood, the mother swimming behind, and with her snout pushing it backwards and forwards, to get it along. So small as this creature is, it is capable sometimes to destroy the largest beast, as the elk or bear. It does it in this manner: when the creature is asleep the Ermin will creep into his ear, and lay hold with his sharp teeth so very fast, that he can't slip; upon which, the large animal begins to run about, and roars, till he has exhausted himself: at length, being wearied out, he becomes faint, drops, languishes, and dies. In the same manner he'll steal himself upon a sleeping (Orn) Eagle and Tiur Fugl, and will let this bird fly away with him upon its back; but he continues gnawing, till, by the great effusion of blood, the bird drops down dead on the ground. They are shot with blunt arrows, and catch'd in traps, or else betwixt two flat stones; one of which is set up with a pin, but drops when the thread is pull'd to which the bait is fastened, and so squeezes him dead\*.

It is said that this creature is so cleanly and nice about its white hair, that he would rather go through the fire than through the least mud and dirt. I question whether any body has seen him under the necessity to declare which he would do; yet wherever he goes with his cleanliness, he stinks as bad as the pole-cat. This is especially observable of the Ermins when they pair themselves, which often happens; for both sexes are very lascivious.

\* It is said that noise and shrieking, which puts other wild beasts to flight, makes the Ermin stand still; and afterwards, as long as it lasts, he will shift about, here and there, but cannot get far. This, if true, is a great advantage to the huntsman.

Two ounces of Ermin's blood, drank warm, is a pretty certain remedy for an epilepsy, or falling sickness, especially if it be old. Relata refero.

## S E C T. XV.

Beaver.

Bæver, Castor, a Beaver, is an amphibious animal: it lives in water as well as on land, and seeks its food generally in still or gently running water. It is found in this country mostly in Solloer, Osterdalen, and Jemteland. Its shape is like a long-bodied dog, with short legs, a short and flat head, small round ears and eyes, a large, thick, and smooth tail, consisting of many joints. This part of the Beaver some call a delicate dish; the Roman catholicks reckon it as fish, not meat, though the rest of the creature is allowed to be flesh.

On this creature is a bag, in which is the precious castoreum, or castor of the shops: with this, and with his fine dark brown skin, is carried on a considerable trade at Elverums fair. That which I shall in this part of my work endeavour to explain most fully, is what belongs to living creatures, with respect to their drift, instinct, or inclinations, which they severally have to certain things; concerning their conservation, and wherein they seem to act with a most cautious reflection, or devise more than one could think or expect. In no part of the treatise can I have occasion to be more particular in this respect, than in speaking of the Beaver, especially on the subject of his preparing his habitation: on account of his art in this, in the kingdom of beasts, he deserves the title of master-builder. The manner is this: the Beaver before-mentioned has a great tail, which weighs several pounds: this is of the fish kind and quality, in that degree that it cannot bear to be long together out of the water. It has over the skin a kind of fish-scales, and the hinder legs have flat goose-like feet, and are of the same fleshy nature. For this reason the Beaver must build in such manner, that he can always have his hind part hanging in the water in some place which is kept open all Winter, that he may continually throw his tail forwards and backwards in the free water.

He cannot always be sure of this advantage, as the water rises and falls. For this reason, to preserve his health, and suit his convenience, he builds always at the side of a water a wooden house, three stories high, and regularly raised above one another, like a little tower; where he and his mate have each their separate lodging and Bed. To fell the trees for building of these houses, or to repair them when they happen to be destroy'd by accident, the great and wise Creator has furnished this little animal with a tooth, which seems unproportionably large; it is of a finger's length, and seems as if ground sharp at the end, not unlike

Wonderful  
building of  
houses.



unlike a boar's tusk; 'tis of a tawny or yellow colour: with this, as with a small ax, the Beaver fells any kind of trees, and prepares the wood for the joices; he fits all together, and then lays them, or fixes them over one another, so that they wont easily fall. After this, to transport these building materials to the spot, he uses a most surprising address, as I am assur'd by many who have been witness: It is this. A number are employed on this work together; and one will suffer himself to be used as a cart, which the others, like horses, take hold of, fastening on him by the neck, and dragging him along; for this purpose he first throws himself on his back, with his legs up, between which they lay their already fitted and prepared timber; and in that manner bring it to the spot where the building is to be erected, one load after the other\*; but this always costs the first a bare back, for it takes all the hair off; which hair and castoreum are the two valuable things found on this creature. The hair or fur, it is well known, is used for the finest hats, as well as for a very light and soft sort of cloth.

## S E C T. XVI.

The Otter, *Odder*, a well-known creature, which not a little <sup>Otter.</sup> resembles the beaver, and lives upon all sorts of fish: they are found in Norway, both in salt and fresh waters; they live in holes betwixt the rocks; from whence the huntsman decoys them, by imitating the voice of their mates. They are very nice, and will only eat the fattest fish: the eagle and crow wait upon the Otter to take his leavings; unless it be a young Otter, and then the eagle drives him away from his prey. These creatures, when young, may be tamed and used to a house, by feeding them with milk, and they will become daily fishers for their master; they'll go out on command, and bring in one fish after the other to the kitchen. This a very creditable man in this neighbourhood has

\* Something of this kind is related of the known *Marmots*, *Marmotis* or *Murmerdyr*, in aspect something like a cat. The learned cardinal *Polignac* ascribes, perhaps, too much to them, in his *Antilucetios*, Lib. VI. lately published, wherein he relates, that in a civil war betwixt them, the conquered prisoners, after a *jure belli*, are sentenced to be slaves to the conqueror; and particularly to be used for waggons, to bring home their hay and winter provision; in the same manner and position as just related of the Beaver.

Protinus ad messē ducunt servata ferendam  
 Mancipia, inversisque solum premere atque supinis  
 Corporibus, tum crura jubent attollere sursum  
 Quatuor erectis perstent, ut gramina palis  
 Inde onerant caudaque trahunt animantia plaustra;  
 Erasoque vias miserorum tergoe verrunt.

tried,

tried, and has assured me of the truth. The only thing that is useful in the Otter is his skin: this is covered with thick and short hair, and keeps out water\*.

## S E C T. XVII.

Badger.

The Badger, Brock or Greving, which is also called here Sviin Sok, is like a small hog, with long black or grey hair, and short and crooked legs: he undermines the ground, and lives on mice, snakes and insects. The Badger's bite is bad, and his teeth are very sharp; where he fixes them he does not loose his hold, till he hears the bone crack betwixt his teeth. The penis of the Badger is, like the sea-calf's, a hard bone. His enemy the fox, who is too lazy to dig himself a hole, seizes the Badger's when he is out, and fills it with such a stench, that the owner never cares for it afterwards †.

## S E C T. XVIII.

Porcupine, or Hedgehog: the *Danish* dictionary calls this a Hedgehog as well as a Porcupine.

The Porcupine, Pindsviin, which is called by many *Buffedyvel*, is sufficiently known. What I have to observe concerning this creature is only this, that he conveys himself often into the bear's holes; and, with his numerous prickles, is so troublesome to his rough host, who cannot any way revenge himself on the impertinent guest, that he is obliged to do as the badger does to the fox, quit his lodging.

Mole.

The Mole, *Muldvarpen*, whose proper Norwegian Name is *Vond*, is found in the east parts, but very frequently elsewhere: as far as I have been able to find out, 'tis in a manner unknown in this quarter; probably our rocky ground does not suit this famous miner. He lives upon worms and insects during Summer, and in the Winter they eat nothing; but, like the porcupine and bear, lie in a state of insensibility, in a trance, or a kind of slumber.

## S E C T. XIX.

Rats.

The Rat, *Rotter*; of these we have several kinds, particularly *Forest* or *Wood*, and *Water-Rats*; these are not longer-liv'd in *Nord* than *Helgeland*, where they soon die, if brought

\* For several years lately Otters skins have been wanted, in Holland and Germany, more than ever; according to our merchants accounts, who export from hence annually several thousands.

† Nature has wonderfully provided these creatures with a sucking-hole, under their body, betwixt their hind-legs, into which they, in Winter, run their sharp snout up to their eyes, and receive nourishment there, as the bears do from their paws. *Hans Frid. Flemming German Huntsman*, p. 115.

there

there by ships from other places. This J. L. Wolff justly observes in his *Norrigia Illustr.* p. 94; and abundant testimony confirms it. If they live to the following spring, it is long; and when the herbs begin to grow up, we see them no more. Hardanger, in this diocese, does not produce, nor will support, any rats; and in the diocese of Aggershuus we have observed, that on the south side of Vormen, a large river which comes from Mios, there are found rats, as in other places; but if they are brought across the river they won't live: this has often been done, by transporting them, with the corn, from the Magazine to the Castle of Vingers; in which place the rats have soon after been found dead: and they are never seen alive in those fields, i. e. from Odal and Solloer quite to Osterdalen; the earth, in these places, doubtless has some thing mineral in it, from whence exhalations rise, that are unsupportable to those creatures\*.

The Mouse, *Muus*: this little creature we have as well in <sup>Mice.</sup> houses as woods; and some, according to Olaus Wormius's account, are poisonous; destroying, or greatly hurting other creatures by their bite: these are found also along the water-side, where they are called *Vand-Skiær*.

A very particular sort of Mice, white, with red eyes, are found in the little trading town of Molle in Romsdalen; but we don't know that it is their native place; 'tis more probable they may have been brought thither by accident; an East-India ship being once obliged to winter there. This is the opinion of Hr. Jon. Ramus, in his *Topograph.* p. 242. It is here, as in other places, a common saying, that just before a ship is going to be lost, or a house to be burnt, all the rats and mice will quit the same; and it is related here in Bergen, that just before the great conflagration, in the beginning of the present century, which consumed the greatest part of this city, the rats and mice universally were seen to leave the houses, and retire part to the water, and part, in shoals, to march over the rocks at Sandvigen, to the adjoining Hammers village, to the annoyance of the farmers. *Supposita facti veritate*, I could wish to have a sufficient account or reason given me for this by our modern philosophers, who will not believe or receive any thing for a truth, except it can be demonstrated *ex nexu causarum*; this, I apprehend, in such events, tho' the facts be real, cannot be expected. Certain creatures, we know, are previously sensible, that is, when they have a feeling in their bodies, of the ensuing change of air; or can denote before-

\* For certain creatures aversion or antipathy against certain places, see *Plin. Hist. Nat. Lib. IX. cap. lviii.*

hand when the weather is altering, according to the unalterable laws of nature.

## S E C T. XX.

Lemming.

Of the Norwegian quadrupedes, there is yet one left which may be referred to the class of rats and mice, it is called by some people *Læmus*; by others, *Læmen*, *Lemming*, or *Lomhund* †; in Lappish, *Lummick*; in Swedish, *Fieldmuus*, *Rodmuus*, *Sabelmuus*; and of some Latin writers, *Mus Norvagicus*, *Norsk Muus*. Their original or native country, is the mountain or rock of *Kolen*, in *Lapland*, belonging to the Swedes, as well as to the Norwegian neighbouring provinces; and we find a Swedish writer, namely, *Olaus Magnus*, is the first among us, who, in his *Hist. Septentr. L. xviii. c. 20.* has given us any written accounts of this astonishing and pernicious creature; though no more than what *Gesner*, in *Icon animal. Cap. xvii. art. 2.* has also related; *Jul. Cæs. Scalig. Exerc. 192. Sect. 3.* *Jac. Zieglero* in *Descript. Norveg. ad Castra Bahuf. & Johnstonis* in *Taumatographiæ Classe iv. cap. 8.* as well as in *Hist. Nat. Quadruped. cap. xviii. art. 3.* has mentioned it: and the industrious and learned *Doct. O. Wormius* has thought it worthy to be illustrated with a *Scriptum Monographon*, entitled, *Historia Muris Norvagici vel animalis, quod e nubibus quandoque in Norvegia decidit, & fata ac gramina magno incolarum detrimento celerrime depascitur.*

It likewise stands in the *Memoirs of the Academy of Sciences in Sweden, ad ann. 1740, Vol. i. p. 320.* *Hr. Linnæus* also remarks on the *Lemming*, in his two last particular writings, and the universal report of the country confirms the facts, things not consistent with reason only excepted. After this premonition I shall give a short extract, and leave it for others to amend; for this is the only way to attain, or make advancements in the knowledge of nature, or to elucidate it by degrees.

The *Lemming's* shape and make, as *Wormius L. C.* represents them in a print, (and I do not pretend to know any more, except from their skins, of which I have seen many) is in part like a mouse, and part like a rat, excepting that the tail is very short, about a thumb's length, and a little turn'd up at the end; the legs are very short, and scarce appear to keep the belly from the ground; the head and mouth are like a field mouse, with very long and large whiskers, consisting of about half a score long hairs

† *Læ Islandis & Norvegis noxa vel damnum est. Læminge illis dicti sunt mures noxii segetibus, Norvegis peculiare, quos cælo decidisse, & per agros dispersos alicubi obviarunt. O. Sperling in Notis ad Testam. Abfalonis, No. 78, p. 147.*

on each side: they are something larger than a mouse, but not quite so big as a rat; have very soft hair, and of different colours; black, with yellow and brown in streaks, and some in spots. Their eyes and ears are small, their teeth long and sharp. They <sup>Plague.</sup> must multiply very fast by what we see of them, tho' (God be praised) but seldom; i. e. about once or twice in twenty years, when they come from their peculiar abodes: at these times they gather in great flocks together, consisting of many thousands, like the hosts of God, to execute his will; i. e. to punish the neighbouring inhabitants, by destroying the seed, corn, and grass: for where this flock advances, they make a visible path-way on the earth or ground, cutting off all that is green; and this they have power or strength to do till they reach their appointed bounds, which is the sea, in which they swim a little about, and then sink and drown. For longer than one year God does not suffer this plague to be upon us, and then it only rages here and there, in certain districts at a time\*. It does not last long, but in the end, as it is said, they have a natural tendency to drown themselves; or, if this fail, they perish by the Winter's cold; or those few that do escape, die, as soon as they eat the new grass; for it does not agree with them. The Finlaps dogs devour many of them, eating all but their heads. From Kolens Rock, which divides the Nordland manor from Sweden, and which is held to be their peculiar and native place, they are observed, when the wandering fit comes upon them, marching in vast flocks through Nordland and Finmarck, to the western ocean; and other bodies of them through Swedish Lapmarck, to the Sinus Bathnicus. They do this, according to Hr. Linnæus's account, in such a direct line, that they will not turn on any side, or make any sweep; and if they must go round a large stone, then they seek their line on the other side, and so keep strait on. If they find a boat on any fresh water river, they run in at one end, or side, and out again at the other, in order to keep their course. Their young they carry with them on their backs, or in their mouths. If they once meet with the peasants to oppose them, they will stand undaunted, and bark at them, like little dogs. From this circumstance they are called by some Lomhunde, and particularly, if

\* In Sogne Fiordens Fogderie, in this diocess, it happens every third or fourth year, that a few Lemen are seen here, yet but few, and cannot do much harm. There is kept here also what is named a Mouse festival, once a year, in this manner: they put on their holiday cloaths, and instead of working, lay themselves to sleep. This took its rise from a fast-day which was kept in former times, to avert the plague of Lemen, and other Mice, which some pretend have been used to fall down formerly from the clouds; but of this I have no authentick account.

Fall from the  
air.

any one strike at them with with a stick, they will bite at it, in the manner of a dog. These vermin prognosticate a bad harvest where-ever they take their course; but, in return, the countryman expects good hunting, or sport, of the bear, fox, maar, and several other large animals, which follow these creatures; to whom they are delicious food. All this is established by, and may be believed from common report, and the testimony of many understanding and honest persons, who have made nice observations on these creatures; so that their history being so far certain, there remains one thing dubious, which is this; whether it is to be believed that the Lemmingerne, according to common report, do fall down out of the air; which many, both in these and former times, will pretend to say they have seen with their own eyes. Wormius, Scaliger, and other great men, do not suppose this to be impossible: they imagine that the Lemming, like frogs, and other small creatures, may, in their embryos, be attracted to the clouds, and being then come to maturity, may drop down. Cum igitur tot animalium genera in nubibus generata, pluviis decidisse, fide dignorum autorum constat testimoniis quidni & hæc eodem modo generata in nubibus statuamus? L. C. p. 33. To reconcile this strange account to reason, others think it more probable, that the fogs, which sometimes are seen extremely thick upon the mountains, may lift them up in multitudes, and carry them away to other places, where it is but of late time they have ever been heard of. This Hr. Linnæus believes as much, as that the same fog is able to take up a Finlap with his Reenf-deer, and carry him away; a notion which the common people really have in that country. However, the afore-said philosopher does not tell us, in the place of this which he explodes, any other way that seems more probable for their being brought to us. If we won't deny all historic faith which declares for their coming from the air, I will venture to give my opinion, to which Hr. Lucas Debes's agreement gives some farther confirmation: in his Description of Færoernes, p. 13, he describes a sort of whirl-wind, called Oes, which elevates up, or draws up sometimes a whole last of herrings out of the sea, and throws them on the rocks. Such an effect or power the Finlaps allow to a thick fog: concerning the Oes I have already spoken largely, Cap. 1. §. ult. P. 1.

And, in confirmation of this opinion, it is to be observed, however, that some are found on the rocks, which appear to be struck dead by their fall; also that none in this country have ever

ever seen their young, as they do in Sweden. When they are found here they are nearly all of a size.

The formular of an exorcism, which the Romish clergy have used, in order to banish such country plagues with, is introduced by O. Wormius, p. 55, thus: “ Exorcismus. Exorcizo vos pestiferos vermes, mures, aves, seu locustas aut animalia alia per Deum Patrem ✠ Omnipotentem, & Jesum ✠ Christum filium ejus, & Spiritum ✠ Sanctum ab utroque procedentem, ut confestim recedatis ab his campis, seu vineis, vel aquis, nec amplius in eis habitetis, sed ad ea loca transeat, in quibus nemini nocere possitis, & ex parte omnipotentis Dei, & totius curiæ cœlestis, & Ecclesiæ sanctæ Dei, vos maledicens quocunque ieritis, fitis maledicti, deficientes de die in diem in vos ipsos, & decrefcentes quatenus reliquiæ de vobis nullo in loco inveniatur; nisi necessariæ ad salutem & usum humanum, quod præstare dignetur ille, qui venturus est judicare vivos & mortuos & seculum per ignem. Amen.”



## CHAPTER II.

## OF SERPENTS and INSECTS.

SECT. I. *General observations on the creatures, which properly belong to this class.* SECT. II. *Serpents of the land.* SECT. III. *Serpents of the waters.* SECT. IV. *Lizards, Toads, Frogs and Snails.* SECT. V. *Grasshoppers, Plow-worms, Slow-worms and Centipes.* SECT. VI. *The Cluster-worm and Spider.* SECT. VII. *Small worms, which fall in the fogs, and hurt trees.* SECT. VIII. *Others of a like kind, which are thought to come down with snow, and hurt the ground.* SECT. IX. *Of Caterpillars, Humble-bees, Gnats and Flies.* SECT. X. *Of Wood-bees, Beetles and Ants.* SECT. XI. *Of Insects found in the water, and called Water-beetles; of Boat-flies, and Red-worms, and Hippocampus, or Sea-horse.* SECT. XII. *Of the Concha Anatifera, which is erroneously taken to be the first state of a certain kind of Geese or Ducks.*

## S E C T. I.

**A**FTER the Quadrupedes of Norway, we naturally take into consideration the Serpents and Insects; those which creep, and those which have some use of wings.

Least of these  
forts towards  
the North.

This article will be but short for two reasons; first, Because the cold northern parts are less fruitful of them than the warmer countries, where the earth and air are better adapted for the peculiar contexture of the \* bodies of Snakes and Insects: and secondly, I write only what I know by experience; and I have hitherto had but little opportunity of examining into these matters with necessary care and circumspection, especially as the taste of this age is very delicate in these particulars, from the extraordinary lights of many, and of Mr. de Reaumur, preferable to most, who has discovered things concerning them, to the wonder and surprize of all Europe. In the mean time I will not omit inserting the *Natura rerum*, so far as my imperfect knowledge and little experience therein has been able to furnish. I shall observe first, that the terms, Serpents and Insects are to be understood in the extensive sense, which the before-mentioned Mr. de Reaumur explains in the following words, in his *Memoires pour servir a l'histoire des Insectes*. T. I. P. I. p. 69. sequ. *Les anneaux dont le corps d'une infinite de petits animaux est compose, les especes d'incisions qui se trouvent a la*

\* Nevertheless Insects live longer in a cold air than in hot, according to John Swammerdam's remarks in his *Biblia Naturæ*, Class iii. p. 162, where he speaks thus: "Such influence have cold and heat on that small animal the Silk-worm, that tho' heat is life to it, and cold death, that is, it obstructs all motion, which is a state of death; yet it appears from examples, that even cold may preserve this little animal's life longer, for their juices and spirits circulate slower, and don't evaporate so soon as in immoderate heat." Perhaps the same principle may be advanced of the longevity of the Norwegians.



jonction de deux anneaux, leur ont aparemment fait donner le nom d'Insectes, qui aujourd'hui n'est plus restreint a ceux qui ont de pareilles incisions. On n'hesite pas a mettre une limace dans la classe des insectes, quoiqu'elle n'ait point d'anneaux distincts, &c.—Des qu'un Historien a consacré sa plume a la gloire d'un peuple, il se passionne pour luy, il voudroit trouver par tout des traces de ses conquestes & de l'étendue de sa domination. Je ne sçay, si des dispositions pareilles ne me font point trop reculer les limites de la classe des Insectes. Je luy accorde volontiers tous les animaux, que leurs formes ne nous permettent pas de placer dans la classe de quadrupedes ordinaires, dans celle des oiseaux & dans celle des poissons. Les voyageurs qui nous parlent d'araignees aussi grosses que des moineaux, exagerent peut estre. Mais nous avons des papillons dont le vol, dont l'étendue des ailes, surpasse l'étendue des ailes de certains petits oiseaux. Une chenille n'en seroit pas moins chenille, si on en trouveroit de plusieurs pieds de longueur. Un crocodil seroit un furieux insecte. Je n'aurois pourtant aucune peine a luy donner ce nom. Tous les reptiles appartiennent a la classe des Insectes, par les memes raisons, que les vers de terre luy appartiennent. Les lézards, qui malgre leurs quatre jambes, s'elevent souvent si peu, lorsqu'ils marchent, que la plus part semble ramper, sont encore une dependance de la classe des Insectes, &c.

## S E C T. II.

Concerning Serpents, Toads, and other poisonous creatures of <sup>Serpents.</sup> that kind, they are not found above Helgeland, in Nordland Fogderie, where the temperate zone ends, but farther down, in the diocese of Tronheim; and consequently not less in the more southern provinces. Their bite in general is reckoned not near so poisonous as the Italian or African snakes.

Of those Serpents which are most common to us, and which we call in Danish Snoge, J. Ramus says, p. 243, there are several sorts, viz. black, grey, silver-grey, and white; and a certain kind yellow, and triangular\*. In many places the people are of opinion that Serpents have their particular holds, and there gather themselves in great numbers; for

\* In a small collection of Norway petrefactions, I have a Snake found at Tonsberg, about as thick as a finger, and half an ell long, crooked, and with one side impress'd into a piece of pyrites; from whence it had received a bright copper colour, which I trace to the deluge. I never saw the fellow to the body of this Snake; for it is all over full of holes, and pretty broad incisions, as if with hollow annuli, or rings between; the rising parts, partes convexæ, were quite sharp.

Probably this is no more than a cornu ammoni, a petrification of a shell-fish, not a Serpent.

they

they are hardly ever seen in the neighbouring parishes; and I was informed in Nordals Parsonage at Sundmoer, that on that side of the river which runs by them there are many in the Summer, but on the other side not one; and even it has been try'd to bring them over, and they have immediately languished, and died in a few hours after.

This may have sufficient ground from the different nature of the soil, tho' it is not obvious, and depends, perhaps, upon certain hidden minerals, which may be agreeable, or opposite to their natures. Some advance that the much higher mountains on one side than the other obstruct the rays of the sun, which the Snake is fond of, to be revived by its warmth.

In the same place I was assured that a peasant's wife found a Snake in the cradle with her child, who was not in the least hurt by it. Most probably this cold creature wanted to revive itself in the heat; for when it has lain the whole Winter in a state of insensibility, it receives life again gradually by the sun's warmth in the Spring: and our long Winters and short Summers keep them under, and prevent their increasing so much as in warmer climates.

The kind of Snakes which the peasant calls Huiid Ormen, is sought after, and preserved as a remedy for the cattle in many disorders; a piece of this creature, particularly the head, is rolled up in a lump of dough, and put down the diseased creature's throat. The skin that the Snake annually casts, is used to tye round a woman's body in difficult labour; and they imagine it promotes delivery.

In regard to the birth of the venomous kind, by the observations of many it is affirmed, that the female parent hangs herself upon the branch of a tree, and lets the young ones, one after the other, drop down from her. Whether this is done that they should not bite the mother, according to their nature, I cannot determine.

All these creatures are viviparous; for there are some kind of them which lay eggs, and they are often found in dunghills, lying upon a great number of eggs, to hatch them as birds do: and some have observed that they made the great flat toad lie upon them, whilst they have thrown themselves round the nest, to keep him close to his duty.

Singular incident.

Another singular incident, which I have heard from many credible witnesses, may be related here, to shew the power of Serpents even over birds, which do not seem subjected to them; that is, as one of them lies, he'll raise his head about a quarter of

of a yard, with his mouth opened, till a lark, a swallow, or some low flying bird, in its flight happens to have the misfortune to come perpendicular over him; on this it will stand still, tho' at some fathoms height; and finding itself irresistibly impelled, it begins to cry sadly, and drops directly into the Serpent's mouth, who well knows how to separate the feathers, and throw them out.

That this happens is certain; but how those rays or effluvia that may arise from the natural powers of the Snake, with which it, as it were, sucks the birds down to its mouth, I leave for others to investigate. So much is to be observed however, that the Lord of Nature, who ordains one creature for the other's food, has given the Serpent in this a power which does not altogether seem to agree with his form and shape\*. Olaus Magnus says, in his *Hist. Septentr. L. xxi. c. 28.* That in this country is to be found a Serpent, called *Amphisbena*, with two heads, one at each end, and that it goes forwards with both, moving either way. The same is related by Odoardus Dapper, about a sort of Serpents in America; but I have not heard it in this country confirmed by any body. Mr. Edward Christie, rector of the parish of Tynes, and dean of Sundhordlehn, assured me that he had a small Serpent, with two heads on one body and tail; so that each head had a moderate part of the body divided for it: he had preserved it a long while in spirits of wine, but at last threw it away at the request of his wife, who had an aversion to it, and was afraid she should happen to see it unawares, and be terrified. This puts me in mind of a Serpent, or young Dragon, with seven heads and necks, on a thick body, and a long

Serpents with many heads.

\* Concerning a large sort of Serpents in Phrygia, *Ælianus*, in his *Lib. ii. de Animal. cap. 21.* tells us, *Cauda ad terram adniti, reliquo erecto corpore, toto gutture eminente & paulatim laxato ore hiante, volucres super volantes, tameñi sublimè ferantur, sua aspiratione, tanquam amatorio quodam, ad se attrahere allicere.* P. S. When I wrote this I met with, in *Biblioth. Britannique, Tom. xii. P. i. p. 136.* an extract of philosophical transactions de anno 1734, M. Jun. Jul. Aug. and there is, art. 1. a treatise, called, *Conjectures sur le pouvoir de charmer ou de fasciner, qu'on attribue aux Serpens à Sonnettes.* The renowned Sir Hans Sloane, as an author, is of opinion that the American Rattle-snake (and here we attribute the same faculty to the common Snakes) first bites and wounds the bird, and then, lying under the branch of the tree where the bird is flown to, watches, that it may drop down into the mouth of its executioner. But in this country they assure me quite the contrary to what has been said, averring the unhurt bird's fluttering in the air over the Snake's open mouth. Nor does it to me seem probable that the Serpent should let his prey slip out of his mouth, to catch it again with less certainty. What I have set down is what I cannot vouch from my own experience; but have it from those that I have no reason to doubt.

In the *Hamburgh Magazine* we meet with Doct. C. J. Sprenger's famous experiment made with a mouse that was let loose on the ground to a Snake: it made a few turns, and squeaked a little, and then run direct into the Snake's open mouth, who all the while lay still. Might the Newtonian attraction take place here?

PART II.

L

pointed

pointed tail, with four legs, covered with scales, less than the scales of a herring. This creature is, as well as I can carry it in my eye, two German ells long. This I have seen, and perhaps many thousands besides me may have seen it; and it is still to be seen at Mr. Stampeel's, an eminent merchant in *Hamburgh*\*, to whose fore-fathers it was pawn'd for a considerable sum of money, by the *Konigsmark's* family, who got it, among other booty, at the plundering of *Prague*. A painting of it is to be seen at *Copenhagen*, in the king's cabinet of curiosities, and which I can truly attest is perfectly done from the original. The emblematic *Dragon* with seven heads, which the *Scripture* takes notice of, has not alone an imagination, but a natural truth for its foundation; and I take this opportunity to observe it: but I have no ground to confirm what the often quoted *Ol. Magnus*, cap. 29. says about some birch-trees in this country, which are seen green Winter and Summer, from a number of Snakes that have made their nests under the roots, and so keep them warm. The same author says also, cap. 30. that the *Norwegians* are so superstitious, as to hold Serpents sacred, and set milk to them for food; but that superstition is thrown off long ago.

### S E C T. III.

*WaterSnakes.* Water Snakes, Vand-flanger, which are commonly dark-colour'd, and are not reckoned so poisonous as those on land, are found here every where in fresh water; but that they, according to an old saying, are many fathom long, particularly in *Store Mios* on *Hedemarken*, and strong enough to overset a boat, I have not found confirmed by experience; tho' I will not deny the possibility of it; in consideration of what *Livy*, *Pliny*, *Strabo*, and others report, concerning the bloody fight of *Atilius Regulus* against a Serpent, 120 feet long, which opposed the *Romish* army in crossing the sea *Bagrada* in *Africa*, and killed great numbers of the soldiers before he could be destroyed; which was done at last with pickaxes, for he did not regard their arrows.

*Odoard. Dapper*, in his *African Travels*, p. 394, takes notice, that in the land of *Quoia* there is a sort of Serpents called *Minia*, the bigness of which may be concluded from their swallowing up a whole stag.

The great Sea-snakes I once held only for a chimera, but am now fully convinced that they are found in the North sea, as sure as any other fish: it is said, by the people who inhabit the coast,

\* This is probably some artful imposition; for there is not known to be any such creature in nature,

that they are not generated in the sea, but on land; and when they are grown so big that they cannot move about on the rocks, they then go into the sea, and afterwards attain their full growth. This last account I cannot persuade myself to believe, for the salt water is not agreeable to the nature of land-creatures; and the Sea-snake is generated, without doubt, in the sea, according to the nature of fishes, and other creatures of the ocean.

If that be, which many of the farmers hereabout declare, that they have seen snakes of several fathoms length; or if there be truth in their accounts, who, from uncertain relations, describe the Lindormen, or great Snake, it is most probable that creature would sooner go to fresh waters, in case its body could not move about longer on dry land.

In Ullands parish there is a lake of a middling size, which is said to have in it these Snakes; and the lake Store Mios, in Hedemarken, is long and deep enough for the largest ship.

Ol. Magnus, Lib. xxi. cap. 27. Petr. Undalinus, in his Description of Norway, cap. vii. p. 36. and Jon. Ramus, P. III. p. 82, affirm, that there are quantities of large Snakes in these waters, one of which was seen to reach from Oens Land to Kongs Landet; this I'll leave on their authority, and only observe, that if it is true, the relation is mixed with fables and witchcraft, and omens, which should be exploded.

The Sea-snake's appearance, they say, prognosticates some important incident to the country; this is idle. Of the same Fable. fabulous kind is, without doubt, the aforesaid first author's relation, L. xxi. c. 27. of a Snake that was found near Bergen, 200 feet long, and 20 thick, which, in the night, left his hole in the rock, to go out and devour the farmers calves and sheep; he might as well have said cows and horses. Of such monsters on land we do not pretend to know any thing here; but with respect to the great Sea-snake, which is a veritable monster of the sea-kind, I shall speak particularly, when I come to the subject of the Norway sea-animals and fish. In the mean time, in the words of Ewerh. Hæppelius, and upon his credit I will introduce the following relation out of the Mund. Mirab. T. III. L. I. c. 18. "Nicolaus Gramius, minister at Londen in Norway, This is High-German. gives, 16 Jan. Anno 1656, of such a Serpent the following account, from the report of Gulbrandi Hougrud and Olaus Andersen, that they had seen, in the last Autumnal inundation, a large Water-serpent, or Worm, in the Spæriler sea; and it is believed that it had been seen before in Mios, and had been hitherto hid in the river Bang. As soon as it reached the  
" shore

“ shore of this river, it proceeded on the dry land to the Spæriler  
 “ sea; it appeared like a mighty mast, and whatever stood in its  
 “ way was thrown down; even the very trees and huts: the  
 “ people were terrified with his hissing and frightful roaring;  
 “ and almost all the fish, in the aforesaid sea, were devoured or  
 “ drove away by it. The inhabitants of Odale were so terrified  
 “ at this monster, that none would venture to go to the sea, to  
 “ follow their customary fishing and wood-trade; nor would any  
 “ body walk along the shore. At the end of the Autumn,  
 “ before the waters were frozen, this monster was seen at a  
 “ distance, and, by its enormous size, surprized every body; its  
 “ head was as big as an hoghead, and the thickness of its body,  
 “ as far as the same appeared above water, was like a tun; the  
 “ length of the whole body was vast; it reached, as far as the  
 “ spectators could judge, the length of three Norway Dannen-  
 “ trees, and rather exceeded.” This is the account: Sit fides  
 penes autorem.

## S E C T. IV.

Lizard.

The Lizard, called Ogle or Fire-been, and often also Fire-fod, is here much of the same shape, but of various colours, brown, greenish, and striped.

The green ones are found in the fields upon the ground; the dark in the cracks and holes of rocks. Ol. Magnus treats, L. xxi. c. 28. about the so called Hagedisser, which is a large Lizard, of which there are many in the caves and holes of the rocks, but are not hurtful or pernicious like Snakes. They are unknown to me; for what I have seen are but small, like the Danish, and are very different from the Hagedisser in warm countries.

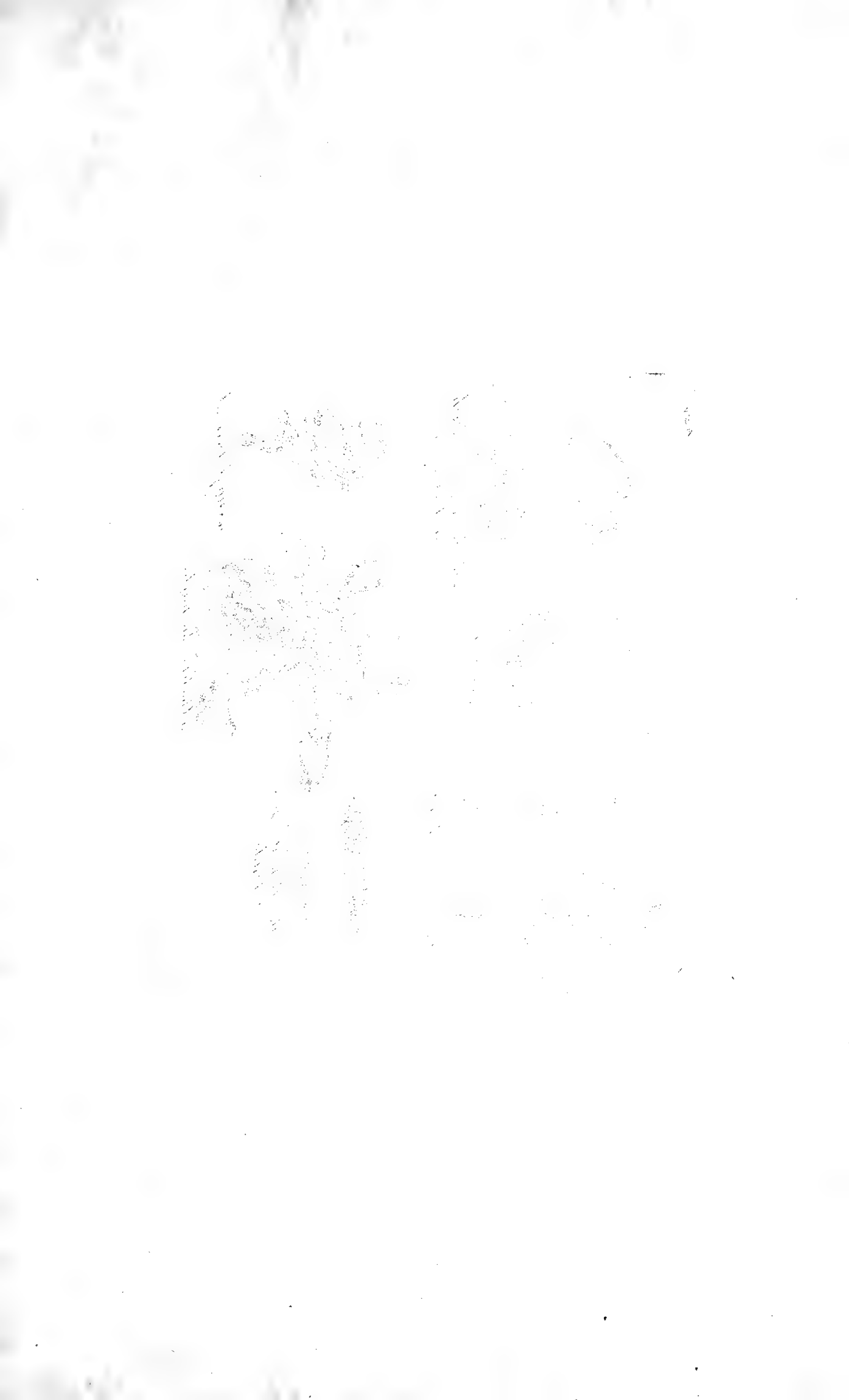
Frogs.

Toads, Tudser, and Frogs, Padder, which we call Froer, are here of the known sort, but they are not so frequent here as in Denmark: I have never seen here any of the small green Frogs, that will sit on the leaves of trees, and make a noise like the sound of a bell. These in Denmark are called Peder Oxes Froer\*.

Snails.

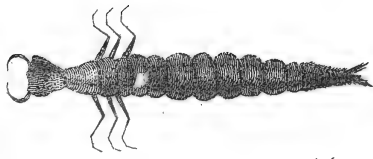
Snails, Snegle: we have peculiar to this country, some naked Snails, or without shells; these are either large and black, or small and of an ash-grey; and are commonly found under old timber, that has laid long on the ground.

\* The common Frogs have this particular in them in this country, that they make a less noise or croaking in the spring, than in any other place; and according to my own and others observations, they are in some places quite dumb.

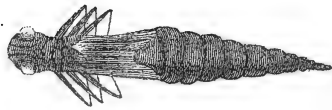


part 2

744.



Worm of a Libella



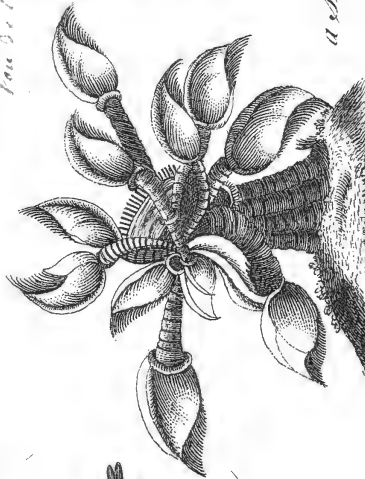
The Sea Horse  
*Chelodactylus*



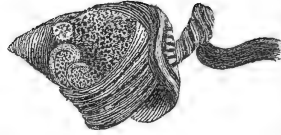
The Louse of the Codfish,  
called Bearfish  
*Scolecophagus*



The Pipe Worm  
two kinds



a Cluster of Barnacles  
*Corymbus*



a single Barnacle



We have others that live upon the grafs and upon leaves ; alfo in fresh water : thefe are provided with a houfe, or fhell, which is brown, ftriped, or black ; they are very common.

We have alfo the falt water Snail, which is partly fhaped like a Snake, and a Craw-fifh ; likewife other forts belonging to the fea, which fhall be treated of in their proper place.

## S E C T. V.

The Grafhoppers of Norway, Faare-Kyllinger, which the Grafhoppers: Norwegians call alfo Siritzer and Græfhopper, and fuch fmall and common creatures, do not deferue here any particular remarks, as nothing diftinguifhes them from the common kinds in other countries. The fame may be faid of the Leach, called the Horfe-Leach, the common Earth-worm or Dew-worm, and other large and fmall Worms and Maggots, which are called here contracte Mak or Mark.

A fhort thick Worm, with fix feet, has the name of the Plow- Plow-worm. worm, or Muld-Oxe, perhaps becaufe he knows how to plow the ground ; in the furrows of which the eggs are dug or plow'd up in the Spring, and would produce an immense quantity of Worms, and afterwards of Flies, if God's providence had not appointed the crows to watch, and given them a particular appetite to devour them fofoon as they appear.

At Hardanger there is a Worm that I have not heard of any Slow-worm: where elfe ; it is called the Slow-worm, Slæbe, perhaps becaufe it moves but flowly ; it is nearly half an ell long, and about as thick as a finger ; the goats eat them eagerly, and they don't hurt them.

The Centipes, called Tufind-Been, or Skaal-Orm, is half a Centipes. finger's length, reddifh, with many fmall legs under the belly : they live in ftables and cow-houfes, and are a pernicious creature to the cattle, if they chance to fwallow them with their provender.

When this happens, the peafants take one of the fame kind of Worms, pull off the head, and give it to the fick beaft, rolled up in a bit of dough.

## S E C T. VI.

The Cluster-worm, Drag-fœ, or Orme-drag, is, as far as I Cluster-worm: know, a creature peculiar to this country ; at leaft I have neither feen or heard of them in Denmark. It is properly a congeries of animals ; and confifts of an immense number of fmall Worms, gathered and extended for a great way along the earth, juft like

a rope of many fathoms; and 'tis a finger and half, or two fingers broad. Each Worm is not thicker than a bit of coarse thread, and as long as an oat-corn; of a watery colour, with a black spot on the head. These kind of Worms love to be together, and are found by millions, continually crawling upon one another, yet so that the whole company moves continually forwards, and leaves a path behind them, upon the bare ground, like a drawn line. What this almost numberless quantity of small Worms nourishment or subsistence is, is not to be perceived; and it is probable that they prey upon one another, as M. Labat assures us the American serpents or snakes do: otherwise the great encrease and number would render the place where they come uninhabitable. Concerning the aforesaid Orme-Drag Jonas Ramus says, p. 242, that the common people, when they perceive it, look upon it as a sign of some good luck, and throw their cloaths in the way; if the Worms go over them the owner is counted fortunate, but if they pass on one side, then, by the same superstition, they think that he'll soon die. The same author is of opinion, that these possibly may be the Worms, of which Juvenal says, Sat. II.

Non illis prodest in pyxide condita Lyde.

Id est aranei genus, quod millenos vermiculos parere & sterilitatem tollere dicitur.

Spider.

According to this opinion the Orme-Drag should be the Maggot, or a sort of young Spider, or something of that kind\*, which I cannot agree to, since Spiders, which are called here also Kongro, item Spindel, then would be in the same places in the greatest quantities; which is not observed, but rather the contrary, in comparison to other countries. This, perhaps, the damp air, particularly towards the west side, may occasion; but it is certain, that of that sort there are but few, neither are they large; and we are less troubled with their webs in the houses and churches than any where †.

\* The Spider is produced in its own form from the egg.

† The learned Hr. Hermand Rugge, rector at Slidre in Valdres, related to me something extraordinary concerning a very small unknown Insect, hardly bigger than a grain of sand, with legs all round and red: this is so poisonous, that if any beast accidentall should swallow one, he would instantly die.

A little red Spider, common in England, of which the same thing is said here, but fabulously.

## S E C T. VII.

A sort of almost invisible small Worms is brought hither in the Summer with a certain fog, called Haforje, because the West-wind sets it in from the ocean. Small Worms in fogs.

This Haforje is full of the aforesaid small Worms, which fall on the trees, and all greens, and do a vast deal of damage.

When the honey-dew falls on the fruit or hops, then there follows, and doubtless arises from that, a sort of small Worms, which do a vast deal of mischief also; against which the farmers make use of the following remedy: they take one ant-hillock, or more, and boil it in a tun of water, and sprinkle every green thing with it that they want to save. This honey-dew is a kind of a slimy moisture, which dries by the sun's sudden heat, and then appears in form of cobwebs; and probably this is the rise of a half-fabulous account given in Ewerh. Happelii Mund. Mirab. Tom. I. L. II. c. vii. p. 91. in the following words.

“ Prætorius in these words describes an uncommon rain, which Hgh German  
 “ fell Anno 1665. He says in his New World, P. I. p. 245,  
 “ that advices came from Hamburgh of the 29th of July, that  
 “ a merchant had reported, for truth, the following fact, which  
 “ happened in Norway: i. e. There is a wood, which the day  
 “ before was all green and beautiful, and the following day  
 “ quite withered away, and the leaves were all covered with  
 “ linnen, like muslin or gauze; of which the king of Denmark  
 “ was presented with 20 ells, and a merchant in Hamburgh had  
 “ also had a piece in his hands.

“ This we look'd upon as a mere fable at Leipzig, but some  
 “ insisted upon the fact, the truth of it being vouch'd by several  
 “ letters from Hamburgh; yet it remained a kind of doubt, and  
 “ people did not know what to believe, till one account came  
 “ in after the other, and cleared up all doubt of this suspicious  
 “ prodigy; and finally, it was put upon footing of credit, by  
 “ a considerable burgher and merchant's having received a very  
 “ full and particular account, in the beginning of August, from  
 “ his faithful friend, a lord of the manor there; which I have  
 “ read, and with astonishment; viz. from Tundern in Holstein;  
 “ and wherein was specified, that at a place in Norway, for about  
 “ a quarter of a mile round, there had fallen a kind of a web,  
 “ which had covered the earth. It is almost white, says the ac-  
 “ count, and has the appearance of gauze; the people in those  
 “ parts had made apparel of it, and dressed themselves in it.  
 “ Perhaps God has sent it to them as a warning, to make them  
 “ leave

“ leave off their pride and vanity, and humble themselves in  
 “ their drefs. Along with the account the fame person had fent  
 “ a piece of the faid gauze, folded round a piece of paper, of  
 “ the fize of a quarter of a fheet both in breadth and length.  
 “ This I examined, and found that it refembled a cobweb in  
 “ fineness, but differed in other respects vifibly. It was very  
 “ ftrong, and would bear pulling in any part before it would  
 “ tear ; which our cobwebs wont, for a large fly will tear them.  
 “ Vide Frantz. in Hift. Animal. c. xiii. tract. 4. p. m. 869, 870 ;  
 “ the speculative fpeech of Thales to Solon fetting afide the blowing  
 “ it to pieces, and destroying it with a bare finger, as is daily expe-  
 “ rienced. And further, this Norvegian gauze, when laid out of  
 “ the hands, would curl up together, and, as often as one had a  
 “ mind, might be fretched out without any hurt ; which a cob-  
 “ web will not bear ; for when you take that off from the walls,  
 “ &c. it curls up together like the rind of warm bacon, and is  
 “ like a thick thread, and fcarce poffible to be unfolded above  
 “ once, and brought to its former breadth ; not to mention  
 “ many more things, in which it differs.” So far Happelius of  
 Prætorius.

Some years fince it was obferved in the diocefe of Christianfand, for feveral miles round, that there were no leaves on the oak trees, they were all confumed by a kind of fmall Worms, which were afterwards transformed into a flying infect of a white colour. Thefe creatures were all blafed afterwards, and fell on the ground in fuch heaps, that it appeared like the cherry-tree bloffom when it is blown, and falls on the ground.

To the former clafs, or fome other nearly related to it, one might perhaps refer thofe fmall Worms which are faid to fall with the fnow in the Spring of the year, tho’ that feldom happens after the trees have budded ; for if it does, the young fhoots ufually decay.

#### S E C T. VIII.

Small Worms  
that fall with  
the fnow.

It is faid that in the Spring fometimes there falls down with the fnow a fort of Worms larger, and more confpicuous : thefe are thick and longifh, of a dark colour, and they do much mischief to the greens, and may be counted a plague.

Plague.

Anno 1684, which was a dry year, thefe were found in incredible numbers, fwarming together ; and where-ever one took the moft pains to deftroy them, they increafed the fafter ; they did not hurt the corn, but deftroyed all other kind of green. In the year 1709 the fame fwarm, which feemed an instrument in the

the hand of God, was stretched out to destroy the cabbage, grass, hemp, and flax, but not the corn, which they seemed to have orders to leave; for they never hurt it.

The severe year, 1742, still fresh in our memories, was remarkable also for these worms, and for their consequences. On Palm-sunday they were seen by many people, as they were going to church, lying on the snow, and groping for the earth; which has been assured me by Hr. professor Erich Grave, who sent to me, living at that time in Copenhagen, written attestations relating to it, which I shewed his late majesty king Christian the VIth, who was desirous of knowing the origin of these worms, but did not much credit that attestation, though subscribed by several farmers in Rygge Sogn, near Mofs.

Hr. justice-counsellor Detharding, then preceptor of physick in the university of Copenhagen, held immediately a lecture, or disputation, thereon, which he called *Disquisitio physica vermium in Norvegia, qui noviter visi, &c.* wherein his opinion is, that the eggs of these worms, which had remained from the last Summer in the cracks, and on the branches of the adjoining trees, fell from thence with the snow, and not from the air; and particularly he takes the pains, in his excellent method, to demonstrate, that these worms are not (according to the publick notion) any thing new or uncommon, or different shaped; for that, after he had examined the make and form of them in a microscope, according to the plate annex'd, he found them to be *ex genere erucarum*, or of the common Caterpillar kind, which the trees are full enough of, both here and in other places.

He shews that they, like these, have a horny shell on the head, sixteen feet, the six foremost armed with sharp claws, the eight hinder on the body flat, to go upon, and two hindmost of all placed by themselves; also, that they were, in general, smooth, tho' a little hairy, in ornamental tufts, about the body.

First, he asserts, that these *erucæ*, like other common Caterpillars, change into the so called Nymphas, or hide, or cover themselves, a short time, in a roundish shell, and become insensible; and then, that they come forth in the shape of a butterfly. The only thing in which they shew any sensible difference is, that these Norwegian worms were of a black colour, which is like the finest black velvet. This colour Hr. Detharding is of opinion they had received under the snow, which uncommon confinement might this year have effected some uncommon change in their delicate bodies.

This is his opinion : but if I am to believe several ocular witnesses that have seen this Worm instantly, when it fell black on the top of the snow, and have seen it come at once, together with the snow, from the snowy sky ; the rest seems dubious \*, All that I have further to say is, that, in the year 1735, many fields in France were visited with the same Worm-plague, according to *Monf. Reaumur's* account, which well deserves to be introduced here : Elles (les chenilles a douze jambes) nous ont pourtant appris en 1735, qu'elles doivent etre mises au rang des chenilles les plus capables de nous faire du mal. Depuis les derniers jours de Juin, jusq' a la fin de Juillet, il a paru un grand nombre de chenilles vertes, telles que celles que nous avons decrites cy-dessus. Mais il a paru encore beaucoup plus de chenilles, qui, comme les precedentes, n'avoient que douze jambes, & que quatre intermediates, dont le fond de la couleur du corps etoit un Verd plus brun. Le Verd de quelques-unes tiroit sur le noir, &c. Il n'est pas aise de se représenter la quantite de ces chenilles, qui a paru cette annee aux environs de Paris jusq' a tours en Auvergne, en Bourgogne, &c. Elles ont commence par attaquer les legumes ; elles ont ravage presque tous les jardins potagers des environs de Paris, appellees Marais, a un tel point, qu'on n'y voyoit au plus que des fragmens de feuilles ; les plantes n'avoient plus que des tiges & des cotez de feuilles, &c. Dans quelques pays ces chenilles ont attaque les avoines. *Monf. de Nainvillier* ecrivit a *Monf. du Hamel* son frere, qu'elles commençoient a les manger aux environs de pluvieux, &c. En Auvergne & Bourgogne elles se sont attachez aux chanvres encore trop jeunes, ou trop eloignes de la maturite, &c. *Memoires pour servir a l'histoire des Insectes*, Tom. ii. P. ii. p. 94, seq. If there be any comfort in what is called fellow-suffering, then we see that France, so highly favoured otherwise by nature, has, in this respect, not any preference. One thing may still be added from the learned *Hr. Ole Tidemand*, dean here in Bergen, his account, viz. That in *Stokke* parish, in the county of *Jarlsberg*, after they had put up publick prayers in the church against these pernicious worms, they were seen to gather in great heaps, and crawl to the nearest waters, and drown themselves ; and from that time there was not one found.

\* Worms in and with the snow appears very strange, particularly if we observe their subtil bodies not formed to bear the least cold, which otherwise either kills them, or lays them in a state of insensibility. See, in the mean time, *Aristot. Hist. Animal*, L. v. c. 19. *Ulyss. Aldrovand. de Insect.* L. vi. c. 9. *Th. Bartholin. de usu nivis medic.* c. 9. *Ewerhard. Happelii Mund. Mirab.* Tom. i. L. ii. c. 7.

## S E C T. IX.

Of the Caterpillar-kind there are some small ones that are found Caterpillar. in houses, and are called Mol, that is, Moths; they spoil cloaths: others live in fields and gardens, where they are known by the name of Kaal Orm, and do a vast deal of mischief; others live on the trees, and damage the fruit: we have them here in great variety, and worthy to fall under Reaumur's examination.

What in this place is to be observed as the country's peculiar property, is, first, that these Worms particularly love our Norway hawthorn trees, where their web is found fixed sometimes like a fine gauze; so that it seems they are satisfied with the leaves of this shrub, for want of mulberry leaves; and then the Butterflies, which afterwards come forth from their Nymphis, Butterflies. are not only of various colours and gloss, as in other places\*, but there is formed here one very rare and peculiar sort, which is quite blue; of which a friend of mine sent a pair very lately to Copenhagen, to be put in the rare collection of Insects which his excellence, the secret conference counsellor, count Rabe, has begun, and is determined to enlarge.

Bees, Bier, do not generate here: our Summers are too short for them, but yet Humble-bees, and other flying Insects, are very frequent. We have common Flies, large and small, black, Flies. grey, and brown, with spotted and striped wings. They are all seen here, particularly in the Autumn, in such quantities that they are very troublesome in the houses. And we have large and small Gnats much more numerous; which, with their buzzing Gnats. and stinging, awake the sleeping: they would be insufferable, if they were not drove away by smoaking the bed-chamber.

We have particularly a sort of large gnat, called Mehenk, which gives the most trouble. Ol. Magn. observes, L. xix. c. 15. that when the south wind blows in Winter, there comes forth from the earth, from under the snow, vast quantities of small Gnats, that swarm mightily about, till the north-wind blows, which kills them; but they revive, or come to life

\* La prodigieuse variété des formes des insectes de différentes classes & de différents genres, offre un grand spectacle à qui sçait les considérer: Quelle variété dans la figure de leurs corps, dans le nombre de leurs jambes, dans leur arrangement & dans la figure & structure des ailes, dont les unes sont des espèces de gazes & dont les autres sont couvertes de poussière, de figures régulières & arrangées, comme des tuiles. Autres ailes ont des étuis, dans lesquels elles se tiennent le plus souvent pliées par art. Reaumur L. C. T. i. p. i. p. 17.

again,

again, as soon as the south wind, which first brought them, sets in again.

C. Linnæus, in his *Fauna Suecica*, p. 326. takes notice of a sort of Flies, which are very common in Finmark: *Nigra est, oculi rubent, sub his linea alba, abdomen nigro & incarno tessellatum; thorax tribus canis lineis differt a præcedente, quod dimidio minor, quod non uti prior sub volatu bombos edat, quod non ita putrida quærat, quodque aliter generetur. Sola magnitudo in facie externa distinctam reddit, Vix eandem speciem crederem. In Finmarchia Norvegiæ integras domos fere replet\**.

### S E C T. X.

Wood-lice.

Wood-lice are common here as in other places; a well-known plague, and particularly if they have their origin in fir-wood, of which most houses are built; but which trees, according to their kinds, yield them or not, (for there is a difference); the farmers can distinguish whether they will swarm, as soon as they cut into the wood.

Fleas.

A sort of small black Insects, called Frosk, are seen in Norway, hopping about in the grass like Fleas; and there are also some other nearly of the same shape, but not leaping or jumping: these last keep upon the leaves of several trees, and are in the beginning green, but are afterwards of a reddish white: these find their food there, and they curiously carve and pierce the leaves of several trees, and curl and roll them up, to put their furry web between the two membranes, and lay their eggs.

Beetles.

Beetles, Skarn Basser, called here Tordiveler, are of several sorts†; and amongst them we have some, which, from their horned heads, are called Flyvende, Flying-stags, or Stag-horn'd Beetles: these are found in the woods, and particularly on oak-trees, and serve, with other Insects, for food for birds.

Ants.

Ants we have of two sorts, with and without wings, and we have a red, as well as a dark brown one: they are found here in the fir-woods in vast quantities||. There is is sometimes found

\* The species thus described by Linnæus is no other than our common House-fly.

† This sort is mentioned by Jo. Suammerdam, in *Hist. Insector.* p. 104, sequ. He names six large, 32 middling, and 127 smaller species; but such a detail concerning the Norwegian kinds in particular, is not to be expected here, either of these or other Insects, tho' I could wish somebody else would undertake it; perhaps there might be found a great many species in Norway, unknown to other places.

|| Some are of opinion, that the wings are only the distinction of the he-kind. *Mares alatos dixi, foeminas maximas pennatas, neutras minimas impennes. Neutra cohabitant per annum, acervosque exstruunt. Mares & foeminae quam primum prodeunt generant ovaque deponunt. Mox his peractis, expelluntur ambo a neutris.* C. Linnæus *Fauna Suec.* p. 306.



in Ant-hillocks what is called Norfk-Virak, which is but little inferior to the oriental resins; this the Ant gathers from the resinous moisture that runs from the fir-trees, and separates it with its feet; it then moistens it, and masticates it so long, that it becomes a well-scented resin, of which I can show a specimen.

## S E C T. XI.

Of the Insects which belong to the element of water, there might, with nice examination, I am persuaded, be found many strange and unknown; for what our eyes, without trouble or much examination can discover, are not near so many as are found by microscopes, and from their minuteness escape the naked eye. One ought to be provided with exceeding good magnifying glasses, or microscopes, if one would make discoveries of this kind.

What I can remember to have particularly remarked, in regard to Water-Insects, worthy of observation, and any ways useful, is confined to these following kinds.

First, the little round Beetle: this is small and black, round as a ball, and has a little thin narrow tail; horses and cows are often hurt by swallowing this kind in their water. Water-Beetles.

We have also an extraordinary, and otherwise to me unknown Insect, larger than an Ear-wig, and something like it, but very different in the head; it having two crooked horns bending towards each other, which open and shut like a pair of pincers; and which I, for want of a known name, will call Kniber, till such time as we know better; with these weapons this little animal does a deal of mischief to the small fish. A friend of mine, that has a country-house a little way from town, and near to it a good fish-pond, assures me, that this little Insect annually destroys vast quantities of fish there, particularly of his young carp; the breed of which, at a great expence, he had imported from Germany: he had no luck in attempting to breed them; for not only the spawn, but the young ones, are destroyed when they are grown to some bigness\*. Almost the same inconveniency is caused by a sort of Water-Fleas with long Water-Flea. legs; they will shoot and leap about upon the water, and then duck; and with their sharp, tho' subtil minute trunk, sting the fish, and suck their blood; but they don't keep it long, for, like

\* This is the Worm of one of the large Libellæ, or Dragon-flies.

the aforesaid horned insect, they discharge a red liquor soon after, through the proboscis that had suck'd it in †.

Red-Worm.

On the coast of the Western ocean, in the water between the many islands and cliffs near that shore, in warm Summer days, are found more or less, and some years immense quantities of a kind of small, and hardly perceptible Red-Worm, called Roe-Aat; they look like the finest sewing silk; they are hardly half the length of a pin, but in such numberless quantities, as has been said, that they perfectly colour the water; one quart of water may contain many millions. When the Worms appear in such great quantities they do vast damage to the herring-fishing, for the roe of the fish immediately rots on their fixing on it, and particularly when they are inclosed, or drove up in a creek, as sometimes they are, by several hundred or thousand tuns together, to be rinsed and salted occasionally; which shall be spoken of in its proper place.

From these Roe-Aat it should seem that a certain sort of Snails get that red colour, which occasions the excrements of one of our coast birds, called Teisten, which lives chiefly on those snails, to be of a very high red colour; this they drop all along the shore. We may probably have Purple-Snails of the same kind as the Oriental, tho' not regarded.

Bear-fish.

We have here also a kind of mischievous sea-insect, called Fiske-Biorn, that is, the Bear-fish, by the common people: it has a whitish, hard and shining horny shell, divided by twelve rings or circles; and on the undermost or flat side it has twelve feet. The largest of these as I have seen, and of which I have, is about the length of a joint of a finger, but the least not a quarter part so big; and they differ in colour. These vermin plague various sorts of fish, but most of any the cod.

When he hangs to a hook, and cannot clear himself by swimming or splashing, then the Fiske-Biorn fastens on him, and sucks out his juice and fat, so that the cod won't be fit to eat. These Fiske-Biorne, or the like Insects, hunt many fish about so, that they seek for land by way of shelter, about the rocks near there, according to the Creator's wise and gracious purposes: particularly the salmon is served so, a fish otherwise with us difficult to catch.

If it was not for a number of green and blueish flat lice, something like bugs, which get between his fins, and plague him so,

† De pulice aquatico Hr. Swammerdam has very pretty observations in his Hist. Insect. p. 70: as also Derham in his Physico-Theolog, p. m. 368.

The creature intended by this author is the Notonecta, or Boat-fly; not the Pulex Aquat. of Swammerdam, and others.

that

that he seeks for rivers or water-falls, to wash them off, we should seldom have opportunities of getting at him: by that means he falls into the hands of mankind, to a great advantage.

The Sea-Beaver is another and larger Insect, peculiar to the sea. It is sometimes taken here, and in the Nordland Waters that run between the cliffs and islands, near the coast of Norway; and is said to be an amphibious creature, like the ordinary Beaver, of which I have treated before, in the description of land-animals. By the plate annexed it will be found to be the same that is called in the Mediterranean Hippocampus, and by the Italians Cavallo Marino, the Sea-horse; but that name here signifies quite another creature. Hav-Bæveren is an hexangular fish, resembling a worm; its head, neck and chest very much resembles a horse, yet so that the mouth is a kind of trunk \*; the body more wonderful, being undulated: every one of the rings formed by these undulations, has on the six corners some small projecting spines, and with these, as well as the hollow rings, this creature moves himself like small Worms, for want of feet. The tail, which begins from their broad belly, is, in most that I have seen of them, rolled up, and lies in a sort of circular direction on their back: when that is stretched out, I believe the creature's length may be a quarter of an ell; and about the middle it is as thick as a good large thumb; 'tis of a greenish colour, towards the back part a little darker, and looks mighty pretty. O. Wormius says, that this creature is serviceable in several cures, Museo, p. 244. and others again say the belly has something poisonous in it||.

A short and thick Sea-Worm is found here also, for which I don't know a name; it is about the length and thickness of a finger, quite white, without head or tail, and with only one opening at the end, which doubtless serves for a passage for both aliments and excrements.

The stomach is as long as the Worm, and there is no sign of entrails; the flesh is white and tough, and of a pretty hard substance.

Pere Labat says that the Americans eat a Water-worm, which, according to his description, very much resembles this, but is something larger.

\* Hippocampus nomen compositum est ex dictione ἵππος, qui equum significat, & κάμηλον, quæ erucam, quia erucam imitatur, non modo corporis flexura, sed etiam circulis, quibus ut insecta distinguitur. Willough. L. iv. c. 9. p. 157.

|| This is properly a fish of the Syngathus kind, not an Insect.

## S E C T. XII.

Conchæ avati-  
ficæ.

Fable of  
Geese said to  
grow on trees.

To the *Insecta Aquatica* I have yet to add that little creature, which generates in the *Conchæ avatificæ*; and, according to the general tradition, should be a young Duck or Goose, of that sort that we commonly call *Stok-Ænder*, and also *Vand-Eller*: and by some *Angle-Tasker*; which last name I rather give them, because the shell looks something like a pocket. The birds which have been supposed hatched from these, generate in the common way; I shall give an account of these in the following chapter of birds. That any kind of fowls should grow upon trees, and be properly and truly called *Tree Geese*, is a thing which I have narrowly examined into, and find without the least foundation; tho' it is here, and in other places, taken on the credit of one from another. Hr. Jonas Ramus writes thus in his *Chorographical Description of Norway*, p. 244, concerning this matter: It is said that a particular sort of *Geese* is found in *Nordland* (one may say, with a great deal of truth, that those that are supposed to be *Angle-Taskers*, are found in many more places here on the west side of Norway) which leave their seed on old trees, and stumps and blocks lying in the sea; and that from that seed there grows a shell fast to the tree, from which shell, as from an egg, by the heat of the sun, young *Geese* are hatched, and afterwards grow up; which gave rise to the fable, that *Geese* grow upon trees. So far Hr. Ramus, who looks upon it as a fable: but how are we to comprehend such an ambiguous way of talking, namely, to grow upon trees? This, he says, is not to be understood to grow like fruit growing on a tree\*; on the contrary, his opinion is, that *Geese* grow on old piles and timber bulwarks, and the like at the sea side; namely, when the *Wild-Goose* has dropped or left his seed on the piles, &c. which gives some a ground and reason for the belief of it. At the same time I may inform the reader, that the well-deserving, and otherwise not credulous, Hr. Ramus, lived in the east country, full 50 Norway miles from these coasts, otherwise he would have better examined into the origin or rise of this opinion, and not have been so liable to mistake.

The truth is this, that on the aforesaid old timber piles, and also on the keels of old ships, there is seen to grow, as by the

\* Michael Meyerus endeavoured to maintain this opinion in a particular treatise, *De volucris arborea*; and in a public sentence, in the Sorbonne at Paris, upon it, it was allowed that these *Geese*, for that reason, were not to be reckoned amongst birds; and therefore allowed to be eat in Lent and fasting seasons. Mich. Bernh. Valentini *Mus. Museorum*, Lib. iii. p. 466.

exact drawing annexed appears. This peculiar creature is of about a finger's length and half, and an inch broad, and pretty thick: it is brown and spongy, a little curl'd or shrivell'd, like an apple, when it is dry'd; so that at first it may be twice the length. Its neck is tough and hollow, like the finger of a glove: when it is opened there is nothing to be seen, but some small and fine deep black filaments; these are like bunches of flax all through. The one end of the neck is made fast to the timber, in manner of a sponge; the other, or the end that hangs down, has a double shell, of a light blue colour, and of substance like a muscle-shell, but much less, about the size of an almond, and, like it, of a sharp oval figure. When this shell is opened, there is found in it the little creature reported to be a young Wild Goose. Almost its whole substance, which is composed of small toughish membranes, represents some little crooked dark feathers, squeezed together, their ends running together in a cluster: hence it has been supposed to be of the Bird kind. At the extremity of the neck also there is something that looks like an extreme small Bird's head; but one must take the force of imagination to help to make it look so: this I have constantly found on many examinations; and in all my enquiries, I cannot learn that any one has ever seen any thing more; though there are many who pretend to appeal to witnesses for the fact, that have seen this young Goose, as they call it. I will allow that they may have seen in this shell a living Sea-Insect, as it certainly is, but nothing else.

When the Duck's egg is opened, the young one is never found like this, consisting of nothing but feathers; they on Ducklings come afterwards, in the place of the down, which appears first; but here is no down, and there seems to be no body, nothing but long, crooked, squeezed up feathers, with a little point, or small button, at the end, that may resemble a head, if fancy will have it so, as has been said.

The opinion of the Geese's ejected seed is, setting all the rest aside, doubly improbable, in consideration that the same conchæ anatiferæ are found not only on old timber, floating on the water, but also on small branches of such sea-trees as the fishermen affirm grow only in the deep ocean, from the very bottom, at 100 fathom or more. I have some of such branches, with this strange growth on them. Where these grow no bird can come; and their evacuations, especially the fluid kind, cannot sink thither, or be collected in a state of proliferation. I will not take upon me to discuss how contrary to nature one might call such a

generation, from the semen of the male, without the assistance of the female egg; but in the mean time, it is in this case as in many other branches of the study of nature, in which one may with a certainty assert what a thing is not, though, at the same time, one cannot positively say what it is. I remember to have heard, though only by report, and that not the best warranted; that in France, from the like shells, yet hanging to their necks, have been seen several small Worms crawling into life and liberty. Georgius Marcgravius seems to have been of this opinion; and in his *Historia Naturalis Brasiliæ*, Lib. iv. cap. xxii. p. 188, says of the same Sea-worms or Insects growing on trees, what here follows: *Reri apiya Brasiliensibus, vulgo Long-neck, Hydrum vocari posse puto. Oriuntur a pice navali, subter navem immediate adhærentes tabulis innumera copia. Corpus autem est unum aut duos digitos longum, teres, æqualiter crassum, crassitie dupla, pennæ anserinæ. Huic annata est conchula figuræ ovalis, magnitudine olivæ, major aut minor, constatque quinque partibus, albi coloris, sed ubi partes coaluerunt crocei. Non dura sed molliuscula est conchula. In uno latere rimam habet, per quam capitulum suum exserit, constans multis elegantibus quasi tornatis filamentis, lunatis, semi-digitum longis. Color corporis est fuscus seu nigricans, ut & filamenta capititis. Immediate autem pici adhærent, quasi corpus abscissum esset, & agglutinatum abscissa parte, nec unquam a navi se possunt solvere, nisi vi abstrahuntur: Multa millia sæpe uni navi adhærent, præsertim proram versus inferius, & navis cursum retardare dicuntur. Vivunt multas horas detracti extra aquam.* What I have to observe on this is, that though Marcgravius does not allow this creature to be a young Duck, but properly a Water-worm, yet he is mistaken to say, *Oriuntur e pice navali*; rather better in pice: it is only because the Worm perhaps finds a better opportunity to stick his eggs there. Our Bergen skippers say, that when they come home from a long voyage from Spain, or the Mediterranean, and have their ships clean'd, they find a great many of these creatures hanging in bunches all under the bottoms; that the pitch does not breed these worms is sufficiently seen; for at any time, by searching for them, they are to be found on bulwarks and piles, which are never pitched; not to mention those which I have of the same kind, hanging upon branches of those deep growing sea-trees, as has already been said. To confirm the truth of this, more will be said in the following chapter, and will be found in the article of Ducks. I shall further quote O. Wormius's words, in *Museo*, p. 257. *De harum avium generatione*

generatione variant autores. Quidam more aliarum avium per coitum propagari putant, quidam ex ligno putri nasci volunt, alii ex corruptis arboris cujusdam pomis, alii ex conchis. Quorum sententias & rationes expendere hoc loco, nostri non est instituti. Ut nihil de iis dicam, qui statuunt, diversas esse aves, quæ ex conchis proveniunt, ab iis, quæ ex putridis lignis aut pomis ortum trahunt. Immo non desunt, qui ex quovis ligno nasci posse adstruant, dummodo in mari & undis juxta Hebrides putredinem concipiant. Just as doubtful writes Jul. Cæs. Scaliger about this Insect, Exercit. 59. Sect. 2. and says, that on the French coast they are called Craban. It is a pity that Doct. Grothausen's Examination of this Insect is not come to light; on which are Hr. Frid. Christ. Lesser's words, in his Testaceo Theologico, P. i. L. i. c. 3. §. 112, p. 442, thus: Anno 1732, the following writing was promised: Specimen Anatomico-Physicum, quo genuina magis & accuratior historia conchæ Pholadis pseudocheenæ, vulgo anatiferae dictæ, quæ anili fabulæ, quod anserum quoddam genus in arboribus crescat, ansam dedit, ratione & experientia stabilitur, & figuris æneis, ad vivum incis, illustratur, ad demonstrandam summi Numinis existentiam contra Atheos & concelebranda mirifica ejus opera & infinite stupenda, in lucem editum a T. W. Grothaus. M. D. I wrote on that account Anno 1740, to a friend in Copenhagen, who, on the 20th of December, advised, it was not published. The late learned Grothausen had undertaken, according to account, to write a Natural History of all the king's dominions; but that good man's death at St. Thomas's, in the West Indies, frustrated our hopes; he was otherwise qualified for the undertaking, preferable to me, and perhaps any other.

## CHAPTER III.

## Of BIRDS.

SECT. I. *Order and division.* SECT. II. *Of Amphibious Birds, their nature and properties.* SECT. III. *Dangerous bird-catching in some places.* SECT. IV. *The Grouse, and several other kinds.* SECT. V. *The Dove, and several others.* SECT. VI. *Ducks, and other Water-fowl.* SECT. VII. *The Falcon, and other like kinds.* SECT. VIII. *The Kite, and several others.* SECT. IX. *Of several Sea and Fresh-water Birds.*

## SECT. I.

The order of  
Birds accord-  
ing to their  
several classes.

**I**N the Natural History of Norway, the description of Birds is yet to come, and that of the Fish; they make the two most interesting heads: and first, something is to be said in regard to the division and order of Birds into their proper classes. Aldrovandus, Gesnerus, Willughbicus, Zornius\*, Klein, and others, who, ex professo, have treated on Ornithology, or the History of Birds, in particular writings, classing them either by their element, or where they take up their abode, their magnitude, or form; particularly their claws and bills, their legs, way of subsisting, their services or injuries to mankind: but as I on one side allow that these limited distinctions would give a more distinct idea of them, and would be matter for a treatise on the subject alone, where all the known Birds of all countries might have place, and make all the classes compleat; I find on the other hand, that which ever of these methods of classing one chuses, there will be no quite distinct, or absolute separate bounds, to be expected: many Birds, in one respect, may belong to a certain class; but have, in another respect, something which, with as much reason, would range them in another: consequently there is no rule without exceptions, contractions, or extensions.

For this reason, I have not thought it necessary to confine the reader's thoughts to any of the before-mentioned classes, and particularly as none would be compleat, especially with enume-

\* This author treats the most regular and most amply, but is rather too prolix on the distinctions of Birds, and the limits of those distinctions, in his *Petino Theologic*. P. ii. c. i. from §. 1 to §. 81.



rating of Norway Birds alone, without introducing those from foreign countries, which I do not intend in any article, only so far as it may be necessary by way of parallel, or to clear up any capital point of my own.

I have therefore followed the names in my own language, in alphabetical order, and, in the subjoined short descriptions, have said as much as will shew to what class each belongs; yet nevertheless, if any body is desirous of seeing the names of the Land Birds, Water Birds, and those of the shores, at one view, the Land Birds of Norway are the following, according to their names alphabetically in that language: Aarfugl, Akerloe, Aker Rixe, Allikke, Berg-ugle, Bogfinke, Dompap, Droffel, Due, Egde, Elvekonge, Erle, Falk, Flagger muus, Fossfeld, Gertrud-fugl, Glente, Gog, Heibe-hog, Honne, Horsegog, Jerpe, Irisk, Knotter, Kiodmeise, Krage, Lerke, Natvake, Nordvinds-pibe, Orn, Raun, Regnspe, Ringetrost, Sibenschwanz, Siisgen, Skade, Sneefugl, Sneppe, Sondenswindfugl, Spurre, Stær, Steendulp, Stillitz, Tiur, Vagtel, Vibe, Ugle.

The Birds that subsist only upon fish, floating mostly on the water, and ducking under, tho' not all equally deep, are the Alke and Ducks, tame and wild, of many sorts, Edder or Eider-fugl, Geese tame and wild, of various sorts, the Hav Aare, Hav Hest, Hav Sule, Immer Langivie, Lom, Lund, Savern, Skare, Skrabe, Svane.

The Shore Birds are those which, I have just said, haunt the coast, or live about the water that runs between the cliffs, rocks, and islands, detached from the continent, and feed partly upon small fish, such as they can reach with their bill, and partly upon insects, shell-fish and weeds; the ebb and flood daily produces plenty and variety of food for these: they dont venture to go out far, or where it is deep, and so are in a manner amphibious. Of the number of these are the Heigre, Boefiar, Fiær Kurv, Fiske Folck, Fiske Orn, Fiskeh age, Jo fugl, Kiald, Krykkie, Laxetite, Maase or Maage, of various sorts, Sand Tol, Sand Tærne, Skiee, Spave, Strand Erle, Strand Sneppe, Teist, Tiæld, Temd.

## S E C T. II.

Among the first, namely the class of Land Birds, are to be found but few, but what are known also in Denmark; and I may say in most other European countries, unless we except the Tiuren, Jerpen and Rypen; but in the two last classes of Water and Coast Fowl, Norway has by much the greatest number, and among those, some that are little known in, tho' others in common with

the countries lying opposite, viz. Scotland and the Orkneys, Færoerne and Iceland; there are others again that I never could find out any where else, as far as my intelligence could reach; and this is certainly one of those bounties, not sufficiently regarded, the great Creator has bestowed on this country, that particularly the west side, which, with its numberless harbours, creeks, islands, high cliffs, hollow mountains and caves, is fortified, by the wise and good Creator, as a particular refuge and asylum for an incomprehensible, and indeed almost incredible number of Sea and Shore-Fowls, which sometimes are observed out at sea, at the distance of two or three Norway miles\*, in such large flights, that they obscure the heavens, and one would imagine all the Sea-Fowl of the universe were gathered together in one flock †. These Birds, with their feathers and down, which are gathered and sent to foreign parts, and partly with their flesh and eggs together, afford the inhabitants a very good maintenance, besides the extraordinary good grass that grows after the manure left by the dung of these Birds, on the islands, and even in the ocean, which frequently looks white, and as if it were covered with it and the eggs in the nests of these Strand Birds.

Their numbers by the sea-side.

Not all the eggs, but some sort of them, are as good as hens eggs, and great quantities come to market in this town, where the bakers in particular know how to use them; the shells are of various colours and sizes, as shall afterwards be observed concerning each of them, as far as my intelligence reaches; most of them are white, green, or brown, and almost all have black spots on them; the Water Fugle egg-shell is something thicker, and also the white in a greater quantity, than in others; for which Count Aloysius Marsili, in his *Danub. Panon. Tom. v. p. 124*, ascribes this reason, that the young Sea Birds, which are nourished by

General Properties.

\* One Norway mile is about six English miles.

† The large quantity of Sea Fowl that are in Norway, agrees with what Dr. Harvey writes of the Scotch, de *Generat. Animal. exercit. xi.* with Deusing. in *sine Dissertat. de Anseribus Scotiis. Est insula parva, Scoti Boffe nominant, haud amplius mille passuum circuitu amplitudo ejus clauditur. Hujus insulæ superficies, mensibus Maio & Junio, nidis, ovis pullisque propemodum tota instrata est, adeo ut vix, præ eorum copia, pedem libere ponere liceat: tantaque supervolantium turba, ut nubium instar, solem cœlumque auferant: tantusque vociferantium clangor & strepitus, ut prope alloquentes vix audias. Si subjectum mare inde, tanquam ex edita turri & altissimo præcipitio despexeris, idem quoquo versus, infinitis diverforum generum avibus natantibus prædæque inhiantibus, opertum videas. Si circum navigando imminentem clivum suspicere libuerit; videas in singulis prærupti loci crepidinibus & recessibus, avium cujuslibet generis & magnitudinis, ordinis innumerabiles, plures sane quam nocte, sereno cælo, stellæ conspiciuntur. Si advolantes avolantesque eminus adspexeris, apud profecto ingens examen credas. Haud facile dixerim, quantus reditus quotannis ex plumis ovorumque coctorum commercio possessori accedat; adeo quod ipse mihi narravit, fidem exsuperat. What Harvey has said of the way of boiling the Sea-fowls eggs to sell them with great profit, is not used in Norway; the rest agrees.*

the

the white of these eggs, are longer in hatching than others, on account of the cold \*, tho' this does not agree with my observations, as will be seen in the following pages. But certainly there is to be seen the providence of our great and benevolent Creator, in giving these eggs a thicker shell, without doubt, according to Mr. Anderson's observations, in his description of Islands, §. L. i. p. m. 46, to prevent their perishing with the cold, which is owing to their being near the water, and the dam's long absence in search of food; tho' most sorts of Water Fugle live, for that reason, in a kind of married state, and orderly take their turns, the cock and hen alternately sitting on the eggs; and when 'tis the hen's turn, the cock often stands at some distance as a watch or centinel, to guard her. Those that leave their eggs, and come again to them in the hollow cracks and holes of the cliffs and rocks, where hundreds are laying together, never miss their own, tho' a man could not distinguish them. See Zоргdrager Groenlandscher Vifcher, P. ii. c. 14. p. 153.

God's providence.

The flesh of certain Water Birds, particularly the Duck's, and that of some others, is very fat and eatable; others, from the fishy taste which they acquire by eating fat and ill-tasted fish, are not very fit for the table, unless they are first parboiled in vinegar; others again are pickled by the farmers, and are very good that way; by that means other meat is saved, and may be sent to town to be sold. But the principal advantage they yield is their feathers, particularly the Edder-fuglens, Lundens, and Alkens, which are frequent every where on this coast; but the finest and most profitable are got in the Nordland districts; they are gathered and annually sent down to the merchants in at Bergen.

Frideric Martens observes in his Spitsbergenske Travels, cap. ii. p. 60, that all Sea Birds in the hardest storms turn their heads against the wind, that it maynt spread their feathers, but rather close them together to keep the body warm.

### S E C T. III.

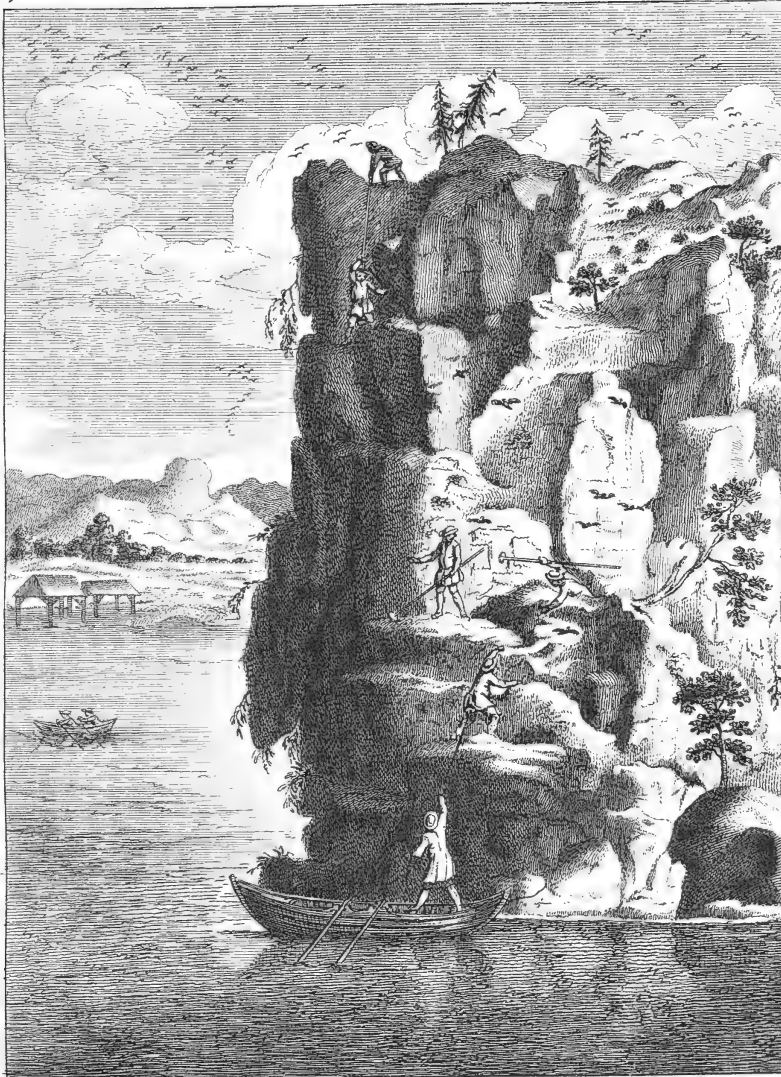
How each of these different sorts of Birds are taken will appear in the following pages; and as far as I can find, they are obliged to use different methods. But first I shall give the reader

\* Quia ex solo albumine foetus formatur, longum nihilominus tempus requiritur; usquedum ad perfectionem sive, exclusionem pervenerit, ob impedimentum humiditatis seu frigoris, quod sentiunt in nidis suis, quos semper in, aut circa aquas exstruunt.

some

some account of the most important and dangerous way of bird-catching, which is practised here more than in any other place, and mostly at Tranen, Varoe, Moskoe, and Rust, in the abovesaid Nordland districts, where they keep dogs trained on purpose, to fetch the Shore or Strand-Birds out of their holes, which are almost inaccessible. In this district one farmer must not keep a greater number of these dogs than his neighbour, that he may not prejudice him in his livelihood: the dogs as well as the farmers run the greatest hazard of their lives, and sometimes perish by unhappy falls; for they either climb up those excessive high and steep rocks, finding but here and there a hold or place for their feet; or else they are let down from the top, 100 fathoms or more, that they may get into the hollows under the projecting cliffs, and caves formed by nature. At Færoe, which exports annually several thousand pounds worth of feathers to Copenhagen, there is held a Bird-hunt of this kind, which is circumstantially described by Mr. Lucas Debes, who was many years a dean in that country; and I shall therefore, out of his *Færoa Reserata*, p. 140, & seq. often quoted before, insert what relates thereto, which cannot be read without surprize.

It is not to be described, he says, with what trouble and danger they look for the Birds in the high and steep rocks, many of which are more than 200 fathoms perpendicular; and there are particular people who, by nature, are fitted for this kind of bird-catching, and are called Bird-men: they make use of two methods to catch them; they either climb up these perpendicular rocks, or else are let down from the top by a strong and thick rope: when they climb up they have a large pole, of eleven or twelve ells in length, with an iron hook at the end: they who are underneath in the boat, or stand on a cliff, fasten this hook to the waistband of the man's breeches who climbs, and a rope round his waist; by which means they help him up to the highest helde, or projection, that he can reach, and fix his feet upon; then they help another up to the same place; and when they are both up, then they give them each their bird-pole in their hands, and a long rope tied round each other's waist at each end; then the one climbs up as high as he can, and where it is difficult, the other, by putting his pole under his breech, pushes him up, till he gets to a good helde, or standing place: the uppermost of the two then helps the other up to him with the rope, and so on, till they get to the place where the Birds build, and there search about after them as they please. As there are in these rocks many dangerous places they are yet to climb, whilst they are bound together  
with



27 The manner of Fowling in Norway

La manière de prendre les oiseaux en norvège  
Et aux Isles Hébrides



with a strong rope, one always seeks a convenient place to stand sure, and be able to hold himself fast, whilst the other is climbing about. If the latter should happen to slip, then he is held up by the other, who stands firm, and helps him up again; and when he has got safe by those dangerous places, then he fixes himself in the same manner, that he may assist the other to come safe to him; and then they clamber about after Birds where they please. But accidents sometimes happen; for if the one does not stand firm, or is not strong enough to support the other when he slips, they both fall, and are kill'd; and this way there are some every year destroyed.

Hr. Peder Clauson, in his Description of Norway, writes, that in former times there was a law in the country, that when any one by climbing the rocks fell, and was killed, and his body was found, that then his nearest relation should go the same way. If he could not, or would not venture, then the deceased was not allowed a christian burial, but treated as a criminal, who had, by that means, been his own executioner; but that law is not in force now a days.

When they, in the manner already related, get up the rocks to the Birds, in those places where they seldom come, the Birds are so tame that they may take them up with their hands; for they do not readily leave their young: but where they are wild, there they either throw a net over them in the rock, or else those that are flying away, or come flying in again, they throw their poles against with a net on them, and so entangle them in it. This way they catch vast numbers of the Lumvifer, Alliker, and Lunder. In the mean time there is a boat lying underneath, on the sea, into which they throw their dead fowl, and so quickly fill the vessel. When the weather is tolerably good, and there is a good deal of game, the birdmen will lie eight days together in the rocks; for there are here and there holes that they can safely and securely rest in; and provision is let down to them by lines, and others go every day to them with little boats, to fetch what they catch.

Many rocks are so frightful and dangerous that they cannot possibly climb up them; for which reason, they continue to get down from above, which they call to sie; this is the second way of searching for Birds, and is done thus: they have a strong rock-line, or rope, eighty or an hundred fathom long, and about three inches in thickness; one end of this the birdman fastens about his waist in the place of a belt, and then he draws it betwixt his legs, so that he can sit on it; and so he is let down with his

bird-pole in his hand: six men at top hold the rope, letting it sink by degrees, but lay a piece of timber on the edge of the rock, for it to slide on, that it should not be torn to pieces on the sharp edge of the stones: they have another line fastened round the man's waist, which he pulls, to give signs when he would be pull'd up, or let lower, or held still, that he may remain on the place he is come to. This way the man is in great danger from the stones loosening by the rope, and so falling; which he cannot keep off: for this reason, he generally has on a sailor's blue furr'd cap, which is thick, and well lined, and in some measure saves the blows the stones may give, if they are not too large; otherwise it often costs him his life. Thus they often expose themselves to the most imminent danger, merely to get a subsistence for their poor families, trusting in God's mercy and protection; to which the greatest part of them seriously recommend themselves before they undertake the dangerous work. There are some indeed who say there is no great danger in it, excepting that when they have not learnt the practice, or are not accustomed to it, the rope runs round about with them till their heads are turn'd, and they can do nothing to save themselves. It is in itself troublesome, and requires dexterity; yet those that have learnt it make play of it; for they know easily how to swing themselves on the line; they know how to put their feet against the rock, and throw themselves several fathom out, and push themselves in again to what place they will; and when the Birds sit, they know artfully how to keep themselves fast on the line in the air, and to hold the pole in their hands, and with it to catch numbers flying out and coming in; and where there are holes in the rocks, and where the rocks project over like a cover, in which places the Birds gather. Here they will continue (and this is the greatest art) to throw themselves out, and quickly to fling themselves in again, under the cover, to the Birds, and there to fix their feet. When one of them gets into these holes he loosens himself from the rope, which he fastens to a stone, to prevent its falling out of his reach, and then he climbs about, and catches the Birds either with his hands, or with the pole, in the same manner as was said before; and when he has kill'd as many as he thinks enough, he ties them together, and fastens them to the small line, and by a pull gives a sign for those above to draw them up. In this manner he works all day; and when he wants to go up, he gives a sign to be drawn up, or else he works himself up, with his belt full of Birds.

Where



Where it happens that there are not people enough to hold the large rope, then the bird-man fixes a post in the ground, and fastens his rope to it, and so slides down, without any help, to work in the aforesaid manner. Some rocks are so formed, that one may go down into them from the fields; then they take a companion with them, and go in after the former manner, searching about in the holes, and take each as many as their belt will hold about their waist, or as they can carry in a bundle on their backs; and so they carry them home. There are also in some places vast steep cliffs, lying under the land, and yet more than 100 fathom above the water, which are also very difficult to get at. Down these cliffs they help one another in the manner aforesaid, and they take a strong rope with them, which they fasten here and there in the cliff, where they can, and leave it all the Summer: upon this they will run up and down, and take the Birds at their pleasure. It is not to be described how frightful and dangerous this bird-catching appears to the beholders, particularly to consider the vast height, and how excessive steep these rocks are; and many projecting over the sea. It appears impossible for any human creature to get into the holes of them, and yet more impossible to climb up them; and yet these adventurous people scale them. They go sometimes where they can but just pitch the end of their toes, or lay hold with their fingers; yet this does not frighten them, though there is 100 fathom down, or more, to the sea under them. This must be dear earned bread for these poor people; for which they so imminently hazard their lives, and many, after long practice, still fall a sacrifice themselves.

When these Birds are brought home they eat part of them fresh, and part (if they get large quantities) is hung up to dry for the Winter season. The feathers they collect together, and make merchandize of them, to great advantage; and the inhabitants get them in such quantities as God pleases to give his blessing to, and seasonable weather for it. The Birds do not come every where in this country, but on those islands that are in towards the ocean, and have high rocks or cliffs; as at Norder-Oerne, Myggenas, Vaagoe, Skuoe, Dimerne, and Suderoe; and in dark weather they generally get most, for then the Birds stay in the rocks; in fine, clear, and 'hot sun-shiny days, they are mostly out at sea; and toward the time of their going away they keep towards the sea, and sit on the cliffs by the sea-side; and then the people go in boats, and catch them with their poles and nets. So far Hr. L. Debes.

After

After this general account of the Norway Birds, I propose now to enumerate severally all those sorts that I have been able to get any satisfactory intelligence about; and that, as has been said, in alphabetical order, according to their Norway names.

## S E C T. IV.

The Aarfugl. Aarfugl, Urhane, Urogallus, or Tetrao minor, the Growse, is shaped not unlike to a common cock, but black or dark brown in colour, and red about the eyes: the hen is much less brownish, with black spots\*. Their resort is in woods and rocks, and they live upon buds of trees, the catkins of birch and the like; their flesh is wholesome and well-tasted, and therefore they are very much followed by the sportsmen. In the Winter they take care of themselves in this manner; they first fill their craw with as much food as it will hold, so that it hangs like a bag under their neck, whereby they are provided with something to live upon for some time; then they'll drop themselves down in the soft snow, and don't stay in their first hole, but undermine and burrow in the snow, some fathoms from it; and there they make a small opening for the bill, and thus they lie warm and comfortable together: but the huntsman disturbs them in their Winter quarters thus; he looks out for the place where he finds the snow appears as if it were sunk in, and there he pushes down a pole with a spread net at the end of it, into which the poor scared birds fly, and then are drawn up.

Winter-Quarters.

The most convenient time for shooting them is in the Spring of the year, early at sun-rising; for then the Bird lies on the smooth and flat ground, from whence it is called Leeg-Vold; for it is in the nature of it, at that season, to be quite heedless, through its amorous disposition, and with its eyes shut it lies crowing or chirping for the hen. There commonly lie three or four, or more, together; so that there is a good mark: if the cock falls then all the hens fly away; but if he stands still crowing, and appears to be stupid, as is sometimes the case, they shoot again: from the cock's bill at that time runs a strong scum or froth, which the hens peck up eagerly, and that is all, according to the opinion of many, which serves for procreation; but others deny the last, and say they have seen them copulate in the ordinary manner, which appears most credible.

\* Mas a foemina in tantum differt, ut duorum generum hujusmodi rerum imperito videri possint. Immo Gesnero etiam ipsi visæ sunt, says Franciscus Willugbeius in Ornitholog. Lib. ii. cap. xii. §. 11. p. 125. where these sort of Birds are called Tetrao Minor.

Akerloe, a sort of small Bird, which in the Spring appears on plowed land, and picks up the worms; they look a good deal like a Heiloe, (which shall be hereafter noticed) but they are something less. Akerloe.

Aker Rixe, or Vagtel Konge, are called here by some Ager-Hone, tho' it must not be taken for the Bird to which we give that name in Denmark; for such sort of Ager-Hons are not found in Norway as I know of\*. It is made a good deal like a Sneppe, brownish, with a pretty longish neck and legs, but of the bigness of a Kramsfugl; its flesh is white, and of a delicate taste. Aker Rixe.

When the corn is high enough for them to hide themselves in, then they'll stay and hatch their young ones there; with their bill they make a kind of noise like sawing or cutting something hard, which is called to rixe, and from thence the Bird has its name.

Allike, Kaa, Kaye, Kaage, Monedula, the Jackdaw, something like a small Crow, is called also Cornix Garrula, because they can be taught to speak a few words; this Bird builds high, and gathers in great flights together: by the name they may be easily confounded with the following, tho' they are very different from it. Allike.

Alk; this is a Bird peculiar to this country, and for its feathers very useful; 'tis as big as a large duck, but narrower in the breast; the legs stand closer together, and the wings are less. They are distinguished into two sorts by the beak; it is on some longish and narrow; in others thick, short, and bent on the back; it is black, excepting at the ends of the wings and tail, which are white, as well as all underneath; and from the eyes there goes a white stripe all down the neck †. They can fish and swim beyond many other, but are very weak at flying or walking, because the legs are as if they were upon the rump; so very far behind, that it is troublesome to move them on land; the Bird therefore totters like a drunken man: on this account is the saying, He is as drunk as an Alk. The wings are of no great use, and for that reason it is easily taken on the nest. They always build by the sea-side, on the highest and steepest rocks or Alk.

\* P. S. I am just informed by a good friend, that till about twenty years since there never were seen any Ager-hons in this country; about that time they appeared like a colony, most likely from Bahus-Lehn in Sweden, and perhaps first from Skaane. These fixed themselves here and in Smaalehnene, and so on farther quite to Christiana, and spread themselves; particularly after they were as it were taken into protection, by the king's order, and had three years privileges from being destroyed.

† The Alk's bill is particularly described by Frid. Martens, in his Spitzbergenske Travels, cap. ii. p. 64, & seq. where it appears under the name of Papagey-Taucher.

Astonishing  
Number.

cliffs, whither those bold and venturesome bird-catchers pursue them, and find 50, 80, or 100 pair, sitting interchangeably upon one another's eggs. These resemble hens' eggs, and if they do not grow cold, at the expiration of 14 days the young are hatched, and in 14 days more they are fit to go to the sea with the old ones. Their number is so great, that L. Debes, in his Description of Faroe, p. 133, says they hide the sun like a cloud, when they fly out from the rocks, and the noise of their wings makes a roaring in the air like a storm. It is said in the same place, that they have annually but one young one; but my observers inform me that they find two eggs in the nest, and that is little enough, in regard to the great number that is annually caught and shot; so that our Creator's oeconomy is also here astonishing. The Alk is counted the greatest herring-fisher, and they will dive, according to our Strandfiddere's attestations, 20 fathoms deep under the water: they have sometimes the misfortune to mistake, and bite hold of a fish-hook, and so are drawn up from that depth as fish.

Various kinds  
of Ducks.

And we have here, beside the well-known common tame ones, various sorts of Wild Ducks, and these again are divided in certain species; some keep in fresh water, and don't care to go to the sea, excepting in necessity. Some have sharp-pointed bills, which differ again in colour, being black and brown; of which the last are somewhat smaller, and are often tufted. Both sorts lay many eggs, more than any other Birds, namely, 20 or 25; and when the young ones are hatched, then the Drake flies away; and if, by any accident, they become motherless too, it has been observed, that others of the same kind have taken care of the poor forlorn young ones, as if they were their own; a good lesson for us human creatures.

One of the broad-bill'd Wild Ducks is called Huiin or Quiin-Ænder, because it whines or squeaks in the air, when it takes flight. The Drake is black and white, with a tuft and a white ring about his eyes upon the black; for which reason they are also called Ringoyer, and she is brown or greyish; these live mostly upon snails, muscles, and the like; these are not seen longer than the Spring. Some are called Mort-Ænder or Fisk-Ænder, because they live by ducking for small fish. Their shape is like the former, excepting that the Drake is more streaked on the back part of his neck; and there is a feather standing out about a finger's length: they lay 12 or 18 eggs: There are also some called Kræk-Ænder, because they seek for a sort of berries called Krække-bær; or, according to the opinion  
of

of others, because they are always making a noise, which sounds like the word *Kræk*: they are something smaller than the former; in colour brown, and they don't go into salt water; there are also others which are called *Rod-Nakker*, which differ only by a reddish colour round the neck. The so called *Stock-Ænder*, and Stock Ænder. by another name *Hav-Æller*, the Duck, which, according to the common opinion, grows on trees, are almost like the Tame Ducks. The Drake is dark grey, and white tufted, with a particular feather on the back of his head, about six inches in length. The Duck is lighter, grey and white, with a ring round her neck, a red bill, and longish red legs, and lays annually 12 or 16 eggs: the male and female sit alternately; they hatch them in four weeks. The third day after the shell is quite opened, they are taken by the old ones to the waters, and from that time the Drake shuns them as if they were strange ones. These sort, or the *Wild Ænder*, are found on the coast in great quantities; and this circumstance, amongst others, has occasioned those who have not been better informed of their breeding and origin, to imagine that they grow on trees, and have their source of Grow on trees. the *conchæ anatiferæ*, or *Angle-Tasker*, of which I have treated in the former chapter, and have classed them with the insects. Should any, nevertheless, be in doubt of this thing, it is to be found, fully examined and determined, in *Gaspari Schotti Physica Curiosa, Lib. ix. cap. xxii. p. 960, & sequ.* where this learned jesuit, in a full and particular dissertation, divests this fable of all appearance of truth. I shall only quote the conclusion, p. 976, as follows:

Ajo I. Aves Britannicas non oriri ex arborum fructibus aut foliis, aut ex lignis navium in mare decidentibus atque in fungos aut conchulas degenerantibus. Fundamentum habeo, quod nec ratio, nec experimentum, nec auctoritas id persuadet. Concedo equidem ex lignis putrescentibus in mari nasci vermes, non circa Scotiam tantum, sed alibi etiam: hanc enim unam ob causam portus Messanenensis in Sicilia, qui omnium toto orbe pulcherrimus ac securissimus alioquin foret, cedit aliis, quod naves diutius in eo hærentes a vermibus ibidem natis exedantur. Concedo etiam in conchulis supradietis reperiri vermes aviformes, qui paulatim crescant & avolent, cum id tam multi & oculati testes asserant. Nego tamen aves Britannicas, de quibus hic sermo est, inde habere ortum suum; quoniam nullus supra citatorum Scriptorum id vidit, nec ullius alterius oculati testis attestatio adest, sed omnes meris conjecturis agunt, vulgi opinione adducti, ut ex verbis ipsorum constat. Nullum enim experimentum hætenus docuit, animalcula  
exigua

exigua ex putrida materia generata, excreſcere in animalia tam grandia ac perfecta, qualia ſunt Britannicæ aves, de quibus agitur.

Ajo II. Aves Britannicas oriri ex ovis per incubatum, more aliorum anſerum. Probatum teſtimonio Alberti Magni, Gerhardi a Vera, & Batavorum, qui id oculis ſuis viderunt, itemque auctoritate aliorum auctorum præcedenti §. 12. & 13. citatorum, qui idem afferunt. Quibus accedit Ferdinandus a Corduba in Didacal. cap. 7. ubi ait: Multa talia pro veris vendi, vel illud argumento eſſe, quod licet plurimi ſcribant, aves Bernettas nomine in Hebridibus inſulis & Hybernia ex fructibus aut foliis arborum in mare deciduis generari, nihilominus id figmentum eſſe; cum Hollandi 1569, ſcripto teſtati ſint, ſe circa novam Zemblam in has aviculas, ova ſua foventes, incidiffe.

Ajo III. Perſuaſionem vulgi & Auctorum contrariæ ſententiæ, inde ortam, quod annis ſingulis innumerabilem pene multitudinem ejuſmodi avium circa Britannicas inſulas deprehenderint, nec tamen ſciverint ubi orientur, aut unde venirent; putaverintque proinde, animalcula illa alata conchulis aut materiis putreſcentibus incluſa, excreſcere in anſeres, ut optime notavit Cluſius & Deuſingius.

#### S E C T. V.

Berg Ugle.

The Berg Ugle, or the Ugle, with the Baſiar, Boefiær, a ſmall Sea-bird, of the ſame kind, and not larger than a Thruſh, but otherwiſe looking like the Alk, or Razor-bill, in colour, legs, and bill, are common alſo here. They live upon ſmall herrings, and are never ſeen but in the miſt of Winter, and a few in the Spring, if there comes a ſtorm of weſterly wind; and therefore its native place and manner of breeding is unknown to me.

Bogfincke.

The Bogfincke, or Brambling, a well-known ſmall Land Bird, is very pretty, of a dark colour, variegated with red, white, and grey ſpots; the bill is ſhort and thick; they are here but ſcarce to be ſeen, of the Fincker, or Finch kind in general. Jacob Klein reckons, in his lately published Hiſtor. Avium, p. 96, ſeventeen ſorts, which differ in colour, and other reſpects.

Brokfugl. See Heilo.

Bruuſhane.

The Bruuſhane, or Ruffe, is ſomething leſs than a Pigeon; it takes its name from loving always to buze, and with his bill he fights with his own kind, and then raiſes his long feathers round his neck, that they ſtand like a ruff. The female of this kind is called the Reeve.

Dom-

Dom-Herre, or Dom-Pap, the Coccothraus, perhaps so called Dom-Herre. in popish times for their melodious voice, resembling an organ, though not loud enough to fill the choir of a cathedral, where the canons sing their Horæ. Some call them Coccothraustes sanguinea. Of the same family there are many sorts in other places, which I do not know any thing of here. Its body is beautifully variegated, red, black, and white on the wings; and grey on the back; the hen is only of a blue-grey: the scarcest are those that are green, with red tufts of feathers on the head.

The Drossel Turdus, the Thrush, which is called here Trost, Drossel, or Krametsfugl. and by a common name, which comprehends many species, Krams, or Krametsfugl; the difference in the Norway Drosselaes, from the Danish, consists, as far as I can find, only in this, that some are greyish, with white feathers under the breast, some of a dark brown, and some quite black. These are called Soelförter. Some are dark grey, with a white ring round the neck. These are called Ringe Trost, the Ring Owzel. Jac. Klein, preferable to other writers, has given himself a particular deal of trouble to find out the characteristick marks of each kind of Bird in his generation; and reckons, L. C. p. 65, & seq. not less than thirty-six diverse sorts of Thrushes; yet I am of opinion that one may in this, as in other things, multiply species without occasion, and thereby confuse one's ideas, instead of clearing up or establishing them; for between some of these the difference is so small, that I look upon it to be rather accidental than specific. In the Autumn here are a great many Kramsfugl, particularly when there is a good season of berries, which, with other products of forests, are known to be their food.

The Due, or Pigeons, tame, and several others, are frequent Due. here, but Turtle-doves are not found with us. We have Wood Pigeons, and particularly about the rocks, in considerable numbers. Willughby says, Ornitholog. Lib. ii. p. 136, that they are something larger than common Pigeons, which they otherwise are very like: in this country it is the contrary, for they are rather less. On the islands at the sea-side in Ryefylke there are found a sort of wild Pigeons, which are like the tame, excepting that they are all of one colour, with blue shining feathers on the neck. They build their nest in the cracks of rocks, and are not so shy as the Wood Pigeons.

## S E C T. VI.

Edderfugl.

The Wild Duck, called Edder, Ædder, or contracted by Ærfugl, and by Wormio, in Museo, p. 320, *Anas plumis molliffimis*, is found here along the coast, as well as in Iceland, Greenland, Faroe \*, and elsewhere, in great quantities. The feathers of its breast, which are known far and near by the name of Eider-Dun, make annually a good livelihood to people in many places. I think this Bird deserves an exact description, especially as they are not known any where else than in the North Sea.

In shape and size it keeps a medium betwixt the Goose and the Duck, so that one may, with equal reason, call it a small Wild Goose, or a large Wild Duck. The Cock on the upper part is black, mix'd with dark green, which, about the neck, is something lighter; under the eyes white, mix'd with light green; the breast is black; under the belly and wings it is of a light grey; on the tail, which is but small, it is of a dark green and shining hue. On Faroe, according to L. Debes, the cocks are sometimes white, and, when they are young, are like the hens, which are somewhat less than their mates, and are afterwards all over brown and grey mixt. The bill and feet are of the Goose kind, but of a dusky yellowish colour, and in the hens something darker. They dive under water like Ducks, but much deeper: they will go to ten or twelve fathom deep, and they live, like other Sea-Birds, upon fish, shells, and sea-weeds. In the Winter they are almost always on the ocean, and they seek the coast in the Spring in large numbers, to make their nests in the cliffs, and on small islands, either among stones, or among the tufts of bushes, and large sea-plants. They lay five, or, at most, six eggs, of a green colour, and as large as a Goose-egg, in shape somewhat longish †.

If

\* This agrees with what Buchanan writes, de Rebus Scoticis, Lib. i. of the Scotch Bird he calls Calca; of which also Robert. Sibald. in Hist. Animal. Scot. Lib. ii. p. 21. relates the same of this Bird and its feathers. It is not seen before the Spring, and it is thought that this Bird, along with a great many other Sea-fowls, go to other places in the Winter: but whether they go, according to the opinion of some, to America, I will not determine. Whilst I am writing of this, a correspondent of mine at Sundmæer acquaints me, that they have been nevertheless seen there in Winter on the out-islands, in the ocean, living upon what they find among the sand, that the waves throw up from the bottom. Concerning their place of retreat, I can find no account to be depended upon.

† Mr. Anderson says, in his Description of Iceland, p. m. 44. that they have told him that these Birds lay a vast many eggs. If a stick of half an ell's length be put in the middle of the nest, which sometimes is done, (because the eggs are much esteemed) the female still continues laying her eggs more than her custom, and does not leave off till the top of the stick is covered, that she may lay upon them; whereby



If the first five eggs are stole away, then the Bird lays again but only three, and in another nest; if these are lost, then she lays one more. Four weeks the mother sits alone on the eggs, and the cock stands watching underneath in the water; so that if any human creature or beast of prey approaches, he gives her notice, by crying hu hu, and then she covers her eggs with moss and down, which she keeps ready prepared, and comes down to her mate on the water; but he does not receive her very kindly; Severe mate. and if her eggs are lost by any accident, he gives her many blows with his wings, which she must take patiently; and after this he entirely deserts her, and she is obliged to join the flock of her kind, under the same disgrace. A few days after the young ones are hatch'd they are taken by the mother to the sea, and are not forsaken even in the greatest distress: she has been seen, in time of danger, to take her young ones on her back, to swim the better away, when they could not come after her. One of my correspondents has seen, that as the Ravens and Crows hunt out for these Birds nests, to suck out their eggs, or eat the young ones, it has made them sometimes build half a mile farther up in the country, that they might find a better hiding-place for their nest; and then, when the young ones are to go to the sea with their mother, she lays herself down, for them to climb on her back, and carries them away by an even flight.

Tho' it be not suffered to destroy these Birds, on account of their fine down, but only to gather it off from the nest, yet they Edder-down. are too often killed by the inconsiderate; but the feathers and down which is plucked off the dead Birds are not near so good as that she pulls off herself from her breast. This she does the last eight days she sits, to make the young ones a soft and warm bed. The dead Birds down is greasy, and subject to decay, and is not near so light as the down of the nest, when it is cleansed from the stalks of herbs, and other mixtures. It is sold, when pure, for two rixdollars per pound, and is a good livelihood to many of the people who live about the coasts; for it is so light, warm, soft, and ready to spread itself, that two handfuls squeezed together is enough to fill a down quilt\*.

That this Edder-down is unwholsome, and particularly, that it gives the epileptic sickness, is contradicted by Th. Bartholin. in *Medicina Danor. domestica*, p. 65: *Neque vanus nonnullorum*

whereby she becomes quite faint and low. This account seems not right, according to all experience, on this coast, where they generally find but five, seldom the sixth, in the nest.

\* A covering like a feather-bed, which they use in that country instead of quilts and blankets.

rumor nos terrere debet, epilepticos insultus ex usu harum plumarum timentium, quod periculum necdum ullus, quod sciam, incurrit. The Edder's, as well as many other Strand Birds eggs, are brought in here to market, by those farmers that live near Bergen; and they are said to be very good and well-tasted: but on the contrary, the flesh tastes fishy; so that none of these Birds are eat, except by the poor, that sacrifice taste to necessity; yet one may mend the taste in some measure, if they are parboiled in vinegar, or soaked in vinegar before they are roasted.

Egde. The Egde, Nightingale, is a small Land Bird, something like a Lark: it is peculiar in this; that in Summer it sings all night long without intermission.

Elve-Konge. The Elve-Konge, or Owzel, is so called, because it always haunts rivers, pleasing itself with fluttering over running water, and jumping from one stone to another: its make is something like a Thrush, black, and with a white ring round his neck.

Erle. The Erle, or Ring Erle, is something like the former, but of a blue grey on the back, a black head, and a little white on the sides; the hen is more grey: it is only seen in the Summer, and is said to lie in a state of insensibility all the Winter.

#### S. E C T. VII.

Falk. The Falk, or Falcon, which J. Klein, p. 47, distinguishes into 27 different sorts, are found the farthest north, of the best and most useful kinds for hawking: I have nothing to do with those which are annually exported from Iceland, and not without a considerable charge; and then are sent far about to foreign courts. I shall only observe, that here in Norway, particularly in Osterdalen; and also in the diocese of Christiansand, and particularly at Jedderen, there is found extraordinary good Falcons for the sport; they are grey and white, and are of several kinds, large and small: to catch them we generally used to have people come from Germany and the Netherlands annually. These expert Falconers separate themselves about the rocks, and generally stay about a month, or something longer, that they may each of them get a booty. They catch but few, from which we may judge of their value, which will answer so long a journey\*. They catch them in nets, under which they put a pigeon for a bait. Here by the sea side, particularly at Sundmoer, are seen what we call Fishing-Falcons: they have their principal living on the water,

\* This Falcon-catching is farmed to the Brabant people, by a certain family to whom his majesty has granted it.

but destroy also on the rocks many of the Birds that build there.

The Fiær-Kurv, or Fiære-Muus, called also Strand-Sneppe, and Strand-Ærle, is a small mouse-grey Bird, living about the coasts, as big as a small Thrush, with a long bill and legs; it builds its nest in the cracks of the rocks along the coast, and lays seven or eight grey spotted eggs; it lives on worms and weeds. Sometimes these fly in such great flocks, that one may kill at one shoot 40 or 50. On the water they'll sit so secure, that one may row within a fathom of them: their flesh is not despicable in taste.

The Flagger-Muus or Aftenbalke, the Batt, which is called here Skindvænge, is very common; it is put by some among Quadrupedes, instead of Birds.

Flag-Sperte. See Sperte.

The Fossefald, or Water-Wagtail, is a little black and white Bird, that seeks his habitation near cataracts, or water-falls, which they do not leave even in the Winter. J. Ramus gives an account, p. 246, that they burn and powder these Birds for a remedy for horses in many disorders.

The Fugle-Konge, Regulus, or Wren, is the smallest Bird that we know of in this country: 'tis brown and yellowish under the belly; the feathers look as if they were wool, or as if it was covered with cloth: it lives chiefly about stone walls\*, and in barns. Of this Bird 'tis said, that it seats itself on the back of the Eagle, and so flies up with him so high as it otherwise could not possibly soar. From thence, perhaps, he has the odd name of King of the Birds; for he seems to dispute the title with the Eagle himself, who is properly the king of Birds. Our farmers call the Wren Peter Nonfmad, that is, after dinner meat; because he is seldom seen in the forenoon.

The Gaas, or Goose. The Tame are common here as in other places. Of Wild Geese we have two sorts, particularly in Summer time, by the sea side. The first, from their colour, are called Graa-Giæs, Grey Goose; also Trappe-Giæs, and of some also Rad-Giæs, because they hold a wonderful kind of counsel in their flight; of which hereafter. They are only in the Summer in Nordland, the furthest part of Tronheim's diocese; and are seen to fly by here, towards the north, about Whitfuntide: when they are weary in their journey, and light upon the cliffs to

\* These sort of walls are used instead of hedges, and are large pebbles, and other stones, laid loose one a-top of the other.

rest, some may be shot; some also, by fogs or bad weather, are bewildered; and others from faintness, or some other accident, are left behind till Winter\*, when the flocks return from Nordland to France, where some people are of opinion that they winter; tho' I won't alledge it for a certainty: for as to these sort of Birds of passage, their breeding and other circumstances are not rightly known to us in these parts.

Strange flight.

Those that are caught and shot here are fat and well-tasted: the most remarkable thing with respect to these Graa-Giæs is the regularity and order they keep in their annual flights and peregrinations both hither and back again. This has been confirmed by many witnesses. Each flock consists of 30, 40, or more; and they fly partly in two lines; and toward the hindermost end they stand pretty far from one another, but the foremost go close together, and form a pyramid; so that they cut the air to make it easy for the rest: but as the foremost are soonest tired, it is observed, from time to time, that the three foremost at the point retire behind, and other three come forwards; and so they continue to cut the air, taking turns for the foremost place; and thus alternately, a whole or half a day, they go on in regular order, and without turning out of their direct line, unless when one grows tired, and then, perhaps, it must stay behind. This is certainly a singular thing in natural history, and may give mankind a good lesson how to help one another in society. Something of this kind is affirmed concerning the Deer, when they in droves pass a river.

Fager-Gaas.

Another sort which stay longer with us, is what we call the Fager-Giæs; they are a clean and pretty Goose; they have a white ring round their neck: they are called also Urgiæs, because they live in Urer, or heaps of stones, under the rocks along the shore. They are bigger than a Duck, but less than a Goose: the general colour is a mixture of white, blue, brown and black; they are greenish on the head, and the bill and feet are red; the flesh is not so good as that of the former: we know not where they spend their Winter; they come here in the beginning of April, and are not seen after Michaelmas-day.

When the eggs are taken or destroyed, the cock beats the hen with his wings, and makes her cry dismally. In the subterranean holes, where they lay their eggs, there is two openings;

\* A friend gives me an account, that the Graa-Gaaser breeds also on the islands near the ocean in Rycfylke, tho' not in any great number. In Jedderen is a water where those Geese which lose their feathers, or that could not follow the flock, stay all the Summer, and with a little trouble may be caught in great quantities.

so that if the one hole is not stopped up, it is in vain to look for the Bird at the other.

The Goose in this kind is visibly less than the Gander, and has got the ring about her neck, which makes the Gander most fightly.

The Giertrudsfugl, or Gertrudes-Bird, is black, with some red on the neck, near the head. It lives in wood, and is called by some Ulykkes-Bird, because it is commonly looked upon as ominous, and of bad foreboding. In these things the commonality in former times had great belief.

The Glente, or Kite, is a known Bird of prey, which particularly keeps to houses and yards, and kills the Chickens.

The Goul, or Gagl, is a middle kind of Bird, belonging to the water: it is something like a large Wild Duck, but much fatter and delicates in flesh, and is best roasted. In June they come in flocks, like the Wild Geese, along the country going north; they are easily shot, because they do not turn, but keep a direct line, and fly low, not much above the water. In Snorro Sturlesen, p. 229, it is said, A Gagl for a Gaas is but bad payment.

The Gog, otherwise, for his noise, called the Hukkuk, the Cuckow, is shaped nearly like a Hawk; it is something less, and of a blue-grey. It is said that they are lazy, and must have a small Bird always in company with them, that brings them their victuals: it is pretended by some, that the Cuckow the following year becomes a Kite, just mentioned, and falls first of all upon his benefactor; and from thence it is called the ungrateful Cuckow\*. They are not seen farther north than Saltens Fogderie.

S E C T. IX.

The Hav-Aare, is shaped like a Duck, but is something larger, and the bill is shorter; it is quite black, excepting some white feathers at the end of the wings, which look pretty. They dive deep for their food, and they are difficult to shoot at. They lay ten or twelve eggs, and take turns with their mates to sit on them.

The Hav-Hest, is a Sea-Bird, not larger than a Moor-hen: it is short and thick, with small wings, and feet like a Goose; a small bill, and high chest, of a grey colour. They snort like a

\* Against this common ill report, which particularly Plinius, Lib. x. cap. 9. fol. m. 80, has brought upon the Cuckow: it is cleared by Jo. Heinr. Zorn, in his Petino-Theologie, P. ii. c. 13. §. 13. p. 716. who says, the poor Bird is done injustice: who has seen it? Nay, he is an unarmed Bird, and has neither claws nor bill to do it with.

horse when he fetches breath; from whence the Bird has the name; as well as that its motion on the water resembles the trotting of that animal, with heaving, and violent pushing; so that when they appear in large flocks, they make the sea roar even in still weather. On land no body has ever seen them, and they do not come nearer than half a score † miles; so that they are only seen by the fishermen that go out to fish for turbut on the main; though in shallow water these Birds come about the boats in clusters, to get the intrails that are thrown over. If they strike at any of them with a stick or a stone, that they fall or are stunn'd, then the others gather about the Bird that is hurt, and never leave off pecking him till he revives: but that he should revive, as pretended, though quite mangled, is a mere fisherman's fable.

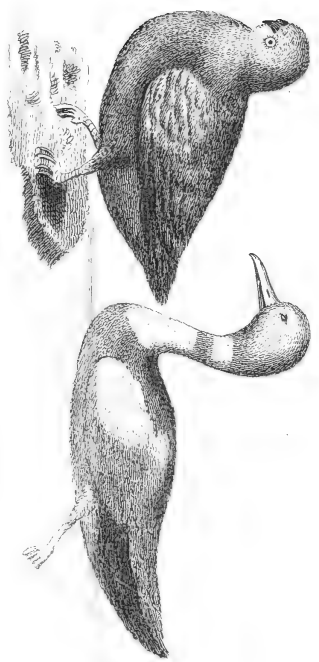
I have never found so much as one of this Hav-Hest among other Birds, in any other writers; and therefore the drawing sent me by Mr. Hans Strom, chaplain to the parish of Borgens on Sundmoer, is certainly the more worthy to be introduced: but I have this to observe on the occasion, that the thick and round head in the drawing is too much like an Owl, and should, by a more exact drawing, rather approach the likeness of a cuckow's head, but broader.

Hav-Sule.

The Hav-Sule, a large Sea-bird, which somewhat resembles a Goose: the head and neck are rather like those of a Stork, excepting that the bill is shorter and thicker, and is yellowish; the legs are long; across the back and wings the colour is a light blue; the breast and long neck are white; towards the head it is green, mix'd with black, and on the top there is a red comb: the tail and wings are both distinguished by some white feathers at the ends, and are large in proportion to the body: when the wings are spread from the end of one to the other they measure six feet. This Bird is eatable either roasted or salted: the Scots call it Gentelman. It is a Bird of passage, or of the wandering unsettled sort. It is not seen in this country before the latter end of January, or beginning of February, when the herring-fishing begins, and then it serves for a sign to give notice of the season. They do not come nearer land than within half a mile; thus the farmer observes when the fish seek the narrow and shallow waters. At Easter these Birds are not seen any more, therefore I cannot say much about their breeding. They are so stupid, that by laying a few herrings upon a floating board, they may be inticed to the boat, and killed with the oar.

† Sixty English Miles.

*Swan: 2.*



*The Starling*

*The Ring-necked Pheasant*

*Swan: 3.*



*The Grebe*

*The Mute Swan*

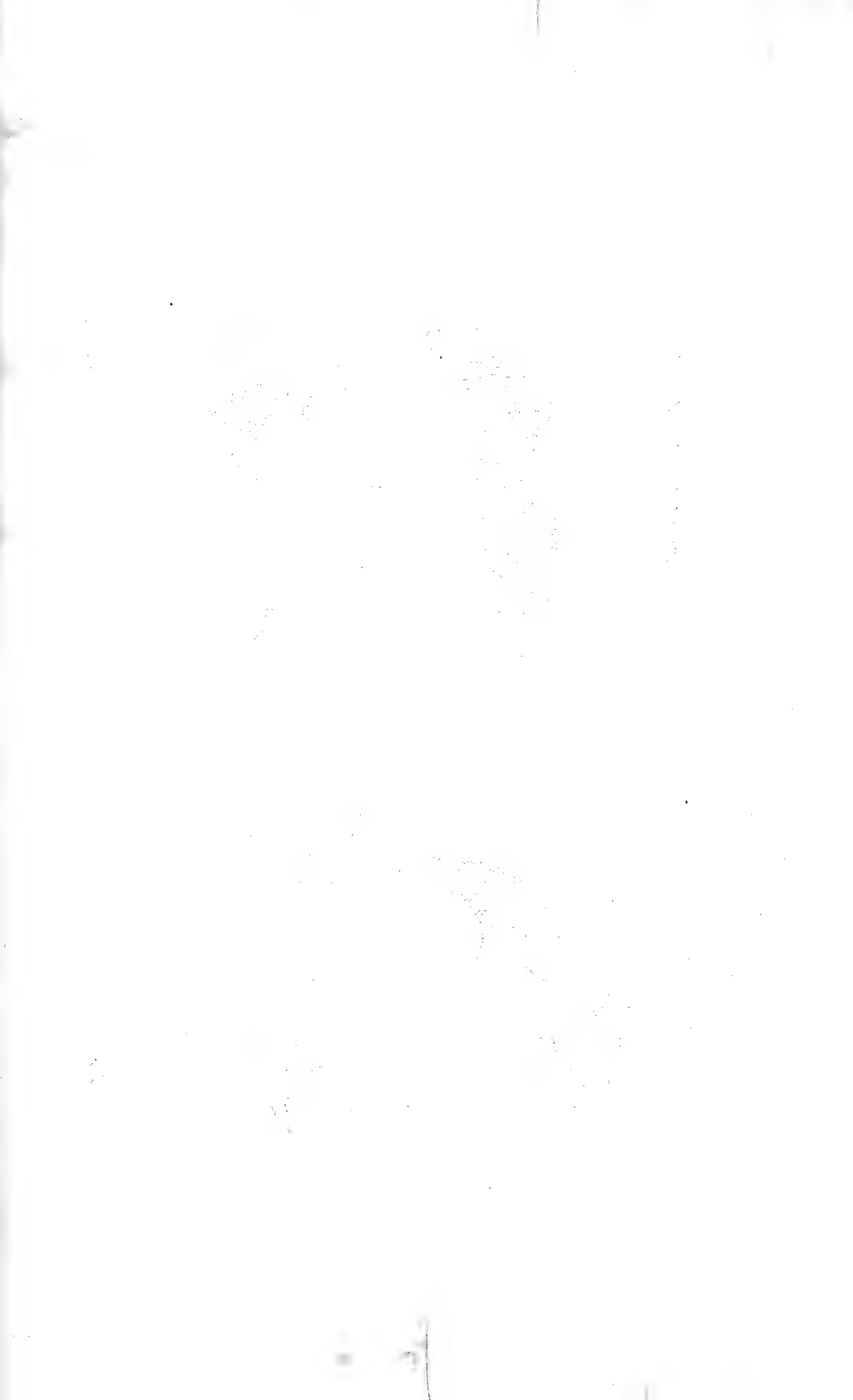
18.

*The Emu or great northern Swan*



*The Starling*







The Heire, the Heron, Herodias, Ardea vel Ardua, quod alte<sup>Heire:</sup> volet, because it flies high, says J. Klein, Hist. Av. p. 122, where he distinguishes them into fourteen sorts. We shall only take notice of the Norwegian Heron: it is the large blue Heron, a considerable Bird, whose body is like an Eagle's, the neck, bill, and legs like those of a Stork, excepting that the feet resemble those of a Goose, and on their heads they have a tuft of feathers: they lay three grey spotted eggs, of the size of a Goose-egg, and shape of a Moor-hen's: they build their nest in the highest trees, or in the cracks of the steepest rocks: the male and female change turns to sit upon the eggs, which are hatched in three weeks: they do the same in bringing up the young, in three more; and then they can feed themselves. They do not only seek their food in fresh water lakes and marshes, but also along the sea-coast, where, with their long legs, neck, and bill, they shew the same readiness as the Stork, to catch all crawling and water insects, that are not larger than what they can swallow down their narrow throats. The Heron has only one strait gut, which distinguishes it from other Birds. Ardea id habet ab omnibus avibus diversum, quod intestinum cæcum unicum & simplex obtineant singulæ, cum aliæ aves geminum nactæ sint, according to J. Klein, L. C. Hence it comes to pass, that all my correspondents unanimously assure me that a Heron may eat a Snake or an Eel three times over, which is hardly swallowed before one sees the head or body pass out again from the Bird's fundament, and then immediately the Bird turns about, and swallows it a second or a third time, before he will relinquish it. Its long legs are a great help to it to get its provisions: on these legs are a very few fine hairs, which play softly in the water; and that motion, it is said, entices the fish, who are not aware of the devouring beak above.

The Heiloe, called also Myreloe, because they live chiefly in<sup>Heiloe.</sup> ant-hills, or in broom-fields, differs from the Akerloe (which, on the contrary, seeks the plough'd land) chiefly in size, which is visibly superior; on the back it is green, and it is variegated under the breast with black and white spots: its flesh is delicate, much like the Thrush kind: they are Birds of passage, and towards the Winter they assemble together in large flocks, and so fly away. Some are of opinion that they stay here all the year, hiding themselves in the high rocks; but this is uncertain.

The Horse-Gog, or Rosgauke, so called perhaps because they<sup>Horse-gog.</sup> live in cracks of rocks, or among great heaps of stones, from whence the ermin animal has the Norwegian name. The Horse-Gogen is about as large as a Wood-Pigeon; its note is not at

all like the other Gogs, or Cuckows, but resembles the bleating of a Goat, and is therefore by some called Jord-Geed, or Ground Goat: it is most heard in the night. Some call it also the Fog-Bird, because it is oftneft seen in misty weather.

Hoeg.

The Hoeg, or Hawk, a well-known and hurtful Bird of prey: there are three sorts of them in this country; the largest is the Gof-Hawk, which is strip'd with green, and seems nearly related to the Falcon: this lives upon Growse, Chickens, and Pigeons. It will not meddle with a dead carcase, as if it were of a more noble kind than other Birds of prey. They often keep about the fresh water, and watch to catch the fish that come within their reach. Another sort, are less and of a brown colour, called Spurre-Hoge, because they do not carry away any thing but small Birds; and there is still a lesser sort of the same colour, called Muse-Hoge, because they, like the Owl, devour the ground or wood-mice. They hover in the air till the mouse comes in their way, and then drop down at once upon it.

Hons.

The Hons: the cocks and hens in general of this species, which is one of the most extensive among the Bird kind, are found here of every sort as in Denmark or Germany, the Peacock not excepted. Pheafants are the only kind which I do not remember to have seen here, though I don't doubt but that they might be bred in Norway, as well as in other places, with expensive regulations\*.

That the great India Hons, the Turkey kind, commonly call'd Kalkunske, but more properly Calecutiske Hons, should thrive here as well as in warmer countries, one would not believe, if experience did not convince us; yet it is true, that they do not grow quite so large as in other places.

Of Agger-Hons I have already treated.

\* His Excellency Count Rantzau, our former Stadtholder, in his time kept Pheafants; but with what success, or whether they left behind them any young, I have not learnt.

## CHAPTER IV.

## CONTINUATION of BIRDS.

SECT. I. *Of the Francolin, the Lumme, and others.* SECT. II. *Of the Black-cap, the Larke, the Lumme, the Pope, and others.* SECT. III. *Of Gulls of several kinds; of the Eagle, and many others.* SECT. IV. *Of the Raven, Cormorant, and others.* SECT. V. *Of the Lapwing, the Magpye, and others.* SECT. VI. *Of the Starling, the Stork and others.* SECT. VII. *Of the Cock of the Wood, and others.* SECT. VIII. *Of the Quail, the Owl, and others.*

## S E C T. I.

**J**ERPE, or, as some express it, Hierpe, the Francolin, is <sup>Jerpe.</sup> an excellent Land-Bird: it serves the Norwegians instead of Pheasant and Moor-game; and is called by some the Norwegian Ager-Hone, and differs very little from the Bird of that name in Denmark, but it is something less, and almost like a Pigeon or Partridge; but in feathers and colour it is more like the Wood-gam; it is variegated in stripes. For its white, sound and tender flesh, and its delicious taste, I prefer it to all kind of Fowl I know of. The fowler entices it to him by blowing in a pipe, that sounds like the voice of its mate. In the diocese of Aggershuus and Tronhiem, where they are in great numbers, they don't prefer any thing to the Jerpe roasted. On Kolens mountains they are in abundance; and, according to Schefferi's account, in such vast numbers as cannot be counted. Willughby, who is not in the wrong by counting them a species of Ager-Hons, says, that the Italians, who have them from the Sicilian and other high mountains, call them Francolini, quasi Franci, i. e. Liberi seu immunes; because they know these Birds are a sort of prohibited game, being reserved for the nobility only. And again it stands in the same class, namely Ornithologiæ, Lib. II. §. ii. p. 125. Hæc avis vel eadem est nostræ Lagopodi alteri, Regdame dictæ, vel ei affinis. Differt saltem, quod caput habeat cristatum. Bellonii autem Attagen crista destituta est. Ego sane eandem crederem, nisi locus obstat. Nostra enim juga montium altissimorum septentrionalium incolit, cum Aldrovandi Attagen in Siciliae Regionis

Regionis calidæ montibus fatis abunde reperiatur. Verum nullus dubito, quin avis illa, quam Bellonius & Scaliger hoc nomine intelligunt, in Alpibus quippe Pyrenæis & Arvernensibus montibus degens, quamque Bellonius ad plana descendere negat, lagopodi nostræ omnino eadem sit. Et forte etiam Aldrovandi non diversa fuerit, cum utrique tum Bellonianæ avi, tum Aldrovandinae Francoloni nomen commune sit, & Aldrovandi attagenem suam monticolam esse scribit. Nec refert, quod Siciliae, ubi invenitur, regio calida sit, montes enim Siciliae, præsertim Ætna adeo frigidus est, ut per maximam æstatis partem nivibus sit opertus, &c. Caro hujus avis laudatissima est, facilis concoctionis, nutrimenti multi & optimi, unde & primum dignitatis gradum apud veteres obtinuit.

Imber.

The Imber, Imbrim, Ember, or the great Northern Diver, is a pretty large Sea-Bird, a little bigger than a Goose: it has a long Neck, the upper part black, as well as the bill and feet; but from the breast downwards 'tis white: there are also some white feathers at the extremity of the wings and tail. The wings are so short, that they can hardly raise themselves with them; and the legs stand so far backwards, that they are not so fit to walk with, as to paddle themselves along the water. Hence arises that strange account in which every body agrees, that the Immeren is never seen to come ashore, excepting in the week before Christmas; from whence the fourth Sunday in Advent is called by the people in general Immer, or, according to their way of expressing, Ommer-Sondag. On enquiry, how they find place and opportunity to hatch their young, I have been informed they lay but two eggs, which is very likely; for one never sees more than two young ones with them. Under their wings in their body there are two pretty deep holes, big enough to put one's fist in: in each of these they hide an egg, and hatch the young ones there, as perfect, and with less trouble, than others do on shore. Relata refero, sed constanter & a plurimis relata. Hr. Lucas Debes, whom I consider as a pretty cautious writer, does not look upon this to be improbable, where he, in his Description of Faroernes, p. 128, & sequi. treats of that Bird. He observes that the Immeren, according to the opinion of some, is not the Isfluglen or Halcedo, which Franzius, in his Histor. animalium sacra, describes to be of quite a different form, and indeed a little Bird. It is said the young ones are easily enticed ashore, and killed; but the old ones, which are most valued on account of their fine feathers and down, know very well how to guard themselves against Gun-shot  
for

for they duck quick under water, and then come up again in a moment. Several shot may be discharged to the place where they are expected to appear, but seldom with success. Those that will kill them must aim at their hinder parts, that the shot may go in under the feathers; for they grow so thick, and are so very soft, that the shot is damped, and loses its force, if they are shot in the fore-parts \*. As far as I yet have found, this wonderful Bird seems to be quite unknown in foreign parts; for neither Aldrovandus Gesnerus, Willughbeius, Zornius, or Klein, say any thing of it: they are likewise unknown to many of our Norwegian writers.

Jo-Fugl, Jo-Tyv, or Jo-Thief, because he robs other Birds, The Jo-Fugl. is called also Kive. It is in shape like a Strand-Maage, tho' of a darker colour; and is an enemy to those Birds, tho' not a very dangerous one, as may be concluded; for he only strives, in his pursuit after them, to get their prey from them, which he is too lazy to catch for himself; or if he can't get that, he'll take the other Birds dung, from whence the Dutch call him Strunt-Jager. As soon as the other drops it, 'tis instantly caught up by the Jo-Fuglen, and with that he is satisfied without any further demand: this I am assured of by many that have observed it. The Jo-Fuglen appears in Norway early in the Spring, and is not seen after Autumn. Its eggs are like the Maagen's, but something darker. See Frid. Martens Spitzbergenske Travels, c. ii. p. 63.

The Irisk is a pretty little singing Bird, very well known: 'tis Irisk. found in Oplandet, but not the right genuine sort, as has been observed by the best judges. Near Bergen there is a sort of Bird called Knotter, which is different from the Irisk only in the note; in other respects they are quite alike.

S E C T. II.

The Kiæld is a Land-Bird, tho' of that sort that lives always Kiæld. about the sea coast, and it never goes on the water but to save itself by ducking a little while under water. It is in size and shape much like a Pigeon, with a long narrow red bill, and red

\* Being thus shot-proof, perhaps is the origin of this Bird's Iceland name, which is Himbryne, as if armed with a heavenly coat of mail: otherwise there is ascribed another origin to the name, tho' not so just, when it is said in Museo Wormiano, p. 303. *Mergus maximus Farrensis, Ferroensibus Helbrimer, Islandis Himbryne, quasi lorica cœlesti induta. Ejus etymologiæ rationes ita reddidit D. Stephanus Olavius: Himin cœlum loricam vero Brynia significat, juxta illud poetæ: Brynia gefur ey feigufior. i. e. Lorica non dat mortis vicinis vitam. Ratio nominis a colore, ut existimo, petita est. - - - Voluerunt Islandi hac nominis impositione significare, aves hæc pulcherrima colorum varietate & distinctione, usque adeo ornatas esse, ut dici possint cœlestem quandam loricam induisse.*

legs: his upper part is black, and he is white under the belly and wings. The male and female take their turns to hatch their young, which is done in 14 days, on the bare cliff; the eggs are streaked; they live on shell-fish and sea-weeds; they come in the Spring, and are not seen after Michaelmas-day. The farmers say they fly over to Scotland.

*Kiod-Meife.* The *Kiod-Meife*, or *Mufvit*, the *Black-cap*, called by some *Tallow-Ox*, is one of the smallest *Land-Birds*; 'tis almost like the *Wren*; the body is black and yellow, and 'tis white under the belly, with a black cap on his head. They keep to the houses, but are hated and persecuted; for, according to his name, he is such a lover of meat, that he watches every opening or hole to get into the farmer's pantry, and falls upon the meat, and will eat his way into it like a mouse: even when the meat hangs up to be smoked, they can hardly preserve it from these Birds; they are caught like mice, in a trap.

*Krage.* The *Krage*, *Kraako*, a well-known black and grey Bird of prey: it lives upon carrion, and such other foul food. It is said to warn other Birds of their pursuers; for it smells gunpowder at a distance, and follows the bird-shooters with its shrieks, and often frustrates their hopes. The fox is their most dangerous enemy, for he steals upon them when they are asleep on the ground.

On the sea coast these *Kragers* live upon small fish and worms, common along the shore, and particularly on muscles; but they can't open the shells; otherwise than by flying high with them, and dropping them on a rock to break them in pieces.

The *Krams-fugl*. See *Drossel*.

*Krykkie.* The *Krykkie*, is a *Sea-bird*, much like a *Maage*, with a yellow crooked bill, and small red feet; under the belly it is white, and above it is grey, with a brown streak along the back: it comes with the Summer, and takes its leave in Autumn.

*Langvie.* The *Langvie*, *Lomgvie*, or *Lomvife*; for the name of these and other Birds differ greatly, according to places, and their dialect. These, which are of the *Goose* kind, have black running a-cross the back and wings, but they are white under the belly: they are called otherwise, by way of excellence, *Stor-fuglen*, because they are amongst the largest of the kind of the *Sea-birds*, and fly high, to lay their eggs on those rocks by the side of the ocean in *Nordland*, particularly at *Tranen* and *Væroe*, where they afford a comfortable maintenance to the inhabitants, though got with a great deal of trouble and danger, by climbing those steep precipices after them. *Willughbeius* says, L. iii. p. 244, that

that they are companions of the Owks and others, but are simpler, and easier catch'd. The hen lays but one egg at a time, she hatches it in four weeks, and in all that time does not stir from it: she is fed by the cock till the young one is three weeks old, and then the mother takes it with her to the ocean on her back. Of these kind are frequently found several hundreds in a place, lying so close together, that the rock is covered with them. When the mother feeds her young, then they sit up backwards, and she stretches her neck under her wing, to reach the young one's bill. If it is the first time that the fowler comes to the place, so that the Birds do not know his intentions by experience, then they'll sit and suffer themselves to be killed; but if they fly away, and come again, then each young one knows how to find its mother's wing, as each bee does its cell, though there is no difference in their make.

The Lax-Tite, is a Water-bird, in appearance like a Skade, Lax-Tite. but with long red legs, and a red bill. This has its name from this singular circumstance, that it particularly in the Spring, when the Salmon comes up the rivers, follows that fish, and seems pleas'd in its company, hovering on the water where it passes: it is a kind of a signal to the fishermen.

The Lerke, the Lark: of this bird we have here two sorts, Lerke. one called the Singing Lark, which we find only in Summer: this is of a brown colour, and builds in heath, and among small bushes, but is hard to be found. The other is the Korn Lerke: this is something larger, and it is seen ofteneft in the Winter; yet both sorts are seen sometimes in large flat countries, and also on some of the islands.

The Lom, Liom, Lum, the Northern Diver, which Ol. Wor- Lom. mius, in Museo, p. 304, calls Colymbum Arcticum, is a Water-bird, not quite so large as the before described Immer, or Ember, but otherwise like it; but yet more like the Razor-bill (which has been before described) excepting that the neck is thicker, and the bill is sharper. Its bigness may be known from this, that they sometimes weigh two pounds. They are all over of a mouse-grey, and somewhat lighter under the breast: tho' their wings are but small, yet they fly pretty well; but they walk extremely slow, and with difficulty\*, because their legs stand so far backwards, under their tail, as they do on the Immeren and Razor-bill;

\* From this Bird's bad gait Schefferus derives his name, in his Lappon, c. 30, where Lomme, or Lumme, he says, is the same as Lame, Halting, or Limping, claudicare; but that I will not determine. In the same place he talks of Wormii Mergis, or Halv-Ænder, whose pointed bill alone distinguishes it and many others from the common class.

therefore

therefore it builds its nest in the rushes, or on the sides of fresh water lakes; but so close to the water, that the dams can roll themselves down into their proper element from the nest, without the help of their legs. Though they live by fresh waters, still they fly to the sea also, to seek for food. There, as well as in the former place, they live upon all kind of small fish, worms, and insects, which they seek for by ducking twelve or sixteen fathom deep in the water. The hen lays two dark brown eggs, and sits alternately with her mate to hatch them. This is done in four weeks, and if the water rises so high that it gets into the nest, one or other still continues sitting on them. When this Bird is in a sportive humour it makes a frightful ugly noise, just like the cries of a human creature in imminent danger, and calling for relief. It makes another very different noise, which is a signal to the farmers for fine weather, after a great deal of wet and stormy seasons: at these times they are seen to fly up pretty high over their nest. The Lumme's skin is drawn off with down and all, and is used to line caps with, and is reckoned better than swan-skins. After this was wrote, there was published a Work, call'd *Olai Wormii Epistolæ*; in the second part of which there is found, sub N<sup>o</sup>. DCCCCLIX. p. 1021. a letter to him from Absolon Christophorus, treating particularly of this Norvegian Bird; from which I shall quote the most important part of what is said thereon, to illustrate and confirm further what has been delivered here. Consultis itaque Islandis interpretibus, geminas vocis Loom significationes, alta jam a multis annis oblivione in Norvegia obrutas ac sepultas didici. Aiunt enim voce hac & anxiam cujusque rei curam, & summam insuper calliditatem denotari. Quod utrumque nomen huic avi peperisse tanto certe crediderim facilius, quanto plura & majora utriusque nobis præbeat argumenta. Hujus quidem, dum pedum ad incessum usu destituta, nidum adeo prope aquam sibi struit, ut ex eo in vicinam aquam se devolvat facillime demittatque rursusque nidum petitura, infixo terræ rostro, quod aduncum habet, molem corporis sublevet, defectumque ita pedum utcunque suppleat. Illius etiam non spernenda sunt documenta: quam enim sit pro nido atque pullis suis anxia & sollicita, exemplo erit, quod quoties largiores imbres præsentificat, toties, ne torrentium repentino confluvio intumescens stagnum, alluvione sua nidum investesque pullos inundet ac suffocet, metuit, huncque metum querula semper voce atque ejulatu testatur. Contra vero, cum futuram cœli serenitatem & clementiam præfagierit, lætis quasi acclamationibus sibi atque pullis suis gratulatur. Atque ex diversa colymbi nostri vociferatione, rustici

nostrates,



nostrates, diversas cœli aërisque mutationes augurantur. Quando enim futuros nimbos querulo suo, hui, hui, hui, prædicit, dicunt vulgo: Dæ verte Bæteraff, di Loomin quia faa. E diverso, cum serenitatis suo, Karloa, præconem agit aiunt rustici: Bi fær braat Turre five Torre, di Loomin roopa Turkeraff. Sic enim piscatores ejus vocem æmulantur, propterea quod voce hac sudum illis, aeris qualitatem, passeribus marinis eorumque segmentis foli exponendis siccandisque aptam natam, pollicetur: id quod etiam Turkeroff Norvegis sonat. Ova porro singulis annis terna vel quaterna parit; magnitudine anserinis pæne paria, colorisque fere prasini, sed maculis quibusdam sparsa atque picta. Terna quidem communiter parit; quartum vero, nisi unum ei surreptum fuerit, nunquam addit. Causam hujus ternarii numeri (cum duos tantum excludat pullos), adferunt hanc, quod unum quotannis ovum, tributum aut decimæ quasi nomine, nescio cui, in nido relinquere debeat: quod cum plurimis aliis avibus ipsi commune esse; receptissima in vulgum fert opinio. Esse autem hanc avem ex earum numero, quæ, statis anni vicibus; in loca calidiora abeunt, exque iis ad nos redeunt, documento esse potest ejus non sibi sub adultum prope ver ad nos appulsus, cui rei fidem adstruit inveterata penitus simplicium animis superstitione. Creditum enim est plebecula, si quis jejunus nunciam reditus ejus vocem primum auribus hauserit, eum, intra illius revolutionem anni, quodam propinquorum cognatorumve privandum esse. Quæ itidem de Cuculo longum tenuit superstitione. Ulterius modus, quo apud Norvegos Islandosque capiatur, nobis ostendendus. Apud Norvegos quidem satis tutum ipsi est hospitium, quippe qui illius carnem aspernantur, rati insuper nefas esse (de stolido hoc vulgo intelligendum), avem, olim sanctam habitam, violare; saniores tamen emunctæque naribus homines, vel sclopis, (quod tamen raro successu fieri supra monui), eam petunt, vel retibus piscatoriis forte involutam, casu magis, quam ex instituto capiunt. Islandi autem, præter modo dictos modos, gemino eam astu circumveniunt. Vel enim binos ad ipsum nidi aditum palos humi defigunt, quibus intermedium quendam laqueum ita aptant, ut petitura nidum avis laqueo collum inferat, inque certam venatoribus prædam cedat: vel stagnum angustiore sui parte, linea piscatoria transmittunt; cujus extrema duo venatores, ad suum quisque stagni latus tenent, illaque summam aquæ superficiem leviter stringentes; avem prænatantem pedetentim insequuntur, quæ insidias elusura, crebris urinationibus profundum petit, sed eisdem magis adhuc impeditur seque involvit. Illa enim se sub aquis occultante, eo recta piscatores, laqueum umbilico lineæ alligatum dirigunt, quo hauriendi aeris

gratia avem emerfuram esse, præviæ in aqua ebullitiones monstrant; atque ita capiti extra aquam exserto laqueum induunt. Quæres, quem in usum eam nostri homines aucupentur? Carnem quidem minus in deliciis habent; exuvias autem, pectori capiti-que contra injurias hyemis muniendis, appetunt & conquirunt. Insignem enim dictis corporis humani partibus, ob plumarum delicatam mollitiem ac densitatem, operam præstant. Capiti quidem tale ex iis faciunt tegmen, quali vulgus aulicorum plurimum utuntur, vulgus a Kabbutz sua lingua vocat. Pectori fomentum longe saluberrimum præbet, adeo ut vel cygno, cujus apud ditiores exuviæ multo in pretio, nihil cedat.

Lund.

The Lund, or Lund-Talle, the *Anas Arctica*, or Pope, is a middle-siz'd Sea-bird, something larger than a Pidgeon, black and white, and on account of his beak, is called by some the Norwegian Parrot; for it is pretty large, and hooked like a Parrot's, tho' thinner and broader, and striped prettily with yellow, red, and black. This bill is so sharp, that when he bites any of the bird-catchers he takes off a large piece of flesh: his claws are also very sharp, with which, and his beak, he defends himself against the Raven, his enemy, whom he holds by the throat, and will carry him out to sea, and drown him, before he looses his hold. This Bird builds his nest, (in which it lies on its back) not always alike, but according to the situation of the place; for if it be low, then it will make a slanting hole in the ground two or three ells deep; but if it be rocks and cliffs, then the Bird looks for holes between the cracks and openings: sometimes also it builds between great stones, that are broke out, or loosened on the sides of these rocks, and where it is the most difficult to get at them. The farmers have particular dogs, broke on purpose for their service, to go in, and pull out the first they can lay hold of by the wings, where they are together in scores, or sometimes one or two hundred together: their way is, that when one is laid hold of, and drawn out, he bites fast hold of his next neighbour, and draws him with him; and all laying hold in the same manner, that they must all be drawn out, and killed. If the hole be not very deep, or the rock not so steep but that the bird-catcher can get at it, then they use a long stick to drive them out; this has a sharp hook at the end.

Lucas Debes writes, p. 137, that on Farroe they also catch these Birds, when they come from sea and seek their nest, with a net spread on a pole, and kept open with a cross stick, into which they carelessly fly; this way they catch sometimes 200 in a day.

a day\*. The Lund lays but one egg at a time, which is as big again as one would imagine, in proportion to the bigness of its body; and is of a brownish colour. If this be taken away from her, then she lays another, but has hardly time to rear the young one to perfection by bringing it fish, so that they commonly perish; and the mother follows the flight when the time comes, namely, just before, or just after Olai day, when they all together leave these parts, after having been here from the beginning of the month of April. What time they remain in Nordland, particularly on Rost and Væroen, where they are found in the greatest numbers; or whether they winter there, I do not know. They are a very cleanly Bird, for when they leave their nest, they clean it, and scrape away all the foulness; and then strew grass over it, that they may find it the next year in proper order: they are very valuable for their feathers, which are exported, particularly from Nordland, in vast quantities, and bear a very good price: they are reckoned the next in goodness and softness to the Edderfugl †, Mr. Peder Dafs describes this Bird, in his Nordland Trompet, p. 82, pretty fully: and Franc. Willughbeius, who speaking of the Scotch Islands, where this Bird, together with many other of the Sea-Birds belonging to this country are found, says, that when there happens on their passage in the Autumn, to come stormy and bad weather, so that they cannot move away, many perish with hunger and fatigue, and are found dead in heaps by the fishing-men: there have been found also some of them under water, seemingly as if asleep, or in a state of insensibility; and when drawn up by the fishermen, has come to itself, and flew to land again. From this one may conclude that the Lunden, like the Swallow, may lie in a trance, or state of insensibility, under the water. See Ornitholog. Lib. iii. cap. v. p. 245.

## S E C T. III.

The Maage or Gull, called here Maase, is a well-known Strand-<sup>Maage.</sup> Bird of various species, yet all of one genus; for they all live upon small fish, insects, sea-weeds, or the like, indeed on any

\* This circumstance makes me almost think that our Norwegian Lund is not so sagacious by day as by night. It is, without doubt, the same Bird that Pere Labat describes in his Voyage aux Isles de l'Amerique, Tom. ii. p. 349. calling it Diable or Diablotin; the other properties, as also his time of departing from his abode, and the trouble he gives to catch him in the cracks of the steep rocks, all agree.

† Many of the Nordland farmers, that have shares in a rock, make it their chief maintenance, and even grow rich and considerable in their station, if they keep too many dogs; tho' their neighbours will take care that they shall not, by keeping too many, deprive them of their advantages; neither is this suffered by the government.

thing

thing that is found on the surface of the water, or along the coast ; for it is not the custom of the Maagen to duck under the water for its food ; his gullet and craw are so large, that there has been found seven herrings in one of them at once ; his beak is long, and somewhat bent at the extremity ; and upwards towards the head there are two longish nostrils ; his legs are but thin and slender, but his wings are strong. The difference of the several kinds of Gulls is this, that some are of a light grey colour, and large, which are called Graa-Maaser ; these have a yellow bill and red legs, and are of the size of a common hen. Some differ only by being blue and white, with some black feathers on the hinder part. Some are black on the wings and back, which are called Swarte-bager ; of this is that called the Scare-crow. Others again are smaller, and of a blueish colour, which are called Sæe-Unger : they build their nest near the water, particularly on the small islands and cliffs in the sea, which are covered with such numbers of them, that they appear quite white\* : their eggs, which are not despicable food, are taken away in large quantities. Each female lays three eggs ; they are very large, with great black spots ; they sit alternately on them, and hatch them in about 14 days : the birdmen catch them with an angling-hook like fish ; the flesh is not used, and they are skinned with the down on, which is very thick, and makes their small body appear much larger than it is †. When the Gull is coming into the water betwixt the cliffs and islands, and the main land, then the farmer knows it is time to make use of his nets to fish ; for most kinds of fish come here in shoals, which this Bird pursues wherever they go.

Mufvit. See Kiodmeife.

Natvake.

The Natvake, a small Bird, which, no doubt, has that name from its watchfulness, and making an odd kind of noise all night ; it is otherwise not much known to me.

Norwinds-Pibe.

The Nordwinds-Pibe is something less than a Starling ; of a grey colour : it has, without doubt, this name from a noise that it makes, as is observed, when the North wind is to blow ; this, if true, must come from an extraordinary sensation he feels in his body at that time.

\* Sometimes the Eagle visits them to feast himself, but then they gather together to defend themselves, and with a loud shriek and noise scare this king of Birds, and often put him to flight.

† A particular sort of Strand-Maager, which are found about Greenland ; but as far as I know, not here : they are called by the Hollanders Mallemokke. See Anderson's Description of Greenland, §. xxx. p. m. 168.

The Nodde-Skriger is of the size of a Pigeon; in colour it is blue and white: it haunts the oak and hazel trees. Nodde  
Skriger.

Orn, the Eagle, Aquila, a well-known, large, strong and majestic Bird, is held amongst Birds as the lion amongst the beasts, for king. J. Klein reckons, p. 41, eight sorts of Eagles, of which two only are known here, namely, the Rock-Eagle, and the Fish-Eagle; the first is also called here the Slog-Orn: it is something less than the other, and spotted with grey; it haunts the highest places in the country, and kills hares, sheep, lambs, and the like animals, as well as Birds; and if one may believe the farmers accounts, they add, that he will attack a deer sometimes: in this enterprize he makes use of this stratagem; he soaks his wings in water, and then covers them with sand and gravel, with which he flies against the deer's face, and blinds him for a time; the pain of this sets him running about like a distracted creature, and frequently he tumbles down a rock, or some steep place, and breaks his neck; thus he becomes a prey to the Eagle. Many have assured me, that the same device is practised by this Bird on horses, particularly the old and worn out; and I have both heard, and read in foreign authors, many accounts of their carrying away children of two or three years old, but never believed it, till a very worthy man, who was well acquainted with the fact, assured me of the following incident. In the year 1737, in the parish of Norderhougs on Ringeringe, a boy of about two years old had got out into the fields to look for his parents, who were at work pretty near the house, but not near enough to save this child from an Eagle, who stuck his talons into him, and flew away with him, which the poor parents beheld with inexpressible grief and anguish. Hr. Anderson, in his Description of Iceland, § xxxviii. p. m. 38. says, that children of four or five years old have been taken away by the Eagles; which the learned anonymous Icelander, who has illustrated the Danish translation with his comment, doubts, p. 282, in regard to the age. Ray\* gives an account of a child of a year old, in the Orkney islands, that was carried away four miles by an Eagle to his nest, where the mother found it unhurt, and took it away: many more such instances may be met with in authors, as a warning to careless parents.

\* Quæ infantulum unius anni pannis involutum arripuit (quem mater tesselas uffibiles pro igne allatura, momento temporis deposuerat in loco Hautonhead dicto) eumque deportasse per 4 millia passuum ad Hoyam. Qua re ex matris ejulatu cognita, quatuor viri illuc in navicula profecti sunt, & scientes ubi nidus esset, infantulum illæsum & intactumprehenderunt. Ray. Prodom. Hist. Nat. Scot.

Fish-Eagle.

The Fisk-Orn, or Fish-Eagle, is of a light brown colour, and exceeds the former in size. This does not dislike a dead carcase on shore, but lives principally on fish, which it often watches to take from the otters, and frequently seizes, on the surface of the water. It will eat also the heads and entrails of fish, which are left in great heaps, after the cleansing and salting of fish, and fall to the share of many other Birds and Beasts; but when the Eagle comes all belongs to him alone. When this Bird flies out at sea to strike a fish with his talons, he sometimes happens to lay hold of such as are too strong for him, and they will drag him down to the bottom; this has been particularly seen more than once with the Helleflynder, which is called here Queite, and will be described hereafter. This is so large, that it will sometimes fill a cask: the Queit's high and prominent back makes him appear, in the eyes of the Eagle, much less than he really is: when the Eagle strikes his talons into him he cannot easily get them out again, because of their crookedness and length; so that the fish drags him down with him; and the Bird makes a miserable cry, keeping himself up, and working with his wings spread as long as he possibly can, tho' in vain; for at last he must yield, and become a prey to those he intended to devour. This may serve as an emblem to many stupid and inconsiderate enterprizers. I have been told that our Sundmoerke fishers sometimes catch this kind of fish with Eagle's talons in the backs of them, and covered over with flesh and fat: this is a mark of the fish's conquering, as aforesaid\*. And I have been also told by several very creditable people, from their own knowledge, another unfortunate expedition of the Eagle; which shews that this mighty king of Birds is often in the wrong, and extends his attempts beyond his power among the fish. An incident of this kind happened not far from Bergen; where an Eagle stood on the bank of a river, and saw a large salmon, as if it were just under him; he struck instantly one of his talons into the root of an elm just by and partly hanging over the river, the other he struck into the salmon, which was very large, and in his proper element, which doubled his strength, so that he swam away, and split the Eagle to his neck, making literally a spread Eagle of him; a creature otherwise known only in heraldry.

\* The crocodile plays his persecutor the tyger much the same kind of a trick, when he has struck his claws in that creature's eyes; according to Hr. Condamine, in his Voyage on the Amazone River. See Hamb. Magazine, Vol. vi. 3d St. p. 256.

## S E C T. IV.

Raage. See Allike.

Ravn, the Raven, *Corvus*, is here, as in other places, well known to be a voracious and hurtful Bird with us: it not only destroys other Birds, and their eggs, but also lambs and kids. For this reason, according to Mr. L. Debes's account, it was usual formerly, and is still at Faroe, that each farmer, on St. Olai's day, is obliged to bring a Raven's head with him, or forfeit four skillings. The same author also says, p. 125, that in this country there are found some, tho' few, that are white; and some half white and half black. These Birds are easily taught to speak.

Willughbeius gives an account, Lib. iii. cap. 3. p. 248, of the Sea Raven, with feet like a Goose, called the Cormorant, which are found on the Scotch islands, and consequently here; for we have all kind of Birds in common with them; though I have had no particular account of this Bird from my observers. He says of these, that they are tamed and broke in the same manner as the Otters, to catch fish for their masters use, of which the Cormorant brings ashore a pretty deal together, and then casts them up. This Bird's way of catching fish is to fill his craw with them, and throw them up when he comes ashore, for the family's use; so that they do not look very tempting to eat. We have the Night Raven also here, which differs by his frightful noise in the night, and is thence named *Nycti Corax*.

Reyn Spoe. See Heiloe.

Ringetrost. See Drossell.

Of the Rype, or Partridge, we have in Norway two sorts, namely, the Field Rype, which lives very high in the rocks, and is less than the other, and the common sort; they are both much about the size of a Pigeon, which they also resemble, excepting that their legs are covered with feathers; and they are therefore called *Lagopus*, i. e. Hare foot. The common Partridge, which haunts the low vallies or dales, is something larger, about the size of a small Chicken. Both sorts are white in the Winter, in the Spring speckled, and in the Summer grey; they are here in great quantities, yet some years more than others\*.

\* When the first snow comes with the east or north-east wind from the high mountains down into the vallies, then we here, in the diocese of Bergen, expect a great quantity of Partridges; but if the first snow comes with a west or south-west wind, then it carries them up towards the rocks, and we don't get many that year hereabout.

They

They are shot, or catch'd in nets, or under a heavy board set up for that purpose: they are brought to this town in the Winter by thousands, and are put up half roasted in firkins, and sent away to other countries: their flesh, next to the Growse and Francolin, is the best of any Wild-fowl we have, especially when they are shot; for when they are smothered, the blood remains in them, and they neither look nor eat well. In the Summer they live upon berries, tops of trees, and other greens; but in the Winter they do as has been said of the Growse. They seek covering and warmth by burying themselves in the deepest snow, where they sit in great heaps together, taking a magazine of food with them in their crops, by stuffing them as full as they can with elm and birch-tops, so that their breasts stand out, and makes them look as big again. With this store they support themselves till the following Spring. This particular I have from Ol. Magn. L. xix. c. 33. It was known also to Derham, and is quoted in his *Physico Theologic. Lib. iv. c. 13.* as an instance of the Almighty and Wise Creator's care, for those things that otherwise would perish. The Partridge is a national and peculiar Norwegian Bird, and belongs to them perhaps rather than any other country. I must observe that they are frequent, tho' not in such abundance in Prussian Courland and Switzerland\*. Mr. Jac. Klein, whom I have often quoted, speaks of them, in his *Historia Avium, p. 173,* thus: *Lagopus, Fælrípör, Snierípör, Tetrao recticibus altilibus intermediis nigris, apice albis, Linn. F. Suec. Schnee-Hen, Hassel-Hen, with Hare's feet, paulo majores sunt attagenibus nostris, plantis pedum quoque villosis, prout pedes leporum. Ejusmodi ut in Curlandia, nec non in Prussia, haud procul a civitate Tilsit, immo in Alpibus Helveticis aliisque. Nonnullas die 20 Jan. 1747, ex Prussia acceptas habui, quarum alteram totam albam, præter rostrum, inferam caudam & sex scaphos remigum, delineari curabam. Ungues habent latos concavos, &c. Utrum in Prussia verno & autumnali temporibus similiter colores mutant Lagopi proprie dicti, pro certo affirmare non amsim. They are also found on the Pyrenean mountains, and in the Summer fly up the hills in quest of the ice and snow, which they love. This is attested by Gasparie Schotti, in his *Physica Curiosa, Lib. ix. cap. 48, p. 1009, Reperiuntur Lagopodes in Alpibus & Pyrenæis montibus & in summis jugis. In frigore, nive & glacie delectantur, ut ubi locis inferioribus liquantur nives, altiora & soli averfa petant loca, in quibus nix perennat. Latent homine con-**

God's providence.

\* Dr. Shaw describes the African Bird which he calls Kitaviah, something like Rypen, though of a quite different colour. See his *Voyage du Levant, Tom. i. p. 327.*

specto



speculo & cavent motu se prodere. Tantæ simplicitatis sunt, ut a venatoribus dispositam lapidum seriem transire non audeant, &c. The last words put me in mind, that in many other places they make stone walls without mortar, which the Partridges will not go over; but here in Norway the farmers make a kind of a fence in the snow, of furz, at the ends of which they put their snares, into which the silly Birds run, and are caught.

The Hawk is a great enemy to them, and they are so frightened by that Bird sometimes, that they fly into the hands of men; but they do not find themselves there better protected.

## S E C T. V.

The Sandtærne, is a Norvegian Bird, unknown to me; which Sandtærne. J. Ramus, amongst others, only names, p. 249.

The Sandtal, or Lapwing, called also Tendelob, is, without Sandtal. doubt, the same as is otherwise called by a shorter name, Ten. This last, of which I have a circumstantial account, are a sort of Strand Gulls, tho' very different from those sorts before describ'd; they are not near so large, and are most like the smaller kind. In colour they are somewhat like a blue Gull, white underneath, with some black feathers at the extremity of their wings and tail; and on their head they have a mighty pretty little black crown, a red longish bill, small red legs, and, just above their eyes, a small red mark.

This Bird remains here but a short time, namely, from about Midsummer-day until Autumn, and lays in the mean time three grey spotted eggs, like Pigeons eggs: in eight days the young are hatch'd, and in a very few more are fully able to provide for themselves: by which we see how nature operates, according to time and opportunity. Their food is insects and small fish, which swim pretty high in the water, or run in upon the flats: they do not take them with their bill, but with their wings, which are of a considerable length; and they do it in this manner: they fly several fathom high, and draw their wings together, and then drop down suddenly upon the fish like a stone; then they grasp their prey with their wings, and carry them away prisoners.

The Savorren, is a pretty large Sea-Bird, in body and neck Savorrens. not unlike the Growse, but belonging to the Goose or Duck kind; for they are whole footed. We have no very exact account of them, for they are not seen longer in these seas than the month of January and beginning of February; they then,

like other fish-hunters of their kind, come to fish for the Winter herrings, at the beginning of the season.

Sey-Unge. See Maase.

Sieben-  
schwanz.

The Siebenschwanz, as it is commonly called, I believe to be the Sieden or Seidenschwanz, which Hr. Klein, p. 70, reckons to be of the Thrush kind, and calls them, among others, la Grive Bohemienne, like those of Fabro, called Micro-phœnix, perhaps because we see but one at a time\*. This Bird probably has the name of Siebenschwanz from its long tail, adorned with fine shining feathers, red, blue, and yellow, which makes them extremely pretty: it is called also the Bohemian Chatterer. Almost at the end of each feather on the wings, which otherwise are of various colours, there is a small red bright spot, like red sealing wax.

Siifgen.

The Siifgen is a small dark-coloured Bird; we have them in great abundance, and particularly where there are pine trees.

Skade.

The Skade, Skizere, Skior, Pica, the Magpie, a common well-known Bird, which hardly needs to be described: it lives about houses; and is therefore called in this country Tun-Fowl, that is, a domestic Bird. They feed upon carrion; and if they lay hold of a very young kid, which they do sometimes, the farmer is afraid to revenge himself, being of opinion that this his neighbour has a greater right than other Birds of prey, and knows how to retaliate an injury. They build their nest in trees, very carefully, of small sticks, and the like, with a cover, and an entrance in the side. They are very fond of their young, and of their eggs: if one boil the eggs, and put them in the nest again, they will sit upon them till they die: if their tongue be slit, and they are taught a little, they'll not be short of the Parrot in talking. The Skov-Skaden, or Wood-Magpie, are here grey and white, speckled or striped, with some red feathers; they do not go near the houses, as the others, but mimic the voice of other Birds and beasts. If any one comes near their nest, they'll boldly fly full in their face to prevent the taking away their young.

\* This fine Bird, whose food is juniper-berries, is reckoned, by Hr. Joh. Heinr. Zorn, to be originally of this country; and from hence to have gone into Germany: "The name Bohemelein is founded upon a groundless opinion that it is an exotic Bird, and comes from Bohemia, which is supposed as much its original native place as this; tho', in their passage through Bohemia, and on account of food, they may like to stay there, yet 'tis most probable they come from the more distant northern parts; and, like other Juniper-Birds, have only straggled hither."

The Strand-Skade, which lives near the water, and feeds on snails and oysters, has red legs, but no back-toe: this is supposed to be the *Hæmantopus* of Pliny.

The Skarv, the Columbus, or Loon, is a pretty large Sea-Bird; <sup>Skarv.</sup> 'tis larger than a Duck, and has legs and feet like them, excepting that the outermost toe is much longer than the rest: on all the toes it has long, crooked, and sharp claws; these, as also the whole body of the Bird, are black; the legs stand further out on each side, than on the Duck or Goose; so that they straddle a great deal wider: their neck, tail and wings are very long; on the top of their neck there is a green bright feather. We have three kinds of them; the first is called Top-Skarv, because it has a tuft on his head; this does not come into the rivers, but keeps to the outermost islands. The other sort are larger; and these are distinguished by a large white spot, like a crown piece, on each of their black thighs, which gives them the name of *Huidlaaring*, White Thighs. The third sort are without any such distinction; but they are less than the first, and larger than the last: this Bird keeps near the sea on the steepest rocks\*, and lay three snow-white eggs like Goose eggs; they sit upon them, by turns, three weeks: these eggs have this particular quality, that they cannot be boiled hard, but always remain liquid. The young are white at first; they don't grow black till after the third week; and then they live with the old ones, which are mighty expert at catching small fish, and dive, as the fishermen say, very deep, even 20 or 30 fathoms, to fetch up all kind of small fish, of which one sometimes finds such a number in their craw when they are killed, that it is impossible to conceive it; and still more surprising it must appear, yet nevertheless it is strictly true, and stands confirmed by many that have made their observations, that tho' the Loon's neck is long and slender, and it would be difficult to thrust down two fingers into it, yet the Bird can stretch the muscous parts of his throat so wide, as to swallow a flounder half a foot broad, such having been found in his stomach. When the Loon comes ashore he stretches himself upon his legs against the wind, that he may be thoroughly dried; but as this seldom happens, we call, in this country, any body that is wet, slovenly, and disagreeable, a Loon; or if they have their cloaths but seldom dry, we say, He is as wet as a Loon.

\* As these Birds harbour together in great numbers, the farmers use this piece of art to catch them: in the evening, when they are all got together, they take their boats and row under these rocks, and make a large fire; the sudden heat and smoak intoxicates them, and they drop down in heaps, and are easily killed.

Skrabe.

The Skrabe is a middle-sized Sea-bird ; so called, because it scrapes or digs itself a hole down in the ground, or in gravel and sand betwixt the stones, to make its nest like the Pope or Arctick Duck. It lies there, not as other Birds, on its belly, but on its back. Lucas Debes gives an account, p. 133, that on Farroe, where this kind are most frequent, the people eat their young ones, of which they have annually but one, and say that it is fatter than a fed Goose ; which is the more remarkable, because it is fed by the mother only at nights, and does not see her all day. Any thing further I do not know of this Bird.

Skue:

The Skue, or Black Diver, is in make and form like a large Gull, and 'tis coal-black like a Raven. It lives in the manner as has been said of the Jo-fuglen ; not by fishing for it, for he is not able to dive ; but by robbing other Birds of what they have caught : he pursues them one after another, beats them with his wings, and does not leave them till they let slip what they have got, and he catches it in the fall ; how they manage with their young I have not been able to learn ; but all agree that they are very fierce when any one approaches their nest, and are not afraid to lay hold with their beak, and give hard blows with their wings. The fowlers therefore are forced to make use of knives sometimes to defend themselves, against which the Birds fly, and are killed.

Snee-fugl.

The Snee-fugl, or Winter-fugl, the Snow-bird, so called because they appear at the latter end of the Winter, or against the Spring, when there is much snow, and are not seen any more flying about when the Summer advances ; they are always in the country. They live in the cracks of the highest rocks, and feed upon worms, flies, and insects. The form of this Bird is like a large Gull, or something larger ; 'tis black and white : the hen is more inclinable to grey, the head is large and round.

Sneppe.

The Sneppe, or Snipe ; called also Scalopax, Langsnabel, on account of his long beak, is of a middling size, as big again as a Chaffinch, and excellent to eat when it is fat : some call them Myr-Snepper, because they live in mosses and on heaths. These are brown, and have a little black on the back. The Wood-Snipe is much of the same kind, but is reckoned better for food, and wholesomer. The Strand-Snipe is the least ; 'tis of a light colour, and almost like a Gull ; it lives on shell-fish, worms, and small fish along the coast. Each of these kinds may be divided again into three or four sorts, but the difference is but small, and what I am not enough acquainted with. The Snipe

is a Bird of passage; it comes in the Spring, and goes away in the Winter.

## S E C T. VI.

The Solfort, or Miffel-Bird, is a small Bird, something like a <sup>Solfort.</sup> Thrush or Starling, and is of that species; it is reckoned delicate food, like the rest of that kind; they distinguish themselves by singing on Summer evenings till midnight.

The Spette, Træe-pikker, or Træe-hakker, the Wood-pecker, <sup>Spette.</sup> is a middle-sized Bird of various colours, with a very strong beak, and in it a long and pointed tongue, of a peculiar shape, the end of which is hard, and like horn; the beak is so sharp and strong, that the Wood-pecker can bore a very deep hole with it in a tree. They build their nests in hollow trees; their feet have four long toes, of which two stand forward, and the other two quite backward; they live chiefly upon worms, maggots and insects, that they find under the bark of trees: they hunt them about, and kill them with their long sharp-pointed tongue; with which they can exactly hit the smallest prey. There are many sorts of Wood-peckers, differing only in colours; as the green, the black, and the yellow Wood-pecker; the two first have red caps as it were on their heads.

The Spove, or Godwit, is a Land-bird of that kind, that fre- <sup>Spove.</sup>quent the sea-coast without going into the water. They watch along the shore to catch the shell-fish and other small fishes that are driven up. It is a middle-sized Bird, almost like a Partridge; brown and grey, speckled under the breast, and has long legs for a Bird of its size; these are like a Stork's: it has also a very long and crooked bill, longer than the Snipe's. They build their nest in the open country, not far from the sea, and lay three darkish eggs, about the size of a hen's, which the male and female sit on alternately for 14 days. They come in the Spring and go away in Autumn, tho' late, when the first snow falls.

The Spurre, the Sparrow, is here, as in other places, more <sup>Spurre.</sup>common than the farmer could wish. The grey Spurrer, which usually keeps near the houses, are called here Huus-kæld: the yellow and greenish sort lives mostly in the woods\*. The white Spurrer, of which Aldrovandus, in Ornitholog. Lib. xv. c. 10. speaks, are also found here in the Winter in some places,

\* A person of judgment assures me that these are not properly of the second kind; and that they are seen in great numbers in the Winter; they are called in Germany Emmerling, and build their nest in small bushes.

tho' that difference probably is only a change of their colour, as the Partridges and hares become white in Winter; but I do not know any more of this, than what Olig. Jacobæus, in Museo Regio, Sect. ii. p. 12. writes: In quibusdam Norvegiæ locis tempore hyemali passerres omnes niveum colorem induere nonnulli referunt.

*Stær.* The *Stær* or *Star*, the *Starling*, is in shape like a *Thrush*; it is black and spotted; this sort appears usually in great flights, and builds its nest in barns or stables. The *Starling* has two broods of young in a year; and in the Winter they remain with us in a state of insensibility.

*Steendulp.* The *Steendulp*, or *Steenquette*, the *Water-wagtail*, so called because it builds its nest among stones, is a small grey and white Bird, something like a *Sparrow*: it is called by some *Quick Stiert*, because it is always wagging its tail.

*Stillitz.* The *Stillitz*, the *Goldfinch*, is a well-known pretty little Bird, admired for its singing, and frequently kept in a cage.

*Stork.* The *Stork*, does not properly belong to this work, because it is not a native of this country, and but few Norwegians have ever seen one, especially eastward. Some persons tell me they have seen *Storks* westward, but then perhaps only a single one, and never to make any stay, or build their nests; so that they have probably been stray'd ones, that by accident had left the flock\*.

Strand Erle. See *Fær Muus*.

Strand Skade. See *Skade*.

*Svale.* The *Svale*, or *Swallow*, is very well known by its building about houses. Hr. Jac. Klein, in his *Historia Avium*, just published, p. 195, & seq. has given a long dissertation concerning the *Swallows* place of habitation in the Winter: he has inserted several well-attested accounts, that persons have found them at that season in the water, which does not want confirmation in this country; for almost every body knows that towards the Winter, after they have chirped about a little, or, as we say, sung their *Swallow-song*, they fly in flocks together, and plunge themselves down in fresh-water lakes, and commonly amongst reeds and bushes; whence, in the Spring, they come forth again, and take possession of their former dwellings. Our fishermen in

\* The scarcity of this Bird in Norway, one may say is, like the rest of God's works, wisely contrived; for this country has less occasion for them than others, and they would find less to live upon, because here, as has been said before, are fewer Snakes and poisonous creatures. This reason is juster than Dr. Owen's jest of the *Stork's* aversion to those cities or towns in Germany where they do not pay the clergy their tenths: Il rapporte, que les cigognes sont favorables au clerge, car elles ne veulent point séjourner dans aucune ville d'Allemagne, ou l'on ne paye point de dimes aux Ecclesiastiques. Biblioth. Britan. Tom. xix. p. 180.

the Winter sometimes, by accident, fall upon whole flocks of Swallows in this state, and bring them up by scores, and even by hundreds together: they find them coupled two and two together, with their legs entangled, and bills stuck in one another; and they appear all together like a strange mass. If they are brought into a warm room they will begin to move in half an hour, and in a little while will flutter, and fly about; yet this untimely and unnatural reviving does not last longer than an hour at most, and then they entirely die. In Olaus Magnus's time this experiment was well known in this country, and is described in his *Histor. Septentr. lib. xix. cap. 11* \*.

The Svane, the Swan, is a stranger in this climate, and is properly <sup>Svane:</sup> no Norwegian Bird, and therefore never seen in the east country, where the rivers are always frozen up in the Winter; but on the western side, where I (Part i. chap. i.) have observed that the Winters are much milder than in Denmark, or many parts of Germany; and where the sea is always open and unfrozen, there are Swans, particularly in Sundfiord, near Svane Gaard, and thereabouts, tho' not in any great number; for they are but the offspring of some few stragglers, which the severe Winters of 1709 and 1740 in particular, drove hither to seek for open waters; at which time the cold was so severe, that even in France the centinels died on their posts, the vines were kill'd by the frost, and the Birds dropt down dead out of the air; the whole East Sea was at that time frozen over; so that people travell'd from Copenhagen to Dantzick upon the ice, as secure as if they travell'd on land; but all the salt waters in this country were, at that time, open; and also at Bergens-Vaag God's wonderful providence brought us at that time many Water-fowls, before unknown to us, and amongst them Swans. This must appear wonderful to a philosopher, who would certainly never be persuaded to look for fluid water in the North, when it was frozen in the South †.

Sondenwinds-Fugl, the South-wind Bird, so called because it <sup>Sondenwinds-</sup> is never seen but when the South-wind begins to blow, as the <sup>fugl.</sup> before-mentioned Nordwinds Pibe prognosticates the North-wind; so that these two species of Birds serve here as a living Weather-glass, forming their prognostications not from deep consideration and conclusions, but from the greater or lesser pressure

\* Nevertheless this incontestible truth has been lately, and without the least foundation, contradicted by George Edwards, in his *Natural History of Birds*. See *Biblioth. Britannique*, Tom. xxiii. P. i. p. 212.

† In Dr. Nic. Horrebow's *Account of Iceland*, just published, we read with surprize that Swans are found there in great numbers in the Summer, in fresh water; and in the Winter in the open sea. §. 44.

of the air on their bodies; just as the cat's scratching the trees portends a storm. Not to mention the many almanacks people have about their bodies, to tell them when bad weather is coming. The small Bird which has occasioned this digression is also called Haren. It is black, larger than a Starling, and has a very sharp beak. Whether it is known any where else I cannot say; but I have not met with this, nor several other Norwegian Birds, amongst the several writers of Ornithology.

## S E C T. VII.

Tærne. See Sandtærne.

Teist.

The Teist, is a Sea-bird of the eatable kind, and is very well tasted: it is something less than the Razor-bill, and has red legs, and a red bill, which last is moderately long. In the Summer they are black, with half their wings white; and in the Winter they change to a light grey, and that so suddenly, that in a few Winter-nights one may immediately perceive the difference: they lay two grey spotted eggs, like a Pigeon's. The male and female sit upon them by turns, for fourteen days: they build in hollows and cracks in the rocks, near the sea. Hr. Ramus says, p. 250, that the Teisten's dung is of a deep red colour, and they live upon a kind of shell-fish, which they get along the sea-coast, which possibly occasions that red colour. It is that kind of shell-fish from which purple was first produced. It is probable that these purple-snails might also be found here in great quantities, if they were search'd for. See further, Cap. ii. §. 11. of the insect called Roe Aat.

Ten. See Sandtallen, or Tendeloben\*.

Tield.

The Tield, called also Glib, and by some Strand Skade, tho' this name perhaps is given to two different sorts of Birds. The Tielden pretty much resembles the Loon: it has a long yellow beak butting out towards the end: the feet are half cloven and half webb'd, like those kind of Birds that live upon such prey as is caught both on land and in water. They come early in the Spring, and by their cries fright other Birds. This Bird is a great enemy to the Raven: it flies against him with violence, and sticks his thick and sharp bill into him; this makes him set up a melancholy noise, and take to flight; for this reason the Tielden is the farmer's favourite, and is treated as a protector and

\* The three names, Tærne, or Terne, Tedn, and Ten, belong, without doubt, to one and the same Bird; for the eastern and western dialect makes it appear so in other things; as when they, according to the Danish manner of expressing, should say, Jern, Horn, Korn, Barn, they say, in their way, Jedn, Hodn, Kodn, Baaen.



welcome gueft, that muft not be abufed. Their manner of breeding is unknown to me.

The Tiur, Teer, Todder, Urægallus Major, the Cock of the Wood, is a large Wood-bird, in the general appearance not unlike an Eagle, and is the largeft of all the eatable Birds in this country. It refembles a wild Turkey-cock, efppecially in the bill and feet, tho' the claws are fomewhat more crooked: this is to be underftood of the cock, who is black, and fometimes of a dark-grey, and has fome red about the eyes. The hen, called Roy, is much lefs, and is brownifh, with black spots\*: they generally are found in great woods, where they live upon juniper-berries and fir-tops: this may be perceived by the tafte of their flefh, which is otherwife very tender, and an excellent difh roasted: it has from this food that refinous tafte for which it is fo remarkable. In Winter they bury themfelves in the fnow, like the Partridge and Growfe, but not deep; nor do they ftay there in the night. This is the reafon that they are deftroyed by the fox, who knows how to find out their unfafe quarters. They have alfo a dangerous enemy in the Gofs-hawk, which they do not oppofe, tho' they are much larger. When they are about breeding it is faid the cock fwells, and raifes his feathers like a Turkey-cock, and makes a fort of cracking noife with his bill. Some writers make no other difference betwixt the Cock of the Wood and the leffer Tetrao, than that they are a larger fort of the fame fpecies, and call this Urogallus, Tetrao Major. By the Venetians, Gallo di Montagna. Angl. Cock of the Mountain, or of the Wood.

Træa-Pikker. See Spette.

Troft. See Droffell.

S E C T. VIII.

Vagtcl, Coturnix, the Quail, a fmall, delicious, and fcarce Bird: it is found in fome places in the eaft country, and alfo at Jeddereu; but here I have not feen them.

Vibe, the Plover, a well-known Bird, of a middling fize, of a brown and grey colour, and diftinguifhed by a tuft on the back part of his neck, and by the uncommon noife which betrays his neft when he wants to conceal it: there are not many of

\* Grygallum majorem Gefneri & Aldrovandi hujus avis foeminam effe exiftimo; foemina enim in hoc genere avium, colorum varietate & pulchritudine mares excellent. Cum vero Gefnerus putaverit, in nullo animalium genere foeminam mari pulchritudine anteire, praefumpta hac opinione deceptus in utroque urogalla feu Tetraone majore fcilicet & minore diverfum fexum pro diverfa fpecie habuit & defcripfit. Willoughb. Ornitholog. Lib. ii. c. 12. §. 1. p. 124.

them hereabouts; what we have are mostly in Tonsberg-Lehn and Borrefyffel.

Berg Ugle.

The Ugle, the Owl: of this Bird we have two sorts, namely, the Berg, or Stone Owl, which is large, and grey speckled, with great round red eyes. It lives in the rocks, and makes a frightful noise, snapping at the same time with his bill like a Stork.

Kat Ugle.

The Kat Ugle, is something less than the former, and its head is more like a Cat's than a Bird's. This feeds on mice, and other such vermin, great quantities of which are found in their nests; for this reason the prudent farmers willingly afford them an habitation in their barns: they are however hated here, from a superstitious notion people have, that it forebodes death in the family where they happen to take up their abode. They lay two eggs, and if they are chang'd for hen's eggs, the Owl will hatch them, but eat the young, when they find they are not of their own kind. If the Owl and the Cat happen to quarrel and fight, they do not leave off till one or the other is killed; so that their enmity is not the less for their being in some degree of kin. Thus we see, according to the Norwegian proverb, Friends are the greatest foes: the greatest friends may become the greatest enemies.



*The Linnæus or Northern Diver*



*The Godwit.*



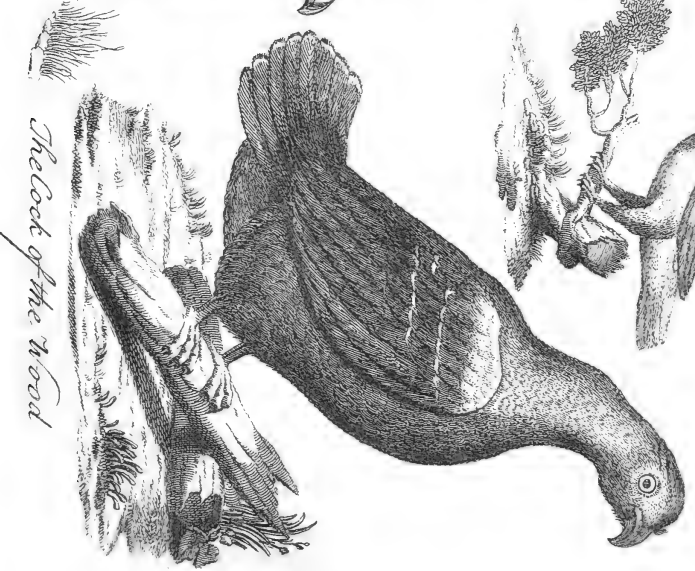
*The Norway Ravenidge.*



19.  
*The Sider or Alberts Duck*

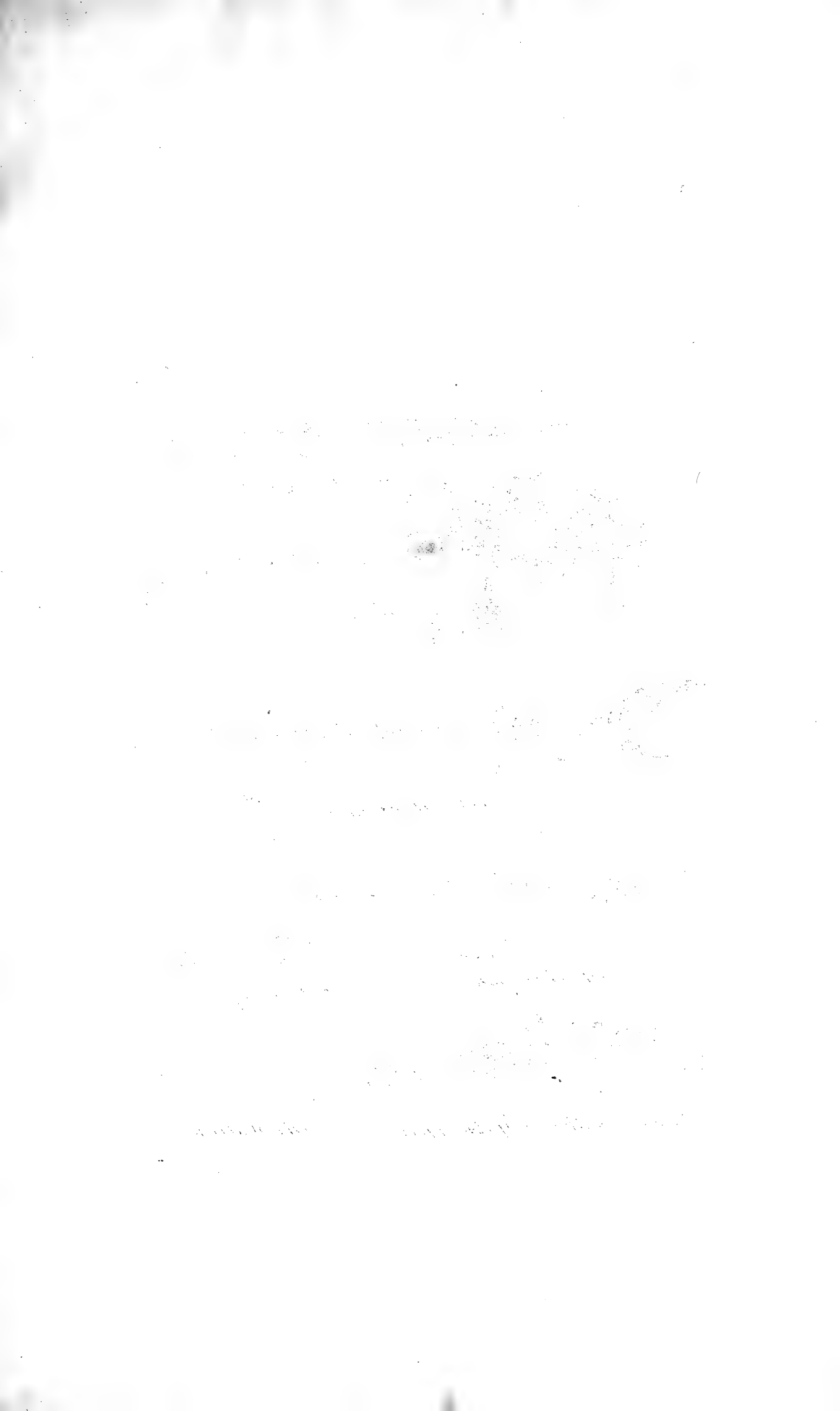


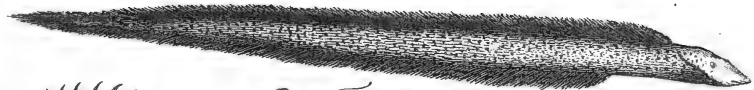
*The Dove*



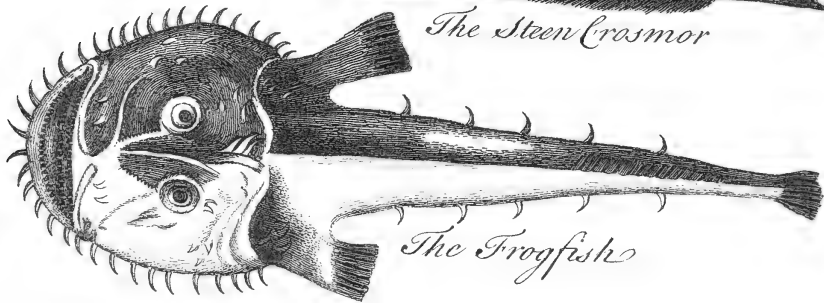
*The Loak of the Wood*



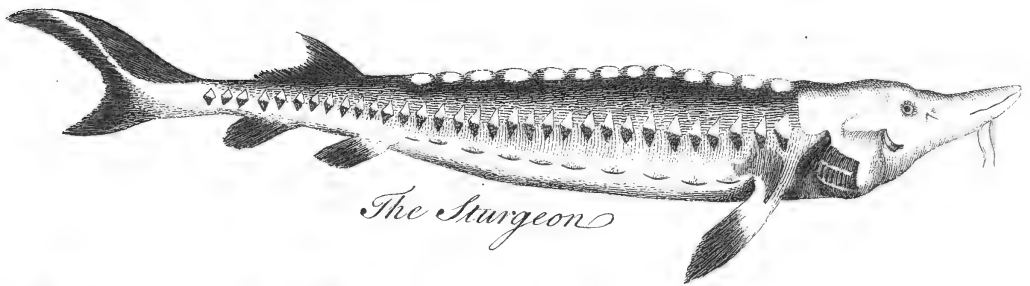




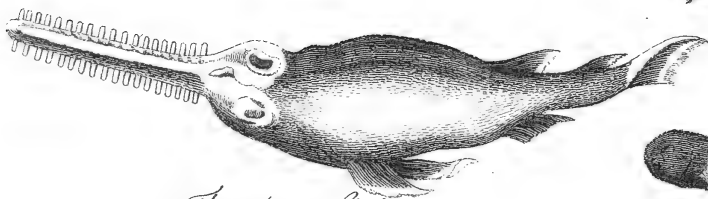
The Steen Crosmor



The Frogfish



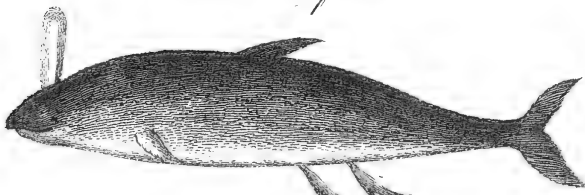
The Sturgeon



The Saw fish



The Wolf fish

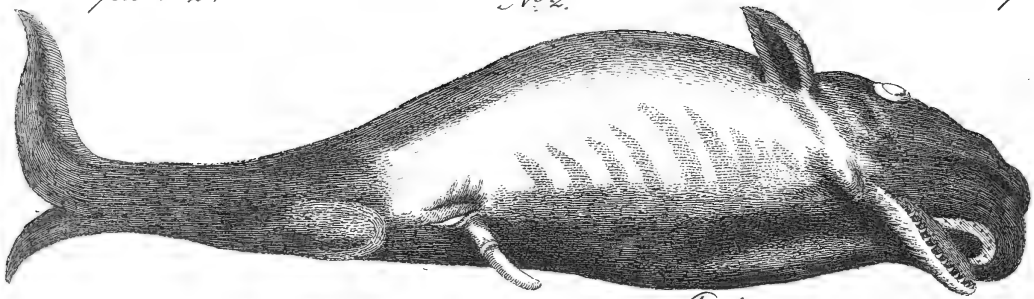


a Whale with two spetsruggers

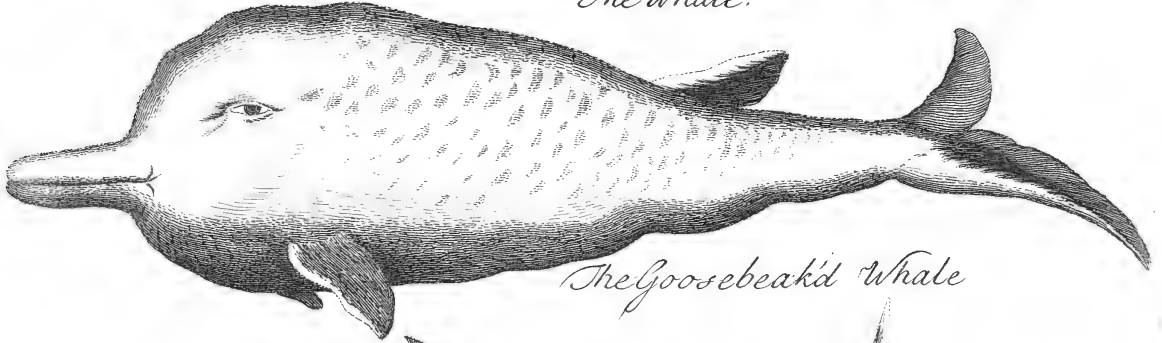


The Walrus





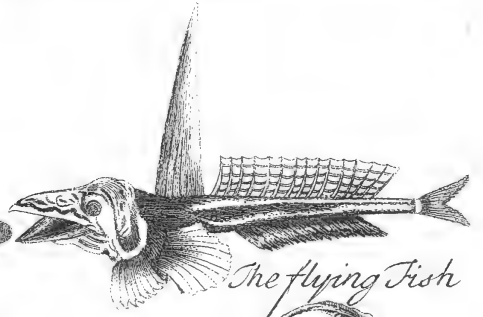
*The Whale.*



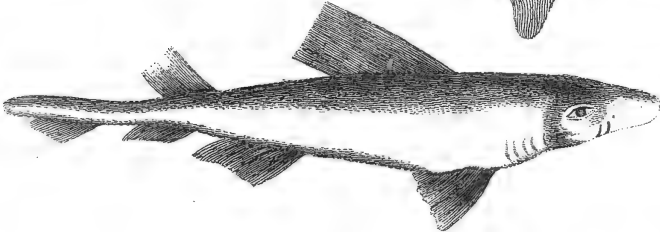
*The Goosebeak'd Whale*



*The Haac-karing.*



*The flying Fish*

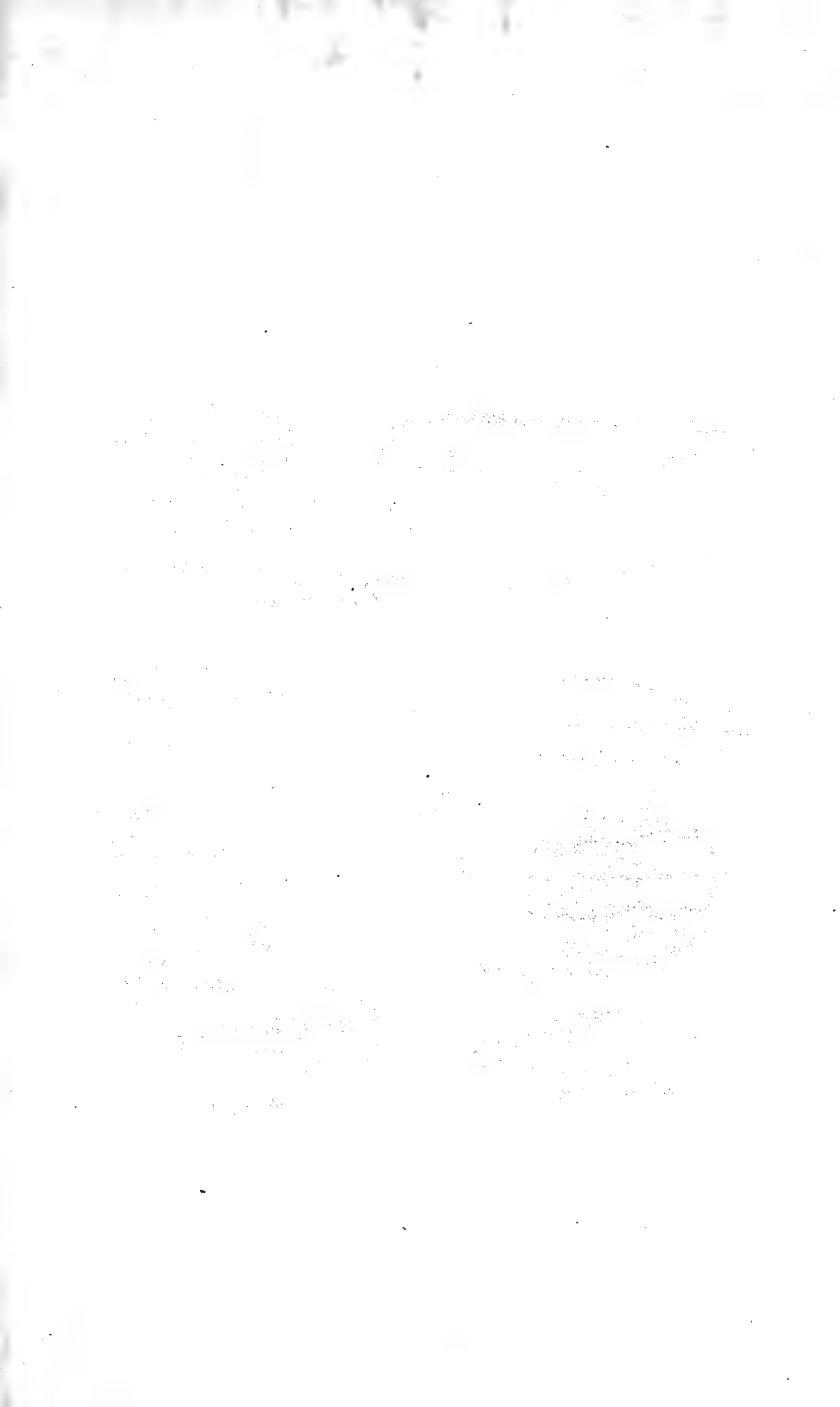


*The black Sharke.*



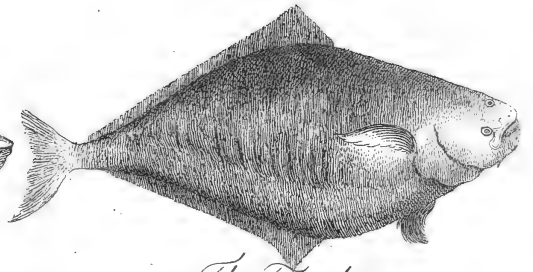
*The Golden Sharke*







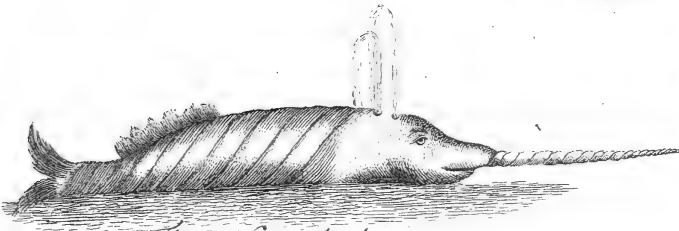
*The Ling*



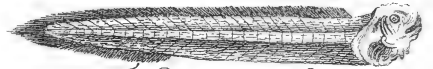
*The Turbett*



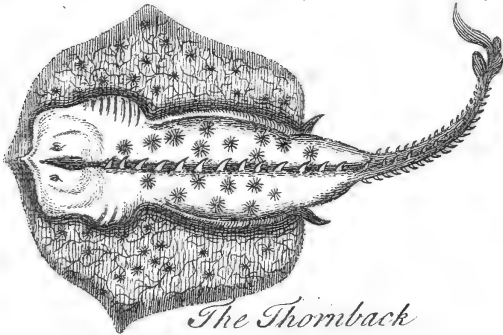
*The Needle fish*



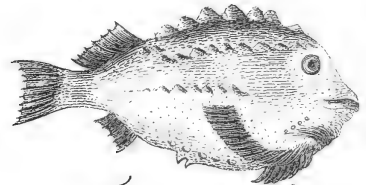
*The Narwhal*



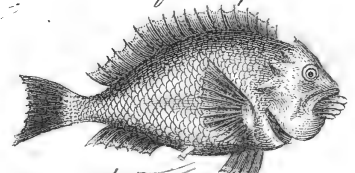
*The Razor fish*



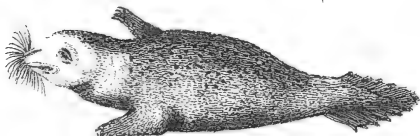
*The Thornback*



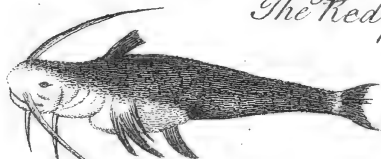
*The Square fish*



*The Red fish*



*The Sea Calf*



*The Gattomgines*

## CHAPTER V.

## Concerning FISH and FISHERIES.

SECT. I. *The breeding of Fish, and their abundance in the north sea.* SECT. II. *General observations on Fishes.* SECT. III. *The order and division of the kinds.* SECT. IV. *Of the Eel, Lamprey, Perch and Gurnard.* SECT. V. *Of the Rock-fish, Blue-fish, Bleak, Bream, Anchovy, and others.* SECT. VI. *Of the Flounder and Plaise kind, and several others.* SECT. VII. *Of the Shark, its various kinds, the Turbot, and others.* SECT. VIII. *The Whale, its various kinds, the Whiting, Stittleback, and others.* SECT. IX. *Of the Sea-Fox, Carp, Sea-Calves, and others.*

## S E C T. I.

NORWAY is as plentifully supplied as any country in the world with Fish, both of the salt and fresh waters: and as to the first, namely, the Salt-water Fish, I am in doubt if any place can equal us and Iceland, if we except North America, and particularly Terre Neuve; where the French, in this century, have established a rich and advantageous Cod and Salmon-fishery, not inferior to our Norvegian one. Under the thick and continual flakes of ice, which cover the North sea, from the 80th degree to the pole, seems the proper abode of the best kind of fishes, or their native country. There they breed in peace, and are protected from the devouring Whale. The lungs of this Fish are formed like those of a land-animal, and therefore he must often fetch breath; consequently he does not venture to go himself far under the ice: yet the other species of Fish, particularly the Herring, &c. which will be described hereafter as the most considerable, seem instigated by the Creator to come forth into the wide ocean for the service of mankind\*; and as soon as that happens,

Fish breeding near the north pole.

\* Those kinds of Fish, which are oviparous, or generated of spawn, come annually near the coast, and without doubt continue there some time; that they may, in the narrow channels and creeks, discharge their spawn with greater safety than in the wide ocean: for experience teaches that they come in full-roed, but go out to sea thin and shotten. And what is most remarkable, that on their departure they swallow small stones, to fill their belly, as it were to serve as ballast, in the room of the discharged spawn. When our fishermen find small stones in the bellies of the Fish, they take in these shallow waters, they conclude that they are preparing for their departure, and go several miles out at sea, on the sand banks, to cast their nets. Some are of opinion,

Peregrina-  
tion.

Numbers.

happens, towards the end of the year, the Whale, and his associates; the Porpoise, Grampus, and the like, stand ready to execute God's decree, which is to hunt and terrify these small Fish, and to send them where they are wanted. How this is done will be explained hereafter, in the article of Herrings, and the Whale, therefore I shall not detain my reader at present with those particulars: they are, indeed, very remarkable, and of service to shew God's wise and affectionate œconomy. I shall now in the first place observe, that as most kinds of Fish love best to be in the coldest waters, they are therefore more healthful and fine in Winter than in Summer; and are found not only in the greatest quantities towards the north pole, but are also much fatter and finer there. When they, as has been observed by their annual spawning, are obliged to emigrate, and are on that occasion driven about in inexpressibly large shoals by the fish of prey, which are God's instruments decreed for that purpose, they are sent farther southward; by which they lose some of their strength and fat. This happens in the long voyage they take; and they sometimes approach the coasts before they recover of their fatigue. When they grow better the females discharge their spawn, and the males their semen; by which they are again weakened and emaciated for some time. The first inhabited land from the north pole, that these emigrants or strolling fish-colonies touch upon, next to Iceland\*, is Finmarken and Norway; as also the north of Scotland, and the Orkneys. In these places they are found in such multitudes, particularly the Herrings, Mackarel, and some other kinds of Fish, that it will appear incredible to my readers, who live in other countries, to whom I shall seem to have transgressed the bounds of probability; tho' I have not been able,

opinion, that the Fish seeks the creeks, shores and shallows, for the sake of fresher water, than that of the ocean, which is supposed to promote their breeding. The manner of their ejecting the Spawn, according to some observations, particularly with regard to the Salmon, is this; namely, the Fish bends itself quite crooked on one side, by which means the roe squirts out at the excretory duct: and when a shoal of females have thus discharged the roe, then the males come and discharge or eject their generative fluid in the same manner over it.

\* In Iceland there is a great deal of fish caught, particularly of the Cod kind; which may be known by the annual ship-loads that are sent to Copenhagen and Gluckstat: and it is certain, that as Iceland lies near the place of their first departure, there might be caught ten times as many, if that country was not in such want of wood, and consequently of boats and ships. This consideration ought to remind the Norwegians to take more care of their woods than they do at present here on the west side. Was it possible that we could destroy all our woods, then certainly our fisheries would likewise be destroyed; for so many boats, and the several 100,000 planks which are annually required for that service, would become too dear.

articles, to express myself sufficiently to convey a just idea of the vast multitudes that have been observed here. When I first came hither I could not believe it myself, till I was convinced by ocular demonstration, as well as the testimony of many substantial witnesses\*.

There is no country in Europe fitter for the study of Ichthyology, or for enquiring into the natural history of Fish, than the diocese of Bergen, and the manor of Nordland in the diocese of Tronheim. When we observe the pains that Bellonius, Rondelet, Salvian, Aldrovand, Gesner, and beyond them all, Willoughby, took, to give a sufficient account of this important part of the study of nature, we cannot help wishing that some of those learned and indefatigable persons, had been at these places to make their observations, where they certainly would have made more important discoveries than the reader has to expect from me; for it would require the whole life of an accomplish'd man. I only write in general a History of the Natural Curiosities in Norway, and consequently cannot enlarge, as might be wished, upon every article in particular; much less can I, as the learned authors before-mentioned have done, enter upon the anatomy of every particular Fish; yet, nevertheless, I hope that those, who hereafter may endeavour to bring this knowledge to a greater perfection, will find more of the essential articles collected in this narrow compass, than in many larger, and otherwise more particular descriptions. What I here relate for a certainty may be depended upon, and will be found, on the nicest examination, to be every where strictly true: where I have been under the least doubt, I have not positively affirmed the circumstance.

## S E C T. II.

Before I begin to treat of the several Fishes in particular, I shall quote a few lines out of Rollin's Treatise, entitled, *Physique des Enfants, or the Study of Nature, for the Service of Youth*, which conduce to the glory of our Great Creator, my principal end. In chap. ii. concerning Fish, he says, "How many  
" kinds of Fish of various sizes do the waters produce! I con-  
" template all these, and it seems to me, that there is nothing  
" but a head and tail; they have no hands or feet, and their

General pro-  
perties or qua-  
lities.

\* From Karfund near Stavanger, quite to Tromsen in Nordland, are, with God's blessing, annually caught such vast quantities of Herrings, the several kinds of Cod, and other valuable Fish, that this Commodity alone brings in, on a moderate calculation, a million of rix-dollars, and sometimes more.

“ head has no free motion. If I was to draw any conclusions  
 “ from their form, I should think that there wanted every  
 “ necessary to support life; yet, with so few external parts,  
 “ they are more active, quicker, and more ingenious, than if  
 “ they had many hands and feet. They know so well how to  
 “ use their tails and fins, that they shoot forward like an arrow  
 “ from the bow, and rather fly than swim. Fish devour one  
 “ another continually; how, therefore, it might be asked, can  
 “ these inhabitants of the water subsist! But here God’s provi-  
 “ dence has allotted means, and orders it thus, that their  
 “ breed and encrease shall be wonderfully great, and that their  
 “ fruitfulness shall by much exceed their necessity of devouring  
 “ each other; so that those which are eaten by others, are always  
 “ very short of those which arise from the next brood\*. When  
 “ I consider how the small Fish escape from the large, by whom  
 “ they are looked upon as a prey belonging to them, to hunt  
 “ as they please, I see the weak are much the nimbler; and are  
 “ always prepared to fly in places where the water is so shallow, as  
 “ not to allow the large to follow them; so it seems that the  
 “ Creator has made up for their weakness by giving them so  
 “ much circumspection. How comes it that Fish can live, and  
 “ even be so healthy and so well in such waters, that I could  
 “ not bear a drop of in my mouth? How do they, in the midst  
 “ of salt, preserve their flesh from tasting of it? How comes  
 “ it that the best and fittest Fish for the use of mankind  
 “ approach the shore, and, as it were, offer themselves to our  
 “ wants; when, on the contrary, others, that are not so useful,  
 “ keep farther off †? Why do Herrings, Mackarel, &c. all  
 “ which, in the time of their increase and growth, live in un-  
 “ known places, at certain seasons appear in our seas about the  
 “ coasts, as if to offer themselves to the Fishermen, and even throw  
 “ themselves into the nets, and on the hooks? Why do many  
 “ Fish, as the Lax, Oeder, Aal, &c. crowd themselves in

\* For that reason there are but few Sea-animals, as the Whale, Porpoise, and  
 Grampus, that, according to the manner of land-animals, bring forth their young  
 alive; the most are oviparous, or such as breed from spawn: and contrary to Birds,  
 which lay annually in each nest a few eggs, each of these has annually many 1000  
 eggs to cast on the bottom of the sea. The author of Biblioth. Britannique, T. xix,  
 P. i. p. 177. is not entirely of Mr. Rollin’s opinion in this respect, with regard to  
 God’s providence and immediate design.

† In this the glory of God’s providence is most remarkable; we see each Fish in its  
 kind has, at certain fix’d seasons of the year, a particular inclination to approach the  
 land; and this always at a time when they are the fattest, and not emaciated by  
 breeding: as the Salmon in the Spring, Mackarel after Midsummer, Herrings in the  
 Autumn, Cod in the Winter, &c.

“ heaps

“ heaps up the mouth of rivers, to go still further up, that  
 “ the land may participate of the benefits of the ocean, which  
 “ lies far off? Whose hand but thine, O Lord, guides them  
 “ so wisely! tho’ thy great care is seldom received with due  
 “ thankfulness.” So far Mr. Rollin.

## S E C T. III.

What I have before observed concerning the dividing and ranging of birds in different classes, is applicable to Fishes; Order and division of Fishes. namely, that altho’ such a method tends to give a clearer idea of them, yet there arises from it greater confusion; for many, nearly allied in one respect, may have relation to another class in some other particular; so that these frequent exceptions render that method in itself uncertain, and liable to great perplexity. For this reason I shall here again follow the order of the alphabet, distributing the Fishes of Norway according to their names. Nevertheless, there are certain Fish and Sea-animals, which are so entirely distinct from the rest of the inhabitants of the watery element, that one cannot conveniently mix them with the rest: for that reason I have taken these last out of the proposed alphabetical order, and put them each by themselves in two chapters. These are first the different kinds of Fish, which are surrounded with a stony or hard shell, wherein they live as if in a house, that grows with them: and, secondly, the various Sea-monsters, as they are called, or noxious animals in the North sea; of which some have hitherto been held in doubt, and looked upon as chimeras. These last, I hope, from this time, will have some credit with those that have not thrown off all historical faith. When those two classes are separated, then the rest will follow one another, according to the order of the alphabet, as has been said above.

## S E C T. IV.

Aal, the Eel, *Anguilla*, is a long and round Fish, very well Aal. known every where; it is best and fattest in fresh waters, but it seldom grows there above 24 or 30 inches long; but, on the contrary, the Norway Sea-Eels, which are leaner, are four or five ells long, and are much like a snake, according to the Latin name *Anguilla*, which signifies a kind of snake, or something allied to that species\*. They thrive best in muddy waters, and are

\* A friend of mine has told me, that he has seen an Eel two fathoms long, and, when cut up, an ell wide; his people took it to be a snake, and would not eat it.

fond of flesh of any kind; but that they should generate in these waters, without being produced from eggs or seed, which has been said; as also, that there is no difference of sexes amongst them, appears to me improbable; tho' an old opinion, and received by most natural historians. Francis Willoughby is himself in doubt of this matter: he says, in *Hist. Pisc. Lib. iv. cap. iv. p. 110.* *Anguillam neque marem esse neque foeminam, neque prolem ex se generare tradit Aristoteles, & alibi nec per coitum procreari, nec parere ova, nec ullam captam unquam esse, quæ aut semen genitale aut ova haberet, &c.* Rondeletius, vidisse se anguillas mutuo corporum complexu coeuntes affirmat, neque putare se partibus ad gignendum necessariis prorsus destitutas esse, inferiore enim ventris parte, & vulva in foeminis, & semen in maribus reperitur, sed pinguedine multa circumfusæ hæ partes non apparent. This opinion of Rondelet, which has been rejected by many, is confirmed by our Norwegian fishermen; who say, that out of the Eel's belly are seen sometimes young Eels hanging, as if in their birth. Eels are caught here in the night, as they are in Denmark, partly with hooks, and partly with a kind of buckets, wide at the entrance, and runs down sloping, and so contrived within, that they do not easily find a passage out; in these they put Herrings, or other Fish, by way of bait. Eel-fishing is not of such consequence, as to carry on a foreign trade with.

Aalequabbe.

The Aalequabbe, or Lamprey, is generally not above twelve inches long; otherwise it is very like the common Eel, except that it is remarkably different as to the head and mouth, which is very broad, and much like a frog's. In this, instead of teeth, there are two sharp bones like knives or scissars; about the middle of the belly is a white spot, the rest being brown. They have as little roe as the common Eel, and they bring forth their young alive: this is a fact beyond doubt.

Aaskiær-Niot:

The Aaskiær-Niot, the Gurnard, is a small Sea-fish, not above six inches long, of a brown colour, spotted with a shining white, with a head almost square and sharp at the end. In taste it is not unlike a Mackarel; it is caught with a line, and when taken out of the water is heard to grumble and snort, which is very different from all other Fish.

Aborre.

The Aborre or Perch, *Perca*, is a well-known Fish; it is found in the fresh-water lakes in Norway, particularly eastward, large and fat: it is called here by some Tryde, by others Skibbo.

Ankertrold.

Ankertrold. See the following chapter, Krake.



## S E C T. V.

The Berggylte, the Rock-fish, is a salt-water Fish; it has scales Berggylte. and fins like a Carp, and is of a reddish colour: 'tis called by some the Norwegian Carp; it is commonly from nine to twelve inches in length, and about six broad. This Fish is fat and well-tasted, but 'tis better cold than hot: they are generally caught under the perpendicular rocks, or projecting cliffs, with a hook.

The Blaaskaal, the Blue-fish, called also Blaastak, also the Blaaskaal. Siogumme, is like the Bergylten in every thing, excepting that it is less, and is of a blue and green colour, with pretty stripes, such as are upon a Mackarel.

The Blankensteen is a Sea-fish, so called for its silver-colour'd Blankensteen. bright scales; in shape it is very much like a Herring, but it is something longer, and narrower towards the tail: it is also caught with a line, but not in any great quantity, and is not much regarded.

The Bleege, the Bleak, a well-tasted Fish, frequent both in Bleege. salt and fresh water, tho' most in the last. In shape and size it is like a Dace, but it differs from it in the unspotted silver colour.

The Brafen, the Bream, Brama, is well known, and found in Brafen, the east country.

The Brisling, Encrasicolus, the Anchovy, is properly of the Brisling. Herring kind, but much less; the largest is about four inches in length; 'tis broadish, fat, and delicious; they are caught every where in the warm Summer months, in small mash'd nets; sometimes they take an incredible quantity at a draught. They are not only eaten fresh, but are salted, and put up in barrels with spices, and sent to several foreign countries, where they are called Anchovies, and they pay a good price for them. These only differ from a small Herring by the roughness of the belly, when they are stroaked with a Finger, from the tail upwards.

The Brigde, the Fin-fish, is a large Fish, 40 feet or more in Brigde. length; some account them of the Whale kind, others of the Porpoise. Their liver alone yields several casks of train oil; on their back they have a high, round, and sharp bone, with which they tear open other Fishes bellies; and they are covered with a kind of hair, something like a horse's main; they are often seen about the fishermens boats, who are as much afraid of them as of the most dangerous sea-monster. Sometimes they are caught, tho' seldom, and that is when they get into a creek, and entangle

themselves in the fishing-nets: tho' they carry the nets away, they are so encumbered by them, that one may easily stick them with a spear.

Brosmer.

The Brosmer, is a good sea-fish, of a moderate size, with a short and round head, and a slippery skin, like an Eel, but the flesh is firm, and agreeable to eat; the roe also is counted very delicious. Our fishermen say they live very much amongst the sea-shrubs, and feed on them. They are caught mostly in the Summer months, in deep water, with lines. They are salted down, or dry'd, and then exported. Perhaps this is the same Fish that is called in France, Brame de Mer, the Sea-bream; but I only guess so by the name.

## S E C T. VI.

Elveritze.

Elveritze, a small Fish, which has its name from rivers wherein they are generally catch'd.

Fiske Kong.

Fiske Kong, King of the Fishes: two kinds of Fish are called by this name; one is of the Cod, and the other of the Sea Bream kind. This last is not much different from the ordinary sort, except that it has a lump as big as a man's fist on the head, which fanciful people suppose to be beform'd like a crown; from whence the fishermen have taken the liberty to call him King of the Fishes.

Flynder.

Flynder, the Flounder: of this Flat-Fish, which includes a great many branches, we have here chiefly four sorts; namely, The Hellebut, or Plaice (not the large Helle-flynder, which is called here Queite, and will be taken notice of hereafter): this is a pretty large and roundish Flounder, fat and fleshy, with red spots on the skin. 2. The Krobbe-flynder, something less, black and rough, or full of small prickles: this has very firm flesh. 3. The Sand-flynder: this has scales on the skin, and is grey on one side, but, like the rest, white on the other, or under side. 4. The Flirer: these are the least, but the best tasted of all: they are partly caught in nets, partly with fishing hooks, and sometimes they are stuck with a small bearded lance, which is done thus: when the fishermen row their boats over sandy ground, where the Flounders are seen in clear weather lying in heaps together, they drop a line with a heavy lead to it, under which the little lance is fix'd, which, by the weight of the lead, sticks in the Flounder, so that he must follow the line up: by this method they soon fill the boat with them. In Nordland and Sundmoer this Fish is found in the greatest perfection; it is dry'd and exported with a good profit. Th. Bartholinus mentions (in his Hist. Anatom.) a remarkable Flounder,

der, marked with a cross on one side. “*Passer piscis* 1650, a piscatoribus Bergis Norveg. captus, signum crucis crassioris in ventre gerebat manifestum idque in summa cute. Ad usum mensæ, culinæ D. Jani Schelderupii, Episc. Bergensis, affinis mei honorandi, inferebatur. Sed ancilla, viso crucis signo, perterrita, cultrum suspendit, piscemque illustrem plurimum curiositati reservavit. Anguli crucis & latera æqualia, superficies plana & cum cute æqualis, &c. in exsiccato pisce disparuit fere crux. Cent. ii. Hist. 33, p. 225.” Yet it is not uncommon to see upon Flounders, Plaise, Square Fish, and other Sea-Fish skins, the figures of stars, circles, squares, and other marks, which give them a particular aspect.

Floy-fisk, or Flying-fish, is so called from his flying above the water: the largest I have seen are hardly a foot long. This Fish has a pretty large, tho’ thin and light head; the mouth I have always found open, perhaps to catch the air, and lighten themselves in some degree with it; the body is small, roundish, and runs tapering towards the tail: it is nearly like a large Herring in shape. Besides the usual fins, they have under their necks three broad and pretty long ones, of a different and more subtil structure: these are nearly as thin as a fly’s wings, but they are strengthened with half a score rows of bone, running between the two membranes. On the back part of their neck they have also a wing, or flying fin, about six inches long, quite erect; and lower down the back, another shorter, but broader. These wings are the gift of nature to save themselves with, when pursued by those that are too powerful for them. They are seen in their flight to raise themselves several feet above the water, and pursue their course the length of two or three gun-shot, then they must drop, because their wings grow dry, which are of no use to them any longer than they hold moist\*.

I do not know whether those Norway Flying-fish, which were presented me at Bergen on Sundmoer, may be accounted the same

\* If it was not for the natural property of the wings, which makes it impossible for them to fly far, then I might agree with those expounders of Scripture, who are of opinion that the great quantity of Selavim, which, in Numbers, Chap. xi. v. 31. is generally translated Quails, and which were brought by a great wind from the sea to the camp of the Israelites, were not Birds, but Flying-fish, according to Rudbeck’s, Ludolf’s, and Zeltner’s opinion; to which kind also the foregoing 22d verse seems to allude; as also what directly follows, in the 32d verse, that they were spread, and hung up about the camp; which seems to agree best with the manner of curing Fish that is to be dry’d: if it be so, then we must first observe that those Oriental Selavim have more strength in the structure of their wings to support themselves in a long flight, than our Norwegian Flying-fish.

with

with those Gasp. Schottus, in his *Physica Curiosa*, Lib. x. Cap. 21. p. m. 1127, calls "Hirundines Aquaticæ, Vand Sualer, Hirundo hæc aquatica a Græcis vocatur *χελιδών*, a maris Adriatici accolis & a Siculis Rondela, Rondola, Rondinella, ab Hispanis Pesce volador. Volant extra aquam ne piscium majorum præda fiant; demissè tamen quemadmodum aves e flumine aquam hausturæ. Volantes sæpe vidi in mari Siculo & Tyrrheno, manibus tamen nunquam contrectavi. Volant quamdiu alæ hument; cum ficcantur statim decidunt."

The description that he adds from Gesner and Rondelet agrees in most things with our Norwegian Flying-Fish, yet it differs in few particulars; whereas he gives his Vand-svale Squamas Asperas rough scales; on the contrary, our Norwegian Fishes have a smooth skin, and no scales, unless they are very small, or kept till they are dry; they have never come to my hands fresh out of the water, and therefore I cannot say for a certainty of what colour they are. He says the Italian sort are of a dark red, and ours seem to be of a dark blue.

Forrelle. The Forrelle, is a well-known and well-tasted Fish, something different from the Orreten, partly because it is less, and partly that between the black circles on the skin there are some red spots. They are caught mostly here in small rivulets; but when they grow larger, they go into the lakes, or deeper waters.

Graafey. See Sey.

Gedde. The Gedde, are here very large, and well-tasted, yet I have not seen any so large as those which Undalinus, p. 36, says are found in the lake Store Mios, on Hedemarken, namely, five or six feet long: the same lake may be reckoned to be the best stored with Fish of any fresh water in the world; and there are not less than twenty-three kinds of fish that frequent it.

Gorkyter. A Fish called the Gorkyter is mentioned by Mr. Ramus, p. 252, but it is quite unknown to me, tho' I have enquired very carefully after it. Possibly 'tis the name that puzzles me, for that differs according to places.

Giors, or Sandert. The Giors, or Sandert, is an excellent, and not an exotic, tho' a scarce fish: it is found in the fresh-water lake, Store Mios, before mentioned.

Guld Lax. The Guld Lax, Trutta, the Trout, is a small well-tasted Fish, in form almost like the common Fish, of which I shall speak at large in its place, under the name Lax: but this is very small, seldom above nine inches long, and the mouth is proportionable. These are so much less than the Salmon, that they are caught in  
nets.

nets. In Nordland they make a sort of dish of them, cutting the flesh into long slips, and drying them; which is more delicate than that of Helle-flynders; or else they pickle them, and eat them as they do pickled Herrings.

## S E C T. VII.

The Haae, the Shark: this is a very extensive tribe; the several kinds are very different in size, like the dog-kind, which creatures they also resemble in fierceness and voraciousness, destroying other Fish. Hence the Shark is called *Canis Carcharias*: but they mostly resemble the dog-species in this; viz. that there are some very large, even several fathoms in length, and some very small, about two feet when full grown: but before I describe each of these sorts in particular, I shall speak of them in general; namely, first, that they have no bones, properly so called, excepting that of the back, but only a cartilaginous or gristly substance, instead of bones: in the second place, they do not, like most kinds of fish, eject their spawn, but are viviparous, and, like the Whale, bring forth their young alive, five or six at a birth, from a sort of umbilical opening. In its belly are a kind of eggs, as large as a hen's; but they are soft, and have no white. They hang together as it were by a thread, and serve for food sometimes for the poorer sort\*. In the third place, their skin is hard, rough, and full of a vast number of small prickles; their fins are large, broad, and thick, which goldsmiths, ivory-turners, carvers, &c. make use of to polish their work. The Gulhaaen, one of this kind of fish, which shall be presently described, has not such a rough skin, but in that particular is like other Fish. The fourth observation I shall make is, that the mouth of the whole tribe of Sharks is not placed like that of any other kind of Fish, but underneath a pretty long snout, which juts out, designed, as it were, to prevent their destroying other Fish in too great quantities; for they are obliged to turn upon their backs when they would devour their prey, unless it happens to swim just under them. This wise contrivance of Providence tends, no doubt, to the preservation of other Fish in some Measure, because the Shark is the fiercest and most voracious of all the Sea-fish †. He bites very keenly, and has a vast appetite:

PART II.

G g

he

\* The young Shark lies in a different posture from that of most Fish of the viviparous kind in its mother's womb, and has a communication by a small tube, with the egg above-mentioned, and receives its nourishment from it to the time of its birth.

† Mr. Derham entertains the same opinion of God's providence in this particular, in his *Physico-Theologic*. B. iv. c. 14. speaking of the Shark, or the *Canis Carcharias*,

he

he devours every thing that falls in his way, particularly the Mackerel, and is extremely fond of human flesh\*. I am therefore inclined to agree with those who are of opinion that the large Fish which swallowed Jonah, was rather a great Shark than a Whale, whose narrow throat seems very improper to swallow a whole human body. After these general observations, I shall briefly treat of each kind of Sharks in particular.

The common Shark is of a middling size, seldom above three or four feet long, and has a sharp bone on the back part of its neck, like a boar's tusk: its skin is of a grey colour, and their flesh not so delicate as to be coveted for the table, unless when there is a scarcity of other provision, and then they flea it, and dry it in the smoak. The best part of it is the liver, which makes the best sort of train oil. In the Spring, when the Herrings and Cod appear on the coasts, the Shark, together with other Fish of prey, drive them before them, and so execute the will of the beneficent Creator. Sometimes these Fish come in such large shoals, that they interrupt our regular fisheries; for one has hardly thrown out the hook, before a Shark fastens upon it, and disappoints the fisherman, who was in expectation of a Cod.

Gul Haae.

The Gul Haae, or Haae Gule, differs from the last mention'd in the smoothness of the skin, as has been observed before; as also in colour, which is a bright yellow. Hence it has the name Gul Haae; i. e. the Golden Skark. It differs remarkably from other Sharks as to its tail, which, in the other kinds, resembles that of a Salmon, excepting that one of the points is something longer than the other; whereas the tail of the Gul Haae is longer than its whole body, and grows gradually narrower, till it ends in a point. On account of this tail it is called by some the Sea-Rat, of which it has some distant resemblance, especially when the fins are bent down under its belly, and have the appearance of legs. The head is very large, and the mouth like that of the other Sharks. On the back part of the neck it has a strong and sharp bone, about four inches long, bending backwards: but the most remarkable thing in this Fish is his double generative

he says, "Take my worthy friend Dr. Sloane's observation: It hath this particular to it, with some others of its tribe, that the mouth is in its under part, so that it must turn the belly upwards to prey. And was it not for that time it is turning, in which the pursued fishes escape, there would be nothing that could avoid it; for it is very quick in swimming, and hath a vast strength, with the largest swallow of any Fish, and is very devouring." Sloane's Voyage to Jamaica, p. 23.

\* Concerning the inhabitants on Viifden, or Bahus-Lehn, Petrus Undalinus asserts, p. 24, what one would hardly think credible; namely, that the Sharks (which were then very numerous in those parts) are so fond of human flesh, that they have killed several fishermen.

member;

member; for, as I have before observed, this whole tribe is not oviparous, but bring forth their young alive. This has his genitals in their proper place; but whether they all have them double I do not know: but as for this kind I can affirm, from my own observation, that the male has a double penis, and the female a double womb. If the liver of the Gul-Haae be put into a glass vessel in a warm place, it will dissolve to an oil, and this is an excellent unguent for all wounds and bruises. An experienced apothecary assured me, that he prefers this unguent to all other remedies which his shop affords, for external applications.

The Sort-Haae, which may likewise be compared to the Sea-Rat, differs from the former in size and colour, for it is much less than the Gul-Haae; and is coal black on the back, and of a blueish colour under the belly. Hence it is called by some Bla-Mave; and by others Morten-Blanke: the tail and the liver are like those of the Gul-Haae; but the latter is drier, and does not yield so much oil. So much for the small Sharks; I now come to treat of the larger sort; namely,

The Haabrand and Haae-Kierling, or, as the Norwegian peasants call them, Haae-Kiæring, are a sort of hermaphrodites, or of both sexes, according to the opinion of some writers; tho' I will not affirm it for a certainty. The Haaebranden is but 14 or 15 feet long at the most; and is formed like the other Sharks: it is of a black colour. The flesh of this kind is good for nothing; the liver produces train oil, but inferior to that mentioned above.

The Haae-Kiæringen; this is a third sort, larger than the preceding: it is 19 or 20 feet long; so that it is as much as a horse can carry, even after the liver is taken out, which is almost the only valuable part of it, and often yields two casks of train oil, and sometimes more. This may seem an extraordinary quantity, but I am assured of the truth of it, by those who make it their business to extract it. They also cut off from the belly of it several flips of fat, which are dried and sold to the Uplanders, who live mostly on coarse cheap food. The skin is tann'd and prepared by the peasants for horse-furniture, like the skin of the Sælhunde. They catch these with a hook, which they bait with a piece of stinking carrion; there must be an iron chain of about four or five feet long fastened to the hook, or else he'll cut the line, as they say, with his rough skin, which, as I have before observed, is peculiar to the Shark, or more probably with his teeth.

The

Haae-Mæren.

The Haae-Mæren is still larger, of the same shape and make with the preceding; of a blue and green colour, like a Mackarel. The tail of this kind is more than two fathoms wide; by which one may form an idea of the size of the body, which, according to the account of many eye-witnesses, is eight or ten fathoms long; for which reason this species is by some reckoned of the Whale kind, but it is truly and properly a Shark; especially as it is a cartilaginous Fish, and has no bones, excepting one in the back, and that but small in proportion to its size. The liver is but little bigger than that of the Haae-Kiæringen, with which this Fish is confounded by some; but those who are judges easily make a distinction. This Fish is stuck with a harpoon, and will sometimes accidentally fall into a Salmon-net, and carry it off; but he is often so frightened that he dares not stir, and is killed without much trouble, and dragged on shore with ropes, as they do the Haae Kiæringen. They tow it behind the boat if they want any thing more than its liver; otherwise they take that out, and throw the body into the sea. This Haae-Mæren seems to be the species which Willoughby speaks of, Lib. iii. §. i de Piscibus cartilagineis longis, cap. i. p. 47. in these words: "Canis carcharias feu Lamia Rondoletii galeorum omnium maximus est, nam aliquando ad tantam magnitudinem accrescit, ut curru imposita vix a duobus equis vehi possit. Vidimus, inquit Rondoletius, mediocrem 1000 librarum pondere. Nicenses vero testatos sibi esse refert Gillius, sese istiusmodi piscem cepisse ad 4000 librarum accedentem, & quod magnam admirationem habet, in ejusdem ventre solidum hominem reperisse, simileque quid Massilienses sibi narraffe, comprehendisse inquam, aliquando, in quo loricatedum hominem invenissent." This confirms my former conjecture, namely, that it was this Fish which swallowed up the prophet Jonah. To this tribe also belongs the most surprizing and deformed Fish, called Kors-Haae, the Zygæna, or the Hammer-headed Shark; which, as it belongs to this species, I will not omit, tho' it is seldom seen in the Northern sea. The body of this kind is like the Haae-Kiæring before described; but from the form of his head it is called the Kors-Haae: its shape resembles a crutch, and there are two great eyes at the ends of the transverse part of the cross, at some distance from the head.

Hav-Hest.

Hav-Hest. See Val-Ros.

Helle-  
Hynder.

The Helle-flynder, the Turbot, Hippoglossus Rondoletii & Gesneri, which is otherwise called Queite, and also Styving, is formed like another Flounder; the belly, or lower side, white; but



but the back, or upper side, is of a dark brown; on which are placed both the eyes, and not one on each side, like those of other Fish. The size of the Turbot in these seas is so great, that it will cover a large table: the flesh is exceeding good when fresh, and if it be cut to pieces and salted down, one Fish will fill a cask. They prey upon other Fish; and when they are pinched for food they will devour one another's tails, as has often been seen. In the History of Birds I have observed, that when the eagle strikes its talons into the Turbot's fleshy back, and cannot get them out again, he is dragged down to the bottom of the sea, and often putrifies on his back. This Fish also strives sometimes to be revenged on mankind, though nature has not furnished him with offensive weapons. This may be concluded from what was related to me by a fisherman, a person of credit and integrity. This man striking at a Queite, or Turbot, miss'd his aim, and fell overboard, in two or three fathoms water. He came down upon a clear sandy bottom, where he was seen by his companions, with the huge Turbot spreading himself upon him, to press him down. He lay in this posture till his companions, with their boat-hooks, came to his assistance. They have such surprizing strength in their tail, that the fishermen must take great care when they happen to take a very large one, that he does not strike the deck of the boat, for he will sometimes beat the boards till they are loose, and might possibly overset the boat. The Turbot comes, like other kinds of Fish, near the shore, at certain seasons, particularly in the Spring; but it is caught generally out in the main sea, or along the sides of the sand-bank that projects out to sea, beyond all the islands, cliffs, &c. that cover our coast. They catch them here by means of a great number of long ropes, each having a large fishing-hook fastened to its extremity. All these are dragg'd at the bottom, and joined to one main line, at the end of which is a log, by way of float, to mark the place. When this has lain all night, the next morning they expect to draw three, four, or five of these large Turbots at a time; the greatest part they salt down; from the rest they cut off the fat from their fins, and slices of their flesh, which are brought here chiefly from Andenes and Tromsen, in Nordland, and then they are exported. The French, who have begun a Turbot-fishery in North America, have also learnt to cut off the fat about the fins, and these slices from the body of the Fish. We seldom or never fish for them after Midsummer-day, because they are grown so fat then, that their flesh is spoiled by driving them about, &c. A remarkable

God's providence.

instance of the care of Providence is observed by Mr. Anderson, in his Account of Iceland, §. lxii. p. 88, namely, that these Turbots, which, like other Fish of the Flounder-kind, are, by their form, the most unfit to swim, having no air-bladder, and therefore must keep at the bottom in stormy weather, and stick in the sand, are, for that reason, provided with a skin, or membrane, which draws over their eyes, to keep the sand out of them. This, as well as the rest of the Flounder-kind, feeds chiefly on young Crabs, and such small Fish that crawl upon the sands, and cannot easily escape from them: the Sea-eggs, or Sea-urchins also, which stick to the cliffs, become an easy prey to them, and is a food of which they seem very fond\*.

Horn-fisk.

The Horn-fisk, or Horn-give, the *Muræna*, is in shape round and long, like an Eel; it has greenish bones, and is not ill-tasted. It is found here, but not in such numbers as in Denmark, and our fishermen do not much regard it.

Horr.

The Horr, which we call Horke in Denmark, is a small fresh-water Fish, which some people reckon to be very delicate; but they are so full of bones that it is troublesome, and even dangerous, to eat them.

## S E C T. VIII.

Hval-fisk.

The Hval-fisk, or, as we call them here, Qual, the Whale, *Balæna*, is a Fish very well known, by name at least, to every body, though but few know any thing further of them, there being scarce any but the fishermen who have ever seen them. I have never had the opportunity of seeing a Whale except once, at Sognefæste, and then he only shewed his back above the water, which seem'd to be above forty feet long; and immediately he div'd again. The whole Whale-kind are divided by some into six or seven, and by others into twice as many species †; tho' these authors under that name comprehend at large all the viviparous Fishes, which are all formed in the womb of the dam nearly in

\* Something very singular here occurs to me, related by Mr. Assessor Frius, concerning a fresh-water river, near Gaarden Stafseng, in Næfne Sogn, on Helgeland, in which they sometimes catch Turbot, and other Sea-fish, tho' this river has not the least visible communication with the sea; but it must have it by some subterraneous passage. The same is related of a river in Hameroe Kald, Saltens Fogderie, and likewise of Lille Mios, in Valdres, many miles from the sea.

† From a manuscript which a learned Iclander sent Ol. Wormius, Th. Bartholinus, Cent. iv. Observat. 24, reckons no less than 22 sorts of Whales, which are caught in the North-sea; but what certainty there is in this account I will not pretend to say. Rondeletius, Bellonius, Schonveld, Faber, Clusius, Tulpius, and others, knew only those call'd *Balæna magna*, *Balæna vulgaris*, *Balæna dentata*, *Cete*, *Phyfeter*, & *Unicornu*. My plan obliges me to treat of those only that visit our Norway coast, tho' their proper abode is several hundred miles from hence, towards the north-west.

the

the same manner. “Cetacei pisces, auctore Aristotele, ii proprie  
 “dicuntur, qui magni sunt & perfectum animal ex femine, non  
 “ex ovo, gignunt, ut Delphini, Balænæ, Physeteres. Quanquam  
 “alii, tum Latini, tum Græci veteres, cetaceos acceperint pro  
 “grandibus cujusvis generis piscibus. Eisdem Latini belluas  
 “marinas etiam vocarunt, ab immanitate opinor, & magna cum  
 “terrestribus similitudine, nam eodem modo concipiuntur & gignuntur,  
 “& pulmones habent, renes, vesicam, testes, mentulam,  
 “foeminae, vulvam, testes, mammas;” says the learned Fr. Willoughby, L. ii. c. 2. p. 26. He adds also a little further, that some are of opinion the reason why the Whale, which formerly was seen almost every where in the ocean, is found now only in the North sea, is its fear of the ships, which, since the opening of the trade to the Indies, sail about the Spanish and African seas: it is therefore supposed that they have deserted those seas upon that account: but this opinion has little probability; for we are sensible that great numbers of ships sail also on the North Sea; and particularly they must be disturbed by the many great ships that are stationed annually on that fishery. By accident perhaps these Sea-monsters may carry themselves too far southward; but their proper residence doubtless has been, as it is now, in the North-sea. They are annually seen along the western coast of Norway, about January; but they are not received as enemies, nor do they meet with any opposition, which indeed is not suffered \*, but as friends and allies; tho’ this circumstance be unknown to them. They are sent by the all-wise Creator several hundred miles, to serve as his instruments, to drive numberless shoals of Herrings, Mackrel, and other Fish, into the creeks formed between the rocks and islands that cover the coast, and about the sand-banks, to be the subsistence of many thousands of people. They likewise cause the importation of a great deal of wealth, either in specie or merchandize. When our peasants and fishermen observe the Whale at several miles distance, which they know by the appearance of small water-spouts in the air, which they eject through the openings in the head, by respiration, they conclude by this joyful signal, that the Winter-harvest or fishery is approaching. Immediately the sea appears covered,

God's providence.

\* There are killed however in Sunds parish, just by Bergen, and in some other places, every Spring, some of the small ones, of 30 or 40 feet in length, which venture too far in the creeks, and spoil the fishing-nets. They are stuck with harpoons, the points of which the smiths know how to poison, so that about the wound there will appear a spot as big as a small dish in circumference, which runs thro’ the skin, fat and flesh; which last is turn’d quite white, and often mortify’d. The flesh otherwise is of a dark red, and appears almost like beef: it is eaten by our peasants, who have shewed it me, and assured me that it tastes well, and is wholesome food.

covered, as it were, with a large city, with a great many chimnies smoaking; for the shoal of Whales generally consists of some thousands, and they stretch along the coast, chiefly from Stavange or Karmfund, to Christianfund, in the diocese of Trondheim, which is about sixty Norway miles. The high water-spouts before-mention'd are thrown up by the Whale, on his fetching breath. Every time he breathes he comes to the surface of the water; for all the cetaceous kind have lungs, and breathe like quadrupeds, requiring frequent supplies of fresh air.

The Whale, for its usefulness in driving out the small Fish from their shelter, is called here the Herring-whale, of which the smaller kind mostly frequents our coast. The large Whale, or *Balæna vulgaris*, sometimes, tho' not often, overshoots himself, and comes aground, or strikes upon a rock, and expires there. He then becomes the property of the owner of the land, according to the Norwegian law. Their length amounts frequently to 60 or 70 feet\*; their shape pretty much resembles that of the Cod: it has a large head, and small eyes in proportion: on the top of the head there are two openings, or holes, through which it spouts out the water taken in, as it breathes, like a fountain, which makes a violent noise.

Form and  
Shape.

The skin of the Whale is smooth, and not very thick; the colour of the back is dark, variegated, or marbled; under the belly it is white; their swallow, or throat, is very narrow, in proportion to their size: under their back-bone lies a long bladder, which is dilated or contracted as the Fish pleases. The use of this is not to receive any nourishment, for none is found there, but only to lighten the Fish, and make him buoyant. The tail, which he makes use of as an oar to row himself with, and which prudence forbids to approach too near, has this particularity, that it is not perpendicular to the surface of the water as he swims, like that of other kinds of Fish, but horizontal; and this is the great characteristick of the species. They copulate after the manner of land animals, and to that end stand upright on their

\* I do not know whether one may depend upon Pliny's authority, when he says, in his Hist. Nat. Lib. ix. c. 3: that in the Indian seas are found Whales four Roman acres long. *Balænas quaternorum jugerum*; that is, 960 feet. Lib. xxxii. cap. 1. he talks of some Whales six hundred feet long, and three hundred and sixty feet broad, which had been carried in with a flood to Arabia. I think that this cautious writer in other respects has, in this point, been too credulous. In the mean time this is true, according to the general opinion, that the size of the Whale grows less by degrees. For these last twenty years one seldom sees any so large as they in general were, especially near Greenland, where two or three seldom yield a greater quantity of train-oil than formerly was extracted from one. The natural cause of this seems to be our common industry in catching them, so that we do not give them time to attain to their full growth.

tails.

tails. The mother brings forth but one or two young ones at a birth; they are nine or ten feet long when first produced: they suck the dam's teats, which are situated near the aperture, on the belly. When the young are tired in their course, the dam takes them betwixt her great fins, and swims away with them immediately. Under the skin the Whale is covered with fat two or three feet thick, out of which the oil is extracted; and under the fat is the flesh of a reddish colour, which is sometimes eaten, tho' not much admired; but the tongue and the tail are reckoned delicate food. Use and service.

When the Whale grows old, weeds, Muscles, and other foulnesses, gather upon its back, and always sticking close to it, causes a very ill scent, which constantly attends an old Whale.

Their food is in general certain small insects, which float upon the water in great heaps, and are not larger than flies: besides these, they eat various sorts of small Fish, particularly Herrings, which they drive together in great shoals, and then swallow in prodigious quantities at a time\*. The Whale commonly goes under a large shoal of Herrings, and at times opens his mouth, and sucks in all he can. The water, which he takes in with them, as has been before observed, he spouts out of those apertures in the head; but the Fish and insects remain behind; and sometimes he swallows such vast quantities, that his belly will hardly contain them, and is even ready to burst, which causes the Whale to set up a hideous roar. Food.

According to some accounts, the Whale often loses his life by the violent distention†. On this occasion, or, when he is pursued by his enemy, the Speckhuggeren, as shall be mentioned hereafter, he makes so terrible a noise that one would imagine it to be a long clap of thunder. The same unaccountable noise is heard if he accidentally falls into the fishermen's herring-nets; and tho' he easily carries them away, yet he is very much affected by the fright.

\* Doct. Nic. Horrebrow says that the Whale swallows up whole heaps of Cod also, in his account of Iceland lately published, §. 54, p. 185, where, among other things, he relates an extraordinary accident that happen'd to a Whale that was drove towards the shore in time of flood, and could not get back again with the ebb; so that the peasants surprized and killed him; and, exclusive of the Whale, got a booty of 600 Cod-fish, all alive, in his belly, which he had swallowed just before.

† That the first, and perhaps the last circumstance, was known to the poet Silius Italicus, may be concluded from his words:

————— *Rapidi fera bellua Ponti*  
*Per longam sterili ad partus jactata profundo,*  
*Æstuat & lustrans natam sub gurgite prædam*  
*Aborbet late permixtum vermibus æquor.*

It is seldom heard that they do any harm; for tho' numbers of them sometimes come up close to the fishing-boats, yet they swim away as soon as the people strike the edge of the boat with the oar: this little alarm drives them away, unless it be at the time that they pair together, and then it is said they will come up to the boats with more boldness; so that they must row off to avoid danger. I shall particularize the manner in which they are caught on the coast of Spitzberg and Greenland, and in Davis's Streights, by those ships that annually go thither, and part their men into several boats, in order to kill them with harpoons. This is described at large by several authors, but no where more accurately than in Frederick Marten's Travels in Spitzberg and Greenland, cap. viii. p. 110 & sequ. It is very well known that their fat, and what is called Whale-bone, which the fashion in this century has brought into great esteem, are very profitable articles to those who are concerned in the Whale fishery. That neither their semen nor the brains yield ambergrease, as Ol. Magnus imagined, is certain; but the brains of the famous Hval-Rav, or Sperma-Ceti Whale, yield the finest sperma ceti, as is observed by Th. Bartholin, in Medic. Domest. Danor. p. 297\*. Tho' the Whale is of such a monstrous size, he is often much harrassed by smaller Fishes, which he cannot wholly escape. The anonymous author of that account, which is annexed to the Danish translation of Mr. Peirere's Description of Iceland, treats (p. 108) of a Fish that has sharp horns on his back; and observes, that with those weapons it tears open the Whale's belly, by running under him, and then pressing himself up close to him. There are several Birds which pursue and betray the Whale by the noise they make, and will fall upon him, and beat him with their beaks, when he comes to the surface of the water. I am told by our apothecaries, that the os sepia in their shops, which the peasants here call hvalskial, and find floating upon the water, is the back-bone of a Fish which shall be described in the following sheets, called Spute or Bleksprute, the Tuk-fish, or Sepia; which, like the Whale-lice, sticks close to him, burrowing into his flesh: when he gets to a rock to scratch himself, he then kills them; but their skeletons still remain fastened to his skin, and leave the os sepiae above-mentioned. The Spekhuggeren, or Vahnen, is also a small Fish of about four feet long, and which shall afterwards be

Persecuted.

\* The same is affirmed by Ol. Wormius, in his Museum, p. 34, with this addition, that not all Whales, but those sort that are called Dogling, have sperma ceti in their scull: this opinion is again contradicted by Theodorus Hassæus. See Bibliothecæ Germanicæ. T. xv. p. 162.

treated

treated of, plagues the Whale with his sharp teeth, and tears great pieces of flesh out of him. The Whale not only makes a most melancholy and frightful noise when thus bitten, in order to free himself from these troublesome companions, but will leap a considerable height. In these leaps he sometimes raises himself quite perpendicular above the surface of the water, and then plunges himself down with such violence into the deep, that if his head strikes against any of those hidden rocks that are in the shallows, he fractures his skull, and comes instantly floating up again dead. By this we see that there is no creature in this world so great as to be exempt from calamities and misfortunes; and no enemy so inconsiderable, that it should be entirely despised.

Besides this Whale of enormous size I have been describing, Leffer forts. we find on this coast various smaller sorts, all of the same tribe; as the Tuequaal, or Bunch-back'd Whale, which is distinguished by a high bunch which it has upon its back, something like a load of hay. The Rorqual, which has lately been seen at Sundmær, and is all over of a snowy white colour. It is remarkable of the Troidqual, that they love to play with the fishing-boats, and get under them. The Spring-hval, or Springerren, is also seen here; it is about twelve feet long, and is the smallest of all the kind: it is coal black on the back, and white under the belly; this produces two young ones at a birth, which follow the dam, hanging to the teats under the breast\*. Mr. Wilhelm. Friman, minister of the parish of Manger, to whom I am greatly obliged, as well as the public, for many observations on the subjects of Birds and Fishes, relates, that he once saw a small Whale of about 22 or 23 feet long, which had a prominent oval snout, formed something like the beak of a Goose; the like was never seen before by him, or any of the people that were spectators with him. Whilst I am writing on this subject, I have another account also sent me of the same sort of Fish; I shall call it *Balæna rostrata*, or *Nebbe-hval*, the Beaked Whale. One of this uncommon sort, I am told, was taken at Eskevigen, near Fridrichshald, in the year 1750, by some of Col. Kolbiornsen's men: it was 26 feet in length, and a young one of six feet long was taken out of its body. The beak makes this Whale differ most from others, tho' the whole shape is somewhat

\* At Sundmoer the Spring Whales are caught in great quantities by the fishermen, who row behind them, and by striking with their oars, and making a noise, drive the creature to the shore, and there he falls an easy prey to them. They yield a good deal of train oil, and the flesh is not ill tasted.

different,

different, as may be seen in the plate annexed, where it is exactly delineated. Mr. Lucas Debes mentions, in his Description of Farroe, p. 162, a particular sort of Whale, called Doglingen; this is about 30 feet long, and is the easiest caught of all the species; for it will remain still while a rope is run through its eye-lid: these have the characters or distinguishing marks of the Whale kind more strongly than any other. They are drawn ashore by these ropes. The train oil extracted from these Doglingers is so fine and subtil, that the vessels it is put into must be made of wood of a very close contexture. If the fat be eaten, it immediately transpires through the pores, and turns the person's linnen yellow\*.

Hvidling.

The Hvidling, Hvilling, called here Quitling, the Whiting, *Afellus Candidus*, so called from its white colour, is a middling siz'd Fish, with a longish body, and very sharp teeth. The flesh of this Fish is very delicate and agreeable to the palate. Whittings are mostly found where the ground is muddy, and caught with a hook and line. Mr. Anderson is of opinion, that the Whiting is what the French properly call *Morue*, and is caught in abundance on the banks of Newfoundland: he relates, in his Description of Iceland, p. 85, that this greedy Fish has by nature a certain property, which, perhaps, many gluttons of the human species would be glad of; namely, that when he accidentally happens to swallow a piece of wood, or any thing he cannot digest, he can throw out his stomach, turn it inside out, and empty it in the water; and then suck it in again to its proper place. This Dionys confirms from his own observation, in his Description des cotes de l'Amerique Septentrionale, Vol. ii. p. 181.

Wonderful  
Privilege.

Handstigler.

The Hundstigler, Hundstage, *Aculeatus minor*, the common Stittleback, is one of the smallest of Fish; it moves about very quick in the water, and is daily found near the storehouses, but it is not much regarded. God's providence, which is often signally displayed in small things, discovers itself here, by providing this little diminutive creature, which does not exceed two

\* In the heads of these Doglingers is said to be found also the aforefaid ryal-hay, or sperma-ceti, which is known to be a good healing medicine; from whence I conclude it to have been one of those which the Bremer fishermen caught some few years ago, and had never seen the like before; from which Theod. Hassæus took occasion to write his Disquisition on the Leviathan of Job, and Whale of Jonah. A French translation of that Treatise was printed in the Bibliotheque Germanique, Tom. xv. Art. iv. But perhaps this learned man is mistaken, as well as many others, in this matter; for the Leviathan seems most likely to be the Norwegian Sea-Snake, which I shall treat of in the chapter of Sea-Monsters; at least this appears most probable, and more agreeable to truth, than any thing yet advanced on this subject.

inches



inches in length, with two pretty long bones in proportion to its bulk, which are very sharp, and pointed like swords; with these, which stand erect on each side, they defend themselves from injuries.

The Hyffe, by the Germans called Schelfisch, is very like the Whiting; it differs only by some small scales on the skin, which makes the other more evidently of the Cod kind, tho' they both belong to that genus. The Hyffen has also, by way of distinction, two black spots on the back part of its neck: these are caught, like Whitings, on muddy bottoms, in great quantities; tho' they are very seldom exported, unless it be for want of better sorts of Fish.

## S E C T. IX.

The Jifgalt, *Vulpecula marina*, the Sea Fox, is a Fish about two feet long, something like a small Shark; it has a white shining skin, and there is a pointed bone jutting out on his neck; the tail is very long and narrow, and ends in a point. This Fish is caught only in deep water, and that but seldom, and by accident. It is very fat, particularly the liver, which yields a sort of oil, that, they say, heals all wounds, and preserves iron from rusting better than any other oil, which makes it much valued.

The Karpe, *Carpio*, the Carp, is not a Fish properly belonging to Norway, and therefore very scarce. When they are imported and put in our waters, their breed becomes gradually less and less. This a learned friend of mine has assured me from his own experience.

The Karudse is to be found here, as in other places, in the rivers and ponds; we have both the large yellow, and the small darkish kind\*.

The Kobbe, or Sælhund, the Sea Calf, *Phoca*, is to be reckoned amongst the amphibious animals; for tho' water is its proper element, it always loves to be near the shore, or the rocks and cliffs; and farther up the North-sea they will lay themselves on the great flakes of ice, especially when they want to sleep or rest themselves. A Kobbe of the common sort is about five or six feet long. The Steen-Kobberne is something less, and those they call here Hav-Erken are a kind of large overgrown

\* On a rock lying three miles beyond Loms Parsonage in Gulbrandsdalen, there are found in a pond Karudser of such a prodigious size, that the right reverend bishop Herleb has assured me, that the bones of some of them, which he collected on his visitation-journey, brought to Christiana and shewed there, were taken (by those that were unacquainted with them) for bones of large Cod. In Store-Mios are found also Karudser as big as a large plate.

Sælhund as big as a horse: some are also called Klapmutzer, because they have a loose skin on their head, which they can at pleasure throw down over their eyes and snout: their eyes are very sore and tender, and a slight blow on them will stun the Fish; their head is something like the head of a dog with cropt ears, and the under-lip hanging down; about the nose there are several long and prickly hairs, and the body is covered all over with short light grey hairs, and spotted with black. Under their fore-part there are two broad paws, and towards the tail there are something like fins, and these they make use of to crawl about with. They breed, and bring forth their young, on land, in the same manner as land animals do; and that twice a year, and produce but one young one at a time. It is said that in bad weather, or in any danger, the mother will swallow the young one, and bring it up again. Mr. Derham, in his *Physico Theologie*, Lib. iv. cap. ii. p. 410, affirms this: but I shall leave it undecided. The penis of this creature is altogether bony. They are most commonly killed with fire-arms about our coast, and some few with clubs, when the fishermen find them asleep, and can get near enough to them.

Regulations  
for their  
safety.

Our Bergen seamen, who, every year, in the month of March, sail from hence to Jan Mayen island, or to the eastern side of Greenland, in large ships, generally lie there till Midsummer-day, then they go with their sloops or boats, between the large flakes of ice, upon which the Sea-Calves lie sleeping by hundreds together, and destroy the greatest part of them. In their republic, they make this cautious regulation, that one of them must stand centinel, on these occasions, while the rest sleep, and with a kind of a noise like the hoarse barking of a dog, he wakes them, when either the white bear, who prowls about upon the ice, or any other enemy, approaches. These people therefore come upon them suddenly, and with what they call a Dollstock, which has a thick iron ring and an iron spike at the end, give them a blow on the snout, hard enough to make sure of them, and prevent them from making their escape; in this manner they serve every one they can come at. The fat which covers the flesh is flayed off with the skin, and put up in large casks, in order to make train oil. The skins, when they have sprinkled some salt upon them, to keep them from rotting, are rolled up singly. The catching of these is sometimes as profitable as fishing for Whales; for a ship may carry off 7 or 800 casks of fat in a season, and they will frequently take 2 or 300 in a day. What our fishermen affirm, appears very strange,  
namely,

namely, that these creatures, in a flock of a thousand together, will steer their course as exactly as if they went by a compass: for when they perceive any noise, or are driven away from a flake of ice, and are obliged to take shelter any where else, if the wind serves, the seamen have nothing else to do, but to set sail after them; and when they have only observed what course they took at their departure, they steer exactly the same point of the compass, and they may be sure of coming up with them, upon the first flake of ice they meet in their course; tho' they often sail a very long way before they come up with them. A great number of Sea Calves are taken at Faroe, in the dark and deep caverns of the rocks, which that island abounds with. In what manner that is done, is very well related by the curious Mr. Lucas Debes, in his Description of that Country, p. 151, & seq. "They have many ways to catch them besides shooting  
 " them. In former times they used nets, but few do it now;  
 " but they hunt them with dogs, bred for that purpose. As  
 " the sight of the Sea Calf is but imperfect, when awake, and  
 " he is generally found asleep on the rocks, the dogs easily  
 " approach them, against the wind (that they may not smell  
 " them) start upon them unawares, and seize them by the throat,  
 " holding them fast till the master comes to their assistance,  
 " and kills them. The third way is but seldom practised, and  
 " is called there Paa Later. This word Later is not a Latin, but  
 " an old Faroesk word, and signifies to pair together; for when  
 " the Sea Calves pair themselves, it is usually called there  
 " Lateres. There are many vast caverns under the rocks, close  
 " to the sea, which are like vaulted cellars, the entrance to some  
 " of which is but small, like a door, that a narrow boat can but  
 " just get in; within them there is a stagnating deep water, that  
 " they may row in, but the farther they advance, the shallower  
 " the water is, till at last they find themselves upon a dry  
 " rock, which forms a vaulted roof over their heads, and causes  
 " an extraordinary echo when one speaks. All here is so dark,  
 " that there is no distinguishing day from night. In these  
 " dismal caverns the Sea Calves take up their abode by hun-  
 " dreds together, and therefore the inhabitants think they couple  
 " there; and thence call those places Later; and to look out for  
 " those places, to kill the Sea Calves, they thence call Paa Later.  
 " This Later is of two sorts; the one is when the entrance is  
 " under water, and is therefore inaccessible, and is called Kaufue  
 " Later, because the Sea Calf kaufuer, that is, ducks under  
 " water, when he enters it: the other has the entrance above  
 " water.

How they  
catch them at  
Faroe.

“ water. To get into these caves the peasants have a particular  
 “ sort of narrow boats. As they know the time when the young  
 “ ones are fat and full grown, they then set out, and always have  
 “ two boats in company: one goes into the cavern, while the  
 “ other is left at the outside of the entrance. They have a rope  
 “ of 80 fathoms or more fastened to these boats at each end, that  
 “ if the boat which is gone in should be filled with water, which  
 “ often happens, the other, upon a signal given, may draw it  
 “ out, and save the men. As the entrance is narrow, they have  
 “ boat-hooks to each boat, which they make use of to push  
 “ themselves in and out. They carry a light, which is a torch  
 “ as thick as a man’s arm, along with them, that they may see  
 “ how to strike the Sea Calves: this light they hide in the  
 “ boat, that the Sea Calves may not see the men till they get  
 “ upon the dry rock. When they have got in so far that they  
 “ feel the ground with their boat-hook, then one of the men  
 “ jumps out of the boat into the water up to the neck, and he  
 “ carries a club to strike the animal with, which is called *Kobbe-*  
 “ *Gaffe*. Another man follows the former with a light in each  
 “ hand, which he is obliged to hold higher than his head, to  
 “ keep it above the water: then a third man follows with a *Koll*,  
 “ or *Kobbe-Gaffe* also, in his hand, to strike them with. When  
 “ the young ones, which lie on the ground, see the light and  
 “ the men, they strive to get into the water; as for the old  
 “ ones, they get upon their paws, and stand upon their defence  
 “ with open mouths, especially the male, who will often make  
 “ the man give way; for when he strikes at him he will lay  
 “ hold of the stick with his teeth, and wrench it from him,  
 “ and throw it aside out of the man’s reach. In this case the  
 “ third man comes forward with his club, and strikes him on the  
 “ back part of his neck, and so knocks him down. The females  
 “ are not so bold, but always strive to get away if they can.  
 “ If they happen to hit the creatures right upon the head, they  
 “ are stunn’d with the blow, and then they immediately cut  
 “ their throats. When they have destroyed all the old ones,  
 “ then they fall upon the young, which usually lie quiet a good  
 “ way from the water, and neither mind the men nor the lights.  
 “ They lie quite still, and suffer themselves to be killed without  
 “ resistance. When the execution is over, they drag the dead  
 “ carcases to the water, and fasten them to the rope, by which  
 “ the boat without the entrance hauls them out; then they  
 “ row out with their boat; but if the water be shallow, the  
 “ outer boat drags out the other, with the men, &c. By this  
 “ method

“ method they sometimes take a great many, to the number of  
 “ fifty or sixty, in one cave. The old ones are often as big as  
 “ an ox, and so very fat, that there is sometimes three Vaager \*  
 “ taken out of one. The hide they use for shoes; the flesh they  
 “ eat, and the fat is melted for train-oil; and part of them they  
 “ pickle and eat.” So far L. Debes.

The Kollie, is a small Fish, of a reddish colour, six inches <sup>Kollie.</sup> long, with large eyes, fine scales, and very delicate flesh. The roe is reckoned particularly well tasted; they angle for it in fresh water.

The Kolmund, or, more properly, Kulmund, or Kulle Mule, <sup>Kolmund.</sup> which name is given them because their mouth and throat are coal-black, is otherwise called Guld Lax, or Golden Salmon, because it is shaped like a Salmon, though the head is rather rounder, and the Fish is more tapering towards the tail: the flesh is white, and tastes like that of a Pearch: they angle for them as for the Salmon, but with us they do not catch any great number.

The Knurhanelitem, or Reinald, the Gurnard; the former <sup>Knurhane.</sup> name it has from its being heard to grumble for half an hour after it is drawn out of the water. Its flesh tastes somewhat like Mackrel, and I think, tho' I am not certain, that it is the same Fish which they call Aaskiar-Niot, at Sundmoer; of which I have treated before. If it be the same, it has three names in one language. Those correspondents that gave me an account of this Fish, under the name of Knurhane, describe it to be twelve inches long, with a head almost like a Pearch, a round body, and the skin rough and prickly: they say it may be used to polish wood, or even metals: of this particular my Sundmoerske correspondents take no notice. They are caught with a hook and line.

The Krokke, is a small fresh-water Fish, and but little known. <sup>Krokke.</sup>

It is hardly four inches long, but is very abundant in some places, particularly in the Lake Tyrefjord, on Ringerige: they are seen there in heaps, and are driven ashore by the Fish of prey, and easily caught in small nets: they are well-tasted.

The Kullebars, is a small, delicate, fresh-water Fish, well-known <sup>Kullebars.</sup> in Denmark.

\* A Vaag in this country is 36 pounds avoirdupoize weight.

## CHAPTER VI.

## A Continuation of the Former, concerning FISH and FISHERIES.

SECT. I. *Of Ling, Salmon, the Piper, and others.* SECT. II. *Of Mackrel, the Porpesse, and others. Of the Narubal, Lamprey, Salmon-trout, and others.*  
 SECT. III. *The Horse-Mackrel, and others.* SECT. IV. *Of the Razor-fish, the Ostracion, and the Thornback.* SECT. V. *Of the Sea-Albuler, the Herring, the Alburnus, the Gattorngive.* SECT. VI. *Of the Wolf-fish, the Frog-fish, or Sea-devil, the Sturgeon, and Sword-fish.* SECT. VII. *Of the Cod, and others.* SECT. VIII. *Of the Walrus, or Seaborse, the Sea-Scorpion, and others.*

## S E C T. I.

Lake.

**T**HE Lake, or Lake-fild, the Marena, or Fresh-water Herring, a fresh-water Fish, of which great numbers are caught in the lake Store-mios, on Hedemarken. The peasants thereabout dry and export them. They are shaped almost like a Herring, but are not quite so large, nor so fat, and well tasted; and, indeed, are not much regarded by those who have variety of other Fish. I make no doubt but this Fish is the same with that which Schonveld calls Marene. This author says they are found in great quantities in the Holstein lake, near Ploen, and in the Mecklenburg dominions, near Sverin: "Harengo omnibus fere partibus respondet, pinnis, branchiarum incisione ampliore, dorfi subnigro, laterum argenteo colore & squamis facile deciduis. Sed minor est aliquando, duorum ut plurimum palmorum longitudinis, pleniore item carne duriore & friabiliore, ventre molli non ferrato, nisi quod in scallensi lacu marenas cubitales capi certum est." Willoughby, Lib. iv. cap. 10, p. 229.

Lange.

The Lange, Ling, or the Long Cod-fish, a Sea-fish, so called from his length, which may be six feet at least. It would be like an Eel, if it was not so thick towards the head, which makes it look more like a long and narrow Cod. It has a sort of a long fin, running all along the middle of the back. The skin is smooth, and of a shining light colour; the flesh is well-tasted,  
and

and reckoned the most delicate of the whole kind. It is sent to many parts of Europe, salted, and dry'd. It is brought to Bergen, where there is a great demand for it by foreign merchants\*.

The Dutch use a great deal of it for ships provision on long voyages, because it will keep longer than any other Fish in hot countries, when it has been well cur'd, and it then tastes better than when it is fresh. The Ling usually comes towards the Shore along with the Spring Herrings, or soon after them, in great shoals: they are catch'd with a strong hook and line. The chief place for catching them with us is on the Storeggen, or the long Sandbank, mentioned above, that stretches itself along the coast. To this place the fishermen go in the midst of Summer, to fish for Ling and Turbot, twelve or sixteen miles from the main land.

The Lax, Salmon, Salme, a well-known, considerably large, <sup>Lax.</sup> and excellent Fish, has bright silver scales, but the flesh is red. It is allowed by all to be one of the most delicious and best-tasted Fish; however, the physicians do not reckon it wholesom, when it is eaten fresh, in too great a quantity.

As the Salmon is not fond of biting at a bait, and there is seldom any Fish found in its belly, some are inclined to think that (as it is said of the Herrings) it lives upon water alone, and that this renders its flesh so delicate: but this opinion is refuted by Willoughby, Lib. iv. §. 11, p. 192. He says, "Mr. Johnson assures me that the Salmon is fond of fine red worms, when they are thrown into the water; but I shall not determine this point†. I shall only observe, that as the Lord of nature, who has created nothing in vain, has given the Salmon good teeth, we may conclude the former opinion is without foundation; for it were absurd to say they were given them only for weapons, to defend themselves against Fish of prey. I am to observe also, that one of my correspondents affirms, that he has found small Herrings in a Salmon's belly: nay, tho' the Salmon is but seldom disposed to bite at the hook, yet he will sometimes do it."

Willoughby, whom I quoted above, also confutes Gesner's opinion, concerning the Salmon's breeding in the sea: he thinks that is done in fresh water, from whence they afterwards go to the sea: but in this he is certainly mistaken. The Salmon unquestionably breeds in the sea, tho' it is not entirely to be deny'd but <sup>Breeding-</sup> <sup>place.</sup>

\* The quantity of this Fish that is taken is very inconsiderable in proportion to some others; but yet there was exported, in the year 1752, 45,000 list-pound weight, or 720,000 averdupoise.

† Mr. Ewen Meldal, chaplain at Haram in this diocese, has, amongst other observations, lately assured me, that he has found small worms in the Salmon's belly.

that

Breed.

that they may sometimes breed in rivers also, for they are found in the midst of Germany, and upper parts of the Rhine, about Basél; but we are very well assured that the Salmon chiefly ejects its roe at the mouths of rivers, where they empty themselves into the sea, or a little way beyond, in the salt water, in this manner: they bend themselves crooked, in order to eject the roe at an aperture under the belly, and, in the mean time, they stick their heads down in the sand, that they may have the more strength. The male comes presently after, to keep off other Fish from devouring the roe, and he there bends his head towards the tail, and ejects his sperm upon the roe. The Cod, Herring, and other Fish that have roes, probably breed in the same manner; but as that is done in deeper water, it is not so easily observed as in the Salmon.

The milt, which is also called the milt of other Fishes, is enclosed in a collection of many small and fine vesicles, out of which that whitish fluid is squeezed; but the male Salmon's milt is in one mass, and looks like liver. They say the Salmon is six years in growing to its full size, and that he is then five feet long, and weighs from twenty-five to fifty pounds. In the rivers of Mandals and Tannefiord are found the fattest and best about the whole Norway coast, but they are found also in the Spring almost every where. They are in great plenty from the middle of April to the middle of July, at which time they come in shoals, and seek the rivers, partly to refresh themselves in fresh water, and partly to rub, or wash off, in the strong currents, and deep water-falls, a kind of greenish vermin, called Salmon-lice, that get in between their fins, and plague them in the Spring season.

God's providence.

The method of catching it.

These insects are wisely designed by the Great Creator, to drive this rich and valuable Fish, as it were, into the hands of mankind, who use several arts to catch them. We have, within these few years, in these parts, begun to catch them with a kind of large net, set with many bends and angles; but this method often miscarries, though sometimes it succeeds, and they will take two or three hundred at a time. The old and common way is, to catch them in a net, spread at the mouth of a river, which falls with a strong current into the sea, and is therefore haunted by the Salmon for the purposes above-mentioned. They come thither on seeing the rapidity of the water, and the white foam; but as these opportunities are not every where to be met with, they allure the Fish by art, and decoy him into their hands, by making a part of the rock white. They say the Salmon has a great aver-

sion



tion to any thing red ; so that the fishermen that watch this Fish must never wear jackets nor caps of that colour : a certain person here in Sundfiord for that reason took all the red tiles off from the top of his house, which is just by the water side, and covered it with blue ones. They avoid all kind of carrion, and if by accident, or by the malice of ill neighbours, there be any such thing thrown into the places where they fish for them, they throw a lighted torch into the place : but they superstitiously affirm, that it must be lighted by the rubbing of two pieces of wood together till they take fire ; but this is a vulgar charm. There constantly stand two men by the Salmon nets in the Spring to watch them ; the one in a boat, or, which is better, on a high post, to observe when the shoals of Salmon come to the net ; on which he calls out to the other, who remains on the shore, holding a rope that is fastened to the net. On the signal given, he draws the net close with the rope, so that the Salmon cannot get out again. Sometimes by this means they will take twenty or thirty at a time ; and even sometimes such a prodigious number, that they must let some scores out to prevent their net from breaking.

The Salmon is a very strong Fish : fishermen have assured me, that one of them has been able to pull a man down when he has stuck him with his Salmon spear, which is a long pole, with three iron teeth at the end, like a trident. This Salmon-spear is used in another method of fishing ; namely, where they have built what they call the Lax-Kar, a-cross a river. This is composed of a number of stakes driven into the bottom of the river, pretty close together, between which they swim in shoals, and out of eagerness to get higher up the stream, they frequently stick fast there, till the fishermen come and stick them with the spear. I have seen them catch twelve in less than half an hour in this manner. The eagerness of these Fish to get a great way up the rivers, may be known, first by the following circumstance ; for where the water is low, and the sand-banks lie but just under its surface, so that they cannot make their way along on their belly, they will throw themselves flat on one side, and in that posture work themselves through till they reach deeper water. We see it also by their high and violent leaps against the stream, where there are falls of water from the rocks ; for if they meet with a cascade of four or five feet high, they are not deterred from pursuing their course, but will raise themselves upright, and leap with such violence, that they surmount this obstacle. Hence possibly its Latin name *Salmo* is derived from *Salio*, to

Dangerous  
fishing.

leap. There is a strange and hazardous way of catching Salmon practised in the diocese of Christianand, near that famous bridge a-cross the river Mandal, called Biellands-Broe, which is built upon piles, resting on two high and steep rocks, and is reckoned one of the most curious pieces of architecture in this country: it is 36 feet above the common surface of the water, tho' sometimes it rises so high as to touch the bridge, when the snow melts suddenly from the rocks. A little way to the north of this bridge, near a farm-house called Fofs, this river falls from the top of a high rock, which projects out, with rugged stones on each side, and deep caves at the bottom; the violence of the fall makes the water foam and play up like a fountain. Into these deep caverns, just by the cascade, do these people venture themselves, on a float made of pieces of timber, tied together with twigs. If the float breaks their lives are at stake; for they must fall into the stream, which carries them away with an amazing violence. This happens sometimes, and they have been taken up half dead, at a considerable distance from the place. Upon these rafts they enter the hollow places of the rock, in which the Salmon loves to take shelter. When they are driven out by the fishermen, they crowd in great numbers to the entrance of the cave, and are taken there. The Salmon is fattest in Spring, but is lighter and looks paler if caught after Midsummer. Many of the peasants that live in the provinces bordering on the sea, make a considerable advantage of the Salmon-fishery, and even clear more than their taxes by it. There is annually exported a vast quantity of them, some dried in the smoak, and some pickled, in barrels, to Bremen, Holland, Flanders and France. It has been known, that in one day more than 2000 fresh Salmons have been brought into Bergen.

Lodde.

The Lodde, or Stinking-Fish, is a Sea-Fish, in shape somewhat like a Herring, but not eatable, tho' tis extremely fat. When they are sometimes thrown up on shore in stormy weather, by the violence of the currents, the goats will eat them; but their flesh will be infected with such a disagreeable smell and taste, that they cannot be afterwards eaten. The verses that Mr. Peter Dafs quotes, p. 47, in his Description of Nordland, in which place alone they seem to be known, represent the Lodde as a very mischievous Fish, which entices others of more value away with him from the shore, and may be looked upon as a nuisance to the country.

“ Bort

“Bort Lodde med al din forgiftige stank  
 Al Verden foronsker dig alskens skavank  
 Du est os et riis og en svobe:  
 Ret faafom en hore, der tragter at flye,  
 Saa rommer ungdommen med hende af bye.  
 Som bukke med gederne lobe, &c.”

The sense of which lines is this :

Away Lodde with thy poisonous stench,  
 All the world wishes thee pain and torment ;  
 Thou art to us a rod and a scourge,  
 Thou art as a whore pretending to fly,  
 In order to draw the unwary youth away with her out of town.  
 They run after her, like the wanton he-goats after the females, &c.

The Lyr or Lyffe, the Piper, a middle-sized Sea-fish, something like the Trout kind in shape, tho' smaller. The scales also are less, and the flesh is excellent. Some look upon this Fish to be nearly allied to the Salmon; and the roe is reckoned a very great delicacy. They are caught with a net, but not in any great quantity. Aldrovand, Lib. ii. c. vii. speaks of a Fish in the Mediterranean by the name of Lyra, whose head is shaped like a harp, but whether that belongs to this class I do not know.

## S E C T. II.

The Mackarel, Scomber, a well known Fish, of about a foot long, with beautiful blue and green stripes on its smooth shining skin: the flesh is like the Herring's, but without that strong flavour; and has not so many small bones. It is very white, and agreeable to those who can digest their fat; but is not reckoned very wholesome by the physicians. When they first appear with us in the Spring they are very lean, but they grow fatter towards the Summer. The Mackarel is an unsteady and uncertain Fish; for they go in great shoals from one place to another, and drive the Herrings before them, which are terrified at their appearance. They are easily caught with hooks and lines, and in nets in great numbers. They are pickled, and exported; but what is got by them hardly makes amends for the loss of the Herrings which are driven away by them. They are excessive greedy and voracious, like the Shark kind; and, like them,

Melancholy  
accident.

them, are very fond of human flesh. It is said, that if a naked man swimming in the sea happens to fall in with a shoal of Mackarel, they will devour him in an instant. It happened very lately, that a sailor, who belonged to a ship in Laurkulen harbour, who went into the water to wash himself, was all on a sudden missed, to the surprize of his ship-mates: in two minutes time he rose to the surface of the water all over bloody, and vast numbers of Mackarel fastened upon him, which they could hardly force to quit their hold; and when they did it was too late, for the poor creature, without doubt, expired in great agonies. Willoughby observes, Lib. iv. §. vi. p. 101, that this Fish has no air-bladder under the back; this is so much the more remarkable, because, as has been said already, they swim extremely quick. His words are, "Ex scombris olim Garum conficiebatur laudatissimum." Plin. Lib. xxxi. c. 8. "Garum ex scombris & colliis apud Byzantinos fieri solere nunc dierum intelligo, referente Belonio." This Garum is what the Italians call Caviar, otherwise made of Sturgeon's roe. These Fish are found in the waters near Aflow, and the Caviar is at a great expence transported from Russia to Italy. It is asserted, however, that the roe of Mackarel is used for Caviar in the Mediterranean, according to the testimony above cited. If this be true, why might it not be used here for the same purpose, rather than thrown away, as it constantly is in many places, where they catch them in abundance, and pickle them as we do Herrings. The method of making Caviar may be comprised in a few words: they wash off all the blood and slime from the roe with vinegar, and take away the sinews and skins that are about it; then they spread it for a little time to dry: after this they salt it, and hang it up in a net, that the moisture may drop from it. When all this is done, they lay it in a sieve or cullendar, till it is thoroughly dry, and fit for use. The Italians pay a very great price for this delicacy.

Marfvin.

The Marfvin, or Porpesse, which is called here Nise, and also Tumler, the Tumbler, because it is always seen rolling up and down, is a fat Fish, about seven feet long, shaped like a small Whale, excepting the tail, which is broad, and does not stand horizontally like that of the Whale. Its mouth is like the snout of a hog, but short, and its eyes small: it has a great many teeth, and those very sharp. The tongue is thick and round, and so long that it hangs out of its mouth. Its skin is very thin, smooth, and of a black colour; and feels as hard as bone. Under this skin lies the fat about two inches thick, out of which they melt train oil. The flesh is not regarded, unless it be by the poorer

poorer sort of people, who pickle it. The Scots eat it, and look upon it as a very good dish; and in North America it is said the French make saufages of it. They breed like the Shark and Whale, being of the viviparous kind. It is affirmed that they breed every month, and one of my correspondents is of this opinion; but I dare not assert this for a certainty, unless I could meet with farther confirmation. They are sometimes shot; and are also caught, when they run into narrow creeks, with the Summer Herrings: for this purpose the fishermen have a very strong net; this they spread over the mouth of the creek where the water runs out, which is so open, that they work their head through, and then, like the smaller Fish, they stick fast by the gills.

It is said the Porpessè are fond of the human species, and seek their company: but perhaps what gave rise to this opinion is their being fond of following boats and ships in the Mediterranean, where they are called Dolphins, and are seen (as well as on the coast of Norway) in great numbers. There they also imagine that this animal is fond of music, and may be ensnared by means of it. It is certain that it is not one of the mute Fishes, for sometimes they make a noise like the cries of a human creature. The Italians also call this Fish *Marvine Cacciatore de Mare*, because they are very voracious, pursuing all kinds of small Fish. Gaspar Schottus, who in his *Physica Curiosa*, Lib. x. cap. 12. p. 1085. calls this the King of Fishes, and relates from Ælian and other ancient writers, some remarkable stories concerning it; and these, if we suppose them true, confirm their affection for the human-kind, as observed before\*.

Marulke. See Ulke.

Marulke.

Mort. See Sey: for it is of that kind, tho' it has a different name, because of its size, which is smaller.

### S E C T. III.

The Narhval, *Unicornu Marinum*, the Unicorn Fish, is, like the former, of the Whale kind; but, as far as I have been able to learn, this species is seldom found on the coast of Norway: farther up the North sea, particularly along the Greenland coast, it is not uncommon. The anonymous author of a letter concerning the Whale-fishery, prefix'd to the Danish translation of Peirere's Account of Iceland, describes this Fish in these words: "The Narwhel's body is of the bigness of a large horse †; it has four

\* Beside the Porpessè, there is another of the Whale kind, called Dolphin; and also a small Fish of a very different kind.

† It must have been a young one; for according to the various accounts that are to be read in Willoughby's Hist. Pisc. Append. p. 12. others have seen them 43 or 44 feet long.

fins, and a whitish skin, with black spots: this is thick, and fit to cover trunks and portmanteaus. What distinguishes the Nor-whal from other species, is a long and pointed horn, of ten feet or more in length, projecting from his head, with which he wounds other Fish." He adds, that he has seen them, though they are scarce, and difficult to be taken. I had two of these horns in my cabinet, but made presents of them to my friends, who are admirers of natural curiosities. These were very much valued when they were thought to be the horn of an imaginary land-animal, called the Unicorn; but that mistake has since been cleared up, by the discovery of this Fish, and the former is only considered as a chimera; tho', on the contrary, one might presume that there is such a creature, from the analogy between land and sea animals. "Nuperis annis ex Groenlandia navibus suis onustis, amplissimus Vir Henricus Muller, Quæstor Regius & Confiliarius, accepit copiam dentium balenæ quam Narhval vocant, seu unicornua borealia, multa & grandia, quorum aliqua trium ulnarum longitudinem æquabant," says Th. Bartholin. in Actis Med. Anno 1673, Obs. 31. He has also written a particular account of it; and, cap. xv. discovers the fraud which the traders formerly practised, by pretending that this Whale's horn was the horn of a land-animal.

The many large horns which were brought from Greenland at that time, he says, were used as materials towards compleating the magnificent throne, which is now to be seen in the castle of Rosenbergh at Copenhagen. This author, as well as Ol. Wormius, Schonveldius, and Jacobæus, ascribes a medicinal virtue to this horn, tho' not so great as imagined by some others; for at one time it was esteemed to be almost as valuable as Gold. See the latter part of p. 14 of that author's *Mus Regium* \*.

Nebbe-fild.

The *Nebbe-fild*, the Needle-fish, is also called *Siil*, and *Acus Mariæ*, Mary's Needle, probably from its long and narrow shape; for I have seen some eighteen inches long, and their bodies not thicker than a large quill. Their tail, which is almost half their length, is as small as a straw, and at the end it tapers away to a mere thread. The head, like the rest of the body, is not round, but angular, and the mouth is like the beak of a fowl, though at the extremity it is raised a little, so as to make a flat blunt snout. They breed and are commonly found in the wet sand, on the edges of the shore, and not absolutely in the water. They are generally dug up with a spade, and made use of as a bait to catch other Fish, but otherwise are not regarded in these parts. In

\* This, tho' called a horn, is truly a tooth of this Fish, of a singular structure.

the

the Mediterranean, according to Gesner's account, p. 9, they pickle and eat them, accounting them very delicate for the table; and in Nordland they eat them broil'd.

The Negen Ogen, the Lamprey, otherwise called the Steen-sue, or Stone-sucker, is taken, according to Undalini's account, in Store Mios, and other fresh waters, particularly in the rivers of Mandal and Undal, where they are found as thick as a man's wrist, though but two feet long; but it is not look'd upon here (as in foreign countries) as a well-tasted, or even as an eatable Fish. "Muræna ob venenosam qualitatem non immerito suspecta, quin & mandentibus (ut recte Aldrovandus) suis aristas plurimum fastidii parit;" says Willoughby, p. 104. They are often seen to jump against the stream like a Salmon, in order to get up the rivers, and with their sharp teeth they will lay hold of the rock: hence this Fish has its Norwegian name, viz. Steen-sue.

The Orte, or Oret, the Salmon-trout, *Trutta Taurina*, is caught both in fresh and salt water, like the Salmon, and is of the same genus: it is much like the small Salmon, which we call here Tart, excepting that the head is thicker and shorter, and the body, near the tail, is broader, and of a dark colour; but it is neither so fat, or well-tasted. It is caught in nets, and generally where the rivers empty themselves into the sea\*.

It is a very common Fish in the fresh lakes and rivers, but many of them are subject to a sort of disease, so that they cannot be eaten. In that case their head grows very large, and the body is emaciated; and in their intrails there are found pimples, resembling millet-seeds. This distemper is ascribed here to the saw-dust that falls into the rivers, on which there are mills for sawing timber. Others are of opinion that the roe, which is very large in proportion to their size, is corrupted, for want of being ejected in proper time, and occasions this distemper: but I cannot comprehend what should prevent them from doing it, unless it be the want of a convenient place, according to their

\* It is surprizing, that on the top of the rock Varne-set, and many other high places in Haranger, they catch this Fish in small stagnant waters, or ponds, which, by their high situation, do not seem to have any communication with any other ponds or rivers. Can it be supposed that those Fish have been there since the flood, or that birds of prey have carried this spawn, or young fry, up there? Or is it possible that the fog, mentioned in chap. i. carried them up, and dropped them in those ponds; as the heavy clouds are said to take up Herrings out of the sea, and to drop them on the rocks in Faroe? If not, then one must imagine that those waters, in such a high station, by means of subterranean passages, have communication with other waters, as it is to be concluded that the fresh water lake, Lille-mios, in Valders, has a communication with the ocean, because they find Cod in it. Herman Rugge, minister of Slire, observes, the higher those ponds are in the rocks, the larger and fatter are the Fish they contain.

natural method of dropping it: this seems, indeed, confirmed to be the cause by the observations of several persons; for they are frequently seen to dig, with the motion of their tail, several holes in sand or clay under a rock, where they eject their roe in common, and then roll a stone upon it to preserve it.

The same is said of some others of this genus, particularly of the River-Trout. “*Truttæ fluviatiles circa festa natalitia turmatim congregantur. Scrobes caudis excavant, seque octodecim circiter in unum collocantes, inibi foeticant, supra foeturam lapides advolvunt.*” Aloys. Com. Marfili Danub. Panon. Tom. iv. p. 78. Amongst Salmon-Trout are a certain sort of Fish called here Roer; they have this name, because they differ from the others in the colour of their fins, which are of a more lively red. They are reckoned wholesomer than the Salmon-Trout, and, it is said, are not subject to the distemper above mentioned.

Piir.

The Piir, the Trachurus, or Horse-Mackarel, is, in appearance, a small Mackarel, and it must either be the young, or a particular sort of the same tribe; but which I cannot determine. It is much less and leaner than the common Mackarel; and, without doubt, it is the Fish which Willoughby, after Aldrovandus and Bellonius, has called the Trachurus. His account of it is this: “*Scombros colore, figura & sapore refert, ut recte Bellonius, unde & Maquereau bastard, i. e. Scombrus spurius Gallis dicitur. Verum minor est quam scomber, corpore minus spisso rotundoque & paululum compresso.*” Lib. iv. cap. 12. p. 290.

puur.

The Puur, the Dove, a small fresh-water Fish: I have never seen it in the rivers near Bergen; but it is found in those of Nordland. It looks almost like a Herring, and is very well tasted.

Quabbe.

Quabbe. See Aale-Quabbe.

Queite.

Queite. See Helle-flynder.

## S E C T. IV.

Raate.

The Raate, or, as it may be called, the Sea-Karudse, as also the Berggylten, the Sea-Carp; for betwixt the Karudsen, particularly the flat and light brown kind, and the Raate, in size, shape, scales, and every thing, there appears outwardly very little difference, but in the taste there is a great deal; for the flesh of this is a great deal coarser, tho' it does not want for fat. Indeed if one takes particular notice they may be distinguished; for, as the Hyssen differs from the Whiting, by two black spots on the back part of the neck, so has this Fish a black spot on each side of the tail.

The



The Rage-Kniv, Novacula, the Razor-fish. This is a new <sup>Rage-Kniv.</sup> name, hitherto not known; but, according to the privilege that all natural historians take to give names to things that till then had none, I will venture to give a name to a kind of Fish but seldom found here, which, according to the figure, appears to be something like the blade of a razor, and hardly a span long: it has a thin and flat body; the back, from the head down to the tail, which is very small, is full of sharp fins or prickles. There are others under the belly also, but much fewer; and two small ones under the head, which in this Fish seems pretty broad, tho' but small in proportion to the mouth and eyes, which are large. I have never seen any of them fresh, and my correspondents in the fishing parts of Norway entirely omit them; I cannot, therefore, give any certain account of their colour, or whether they have scales, for I do not perceive any on the dry'd sample that I have before me: however, the scales may be dried in so as not to be distinguished from the skin. If this Fish has scales, then, in my opinion, it is the same as Rondelet, p. 741, calls, after Pliny's authority, Novacula, or the Razor-fish. As these agree in almost every particular, I have taken the liberty to name our Norwegian Fish after those that are known in the Mediterranean. They are found there in great numbers, and are reckon'd both wholesome and well tasted.

The Rod-Fisk, called also Cluer, is a middle-sized Fish, and a <sup>Rod-Fisk.</sup> native of the ocean: in appearance 'tis much like a Carp, but it has large scales, and those of a very deep red colour: the eye is remarkably large, and near the fins, both on the back and the belly, there are some large and sharp pointed bones. The flesh of this is hard and pretty fat. It is caught with a hook and line in deep water at all seasons of the year.

The Rogn-Kal\* and Rogn-Kexe are the male and female of <sup>Rogn-Kal.</sup> the same kind; the Square-fish, or Ostracion. This is a remarkable salt-water Fish: 'tis seldom much above a foot long, but very broad, thick and clumsy. What is properly the body of this Fish is small; all the rest consists of a thick shell of a cartilaginous or gristly nature, which makes it appear shrivelled and rough. This shell, or cartilage, is covered with a reddish skin. There are several round bony knobs, disposed longitudinally in three rows, on the outside of it. The head is, like the body, thick and clumsy; the mouth has a sort of a ring

\* Bellonius, Aldrovandus, Wormius, Clusius, and others, call this Fish Ostracion, but don't seem to have any right knowledge of it.

on each side, and looks like a crescent. The tail is quite even at the end, and resembles a birch broom cut transversely: along the back runs a small undulated ridge, and under the belly is a piece of soft spongy excrescence, with which it sticks fast to the rocks like a snail; and it requires some strength to get it loose. The female, or Rogn-Rexe, is something larger than the Rogn-Kalen, or male, and of a blue colour. They eject their spawn in large quantities about Whitsuntide: hence the Fish has its Norwegian name. The fatter it is the more it approaches to a red colour, being otherwise greenish. The body, as I observed before, is but small, and, as I am informed, very delicate food, for I have never tasted it. The Otter is very fond of this Fish, and it often falls a prey to him. As the Rogn-Kallen never bites at any bait, and loves deep water, it is seldom caught but by accident in the Cod or Salmon nets. When they are seen swimming near the surface of the water the fishermen often give them a blow on the neck with their oar, and so take them; but they are only used as a bait for other Fish, particularly the Turbot, who is very eager after them.

Rokke.

Rokke, Rokke-fisk, the Thornback, *Raia Clavata*, in Norway called Skate. 'Tis a Sea-fish of an extraordinary shape, and not unknown in Denmark, tho' it seems to differ a little from ours\*; for there are various sorts, all which, or most of them, are described by Willoughby, Lib. iii. c. vii. p. 68, & sequ. The Norwegian Skate in body is, like a large Flounder, quite flat, with a sharp head: it is white under the belly, and of a darkish brown on the back; and has prickles and small circles on the skin. There are several broad fins projecting out on each side of this Fish, like wings, larger than its whole body. But what is most remarkable, is a roundish tail, of about two foot long, full of angular knobs. The mouth is not placed, as in other Fishes, in the head, but underneath, something like that of the Shark; besides, it has this in common with that Fish, namely, that it has no bones, but is of the cartilaginous kind. It has pretty large eggs, from which its young are produced at a proper time. The liver is large and fat, and yields a good deal of train oil, which is the chief thing the fishermen catch it for: it is seldom eaten here, tho' some people first dry, and then export them. They are generally caught with a hook and line.

\* Earum aliæ sunt læves, aliæ asperæ. Lævium aliæ stellatæ, aliæ non. Asperarum aliæ magis aliæ minus tales. Magnitudine inter se differunt. Bicubitales aliquando vidit Salvianus. Gasp. Schott. *Phyf. curiosa*, Lib. x. c. 40.

## S E C T. V.

Sælhund. See Kobbe.

Sælhund.

The Sey, which we in Denmark call Graafey, is very like the Lyr before described: the head is rather more pointed, and the body smaller; and 'tis also covered with fine scales. The flesh is coarser than the Cod's, and is not eaten, except by the peasants and servants. While they are young they are called Mort, and are seen playing about the water in prodigious numbers, where they serve for the food and nourishment of other Fish. When they are somewhat older they are called Pale, and are tolerably well tasted: as they grow still larger we give them the name of Sey-Ofs; and lastly, when they are full grown we call them Summer-Sey. Then they come in with the Summer Herrings, and pursue them along with the Whale, and other Fish of prey. These last have not a greater enemy and persecutor than the Summer-Sey. They also are harrassed and pursued by the Whale; but when he cannot get any farther because of the shallows, these smaller devourers continue the pursuit, and drive the Herrings before them into the creeks and inlets, and that with such violence, that they frequently run themselves ashore. In Sundmoer they are often taken up in pails as fast as the people can put them in; and there are often such shoals of them that they incommode one another. What is most extraordinary is, that sometimes this shoal is seen in the middle of the water, crowded so close together, that they lift one another above the surface; and one man may, in the space of an hour, take up 60 or 70 of them with a pole, to the end of which a strong fishing-hook is fastened. They catch them also with angling-rods and lines, and nets; and this last way they will sometimes take 200 casks of them at a draught.

Sey.

The Siik, the *Albula nobilis*, is a small fresh-water Fish, well tasted: it is generally found with the Salmon-Trout, and is reckoned a better Fish; but there is no great resemblance between them, tho' they usually breed in the same lakes.

Siik.

The Sild, the Herring, *Harengus*, a Fish every where known, and from our seas sent almost all over Europe: it would therefore be superfluous to detain the reader with a particular description of it; a very full one may be read in *Schonveldii Ichtyolog. Neucrantzii, Opusc. de Harange, & Willoughby's Hist. Pisc.* This last author calls the Herring *Rex Piscium*, the King of Fishes; which appellation may be taken in this sense; viz. that of all Fish there is none so profitable to us Europeans; for in the Netherlands

lands

lands they reckon above 150,000 people, whose sole livelihood is the catching, pickling, and trafficking with Herrings. Here in Norway also, and especially in the diocese of Bergen, and mayor of Nordland; there are many thousands of families that maintain themselves chiefly by Cod and Herring-fisheries. The Herrings alone bring in annually several thousand pounds to Bergen, Trondheim, Stavanger, and Lille-fossen, which is now called Christianfund. The Herring like the Salmon, is not to be taken by any <sup>Food.</sup> kind of bait, nor is there ever found any food in its stomach on opening it. Hence it has been generally supposed that they live upon water alone \*; and we see, that out of their element they cannot live many minutes, scarce any Fish dies so quietly; which is supposed to be owing to this, that their gills are very large in proportion, and so open, that the air immediately rushes in, and stifles them. Their flesh is reckoned wholesomest when pickled, and, according to Nicol. Tulpius's *Observ. Medic.* p. 135, it refreshes the stomach, and promotes digestion †. The Herrings, like the Mackrel, assemble together, and follow one another in vast shoals; and it is said they have always a leader of their own species, which is eighteen inches long, and proportionably broad. This is related by Martin, in his *Description of the Western Islands of Scotland*, p. 143. It is said also, that the fishermen call this Fish the King of the Herrings, and never touch him, reckoning it little less than treason to destroy a Fish that has that title; but this is rather a superstition, or a fear that their fishery will suffer by it for the future, than a spirit of loyalty; for the common people here are full of these superstitions, and observe them a great deal more than the word of God. I have just observed that the Herrings follow one another, and flock together in great multitudes; from whence some are of opinion that the German name Hering is derived; but no body can form any idea of the largeness and extent of these prodigious shoals, but our Norwegian fishermen; and even what they see is but a small part of them §.

\* I begin to be in doubt of this matter, since one of my correspondents has observed that the small Autumn Herrings have bit at a bait on a hook fastened to a horse-hair.

† The Emperor Charles the Vth, who was a great admirer of a pickled Herring, when he came to Biervliet in the Netherlands, in the year 1556, paid a visit to the tomb of William Bukholds, to return him thanks for his discovery and instructions in the method of pickling Herrings, printed in the year 1386, *Gottfr. Chronic.* Part 6, p. 635. This monarch's Spanish subjects did not acquire so much wealth from the American Gold mines, as his Netherland subjects by the Herring fishery. See *London Magazine* for June 1752, p. 276.

§ See *Atlas Commercial. & Maritim.* printed at London in 1728.

If infinity were applicable to any thing created, one might venture to make use of that word with regard to the Herrings; for each of them has more than ten thousand grains or eggs in its roe.

The numberless swarms of these, as well as of Cod, &c. that come forth annually from the deep, and from their shelter under the great flakes of ice at the north pole, divide themselves, according to Anderson's observations, in his Description of Iceland, p. 57, & seq. into three bodies; one part directing their course Southward, towards the British islands; another part Westward, towards Newfoundland, and other places in North America; and a third part to the left, along the coast of Norway, and afterwards through the Sound into the Baltic. In Oresund they were seen formerly in greater abundance than they are now, though the Danish coasts, especially above Aalborg, are still happily supply'd with them; for which we should praise the bountiful Creator. However, these divided and extensive shoals of Herrings bear no proportion to the innumerable multitudes that swarm near the North pole about the middle of the Winter. Our shoals of Herrings and Cod touch upon the Western coast of Norway, principally Nordland, and afterwards on Christiansfund, in the diocese of Tronheim; and from thence quite through the diocese of Bergen, to the island of Karmen, near Stavanger. They come up to the shore, according to the Creator's directions, and are pursued and driven thither in inconceivable numbers, by their enemies the Fish of prey. These are principally (as I observed before) the Sharks, the smaller of the Whale-kind, and that sort among large ones, which is called the Herring-whale. This monstrous Fish, like the chief tyrant, continually drives the large shoals of Herrings and Cod before him; and when, on account of his enormous size, he dares not venture himself further in between the outer islands and the rocks, he still remains a month or six weeks on the watch, near the great sand-bank above-mentioned.

Annual peregrination.

Instigated to seek the shore by God's providence.

This extraordinary sand-bank runs parallel to the shore for about sixty Norwegian, and above three hundred English miles. In the mean time, it seems as if the Whale had resigned his command to the smaller Fish of prey, and those at last to the Cod, and some others; which, while they themselves are pursued in turn, never cease pursuing the Herrings, which are a prey to every thing. How violently these poor creatures are harass'd, and driven along the shore, and in the inlets and creeks, may be concluded from this; that the water, though quite still before, curls up in waves, where they come. They crowd together in such numbers, that

they may be taken up by pails full, and people even pick them up with their hands.

A hill of Herrings (so they call a large shoal of them) according to all the fishermen's accounts, reaches from the bottom to the surface of the water, which, in the most places thereabouts, is an hundred or two hundred fathoms deep. They extend also to a considerable circumference. Were they all to be caught, the greatest part would be lost; for it would be impossible to get hands, tubs, salt, and other necessaries for the curing of them. Several hundred ship-loads are sent every year from Bergen alone, to foreign parts, beside the great quantity that is consumed at home by the peasants, who make them their daily provision; tho' they do but half salt them: these are called four Herrings, which just suit their palate\*. To all this I may add, the incredible number that is used by way of bait for other Fish; for Herrings are a bait that almost all Fish are fond of: half a Herring is usually hung to each hook at a time.

Various ways  
of catching.

I shall now give some account of the various ways of catching Herrings in the several seasons of the year, and the difference observed between those Herrings that are caught at those several times. The first and largest, but not the fattest, are those that generally appear on the coast of Norway, from Christmas to Candlemas †. These are called *Stor-fild*, i. e. large Herrings, and by other names expressing their excellence. These pitch upon some particular shallows near the shore, which are called *Stiev*,

\* Though the Herring-fishery has this year, 1752, not been near so great as usual, yet in these nine months, from January 1, to October 16, there have been exported from Bergen eleven thousand and thirteen lafts; and by the end of the year there will be a great many more.

† A little after Twelfth-day the common people begin to look out for the Whale from the high cliffs, which prognosticates the arrival of the Herrings. They calculate the time by an old proverb:

\* Sidst i Torre og forst i Gio  
Skal Sild og Hval være i fio.

In English:

The latter end of Torre, or beginning of Gio,  
The Whale and the Herring must be in the sea.

This period, according to the common opinion, depends upon the change of the moon: for the first new moon after Christmas is called *Torre*, and the next is called *Gio*: therefore they generally observe the Christmas moon. The Spring Whales make their appearance first, in great numbers, and are seen ten or fourteen, and sometimes only three or four days before the great Whales, of which they are look'd upon as the harbingers or fore-runners. These Spring Whales range themselves in a line, and run over all the fish-grounds, as if they were intent upon driving away other small Fishes, that the coast may be clear for the Herrings to discharge their spawn at the proper season.

where

where the females every year eject their roe, and the males their milt. If the weather happens to be very stormy, and the sea so boisterous, that they cannot be quiet on those grounds, they are forc'd to discharge their roe out in the main sea; where they are obliged to struggle both against the ocean, and their enemy the Whale, who is not a little incommoded by the swelling surges. Nor is the loss of the Herrings the only one the country experiences at these times, for it is likewise deprived of great quantities of Cod, and other valuable Fish, that otherwise would come in to prey upon the spawn of the Herrings; but as that is not to be found there, they keep away.

In the mean time the country people assemble together upon the shore by thousands, while a great number put off several miles to sea, or between the islands and rocks, and in fishing places that are nearest to their habitations. At this season one may often see, in the compass of a mile, upwards of 2 or 300 fishing-boats lying on their station for a whole month or longer, and casting their large nets, which are 60 or 70 feet long. They generally put two of these nets together; and tho' there are a great many, perhaps 100 or 150 in one place, and pretty close together, yet, in a few hours, they will be so loaded with Herrings, that they sometimes sink to the bottom, and are very difficult to be drawn up again. In each net they will often catch 4 or 5000 large Herrings, which hang fast by their gills in the meshes of the net. Towards the Spring, or in Lent, there comes a smaller sort, which our people call *Straale-Sild*, and *Gaate-Sild*: they are likewise caught the same way in those large spread nets, which for this use are made with smaller meshes; or they are caught with the cast-net, which is what they commonly use in Denmark. This is not fixed like the other, but thrown in, and dragg'd out generally full of Fish; for these smaller Herrings come very near the shore, and allure some of the larger sorts before mentioned along with them, which would not venture in were it not for their company. It happens sometimes that the fisherman takes a sufficient quantity at one single cast; and it is not rare, that he catches several hundred casks, and even more than he can dispose of. This fact I am going to relate is surprizing, and what foreigners will hardly believe; but I myself am very well assured of it, and the whole city of Bergen can witness the same; namely, that with one cast of the net here in *Sundifiord*, there were caught as many Herrings as filled 100 (some say 150) jaggars, each jagger of 100 ton burthen, which makes 10,000 ton taken at one draught.

When

When the Summer is pretty far advanced, or towards the Autumn, another sort, called Summer Herrings, are chased to the shore by the Sturgeons and small Whales. These again differ, and are divided into two sorts, one of which is called *Bonde-Gods*, or peasants goods; the others, which are large and fat, we reckon merchants goods, and are cur'd for exportation. When these last are directly pickled down, (and not kept a whole day first, which sometimes happens on account of the great numbers that are taken, and then put up in oaken barrels, for fir gives them a taste,) they are as good in every respect as the Dutch, which are sold by the name of *Flemish Herrings*; for these, notwithstanding the name, are caught on the coast of Scotland, just opposite to us, and are, without doubt, the same breed. In the manor of Nordland they catch these fat Summer Herrings at Michaelmas, and, after the Dutch manner, in the night, with a kind of drag-net, which they carry betwixt two boats, and row gently along, about the openings into the sea, and in the water that runs between the out islands and cliffs. Many hundred boats are employed there; and when the Herrings they take there are instantly pickled so soon as they are taken out of the net, they are inferior to none for fat and flavour\*. If we were to use those drag-nets here in the diocese of Bergen, (which some people seem inclinable to do) it would, without doubt, be very advantageous: we should get a great number of Herrings that otherwise go away, particularly in those years when the Summer Herrings only swim about the coast, and are too shy to come near it. This happened the very last Summer, when great shoals were seen, and went away unmolested. Our fishermen think it more adviseable to stay till the Fish go into some narrow creek, where they can but barely turn; they watch this opportunity, and then shut up a whole shoal, or at least a great part of it, in this creek, and there keep them prisoners till they can take them by degrees, and so pickle them down; but the last that are taken are generally emaciated and spoiled. It is the best way to keep these Herrings shut up in the creek for a day or two before they are caught, that the *Roe-Aat*, a small and red worm, (that has been mentioned in the chapter of Insects) which is found in their bellies at this time of the year, and makes them rot very soon, should be digested and carried off. But they are often, on account of their vast numbers, kept thus shut up a fortnight or three weeks together; and, by this confine-

\* These Nordland Herrings are often so fat, that when they are put into warm sauce, they will dissolve away like an Anchovy, and leave nothing but the bones.



ment, many of them are quite emaciated, and others die and putrify, filling the creek with such a stench, that the Herrings avoid the place which was their haunt, for two or three years to come. An instance of this kind happened in the year 1748, in Swanoe Sogn, where the fishermen had shut up an incredible number of Spring Herrings, which a citizen of Bergen bought of them for 100 Rix-dollars and a cask of Brandy. They say he loaded 80 jiggers with them, and left, perhaps, as many behind, to putrify on the sand.

Numberless  
Multitudes.

Of the Summer Herring kind are those which have been spoke of before by the name of Briflinger, or Anchovies, which differ only in the sharpness of their belly; and, according to the opinion of many, are but the young fry of the common Herrings, which have not attained their full growth. Others, and perhaps with better foundation, reckon them a different species, which never grow larger. There is also brought to Bergen, about the beginning of December, before we have the large Herrings, that come to the coast about the middle of January, as I observed above, a middle-fiz'd and pretty good sort, which we call Soel-hoved Herrings, and likewise a particular sort of Cod which is called by the same name, the etymology of which I am unacquainted with. From this account we may see, that the reason why the Herring (as has been said before) is called the King of Fishes, is, because they are of all Fish the most serviceable to mankind, and are found in the greatest abundance; and not on account of the homage paid them by other Fish. On the contrary, they are devoured by almost all other kinds, and harrassed by all the sea-birds; not to mention the numbers that serve for food for the human species, which, perhaps, do not exceed the half of what is destroyed. Notwithstanding all this, the Herring kind is neither extinct, nor visibly diminished, when we take into the account what is contained in the sea in general: in this appears the providence of the Almighty Being, by whom all things exist, and are continually preserved according to his wise decrees. In this light the Herrings fate seems to be similar to that of the Israelites; of whom it is observed, that not only formerly in Egypt, but at this present time in every part of the world, the more they are crushed and oppressed, the more they multiply and encrease.

Blaa. or small  
Herrings.

The Skalle, the Alburnus, is a fresh-water Fish, well known in Denmark. It has large scales, from whence it probably has its name. It is generally caught in the lakes in Romerige,

Hedemarken, and other places; but it does not bear any great price.

Soc. Kat.

The Soe-Kat, the Sea-Cat, or Gattorugive of the Mediterranean, found in Nordland, but not frequent, is a Fish unknown to most of my correspondents. It is about two feet long; the head is quite round; the eyes are large; the belly thick, but tapering towards the tail, which ends in three points. Near the gills it has broad fins on the back; of an unequal size, and two small ones under the mouth. The nose has two long gristly flips, like whiskers, from which, perhaps, the Fish takes its name. The skin is brown and smooth, like an Eel's. The best part of this Fish is the liver, from which is extracted an oil, reckoned an incomparable liniment for the eyes.

Solv-Fisk.

The Solv-Fisk, a name by which I shall call a small Sea-fish found in Bergens-fund, of which nobody could tell me any other name. It is about a finger and a half long, hardly half a finger thick, roundish, and without any great difference between the tail and the fore-part, but with a little kind of beak at the head. The skin has no scales, and is all over white, and shining like polished silver. Concerning the internal parts of this Fish I can say nothing, because I have only seen it dry, with the entrails taken out. Mr. Willoughby, Lib. iv. p. 210, speaks of a description that was given him of a small Fish, of much the same colour and shape, called *Ætherina*; and p. 229 of another, which (as this is named by some) he calls *Argentina*. Of this Fish the jewellers at Rome are said to make false pearls. Whether either of these be the same with our Solv-Fisk I cannot say. "Exterius pulchre velut argento politissimo obductus resplendet. Hujus usus est gemmariis ad margaritas artificiales efficiendas, quæ naturales & genuinas mentiuntur."

Spek-hugger.

The Spek-hugger, or Vahu, is in shape much like a Porpessè, and about four feet long. It has a sharp snout and very keen teeth; which, with its long projecting jaws, makes it somewhat resemble the Crocodile. This is a troublesome Fish to others: 'tis his principal pleasure to harass and plague the great Whales, which, on account of their large size, are least able to turn about, or defend themselves against these lesser creatures. Sometimes one may see half a score or more of these together, fall eagerly upon the Whale, and fasten on his sides: they will hang there an hour without loosing their hold, till they have each tore out a mouthful of flesh of a foot square. During this attack the Whale makes a dismal noise, and will sometimes jump up five or six feet above the surface of the water; at which time these Fish are seen

seen hanging about him. Sometimes they don't leave him till they have stript him to the bone; and then, without doubt, they destroy him. After this the fishermen find a deal of the Whale's flesh and fat floating on the water, which is a good prize to them; for the Spek-huggern does not eat the flesh, but only delights in plaguing the larger Fish. These destroyers are, however, themselves destroyed in their turn; for when they are observed to run into a narrow creek between the rocks, the fishermen then close up this place with a net, and so take them. Their fat is melted down for train oil, and their flesh is sometimes eaten, and is said to be tolerably well tasted.

Spring-hvale, the Spring-Whale. See Hvalfisk.

Spring-hvale.

### S E C T. VI.

Steenbider, the Stone-biter, *Lupus Piscis*, the Wolf-fish, so called, because 'tis said it can bite pebble-stones to pieces with its excessive sharp teeth. Against these the fishermen are obliged to be upon their guard; for when they once fasten upon a man, they never quit their hold till the bone cracks. Their length is about a foot and a half, or two feet; their skin is of a dark colour, and as smooth as that of an Eel, which they resemble in the hinder part, excepting that they are something broader, and have a sort of hanging fins along the back. The head, which is thick and round, has an odd appearance, and is not unlike that of a cat, with two rows of teeth, in the upper and lower jaw. The flesh of it is hard, but fat; and is much esteemed by the common people. It is caught with a line, and often stuck with a Salmon-spear, when it is seen through clear water, on the sandy bottom, where they continually harrafs and devour the Lobsters.

The Steen-Brofmer, also called Tangsperling, because it lives generally amongst weeds, and, perhaps feeds upon them, is long and narrow like an Eel, but the head is almost like that of a Pike, and is speckled with dark spots. The back, as well as the belly, has several broad and strong fins running the whole length of it. They are mostly found in Nordland, and are there look'd upon as an eatable Fish. In taste they are much like the Lamprey. The roe is the most esteem'd part. This is, indeed, well tasted, and fat in appearance, and seems to be the same Fish which the Dutch call Sandkroeper. By some authors it is reckoned a kind of Torpedo.

The Steen-Ulk, *Rana Piscatrix*, the Frog-fish, by the English and the Sicilians called the Sea-Devil, because of its frightful shape

shape and its fierceness. Some writers describe this Fish a foot long. In this country they are seen, tho' seldom, about six feet long; and this is their natural size. The sample I have is much larger, being full seven feet, and perhaps it is shrunk a good deal in drying. The bones of it are rather gristly than hard; the colour is white underneath and darkish above. The head is so large, that it makes above one half of the Fish: adjoining to it there is only a little narrow body, which terminates in a very sharp-pointed tail. It has several fins, the largest of which are the two under the head. Upon the bone of the snout there is an erect, long, narrow flip: the eyes are very large; and the jaws open very wide, and are set with many rows of strong teeth: the lower jaw is longer than the upper, and may be stretched quite open. When he does that we have opportunity to see the tongue, which is thick and broad, and has, on the upper part, a number of sharp teeth or points, like those in the jaws; so that no Fish can possibly bite more terribly than this. All round the under jaw-bone there hangs several flips, or false fins, of a gristly substance, about four inches long: these flips, before the Fish is dried, look like so many worms. These the Steen-Ulk makes use of to decoy other Fish with, when he wants to catch them. To this end he will get upon the edge of a rock, and open his jaws very wide: this vast mouth the other Fish, who are striving to get the supposed floating worms, take to be an opening or crack in the rock, so fall a prey to this Fish, and are devoured unawares. Gasp. Schottus, in his *Physica Curiosa*, Lib. x. c. xli. p. 1142, says of this voracious Fish-hunter, that the above mentioned long and narrow bone that stands upon the snout of it, and hangs into the water, serves also as a bait to decoy the Fish: this may possibly be, tho' I should rather think that the creature used it to strike small Fish with. This Fish eats every thing that comes in its way. L. C. he says, "*Cibus præter pisces etiam caro humana, si copia suppetat.*" Gesnerus refers *se audivisse, nantem aliquando virili membro apprehensum detraxisse in profundum.*" It is seldom caught, except by accidentally coming unawares into the net with other Fish. This Fish is found chiefly under the rocks, or among the weeds\*.

Stilling:

Stilling: See Hundstige.

\* P. S. There has been lately caught a *Rana Piscatrix*, without any thing in its stomach but Muscle-shells, and a pretty large stone. The Fish stood upon his defence against the Fishermen, who being near the shore, knock'd it on the head with the boat-hook.

The Storre, or Storje, Sturio, the Surgeon, is an excellent Fish for Storre. the table; it is ten or twelve feet in length, and very strong and voracious. We have here, beside the true Sturgeon, four different sorts of Fish, called by this name, with the addition of the names of those on which they feed, and of which they may be accounted the greatest enemies. Some are called Salmon-storjer, others Mackarel-storjer, others Herring-storjer, and again, others Sey-storjer\*. They come towards the shore about Midsummer, with the Summer-herrings, which they drive along at such a violent rate, that they will raise themselves above the surface of the water in the pursuit. They do not swim together in shoals, or extend in breadth, but follow one another in a strait line, laying hold of each other's tails. When a whole string of them is seen thus together, they are sometimes taken for the great Sea-snake, of which I shall treat hereafter.

The Sturgeon is sometimes caught in the Salmon-nets, or stuck with a harpoon, called here a skottel. The flesh of it is finely interlarded with fat, and a single Fish will fill two casks. They are pickled down, and the peasants reckon them a great delicacy: they likewise cut them into slices, and make what they call rekling of them. The Salmon-storjen is the fattest, and out of its head alone may be extracted sometimes a half cask of oil. This Storjer, which is a large Fish of prey, deserves the name *Accipenser* among the Fish, as well as the hawk does that of *Accipiter* among the birds. There is also caught here, tho' seldom, another sort of Fish of the same name, which is quite harmless; this is the true Sturgeon. It has no teeth in the jaws, and is observed to suck the slime at the bottom of the sea, which is their only nourishment. The Sturgeon fattens, like the Salmon, in rivers and fresh water. "*Sturio nunquam fere vel certe rarissime in præalto mari capitur. Maria eum gignunt, sed flumina maxime nobilitant. Pinguescit enim dulcium aquarum haustu. Dum escam quærit, more suis terram sub aquis rostro fodit, &c.*" *Willoughb. L. iv. c. 22, p. 240.* I have one of these sort of Stor, caught some time ago in Nordfiord, in my collection of the scarce Fish of this country: it is almost eight feet long, the head at first sight appears something like a Pike's, but instead of the mouth it has a kind of a snout, with several slips or beards hanging down under the head. The mouth is placed in the middle under-

\* *Sturio nomen Gothicum esse asserit Jul. Cæs. Scaliger, & ab ea gente in reliquam Europam translatum. Quod facile mihi persuasero. Stur vel Stoer magnum notat in nostra lingua, quocirca probabile est, ob magnitudinem suam hoc generali nomine appellatum quoque fuisse hunc piscem. Accipenser veterum esse videtur & galeus Rhodius Athenæi, Aufonio silurus, nobis Stoer. Ol. Worm. Mus. p. 273.*

neath, like that of the Shark, but is differently formed from the Shark's, for it is quite round, and about two or three inches diameter. The mouth is not armed with teeth, either for use or defence, as has been said before, for their food is only what they suck up at the oozy bottom of the water. As this Fish is thus unarmed, and incapable either of defending itself, or of hurting other Fish, the marks of Providence appear in its peculiar structure; for it has defensive weapons of an extraordinary size: these are thick and broad scales, or plates of bone, which cover almost all its body, and serve as it were for a coat of mail. These plates of bone, for so they may properly be called, are sixty-four in number, every one of which is as big as a crown-piece, but somewhat oval\*. They may be divided into five rows. The middle row is angular, and runs all along the back; their fins and tail are very much like those of the Shark. The gills are pretty wide, and guarded with very strong bones. In all this we may observe how wisely God has formed every creature to answer his purposes and designs.

God's providence.

Swærd-fisk.

The Swærd-fisk, or, more properly, the Saug-fisk, the Saw-fish, Pristis, or Serra Piscis: Thus Clusius Exot. L. vi. c. 9, calls it, because of its long and flat nose, or rather the flat horn, that it has on the upper part of the snout. This horn is set on both sides with small spines, or teeth, like those of a saw, from whence it has its name. The dry'd Saw-fish that is in my possession is about three feet six inches long, and about three fingers broad, but they grow much larger, this being but a young one; it has twenty-five teeth in each jaw, which are about a finger's breadth distant from each other.

This Fish is shaped almost like a Spring-whale, but has not such a sharp head, nor is it of the class of Whales, according to the opinion of the before-quoted author and others. On the contrary, he often attacks the Whale, and with his saw tears him under the belly, so that he makes a terrible roaring, and jumps up above the surface of the water, in order to escape from it. This Fish is but seldom seen in our seas. Its proper residence is about Spitzberg, Iceland, and Greenland. See more on this head in Martin's Spitzberg Travels, Cap. vi. No. 7. It is also frequently seen on the coast of Guinea in Africa; and in the General Collection of Voyages and Travels, Tom. v. p. 321, it is said, that

\* Ordines officulorum in cute 5. sunt, sed medius tantum ordo, qui 15. circiter officulis constat, angulosus est, cujus nimirum singula squama ephippium forma refert, per medium dorsum secundum totam longitudinem in processum tenuem & fecantem assurgens, posterius adunco sine terminata. Lateralia officula ut & ventralia rhomboidea & fere plana sunt, &c. C. Linnæus in Fauna Suec. p. 102.

out of a particular veneration for them, the inhabitants of that country never take them, unless it be by accident; and then the faw is held for a fetisso, or sacred relick, by the idolaters.

## S E C T. VII.

The Tart, or Pinke, is a small kind of Salmon, and differs <sup>Tart.</sup> but very little from the common kind, except it be in size; for it is not as big as the Salmon when full grown. It is therefore considered as a particular kind; though by some writers it is thought to be no other than a young Salmon.

Torsk, the Cod-fish, Morhua, five Afellus Major. This well-<sup>Torsk.</sup> known Fish, with the Herrings, affords the best part of their livelihood to the inhabitants of this kingdom. They are chiefly caught along the Western coast. They stay here all the year, and are taken in great quantities: but as we have more than one sort of Cod-fish, and the seasons and manner of catching them are different, according to their species, &c. I shall dwell a little upon the subject, and give a more full and exact description, as I have done with regard to the Herrings.

The large Cod is called here Skrey, and also the Spring Cod. These, in most years, come in great abundance to the shore in Winter, presently after the first Herrings, and are then fat and large. They come in to pick up the young fry of the Herrings, or the Spawn, just discharged on the shoals\*, and at that time they do not care to bite at the hook, but are caught in great numbers in those nets which they call setnings-garn. <sup>Way of catch-</sup> These are <sup>ing them.</sup> made of packthread, and work'd pretty large; each mesh is four inches square, and there are about 15 of these meshes in breadth; so that the net may be near a fathom wide, and full twenty fathoms in length. Of these kind of nets they use in bad weather about eighteen, but in fine weather twenty-four, to one large boat with six men: so that when the whole number is fix'd, they extend to a length of 480 fathoms, in about fifty or seventy fathoms water. They have buoys fixed to the nets, to shew where they are placed. About this coast we do not usually extend them to such a length, but are satisfied with sixty or a hundred fathoms. These nets in twenty-four hours will fill a good large boat with Fish. They go out in the afternoon, and set those nets, and early the next morning they take them in again; and they frequently find three, four, or five hundred large Cod in

\* When the Cod is expected, then our Sundmoer peasants look upon a violent storm, with a North-west wind, which they call Grundstod, to be the effectual means of driving them to the coast, and to promote their fishery; therefore, at that time, they pray to God for such storms as at other times they beg to be delivered from.

each net, When these Fish have been on the shallows a few weeks, and have devoured a good deal of the Herrings spawn, and discharged their own, they become more greedy, and begin to bite at the hook : this is baited with Herring or Cod's belly.

This kind of fishing lasts till about Easter, and then they leave the coast, and are quite lank and emaciated. Just before Easter these are succeeded by another kind, called Klubbe-Cod, or Kabiliau, which is much larger than the Spring Cod, and is remarkable for a great head, and a very short tail. These are firm, and then in season. They are caught with a hook and line. Towards Michaelmas there comes a third and smaller sort, called the Red Cod, from the colour of its skin. It is also called the Tarre Cod, because they are found among the weeds, which are called in our language Tarre. About December a fourth sort comes upon the coast, which we call Soelhoved-Torsk. This is of a yellowish grey, pretty large and firm, but it has a smaller head than the last mentioned. These, as well as the former, are caught, as we express it, partly with a small line, and partly with a strong one ; which words I shall here explain for the benefit of those who are unacquainted with the several methods of fishing. A fishing-line, or, as they call it here, a Linie-va, is a rope seven or eight hundred fathoms long, to which are fastened about 200 hooks, with a piece of Herring on each for a bait. This long line, with the hooks, is let down one hundred, and often 2 or 300 fathoms deep, and extended on the bottom of the sea. From this to the surface of the water is carried another line, and to this buoys are fix'd, to mark the place. When the Linie-va is drawn up, there is sometimes a Fish on every hook, Cod, Ling, Turbot, or others. The small line is, on the contrary, very fine, and hung out of a boat, in about seven or eight fathom water. As they are continually rowing about, there is a man constantly watching them, to pull up each line, as soon as the Fish is perceived to bite. By either of these ways a boat is often fill'd with Fish two or three times in twenty-four hours. In the manor of Nordland, above Tronheim, the fisheries are by much the most considerable, though the Sundmoer and Nordmoer fisheries have, for a few years of late, been as good. Formerly they used to catch Cod only with these two sorts of lines ; but, as I have already observed, the Spring Cod do not care to bite at the bait at first, because they are plump and fat, and are satisfied with the spawn of the Herrings, which they are extremely fond of. Upon this account they have, within these twenty or thirty years, begun to fish for Cod, as they do for  
Herrings,



Herrings, with those *fettnings-garn*, or *fett-nets*. This has occasioned several law-suits in the country, and at length a general controversy, which is as much sharper, as it is more important, than many of the trifling disputes which engage our learned writers. However, the fishermen and peasants are agreed in this point, namely, that it is the duty of an honest man to shut his eyes and ears against all new discoveries, and obstinately to insist upon it, that all things should remain as they were in the time of their fore-fathers; that method being apparently the best. They have represented at the courts of justice, and at their several meetings on this occasion, that nets fright the Cod away, and ought not to be tolerated, but considered as a pernicious innovation. These objections, on the other hand, are contradicted by experience, which is the best instructor; for it is undeniable, that since these nets have been used, there has been exported from this city, and, in all probability, from other parts of Norway, a much greater quantity of Fish than ever. The truth perhaps is, that nets, which are very beneficial to the public, may perhaps prejudice some few private people; I mean such as either will not, or are not able to furnish themselves with those expensive large ones above-mentioned. It is indeed a general, but very true observation, that the rich and wealthy have frequent opportunities of increasing their wealth, at the expence of the poorer sort of people. What enhances the price of nets is, that when the Winter proves stormy and tempestuous, it destroys the nets on these coasts, to the value of several thousand dollars; which is a very considerable loss to the owners.

I shall now give some account of the several methods of curing this Fish, and making it fit for exportation. They are either sold as salted Cod, *Titling*, *Roskiær*, *Rundfisk*, or *Klipfisk* \*. The first sort, namely Salt Cod, is thus prepared: after the head is cut off, and the entrails are taken out, it is put into a large tub, and strew'd over with French salt as it is put in: when it has lain about eight days it is taken up, and laid in heaps, for the pickle to run off; then it is packed up in casks, with Spanish or Portugal salt, the better to preserve it. *Titlinger* is the name of the least sort of Cod, which are only hung up on lines, and so

Various methods of curing them, and their exportation.

\* Under these various names of dry'd Cod, which in Denmark are all comprehended under one name, viz. *Rock-fish*, there has been exported from this city in the present year, 1752, during nine months, namely, from the first of January to the 16th of October, 317,804 nett-weight, each weight being 36 pounds, besides a great deal of pickled Cod in casks; from which may be seen the goodness of the Creator, and the immense wealth contained in the North sea. Great quantities of Cod are likewise exported from *Tronheim*, *Christiansfund*, and *Stavanger*; and for this purpose alone there is annually imported to *Bergen* 40,000 tons of Spanish and French salt.

dry'd. Roskiær Cød is slit up the back, and then dry'd. Rund-fisk, or Round-fish, is that which we commonly call Stock-fish: this is dry'd without flitting. The Klip-fish is slit like the Roskiær, and is dry'd by spreading it on the cliffs, from whence it has its name. The goodness of these several sorts depends chiefly upon the weather in which they are cur'd; for if it does not happen to be dry enough for the Fish to be thoroughly penetrated by the wind and cold, they are apt to look red, particularly near the bones. Hence the Nordland Round-fish is reckoned the best, because the cold being more intense there, penetrates them sooner than in other places. In the Baltic we sell most salt Cod, but at Hamburg, Bremen, and Amsterdam, the dry; from whence they are carried up the rivers all over Germany. Some are exported to Flanders and England, but not so many as to Italy, Spain, and other countries in the Mediterranean. As for the French, they trade themselves in this branch, since their fisheries in North America have been brought into a good condition. The Fish are so well cured there, that in most markets they give them the preference to ours: but our good Norwegians, who have been longer used to it, ought certainly to equal, if not excel them, in this particular; or, at least, they might follow their method. If this be too difficult a task, were they to send some people thither to learn the art, it would be very well worth while. To travel, in order to make improvements in trade and commerce, would be more laudable in our young men of fortune, than any other end they can propose to themselves in visiting foreign countries.

Cods roe.

Notwithstanding this, the French cannot do without the spawn of our Norway Cods, which they use by way of bait, to strew in the sea when they catch what they call Sardeller, a sort of Fish something like our Herrings. For that purpose several thousand casks of cods roe are salted down every year in Norway. Within these twenty years particularly, the demand has been so great in France, that we have exported thither annually fourteen or sixteen ship-loads of roes only, besides a small quantity which they carry in their own bottoms.

Train-oil of the liver.

From the liver of the cod there are extracted several thousand casks of good train-oil\*. Besides all this, we use the long air or swimming badder, which lies along the Cod's back-bone. This

\* Our peasants do not melt it down, but throw it into a vessel, and so let it dissolve of itself. The oil extracted from Cod only (not reckoning that from other fat Fish, as the Sælhunde, Springere, and Marfviin) exported from Bergen annually, amounts to 7000 casks, and sometimes more. We reckon generally that 200 Cods yield a cask of train-oil.

is dry'd, and sold by the name of Sunde-Maver. It is eaten by some people, and is reckoned to create an appetite, agreeable to its name.

The Tunge, the Saal, Solea, an agreeable Fish of the Flounder <sup>Tunge.</sup> kind, for which reason, not to repeat the description, I shall only observe, that the principal difference consists in its being better tasted, and having firmer flesh. Tungerne are in shape rather long than round, resembling the sole of the foot; and are caught here in many places, but not in any great number.

## S E C T. VIII.

Valrus, or Rosmul, and in our old Norwegian, Rostungus, <sup>Valrus.</sup> Rosmarus, the Wallrus, or Sea-Horse, is seen sometimes on this coast, but not so frequently as about Iceland or Spitsberg, where, according to Marten's Spitsberg Travels, chap. iv. they are found in incredible numbers, several thousands being often seen together\*. Their body and head are like those of a large cow: they have short hair on the skin like the Sea-Calf; but what is most remarkable, is their two large teeth, or tusks, which project out of their mouth, and are full 18 inches long: these are as good as ivory for any kind of turn'd work; and therefore this creature is called by some the Sea-Elephant. With these teeth it is said they bite, or occasionally fasten themselves to a rock while they sleep; and they use them also to dig in the sand for muscles, which are their principal food.

They are said to lift their heavy bodies upon the flakes of ice, and rocks, by the help of these teeth; where they are found like the Sea-Calves. The anonymous author, whose account of the Whale-fishery is prefixed to Peyrerii's Description of Iceland, relates, p. 114, what he says he had been an eye-witness of, namely, that where they are killing one of these creatures, several more of the same kind will come to their assistance; which they frequently do, and with their large teeth before-mentioned, make a violent attack on any thing that opposes them. Olig. Jacob. informs us, in his Mus. Reg. p. 15, that the Wallrus's fiercest battles are with the great White Bear; from which we may conclude, that, like amphibious creatures, they sometimes seek the dry land, or the mountains of ice that abound in those seas. Anderson, in his Description of Iceland, p. 222, says, that they

\* A quite different Sea-Horse some of our fishermen pretend they have seen sometimes, which has appeared to them to be 20 or 24 feet long, with the head, neck and mane, which it generally holds above the water, exactly like those of a real horse, and not to be distinguished, but by the size: its colour, they say, is as white as snow; but of this there is no confirmation.

have

have two breathing-holes in the forehead, and four short legs. A Nordland fisherman has assured me, of his own knowledge, that it is in vain to shoot at them with balls; for their hide is so thick, that a good sharp harpoon is the only thing that will pierce it. I have seen this creature dry'd at Leyden, in the gallery of the Physic Garden; but there it goes under the name of a Sea-Cow, which creature it more resembles than a horse, tho' there is a Sea-Cow different from this.

Vas Sild.

The Vas-Sild, or Vas-Herring, is, to appearance, much like the other Herring; except that the head is something shorter, and the eyes as well as the body a good deal larger. They bite at a hook and bait, but their flesh is not so good as the Herrings.

Ulk.

The Ulk, or Marulk, the Sea-Scorpion, called by the Ichthyologists Scorpius Marinus, because its bite is poisonous: this Rondelet asserts upon experience, with this addition, that he cured a child that was bitten by one of these creatures, by applying the liver of this Fish to the wound. Willoughby, Lib. iv. c. 38. after this author, distinguishes them into two kinds; namely, the small sort, which it is said does not weigh a pound; and the larger. The latter also differs in some other respects from the former, and is often four feet long: the head is bigger than the whole body, and is of a hideous aspect: the mouth is a foot wide, and therefore this Fish is by some called Wide-jaws; and with us they use their name, as a figurative description of a person who has a remarkably wide mouth. The body, which is reddish, is covered with small scales, much like a Snake's: a strong fin, with sharp points or prickles, runs along their back. The liver is the only part of this Fish that is used, which yields good train-oil. They are very voracious, and will destroy not only other Fish almost as big as themselves, but also many of the sea-birds, particularly the Gulls and Divers.

## CHAPTER VII.

Concerning exanguious Fish, or those without blood; which are either inclosed in a shell, or are naked and defenceless.

SECT. I. *Their general division.* SECT. II. *Of Oysters, Top-Oysters, and those with a large shell, long shell, or short shell.* SECT. III. *Muscles, Pearl-Muscles; and some account of the Pearl-fishery in Norway.* SECT. IV. *Cockles of various sorts.* SECT. V. *Igel-kier, and Sea Hedge-hog.* SECT. VI. *Lobsters, and their advantageous fishery in this country.* SECT. VII. *Craw-fish, Crabs, and Shrimps.* SECT. VIII. *Blek-sprute, various kind of Cross-fish, or Star-fish, Manæte, and Perle-Baand.*

## S E C T. I.

HITHERTO I have treated of such Sea-animals, caught about the coasts of Norway, as are properly called Fish; these have bones, or cartilaginous substance, and blood in them. I now come to certain kinds, which are very different, and by Aristotle, Lib. i. Hist. c. iv. and Lib. iv. cap i. are divided into four kinds of Animalia exanguia; namely, the Soft kind, the Crustaceous, the Testaceous, and the Insects. Pliny makes but three classes of them, when he says, Lib. ix. c. 28, "Piscium quidam sanguine carent, de quibus dicemus. Sunt autem tria genera. Imprimis quæ mollia appellantur, dein contacta crustis tenuibus, postremo testis conclusa duris." I shall adopt this last method of classing these kinds, only inverting the order with respect to their form and use.

First, therefore, I shall speak of the testaceous kind, or those that are confined in hard shells, in which they live as it were in a house; such are Oysters, Muscles and Cockles. I shall after these treat of the crustaceous kind, that is, those which are surrounded with a thin shell, that is shaped like, and justly adapted to, their bodies: of this sort are the Lobster, the Craw-fish, the Crab, the Shrimp, and the Sea Hedge-hog. In the third place I shall describe the naked, or soft and defenceless sort: such are the Scuttle-fish, various kinds of Star-fish, and other curious species, to be nam'd in their order. If these kinds were very numerous, I should treat of them alphabetically, as I have done in the preceding chapters, in describing other species: but as the difference in these is much more perceptible, and the bounds I have prescribed

PART II.

T t

myself

myself but narrow, I think it more eligible to follow the natural order. This I avoided in my Account of Birds and Fishes, for reasons assigned under their respective heads.

### S E C T. II.

Oysters.

Oysters, *Ostrea*: we have these, particularly on the western coast, both in quantity, size and flavour, superior to almost any others in Europe; but this species is very different from the common sort. Those of the ordinary shape and size may be arranged into three sorts, according to the ground where they are taken; namely, the Rock-Oysters, the Sand-Oysters, and the Clay-Oysters: these last are the worst sort, and not regarded when the two former are to be had; for the thick slimy bottom they live upon, gives them a kind of muddy taste. The Sand-Oysters are preferable to these; and are of the same kind with those, which they take on the sands at Tondern and Fladstrand, in Denmark. These are of a good flavour, and free from that muddy taste; but they are not so large and full as the third sort, namely, the Rock-Oysters, so called, because they stick to the rocks, under high-water mark. These, especially the larger sort of them, which the Dutch call *Groenbartjes*, or Greenbeards, are excellent: their shells are much thinner\*, but the Fish is twice as big as those taken at Tonder or Fladstrand. These are very fat, and have a good flavour, except it be in the four Summer months; during which time they are out of season with us, as in other countries where they are found. Our fishermen use a kind of wooden pincers to break them from the rocks, with which they take off one or two at a time.

Besides those that are eaten fresh in the country, great quantities are pickled, put up in barrels, and exported to many places in the Baltic. There are sometimes pretty large pearls found in them, but seldom of that purity or perfection as to have their full lustre. It is said the Crab and Star-fish often feed upon the Oyster; and that they use this stratagem to prevent their being pinched by the shell; for while it is open they throw in a stone, which hinders it from shutting close, and then the Oyster becomes an easy prey to them. They seem to exceed the wily fox in this

\* How thin and flat the Rock-Oysters are, we may know by their transparency when held against a candle. The Sand and Clay-Oysters have foul shells, three or four times as thick as the latter, and consequently take up a great deal more room in the casks. On the eastern coast they have Oysters of a monstrous size. In the king's Museum at Copenhagen there are two Oyster-shells, which were drawn up with a cable at Goa, each of which weighs 224 pounds; they are five feet in diameter, and the Fish was so large, that every one of the ship's crew had a considerable piece of it.

particular ; for that animal, notwithstanding all his cunning, often puts his paw, or even his tongue in the shell, and then the Oyster holds him fast ; so that he is sometimes drowned by the spring-tides. We have seen several instances of this on the coast of Norway.

The Stor-Skal, the Large-shell, or Stor-Skiæl, called also Large-shell. the Kierling-Ore, the Scallop, Pecten, is another kind of Oyster, twice as large as the common sort. The shell of this Fish is thin, white, and striated like the Cockle-shell. The upper shell is quite flat, the under one concave. They are not found in any great numbers, nor are they eaten here : the shell only is used to stew or scollop other Oysters in. These are also called Spanish Oysters, because the shells are used to beautify grottos, fountains and cascades, and are imported for that purpose from Spain, as also from Iceland ; where this sort is said to be more frequent, and more beautiful than ours.

The Top-Oysters, Patella, the Limper, are also called Top-Oysters. Half-Oysters, because they have only one shell ; this is round, convex and ribbed, and of a dusky colour : this alone covers them ; on the other side they stick fast to the rock. They are called also Elbow-shell, because they resemble the elbow when the arm is bent. They are not eaten here ; but the French sailors are very thankful for them, when they come to our ports. M. Tournefort calls them Yeux de Bouc, or Goats Eyes, and gives a full and anatomical description of the Fish contained within them, in his Voyage du Levant, P. i. p. 94, & sequ. This looks more like a Snail than an Oyster, and has a small head, and two horns or Tentacula ; but its shell seems to entitle it to a place in this class.

The Lang-Skiæl, the Long-shell, the Solen, or Razor-shell, Long-shell. consists of two shells of equal convexity, about six inches long, but hardly an inch broad. These shells are white within, and covered on the outside with a dark-coloured slimy substance, which often peels off when they are dry. The Fish is not eaten here, but only used for a bait \*. Gesnerus calls it Dactylus, and says the Fish keeps always one end of the shell open, in order to put out its head in quest of food.

There are found here beside these, two different sorts of Shell-fish, but smaller, which I rank among the Oyster-kind : these are not larger than a crown-piece, and some, much less. These two sorts differ not only in size, but in the shell ; for the ribs on the surface of the one run like the radii from the center, whereas they are so many concentric circles on that of the other. Both

\* The colour of the Fish is reddish ; they often leave the shells, tho' their bodies seem very delicate, and are sometimes seen swimming in the water without them.

forts, as far as I have been able to learn, go by the name of the Short-shell, and are used, as most of the former, only for baits on the fishing-hooks. The Scots eat them like Oysters. They are found commonly covered on clay-ground. The inside of these shells affords that fine chalky substance, which is reckoned a very good absorbent, and is also produced by the thick common Oyster-shells; but they must be first as it were calcined by the air. Their manner of breeding can only be conjectured by the small shells, not bigger than the scale of a Fish, which stick frequently to them; which seems to proceed from that part of the shell which the Oyster always keeps close, like a hinge.

Enquiry.

If we enquire how all the shells of these various kinds of Oysters grow, and widen with the enclosed Fish, tho' it is not, like the Lobsters thin crustaceous covering, as it were con-creted from the body of the Fish, but is evidently nourished from without, and enlarged from the sand and slime of the sea; if we make this enquiry, I say, we shall hardly find any satisfactory account of it hitherto given. Nothing yet proposed will supersede our enquiring after the something unknown, or the occult quality of our old Aristotelians, as they expressed themselves; for they, at least in the eyes of the world, would not appear to be entirely ignorant, but had something to say upon every subject.

The wisdom of God is most wonderfully displayed even in his minutest works; and our knowledge is but very imperfect, not only with regard to these, but of the greater works of creation, and their particular properties; tho' this is an age which would pretend to open all difficulties, like so many locks, with the master-key of demonstration\*.

## S E C T. III.

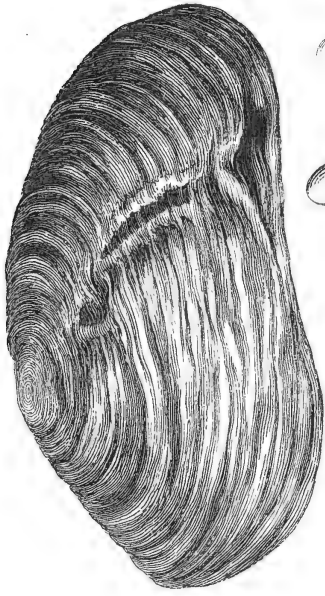
Muslinger.

Muslinger, or Cockles, *Pectunculi*, which we otherwise call, by way of eminence, the Shell-fish, are in plenty here as in other places, namely, the common sort, and those which are also called the Crow-shell, from the crow, who is very fond of them, and tries his skill by opening them in this manner: the bird picks the shell up in his bill, and flies up very high, and then drops it on the rocks, which breaks the shell to pieces. These are pickled, like Oysters, for exportation.

\* The curious Frid. Christ. Læsser, in his *Testaceo-Theologie*, P. I. L. i. c. iv. §. 116. advances something on this head; but at the same time owns that we cannot investigate the true cause of this wonderful production, nor of many other particulars in the works of nature.



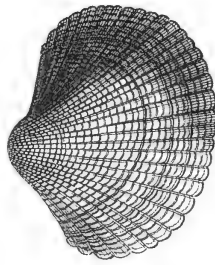




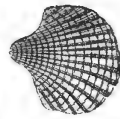
Fresh water Muscles



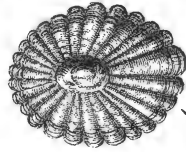
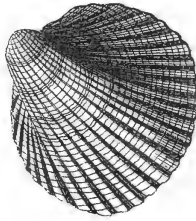
Pearls



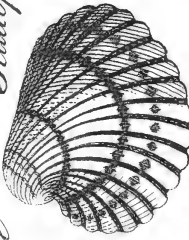
Cockles



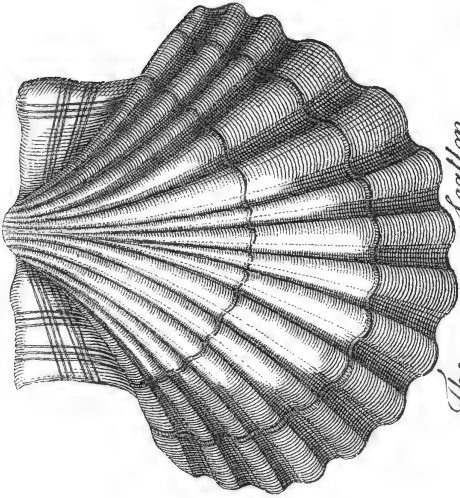
Small Limpet



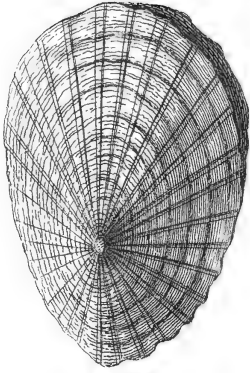
The Limpet



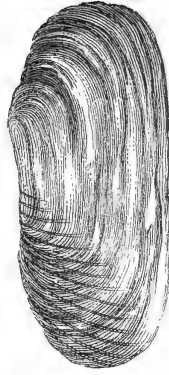
Cockle



The Scallop



Great Limpet



Smaller Muscle



Short Shell



The Razor Shell

The Oes-Skæl, or Muscle, differs a good deal from the former, Oes-Skæl. being of a larger size, and is not reckoned fit to be eaten; but they are only used, as some of the aforefaid Shell-fish of the Oyster kind, for baits. In these shells they sometimes find pearls, that are purer and more valuable than those taken out of the Oyster-shells: but our right Pearl-muscle is a third sort, and is found with us only in rivers and fresh water. These differ in shape from the Sea-muscles, the shell being almost round, and flatter and broader than that of the common Muscle. They resemble them in colour, the outside being black, and the inside of a bright pearly blue. In most parts of Norway, particularly the west side, there are rivers and brooks where these sort of Muscles are found. The right of the pearl-fishery belongs to the king, and is carried on at his Majesty's expence. In the diocese of Christianfand there are the following pearl-rivers, which are reckoned the best in Norway.

The river Gan,  
 river Nærims,  
 river Quaffims, } In the manor of Stavangers.

The river Lille, in Lyngdahl,  
 river Undals,  
 Roffelands, a little rivulet; and  
 some other small brooks. } In the manor of Lister  
 and Mandal.

The river Berge, and  
 Baafelands, a little brook, } In the manor of Nedenæs.

The genuine pearls, which are annually taken about Midsummer in these waters, are the property of her majesty the queen alone, as one of the regalia of the kingdom of Norway. There is a manager or intendant to preside over the pearl-fishery: the person who is entrusted with this office at present, is the honourable M. Paul Baumann, who, at my request, has been so obliging, as to communicate to me his observations on the Pearl-muscle, and its properties: I shall insert them in his own words, under the title of Some Observations concerning the Pearl-muscles, their Nature and Properties. "The form and shape of these Muscles are well known. As long as they are in the water the Fish is usually almost out of the shell, much like a snail, dragging its house behind him: but notwithstanding the shells are open while they continue in the water, yet they lie in such a manner, that one

cannot perceive the Fish; for it hides itself, and part of the shell, in the sand. If they are taken hastily out of the water, the Fish may be seen out of the shell; but when he finds himself out of his element, he retires slowly into it again, and then closes it. They are taken up with the hands, or with a sort of wooden pincers, and sometimes one may take them up by putting a twig into the shell while it is open; upon which they immediately close it, and hang so fast to the twig, that they may be easily drawn out of the water. If they do not hit upon the opening at once, the shell closes as soon as it is touched; and consequently this method then proves ineffectual. They cannot lie upon a hard or a rocky bottom, tho' they sometimes try to fix themselves in such places: but if they are thrown alive upon a sandy bottom, they will fix themselves in less than 24 hours. The thick end of the shell is fixed in the sand, and the other part appears above the surface of it; but when they are small they are quite covered with the sand. They often move themselves, but so slow, that their motion is imperceptible, and can only be observed by a little track they leave behind them, like that of a snail. It is a vulgar error to imagine that they move themselves to the surface of the water to breed pearls, by imbibing the dew; and it is as ridiculous to think, that the pearls are the semen with which these Muscles propagate their species: if that were the case, then the greatest number of pearls would be found where there are the greatest number of Muscles; but experience shows the contrary. Without doubt these Muscles propagate their species like other Shell-fish, tho' I have not been able to discover the least difference of sex between them. About Midsummer one may perceive, within some of the shells, a sort of clear semen, like the white of an egg, which in a few weeks appears like small grains, or eggs; this seems to me to be their spawn. Our fishermen generally find the pearl in that part of the Fish which is called the beard in the Oyster, and sometimes on both sides; but the pearls are always flat on that side that grows to the shell. From this we may conclude, that the substance of which pearls consist, must have been fluid at first. As the pearls are frequently found growing to the shells, even those of the right water\*, as well as those with a reddish cast; and as those pearls that are fastened to the shell are usually of the same colour with the shell, we may conclude, that the pearl and shell are one substance. Some are of opinion, that the Muscle cannot produce the pearl of itself,

\* The word water is here a term of art, and signifies the lustre of the shell, as well as the pearl,

and

and that it is something foreign to the Fish. The skin in which the pearl is enclosed, is so transparent on the side next the shell, that one may plainly see the lustre and water of the pearl through it; but one cannot so well discover the quality through the other part of the skin, which is covered with a sort of slime. The shells in which pearls are found, have generally some blemish in their shape, and differ from the rest, being crooked, short, &c. and the larger the pearl is, the more obvious always is the blemish. Notwithstanding all this, one cannot, by the external appearance, declare for a certainty whether such shells have pearls in them or not, and much less what water they are of; for the pearls may have been damaged by some accident, whilst they were in their fluid state. A Muscle may have more than one pearl, and sometimes all of them of a good water. The greatest number of pearls are of a reddish brown; a good many are white or grey, some black, but the best, which are very scarce, are of a pure water, and excellent lustre. When the Muscles are found at the bottom of rivers that run with a pretty strong current, the outside of the shells are always of a yellowish brown; but on muddy ground, or in stagnated waters, the shell is generally black: however, one cannot say that the ground, or the colour of the shell, indicates the pearls to be larger or smaller, better or worse, or fewer in number. The Muscle may be open'd without destroying the Fish, which will live after the pearl is taken away; but it is observed, they never produce any more pearls." So far Mr. Baumann.

O. Wormius [says, in his Museum, p. 110, that he has had some Norway pearls not inferior to the Oriental. I have indeed seen such myself; but I must also observe, that the number of these is not very considerable\*.

#### S E C T. IV.

The Snegle, Sea-snails, Cochlea, are called here Konunger, or <sup>Snegle:</sup> Kukelurer. They are found on these coasts of various sorts, partly sticking like Oysters or Muscles to the rocks, and partly lying among the weeds, and in sandy bottoms.

The shells that are found in Norway are not so large as those that are brought from the Indies to ornament our grottoes. The largest I have found are about as big as a middle-siz'd pear, and they are partly of that shape; tho' some are round, and some

\* We meet with Pearls in Norway, some of which are of a clear white, and shine like silver. Indeed we sometimes find such as, for their size and beautiful water, are not inferior to the Oriental. Fridr. Christian Lessers Testaceo-Theologie, P. II. L. i. c. 4. §. 314.

form'd

form'd like a cone. These look as if they were turn'd. They are variegated with several colours, and many streaks, lines, and circles. The shells of some are smooth, those of others are covered with a white cretaceous substance; others shine like mother of pearl†: so that nature is hardly diversified in such a beautiful variety in any of its other productions, except it be in flowers. Hence we may admire the wisdom and contrivance of the great Creator, and may say with truth, "Natura ludendo serio agit." I have procured drawings of as many different species as I have met with on these coasts, and have represented them in the plate.

Bue-hummer.

The Bue-hummer, a particular species of Shell-fish, which is found here in abundance, but seldom seen in Denmark, unless it be by accident, and is called the Hermit-fish. It has the name of Bue hummer because the head and fore-part of the Fish are formed something like a small Craw-fish or Lobster, with two large claws, four small legs, and three long tentacula, which are as small as a hair. The whole fore-part of the Fish, eyes, mouth, and all, is enveloped in a thin crustaceous covering, like that of a Lobster; but the rest of the body is inclosed in the shell, being soft and tender, and near two inches long. It much resembles a Craw-fish, extracted out of the shell. The Hermits, or Buehummers, are inclosed in a shell of the Wilk-kind, one of the *Conchæ Turbinatæ*; and it is of various sizes, from one to four inches in length. Rondeletius, Lib. xvii. cap. xii. mentions several sorts of this strange composition of land and sea-animals, which may be called the Craw-fish-snail, or the Snail-craw-fish: but among the various sorts he describes, none of them is perfectly like this Norway Bue-hummer. Geo. Marcgrave also describes, in his *Hist. Nat. Brasiliæ*, Lib. iv. c. 21, such an animal, by the name of *Paranacare*; which appears to be twice as big as our Norwegian Fish; for he says it is three fingers long, and that the body is covered with a few hairs, which we do not find on the Bue-hummer.

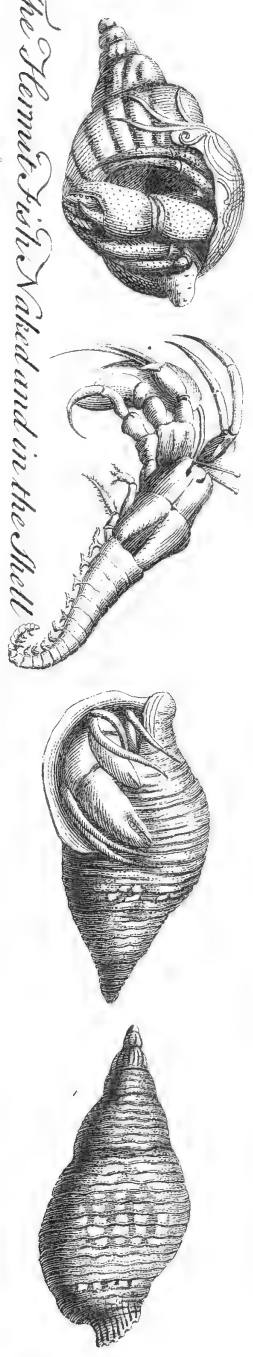
In a work called *Nova Literaria Maris Baltici*, Anno 1699, Mense April. p. 118, there is an article inserted by the learned Matth. Hen. Scachthios, then rector in *Kiærtemynde*, to this purpose: "*Secundus est cancellus turbinem Norvegicum inhabitans: ad insulam Promontorii Cartemundani Romfoam, inter halices retibus irretitos, quatuor ejusmodi cancellos ceperunt pisca-*

† In his magna ludentis naturæ varietas, tot colorum differentiæ, tot figuræ, planis, concavis, longis, lunatis, in orbem circumactis, dimidio orbe cæsis, in dorsum elatis, lævibus, rugatis, denticulatis, striatis, vertice muricatum intorto, marginem in mucronem emissis, foris effusis, intus replicatis: Jam distinctione virgulata, crinita, crispa, cuniculatis, pectinatis, imbricatis undata, &c. C. Plinius, Lib. ix. cap. 33.

Various kinds of Cochleæ or Sea Snails



The Hermit Fish's Habod and in the Shell



Various other Cochleæ







tores nostri, nec plures, nec pauciores. Mare Americanum id genus animalculorum copiose frequentat, ut habet Carolus Rochefort in *Historia Insularum Americanarum, Antilles a Geographis vulgo appellatarum*; sed in hisce Balticis fluctibus, nec post, nec ante id tempus, reperti sunt Cancelli. Peculiaris Cancellorum est progenies, Americanis Cancellis admodum similis, ut ovum ovo, nisi quod hic turbinem Norvagicum, ille nautili concham in hospitium & corporis sui munimentum contra hostium infidias eligat Cancellus. Totius animalculi præcipua pars anterior caput est, cum annexis pedibus & forcipulis. Hac parte corporis cancrum quodammodo refert, testa rubescente munita: inferior autem pars, a capite ad caudam, tenuis est, imbecillis, nuda & mollis ad instar locustarum, testa carens, sed cuticula vestita, quæ inferitur conchæ, duobus tamen pedibus, in acutum desinentibus, tanquam retinaculis existit, quibus forsan corpus in testa retinet, ne elabatur. Historiam Cancellorum satis accuratam descripsit Gesnerus, quem gnauiter secuti sunt Aldrovandus, Johnstonius & alii, sed nullam apud eos inter variantes figuras delineationem invenimus, huic nostro Cancelli simillimam. Qua ratione in littus nostrum jactati sint hospites hi infrequentes, autumare nequimus, nisi forsan e Norvegia vel aliunde navium carinis huc venientium adhæserint, easque ad Insulam Romsoe, ubi frequens ad anchoras navium est statio relinquerint: namque turbines Norvagici, quibus teguntur, in mari hoc Balthico non ante sunt reperti, sed e Norvegia ad nos transferuntur. Hoc modo in freto Helsingoram versus, Cancer Moluccanus Anno 1633, captus est, & Museo Wormiano Hafniæ dicatus."

These Hermits, or Craw-fish-snails, are said to swim, or row themselves along, by the help of their extended claws, pretty quick. It is observed that they often quit their shell, to swim the quicker; but they return again, in order to enter their former habitation; tho' in this they find themselves sometimes prevented by an envious neighbour of their own kind, who thinks it more convenient than his own; and when he has taken possession, he defends himself in it, as if possession gave him a right to it\*.

The same power do these creatures also exercise over the Wilks, when they either want a new habitation, or when they are grown too big<sup>d</sup> for their shells. "A conchis nudi nascuntur, sed purpuras ac turbines e suis pellunt conchis, iisque vescuntur, ut eorum occupent domicilia. Cum in amplitudinem majorem excre-

\* Mich. Bernh. Valentini, in his *Museum Museorum*, Lib. iii. p. 503, perhaps on that account, gives them the name of Soldier-fish. He looks upon them to be a sort of Sea-scorpions, and says that the Indians prepare an healing-oil from them, which is reckoned good for rheumatic and other pains in the joints.

verint, quam ut primis testis capi queant in testam ampliorem tanquam in domum novam migrant." Worm. Mus. p. 250\*. I have sometimes kept them alive a few days in water, to see how readily they go in and out. Ambrose Paræus, Lib. xxv. p. 687, calls this little creature Bernard l' Eremite; but why I do not know, for he gives no account of the origin of that name.

## S E C T. V.

Igelkier.

The Igelkier, or Julkier, the Sea-urchin, called also Krake-Baller, perhaps because the crow feasts upon them when he finds them lying on the rocks at low-water. It is otherwise known by the name of Echinus Marinus, and Pomum Marinum, the Sea-apple, a name that represents the size and figure of the thin and tender shell that surrounds this Fish, which certainly is one of the strangest animals contained in the sea. They are seen here every day, and are very common on our coast. They differ pretty much in size, for some are found not bigger than a walnut; others are equal to a large apple; and I have two in my cabinet as big as the head of a new-born infant. Their shape is likewise different, for some are like a cone, others are quite round, excepting the under part, which is pretty flat; and of this last sort we have the greatest number. The shell is covered with a vast number of small sharp prickles, like the bristles of a hedge-hog, whence its Latin name; but these prickles are not larger than a small pin at the most. I have indeed seen a small kind, that has had them as long again as the largest sort. They probably shed the prickles once a year, and have new ones, which their fineness seems to require. When they are just taken out of the sea they have a greenish lustre, which is very beautiful; but their greatest beauty appears when they are dry'd or boil'd, and the prickles are rubb'd off. This consists in certain regular and proportionable stripes, interchanged among one another, of a cylindrical form, and running from the top to the bottom. Some of these are white, others of a dark red, others again of a light red, or orange colour. These coloured stripes are again strewed over with as many white little knobs as there were originally prickles.

I shall now describe the internal part of this creature, which will be more difficult to conceive, without seeing it, than the external. When this beautiful shell is broken (which may easily be done by squeezing it a little) there is found in it a quantity

\* Swammerdam asserts that the Bue-hummer never quits his shell; and in his Bible of Nature, Chap. xii. p. 64, that author treats all that is said about it as a meer fable without any foundation.

of slime and water, and only a small Fish of a black, or dark red colour; and from this little body there runs, into all the turnings and windings of the shell, a great number of fine threads; these seem composed of a thicker slime, or perhaps are a kind of guts: they have a communication with the external prickles; and between these usually there is disposed, in stripes, a great deal of yellowish spawn. The Fish lies in the shell stretched from the bottom to the top; and there is, in that part, a small, and almost imperceptible opening, like the anus: through this the excrements pass, which consist of several small black grains. The mouth, as I observed before, is on the flat side; it is extremely curious, and is formed of five bones, part convex, and part concave, all running to a small point, where they join together like the bill of a bird, and look something like a flower. Gesner, Lib. iv. de Aquatil. p. 416, describes this creature pretty exactly, and says of the mouth in particular, that in the whole ocean there is nothing more curious, or more beautiful. “*Tam mirabili stupendoque artificio sunt constructa & coelata, ut nihil sit in toto mari elegantius, spectatuque jucundius.*”

The Sea-urchin is found on a sandy bottom, and rolls himself about with his prickles wherever he pleases. When the tide happens to fall on a sudden, they become a prey to the crow, and other birds. Gasp. Schottus relates, in his *Physica Curiosa*, L. x. c. xv. that when they (probably by natural instinct given them, and all other creatures, by the wise Creator, for their preservation) perceive stormy and bad weather coming on, they lay hold of a pebble to make themselves heavy, and with that fix themselves to the bottom of the sea, which the sailors look upon as a sign of bad weather\*. He also relates that the Sicilians, whose taste must be very different from ours, reckon this creature to be delicate food; they break the shell, and eat the inside raw with spoons. “*Qui cochleari utuntur cum ovis & excrementa deglutiunt. Hos per jocum dicebam absumere cum ovis actum parvum & magnum (i' atto piccolo e grande) dicere volebam urinam & stercora eorum †.* How this shell (which, without doubt, is an excellent absorbent) may be used to advantage in physic, is shown by Ol. Wormius, in *Museo*, p. 261.

\* This was known in Pliny's time; for he says, “*Tradunt, sævitiam maris præfagire eos, correptisque operari lapillis mobilitatem pondere stabilientes. Nolunt volutione spinas atterere, quod ubi videre nautici, statim pluribus ancoris navigia infrænant.* H. Nat. Lib. ix. c. xxxi.

† Dr. Shaw, in his *Voyage to the Levant*, calls this creature a Sea-egg; and says, that it is only the roe that is fit to be eaten with pepper and vinegar, particularly at the time of the full moon. See T. i. p. 336.

We have also another, and coarser species of the Echinus, very different from the former kinds; which I more particularly call *Hericius*, vel *Erinaceus marinus*, the Sea-Hedge-hog. These are found on our coast, tho' but seldom; and I do not know that I have ever seen more than two of them, one of which is in my possession. The body is round, about the size of an orange, and nearly of the same shape. The mouth and anus are placed at the top and the bottom, as in the other kind. From this I conclude, that the construction of the internal parts likewise is similar in both kinds; for I dare not open that in my possession, because it would utterly spoil it. The difference in the external parts is very great, for the prickles are for the most part near four inches long, and as thick as a goose-quill. They are quite hard and compact, except that there is a little marrow in them. At one end they stand irregularly, but at the other end they are regularly disposed in ten rows, there being five prickles in each row: two or three of these rows stand closer together than the rest, so that one cannot put a finger between; then there follows a space twice as wide: and it has 50 prickles on the sides, which are remarkably large. On the flat side underneath, and near the mouth, there are several smaller prickles; but I cannot justly say in what order they stand, because most of them are broken off in the specimen I preserve. The round body, or shell itself, is not, like the common kind, smooth at the bottom, but is rather furr'd over; but this I cannot particularly describe, as I have never seen them perfect, or fresh out of the water. Amongst the foreign writers, whether ancient or modern, I cannot find the least intimation of any thing that resembles this species.

#### S E C T. VI.

I now come to those sea-animals which have a hard and thin shell, form'd like a vestment, which yields to the motions of the body and limbs. Of this kind are Lobsters, Craw-fish, Crabs, and Shrimps.

Lobster.

The Lobster is formed like a Craw-fish, but is five or six times as large; with eight small, and two large claws or feet\*. From Easter to Midsummer they are fat and plump, and fit for the

\* Whether there may be amongst Lobsters, as amongst several other Fish, extraordinary large and giant-like individuals, I cannot ascertain; but I am credibly informed, that at *Udvær*, in the parish of *Evenvigs*, there is often seen by the fishermen a kind of over-grown Lobsters, so large and frightful that they dare not attack them; and it is said that there is a full fathom betwixt the tips of their claws, by which one may judge of their size, tho' they are never seen entirely; for they hide themselves in the weeds and rushes, which all Lobsters are fond of.

table.

table. After that time they fall away, and they likewise cast their shell. To supply the place of the old shell, a new one, that is thinner, is immediately prepared by nature, which, in less than eight days, acquires almost the same degree of hardness as the other. The male Lobster is known by the tail, which is narrower than that of the female; and it seems as if it were pinched in. The female is broader, and is reckoned the most delicate. They keep on the sandy bottom and in the gravel, or in the cracks of the rocks; but most frequently amongst the weeds and rushes, from which they probably receive the greatest nourishment. They eat also various sorts of young Fish. The greatest enemy the Lobster has is the Sea-wolf, who likes every thing that is hard to exercise his teeth upon. When the Lobster is pursued, and wants to get away in a hurry, they say he bends his tail, and by pressing it, shoves himself along backwards; so that the head is dragged after the hind-part. Formerly they used to take Lobsters here with wooden pincers; but as they are hurt by being squeezed, and usually die two or three days after, they no longer make use of that method. In those places, from whence they export them alive in Lobster-busses, they are caught only in what we call Teiner. This is a machine composed of several hoops covered with a fishing-net; at each end there is a long and narrow entrance, so that the Lobster, when he is once in, cannot easily find his way out again. In some places they use teiner, like eel-baskets, made of the roots of juniper-trees, which they find the best for this purpose: in these they generally hang some other Fish for a bait, and in each teiner that is fastened with a rope, and thrown into the water, they catch about ten or twelve in a night.

Method of catching them.

How many thousands there are in the whole annually catch'd and exported may be judged by this; that from the beginning of the present century there have been in our ports every Spring, at least 30 or 40 Lobster-busses from London and Amsterdam; which are loaded with live Lobsters only. These vessels are contrived for the service, every one being provided with a well, or close room, with a great number of holes bored through the bottom, and big enough to hold 10 or 12000 Lobsters in the salt-water, their proper element. About the beginning of the Spring they make better voyages than they do in Summer, when the air begins to grow warm. If the voyage be prolonged by calms or contrary winds, the Lobsters, being too much confined, are apt to die; and this particularly happens if there comes thunder, which they say hurts them more than any thing. In this case

Numbers and Exportation.

the proprietor makes a bad voyage, and is a great loser by it ; for such a cargo is valuable, and very profitable, when they arrive safe to those populous cities, where they are sold to a great advantage. A Lobster in Norway is valued at no more than two skillings, or a penny sterling : this is a fix'd price when a Lobster is eight inches long, or above, which is the standard authorized by the government ; but if they be less, or want any of the claws \*, they are sold for one skilling. At this low rate they produce annually 10,000 rix-dollars in the diocese of Stavanger alone, since the public, within these twenty years, has encouraged this fishery, by providing buffes, which export them from Stavanger, Egarfund, and other ports ; but for the reasons mentioned above they can make but one voyage, which must be in the Spring. The best places or harbours for Lobsters, in each of which three or four buffes may be loaded every year, are Skudsnæs, Akre, Præste-havn, Vaage or Akre i Buk von See, Stjerne Oe, Hvidings Oe, Tanan and Tananger. Eastward of Lindsnæs there are caught and exported also a considerable number of Lobsters, but I have no particular account of the quantities.

That foreigners may not run away with the greatest profit by an early voyage, it is established, that in each of the before-said harbours a Norway vessel must be loaded, before they have permission to sell any to foreigners. In Sundhordlehn we have also, within these few years, carried on the Lobster-fishery, and annually export them †. In some parts of Norway they pickle Lobsters with vinegar and spices. The peasants in many places do not seem to like this sort of Fish ; and tho' Lobsters and Oysters are to be had in such plenty, and are reckoned a delicacy by some, they do not regard them.

#### S E C T. VII.

Craw-fish.

Craw-fish are found in some of the rivers in the diocese of Aggerhuus, particularly at Friderickstad ; but in this part of the country they will not thrive. Of this a correspondent of credit has assured me from his own experience. He has endeavoured to breed them in fresh water at his country-house, but to no pur-

\* That the great number of Lobsters crowded together in one place should not bite off one another's claws, which they are apt to do, they tie up the claws of every one of them with packthread.

† Mr. Danckertson, receiver of the duties at Storoen, gives an account that, in this present year, from his fishery alone a quantity of Lobsters, to the amount of 6000 rix-dollars at prime cost, have been exported. The inhabitants of Zirksee in Holland first began this trade, and enriched themselves surprisngly by it. Now the English likewise carry on this fishery, and catch a great many Lobsters on the coast of Holland.

pose †. In Sundfiord we find a sort of Craw-fish which I should rather take to be young Lobsters, if they were not quite distinguished by their particular form. I have, for this reason, exhibited a figure of one in the plate annexed. The two foremost claws are of an extraordinary, and seemingly unproportionable length; they are even longer than the whole body: they are slender, and of a pentagonal shape. The shell on the back and sides is variegated with particular marks, like hieroglyphics. I have never seen but one of them, which is remarkably different from every thing I have met with of that class. Gesner represents, cap. xiv. p. 124, a particular Craw-fish, which he calls *Leo Marinus*, or the Sea Lion; for what reason I cannot say; the comparison must seem too far fetch'd. This species however agrees pretty well with ours, in respect to the two long claws; but then the body is much shorter, and, according to his description, it is furr'd, or covered with little prickles; neither has it any thing of those characters or resemblances of letters impressed upon it, which chiefly distinguishes that I have described from other kinds; so that I cannot look upon them to be the same\*.

Crabs, *Cancri Marini*, are caught here in plenty, of which there are three sorts, namely, the large *Tafke-krabber*, which is reddish on the back, and white under the belly. These are found on a

† Car. Linnæus says, in his *Fauna Suecica*, p. 358, that Craw-fish were not seen in Sweden till the reign of King John III. who, amongst other things, is celebrated for importing Craw-fish, and breeding them in his own country.

\* Since I have wrote this account, I find that Ol. Wormius has taken notice of the same Norvegian Craw-fish or Lobster, and has given it the name of the King of the Lobsters, and also the Letter-Lobster. As he has not given a figure of it, I suppose it will be the more agreeable to find one here, which I have taken care to have very exact; and the more to illustrate the same, I shall quote a few words from that author on this subject: "*Quem alii Astacum medium, seu mediæ magnitudinis, Norvegi Hummer-Konge, seu Regem Astacorum vocant (his name is not known here at present) nos non inepte Astacum Literatum, quod in crustis caudam tegentibus literarum quarundam grandium & quasi hieroglyphicarum notas ostendet—Meus Astacus Literatus longitudine est pedis unius. Chelæ seu forcipes, ubi extensi recta linea, sunt crassitie paulo majore pollice, totius corporis lineamentis majori Astaco similis, nisi quod chelæ in longitudinem protendantur & minores sint. Dimidium enim pedem æquant & antequam findantur, quatuor in longum exprorectis dotantur prominentiis, alternatim duplici & simplici dentium ordine conspicuis, inter quos sinus ad summum excurrunt quatuor, eleganti spectaculo—In dorsi crustis notæ conspiciuntur nigricantes (in my sample it is a rising in the shell itself, with no difference of colour, which is all over a kind of straw-colour, intermixed with red here and there) quæ prisca monachorum literas quodammodo referunt, utrinque sex, quarum prima a cauda numeranda T, secunda & tertia E, quarta & quinta L, sexta I, utcunque expriment ea figura, qua in vetustis manuscriptis codicibus visuntur. Hunc Astacum illum esse crederem, quem Rondeletius Astacum parvum vocat, nisi plebs forcibus carere diceret. Noster enim quatuor primos forcibus dotatos obtinet pedes, ut Astacus major."* Mus. Wormian. p. 249. All that I can say further is, that the figures, letters, or hieroglyphic characters, represented by the force of imagination, are not the same in all, but a "*Lufus naturæ elegans quidem sed incertus.*"

sandy

fandy bottom, and are in season from Michaelmas-day to Christmas, but reckoned to be fatter during the increase, than they are at the decrease of the moon. They are caught in a triner, in the same manner as the Lobsters are, and are reckoned by some as well tasted, especially when they have a good deal of spawn. The female Crab has a broader tail than the male, to cover the private parts, and both sexes have double genitals, according to Anderson's Observation, in his Description of Iceland, p. 175. I have before observed this particular of Gul-haen. I have also mentioned the Crabs artifice in throwing a stone between the shells of the Oyfter when open, so that it cannot shut; and by that means seizing it as a prey. On the other hand, the Crab is conquered by the Eel, which twines itself about that creature's claws, and by squeezing itself together, breaks them off, and sucks them with great eagerness. Pliny tells us, Lib. ix. c. 31. that Crabs fight with one another as the rams do, by butting against each other with the small sharp horn they have on their heads: but that they should be at a certain time transformed into Scorpions, is not at all probable. "Sole cancri signum transeunte & ipforum cum exanimati sint corpus transfigurari in scorpiones narrantur in sicco."

Garnater.

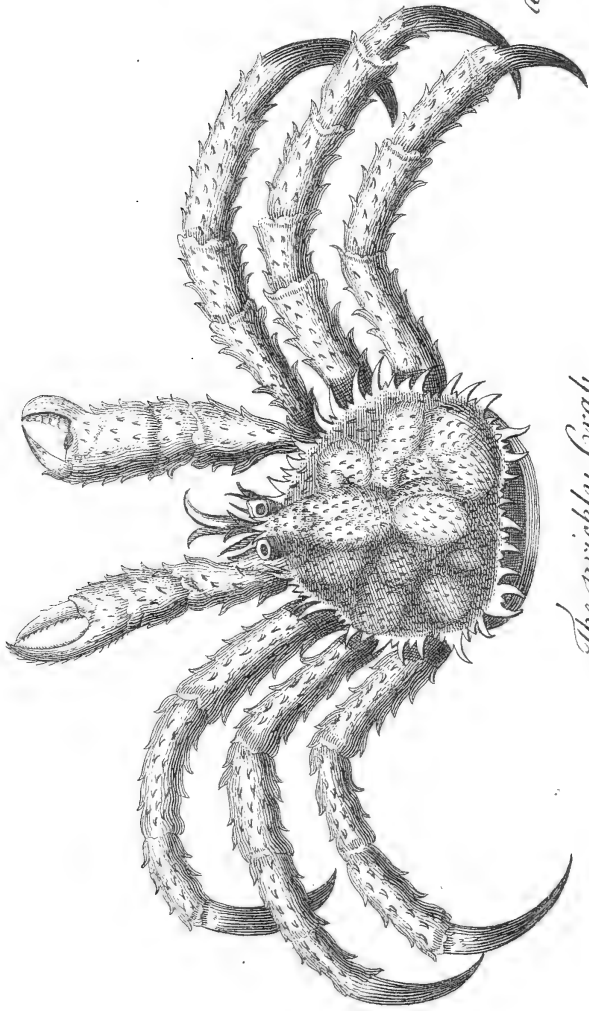
The Garnater, or Duck-crab, is a smaller sort of Crab, with a grey shell. These keep near the shore, so that one may take them up with one's hands; but they are only used for baits. These, as well as several other kinds of Crabs, and such slow crawling species, seem to be ordained by the wise and good Creator, as food for the whole tribe of Flat-fish, which also are slow in their motion, and usually live on the sandy bottom, and live chiefly on those crawling kinds.

Fanse, or  
Troid-krabber.

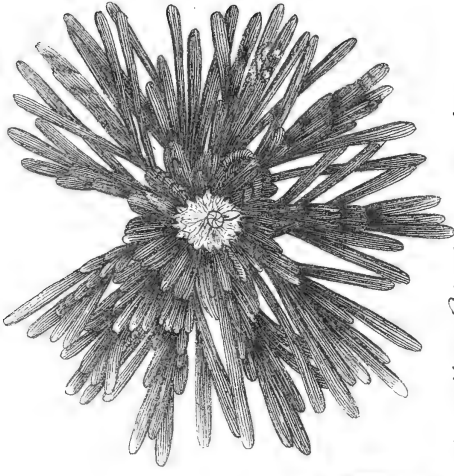
The Fanse, or Troid-krabber, the Prickly Crab. Our fishermen give it the latter name, Troid-krabber, because it is not fit to eat. It is also called by some the Sea-spider, probably on account of its long legs, which, on some that I have in my possession, are a foot long; though the body is not much bigger than a Duck Crab, only a little thicker. The fore-part in this kind is oval, and there is a pretty long horn growing from the forehead, which is divided at the end into two points. The body, as well as the long legs of this Crab, is covered with prickles. On this account Olig. Jac. in Musæo Reg. p. 112, calls this sort Cancer Spinofus. Matth. Hen. Schæctius says, that the Troid-krabber (though he does not call it by any particular name, for the names were entirely unknown to him, but by the description he must mean this kind of Crab) by changing its colour, prognosticates a sudden change of weather. "Rarum certe est naturæ



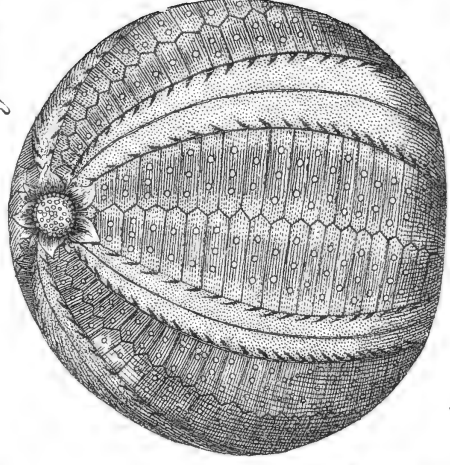




*The prickly Crab*



*a small Sea Urchin with Spines*



*a large Sea Urchin without Spines*



*The scudfiord or Crayfish*

turæ spectaculum, in quo hoc peculiare deprehendimus sæpius, quod cum status cœli pluvius, & madidæ ventorum procellæ ingruant, ex omni tum parte nigrescat testa tanquam pice obducta, serenitate autem cœli instante, in rubedinem, & quidem miniatam, dilutam vergat. Quoties itaque hanc testam colores mutare videmus, toties aeris temperamenti mutationem vaticinari audemus, ut facti tam certi non sint, in dubio cœli statu indicando, quam dictum in hac testa indicium." *Nova Litterar. Mar. Balthici Anno 1699, Mens. April. p. 118.* This author's observation does not agree with mine; for on several which I have by me the red is quite unchangeable. Just after these were taken, being hung out of a window in the sun, a sort of black unctuous matter, almost like pitch, flowed from them. I suppose Mr. Schachtius had observed this fluid distill from them in the same manner, and probably a change of weather might ensue by accident; which made him draw too hasty a conclusion: for when the creature is quite dry it prognosticates a change of weather no longer.

Ræger, the Shrimp, *Squilla Marina*, called by some Hopper, <sup>Shrimps.</sup> because of its quick and leaping motion, may be look'd upon as a Sea Craw-fish in miniature, and are very well known in Denmark: they are found on the Eastern coast, particularly in Christiania-fiord; and, like the Salmon, they generally keep about those places where the rivers disembogue themselves into the sea.

## S E C T. VIII.

After the crustaceous tribe I come to the species of the exanguineous inhabitants of the ocean, which are soft, and have no shell or covering. I shall first treat of the Spoite, *Bleksprutte*, the Sepia, or Ink-fish, called also by some the Sea-gnat. Some authors call it by the name of *Sepia*, or *Loligo*. It is one of the most extraordinary creatures in the ocean for shape, and is not easily described without the assistance of a drawing; nor can any one form a perfect idea of it, without seeing the animal itself; for it assumes various forms by the motions of its skin and arms. The length of that which I keep preserved in spirits of wine is about nine inches, or a little more, and it is near two fingers thick; so that probably it was but a young one, for authors say they are generally much larger; and I have lately procured a dry'd one, which is two feet long; the body is almost round, and resembles a small bag, and is blunt at both ends\*: but the head is the

PART II.

Z z

most

\* I have seen some that are almost pointed at one end, and have no tail. In the General

most remarkable part. This has two large eyes, and a mouth like a bird's beak; above which there stand eight long arms, or horns, like a star, and each horn is octangular, and cover'd with a number of small round balls, which are something larger than a pin's head. There are at the back part of the head two of these horns, twice as long as the rest, and broader towards the end. On each side of the body there are two skinny membranes, with which the animal covers itself all over, being first rolled together; and it is said that it can raise itself above the surface of the water, and leap pretty high, making use of these membranes like wings.

From this description we may conclude, that nature produces but few animals of so extraordinary a structure in the several parts. The interior construction of this creature is not less wonderful: when it is opened there is found hardly any flesh within the skin; there runs a long and flat bone the whole length of the back, in shape almost like the blade of a knife. This bone is known at the apothecaries by the name of *Os Sepiæ*, as has been mentioned before in the article of Whales; that Fish being greatly plagu'd by this little creature. The fore-part of the body or skinny bag, above-mentioned, is quite filled with a black fluid, which being seen through the skin, makes the Fish appear of a blue colour, though the fluid is of a fine black, and may serve for ink to write with. When they are in danger these creatures discharge this black fluid. Hence they are called *Spute*, or *Spoite*, which makes the water all round them appear black and muddy; and thus the creature makes his escape, by rendering itself, as it were by magic, invisible to his pursuers.

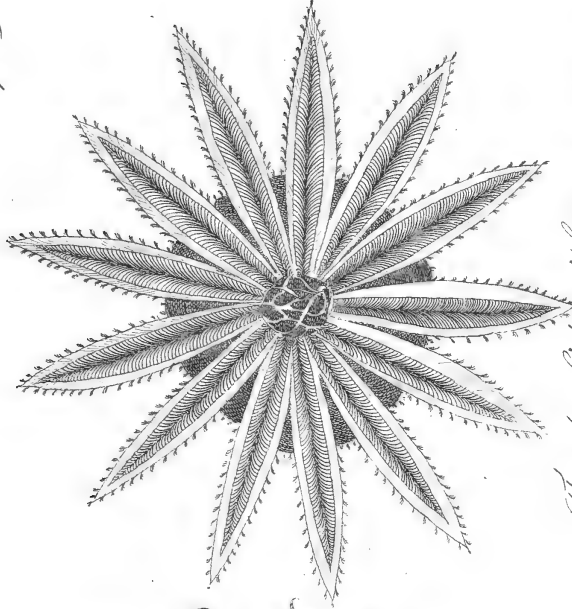
This is a wonderful gift of nature, for the preservation of a creature otherwise quite unarmed and helpless\*. If any of this black fluid happens to drop upon one's hand, it burns like a caustic; and this sensation doubtless would be more violent, if it was to get into the eyes. The same liquor is very good to dip a bait in for a fishing-hook, and the whole Fish is excellent for that purpose, which is the only use that is generally made of it. Concerning this Fish's method of breeding, a very creditable correspondent has given me a surprising account, that is agreeable to its other properties. This gentleman, and many more wit-

General Collection of Voyages and Travels; as also in the London Magazine for March, 1750, p. 120, there is a print of this Fish, by the name of the Ancor-net, or Scuttle-fish, where the tail, under the sharp pointed end, spreads itself wide on both sides, and forms a sort of a crescent.

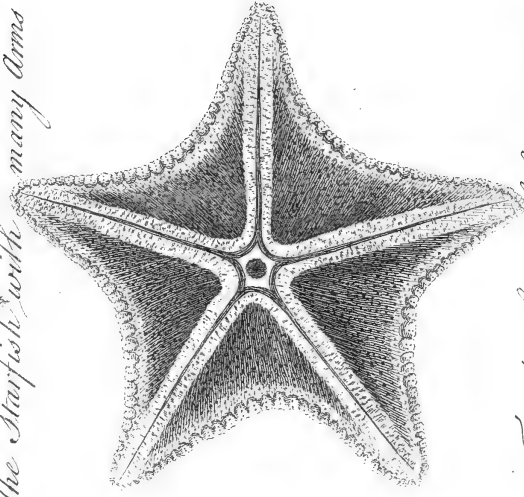
\* *Contra metum & vim suis se armis quæque defendit. Cornibus Tauri, Apri dentibus, morfu Leones. Aliæ fuga se, aliæ occultatione tutantur. Attramenti effusione Sepiæ, torpore Torpedines, &c. Cicero de Nat. Deor. Lib. ii. c. 50.*



Pl. 29.

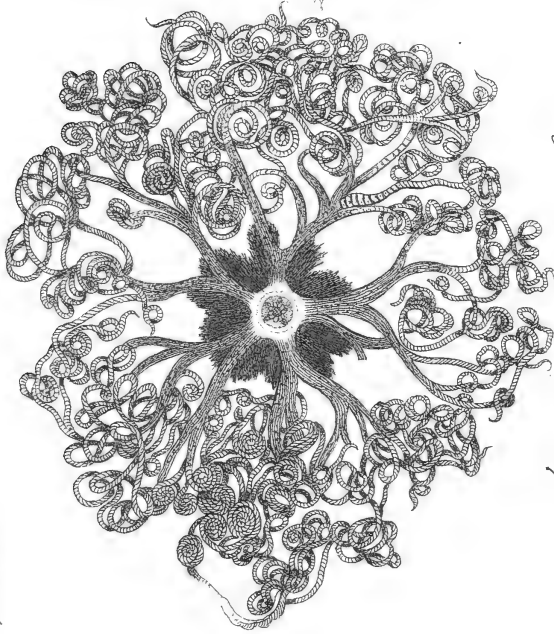


*The Starfish with many Arms*

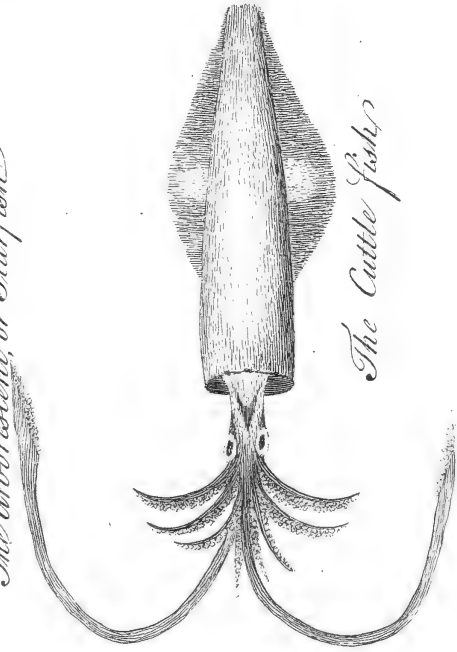


*The Starfish with fewer Arms*

Pl. 28.



*The Arborescent, or Starfish*



*The Cuttle Fish*

nesses, have observed a hundred, or even a thousand young ones, crowded together in the uterus of the female, without any motion; till at last they eat their way through, upon which the parent dies. These, if females, only survive till they are devoured in their turn, by their own offspring. Pliny, who makes some difference betwixt the Sepia and the Loligo, which I do not understand, writes of them thus: "Loligo volitat extra aquam se efferens, quod & pectunculi faciunt, sagittæ modo. Sepiarum generis mares varii, & nigriores, constantiæquæ majoris. Percussæ tridente sceminae auxiliantur, at ictu mare scemina fugit. Ambo autem ubi sensere se apprehendi, effuso attramento, quod pro sanguine his est, infuscata aqua absconduntur."

In the last century our peasants looked upon this Cuttle-fish to be a dangerous and ominous creature: they called it an amazing sea-prodigy, when they caught one near Katvig in Holland, in the year 1661. See Olear. Gottorff. Musæum, p. 42, where that author might reasonably be surprized that a Fish well known to the ancients should seem so great a prodigy.

The Kors-fisk, or Kors-trold, the Stella Marina, Star-fish, or Star-fish. Sea-star, is an extraordinary kind of Fish, divided into many species; of which I shall (as I have done through this whole work) only describe those that are found on our coasts: amongst these are some which I cannot recollect to have seen any where else. This creature in general consists of a round body, about two inches in diameter, and without a head\*. From this central part there extends on all sides, according to the kinds, five or more, even to ten points or legs, like the rays of a star. These are hardly four inches long, and are of the same substance with the body, which is neither flesh, bone, nor cartilage. This substance being neither hard nor tough, but rather brittle, is easily broken, just like a bit of bread: there is however a certain sort of them that is rather tougher, and will bend without breaking. They are generally covered with a flesh-coloured or yellowish skin; they are furr'd underneath, somewhat in the manner of velvet shag, that is used for lining cloaths. In the center of this star there is an aperture, and under it a hollow place, not so big as a sixpenny piece. In this place it is to be supposed both the mouth and the anus are situated †. From this aperture there are  
con-

\* A particular sort are found here, their bodies not so big as a sixpenny-piece, quite black, and with five legs or branches, as small towards the body as at the extremities, which in other Star-fish are much thicker towards the center.

† Monf. Baker a fait quelques experiences sur les Polypes sechés. Il a cru y avoir découvert l'anus, mais les observations de Monf. Trembley & ce que nous en avons  
vu

continued several longish flits or hollows, like so many cracks, furr'd all over. These are covered with several regular rows of little round protuberances; and upon each of these, in some sorts, there is another small protuberance; so that what is called *Lusus Naturæ* by some, is the mark of a quite different species. They keep on the sandy bottom, or else on the sides of the rocks, where they crawl about, and serve for food to many other sorts of Fish, as also to the sea-gulls, and other birds of that kind. It is said they have strength to crush a Muscle to pieces, but their rays often in the attempt happen to get in between the shells, and are nipped off; so that sometimes, as the proverb says, the biter is bitten.

Sea-fun.

As these are called Sea-stars, we have also here a scarcer sort, of which I have three specimens by me, under the name of the *Soe-foele*, or Sea-fun; but it is not called so by the Norwegians\*, but by the Hollanders, who have frequently found it in the West Indies, and there given it the denomination of *Zee-sonne*, or Sea-fun, according to George Marcgrave's account, in his *Hist. Nat. Brasiliæ*, Lib. iv. cap. xxii. "Zoophyton aliud hic reperitur (*Stella arborefcens Rondeletio & Gesnero*) nautes vulgo een See-sonne. Ex centro, quod æquabat grossum Misnicum & cavum erat, ac in sui medio quinquangulare habebat foramen instar stellæ, tenuissimis quasi denticulis donatum. Quinque rami crassi prodibant, qui deinde, instar arboris, in multos alios ramos minores dispergebantur varie inter se inflexos, omnes rotundi & quasi coraliformes, ita ut orbem facerent. Materia fragilis instar stellæ."

This description represents pretty exactly the most surprizing and least known European Star-fish, or *Kors-trold*. It differs from all the rest in this, namely, that the legs terminate like branches, with small twigs, and those twigs again divide into the finest fibres imaginable. Each of these is curl'd up, and all are full of small incisions cross each fibre. This looks very curious, when every one of them is observed singly; but when all the curls are seen intwined together in a confused manner, they put one in mind of the poet's description of Medusa's head, every hair of which, according to the fable, Minerva transformed into a snake, for polluting her temple by her lascivious intercourse with Neptune,

vû nous mêmes, ne nous permettent pas de l'en croire. Le Polype rend les superfluités de ses alimens par la bouche même, par laquelle ils sont entrés. *Biblioth. Raisonnée*, T. xxxvii. p. 267.

\* The proper Norwegian name I could not learn for a great while, but at last I find it is *Soe-navle*.

the



the god of the sea †. This strange and wonderful Star-fish, or Kors-trold, is said to be only the young, or perhaps only a grain of the roe of that great and frightful sea-monster, which is call'd here Kraake, and which shall be described in the following chapter. But as far as I could get information from several fishermen, who all agree in their accounts, this cannot possibly be true. I choose rather, from its connection with Neptune, and the resemblance it bears to the head on Minerva's shield, to give it the name of Caput Medusæ, or Medusa's head.

The Manæte, the Sea-nettle, *Urtica Marina*, which we call <sup>Sea-nettle,</sup> Soe-nelde, is a softer sort of those creatures, which we call here by the common name, Trold, or Sea-trold. Its shape is round, almost like a small plate, convex above, and underneath flat, or rather a little concave. It is throughout soft, smooth, and transparent, and seems a kind of slime, or jelly, though it adheres together pretty firmly, and is mark'd with a cross, somewhat like a flower-de-luce, in the middle. These creatures are blue white or red; some of them have many branches underneath. These are usually something larger than the common sort, and of a dark red. The Manæten abounds with a corrosive poison; and if it drops upon the hands, or any part of the body that is naked, it causes a smart and an inflammation, like that raised by nettles. Hence it has the aforesaid name, Soe-nelde, i. e. Sea-nettle\*. However, it is no vegetable, but is evidently a living animal; for it has sensation, and grows, moves, swims, and contracts and extends itself. It often picks up small Fish or worms, which it devours, and is again devoured in its turn by other Fish. Pliny looks upon it as something between an animal and a vegetable; but it certainly belongs to the former class. “*Equidem, et his inesse sensum arbitror, quæ nec animalium nec fructuum sed tertiam ex utroque naturam habent, urticis dico & spongiis. Urticæ noctu vagantur, noctuque mutantur, carnosæ frondis his natura, & carne vescuntur. Vis pruritu mordax, eademque quæ terrestris urticæ.*” *Hist. Nat. Lib. ix. cap. xlv.*

Kircher, who calls the Manæten *Pulmo Marinus*, that is, Sea-lungs, describes it as a poisonous creature; and says, the exhalations from their dead carcases are very pernicious to the lungs. As a confirmation of this he says, that in the province of Narbonne a great number of people annually die of consumptions,

† In Happelij Relat. Curios. T. iv. P. ii. p. 444, there is to be seen a drawing of this *Stella Aborefcens*, but not so compleat and perfect as that which I have had drawn from several specimens, all perfect.

\* The usual Norvegian name is, without doubt, of the same etymology; for Manæte signifies Mar-nettel, Hav-nælde, which is Sea-nettle.

which he imagines proceed from the great numbers of *Manæten* that are found in the salt-water lake, called *Mortaigne*. See his *Mund. Subterr.* P. ii. p. 129. A friend of mine has observ'd, that when these *Manæten* lie dead, and putrify upon the shore, they have caused a violent sneezing in those who pass'd by: and he says, he knew a country lad that had like to have been blinded, and actually had his face much inflamed, by his father's throwing one of the red sort at him inadvertently, when he was in a passion. They are reckoned most pernicious if they happen to touch the eyes; and I am informed that the peasants in some places prepare a kind of poison from them, to kill vermin, and attempt to destroy the wolf with it. Some mix it with clay or mortar, and stop crevices in places where there are bugs; and they say it effectually destroys them, especially if the *Manæte* be catch'd in the dog-days, for then its poison is most efficacious.

Perle-baad.

The *Perle-baad*, that is, the String of Pearls, called also here the *Sildæ Ræg*, and *Torske Ræg*, is composed of several small balls, like peas, hanging together. These are seen swimming about the sea like a row of pearls on a string. They are compos'd of a soft slimy matter, like the *Sea-nettle*, or *Manæte*, and are probably of the same nature\*. They are indeed transparent, like so many chrystal beads, with a little mixture of red. This *Perle-baad* is always a welcome guest to the fishermen; for if they see many of them in the Autumn, or towards Christmas, they are supposed to prognosticate great plenty of *Herrings* and *Cod* in the succeeding season.

\* Nous avons comparé plus d'une fois les animaux avec les plantes. *Monf. Charles Bonnet* a faisi cette idée avant nous. Il a perfectionné la brillante pensée d'une échelle des estres que *Monf. Valinieri* avoit ébauchée. Tout se suit dans la nature. Elle a seu lier les especes sans les confondre. L'homme est le chef de la création terrestre, les quadrupedes, les oiseaux, les insectes s'en éloignent peu à peu, les Zoophytes finissent le système des animaux, & les plantes sensitives vont commencer celui des vegetaux. Les *Lithopytes* terminent celui-cy & les joignent aux metaux d'une figure déterminée. La terre finit encore ce regne, & les elemens ramènent successivement la création à l'Ether & à des matieres subtiles, analogues peut être aux corps des intelligences superieures. *Bibliothèque Raisonnée*, Tom. xxxvi. p. 192.

## CHAPTER VIII.

Concerning certain Sea-monsters, or strange and uncommon Sea-animals:

SECT. I. *Some of the inhabitants of the ocean are difficult to be known with any degree of certainty; and we must set some reasonable bounds to our opinions concerning them.* SECT. II. *Of the Hav-Strambe and Maryge, or Mer-man and Mer-maid; the accounts of which are often, but not always, fabulous.* SECT. III. *Their existence is possible, and even probable.* SECT. IV. *They exist in fact, which is undeniably proved, both by the evidence of our Norwegians and foreigners: a description of these Sea-animals.* SECT. V. *More testimonies, and further descriptions of them.* SECT. VI. *The great Sea-snake, or Serpent of the ocean, seen on the coast of Norway, is not fabulous.* SECT. VII. *The description of it.* SECT. VIII. *The danger of approaching near to it.* SECT. IX. *Whether this creature may be looked upon as the great Leviathan.* SECT. X. *Concerning great Snakes in other countries.* SECT. XI. *Of the Kraken, Krabben or Horven, the largest of all animals.* SECT. XII. *Their description, according to the testimony of many eye-witnesses.* SECT. XIII. *Principally confirms the truth of their existence, and explains several obscure phænomena.*

## S E C T. I.

**I**N the three preceding chapters I have treated of Fishes, and other animals found in the Norwegian seas, so far as I have been able to trace their history, by an extensive correspondence, and by frequently conversing with several curious observers of the works of nature; exclusive of the discoveries that I have myself been able to make on several occasions. I have been enabled to pursue this work with some accuracy, by the many specimens of different Sea-animals, fresh, dry'd, or preserved in spirits, which have come to my hands. Tho' the number of these specimens be very great, exceeding 100 different species, yet, perhaps, they are but a very small part of the inhabitants of the ocean\*:

so

\* Animalium omnium in aquis viventium nomina esse cxliv. vult Isidorus. At Hieronymus cliii. atque id ab iis affirmari, qui scripserunt *ἀλιευτικά*, in quibus est Oppianus Cilix, &c. Sed nullum legi hactenus, qui in hunc præcisè numerum incidit præter Oppianum. Plinius recensuerat clxxvi. species animalium in mari viventium, & Plinii catalogum in immensum auxerunt, qui de hoc argumento nostra ætate scripserunt, &c. Adde quod idem Oppianus addit, in mari multa latere.

————— *Τὰ γὰρ οὐτὶς αἰδέλα μυθήσατο θνητὸς εἶόν*  
 Quin si Mahumeti credimus apud Damirem, in capite de locustis, Deus creavit mille species animantium, è quibus in mari sexcentæ sunt, & quadringentæ in terra. Et Pseudo-

fo that we may join with the Royal Pfalmift in that pious exclamation, "O Lord, how manifold are thy works! in wifdom haft thou made them all : the earth is full of thy riches. So is this great and wide SEA, wherein are things creeping innumerable, both fmall and great beafts." Pfalm civ. v. 24, 25. Not only the incomprehenfible numbers, but the variety alfo much exceeds, by what we can judge, the fpecies of Land-animals.

Difficulty to know them all.

The element in which thefe laft breathe, namely, the air, does not allow them to be long concealed, or unknown to mankind; fo that, fuppofe them ever fo fcarce, they muft fome time or other be feen by men; and, confequently, in fome meafure be known. But who is there that lives with the finny tribe, in the deep reffes of the ocean? or, who has opportunity to obferve them accurately and familiarly, in that unftable and boifterous element? 'Tis true, great numbers of different kinds of Fifhes, which the beneficent Creator, with a more than paternal care, has ordained for food to mankind, in obedience to his command vifit us as welcome guefts, or refort to our coafts, at certain feafons of the year, as if it were to offer us their fervice. Befides thefe fpecies that are ferviceable to man, there are others deemed ufelefs or hurtful, tho' created, doubtlefs, for fome wife purpofe: thefe exhibit to our view their enormous fize, or uncouth forms; and fall a victim to man, by unwarily running into fnares, fpread for others of the fcaly tribe of a more beneficial kind. Our fifhermen throw a great many of thefe uncommon forts over-board directly, looking upon them not only as ufelefs, but ominous; and call them by the general name of *Trold-fisk*, i. e. *Unlucky-fifh*\*. This proceeds, as has been before obferved, from a fuperftitious

Pſeudo-Propheta liberaliores Talmudici, ſolum mundorum piſcium ſpecies ſeptingentas eſſe ſtatuunt, in quibus nulla eſſet hyperbole, ſi pro mundis piſcibus aquatilia in genere dixiſſent. Geſnerus enim aquatilium animantium nomina & icones pluſquam ſeptingentas exhibit. Nobis hic indicaffe ſufficit ſumma genera. Sam. Bocharii Hierozoi-con, Lib. i. c. vi. p. 37.

\* Anno 1744. one Dagfind Korſbeck caught, in the pariſh of Sundelvems on Sundmoer, a monſtrous Fiſh, which many people ſaw at his houſe. It's head was almoſt like the head of a cat; it had four paws, no tail, and about the body was a hard ſhell, like a Lobſter's: it purred like a cat, and when they put a ſtick to it, it would ſnap at it. The peaſants look'd upon it as a Trold, or ominous Fiſh, and were afraid to keep it; and, confequently, a few hours after they threw it into the ſea again. According to the deſcription, this might be called a Sea-Armadilla, by which name an American Land-animal is known, nearly of the ſame ſhape, excepting that it has a long tail. A fiſherman at Sundſland, two miles from Bergen, told me he had once ſeen a much more ſurprizing Sea-monſter cloſe to his boat; having juſt taken a view of the fiſhing-boat, it dived under the water immediately. This was not unlike a Sea-calf as to the fore-part, and had furred ſkin. The body was as broad and big as a veſſel of 50 laſts burthen; and the tail, which ſeemed to be about fix fathoms long, was quite ſmall, and pointed at the end. There is a report, but not altogether

stitious notion, very disadvantageous to the study of nature: for the fishermen are persuaded, that if they preserve them, they shall meet with ill success in their fisheries, or some other misfortune. However, from the few that accidentally come to our hands, tho' not sufficient for our purpose, the learned may form some idea of the rest. Was it possible for our sight to penetrate through the thick medium of water, as we can through the air, we should see wonderful objects, according to the accounts given us by the divers, who are employed in recovering wrecked goods. These men, if one may believe them, see strange forms in the deep recesses of the sea, which hardly any other eyes have beheld. Were it possible that the sea could be drained of its waters, and emptied by some extraordinary accident, what incredible numbers, what infinite variety of uncommon and amazing Sea-monsters would exhibit themselves to our view, which are now entirely unknown! Such a sight would at once determine the truth of many hypotheses concerning Sea-animals, whose existence is disputed, and looked upon as chimerical. I will allow they may be uncertain, because we have but few opportunities to determine this point, by such sure evidence as would leave no room for doubt; but at the same time this is certain, that as on the one side we ought not to be too credulous, and believe the idle tales and improbable stories that every fisherman or sailor relates, either upon the credit of one of his companions, or from what he has seen himself, when embellished with a great many additions and variations, concerning strange and frightful sea-monsters: yet I am of opinion, that the other extreme deviates as far from the truth, namely, when we will not believe things strange and uncommon, tho', according to the unchangeable law of nature, possible; because we cannot have so evident and clear a demonstration of it as we might: by this way of arguing, all historic faith would be destroyed. One might as well doubt whether there are Hottentots\*; for tho' the number of witnesses be much greater in that case, still that does not alter the nature of the knowledge; it only raises it to a higher degree of certainty. I premise this as undeniable, not without cause; for

We are apt to believe sometimes too much, and sometimes too little.

gether to be depended upon, that some peasants at Sundmoer have caught a Snake lately in a net, which was three fathoms long, and had four legs: this must somewhat resemble a Crocodile. The peasants ran away frightened, and left the Snake to do the same.

\* S'il ne faut ajouter foi qu'aux choses qu'on a vues, il n'y aura rien de certain dans l'Histoire. Les Tribunaux de judicature ne pourront plus prononcer sur la déposition des témoins, & c'en est fait de tout commerce dans les pays où l'on n'a pas été, & avec des personnes qu'on ne connoit point. Une telle proposition, si elle étoit reçue, bouleverseroit la Société. Bibliothèque Britannique, T. xxii. p. 271.

PART II.

B b b

I have

I have proposed in this chapter, as a farther display of the Creator's wisdom, power and glorious economy, to give some account of the Sea-monsters that are found in the ocean, along the coast of Norway. These, tho' they appear not every day, yet are seen often enough for our purpose: for there are many witnesses of credit and reputation, who have seen them; even hundreds might be produced for each instance, if it should be required.

There are many things belonging to the Natural History of Norway, which are common in other places, tho', perhaps, scarce with us; so here also are many things common, and well known in this country, which, in other places, may possibly be doubted. These considerations were the great motives that encouraged me to undertake this troublesome, and, in many respects, difficult work.

## S E C T. II.

Hav-Mand,  
Mer-man.

Amongst the many Sea-monsters which are in the North sea, and are often seen, I shall give the first place to the Hav-Manden, or Mer-man, whose mate is called Hav-Fruen, or Mer-maid.

Fable of a  
Mer-man.

\* The existence of this creature is questioned by many, nor is it at all to be wondered at; because most of the accounts we have had of it, are mixed with meer fables, and may be looked upon as idle tales. Such is the story of a Mer-man, taken by the fishermen at Hordeland, near Bergen; which, they say, sung an unmusical song to king Hiorlief. J. Ram. See History of Norway, p. 24. Such also is the account given by Resenius, Relat. in vita Frederici II. anno 1577, of a Mer-maid, that called herself Isbrandt, and held several conversations with a peasant at Samsoe; in which she foretold the birth of Christian IV. and made the peasant preach repentance to the courtiers, who were very much given to drunkenness. According to A. Buffæus, (in his book cited in Theatr. Europ. T. I. anno 1619) the two senators, Ulf Rosensparre and Christian Holch, on their return from Norway, in their voyage caught such a Mer-man; but 'tis added, they were obliged to let him go into the water again; for whilst

\* The old Norwegians called the male Hafstrambe, and the female Maryge, according to Andrew Buffæus, in his Scriptum Monographum, printed in Ol. Bang's Useful and Instructive Miscellanies, III. St. p. 531, relying upon an old MS. called Speculum Regale, extracted by Peter Clausen Undal, of which I have given some account, in the preface to the first part of this work; but I did not know that the same extract was extant in a copy Buffæus must have had, and much less that the work itself at large is still to be seen amongst Arnæ Magnai MSS. at the university-library in Copenhagen, of which I have lately (with pleasure and surprize) been advised by a letter from the honourable B. Lundorph, counsellor of state.

he

he lay upon the deck, he spoke Danish to them, and threatened, if they did not give him his liberty, that the ship should be cast away, and every soul of the crew should perish. This is as idle as the other stories. When such fictions are mixed with the history of the Mer-man, and when that creature is represented as a prophet and an orator; when they give the Mer-maid a melodious voice, and tell us that she is a fine singer; one need not wonder that so few people of sense will give credit to such absurdities; or that they even doubt the existence of such a creature.

## S E C T. III.

However, while we have no ground to believe all these fables, <sup>The truth.</sup> yet, as to the existence of the creature, we may safely give our assent to it; provided that it is not improbable, or impossible in the nature of things, and that there is no want of confirmation from creditable witnesses, and such as are not to be rejected. Both these propositions I shall shew to be well grounded. But before I proceed, I will venture to describe our Norwegian Mer-man and Mer-maid, as likewise their young, called Marmæte, or Marmæle. If we judge of this affair (a priori) and enquire whether it be probable, that we should find in the ocean a Fish, or creature, which resembles the human species more than any other, it cannot be denied but we may answer in the affirmative, from the analogy and resemblance that is observed betwixt various species of land and sea-animals. It is well known there are Sea-horses, Sea-cows, Sea-wolves, Sea-hogs, Sea-dogs, &c.\* which bear a near resemblance to the land-animals of those species: tho' this should be allowed as reasonable, yet some may make an objection, founded upon self-love, and respect to our own species, which is honoured with the image of God, who made man lord of all creatures; consequently we may suppose he is entitled to such a noble and heavenly form, which other creatures must not partake of; according to the words of the poet.

Pronaque cum spectent animalia cætera terram,  
Os homini sublimè dedit, cælumque tueri,  
Jussit — — — — —

But the force of this argument vanishes, when we consider the form of Apes, and especially of the great Baboons of Africa †, and

\* Vera est vulgi opinio, quicquid nascatur in parte naturæ ulla, & in mari esse, præterque multa, quæ nusquam alibi. Rerum quidem non solum animalium simulacra, &c. Plinius, Lib. ix. c. ii. This is confirmed by our fishermen, from their own experience, who know nothing of Pliny's authority.

† Si vera fatebor, quæ historicus naturalis, ex scientiæ principiis nullum characterem hæctenus

and much more when we consider another African creature, called Quoyas Morrov, of which Odoard Dapper, in his Description of Africa, p. 583, gives the following account.

“ In the woods of the kingdom of Angola, or Dongo, we find an animal called Quoyas Morrov, that is, the Wood-man; it is also met with in Quoya, and in Bromo: it greatly resembles man, and hence it is believed by many, that it has been produced from the intercourse between a man and an ape, or an ape and a woman. A creature of this sort was some years ago brought to Holland, and presented to Frederic Henry, prince of Orange. It was as tall as a child of three years old, and as corpulent as one of six: it was strongly built; smooth before, but rough, and overgrown with black hairs behind. The countenance of this animal resembled that of a man; the nose was flat, the ears like human ears; it had two protuberant breasts, a navel, and all its limbs like those of the human species; as elbows, hands, legs, calves of the legs, and ancles. It frequently walked erect, and could take up a heavy weight, and bear it away. When it wanted drink, it fixed one hand to the bottom of a tankard, and with the other took hold of the lid, and drank, wiping its lips afterwards. It laid its head regularly upon a pillow, when inclined to sleep, and covered itself carefully with the bed-cloaths; so that any person would have sworn that a man was sleeping in the place. It is reported, that these animals attack and ravish women, and that they sometimes fall upon armed men. Upon the whole, this animal appears to be the Satyr of the ancients.”

#### S E C T. IV.

If we will not allow our Norvegian Hasstromber the honourable name of Mer-man, we may very well call it the Sea-ape, or the Sea-Quoyas Morrov, especially as the author already quoted presently after says, in p. 584, “ That in the Sea of Angola Mermaids are frequently catch'd, which resemble the human species. They are taken in nets, and kill'd by the negroes, and are heard to shriek and cry like women. The inhabitants on that coast eat their flesh, being very fond of it, which they say is much like pork in taste. The ribs of these animals are reckoned a good styptic; and a certain bone in the head, which separates the brain,

Meer-Minne.

hactenus eruere potui, unde homo a simia internoscatur. Dantur enim alicubi terrarum simiæ, minus quam homo pilosæ, erecto corpore, binis æque ac ille pedibus incedentes, & pedum & manuum ministerio, humanam referentes speciem, prorsus ut eisdem pro hominum quopiam genere venditarint peregrinatorum rudiores. Loquela quidem, &c. — — verum hæc quædam est potentia, vel certe effectus, non nota characteristica. Carol. Linnæus in Præfat. Faunæ Suecicæ, p. 2.



is said to be a powerful remedy against the stone." I shall add to all this, a passage relating to this subject, which may be met with under the article Meer-mann, p. 658, in the Universal Dictionary of Arts and Sciences, published by John Theodore Jablonky: "Meer-man, Meer-weib, Meer-minne, that is, Sea-man, Mermaid, or Siren, called by the Indians Ambisiangulo, otherwise Pefiengoni, and by the Portuguese Pezz Muger, is a Fish found in the seas, and in some rivers in the Southern parts of Africa and India, and in the Philippine and Molucca Islands, Brasil, North America, and Europe, in the North Sea. The length of this Fish is eight spans, its head is oval, and the face resembles that of a man. It has an high forehead, little eyes, a flat nose, and large mouth, but has no chin or ears. It has two arms, which are short, but without joints or elbows, with hands or paws, to each of which there are four long fingers, (which are not very flexible) connected to each other by a membrane, like that of the foot of a goose. Their sex is distinguishable by the parts of generation. The females have breasts to suckle their offspring; so that the upper part of their body resembles that of the human species, and the lower part that of a Fish. Their skin is of a brownish grey colour, and their intestines are like those of a hog. Their flesh is as fat as pork, particularly the upper parts of their bodies; and this is a favourite dish with the Indians, broiled upon a Gridiron. It makes a lamentable cry when drawn out of the water. There is a bone in the head that divides the brain, which the Portuguese powder, and say is of great service in the stone and gravel. Accounts of the catching of these Sea or Mer-men in Europe are delivered by Wormius, Guiccardino, Mexia, Seybold, Erasmus, Franciscus, and others."

Athanasius Kircher gives this description of the Pezz-muger, in his third book de Magnete, P. vi. c. i. §. 6, p. 675. "Capitur certis temporibus anni in mari orientali Indiæ, ad insulas Vissayas, quas insulas Pictorum vocant, sub Hispannorum dominio piscis quidam ἀνθρωπομορφος, i. e. humana prorsus figura, quem ideo Pezze Muger vocant, ab indigenis Duyor. Caput habet rotundum nulla colli intercapedine trunci compactum, extremæ aurium fibræ, quæ & auriculæ nominantur, ex cartilaginea carne eleganter vestitæ, quarum interior pars, amplissimis formata anfractibus, veram hominis refert aurem, oculos suis ornatos palpebris, fituque & colore non piscis sed hominis judicares. Naso nonnihil oberrat, malam inter utramque non usquequaque eminent, sed levi tramite bipartitur, sub eo vero labra magnitudine specieque nostris simillima, dentium, non quales insunt piscium generi ferratiliū, sed planorum & candidissimorum, continua series. Pectus alba cute

contectum, hinc atque hinc paulo latius quam pro corpore, in mammas extuberans, neque eas ut foeminis pendulas, sed quales virginibus globosas, plenas lactis candidissimi. Brachia non longa sed lata ad natandum apta, nullis tamen ipsa cubitis, ulnis, manibus articulisque distincta. In administris sobolis procreandæ membris in utroque sexu nulla ab humanis distinctio. Post hæc in piscem cauda definit.”

## S E C T. V.

Confirmed.

Upon these authorities I may say, that if the existence of the European Mer-men be called in question, it must proceed entirely from the fabulous stories usually mix'd with the truth\*. Here, in the diocese of Bergen, as well as in the manor of Nordland, are several hundreds of persons of credit and reputation, who affirm, with the strongest assurances, that they have seen this kind of creature sometimes at a distance, and at other times quite close to their boats, standing upright, and formed like a human creature down to the middle; the rest they could not see. I have spoken with many of these people, all eye-witnesses to the existence of the creature; and I have taken all possible precautions in examining them strictly on the subject. The result was, that I found them all agree in every particular of their accounts, which answers to a description lately published by Jablonsky and Kircher, so far as they could judge by the sight of them only, at a small distance. But of those who had seen them out of the water, and handled them, I have not been able to find more than one person of credit who could vouch it for truth. As I may safely give credit to this person, namely, the reverend Mr. Peter Angel, who is still living, and minister of the parish of Vand-Elvens Gield, on Sundmoer, I shall relate what he assured me of last year, when I was on my visitation-journey. He says, that in the year 1719, he (being then about 20 years old) along with several other inhabitants of Alstahoug in Nordland, saw what is called a Mer-man, lying dead on a point of land near the sea, which had been cast ashore by the waves, along with several Sea-calves, and other dead Fish. The length of this creature was much greater than what has been mentioned of any before, namely, above three fathoms. It was of a dark grey colour all over: in the lower part it was like a Fish, and had a tail like that of a Porpessè. The face resembled that of a man, with a mouth, forehead, eyes, &c. The nose was flat, and, as it were, pressed

\* In Everh. Hæppelius's *Mundus Mirabilis* are to be read many stories, mixed with fables, concerning the Mer-man, Tom. iii. Lib. i. cap. 18.

down to the face, in which the nostrils have ever been very visible. The breast was not far from the head; the arms seem'd to hang to the side, to which they were joined by a thin skin or membrane. The hands were, to appearance, like the paws of a Sea-calf. The back of this creature was very fat, and a great part of it was cut off, which, with the liver, yielded a large quantity of train-oil. That this creature, which is reckoned among the Whale-kind, is a Fish of prey, and lives upon the smaller sort, may be concluded from what Mr. Luke Debes relates, in his Description of Faroe. He tells us, that they have there seen a Mer-maid with a Fish, which she held in her hand. The words are, in p. 171, as follows: "There walso seen in 1670, at Faroe, Westward of Qualboe Eide, by many of the inhabitants, as also by others from different parts of Suderoe, a Mer-maid, close to the shore. She stood there two hours and a half, and was up to the navel in water. She had long hairs on her head, which hung down to the surface of the water all round about her. She held a Fish, with the head downwards, in her right-hand. I was told also, that in the same year the fishermen in Westerman-haven, on Strömoe, had, at their fishery north of Faroe, seen a Mer-maid."

Tormodus Torfæus relates, that several Mer-men, along with other monsters, were seen at one time on the coast of Iceland, in his Hist. Norv. T. iv. L. viii. p. 416, and there refers to his Account of Greenland. I am sorry that I have not the work at hand, for those that would be curious to know more of this matter; but in the place just quoted he speaks thus: "Sirenes propter australia Islandiæ promontoria, Sudrnes appellata, pluraque alia monstra visa, & in his illud, quod Hassframbe appellatur (de quo videri potest Gronlandia nostra cap. xiii.) nautis, qui in Islandiam vento retroacti sunt, observatum."

That these creatures, being Fish of prey, sometimes quarrel with the Sea-calf, is confirmed by a relation sent me, with several others, by the rev. Mr. Hans Strom, at Borgen. It runs to this effect: "It happened at Nerøe in Numedalen, that there was found a Mer-man and a Sea-calf on a rock, both dead, and all over bloody; from which it is conjectured that they had killed one another."

The rev. Mr. Randulf, rector of the place, gave himself some trouble, by endeavouring to preserve the Mer-man, but to no purpose; for before he or his people could get near it, the peasants had cut them both to pieces, for the sake of the fat. Whether amongst these Mer-men, or, as we may rather call them, Sea-apes, there be any specifick difference in shape or size (as I have observed  
before

before that the real apes differ from the creature called Quoyas-Morrow, though there is in all a similitude of the human form) I cannot say for a certainty. However, I am apt to think there is, and not without some probability. In regard to size at least, they remarkably differ every where, according to our fishermen, from the well-known sea-animal called Marmale, or Marmæte: This shall be described hereafter, and might seem to be a dwarf in this species. That mentioned above, in the passage quoted from Mr. Angel, being three fathoms long, might, in the same manner, be called a giant among the rest.

In the year 1624 a Mer-man, thirty-six feet long, was taken in the Adriatic Sea; according to Henry Seebald's *Breviar Histor.* to this the last-mentioned was but a dwarf. See p. 535. As to their form, it is said that some have a skin over their head like a monk's hood, which perhaps serves them for the same purposes; as does the skinny hood, which a certain sort of Sea-calves have on their heads, which, from thence, are called Klap-mutzer, as has been observed in the description of that creature. Olaus Magnus speaks, in *Lib. xxi. cap. 1.*, of several monsters in the North Sea, all which resemble the human kind, with a monk's hood on the head. His words are, "*Cucullati hominis forma.*" He adds, that if any of this company be catch'd, a number of them set up a howl, put themselves in violent agitations, and oblige the fishermen to set the prisoner at liberty. But this last article is a meer romance, to which this too credulous author in this, as well as some other particulars, has given too much credit, without sufficient grounds. Of this Mer-man with a hood Rondeletius writes thus, in *Gesner. de Aquatilibus, Lib. iv.* which I ought not to omit. "*Inter marina monstra est & illud, quod nostra ætate in Norvegia captum est, mari procelloso. Id quotquot viderunt statim Monachi nomen imposuerunt. Humana facie esse videbatur, sed rustica & agresti, capite raso & lævi. Humeros contagebat veluti Monachorum nostrorum cucullus. Pinnas duas longas pro brachiis habebat. Pars infima in caudam longam desinebat. Media multo erat latior, fagi militaris figura. Hanc effigiem mihi dono dedit illustrissima Margareta Navarra regina, &c. Ea a viro nobili effigiem hanc acceperat, qui similem ad Carolum V. imperatorem, in Hispania tunc agentem, deferabat. Illæ reginæ affirmavit, se monstrum hoc in Norvegia captum vidisse, post gravissimas tempestates undis & fluctibus in littus ejectum, locumque designabat, die Zundt juxta oppidum den Ellepoch. Ejusdem monstri picturam mihi ostendit Gilbertus medicus ex eadem Norvegia Romam ad se missam, quæ pictura nonnihil a mea differabat.*"

ferebat. Quare, ut dicam quod sentio, quædam præter rei veritatem a pictoribus addita esse puto, ut res mirabilior haberetur \*, crediderim igitur monstrum hoc humanam formam ea modo referre, quo pars capitis ranarum, quia post caput partes erant utrinque elatæ hominum omoplatis respondententes; musculisque movebantur, qui cuculli Monachorum figuram repræsentant, qualis in nobis spectatur. Secundus musculus omoplatas movens, scilicet eas partim ad se attrahens, partim attollens, cuculli Monachorum forma aptissime referens. Ad hæc, non squamis sed cute dura rugosa veluti cortice contactum putarim, quemadmodum de Leone marino dicemus."

As this account confounds Norway with the Sound, and Malmoe, which the Dutch call the Elbow, I conclude this strange Fish here spoken of to have been just the same with that which Arild Hvitfeld in vita Christ. iii, ad anno 1550, speaks of. He says it was caught in Oresund, and brought to Copenhagen, and there buried by his majesty's order, because the head resembled that of a human creature, with cropped hair, and covered with a monk's hood. There is yet a difference observed in this Mer-man or Mer-maid's lower parts, and the tail. These are represented, in most of the drawings, with fins, like other Fish, and with a flat and divided tail, something like that of the Porpesses; from this that print of a Sirene, which Thom. Barthol. gives us in Historiar. Anatomicar. centur. II. N<sup>o</sup> ix. p. 188. differs entirely, for the lower extremity is there represented with a round protuberance, without the least sign of a fin, or any thing like the tail of a Fish.

The anatomy of a Mer-maid's hand, which the said author represents, and which he had in his possession, together with a rib of this creature, are, without doubt, the same that Ol. Jacobæus, in his Mus. Reg. p. 15. takes notice of, and where he does not question the existence of this creature, any more than the former writer. Bartholine, in the before-mentioned place, quotes the testimony of several foreign writers, and concludes the subject in p. 191. with these words: "Tanta de Sirenum forma apud antiquos recentioresque differentia est, ut mirum non sit, pro fig-

\* This writer has the greatest reason to suspect the painter of imposition, for painting it in that manner. Ambrosius Paræus, Lib. xxv. cap. 34. and also Gasp. Schott. Lib. iii. cap. 3. betrays a good deal of affectation in comparing this animal with a priest in his sacerdotal habit, or to a Jewish high-priest in his pontificals. In the General Collection of Voyages and Travels, Tom. vii. sect. 4. p. 226, this creature is represented among the animals of the ocean that are caught at the Cape of Good-Hope. It is figured there like a common Sirene, or Mer-maid, with only this difference, that on the arms there are several fins.

mentis haberi quibusdam. Nos oculatas manus habemus, Sirenesque tales demonstramus, quales revera visæ. Nec manus aut costæ fallunt, quarum icones dedimus ad ipsam naturæ veritatem confectas.”

Latest instances.

The latest instance I have learned of a Mer-man's being seen, was in Denmark; and this stands attested so well, that it deserves to be quoted after all the others. I shall give it as it is found in Ol. Bang's collections, p. 528. and is as follows: Anno 1723, on the 20th of September, the burger-master, A. Buffæus, of Elsenur, had, by his majesty's orders, three ferrymen, inhabitants of Elsenur, examined before the privy-councillor Frid. von Gram. Their names were Peter Gunnersen, aged 38, Nicholas Jensen, aged 31, his brother, and Jeppe Jensen Giffen, aged 29. These men were examined about a Sea-monster, which they affirmed they had seen a few weeks before, and concerning which their depositions were taken upon their respective oaths, in order to corroborate their testimony.

It appeared, that about two months before, the aforesaid ferrymen were towing a ship just arrived from the Baltic, and which was then under full sail, when they were at a considerable distance from land, being in the midway between Hveen and Sædland, where they could see the church-steeple of Landscrone. The calm weather induced them to lie by a little, and at the distance of an English mile, or a quarter of a Norway mile, they observed something floating on the water like a dead body, which made them row to it, that they might see what it was. When they came within seven or eight fathoms, it still appeared as at first, for it had not stirred, but at that instant it sunk, and came up again almost immediately in the same place. Upon this, out of fear, they lay still, and then let the boat float, that they might the better examine the monster, which, by the help of the current, came nearer and nearer to them. He turned his face, and stared at the men, which gave them a good opportunity of examining him narrowly; he stood in the same place for half a quarter of an hour, and was seen above the water down to his breast: at last they grew apprehensive of some danger, and began to retire; upon which the monster blew up his cheeks, and made a kind of a roaring noise, and then dived under the water, so that they did not see him any more.

In regard to his form and shape, they say he appeared to them like an old man, strong limb'd, and with broad shoulders, but his arms they could not see. His head was small in proportion to the body, and had short-curled black hair, which did

not

not reach below his ears; his eyes lay deep in his head, and he had a meager and pinched face, with a black beard, that looked as if it had been cut. His skin was coarse, and very full of hair. Peter Gunnerfen related, (what the others did not observe) that this Mer-man was, about the body and downwards, quite pointed like a Fish. This same Peter Gunnerfen likewise deposed, that about twenty years before, as he was in a boat near Kulleor, (the place where he was born) he saw a Mer-maid with long hair, and large breasts. These ferrymen further deposed, that the weather was very fine and quite calm during the same day, and for several days following.

That this examination was taken in the most regular and exact manner, attests, Elfeneur, ut supra,

Andrew Buffæus.

Whilst I am writing this, the reverend Mr. Hans Strom informs me, that in Bergenfund on Sundmoer, there has also this Summer been seen a Mer-man of the common form: however, in all these accounts probably fancy has exaggerated a little.

The before-mentioned Marmæle, or, as some call it, Marmæte, Marmæte. belongs also to this class of the Mer-maid: tho' I shall not call it the Mer-man's offspring, yet one might give it this name till further examined into. This creature is often caught on hooks, and is well known to most of the fishermen. They are of different sizes; some are of the bigness of an infant of half a year old; others of one of a year; and others again as big as a child of three years old: of this last size there was one lately taken in Selloe-Sogn; the upper part was like a child, but the rest like a Fish: those who caught it threw it directly into the sea. Sometimes the peasants take them home to their houses, and, as they say, give them milk, which they drink. They tell us that these creatures then roll their eyes about strangely, as if it was out of curiosity, or surprize, to see what they had not seen before. Those that venture to take them home, do it in hopes of having something foretold by them; but they do not keep them above 24 hours, superstitiously thinking themselves bound to row out to sea, and put them down in the same place where they found them.

#### S E C T. VI.

The Soe Ormen, the Sea-Snake, *Serpens Marinus Magnus*, The great Sea-Snake, or Serpent of the ocean. called by some in this country the Aale-Tuft, is a wonderful and terrible Sea-monster, which extremely deserves to be taken notice  
of

of by those who are curious to look into the extraordinary works of the great creator. Amongst these the Kraaken, which I am going to describe, is to be considered as the most extraordinary in length. But here I must again, as I did of the Mer-man, first give the reader proper authorities for the real existence of this creature, before I come to treat of its nature and properties. This creature, particularly in the North Sea, continually keeps himself in the bottom of the sea, excepting in the months of July and August, which is their spawning time; and then they come to the surface in calm weather, but plunge into the water again, so soon as the wind raises the least wave.

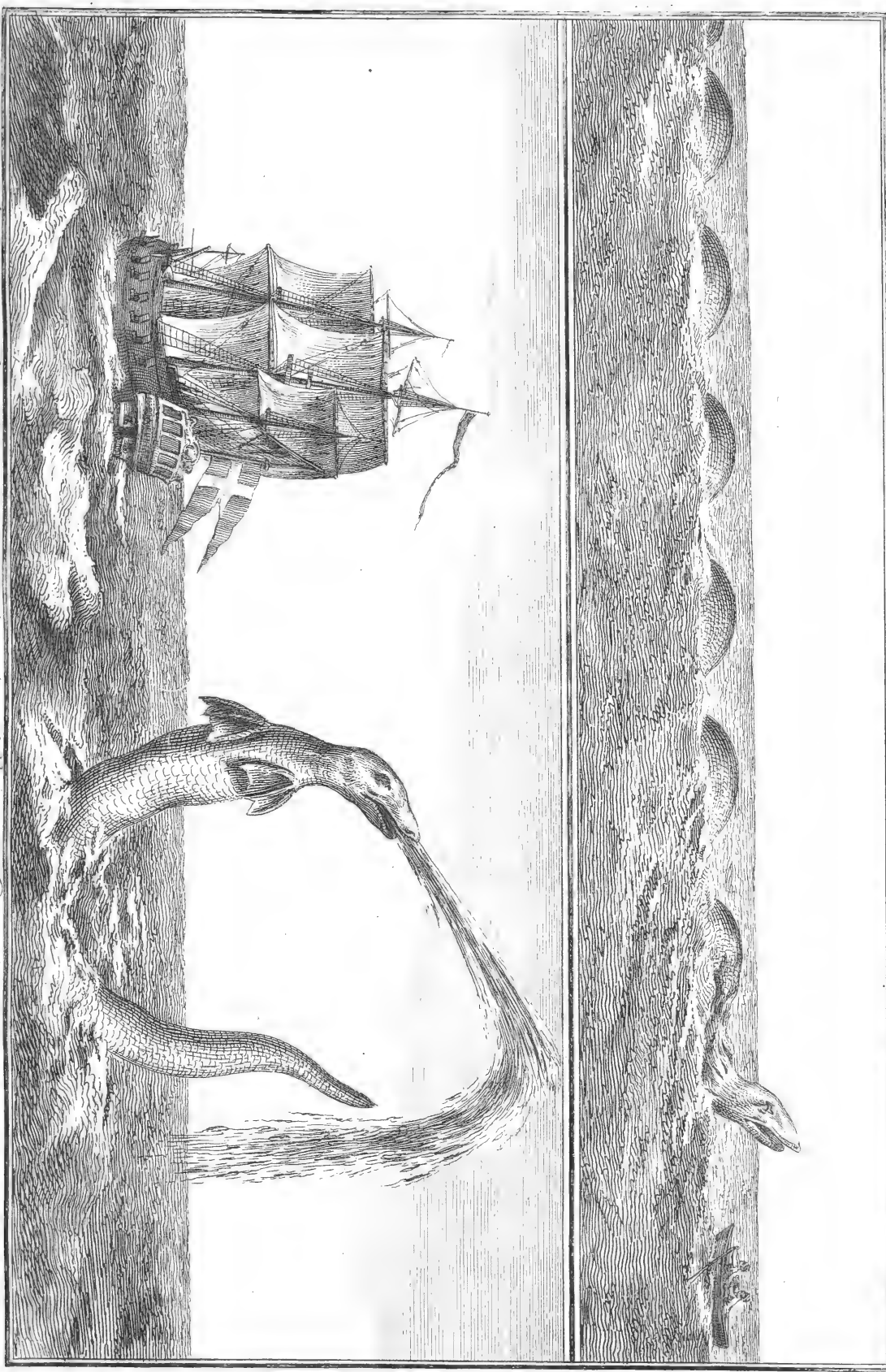
If it were not for this regulation, thus ordained by the wise Creator for the safety of mankind, the reality of this Snake's existence would be less questioned, than it is at present, even here in Norway; tho' our coast is the only place in Europe visited by this terrible creature. This makes many persons, that are enemies to credulity, entertain so much the greater doubt about it. I have questioned its existence myself, till that suspicion was removed by full and sufficient evidence from creditable and experienced fishermen, and sailors, in Norway; of which there are hundreds, who can testify that they have annually seen them. All these persons agree very well in the general description; and others, who acknowledge that they only know it by report, or by what their neighbours have told them, still relate the same particulars.

Many witnesses not to be rejected.

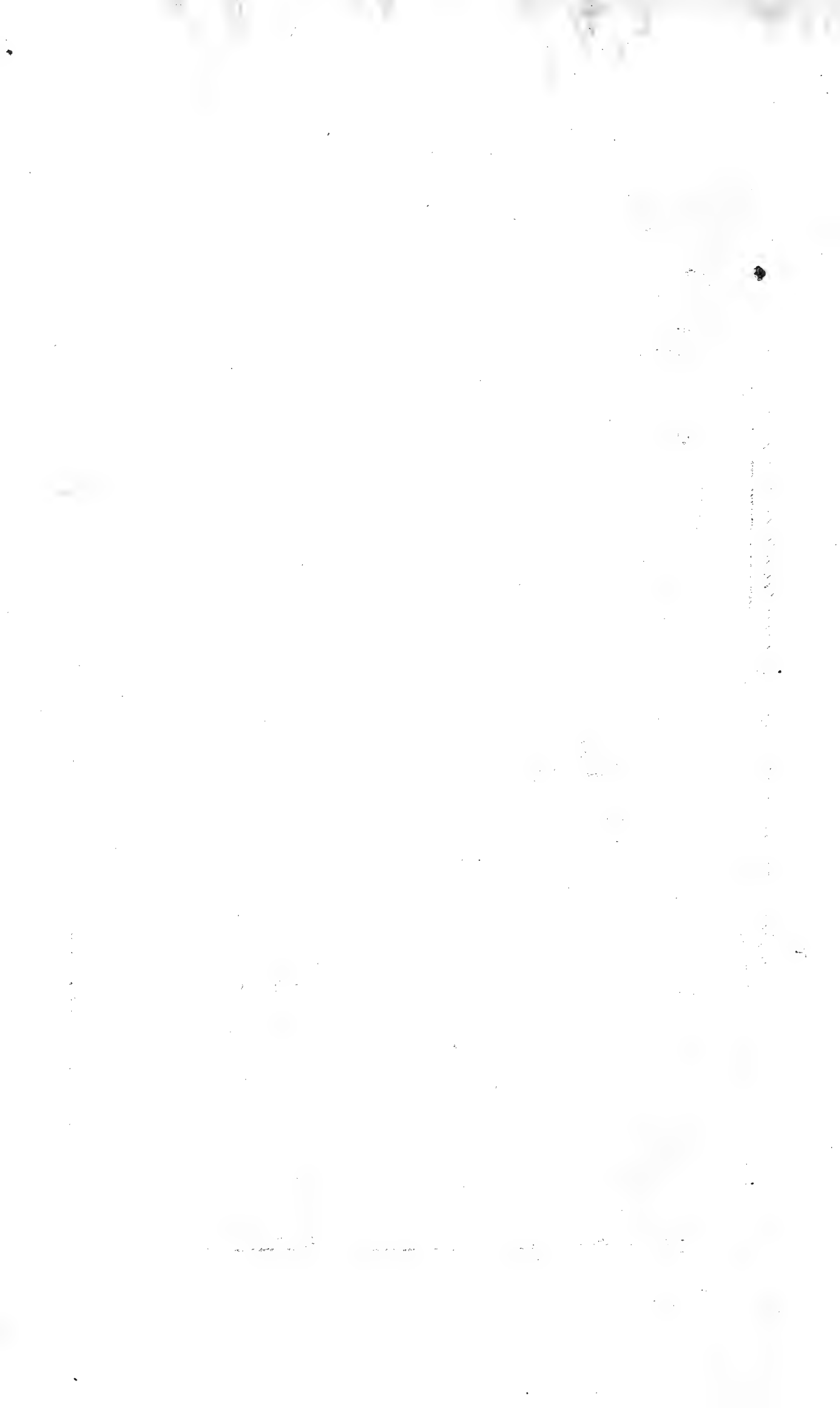
In all my enquiry about these affairs, I have hardly spoke with any intelligent person, born in the manor of Nordland, who was not able to give a pertinent answer, and strong assurances of the existence of this Fish: and some of our North traders, that come here every year with their merchandize, think it a very strange question, when they are seriously asked, whether there be any such creature; they think it as ridiculous as if the question was put to them, whether there be such Fish as Eel or Cod.

Last Winter I fell by chance in conversation on this subject with captain Lawrence de Ferry, now commander in this place, who said that he had doubted a great while, whether there was any such creature, till he had an opportunity of being fully convinced, by ocular demonstration, in the year 1746. Though I had nothing material to object, still he was pleased, as a farther confirmation of what he advanced, to bring before the magistrates, at a late sessions in the city of Bergen, two sea-faring men, who were with him in the boat when he shot one of these monsters,





27. The great sea serpent, according to different descriptions —



sters, and saw the Snake, as well as the blood that discoloured the water. What the said men deposed upon oath in court, may be seen by the following instrument: the original was sent me, and I think it deserves to be printed at large. It runs thus:

“ His majesty’s chief advocate in Bergen, Albert Christian Dafs, the recorder, Hans Christian Gartner, John Clies, Oliver Simensen, Oliver Brinchmand, George Konig for Conrad de Lange, Matthias Gram for Elias Peter Tuckfen, Claus Natler for Didrick Haslop, Jochum Fogh for Henry Hiort, and George Wiers for Hans Christian Byffing, sworn-burghers and jury-men, give evidence, that in the year of our Lord 1751, on the twenty-second day of February, at a sessions of justice in this city of Bergen, the procurator John Reutz appeared, and presented a letter which had been delivered to him that day, from the honourable Lawrence de Ferry, captain in the navy, and first pilot, dated the preceding day, February 21, wherein he desires the said procurator to procure him written copies of the respective depositions, attested properly upon oath, relating to the before-mentioned affair, and what there happened: and the said procurator, now present, for that purpose, humbly begs, that two men, namely, Nicholas Peterfen Kopper, and Nicholas Nicholson Anglewigen, inhabitants of this city, may be admitted to make oath, that every particular set forth in the aforesaid letter is true; which deposition he desires may be entered in the act of that sessions. This letter was accordingly read to the said deponents; and is as follows:

Testimony  
given at the  
sessions.

Mr. John Reutz,

The latter end of August, in the year 1746, as I was on a voyage, in my return from Trundhiem, in a very calm and hot day, having a mind to put in at Molde, it happened, that when we were arrived with my vessel within six English miles of the aforesaid Molde, being at a place called Jule-Næfs, as I was reading in a book, I heard a kind of a murmuring voice from amongst the men at the oars, who were eight in number, and observed that the man at the helm kept off from the land. Upon this I enquired what was the matter; and was informed that there was a Sea-snake before us. I then ordered the man at the helm to keep to the land again, and to come up with this creature, of which I had heard so many stories. Tho’ the fellows were under some apprehensions, they were obliged to obey my orders. In the mean time this Sea-snake passed by us, and we were obliged to

tack the vessel about, in order to get nearer to it. As the Snake swam faster than we could row, I took my gun, that was ready charged, and fired at it: on this he immediately plunged under the water. We rowed to the place where it sunk down (which in the calm might be easily observed) and lay upon our oars, thinking it would come up again to the surface; however, it did not. When the Snake plunged down, the water appeared thick and red; perhaps some of the shot might wound it, the distance being very little. The head of this Snake, which it held more than two feet above the surface of the water, resembled that of a horse. It was of a greyish colour, and the mouth was quite black, and very large. It had black eyes, and a long white mane, that hung down from the neck to the surface of the water. Besides the head and neck, we saw seven or eight folds or coils of this Snake, which were very thick, and, as far as we could guess, there was about a fathom distance between each fold. I related this affair in a certain company, where there was a person of distinction present, who desired that I would communicate to him an authentic detail of all that happened; and for this reason two of my sailors, who were present at the same time and place when I saw this monster, namely, Nicholas Pederfen Kopper, and Nicholas Nicholson Anglewigen, shall appear in court, to declare on oath the truth of every particular herein set forth; and I desire the favour of an attested copy of the said descriptions.

I remain, Sir, your obliged servant,

Bergen, 21 February, 1751.

L. de FERRY.

After this the before-named witnesses gave their corporal oaths, and with their finger held up according to law, witnessed and confirmed the aforesaid letter or declaration, and every particular set forth therein, to be strictly true. A copy of the said attestation was made out for the said Procurator Reutz, and granted by the recorder.

That this was transacted in our court of justice, we confirm with our hands and seals." Actum Bergis, Die & Loco, ut supra.

A. C. DASS.  
(L. S.)

H. C. GARTNER, &c.  
(L. S.)

#### S E C T. VII.

Form.

Governor Benstrup affirms, that he saw the same creature a few years ago, and that he drew a sketch of the Sea-snake, which  
I wish

I wish I had to communicate to the public. I have however inserted a draught that I was favoured with by the before-mentioned clergyman, Mr. Hans Strom, which he caused to be carefully made, under his own inspection. This agrees in every particular with the description of this monster, given by two of his neighbours at Herroe, namely, Mess. Reutz and Tuchsen, and of which they had been eye-witnesses. I might mention to the same purpose many more persons of equal credit and reputation. Another drawing also, which appears more distinct with regard to the form of this creature, was taken from the reverend Mr. Egede's journal of the Greenland mission, where the account stands thus in p. 6. "On the 6th of July, 1734, there appeared a very large and frightful Sea-monster, which raised itself up so high out of the water, that its head reached above our main-top. It had a long sharp snout, and spouted water like a Whale, and very broad paws. The body seemed to be covered with scales, and the skin was uneven and wrinkled, and the lower part was formed like a Snake.

After some time the creature plunged backwards into the water, and then turned its tail up above the surface a whole ship-length from the head\*. The following evening we had very bad weather." So far Mr. Egede. The drawing annexed gives me the greatest reason to conclude, (what by other accounts I have thought probable) that there are Sea-snakes, like other Fish, of different sorts. That which Mr. Egede saw, and probably all those who sailed with him, had under its body two flaps, or perhaps two broad fins; the head was longer, and the body thicker †, but much shorter than those Sea-snakes, of which I have had the most consistent accounts. Though one cannot have an opportunity of taking the exact dimensions of this creature, yet all that have seen it are unanimous in affirming, as far as they can judge at a distance, it appears to be of the length of a cable, i. e. 100 fathoms, or 600 English feet §; that it lies on the surface  
of

\* I remember to have seen this Sea-snake represented in a large picture at Mr. Jacob Severin's, who then had the care of the expeditions to Greenland, under his majesty's commission, and had put a Latin verse under it; the purport of which was, as far as I can remember, that he looked with disdain upon that infernal Dragon, that seems to frighten all that come there with the design of enlightening and converting the Greenland heathens.

† In the New Survey of Old Greenland, p. 48, the before mentioned Mr. Egede speaks of the same monster, with this addition, that the body was full as thick and as big in circumference as the ship that he sailed in. Mr. Bing, one of the missionaries, that took a drawing of it, informed his brother-in-law, Mr. Sylow, minister of Hougs in this diocese, that this creature's eyes seemed red, and like burning fire; all which makes it appear that it was not the common Sea-snake.

§. It was probably, from the appearance of this creature, that the valiant king Oluf

of the water (when it is very calm) in many folds, and that there are in a line with the head, some small parts of the back to be seen above the surface of the water when it moves or bends. These at a distance appear like so many casks or hogheads floating in a line, with a considerable distance between each of them. Mr. Tuchsen of Herroe, whom I mentioned above, is the only person, of the many correspondents I have, that informs me he has observed the difference between the body and the tail of this creature as to thickness.

It appears that this creature does not, like the Eel or Land-snake, taper gradually to a point, but the body, which looks to be as big as two hogheads, grows remarkably small at once just where the tail begins. The head in all the kinds has a high and broad forehead, but in some a pointed snout, though in others that is flat, like that of a cow or a horse, with large nostrils, and several stiff hairs standing out on each side like whiskers.

It is supposed that the Sea-snakes have a very quick smell, which we may conclude from this, that they are observed to fly from the smell of castor. Upon this account those that go out on *Stor-Eggen* to fish in the Summer, always provide themselves with these animals. They add, that the eyes of this creature are very large, and of a blue colour, and look like a couple of bright pewter plates. The whole animal is of a dark-brown colour, but it is speckled and variegated with light streaks or spots, that shine like tortoise-shell. It is of a darker hue about the eyes and mouth than elsewhere, and appears in that part a good deal like those horses, which we call *Moors-heads*.

I do not find by any of my correspondents, that they spout the water out of their nostrils like the Whale, only in that one instance related by Mr. Egede, as mentioned above: but when it approaches, it puts the water in great agitation, and makes it run like the current at a mill. Those on our coast differ likewise from the *Greenland Sea-snakes*, with regard to the skin, which is as smooth as glass, and has not the least wrinkle, but about the neck, where there is a kind of a mane, which looks like a parcel of sea-weeds hanging down to the water. Some say it annually sheds its skin like the *Land-snake*; and it is affirmed, that a few years since there was to be seen at *Kopperwiig*, a cover for a table made of the skin of one of these snakes. This raised my

*Oluf Trygvinsen*, called his matchless ship of war *Ormen Lange*, that is, *Long-snake*. This extraordinary vessel carried 1000 armed men, who, with their gilded shields hanging over on each side of the ship, gave this inanimate *Sea-snake* an appearance not inferior to the living one.

curiosity

curiosity to know the truth, and accordingly I wrote thither for proper information, desiring the favour of a slip of it, by way of specimen; but it seems there was no such thing, at least not at that time. besides, a man that came from the place told me he had never heard any thing of it. This person however inform'd me, that in the year 1720 a Sea-snake had lain a whole week in a creek near that place; that it came there at high water, through a narrow channel, about seven or eight feet broad, but went away, after lying there a whole week, as mentioned above, and left behind it a skin, which this man, whose name is Thorlack Thorlackfen, declares he saw and handled. This skin lay with one end under water in the creek, and therefore, how long it was no-body could tell. It seems the creek within that channel is several fathoms deep, and it lay stretched out a great way; but the other end of the flouth had been driven ashore by the tide, where it lay a long time, for every body to examine. He said it did not seem fit to make a covering for a table, unless it had been properly dressed, or some other way prepared for that purpose; for it was not hard and compact, like a skin, but rather of a soft and slimy consistence, something like the Manæte before-describ'd. Even the body itself is said to be of the same nature, as I am informed by those who, by accident, once caught a young one, and laid it upon the deck of the ship. It died instantly, though no-body dar'd to go near it even then, till they were obliged to throw it overboard, by the insupportable stink which was caused by the soft and viscid slime, to which it was at length dissolved by the action of the wind\*. It seems the wind is so destructive to this creature, that, as has been observed before, it is never seen on the surface of the water, but in the greatest calm, and the least gust of wind drives it immediately to the bottom again. One of these Sea-snakes was seen at Amunds Vaagen, in Nordfiord, some years ago. It came in between the rocks, probably at high water, and died there. It was observed that the carcase occasioned an intolerable stench for a long time. It

\* We have the same account from Pere Labat, of a small Sea-serpent, about four feet long, and as thick as a man's arm. His words are, "Nous l'attachames au mât après l'avoir assommé pour voir quelle figure il auroit le lendemain. Nous connumes combien nôtre bonheur avoit été grand, de n'avoir point touché a ce poisson, qui sans doute nous auroit tous empoisonnez. Car nous trouvames le matin qu'il s'étoit entierement dissous en une eau verdâtre & puante, qui avoit coulé sur le pont, sans qu'il restat presque autre chose que la peau & la reste, quoi qu'il nous eut paru le soir fort ferme & fort bon. Nous conclumes, ou que ce poisson étoit empoisonné par accident, ou que de sa nature ce n'étoit qu'un composé de venin. Je crois que c'étoit quelque vipere marin. J'en ay parlé à plusieurs pêcheurs & autres gens de mer, sans avoir jamais pu être bien éclairci de ce que je voulois sçavoir touchant ce poisson. Nouveaux Voyages aux Isles Francoises de l'Amerique, Tom. v. cap. xiv. p. 335.

is said the same also happened at the Island of Karmen, and in several other places. I wish that, on such opportunities, somebody had examined the creature carefully, to see whether it had a strong back bone, which seems necessary to support such a length.

The Shark kind, which are also of the cartilaginous class, and without other bones; yet have a back-bone, though that is but very slender, even in the largest species, which are often twenty feet in length. The Sea-snake seems also to be, like the Shark, Eel, and Whale-kind, viviparous. It appears that they seek their mates at a certain time of the year, in order, as it is said, to couple. For this reason it is supposed they follow ships and boats at those times, which probably appear to them to be creatures of their own kind. If this, which I have from the accounts of our sea-faring people, be true, then I conclude they are mistaken, who suppose that the Sea-snake does not breed in the sea, but on dry land; and that it lives in rocks and woods, till it can no longer be concealed, and then betakes itself to rivers, in order to get into the sea. There are some that pretend they have seen all this.

In the chapter of Land-snakes and Insects I have already observed, that such a sudden transition from the fresh to the salt water seems very improbable. However, I will not entirely disbelieve what is related of Water-snakes being seen in fresh lakes, some of which, in Sundfiord and Uland, are famous for these creatures; so that the inhabitants of the adjacent countries dare not venture to row across them in a boat.

#### S E C T. VIII.

Danger.

I return again to the Sea-snake, properly so called, or the Serpent of the Ocean, and particularly to the most interesting inquiry concerning them, which is, Whether they do mankind any injury? And in what manner they may hurt the human species? Arndt. Bernsen, in his Account of the Fertility of Denmark and Norway, p. 308, affirms that they do; and says, that the Sea-snake, as well as the Troid-whale, often sinks both men and boats. I have not heard any account of such an accident hereabouts, that might be depended upon; but the North traders inform me of what has frequently happened with them, namely, that the Sea-snake has raised itself up, and thrown itself across a boat, and sometimes even across a vessel of some hundred tons burthen, and by its weight has sunk it down to the bottom. One of the aforesaid North traders, who says that he has been near  
enough



enough to some of these Sea-snakes (alive) to feel their smooth skin, informs me, that sometimes they will raise up their frightful heads, and snap a man out of a boat, without hurting the rest: but I will not affirm this for a truth, because it is not certain that they are a Fish of prey. Yet this, and their enmity to mankind, can be no more determined, than that of the Land-snake, by the words of the prophet Amos, Cap. ix. v. 3. "And though they be hid from my sight in the bottom of the sea, thence will I command the serpent, and he shall bite them."

It is said that they sometimes fling themselves in a wide circle round a boat, so that the men are surrounded on all sides. This Snake, I observed before, generally appears on the water in folds or coils; and the fishermen, from a known custom in that case, never row towards the openings, or those places where the body is not seen, but is concealed under the water; if they did, the Snake would raise itself up, and upset the boat. On the contrary, they row full against the highest part that is visible, which makes the Snake immediately dive; and thus they are released from their fears. This is their method when they cannot avoid them: but when they see one of these creatures at a distance, they row away with all their might (by which they sometimes injure their health) towards the shore, or into a creek, where it cannot follow them.

When they are far from land it would be in vain to attempt to row away from them; for these creatures shoot through the water like an arrow out of a bow, seeking constantly the coldest places\*. In this case they put the former method in execution, or lye upon their oars, and throw any thing that comes to hand at them. If it be but a scuttle, or any light thing, so they be touch'd, they generally plunge into the water, or take another course. Of late our fishermen have found the way, in the warm Preservation. Summer months, of providing themselves with castor, which they always carry with them when they go far out to sea: they shut it up in a hole in the stern, and if at any time they are particularly apprehensive of meeting with the Sea-snake, they throw a little of it over-board; for by frequent experience they know of a certainty, that it always avoids this drug. Luke Debes tells us, in his *Færoa referata*, p. 167, that in that country also they use it with the same success, as the best defence against the Troid Whale, a Fish that likewise often upsets boats, but which has a great aversion to castor and shavings of juniper wood. These

\* They generally tack about their boat; so that if the Snake will pursue them, it must look against the Sun, which its eyes will not bear.

they

they throw out to him therefore when in danger. The author, just cited also says, that various experiments confirm this singular phænomenon, that if any man has castor about him when in the water, he sinks instantly to the bottom like a stone, though he be ever so good a swimmer. For the truth of this he relies upon the Testimony of Thom. Bartholin. in Centur. II. Hist. Anatom. Hist. 17, p. 201.

An eminent apothecary here has informed me, that, instead of castor, our fishermen provide themselves with nothing but *Asa fætida*, by way of defence against the hurtful Sea-animals: for if what they carry have but a strong smell, it has the same effect upon those Sea-snakes, &c. besides, *Asa fætida* comes at a lower price than castor.

In the remote parts of Norway, according to some accounts, people have been poisoned with the excrements of the Sea-serpent, which are often seen here, especially in Nordland, in the Summer months, floating on the water like a fat slime. This viscid matter is supposed by our fishermen to be somewhat vomited up by them, or else their sperm, or some other humour. If a fisherman finds this matter near his net, and inadvertently lets any of it touch his hand, it will occasion a painful swelling and inflammation, which has often proved so dangerous as to require an amputation of the limb.

Mr. Peter Dafs, in his Description of Nordland, is of opinion that this Sea-serpent may be called the Leviathan, or the Dragon of the ocean: I shall give the reader some verses he has published on this subject.

“ Om Soe-Ormen veed jeg ey nogen Beskeed,  
 Jeg haver ham aldrig med Oynene seet,  
 Begierer ey heller den Ære;  
 Dog kiender jeg mange, som mig have sagt,  
 Hvis Ord jeg og giver sandfærdelig Magt,  
 Han maa ret forfærdelig være.

Naar Julius gaaer i sin fyrstelig Stads,  
 Og Phoebus omvanker i Luftens Pallads,  
 Da lader sig det Dyr fornemme.  
 Der figes, han er af en saadan Natur  
 Hvad Baad han fornemmer det skadelig Diur,  
 Han tiendes efter mon svæmme.

Umaadelig

Umaadelig sluttes hans Storlighed og,  
 Det vel af Forfarenhed viifes kand nok ;  
 Thi de hannem komme i Mode  
 Fortælle, han ligger i Længden-udfrakt,  
 Som hundrede Læs var paa Havet udlagt,  
 Som Moding paa Ageren ode.

Mig tykkes han lignes maa Behemots Magt  
 Samt og Leviathan, som holder Foragt  
 Al Vaaben og bevende Spidse ;  
 Thi Jernet er hannem som silker og Hor,  
 Og Raaber som Quisten der raadner og doer,  
 Det Gud os beskriver til viffe.

Which being translated literally runs thus :

The great Sea-snake's the subject of my verse ;  
 For tho' my eyes have never yet beheld him,  
 Nor ever shall desire the hideous fight ;  
 Yet many accounts of men of truth unstain'd,  
 Whose ev'ry word I firmly do believe,  
 Shew it to be a very frightful monster.

When Julius enters in his princely state,  
 And Sol turns back in his aerial course,  
 Then does this hideous monster first appear.  
 It's said that such is the pernicious nature  
 Of this dire Snake, that every boat he sees,  
 He first pursues, and then attempts to sink.

Immense his size, enormous is his bulk ;  
 Which by the experience, may be plainly shown,  
 Of those that have beheld this frightful monster.  
 When on the sea he lies, stretched at his length,  
 He seems a hundred loads ; so vast his bulk !

Methinks he seems another Behemoth,  
 Or the Leviathan, who doth despise  
 All arms, as swords, and guns, and glittering spears ;  
 For iron is to him like straw or flax,  
 And copper like the twigs that bend or break :  
 For thus he is describ'd in sacred writ.

## S E C T. IX.

If it can be  
the Leviathan  
rather than  
the Whale.

I have quoted these verses, as a kind of a testimony to the existence and properties of this extraordinary creature. The supposition that the Sea-snake answers the description of the Leviathan better than any other animal yet known; and may be understood by the Leviathan, or the Crooked-serpent, Isaiah xxvii. 1. that shall slay the Dragon that is in the sea; or that it may be the Long-serpent mentioned in Job xxvi. 13; is not without some foundation. That it is the Piercing-serpent or the Boom-serpent, *Serpens vectis*, according to some authors, is not improbable; for they often lie stretched out before a creek, like a boom, to block up the passage. If Bochart had had any knowledge of this creature, which is very little known any where but in the North, he probably would not have taken the Whale to be the Leviathan. “*Cetum Hebræi iisdem nominibus appellat quibus draconem nempe Thannin & Leviathan, aut ob formæ similitudinem, aut ratione molis, & quia Cetus in aquatilibus tantum præstat, quantum in reptilibus præstant virtute Dracones.*” Hierozoic. Lib. i. cap. vi. p. 45. The similitude of shape, which writers urge betwixt the Whale and the Dragon, is what I cannot find out; nor can I discover how this author (whom I otherwise esteem as one of the most learned men the world ever produced) comes to say, in the same place, p. 50, “*Balænam multi volunt ideo dici נחש ברח Serpentem vectis, Isaiah xxvii. 1. quod ab uno maris extremo ad alterum, vectis instar, attingat.*” This does not at all agree with the Whale; which is usually but 50, 70, or at most 80 feet in length\*; at least not near so well as with the Sea-snake. The length of this creature, as I observed above, according to our fishermen, who have seen them, is equal to that of a cable, that is, 600 feet. These Sea-snakes also, like other creatures, may not be all exactly of a size; but some, perhaps, may be found twice as large as others of their kind, as may be observed of the Land-snakes, which differ very much in size. I have been informed by some of our sea-faring men, that a cable would not be long enough to measure the length of some of them, when they are observed on the surface of the water in an even line. They say those round lumps or folds sometimes lie, one

\* Bochart in the same place disclaims the Talmudists palpable falsities, about the Whale's size, &c. “*Hebræi sæpe mendaces in hoc argumento, potissimum mentiuntur liberalissime. In illis modestissimi cetis quingentorum stadiorum longitudinem assignant, hoc est milliarium plus sexaginta. In Tractatu Talmudico Bava Bathra, fol. 73. col. 2. Navis quædam in dorso ceti navigans, iter ab una pinna ad alteram, tertio demum die confecit.*

after

after another, as far as a man can see. I confess, if this be true, that we must suppose most probably that it is not one Snake, but two or more of these creatures lying in a line, that exhibit this phenomenon. This may happen as they follow one another, especially at the time of the year when they spawn, or couple together: at this season also they may be induced to follow boats, as I have mentioned before. I must observe further, that what the word of God says, in the place already cited, of the Leviathan, viz. that it is both a Pole-serpent and a Crooked-serpent, i. e. he is soon bent in a curve, and soon stretched again in a straight line, agrees perfectly with this Sea-snake, according to what has already been said\*. It may not be thought superfluous here to quote the words of Mr. J. Ramus, in his Description of Norway, p. 43, which is as follows. “Anno 1687, a large Sea-snake was seen by many people in Dramsfjorden; and at one time by eleven persons together. It was in very calm weather; and so soon as the sun appeared, and the wind blew a little, it shot away just like a coiled cable, that is suddenly thrown out by the sailors; and they observed that it was some time in stretching out its many folds. Ol. Magnus, in his Histor. Septentrion. Lib. xxi. c. 24, speaks of a Norwegian Sea-snake 80 feet long, but not thicker than a child’s arm. “Est in littoribus Norvegicis vermis glauci coloris, longitudine xl. cubitorum, & amplius vix spissitudinem infantis brachii habens.” This creature, he says, was put to such pain by the Crabs fastening on it, that it writhed itself into a hundred shapes. I have never heard of this sort from any other person, and should hardly believe the good Olaus, if he did not say that he affirmed this from his own experience. “Hunc vermem sæpius vidi, ab ejus tactu, nautarum informatione, abstinens.” — — — The disproportion betwixt the thickness of a child’s arm, and a length of 80 feet, makes me think there must be an error of the press in the place, for xl. perhaps should be xi. ells, or 22 feet; a more proportionable length for the thickness. Of the other Sea-snake the same author writes afterwards, chap. xxvii. but he mixes truth and fable together, according to the relations of others; but this was excusable in that dark age,

\* If any one enquires how many folds may be counted on a Sea-snake, the answer is, that the number is not always the same, but depends upon the various sizes of them: five and twenty is the greatest number I find well attested. Adam Olearius, in his Gottorf Musæum, p. 17, writes of it thus: “A person of distinction from Sweden, related here at Gottorf, that he had heard the burgomaster of Malmö, a very worthy man, say, that as he was once standing on the top of a high hill towards the North sea, he saw in the water, which was very calm, a Snake, which appeared at that distance to be as thick as a pipe of wine, and had 25 folds. Those kind of Snakes only appear at certain times, and in calm weather.”

when

when that author wrote. Notwithstanding all this, we in the present more enlighten'd age are much obliged to him, for his industry, and judicious observations. The sum of what he relates in that place is this: "Those that visit the coasts of Norway tell us of a very strange phænomenon; namely, that there is in those seas a Snake 200 feet long, and 20 feet round, which lives in the hollows of the rocks, and under the cliffs, about Bergen, (but in this he errs) and goes out in moon-light nights to devour calves, sheep, and swine; or else it goes to the sea, and catches Star-fish, Crabs, &c. It has a mane two feet long; it is covered with scales, and has fiery eyes: it disturbs ships, and raises itself up like a mast; and sometimes snaps some of the men from the deck." So far that writer, who, in the remainder of the chapter, speaks of that great Water-serpent in Miosen on Hedemarken, that foretold the king's death, and the great changes that were to happen, according to the superstitious notions of that age.

## S E C T. X.

Before I leave this subject, it may be proper to answer a question that may be put by some people; namely, what reason can be assigned why this Snake of such extraordinary size, &c. should be found in the North sea only? For, according to all accounts from sea-faring people, it has never been seen any where else. Those who have sailed in other seas in different parts of the globe, have, in their journals, taken particular notice of other Sea-monsters; but not one of them mentions this. To this I answer, that when the thing is confirmed by unquestionable evidence, and is found to be true, then this objection requires no other answer, than that the Lord of nature disposes of the abodes of his various creatures, in different parts of the globe, according to his wise purposes and designs: the reason of his proceedings cannot, nor ought to be comprehended by us. Why does not the Rain-deer thrive in any other climate, except on the cold and bleak mountains of the North? Why does the enormous Whale keep only in those icy regions that are contiguous to the pole? Or, why are the Indies and Egypt the only places where the Crocodile exhibits his hideous form, and terrifies the unwary traveller? No other reason can be assigned but this, namely, because the wise Creator has thought fit that it should be so; and whatever he wills is right, and ordered for the best.

While

The North  
sea their ori-  
ginal native  
place.

While I am speaking of Egypt, I recollect from the association of ideas, that though I have not read of any Sea-serpents in those parts of the globe, yet I find that in Egypt, and other places in Africa, there are found in fresh-water lakes and rivers a species of Serpents, almost as large as that which I am treating of, and even more dangerous. Large Serpents in other places.

Pliny says, in his Hist. Nat. Lib. viii. cap. xiv. “Megasthenes scribit, in India serpentes in tantam magnitudinem adolere, ut solidos hauriant cervos taurosque. Metrodorus circa Rhyndacum amnem in Ponto ut supervolantes, quantumvis alte perniterque alites haustu raptas absorbeant. Nota est in Punicis bellis ad flumen Bagradam a Regulo Imperatore balistis tormentisque ut oppidum aliquod expugnata serpens cxxx. pedum longitudinis. Pellis ejus maxillæque usque ad bellum Numantinum duravere Romæ in templo. Faciunt his fidem in Italiam appellatæ Boæ, in tantam amplitudinem exeuntes, ut divo Claudio Principe, occisæ in Vaticano solidus in alvo spectatus sit infans. Aluntur primo bubuli lactis succo, unde nomen traxere. Cæterorum animalium, quæ modo convecta undique Italiæ contigere sæpius, formas nihil attinet scrupulose referre.”

What is here related, concerning a Serpent that was killed near the river Bagrada in Africa, seems almost incredible, though it is confirmed by Livy in his 29th decade, primi belli Punici, and by Valer. Max. Lib. i. cap. ult. One could hardly be able to comprehend or believe that a Serpent could stop a whole Roman army, and dispute their passage across a river; or that it killed many of the people, who, with their best weapons, could hardly wound it: but we see on what authorities it is supported. Still more strange is that story which Diodorus Siculus, Lib. iii. relates of a Serpent in Egypt, 60 feet long, which, though but small in comparison of those we have been speaking of, yet is in appearance too large to be caught, and carried alive to Alexandria, to be presented to king Ptolomy the Second.

This great prince was eminent for his curiosity, he was desirous of seeing every thing that was strange or scarce. Those that brought him elephants, or any other uncommon animals, were liberally rewarded. By this means the Greeks became acquainted with many things that were before utterly unknown to them. Such a laudable curiosity, and so noble a spirit in a king, to reward all those that contributed to please and instruct him, prevailed upon a company of huntsmen to attempt to bring him the aforesaid great Serpent, which lived chiefly in the water, but strayed ashore from its proper element a considerable distance

every day, to make a prey of the farmers cattle for his subsistence. Their first attack, which was very vigorous, failed, as the historian says, and cost about twenty of them their lives; but as the rest grew more experienced by this loss, they would not relinquish their enterprize, being in hopes of receiving a greater reward, in case they should succeed. They conquered it at last, by making a large net of very strong ropes, and watching their opportunity when the creature went out in search of prey; then they stopped up the way it usually took in its return, and made a kind of a defile, through which it was obliged to pass. At the end of this they placed the net, and drove the monster into it. When they had thus secured it, they carried it to the king, who gave them a reward suited to the strangeness of the creature, and the hazard of their enterprize. The Serpent was saved to be a sight for strangers who visited Ptolemy's court, and had every day a large allowance of proper food. The author concludes from this what Odoard Dapper, and other writers of later date, confirm, namely, that in Æthiopia, and other parts of Africa, there are Serpents large enough to devour not only oxen, but also the largest elephants, first by twisting themselves about their legs, and after thus entangling them, they overpower them with ease.

## S E C T. XI.

Kraken, or  
Korven, the  
largest crea-  
ture in the  
world.

I am now come to the third and incontestibly the largest Sea-monster in the world; it is called Kraken, Kraxen, or, as some name it, Krabben, that word being applied by way of eminence to this creature. This last name seems indeed best to agree with the description of this creature, which is round, flat, and full of arms, or branches. Others call it also Horven, or Soe-horven, and some Anker-trold. Among all the foreign writers, both ancient and modern, which I have had opportunity to consult on this subject, not one of them seems to know much of this creature, or at least to have a just idea of it. What they say however of floating islands, as they apprehended them to be, (a thing improbable that they should exist in the wild tumultuous ocean) shall afterwards be spoken of, and will be found applicable without any hyperbole to this creature, when I shall have first given some account of it. This I shall do according to what has been related to me by my correspondents, and what I have otherwise collected by an industrious enquiry and examination into every particular, concerning which I could receive intelligence. All this, in comparison to the unknown nature and construction



struction of the creature, is very short of a perfect account, deficient, and calculated to awake rather than satisfy the reader's curiosity. Bochart might therefore with reason say, *Lib. 1. cap. 6*, with *Oppian. Halieut. cap. 1*. In mari multa latent, i. e. In the ocean many things are hidden. Amongst the many great things which are in the ocean, and concealed from our eyes, or only presented to our view for a few minutes, is the Kraken. This creature is the largest and most surprizing of all the animal creation, and consequently well deserves such an account as the nature of the thing, according to the Creator's wise ordinance, will admit of. Such I shall give at present, and perhaps much greater light in this subject may be reserved for posterity, according to the words of the son of Sirach, "Who hath seen him, that he might tell us? and who can magnify him as he is? There are yet hid greater things than these be, for we have seen but a few of his works." *Ecclus. chap. xliii. ver. 31, 32.*

## S E C T. XII.

Our fishermen unanimously affirm, and without the least varia-<sup>Description.</sup>tion in their accounts, that when they row out several miles to sea, particularly in the hot Summer days, and by their situation (which they know by taking a view of certain points of land) expect to find 80 or 100 fathoms water, it often happens that they do not find above 20 or 30, and sometimes less. At these places they generally find the greatest plenty of Fish, especially Cod and Ling. Their lines they say are no sooner out than they may draw them up with the hooks all full of Fish; by this they judge that the Kraken is at the bottom. They say this creature causes those unnatural shallows mentioned above, and prevents their founding. These the fishermen are always glad to find, looking upon them as a means of their taking abundance of Fish. There are sometimes twenty boats or more got together, and throwing out their lines at a moderate distance from each other; and the only thing they then have to observe is, whether the depth continues the same, which they know by their lines, or whether it grows shallower by their seeming to have less water. If this last be the case, they find that the Kraken is raising himself nearer the surface, and then it is not time for them to stay any longer; they immediately leave off fishing, take to their oars, and get away as fast as they can. When they have reached the usual depth of the place, and find themselves out of danger, they lie upon their oars, and in a few minutes after they see this enormous monster come up to the surface of the water; he there shows

shows himself sufficiently, though his whole body does not appear, which in all likelihood no human eye ever beheld (excepting the young of this species, which shall afterwards be spoken of;) its back or upper part, which seems to be in appearance about an English mile and an half in circumference, (some say more, but I chuse the least for greater certainty) looks at first like a number of small islands, surrounded with something that floats and fluctuates like sea-weeds. Here and there a larger rising is observed like sand-banks, on which various kinds of small Fishes are seen continually leaping about till they roll off into the water from the sides of it; at last several bright points or horns appear, which grow thicker and thicker the higher they rise above the surface of the water, and sometimes they stand up as high and as large as the masts of middle-siz'd vessels.

It seems these are the creature's arms, and, it is said, if they were to lay hold of the largest man of war, they would pull it down to the bottom. After this monster has been on the surface of the water a short time, it begins slowly to sink again, and then the danger is as great as before; because the motion of his sinking causes such a swell in the sea, and such an eddy or whirlpool, that it draws every thing down with it, like the current of the river Male, which has been described in its proper place.

As this enormous Sea-animal in all probability may be reckon'd of the Polype, or of the Star-fish kind, as shall hereafter be more fully proved, it seems that the parts which are seen rising at its pleasure, and are called arms, are properly the tentacula, or feeling instruments, called horns as well as arms. With these they move themselves, and likewise gather in their food.

Besides these, for this last purpose the great Creator has also given this creature a strong and peculiar scent, which it can emit at certain times, and by means of which it beguiles and draws other Fish to come in heaps about it. This animal has another strange property, known by the experience of a great many old fishermen. They observe, that for some months the Kraken or Krabben is continually eating, and in other months he always voids his excrements. During this evacuation the surface of the water is coloured with the excrement, and appears quite thick and turbid. This muddiness is said to be so very agreeable to the smell or taste of other Fishes, or to both, that they gather together from all parts to it, and keep for that purpose directly over the Kraken: he then opens his arms, or horns, seizes and swallows his welcome guests, and converts them, after the due time, by digestion, into a bait for other Fish of the same kind. I relate  
what

what is affirmed by many; but I cannot give so certain assurances of this particular, as I can of the existence of this surprizing creature; though I do not find any thing in it absolutely contrary to nature. As we can hardly expect an opportunity to examine this enormous sea-animal alive, I am the more concerned that nobody embraced that opportunity which, according to the following account, once did, and perhaps never more may offer, of seeing it entire when dead. The reverend Mr. Friis, consistorial assessor, minister of Bodoen in Nordland, and vicar of the college for promoting christian knowledge, gave me at the latter end of last year, when he was at Bergen, this relation; which I deliver again on his credit.

In the year 1680 a Krake (perhaps a young and careless one) came into the water that runs between the rocks and cliffs in the parish of Alstahoug, though the general custom of that creature is to keep always several leagues from land, and therefore of course they must die there. It happened that its extended long arms, or antennæ, which this creature seems to use like the Snail, in turning about, caught hold of some trees standing near the water, which might easily have been torn up by the roots; but beside this, as it was found afterwards, he entangled himself in some openings or clefts in the rock, and therein stuck so fast, and hung so unfortunately, that he could not work himself out, but perished and putrified on the spot. The carcase, which was a long while decaying, and filled great part of that narrow channel, made it almost impassable by its intolerable stench.

The Kraken has never been known to do any great harm, except they have taken away the lives of those who consequently could not bring the tidings. I have never heard but one instance mentioned, which happened a few years ago near Fridrichstad, in the diocess of Aggerhuus. They say that two fishermen accidentally, and to their great surprize, fell into such a spot on the water as has been before described, full of a thick slime, almost like a morass. They immediately strove to get out of this place, but they had not time to turn quick enough to save themselves from one of the Kraken's horns, which crushed the head of the boat so, that it was with great difficulty they saved their lives on the wreck, tho' the weather was as calm as possible; for these monsters, like the Sea-snake, never appear at other times.

## S E C T. XIII.

Still farther  
confirmations.

I have now given all the intelligence that has come to my knowledge concerning this vast, but hitherto hardly at all known Sea-animal; and now I shall relate farther, according to what I think is most probable, some properties that may be presumed to belong to it. This may give some light into the history of it, and also serve as a farther confirmation of what has been said concerning it. Mr. Luke Debes, in his Description of Faroe, speaks of certain islands which suddenly appear, and as suddenly vanish. This was a thing no-body could comprehend; so that one ought not to wonder at the common people, and even those that were a degree above them, for looking upon those moving islands to be inhabited by evil spirits, which appeared sometimes in such places where the sea-men, by daily experience, knew very well that there was no such thing as a rock, much less an island; but however, they often found something at sea which had the appearance of land, and consequently were confounded, made false reckonings, and were taken out of their course, and brought into the greatest inconveniences\*. Many sea-faring people give accounts of such appearances of land, and their suddenly vanishing away, and particularly here in the North-sea. These islands, in the boisterous ocean, cannot be imagined to be of the nature of those real floating islands, that are seen on fresh and stagnated waters; and which I have observed, P. I. c. 3, are found here in Norway, and in other places.. These could not possibly hold or stand against the violence of the waves in the ocean, which break the largest vessels; and therefore our sailors have concluded this delusion could come from no other than that great deceiver the devil. But, according to the laws of truth, we ought not to charge this apostate spirit without a cause. I rather think that this devil, who so suddenly makes and unmakes these floating islands, is nothing else but the Kraken, which some sea-faring people call Soe-draulen, that is, Soe-trolden, Sea-mischief. What confirms me in this opinion is the following occurrence, quoted by that worthy Swedish physician Dr. Urban Hierne, in his Short Introduction to an Enquiry into the Ores and Minerals of that country, p. 98, from Baron Charles Grippenhielm. The quota-

A notion of  
floating  
islands.

\* Concerning moving islands, see Everh. Harpeli Mund. Mirab. Tom. I. Lib. iv. cap. 20, 21; and in Thormod. Torf. there is a remarkable testimony of the same kind, concerning an island appearing in Breidfiord, on the coast of Iceland, Annales notant, emerfisse ex undis insulam quandam vel rupes (An. 1345) antea nunquam visas in sinu Islandiæ Brediafiordo. Hist. Norw. P. IV. L. ix. c. viii. p. 477. It is a pity that he does not tell us whether it always remained there.

tion

tion is as follows: "Amongst the rocks about Stockholm there is sometimes seen a certain tract of land, which at other times disappears, and is seen again in another place. Buræus has placed this as an island in his map. The peasants, who call it Gumars-ore, say that it is not always seen, and that it lies out in the open sea, but I could never find it. One Sunday, when I was out among the rocks, sounding the coast, it happened that, in one place, I saw something like three points of land in the sea, which surpris'd me a little, and I thought that I had inadvertently passed them over before. Upon this, I called to a peasant to enquire for Gumars-ore, but when he came we could see nothing of it; on which, the peasant said all was well, and that this prognosticated a storm, or a great quantity of Fish, &c." So far Gripenhielm. Now who is it that cannot discover, at first sight, that this visible and invisible Gumars-ore, with its points and prognostications of Fish, cannot possibly be any thing else but the Kraken, Krabben, or Soe-horven, improperly placed in a map by Buræus as an island. Probably the creature keeps himself always about that spot, and often rises up amongst the rocks and cliffs.

What the credulous Ol. Magnus, in Hist. Septentr. Lib. xx. cap. 25, writes, of the Whale being so large, that his back is looked upon as an island; and that people might land, light fires, and do various kinds of work upon it, is a notoriously fabulous and ridiculous romance. His words are: "Unde plerumque elevato dorso suo super undas, a navigantibus nihil aliud creditur esse, quam insula. Itaque nautæ ad illum appellant & super eum ascendunt, palos figunt, naves alligant, focos pro cibis coquendis accendunt. Donec tandem cetus, sentiens ignem, sese in profundum mergat, &c. Arenas aliquando dorso suo tollit, in quibus, ingruente tempestate, nautæ terram se invenisse gaudentes, anchoris demissis, falsa firmitate quiescunt, ac ignes accensos bellua sentiens, subito commota se in aquas mergit, hominesque cum navibus, nisi anchoræ rumpantur, in profundum attrahit." We may easily see what gave occasion for mixing the probable with the improbable, by recollecting what has been observed above of the Kraken, of which people have had some imperfect idea for several ages back. Even Pliny, in his time, had heard some obscure ac-

It was not entirely unknown to Pliny.

count of such a Sea-animal as is here treated of. This may be concluded from his words in Lib. ix. cap. iv. "Maximum animal in Indico mari Pristris & Balæna est, in Gallico oceano Phyfeter, ingentis columnæ modo se attollens, altiorque navium velis diluviem quandam eructans. In Gaditano oceano ARBOR, in tantum vastis

vastis dispensa ramis, ut ex ea causa fretum nunquam intrasse credatur. Apparent & ROTÆ appellatæ a similitudine, quaternis distinctæ radiis, modiolos eorum oculis duobus utrinque claudentibus Ionis.” The double account that is here given of a creature which resembles a wheel, separated into rays, or a tree, with such large branches that it cannot get through a channel, seems to agree with the accounts of the Kraken already given, with his many large horns or branches, as it were springing up from its body, which is round\*. Both these descriptions confirm my former suppositions, namely, that this Sea-animal belongs to the Polype or Star-fish species, which have been particularly described in the preceding chapter. It seems to be of that Polypus kind which is called by the Dutch Zee-sonne, by Rondeletius and Gesner Stella Arborescens, i. e. a Star which shoots its rays into branches like those of trees, according to the more exact description just referred to, where I gave it the name of Medusa’s Head.

What I have farther to observe is, that this curl’d sort of Star-fish, with so many branches or rays, is very apt to stick to, and entangle themselves in the weeds and shrubs that grow at the bottom of the sea, and are often drawn up with them by the fishermen. When they are dried, and their branches are shrunk in, they are seldom above six or eight inches in diameter; but when they are just taken out of the water they are much larger. A very worthy person told me he had some of them of an extraordinary bigness; and others have seen them above four times as large as the common size, splashing the water about with their numerous branches or arms.

These Medusa’s-heads are supposed, by some sea-faring people here, to be the young of the great Sea-krake; perhaps they are their smallest ovula: and I do not doubt but it is the same Medusa’s-head, or Stella Arborescens, of which Mr. Griffith Hugues treats in the Philosophical Transactions. This having just come into my hands, I shall insert it; and shall likewise add to it, what has been quoted in the preceding chapter. “Il a decouvert une nouvelle espece d’Etoile de mer, laquelle sort du rocher par une espece de pedicule, & elle exprime exactement la figure rayonnée de la fleur d’une Ficoide. Mais cette fleur est

\*In that ancient manuscript called Speculum Regale, because it is ascribed to the Norwegian king Sverre, Ol. Wormius, who had the treatise in his hands, found some few words, which seem to allude to this the largest creature of the ocean; for when, in his Museum, p. 279, he is enumerating the various sorts of Whales, he concludes, p. 280, with the following words; “Restat una species, quam Hafgufe vocant, cujus magnitudo latet, cum raro conspiciatur. Illi, qui se corpus vidisse narrant, similiorem insulæ quam Bestiæ volunt, nec unquam ejus inventum cadaver, quocirca sunt qui existiment, non nisi duo ejus generis in natura esse,

presque fenfitive. Au moindre attouchement elle se replie, & va se cacher avec son pedicule dans le rocher, d'ou elle etoit sortie. Ses rayons font des bras, qui ont bien l'air de ceux d'un Polype. Quel charme pour un Phyficien, que de posseder un Polype de cette grandeur, & quelles observations n'y feroit il pas sur l'accroissement & la reparation de ses parties?" Biblioth. Raisonee, T. xxxvii. p. 266. However this may be, it remains an unquestionable truth, that certain kinds of Polypus's grow to a monstrous size. Athanas. Kircher says, in his *Mund. Subterr. P. I. p. 99*, that in the Sicilian seas there are found a kind of Star-fish, which have ten rays, or branches, and a body as big as that of a man: but this bears no proportion to the bigness of a Whale, which Athenæus, in *Lib. xiii. cap. vi.* attributes to some of them. Pliny, *lib. ix. cap. xxx.* speaks of a sort of Polypus of a monstrous size, by the name of *Ozæna* \*, because it diffuses a strong smell; for which reason other Fish are apt to follow them. This singularity agrees exactly with what has been said already about the Norwegian Krake, "*Mire omnibus marinis expetentibus odorem.*" Concerning the said Polypus Pliny relates in the same place, according to the account he had received from L. Lucullus, the proconsul of Bætica, several strange stories about their size and strength; as that they lay along the coast, where they would steal the merchants goods, and drag them away with their long claws; so that they were obliged to set dogs upon them: that those animals could not bear the strong smell, and were also severely handled by the creatures; and that it was with great difficulty they killed them with iron forks, &c. "*Namque & afflatu terribili canes agebat, nunc extremis crinibus flagellatos, nunc robustioribus brachiis, clavorum modo incussos, ægreque multis tridentibus confici potuit.*" We learn from all this, that the Polype, or Star-fish, or, as we call it here, the whole genus of Kors-Trold, have, amongst their various species, some that are much larger than others; and, according to all appearance, even the very largest inhabitants of the ocean. If the axiom be true, that greatness or littleness makes no change in the species, then this Krake must be of the Polypus kind, notwithstanding its enormous size. All that I have further to add is this, that were we to credit the old vulgar opinion, concerning a Fish that had power to stop a ship under full sail, we may conclude it is impossible that it should be that small Fish, which from the fable is called Remora, and is not bigger than a Herring. I

A fable about the small Fish Remora.

\* Immo vero potius quod suave quippiam oleat. Græci ideo vocant *μαχίτην*, hoc seculo Neapolitani Muschardinum. Jacobus Dalecampius in *Notis ad Plin. L. cit.*

have one of these in my collection ; it has a roughness on the head, something like a file, with which some people are so simple as to imagine, that this little diminutive creature can perform the extraordinary operation mentioned above.

The learned jesuit Gasp. Schottus, in his *Physica Curiosa*, cap. xiv. has thoroughly examined into the nature and probability of this account ; and has confuted the learned Kircher entirely in this point. Among other reasons that are given for a ship's being stopt in her course in the middle of the sea, tho' under full sail with a good wind, which is an undeniable fact, he reckons the conflux of rivers from several places struggling together to be one cause. This opinion has some probability, and that strange effect is really owing to this cause in some places : but be it as it will, I am apt to think that the Kors-Trold, or Soe-Drawl, so much talked of by the sailors, and which they reckon an evil spirit, can be no other than the Kraken, which, according to the description given above, seems to be able with its arms, or horns, to bring about this strange effect. Hence, perhaps, it is called, among many other names, by that of Anker-Trold ; tho' I do not in the least insist upon this conjecture being true, but willingly submit my suppositions in this, and every other dubious matter, to the judgment of those that are better experienced. If I was an admirer of uncertain reports, and fabulous stories, I might here add much more concerning this and other Norwegian Sea-monsters, whose existence I will not take upon me to deny ; but do not chuse, by a mixture of uncertain relations, to make such accounts appear doubtful, as I myself believe to be true and well attested. I shall therefore quit the subject here, and leave it to future writers on this plan, to complete what I have imperfectly sketched out, by further experience, which is always the best instructor.



## C H A P. IX.

Containing an account of the Norwegian nation.

SECT. I. *The ancient inhabitants of Norway, the Celto-Scythians were driven out by, or incorporated with Afers, or Asiatics.* SECT. II. *Their mixing in later times with various European nations; their expeditions to other countries, even to America, before it was discovered by the Spaniards.* SECT. III. *Various strange colonies come in, and are received in Norway.* SECT. IV. *The stature, strength, and complexion of the Norwegians.* SECT. V. *Their genius, and expertness in various kinds of work, arts, and bodily exercises:* SECT. VI. *Their capacity for literature and improvements of the mind.* SECT. VII. *The qualities of their mind, their complaisance, fidelity, and valour, which makes them quarrelsome of late years; their ambition and hospitality to strangers.* SECT. VIII. *Great age that many of them live to.* SECT. IX. *Certain diseases to which they are subject.*

## S E C T. I.

**A**S I have hitherto endeavoured to describe the natural state of Norway, the climate, the animals, as quadrupedes, birds and fishes, which are peculiar to it, I should now be glad to lay down my pen, having in a manner fulfilled my promise; nor is it convenient, in my present circumstances, to proceed any further; for it was my intention at the beginning to stop here. I did not think it necessary, in a natural history, to treat of the inhabitants of Norway, their genius, customs, &c. but as these particulars may not be said to exceed the bounds of a natural history, and some readers may be of opinion, that an historian who would give himself the trouble to describe inanimate and irrational beings, in any particular country, ought not entirely to omit the noblest works of God; I mean the rational inhabitants of it, their qualities, nature, genius, manners, &c. I shall therefore give a short sketch of these, and leave it for others to enlarge on the subject, and correct the faults I may commit. However, I hope I shall be the more impartial, as I am not a native of Norway myself.

First inhabitants of Norway were Celto-Scythians.

The origin of the Norwegian nation is a subject that I did not purpose to treat of, I shall extract what I have to say on this subject from Snoro, Sturleren, Thormodus, Torfæus, and Jonas Ramus, who give as full an account as can be expected in a

matter of such obscurity, which is filled, like the histories of other countries, with confused accounts, and uncertain conjecture; what it amounts to in short is this, namely, that the most ancient or first inhabitants of Norway left the country just before the birth of Christ, and incorporated with a swarm of Afers, or Asiatics, that came into the north, conducted by Othin, who made himself master of the first, or Celto-Scythian inhabitants. The Laplanders and Finlanders, are doubtless, the progeny of the ancient Norwegians, who then retired farther north, to that extensive chain of mountains called Kolen, and to Lapland or Finmark, which extend on both sides of those mountains. There the descendants of the first Norwegians still observe the manners and customs of their ancestors; from which they deviate in nothing but in some little cultivation of their lands, and live chiefly by hunting, and procuring grafs for their rein-deer. These animals supply them with food, cloaths, and covering for their huts, or tents, which they move, according to their liking, from place to place. Thus did the ancient Germans live, according to Tacitus; not to mention the patriarchs of old, who thus migrated, and changed their habitations in the eastern countries.

These were banished by Afers or Othin's followers.

The Afers, or Othin's followers, which most probably were driven out of Asia by Pompey the Great, and spread themselves to the north, as far as they found inhabitable countries; but did not envy the ancient inhabitants of Norway their retreat among the cold mountains of Kolen and Finmark, the eastern side of which was peopled, on the same motive, by fugitives from Sweden and Finland, near the Bothnic bay, who have given the country and people their name in common, as they had met with the same hard fate of being expelled from their country by the Afers. It is uncertain, however, whether these two kinds of fugitives have coalesced into one people; for to this day there is a difference in their language, and some Finlanders speak *Queenisk*, or *Quænsk*, but what language that is I cannot say; but if I may be allowed to conjecture, I suppose it to be the language of the ancient Norwegians, who were united with the Finlanders from the Swedish side.

The famous district Quænanger, in the manor of Nordland, where the fabulous Rudbeck supposes his Northern Amazonian, or female republic to have existed, and the rock Quinens, or Quenensheide; and also Quinsfiord Quinens, or Quenens Elv, and Quendal in Listerlehn; and likewise Quenshagen in Laerdal, are well known. There is a famous district in Sandhordlehn, now a parish, called Queenherret (corruptly Quindherred, from a groundless tradition, that all the men were killed there) which preserves, perhaps, the memory of the name which the ancient Norwegians, or part of them had bore, like their banished countrymen in the mountains of Kolen, who are still called Queener, and the language the Queenish. If Thore, the father of Nor, who is said to have given our country the name of Norway, as the Norwegian chronicles tell us, was king of Gothland, Finland, and Quenland; this last, I think, must have been Norway, tho' most authors think this country is situated near Findland, or at the end of the Bothnic bay.

It is very just with regard to the later Finlanders according to Arngrimus's Crymographia, L. II. fol. 214. and particularly by Thorm. Torf's Hist. Norw. p. 1. Lib. 3. Cap. XXIV. p. 160. where he says, "Naumudatos Halogia in Norvegia provinciam versus orientem excipit Jamtia & illam Helfingia sequitur Quenjatium Finnia." We see by this, that the Queners are placed next to the Helfingers, and Jamters, not far from the borders of Norway. It is not improbable therefore, that those ancient Queners which were expelled by the Afers, transplanted their name there with their colony, and much later, namely, in King Hagen Magnussen's time, by spreading have straggled again back cross the mountains of Kolen, to visit the land of their ancestors. They did not come indeed like friends; for the history of the aforesaid king says, that Quener, and Kyrialer, perhaps Kareler, made an incurfion into Nordland, and particularly into Helyeland, perhaps spirited up by the tradition of their ancestors being expelled from that country. If this conjecture (for certainty is not to be expected in the history of those ancient times) seems as probable as any other, it answers to the remark made on their name, by Gerh. Schining, in his treatise lately published, called the Geography of ancient Norway; where the word Quenes or Quener, according

According to Sect. II. p. 29. is said to signify a fugitive, or an unsettled people. However, that ingenious author is not of my opinion, by his seeking for their ancient habitation in Biarmeland, or the Russian province of Samojeden, supposing that they retired towards the Bothnic bay \*. But the sound of a Name, in my opinion is not sufficient to establish the truth of history. Which of these conjectures is best founded, appears from the Iceland, and other monuments collected by the learned Thormodus Torfæus, who has cleared up this point, by shewing, that tho' the Afers partly expelled, and partly united to them the Idigenæ, or ancient inhabitants of the North, who were comprehended under the extensive names of Celtæ, Cimbri, and Goths. These received the language and manners of the Afers, and began to cultivate the lands, and to forsake their ancestors more simple way of living. In the mean time, they were not all willing to submit to this great reformation and the many new customs introduced, which the vulgar generally reject without examination in all ages.

The ancient Celtæ were called Keltrings.

There was no other means left for such than to look out for habitations farther to the north, towards Finmarken, whither the Finlanders had retired before. Those that remained behind, and obstinately persisted in the old customs, and wore the ancient dress, were looked upon as aliens, and called Keltrings, i. e. the descendants of the Celts, or Celtæ. This is the derivation of that despicable name given us in the *Nova Litterariâ Maris Baltici et Septentr. ad Ann. MDCXCIX. mens. Jun.* in a letter from that great antiquarian Ottho Sperlingius, a Norwegian by birth, to the Lubeck collectors of the said journal, a few words from which I shall introduce on the credit of the said author.

“Afa quippe in septentrionem venientes miseram hanc vitam censebant, quam Celtæ priores incolæ ducebant veteris simplicitatis

\* John Schefferus in his *Lapponia*, Chap. VI. p. 46. is very uncertain of the origin of the Fin, and Laplanders, and is of opinion, that they cannot be derived from the Russians, Swedes, or Norwegians; because the stature of their body is less, neither are they so corpulent, and their complexion, and hair dark brown, which is the reverse of the other northern people. But this argument seems to me of no great weight, because as the children of Adam, we derive our origin from one country. But by length of time, and difference of climates, are become very unlike one another, both in size and complexion, for the extreme cold in which the Fin-Laplanders live, in the frigid zone, does not only obstruct their growth, but likewise makes their complexion dark as well as hot climates, which M. Buffon demonstrates in his natural history, T. III. p. 527. and again in sect. 3.

memores; unde non mirum in septentrione Celticum nomen penitus deletum esse, cum nemo Celtis amplius similis esse vellet, sed omnes, ut Afæ, magnificentius vitam instituerè cuperent. Hinc in Landnama Saga, libro de origine Islandorum scripto, P. III. c. 10. p. 102. Varo their sua vel buner, ad menn bugdu ad Afer vero thar kuammer, i. e. Tam bene vestiti erant ut existimarent homines, Afas illuc advenisse. Hinc Afas quoque vix homines sed Deos potius credebant esse, atque Othinum suum inde Helgi As sanctum Deum et magnum Afam vocarunt, &c.---Talem igitur factum cum præ se facerent Afæ et Asiatici in his regionibus, Celtæ ut mendicabula quædam hominum haberi cœperunt, et ab Afis Keltlinger ideo dicti fuerunt; quod vocabulum, apud Danos est adhuc in usu, sic enim mendicos et vilissimos quosque hominum vocare pergunt. Terminatio sane vocis ing, significat talem qui a Celtis prodiit ut Ungling dicitur qui ab Ingo descendit. Skioldinger, qui a Skioldo, Lodbrookinger qui a Regnero Lodbrök rege, ita Keltlinger illi dici cœperunt Afis, qui a Celtis non ab Afis exierant, &c.?

Agreeable to this account of the descendants of the ancient distressed Celtæ or Kelters, particularly in Denmark, perhaps one might with as good a foundation, or at least with some probability, suppose that the Queners driven so far north, after uniting with the Bothnic Finlanders, or Fanner (for they are also called Fennones et Fannones who had been also expelled by the Swedes) Finlanders, and Fin-Laplanders. gave rise to the nickname Fanter amongst us. This name we apply to a vagabond, idle set of people, who strolè about the country, and who live by begging, cheating, and thieving; not unlike those we call Tartars in Denmark, Zieguener in Germany, Egyptians in France, and Gipsies in England. But though I am willing to give up this supposition relating to the Name; yet I believe that the ancient inhabitants of Norway, who would not submit to the more polished manner of living, the new dress, and the cultivation of lands, were banished the country. I am confirmed in this by what Mr. Peter Högstrom, who lived a great while amongst the Fin-Laplanders, informs us in his description of Lapmark, Chap. II. sect. 3. that the Fin-Laplanders insist upon it, that their ancestors were proprietors of all Sweden, but were expelled, and by degrees were confined within very narrow limits, just as the Amorites forced the children of Dan into the

mountains, and would not suffer them to come down into the valley. Judges xxxiv. which the said writer admits of. This author agrees with us in this Hypothesis, namely, that they were the first that took possession of those parts after the flood \*.

We may farther learn from the Norvegian chronicles, that those ancient inhabitants which were expelled, had particular kings, or chiefs who presided over them, besides the kings of Norway to whom they were tributaries; for Mr. Jonas Ramus in the life of king Hagen the Great, informs us, “ that those of Finmark, had for a long time neglected to pay those taxes which they ought to have paid to the kings of Norway. On this account, king Hagen sent Giffel Galde, an Icelander, to Finmarken, who executed his commission so well, that Morten, king of the Finns went in person to king Hagen, who was then at Nidros, and there paid him the taxes as he was in duty bound, and gave farther assurances of his fidelity and obedience. Hist. of the kings of Norway, p. 304.

Morten king  
of the Finns.

## S E C T. II.

The more modern Norvegians, like the rest of the northern nations, were a mixture of the remaining Celto-Scythians, and the new race of Afers, or Asiatics, who spread and strengthened themselves; by a more civilized manner of living, † sometimes under the government of one, and sometimes of many kings. These both before and after christianity was introduced, but chiefly in the tenth century, under king Harold Haarfager, who suppressed all the petty kings, and consequently, raised many malecontents, sent several colonies out of the country to inhabit Iceland, Greenland, Færorne, Hetland, and the Orkneys.

Of the trans-  
migrations of  
many Nor-  
vegians into  
various  
countries in  
different  
parts of  
Europe.

\* Gerhard Schoning, in the ancient Geography of Norway, says, Sect. 3. p. 5. “ That they formerly in the southern and western parts of our Peninsula, have been so numerous, that they sent colonies to the Danish islands, and that Feyen took its name from them (viz. Finns.) The great Hugo Grotius is of this opinion, and that they must have been the oldest, and at first the only inhabitants of Norway and Sweden, and have since been driven by the ancestors of the present inhabitants who came from Germany, to the most barren parts of the North, as the ancient Britons were forced by the Anglo-Saxons to leave England, and retire into Wales.

† See Chap. x. Sect. 1, 2, 3. A similitude in the Norvegian Peasants manner of living, and the Georgians, may perhaps strengthen the tradition, that the Afers, or followers of Othin were Asiatics, and particularly that they were Mountaineers expelled by Pompey the Great, from Caucasus, and Ararat, betwixt the Euxine, and the Caspian-sea.

\* Not

\* Not to mention their many warlike expeditions to Scotland, England, and Ireland, France, Portugal, Spain, Sicily, Calabria, Greece, and the east. Of these powerful and fortunate expeditions Thorm. Torfæus gives an account at large. An extract of the most important of them is to be found in *Gestæ et Vestigia Danor. extra Dan. Tom. I. et II.* In Christ. Reitzer's dedication of *Thormodus Torfæus Hist. Rerum Norvegicar.* to king Fred. IV. where he briefly speaks thus: "Leges hîc quales quantique illi fuerunt tui majores. Videbis Haraldos, Olafos, Magnos, Suerreres, Haquinos, et fateberis, illos in fortitudine prudentia sanctitate ne celeberrimis quidem quos habuit antiquitas regibus cesserisse. Quid? quod imperitabant genti ex qua tot fortissimi viri, tot prodire Heroes, digni certe quos ne nesciat unquam orbis quam ingentia eorum fuerint facta, quæque sudore suo et sanguine adepti sint decora, æternus annalium colat honos. Hæc enim illa gens, quæ olim simul cum tuis Danis, sub nomine Normannorum, per omnem fere, qua classibus adiri queat, Europam, victricia arma circumtulit. Hæc gens, quæ toti illi, quod Norvegiam, Britanniamque et septentrionalem Americæ oram interluit, mari jura posuit; infulas omnes coloniis complens, christianamque simul mox cum novis his colonis inducens religionem. Hinc Rolfus ille Neuftriæ domitor, qui non pedibus magis quam victoriis, disjunctissimas pervagabat terras. Hinc Tancredus, cui in privato domo quot filii, tot fere etiam, inaudito per omnia secula exemplo, futuri nascebantur principes: virtute sola apud exterarum nationes quæ, ad posteros etiam transmitterent, imperia facturi. Hinc regis Magni Nudipedis filius Sigurdus, qui in Hispania, devictis terra marique Saracenis, exactis Sicilia Mauris, adferta Christianis Syria ac Palæstina, Asiam, Africamque et Europam admirationis sua fama conjunxit. Hinc denique ut reliquos omnes taceam, magnus ille Angliæ rex Wilhelmus Conquestor, &c."

It will not be improper here to give an account of an extraordinary sea-expedition of the Norwegians to North-America, though but little known. This country is now possessed by the French,

The Norwegians sail to the West-Indies long before the Spaniards.

\* In the London Magazine of June 1725, we are informed that the inhabitants of these last mentioned islands, which in fact are alienated from Norway, still talk the Norwegian dialect; many of the people, especially in the more northern isles, speak the Norze, or corrupt Danish, which, in some places, is the first language their children learn.

and

and is very advantageous to them, because of their great fisheries there, to the loss of the Norwegians. This country, by the right of prior possession, might have, *ex jure primi occupantis*, still belonged to the latter, if their ancestors had exercised more lenity towards the natives: and it is not improbable that some of the descendants of the Norwegian colony, are to be found there at this day.

Upon inquiry, it seems plain to me (tho' it might appear improbable at first view) that the Norwegians had sailed to America, many centuries before the Spaniards, and that this voyage was performed by those Norwegians who were settled in Iceland and Greenland. It may, in some measure, satisfy the curiosity of those that have been long enquiring into the possibility and manner of peopling that part of the world, by the descendants of Noah\*, to shew how practicable it was for these northern nations. This may be seen by the following account, of the Norwegians sailing to the south-west from Greenland to Vinland, which could have been no other than America. I shall here insert the words of that ingenious Icelander Arngrimius Jona, in his history of Greenland, chap. ix and x. from page 43 to 52, "Herjolf an Icelander. and his son Biorn, used annually to travel from place to place, trading with various sorts of merchandize. But while Herjolf was once in Norway, he formed a scheme of going to live in Greenland, which he accordingly put in execution, and settled at Herjolfnæs, which lies on the east-side of that country. When Biron returned to Norway, and heard that his father was gone to Greenland, he would not so much as cast anchor there, but rather chose to go in quest of his father in the strange and remote parts of Greenland. Though he had nobody on board that knew any thing of the course they were to steer, nor had ever been that voyage himself, he set sail without compass or pilot, which appears plainly by this history. It is said that he judged of the points of the compass by the course of the sun, and

Arngrim. Jona's account of it.

\* The possibility of this disputed point might be proved, by supposing that the American continent was anciently joined to Europe and Africa; for Plato relates in his *Timæus*, that the Egyptian priests told Solon, the Athenian lawgiver, who lived about 600 years before Christ, that in old time, beyond the Straits of Gibraltar, there was a very extensive country called Atlantis, larger than all Europe and Africa, which was swallowed up by a great earthquake, and only left its name to the Atlantic ocean.



by what he had heard of the country, he guessed at what point it lay: So bold and adventurous were the ancients. The first three days he was at sea, he steered his course westward, then the wind chopt about to the north, and as they did not know their course, they were driven to the southward. When the north-wind had done blowing, and they had sailed about twenty-four hours, they saw land at a distance. When they approached nearer to the coast, they found it a flat and level country, free from rocks, and very woody. They landed there, and then put to sea again, and sailed from thence to the north-west, and before they made Greenland, they saw two islands, which they passed in their course. The following summer, in the year of Christ 1002, Biorn sailed to Norway, and informed Erich Jarl, who then reigned there, that he had seen two unknown islands in his voyage, but had not landed upon them. This did not please the king, who blamed Biorn because he could give no better account of those islands which he had seen. Upon this he sailed from Norway to Greenland a second time.

Leif, son of Erich Rode, was resolved to tread in his father's steps, who first discovered Greenland, and therefore did not let those islands mentioned above, remain long unknown. He accordingly determined to set sail in a stout ship with thirty-five men, under his father's direction, who was then an old man. But as Erich Rode was riding with his son, in order to embark, his horse fell with him, which he looked upon as an ill omen, and therefore turned back and went home; however, Leif pursued his voyage. The first land that he discovered was the last that Biron had seen, and the nearest to Greenland; here he cast anchor, and went ashore, and found nothing but flat stones and ice in the country, but no grass or herbage; from these stones he gave it the name of Helleland. He afterwards sailed from thence and discovered the other island that Biron had seen. This was an even level country, without any rocks, and very woody; the sand on the coast was remarkably white. Leif gave this country the name of Marckland. They sailed from thence and steered their course to the south-west, with a north-east wind, and discovered a third country in forty-eight hours, which they thought preferable to the others. Near the north part of this country, they found a small island, where they landed; from thence they sailed west-

ward, round a point of land into a small harbour, and run the ship into a creek.

This country appeared to them to be very agreeable and fertile, which induced them to winter there. Besides all other kind of fish which the sea and fresh-waters afforded in great plenty, they found there a very large kind of salmon. The winter was not severe, nor was there so much frost and snow as in Iceland or Greenland, and they could see the sun full six hours in the shortest day. They likewise found both vines and grapes, which the Greenlanders had never seen before; but they had a German with them, who was no stranger to that sort of fruit, and said he was born in a country where great quantities of vines grew. Leif stayed there all the winter, and returned to Greenland in the spring, giving this country the name of Viinland\*.

Leif found these countries, viz. Helleland, Markland, and Vinland, uninhabited at his arrival; but this is denied by the next adventurers who sailed to the same countries. Thorvald, Leif's brother, was the next that made a voyage to Viinland, with thirty men, and wintered where his brother Leif had been before, and lived in the same huts that he had built when he wintered there. During the winter Thorvald reconnoitred the western part of the country, and in the summer following he took a survey of the eastern part. The third summer he viewed all the islands to the westward, which were uninhabited. His ship was damaged, by running a-ground on a large promontory, so that he was obliged to repair it there. He found that the keel had received some damage, and turned his vessel bottom upwards, at the extremity of that promontory, which they therefore called Kiælarnæs, in Danish Kiolnæs. In searching the eastern parts, they gave names to many places, rivers, &c. One place they called Krosfanas, or Kaarsnas, which shall be taken notice of hereafter.

Not far from thence they discovered three small boats, which they called Hudkeiper; there were three men in each boat; of these every third man was asleep. Their manner of building

\* That ancient writer, Adamus Bremenſis, takes notice of the voyage to Viinland in the following words, which he heard king Swend Estridſens relate by word of mouth: "Præterea unam adhuc inſulam recitavit, a multis repertam in illo oceano, quæ dicitur Winland, eo quod ibi yites ſponte naſcuntur, vinum optimum ferentes; nam & fruges ibi non feminatas abundare non fabuloſa opinione, ſed certa Danorum comperimus narratione." Adam. Bremenſ. lib. de ſitu Daniæ, p. 36, edit. Elzevir.

vessels in those ancient times is entirely unknown at present ; they were made of skins and ribs, or bones, which they tied together with twigs. These kind of boats they called *Hudkeipa*. They killed eight of these men, but the ninth escaped. Soon after they found prodigious numbers of the inhabitants coming towards them, who with their bows and arrows shot at the Greenlanders. By this *Thorvald* was convinced that this was not a barren unpeopled country. These people were formerly called *Skrælingers*. *Myritius*, who calls them *pygmæos bicubitales*, says, that they are a few weak, despicable wretches, that have no strength or courage. He also calls them *Skrælingers* ; and adds, that they live to the west of Greenland ; that if they were ever so many in number there is not much to be feared from them. However, we find that in the year 1379, a party of the *Skrælingers* made an excursion into Greenland, and murdered eighteen of the Christian natives of that country.

But to return to our history of *Thorvald* ; whilst this multitude of *Skrælingers* discharged showers of arrows into the vessel, the Greenlanders defended themselves with boards, with which they covered the vessel, fastening them together with twigs, so that hardly any of the crew were wounded. In a very short time the *Skrælingers* began to be in want of arrows, and then retired all together, without doing any farther damage.

*Thorvald* was the only person who suffered in this attack, for he received a wound in the cheek, of which he died. He was buried on a point of land, where, by his desire, they erected two crosses, one at his head the other at his feet, and from that, this point was called *Krossanæs*, or *Kaarfnæs*.

*Thorvald* seemed to know something of his approaching end ; for he was very fond of that point of land, and said that he designed to remain there. They staid the remaining part of the winter on *Vinland* ; in the spring they loaded their ship with vines, and the boat with grapes, and sailed back to Greenland in good condition. The third son of *Erich Rodes*, and brother to *Leif* and *Thorvald*, whose name was *Thorsten*, sailed from Greenland with his wife and children, and all his family, in all twenty-five persons, with an intent to fetch his brother's corpse, in order to inter it in his native country. But meeting with contrary winds,

he was driven back again to Greenland, to a place called Lyfsefiord, it being very late in the autumn, where he, as well as most of his people, died of the plague. During the winter their bodies were put into chests and preserved, and in the spring they were all carried to Erichsfiord, and decently interred.

Thorsten's wife, whose name was Gudrid, survived him, and afterwards married an Icelander, who was called Thorfin Karlsefne, and was but lately come to Greenland from Norway. This Thorfin was persuaded by his wife and others to go to Viinland. Accordingly he set sail with sixty men, besides his wife and five other women. He also took with him as many heads of cattle as he could stow in the ship, and had the liberty of living in Lief's house, for it was not given him. He arrived safe at Viinland, where there was no scarcity of any thing necessary to support life; for besides plenty of fish, and the fruits of the earth, they found a large whale driven upon the shore, of the sort which they call reid-whale; of this kind some have been found near two hundred feet long, and their flesh tastes very much like beef. Besides all this, it was a pleasant fertile country, and afforded plenty of grass, so that a bull they had brought with them grew so wild and untractable with high keeping, that they could not manage him.

In this manner they lived by themselves till Christmas, when the Skrælingers approached them in great numbers with their commodities, which consisted of hides, skins, and furs; but when they saw the bull, and heard him make such a terrible bellowing, they were so terrified that they fled with great precipitation to their houses, and in their hurry to get in, broke open some of the doors. The Greenlanders did not understand their language, nor they the Skrælingers; but, by signs and motions, they understood that the Skrælingers were come to trade with them, and chose to have iron and arms in exchange for their furs. Thorfin forbade all his people to sell them iron, but gave them milk and other food, which the Skrælingers seemed very fond of, and presented him with several valuable things in return for their good cheer.

When they were gone, Thorfin set about boarding his house all round with thick planks. All this happened during the first year of their residence in that country.

The following summer the Skrælingers came again to Thorfin in Vinland, and one of them was killed for attempting to steal an ax from the Greenlanders. Upon this the rest went away, without reaping any great advantage from their furs, or other commodities.

The third summer they came again without any goods, and prepared for war, but had no success, having lost a great many of their men. There was one instance happened, which discovers those people to be very ignorant and stupid; one of them laid hold of an ax which the Greenlanders had carelessly dropped, and being desirous to know the use of it, by trying an experiment, struck one of his companions on the head with it, with all his might. This being observed by one of their company, who seemed to be superior to the rest, and was probably their chief, he took the ax and examined it; then he went down to the water-side, and threw it as far as he could into the sea. By this we may judge, that they do not know how to use any other instrument but their arrows.

At the expiration of three years Thorfin left Vinland, in order to visit his mother-country, and carried many valuable things with him. After this expedition several adventurers, both from Iceland, and Greenland, took a fancy to go to Vinland. Two men who were called Helge, and Fimboy, sailed first eastward from Iceland to Norway, and from thence to Greenland, where a woman, whose name was Freidis, persuaded them to go to Vinland. They accordingly sailed thither in two of their own ships, with sixty men, and the aforesaid Freidis, who was sister to Leif, and had lived in his house whilst he was in Vinland. But when they had been there but a short time, thirty of them were destroyed by the deceit and perfidy of that wicked woman. And tho' she was daughter to Erich Rode, and Leif's sister, she was still far from resembling them in their virtues; for she was envious, proud, and the most abandoned of her sex.

The above-mentioned Thorfin, went from Greenland to Norway, and was held in great esteem and respect for his Vinland-expedition; and when he was going to depart for Iceland, and just ready to sail, he met with a foreigner from Bremen, who desired him to sell him a piece of timber that he had in his possession,

cession, to put up in his house as an ornament: But Thorfin would not unless he would pay him its weight in gold: upon these conditions he sold it him at last. It seems the wood was called maufur (makholder baum, or *Ruscus meufdom*, *muse-træ*) and had been brought from Vinland. Hieronymous Tragus, says, that no rats, mice, or bats, will come near this wood." So far Arngrimus Jona.

A Norwegian colony in all probability still left in America.

As I have said before, it is not in the least an improbable supposition, that the descendants of a Norwegian colony should still be found in the said country; and I ground my hypothesis upon what that eminent jesuit, Pere Charlevoix, very plainly intimates in his travels in America; he tells us, that he found on the island of Newfoundland, a people with beards, complexion, and every mark of a different nation from the rest of the inhabitants called Esquimaux (a name, without doubt, which the French have given them) which he reckons is an European colony; his words are these, "Les Esquimaux ressemblent autant aux Patagons, que le pays qu'ils habitent ressemble aux cotes du detroit de Magellan. C'est un peuple feroce qui mange la chair toute crue des animaux. Leurs yeux sont petits, leurs cheveux blonds, leur peau est assez blanche, et ils ont de la barbe. Toutes ces marques les distinguent de tous leurs Voisins, et pourroient faire croire, qu'ils sont une colonie d'Européens, qui ont degeneré par la misere et par le manque d'instruction. Hist. et description generale de la Nouvelle France, &c."

It is a pity, that the good father Charlevoix had not so much knowlege of the Norwegian language, as to have been able to examine whether his supposition were true. I am apt to conclude, that he would have found them to be descendants of the Norwegians, who, by length of time, and long absence from their country, or want of ships, or else by their own choice, had remained there, and forgot their native land, yet still retaining the ancient Norwegian dialect, such as the Icelanders now speak. It is not probable, that he would have found any signs of christianity among them, for their departure happened much about the time that christianity was introduced into Norway, which occasioned many colonies leaving the country, exclusive of those that did it for reasons of state. Others left their native land out of detestation

tion to the cruelties which king Olaus Trygonis exercised upon his subjects, who, according to the custom of those times, and the principles of the popish spirit, endeavoured to propagate the christian religion, or rather a mere hypocritical profession of it, by force.

Since I wrote the above account, I happened to cast my eyes upon a book, entitled, *A General Account of the Continent of America, and its Inhabitants*. Published this year, with a preface by Doct. Siegen, Jac. Baumgartens. This work treats more largely of the people I have mentioned above, their difference from the other Americans, and their foreign original in *P. I. C.* I. p. 27. and seq. sect. 13. in these words; “The nation of the Eskimaux, which inhabit the country from 52 to 60 degrees of north-latitude, between Hudson’s bay and the strait of Belleisle, separating the continent of Labrador from Newfoundland, have such peculiar customs, agreeing so little with those of the other Indian nations of America, nay their form is so different from the rest of the inhabitants of this part of the world, that I believe we should not err, if we were to derive them from a quite different origin. They are tall and better made than the other Indians; they have curled hair, which they clip off at their ears, and let their beards grow.

Their hair is generally black, though some of them have light coloured, and others have red hair, like the inhabitants of the northern parts of Europe.

The name Eskimaux seems to be derived from the word eskimanic, which in the language of the Abenagues, implies men who eat flesh raw. For as the inhabitants of this country live by hunting and fishing, they eat the game they kill, and the fish they catch, raw and bloody, without any preparation. The neighbouring Indians give them another name, which signifies fugitives or run-aways, not because they are cowards, but on account of their brisk, active, turbulent, dispositions.

They live in a constant distrust of their neighbours, and are continually upon their guard against any incroachment, avoiding as much as possible all commerce with other nations. Some affirm, that this nation proceeds from some Biscadians who were shipwreck’d with several vessels in these parts; if this be true, they

they are confequently, derived from that very European people they had afterwards fo great caufe to complain of. Neverthelefs, if we may judge by their manners and cuftoms, I am convinced that their origin is of a much more ancient date. I rather think, that they came fome ages fince from the Britifh and Orkney iflands.

If there were not ftill fome remains of idolatry and fuperftition, without the leaft fign of chriitianity amongft them, we might perhaps aver, that they are defcended from thofe Cambri, which forfook Wales, to difcover new countries in the weft, about the end of the twelfth century, under the command of Madoc their prince, a fon of Owen Guynedd, mentioned by David Powel, in his hiftory of the Cambri; if this voyage of Madoc be not fabulous." So far the anonymous author of the hiftory of the country and inhabitants in America. His hypothefis, that the faid Efkimaux are derived from Europeans who came there fome ages ago, I think we cannot but believe to be true. To make Bifcayans, or Britons of them, who have been converted to chriitianity fo long, of which there muft without doubt have remained fome footfteps, does not at all agree with facts. Upon the whole, all hypothefes on this fubject are at an end when we read fome of our good Norvegian authors, efppecially Arngrimus Jona quoted above.

Many confiderable colonies have gone away at the latter end of the fourteenth century from hence, as well as from other countries, and a great many were carried off by an epidemical diftemper that raged at that time, which the Norvegians called forte dod, or black death. By this means the country has been greatly weakened and ftrip't of its inhabitants in many places. However, later times have recovered this lofs, fo that the old habitations are again occupied, and new ones added to them. Hence we may fee the benefits of peace, and what advantages it brings to a country. That it conduces to the increafe of the inhabitants, may be concluded by examining thefe laft thirty years peace; for the increafe of people is fo obvious in this diocefe, and in all probability in other places, that moft of the farm-houfes which formerly had but one family, now have two, three, or four. To this we may add the great numbers of young feafaring men,  
I who,



who, by permission, and with proper passes, and a great many without passes, go every year to Holland and other countries to serve as sailors, and when these are compleat seamen, they are preferred to all other; all these together make a much greater number than one would imagine.

## S E C T. III.

On the contrary, there are many foreigners who come into Norway, and sometimes settle there, particularly Danish, English, Scotch, Dutch, and Germans. The first of these, who are universally called, both here and in Sweden, Jyder, have frequent opportunities to come here, some to be put in places and employments under the government, others are drawn hither by mercantile affairs, especially since the union of Calmar, which has incorporated these two nations into one, professing the same religion, subject to the same government, and speaking the same language\*. Since that time they may be looked upon as one people, according to the account Virgil gives of Æneas's uniting the Ausonians and Trojans in one nation:

Colonies of  
strangers in  
Norway.

Sermonem Ausonii Patrium moreque tenebunt,  
Utque est nomen erit, commixti corpore tantum  
Subsident Teuceri, morem ritusque sacrorum  
Adjiciam, faciamque omnes uno ore Latinos.  
Hinc genus Ausonio mistum, quod sanguine furget,  
Supra homines, supra ire Deos pietate videbis.

Upon what terms these two nations, equally great and free, have been united, may be seen amongst other curious pieces in Arild. Huitfeld's collection, Tom. II. p. 1316, where there is inserted an old letter, subscribed by two senators, at a diet held in Bergen, anno 1450, in which are these words: "Both kingdoms, Denmark and Norway, shall henceforth be united in brotherly love, in trade and friendship; and neither of them shall be subject to the other; each kingdom shall be governed by its own natives, &c." The Norwegian nation is as much beloved in

\* I mean by the same dialect the language of the Afers, which the three northern kingdoms, and part of Germany, had in common; but by degrees varied, so that they could not understand each other, as is the case of the Icelanders now, whom we cannot converse with: and there is still here many hundred words used by the common people, that we do not understand, of which there is a proof in the Glossarium Norvagicum. Since the union of Norway and Denmark, the laws concerning divine service, have produced a greater change in the language.

Denmark, as the Danish is in Norway, and both are regarded with the same affection and favour by all our monarchs, particularly those who have reigned since the sovereignty has been free, and had an opportunity to discover their impartiality, and natural disposition, whatever the envious Conringius or others might have insinuated to the contrary. This is demonstrated in a treatise by the worthy Dr. C. L. Scheid, which may be seen in the Transactions of the Royal Academy of Sciences at Copenhagen, Tom. II. N<sup>o</sup> x. p. 317. edit. Lat. inscribed, *Christ. Lud. Scheidii Diff. de Pervetusta et illibata Norvegiæ libertate, qua cum ante, tum post unionem Calmariensem, gavisa est, cui accedit demonstratio quod regnum hoc nequitquam Daniæ, provinciæ instar, subiectum et confociatum sit. Ex principiis juris publici universalis.*

Concerning the obligations of both nations to brotherly love and unity, Christian Reitzer, in his dedication of Thorm. Torfæus's history of Norway, to king Frid. IV. writes thus: "In hoc mutuo nostro amore, in hac, qua per tot secula cohæsimus, admiranda plane concordia, nil poteris illis conferre, ut non et nos obliges. Illi nostri sunt fratres, illi socii fœdere æterno Daniæ juncti. Illis iidem, qui nobis, sunt mores; eadem lingua, eadem religio. Eodem gloriamur rege. Præstitum nobis est, quicquid præstitisti illis," &c.

The English. "When king Oluf Kyrre, towards the end of the eleventh century, founded the city of Bergen, and was particularly intent upon extending the trade and commerce of Norway, he granted the English very great privileges, and gave them a convenient place to build upon."

The Scotch. These privileges their descendants enjoyed near 300 years, till the year 1312, when they fell upon king Hagen's people, upon which they were transferred to the Germans who came in their room, and carried on a considerable trade there. However, some of the English remained in several of the sea-ports, and there, as it is reported by a continued tradition, built the first churches, and were the apostles or first instructors of the Norwegians in the Christian faith. The same may be said of their neighbours the Scots, who have visited these parts rather oftner than the English, being situated nearer to the Norwegian-coast. A great number of them have settled here, especially in Hordeland, which is now called North and South-Hordlehn. Those peasants about Bergen, distinguished

tinguished by a particular dress, and by way of distinction called Strile-farmers, are thought to be of Scotch extraction, and a great many Scotch and English families employed in the mercantile way, are settled here at Bergen. These are still distinguished by their names; and a district in Rye-Kirkens-Sogn, called Skotte-Byen, or Scotch-town, is a farther proof of this. There are likewise in Fossen, now called Christiansand, which has the privileges of a trading-city, a great many English and Scotch families settled, who carry on a great trade. I observed above, that the Germans, about the beginning of the fourteenth century, succeeded the English in their trade, privileges, and advantages. These they enjoyed as long as the Hanse-treaty was in force, and Bergen was one of the principal towns of this association. These Germans piqued themselves upon the privileges that were granted them, and behaved with a great deal of insolence, making a bad use of them by encroaching upon the inhabitants, particularly by joining with the mechanics of their country. By this means they became very numerous, and constituted a formidable body of several thousands, till king Frid. II. deputed Mr. Christopher Walkendorf to chastise them, who immediately damped their courage, and set them their proper bounds.

At this present time the Germans have but little share of the trade of the country, and are but few in proportion to their predecessors; for tho' the Nordland-company have as great trade as ever, yet out of fifty-eight houses which were formerly inhabited by German families, who belonged to that company, there are now but four in their possession; all the rest are bought up by the natives, who, partly in the company's counting-houses, and partly at their own houses, carry on the trade, which formerly enriched a great many foreigners.

It shewed a great want of judgment and policy in those times, to permit foreigners thus to engross the whole trade of the country\*. Even at present there are in this city betwixt four and five hun-

\* I have observed, that some of our own as well as foreign authors, have conceived a very wrong idea of this German-company, which they have conveyed to others, by representing it in a declining condition, or almost bankrupt; but the truth is quite the reverse, in regard to the trade of the company: Their houses, stock, servants, and the number of traders, are the same as heretofore. As for the fisheries, God be praised, they are more flourishing than ever. That at Sundmoerike is as large again as it was formerly: but it may be said very justly, that its dependence upon the German Imperial cities, such as Bremen, Hamburg, Lubek, Rostoc,

hundred merchants families, above half of which are Germans or Dutch; but have been naturalized long since. There is another German colony in one of our towns up in the mountains, called Kongsberg, where they have divine service performed in their own language, as it is at the company's house at Bergen. There is still a more ancient colony of this nation, which came here in the reign of Christian III. the fate of which I have related above in my description of the silver-mines in Norway, see Part I. p. 181.

Tartars.

J. Ramus gives us a short account of a Tartarian colony that fled from their own country and settled here, in the reign of king Hagen Hagensen, which he relates in the following words, in page 231: "In Senniens Lehn, there is a place called Malangerfiord, which in the reign of king Hagen Hagensen, was given to a certain people to settle in, who had fled from Tartary to Biarmeland, and from thence came to Norway. King Hagen caused them all to be baptized, and gave them leave to settle in Malangerfiord," &c.

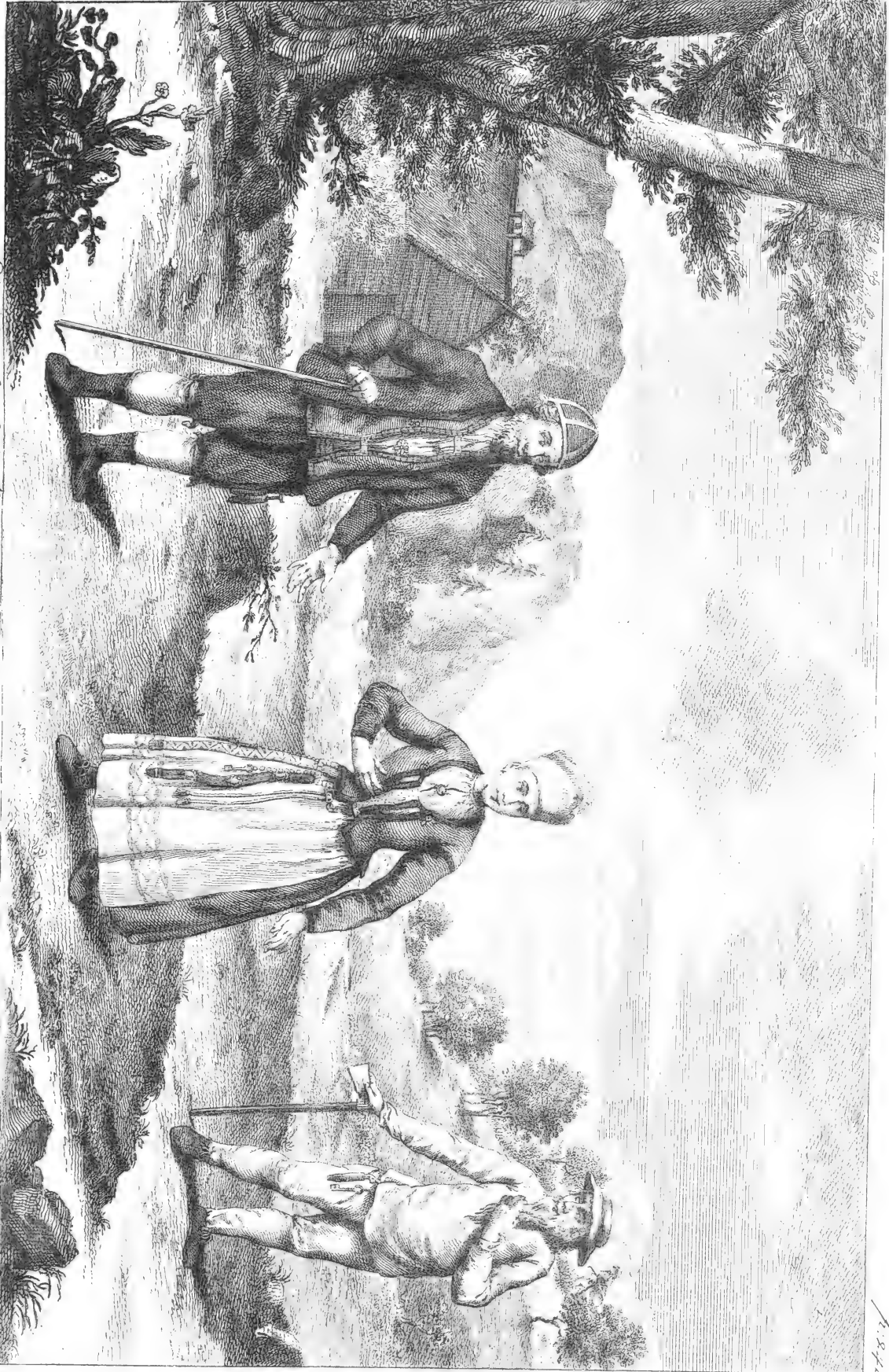
## S E C T. IV.

I shall now proceed to the chief point I had in view in this chapter, namely, to give an exact description of the Norwegians, their genius, manner and qualities, both of body and mind. Tho' the outward aspect is seldom regarded as the principal endowment in any civilized nation, yet as it first strikes the eye, I shall begin with observing, that the Norwegians are in general of a good appearance, tall, well made, and lively. There are some who pretend that there is a difference in the inhabitants of Norway according to their situation; and observe that the peasants who live among the mountains, are generally taller than the rest, and have a certain severity in their countenance which commands re-

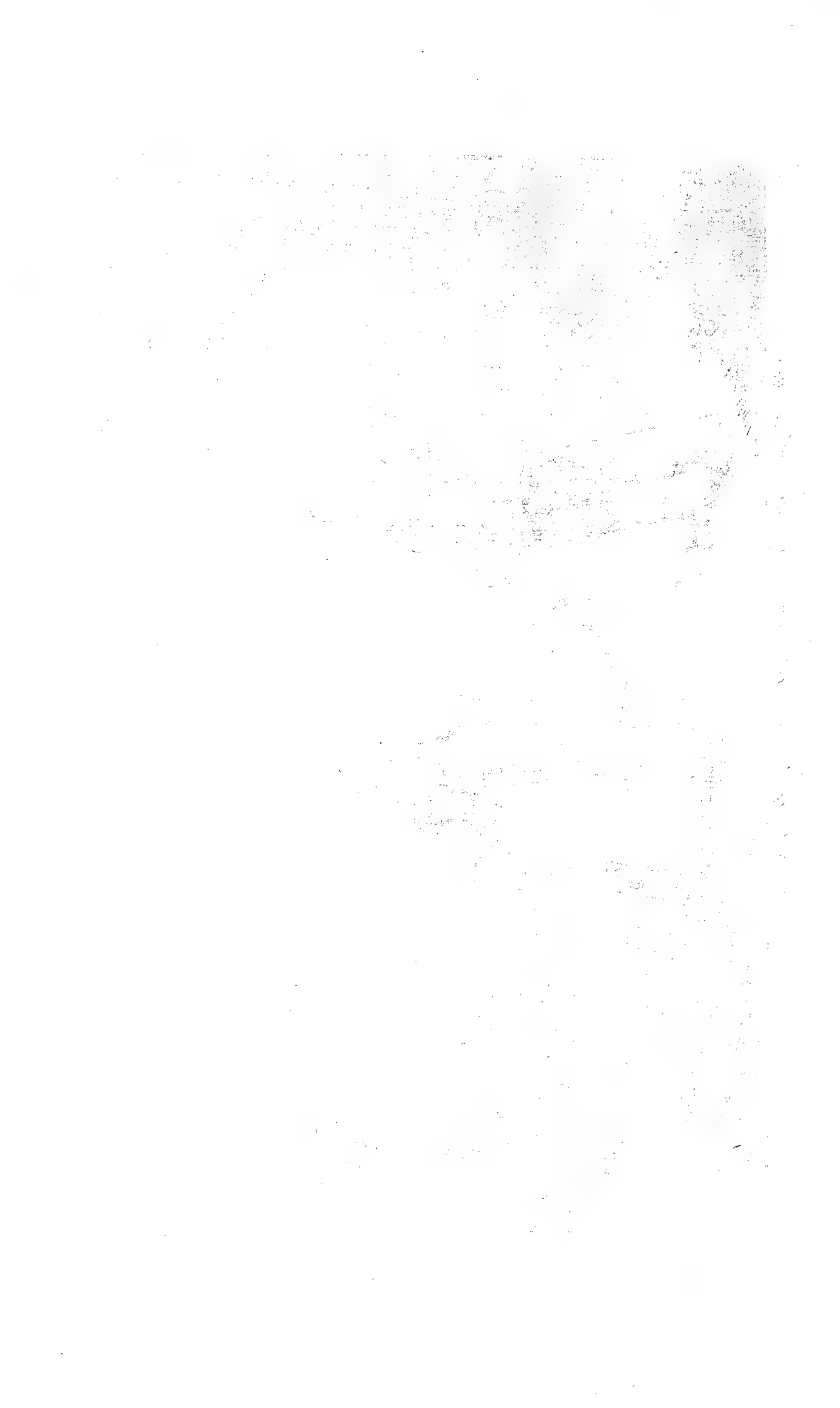
is declining, and grows every day less and less. In fact, they have but a small portion left, since the warehouse-trade, &c. has been by degrees bought up by the natives, to whom it belongs by natural right. This company possesses the best part of the city of Bergen. Their ground extends all along the west-side of the haven, and is in length 340 paces, and 120 in breadth, containing thirty large houses, the fronts of which look towards Garpe-Bridge, or the German-Bridge, and form a street. In the same row are the counting-houses, opposite to these is the place where the fish-dealers are always at work. They are continually busied in packing, loading, unloading, &c. especially in May and August, when the Nordland vessels come in by hundreds at a time, besides a great many foreign Ships. Each counting-house has separate apartments, and are properly factories, having their separate economy conducted by a master who has his clerks and servants, that are mostly Germans, but in the service of the Norwegians. No women are suffered to be in the counting-houses, according to ancient custom, by which they are all regulated to this day.

1847 2.

1847 2.



*The People of the Boote in the Province of Bergen in Norway.*



spect, and seems expressive of the strength of their intellectual faculties. Along the coast the people, for the generality, are not so tall and robust, but on the contrary more corpulent and phlegmatic, and have a rounder visage. This difference is observed by the officers in the militia, according to the several districts of which their men are natives, and when they draw up their regiments, consisting of both forts, they can pretty well guess to which class each belongs\*.

That the first inhabitants of Norway had some of the giant-kind amongst them, is asserted by Thormod. Torfæus, who is not very credulous in other respects, in his *Hist. Norv.* p. i. l. iii. cap. 3 & 4. p. 117. His words are, “ Edda nihil operosius tradit, quam quæ Afis transmigrantibus cum gigantibus istis intercesserunt. Sed & historia Hervoriava, cap. i. conceptis verbis opponit istorum gigantum nomina, qui inter primos septentrionem incoluerant—Primos Daniæ incolas Saxo Grammaticus gigantes, gigantes Arngrimus primos Norvegiæ agnoscit: illos autem posteros fuisse & reliquias Cananæorum agro Palæstino, a Josua & Calebo, divinis auspiciis in Palæstinam moventibus, expulsum, circa annum mundi 2506. Hancque orbis plagam, ad ea usque tempora, aut forsitan diutius, profus incultam mansisse existimat, Genebrandi auctoritatem allegans . . . cui licet Pontano vel maxime repugnante, *Hist. Dan.* p. 55. suffragatur Rabbi David Kimki ad finem Abdiæ, qui Cananæos ex agro Palæstino ab Hebræis ejectos, in Illyricum & Panoniam migrasse tradit, citante Bodino. *Meth. Histor.* cap. iv. Accedit Mesienius, qui tomo I. Scandiæ illust. a Josua Palæstina ejectos Scandiam intrasse existimat . . . Celebrerrimus antiquitat. septentrionalium professor, Olaus Verelius, solus gigantes hunc tractum quondam incoluisse, creditu arduum judicat, adjecta ratione his verbis: not. ad cap. I. histor. Hervorianæ, p. 11. Neque enim, inquit, è terra hic potius quam alibi prognati sunt, si vero aliunde advenerunt, aliorum injuriis hic pulsi dicentur & . . . vero, proinde similius est, gigantes hic quondam

Torfæus's  
opinion of a  
giant-kind.

\* L'air & la terre influe beaucoup sur la forme des hommes, des animaux, des plantes: Qu'on examine dans le même canton, les hommes, qui habitent les terres élevées, comme les cotaux, ou le dessus des collines, & qu'on les compare avec ceux qui occupent le milieu des vallées voisines, on trouvera que les premiers sont agiles, dispos, bienfaits, spirituels; & que les femmes y sont communément jolies; au lieu que dans le plat pays, où la terre est grosse, l'air épais, & l'eau moins pure, les payfans sont grossiers, péfants, malfaits, stupides, & les paysannes toutes laides. Buffon *hist. naturelle*, tom. iii. p. 203.

fuisse, at non ita magno numero, ut foli illi terram occupaverint.”

If all this be probable, which, however, I leave to the reader's own judgment, then we may suppose that there has been such a thing as a slow and gradual decline in the size of the human race amongst us \*. Some of our later historians give us instances of heroes of uncommon size, strength, and courage, in Norway, particularly the renowned Harald Haarderaade, who distinguished himself in Greece, and is said to have been ten feet high. To this we may add several human Skeletons, that have been dug up in the mountains of an uncommon size, but as I have never seen any of them, I cannot vouch for the truth of the accounts concerning them. Not to mention Starkadi's tooth, which according to Thorm. Torfæus's account, p. i. l. 10. c. 28. p. 454, is said to have been used for a bell-clapper; and Eigel Skallegrimi's skull, which the same author, p. ii. l. 5. c. 6. p. 213, says, was shewed in Iceland as a prodigy, both on account of the largeness and weight. It was said to be so hard and thick, that it could not be chopp'd through with an ax. And not long ago, Mr. And. Wefiel, at Biornoer in the diocese of Trondheim, opened one of those ancient tumuli called giant-graves, and found there a human back-bone of a prodigious size. All these accounts I shall leave to rest on the credit of the relators. But waving these stories, it is certain the Norwegians are a very strong, robust, and hardy people, and, in some measure, differ according to the situation they live in. About the rocks and cliffs, and in most parts of Norway, especially on the mountains, the air they breathe is fresh, clear, and wholesom; their plain and homely diet, their continual labour, which they are obliged to undergo both by sea and land, and their cheerful disposition, which is natural to most of the Norwegians, give them a constant series of health; so that, I believe, a greater number of them, than of any other nation, exceed the age of a hundred years. But of this I shall take notice hereafter. They are inured to cold and hardships from their childhood; for, in the latter end of November, they will run about bare-footed even upon the ice. The mountaineers,

Strength and  
hardiness.

\* Commisti nostri generis hominibus hybridas procrearunt, semigigantes verè vocatos. Hi in mores & mansuetudinem humanam, feritate paulatim mitescente & processu temporis evanescente, transierunt. Thorm. Torf. Hist. Norv. p. i. l. iii. c. 2. p. 115.



who daily go in the woods, have their beards often full of icicles, and their bosom filled with snow : and when their naked breasts are occasionally exposed, they seem to be as hairy as their chins. On my travels over the highest mountains of Norway, which are covered with snow, where horses are of no service, I have seen the peasants, in great numbers, do the work of horses, and indeed they seem almost to equal those animals in strength. I have observed, that when they have been in a profuse sweat, they have thrown themselves every half hour upon the snow, to cool and refresh themselves, and have even sucked it to quench their thirst. All this they undergo without the least apprehensions of a cold or fever, and without murmuring, or betraying any discontent. On the contrary, they go on singing merrily all the while, and hold out for nine hours together at the hardest labour imaginable, with incredible cheerfulness and alacrity. What strong constitutions are the fishermen and sea-faring people in this country endowed with, by that wise and gracious being who giveth to every one what their respective wants require ! A remarkable instance of this may be seen on the islands near our coast, and those we call the out-islands ; where the peasants of both sexes assemble together by hundreds, I may say thousands, about the middle of January, to make their winter-harvest of the rich produce of the ocean. At these times every family takes with them five or six weeks provision, chiefly dried fish, and keep out at sea all day, and a great part of the night by moonshine, in open boats ; and after that crowd together by scores into little huts, where they can hardly have room to lay themselves down in their wet-cloaths. Here they repose themselves the remainder of the night, and the next morning they return to the same laborious employment, with as much pleasure and cheerfulness as if they were going to a merry-making. Even the weaker sex is not exempt from these hardships any more than the men ; but the women have not beards in common with them, as Adam Bremen pretends to say, in his book *de situ Daniæ & reliquarum*, &c. page 29. This seems of a piece with what he says of the Norwegian men in the same page, namely, that they live in woods, and are hardly ever seen. His words are, “ *Audivi mulieres esse barbata, viros autem silvicolas, raro se præbere videndos.*” The hair and eyes of the Norwegians are lighter than that of most other nations ;

nations ; and a dark complexion is as rare here as a fair complexion in France or Italy. We see that the cold changes, hares, partridges, and most of the Norwegian animals, from a dark or brown colour, to the finest white. We have the following observations concerning the fair complexion of the Norwegians, in the Hamburg Magazine, tom. I. p. 48. “ Farther from the æquator the black colour of the inhabitants is gradually lost ; they are still pretty brown above the tropics ; but we meet with none that are entirely white till we have gone a great way into the temperate zone, and at the extremities of these zones we find the fairest complexions. The *blonde*, or flaxen complexion of the Danish women, strikes the eye of the admiring traveller, and he can scarcely believe that the female he now beholds, and the African he lately cast his eyes upon, are of the same sex.

Car. Linnæus, in his *Fauna Suecica*, observes, that the northern people have generally light grey, or blue eyes, as well as light-coloured hair, page 1. “ *Gothi corpore proceriore, capillis albidis rectis, oculorum iridibus cinereo-cærulescentibus.*” But in the mean time, tho’ John Isaac Pontanus, in his *Hist. Dan.* pag. 777, makes it common to all the people that live north of the Baltick, we may say, that there is no rule so general as to be without an exception ; and therefore it is only to be understood with some limitations, which Pontanus must mean : but if it implies all the nations north of the Baltick, then he must have forgot, that north of the Swedes and Norwegians, there is the Lapland nation, which differs greatly from them in manners, customs, and language. They are of a less stature, have a flatter visage, and, in particular, a dark brown complexion and black hair. This shews, that where the temperate zone terminates, and the frigid commences, there the inhabitants lose their fair complexion, and grow darker, as excessive heat darkens the skin, and gives the inhabitants of the torrid zone a tawny complexion. Hence we see, that two opposite causes, namely, extreme cold, and excessive heat, in this respect produce the same effect\*.

\* Lorsque le froid devient extrême, il produit quelques effets semblables à ceux de la chaleur excessive. Les Samoyedes, les Lapons, les Groenlandois, sont fort basané. On assure même, comme nous l’avons dit, qu’il se trouve, parmi les Groenlandois, des hommes aussi noirs que ceux de l’Afrique. Le froid comme le chaud, doit dessécher la peau, l’alterer, & luy donner cette couleur basanée. Buffon. *hist. natur.* tom. iii. p. 527.

The cold in Norway and Sweden by no means obstructs the growth of the body, which is obvious, by the compleat stature of the people of those nations; but the Laplanders, Greenlanders, and Samoiedes, are all a short, thick-set race, of a dark brown complexion, which is certainly occasioned by the cold, that is very intense in their climate.

## S E C T. V.

To represent the genius, or dispositions of the minds of a <sup>Qualites of the mind.</sup> whole nation, has its difficulties, and is liable to many exceptions. However, nobody will deny (what daily experience shews to be true) that every nation is, in some degree, characterised and distinguished by its particular air, nourishment, education, and manner of living.

Having premised thus much, I shall enquire into the mental qualities and genius of the Norwegians. They are generally dextrous, brisk, penetrating, and ingenious, especially in all <sup>Ingenuity.</sup> kinds of mechanic performances. This may be seen by the peasants never employing any hatters, shoemakers, taylors, tanners, weavers, carpenters, smiths, or joiners; nor do they ever buy any goods in the towns: but all these trades are exercised in every farm-house. They think a boy can never be an useful member of society, nor a good man, without making himself master of all these.

In short, the peasants of no country are so dextrous at every thing as those of Norway, and our good neighbours the Swedes; where they have much the same method of educating their children. But it is true, however, that these dabblers in so many trades seldom excel in any one branch; but it is sufficient that they perform well enough for their purpose\*. Many of these polypragmatic peasants bring their work to such perfection, that it is hardly distinguishable from town-made goods. At Hardanger, not far from hence, there are several young country fellows who make their own violins; and some of them are so good, that

\* How ingenious a great many of these Norwegian peasants are in building of ships (which they do only by imitation, without any rules) may be concluded by the numbers that are built at Arendal, and other places; some of these are from two to three hundred lasts burden, fit for the Asiatic trade, and that company has bought some of them for that purpose. At the aforesaid Arendal there is frequently built four or five of those large ships in a year, and many smaller vessels.

I have been assured, they are fit to play upon in concert. But what their genius mostly leads them to, is carving in wood all manner of devices with their Tolle-knive, being a short broad knife, which is also of their own forging; sometimes their performance turns out so well as to be worthy of admiration, tho' they do it without the help of any rules in the art of drawing. Amongst others, in the beginning of this century, a peasant who lived near Bragnæs, whose name was Halvor Fanden, excelled in this art; the connoisseurs would give their weight in silver for his carved cups, and other works in basso relievo. And in the Royal Musæum, they are look'd upon as their greatest artificial curiosity. Ol. Jacob in Musæo Regio, p. 46, speaks of him in these words, "Canthari, pocula, pyxides et vascula plurima, ex acere, quibus figuræ variæ elegantissimè incisæ, opere et ingenio rustici Norvegi in districtu christianensi prope Bragnæsium, qui Halvor Fanden appellatus. Rusticus hic fuit, et folius cultelli ope id in ligno, aliaque materia præstitit, ut artificibus aliis, vel solertissimis, palmam præripuerit. Nec sculptura saltem et cælatura, verum et architectonica, fabрили, musica et futoria arte insignis fuit, et ex parte omni polydædalus. Filios quosdam reliquit, artium paternarum sectatores, quorum plerique et fidibus sciunt, et instrumenta omnia musica conficiunt; imo artem pictoriam, sculptoriam, capsulariam, fabrilem, architectonicam, venatoriam et plures alias callent." In the same Royal Musæum, there is to be seen a bust of Christian V. carved in a certain wood called been-wood, by a shepherd, who in the year 1688, when the king went to Fronheim, stood in the road to see his majesty pass, and received so strong an impression of his face, that he was able to represent every lineament and feature to the life, without having ever seen the original but once en passant. What the Norwegian genius is capable of when assisted by education, and proper instructions in the art of sculpture, the three great masters Berg, Bog, and Arbin, can witness; whose merits are so well known, that they need no encomium.

I shall in the next place, give the reader some account of the bodily exercises used by the Norwegians.

Formerly the Norwegian youth, not only amongst the common people, but also amongst those in a more elevated station, were trained up to wrestling, riding, swimming, throwing the dart, scating,

scating, climbing steep rocks and forging iron. The other part of their education consisted in writing the Runic character, blowing the horn \*, and composing songs, and odes. Hence king Harald Haardraade, speaks thus of himself;

“ Ithrottir kan ek attæ,  
Ygs fet ek lid at smida,  
Fæur er ek huast a hefti,  
Hefik fund numit stundum,  
Skrida kan ek a skidum  
Skyt ek ok ræk fue at nytir,  
Tho lætr gerær i gordum  
Gollrings ved mer skolla.

Noble exercises in former times.

Which is thus translated by Wormius, “ *Exercitia octo novi, strenuè dimicare audeo, equo viriliter insidere valeo, aliquando et natate confuevi, in soleis ligneis currere novi, jaculandi et remigandi arte bene polleo, attamen virgo Russica me spernit.*

Rognauld Kolson, count of the Orkneys, writes thus of himself and his arts.

“ Taft em ek aurr at ofla  
Ithrottir kan ek niu  
Tyni et tradla runum  
Tid er mer bok og smider  
Skrida kan ek a skidum  
Skyt ek ok ræ sua nytir  
Huort veggia kan ek huggin  
Harpskatt ok brog thætta.

i. e. *Ludum scacchicum exercere promptus sum, exercitia novem calleo, novi exarare litteras runicas, assuetus sum libro et arti fabрили,*

\* Next to founding the horn, which is a kind of hautboy, they have a musical instrument, which the Norwegian farmers call lang-leek; this has six brass wires stretched upon a sounding board about four feet long, and six inches broad; the sound of which will hardly please a delicate ear; but the peasant prefers it to a ghittar, or lute. But the violin is the instrument most admired by our peasants, and is sometimes made use of in these parts not very seasonably, I mean in the house of mourning, where they will sit at the head of the coffin playing all day long, perhaps to drive away melancholy. They do the same when the corps is carrying to church in a boat, which is frequent in the western parts. But this is not so strange, as an old and superstitious custom in some places in the diocese of Christiansand; where they ask the dead person why he died? if his wife was not kind to him? or his neighbours civil to him? in some places in Lardal in the diocese of Bergen, every one that comes into the room where the corps is, falls on his knees at the coffin, and begs forgiveness from the deceased if they have ever offended him. The reverend H. C. Atche, has told them that it is very foolish, and too late to ask forgiveness at such a time, but he can hardly break off such an inveterate custom.

in soleis ligneis currere novi, jaculor et remigo, convenienter utrumque teneo fidibus canere et carmen componere. Vide Ol. Wormii, Litterat. Rimica, Cap. xxiii. p. 129.

There were other exercises formerly practised in Norway, which are thus described in Snorro Sturlesen's Norwegian Chronicles, pag. 166, et seq. " King Olaf Tryggvesen, was stronger, more alert, and nimbler than any man of his time. He could climb the rock Smalserhorn, and fix his shield on the top of it, &c. He would walk without the boat on the oars while the men were rowing. He would play with three darts at once, tossing them up in the air, and would always keep two up, and one down in his hand. He was ambi-dexter, and could use his weapon with both hands, and throw two darts at once; he excelled all his men in shooting with the bow, and in swimming he had no equal. In a word, he was cheerful, jocular, and affable; he was humble, obliging and good-natured, and was expeditious in all his undertakings, &c. Sigmund Brestesen, used to practise these exercises with the king, namely, swimming, shooting, climbing the rocks, and all other manly exercises which heroes and warriors practised in those times; and none could come so near the king in all these, as Sigmund."

#### S E C T. VI.

The capacity of the Norwegians for literature, is not inferior to their skill in mechanics and bodily exercises. Had they had the same opportunities for improvement as their neighbours have in Denmark, they would make an amazing progress. We may judge of this by the children in Norway, who take their learning extremely fast, and are capable in a very short time to get a book by heart, and to comprehend the meaning of it; especially since schools are upon such a good footing, God be praised, as I have every where found them on my annual visitations, with equal joy and surprize. This advantage the peasants here enjoy preferable to their equals in most other countries, namely, a lively and penetrating genius, fit for great and noble enterprizes. This I ascribe, next to the fine clear air they breathe, to the agreeable relish and pleasing sensation the mind feels in a state of liberty; which they enjoy without interruption, free from slavery, vassalage, and all obligations to foreign services. Every Norwegian peasant, especially the

the freeholder that can pay his taxes, governs his house and possessions with as much power and authority as a nobleman; nobody directs or controuls him. This gives them a certain freedom and generosity of mind; and if the liberal arts, as I mentioned above, had here such encouragements, as in some other countries, I do not doubt but that they would make a very great progress in a short time; and amongst an equal number of any other nation, our Norwegians would undoubtedly be found of a superior genius, to adorn the republic of letters. As a proof of this I will appeal to the writings of some of our most eminent authors, whose works are partly printed and partly in manuscript, such are Arctander, Aflac, Berndsen, Bielcke Borck, Brinck, Brunfmand, Camstrup, Cold, Dafs, Ewertsen, Engelbrecht, Fast-ing, Gunnerus \*, Hagerup, Heitmand, Hersleb, Holberg, Juel, Kraft, Kragelund, Ramus, Schoning, Sperling, Spidberg, Undalin, &c. not to mention a great number of very learned Icelanders whom I do not take notice of here, though they are of Norwegian extraction. It is true we have not in Norway, according to the German saying, so much Schul-witz or learning, as Mutter-witz or natural-genius. Of our possessing the latter there cannot remain the least doubt with those who have conversed with the Norwegians; for their brains are not frozen up, as the ignorant may imagine, but rather like the air they breathe, clear and penetrating. We find by experience, that those who live farthest up the country, near Tronheim, are the most ingenious †. If one enters into conversation with a Norwegian peasant about any spiritual or temporal affairs, that may come

\* This Norwegian, born in Christiania, at present Mag. Legens, at the university of Jena, is reckoned by many learned people to be one of the greatest metaphysicians and philosophers in this learned age, which appeared particularly in the year 1748, when he published a demonstration of the existence of a God, and the unity of his Being; correcting and amending the systems of those who wrote before him on this important subject, with great modesty and strength of reasoning. He shews them how deficient their arguments are to confute Atheists and Sceptics. See C. Evon Windheim Gottings Philosoph. Biblioth. vol. 1. p. 299, and particularly p. 324, where one of his adversaries writes of him thus: "I think they have with justice ranked Gunnerus among those profound philosophers who have left the others far behind."

† Meanly they seek the blessing to combine,  
And force that sun, but on a part to shine,  
Which not alone the southern wit sublimes,  
But ripens spirits in cold northern climes;  
Which from the first has shone on ages past,  
Enlights the present, and shall warm the last.

POPE'S ESSAY ON CRITICISM.

within the circle of their knowledge, and require only natural parts to comprehend, one shall find them provided with judicious and pertinent answers. Their questions are generally clear and rational, and their answers discover great penetration, and knowledge superior to many who have had all the advantages of education.

## S E C T. VII.

Politeness.

Another good quality observable in the Norwegians is civility, and a courteous behaviour, being very obliging and willing to serve others. In this they do not fall short of the politeness of the French, for they resemble them more than any other nation; the return they have for it, from the undiscerning, is much the same as the French meet with. For it is generally thought that where there is so much complaisance, there is little sincerity; and many foreigners doubt whether the Norwegians civil words, looks, and protestations, are sincere. 'Tis true, the last are often as little to be depended upon here as in other countries, and the greatest professions of friendship sometimes require the greatest caution. But still it is found to be true in general, that the Norwegians civil and obliging deportment, ought not to make their sincerity and honesty suspected: Their behaviour is not affected, but quite natural to them, and may be looked upon as the particular genius of the nation. The Norwegian peasant, in point of politeness, exceeds the Danish Burgher; and the Norwegian Burgher, especially of the mercantile class, in this respect, equals at least the Danish Nobility. As for fidelity and honesty, I think, I have not found them less practised here than in other countries; but this I must say, that where such a good principle is discovered, it requires in the person who possesses it, a double caution to guard against the subtle schemes of the crafty and designing.

Fidelity.

But in general the Norwegians are a faithful honest people \*, and their fidelity to their sovereign shewed itself remarkably towards the king, of whose throne they have been found to be the main support.

\* And even Moleworth cannot help praising the Norwegians, in this and other respects, in these words: "The inhabitants are a hardy, laborious, and honest sort of people." Account of Denmark, c. iii. 3. p. 28. It is a double commendation to be commended by a man that only excels in scandal.



Experience, which is the best instructor, has remarkably spread the fame of their conduct in war, and intestine broils, which have put their duty and fidelity to the test. But as clear as this point is, it still would be much more conspicuous, if the account of all their wars and expeditions were collected, and the memory of their great actions preserved. As a further proof of their valour, and fidelity to their king and country, I will only add an instance or two that happened in the last war, though well known. I mean the zeal of those citizens that set fire to their own houses to dislodge the enemy; and of the peasants who dispersed themselves about in the rocks and defiles, with their fire-arms, to cut off their retreat, and did not suffer them to pass without being remarkably weakened. But, omitting several other particulars, <sup>Valour.</sup> I shall only briefly relate what the late commander in chief, lieutenant-general Von Lutzov told me as an instance of the fidelity of the Norwegians. In the year 1716, when the Swedish army had invaded Norway, and whilst one of the governors of a fortification on the frontiers, was lying near a navigable river, with his corps, which was greatly weakened, waiting for fresh transports from Denmark, there came a number of grey-headed farmers to him, and offered themselves, with all their accoutrements, as volunteers for his majesty's service. Such zeal and willingness gave him the greatest hopes of a successful attack. There came one day, particularly, a body of 300 such volunteers from Tellemarken, who were vigorous, and in good spirits, with fire-arms and three weeks provision in their knapsacks, and accosted him thus: "Good day, father, we hear you have got strange unwelcome guests that you want to get rid of; if you have a mind to make use of us, only tell us what we must do, and you shall see that we are men." It was these peasants who were commanded by captain Coucheron in the action of Krog-wood, when the Swedes endeavoured to force a passage through, and were repulsed with the loss of 200 men; but the Norwegians, who were well posted, did not lose a man. Many instances of the like are confirmed by the following inscription, to be seen on one of our Norwegian medals.

Mod, troeskab, tapperhed, og huod som giver ære,  
Den heele verden kand blant norske klipper lære.

Courage,

i. e. Courage, fidelity, valour, and every thing that is praise-worthy, all the world may learn amongst the Norwegian mountains.

Valour, united with fidelity, has been, from the greatest antiquity, the characteristic of the Norwegians. Sturlessen and Torfæus have almost filled the ancient chronicles with accounts of the great exploits and heroic achievements of the Norwegian kings and nobility, and even of common men; sometimes laying other countries under contributions, and sometimes nobly defending themselves, and preserving their liberty from usurpation, tyranny, and oppression\*.

In general, the inhabitants of the mountains have an advantage in that respect; for it seems as if the hard and rugged rocks, which they have continually before their eyes, inspired them with a contempt of dangers and difficulties. The great number of beasts of prey seen in those parts, oblige them to carry arms betimes, which they know how to handle from their childhood. They are inured to troublesome and fatiguing journeys, and ordinary coarse diet serves them as well as the most delicate food. The condensed cold air towards the pole, braces up the fibres, closes the pores, and keeps in the internal heat. Hence they are,

“Et gens dura pati, & fortissima sternere docta.”

Good fea-  
men.

The skill of the Norwegians in maritime affairs is well known; they chiefly excel at sea, to which they have mostly applied themselves, and where they have acquired the greatest glory. Even in these later times, we have had great heroes at sea; and Heinson, Adeler, and Fordenskiold are descended from these. They have a genius for all warlike employments, and bodies and constitution well adapted for the same, and are not easily

\* *Ea regio robustissimos educat viros, qui nullâ frugum luxuriâ molliti sæpius impugnant alios, quam impugnentur. A multis retrò seculis, partim inopia adacti, partim freti viribus quæ faciliè faciunt mortales inolescere, mare Britannicum diu tenuère infestum. Nonnunquam soli, aliquando Danis juncti, Britanniam & Gallias sunt populati, nec quievère donec de suo nomine Normandium in littore Galliarum constituerent. Albert Crantzius in prologo Norvegiæ. Concerning the Danes and Norwegians partaking of the honour of the great exploits of those people, which all the old annals call Normannos, see Thormod. Torf. Hist. Norv. p. i. l. i. c. viii. & in præfat. where he says, “Satis testantur quanta jam inde à prima hominum memoria, gentis Norvegiæ potentia, quanta in ore omnium celebritas fuerit. Ut non diffitear interdum Norvegis, sive ut à quibusdam scriptoribus dicuntur Normannis, ea adscribi, quæ à vicinis Danis fuère præclarè gesta, quemadmodum, vice versâ, his à nonnullis attribuuntur quæ ab illis, extra patriam, edita gloriosa facinora in vulgus innotuerunt.”*

repulsed, but will support the honour of their nation, and undergo the greatest fatigues with very little rest or nourishment. Olaus Magnus calls the Norwegians, “ durum & indomabile genus bellatorum, ob ingentem animi & corporis ferocitatem, & animositatem, ac etiam propter durissima exercitia, &c. . . . Acre genus hominum nullis bellorum asperitatibus cedens. Hist. septentr. lib. vi. præfat. p. 180 \*.

What a pity it is that this natural courage and valour should degenerate, in so many of our people, to a disposition for fighting and quarreling among themselves, when the common enemy does not call upon them to exert it. The many parties and factions, in ancient times, are glaring instances of this unhappy disposition. These ran in the blood from one generation to another, and brought on intestine wars which ruined their country. Such were the Bagler, Birke-beener, Breed-skægger, Varbelger, Slitunger, and Rib-bunger; their origin, views, and actions, are to be seen at large in the civil history of this country. There we may learn, that they had valour, courage, and fidelity to their sovereign, but always discovered a turbulent and revengeful disposition. Even the common peasants would stand upon their point of honour, and fight it out with their knives; and before they began, they would hook themselves together by the belts, then draw their knives, and would not be parted till one or the other was mortally wounded, or killed. This brutish custom prevailed in Norway till about the middle of the last century, to such a degree, that they say, when a peasant with his family was invited to a wedding, the wife generally took her husband's shroud with her; because, on these occasions they seldom parted before they were intoxicated with liquor, the consequence of which was fighting, and those battles seldom ended without murder. Therefore the chancellor, Jens Bielke, strove to the utmost of his power, to crush this quarrelsome spirit, and made an order, that every man should deliver up his knife to proper officers as soon as dinner was over, and before they had drunk to excess. But still there were many so wicked as to provide themselves with two knives. Very lately this abominable practice has appeared again in Lærdal, and several other places. Some of the peasants

\* The Norwegian army, at this present time, consists of 30,000 effective men, besides 14 or 15000 sailors, such as all Europe can hardly match.

who have put away the instruments and broke themselves of this wicked custom, still retain that revengeful spirit, and that insolence and pride which were the promoters of it. However, they make use of a less pernicious instrument, and employ the lawyer's pen instead of the knife. They are very obstinate, and will persist in their animosities to the last; and if a poor man has it not in his power to pursue his suit, his neighbours will often make a collection to enable him to do it. This spirit of strife and contention our Norwegians seem to have transplanted with their arms and colonies; for it is visible at this day in the French province of Normandy, which was peopled by the Norwegians, and derives its name from them. The inhabitants of Normandy, are reckoned very litigious and full of chicane, and find employment for an incredible number of lawyers that abound in that province, according to the testimony of one of their own countrymen, whose words are as follows. See Buddæus's general historical lexicon, ad vocem Normandie. "The inhabitants in general are wise and sagacious, but passionate. The common people in particular are apt to quarrel, and love to go to law, and the nobility are commended for their valour."

Crantzius describes the Norwegians in general to be obstinate, and not easily moved from their resolutions, which I must allow. His words are, "Populus qui in rupibus suis induruit non facile mobilis ab eo, quod semel apprehenderit. Ante Christum agnitum, nulla gens pertinacior errorum, post susceptam fidem Christi, nulla immobilior: ferunt aliquando terra sua qualibet de causa peregrinos, cum primum redierint terramque tetigerint, pronos cadere in terram, & facto signo crucis, eam in terris osculari. O! inquit, terra christiana ante omnes. Adeo generis sui cultum attollunt, cæterorum contemnunt." Albert. Crantzius in Norveg. lib. vi. cap. ii. p. 754.

Ambition.

The Norwegian peasant is inspired with a commendable ambition, which makes him strive to live independent of others, and without being in any body's debt; and if his freehold be incumbered, he uses his utmost efforts to clear and redeem it out of the hands of a stranger.

There are many peasants who are not a little proud of being thought to be descended from the ancient nobility, and even the royal family. This ridiculous vanity, often prevents them from

mar-

marrying their children very advantageously, by standing upon their blood and birth. And if a thing once appears in the eyes of a Norwegian, either honourable or shameful, he does not hesitate a moment which to choose. For they are fond of being respected and honoured to the highest degree, and the great complaisance, as I have before observed, which they show to others, is not without a view of being paid again in the same coin. Their ambition was known to old king Hagen, who, according to Mathew Paris, was much pressed by the king of France, to let his troops (which were destined for the holy war) join the French army; but he rejected it, saying, that each of the two nations was too proud to live in harmony together. The said writer was the legate that brought the letter to the king, and according to his own account had this answer from his Norwegian majesty.

“ Grates refero copiosas piissimo Dom. Regi Francorum, qui meum desiderat in peregrinatione sodalium, sed novi in parte naturam Francorum, et sicut dicit poeta, ego dico.

Omniſque poteſtas impatiens confortis erit,

Omniſque ſuperbus impatiens confortis erit.

Gens mea impetuoſa eſt et indiſcreta, impatiensque omnium injuriarum et moleſtiæ. Si ergo inter tales et ſuperbos contentio oriretur, uterque noſtrum irreſtaurabile damnum incurreret, &c.”  
Vide Thorm. Torſæum. p. iv. l. 4. c. 38. p. 253.

From the ſame ſource ſprings the Norwegian's deſire to diſtinguiſh himſelf in his ſtation by fine cloaths, elegant houſes, &c. This is very conſpicious in moſt of the trading towns, where commerce gives them an opportunity of converſing with foreigners, eſpecially the Engliſh, whom they chiefly endeavour to imitate; but for want of abilities to equal that nation in ſplendor, magnificent entertainments, furniture, and equipages, a great many ruin themſelves\*.

But though the Norwegians endeavour to follow the Engliſh in theſe particulars, and in being conceited, and having a great opinion of their own country and nation, ſtill they are very unlike them with regard to friendſhip and hoſpitality. For I do not think, that there is any country in the world where the people are ſo hoſpitable, liberal, and willing to ſerve and oblige ſtrangers Generoſity.

\* Our Bergen merchants who are moſt of them deſcended from the frugal Dutch, or Germans, continue ſtill in that plain way like good ſober trademen.

as they are in Norway. A traveller is seldom suffered to pay for his lodging, which may partly proceed from the small number that visit these parts; therefore they think it a duty, to treat the stranger as well as it is in their power, and look upon it as an honour done them, if he accepts of their civilities. Notwithstanding all this, the peasant never gives the upper end of the table to the greatest guest that ever comes under his roof, for he thinks that place belongs to himself only. They keep open house for three weeks at Christmas, and set out the best things their houses afford, the table being spread and loaded with victuals during the whole time\*.

## S E C T. VIII.

Health, and  
long life.

As the Norwegian contributes to the good and happiness of others, so he also endeavours to make himself chearful, and always to appear good-natured. Envy and discontent are here banished to the rich and great, whose temporal advantages are rather a plague than a comfort and happiness to them. But the middling and common people who are the greatest numbers in every country, and constitute the nation itself, are seen here chearful, and as happy as I believe in any country, excepting France. The little they have to indulge themselves with, which shall be shown hereafter, relishes, and agrees with them, and they enjoy it though it be plain and homely; except in public companies and entertainments, where they are rather too much inclined to drink. But in their daily course they have no superfluity, and therefore most of them arrive to a great age. Many to eighty or ninety, some to a hundred or an hundred and twenty years †.

\* Isaac Pontanus praises the Norwegians in this and other respects, in chorograph. descript. Dán. p. 697.

“Incolæ sunt probi, sine fuco ac fallacia exterorum amantes, et si qui alii hospitaes. Et sane olim quæ celebrata est Julio præsertim Cæsare Germanorum hospitalitas, ea velut hinc relegata hinc adhuc locum tenet. Gratis enim peregrinantem excipiunt aluntque, is vicissim, si quid forte refundat, non ut debitum, sed ut benevolentia ac animi grati tecmerion accipiunt.”

The Norwegian peasant's hospitality extends itself so far on Christmas-eve, as to invite the birds to be his guests, and therefore, he hangs out at the barn door on a pole, an unthresh'd sheaf of corn which draws the sparrows and other small birds thither, where they feast and make merry.

† In the year 1751, in the diocese of Aggerhuus only, a hundred and thirty-six persons then had reached eighty years of age; there were besides forty-one of ninety, and four of a hundred, and upwards.

I shall just mention some extraordinary instances of longevity recorded in history, which, however, I will not vouch for as unquestionable truth, but let them rest on the credit of my authors.

J. Ramus, in p. 126, gives an account of Auden Evindsen, bishop of Havanger, who about the year 1440, died in the two hundred and tenth year of his age; which, supposing the calculation to be true, is almost an unparallel'd example.

Another instance is more certain, namely, that of Adrian Rotker, who was seventy years alderman of Tronhiem, and died about the beginning of the last century, being a hundred and twenty years old, according to Gerh. Mitzovii Presbyterolog, p. 34. Ramus tells us again, p. 194, of a minister at Holtaalen in the diocese of Tronhiem, whose name was Michel; this gentleman before the reformation in the year 1535, was employed by the archbishop to collect subsidies for king Christian II. and lived to be a hundred and fifty years old, being thirty years blind. His successor, the Reverend Mr. Andrew Bernhoft, who was his curate four years, and died in the year 1666, lived also to an uncommon old age. Perhaps the air of Holtaalen contributes much to longevity, as some people say of Guldbrandal, especially Lessoe-Gield through which there is a continual draught of fine fresh air; so that those aged people who are tired of life, retire to some other place where the air is less salutary, in order to get rid of the life of which they are weary.

Hans Aafen, who first erected copper-works at Roraas, where his picture is to be seen in the church, died in 1683, aged a hundred and sixteen, according to the Rev. Mr. Abildgaard's jubilee-fermon, p. 37. In M. Wieland's monthly intelligence, for the year 1722, p. 55, it is said, that a peasant's wife near Stavanger, whose name was Lisbet Walevand, died in the hundred and thirty seventh year of her age, and left behind a husband aged a hundred and ten. The same author says, that in the year 1725, a peasant's wife at Narsen, in the diocese of Tronhiem, died at a hundred and twelve, and had her senses and memory perfect to the last. He likewise adds, that in the year 1728, p. 88. a woman aged a hundred and twenty-seven, died in the parish of Rosdal, but does not mention her name, she was married in the sixty-sixth year of her age, and lived in wedlock fifty-five years, and after that was six years a widow. Christian Drakenberg a Norwegian, fa-

amous for his great age, who, I presume is still living at Copenhagen, kept his wedding at the house of his Excellency count Daune Schiold about fifteen years ago, and then he was said to be a hundred and thirteen years old; so that he must now be about a hundred and thirty. His picture has had the honour a long time since to be put up in the Royal Museum. I cannot say how far that ancient pair are advanced in their years of which Mr. Wieland, quoted above, gives an account in p. 88. ad. ann. 1727. He says, that the husband, by name Hans Nansen, was then ninety seven, and his wife Maria Mads was a hundred and one years old; that they had then lived seventy years together in wedlock, at a place called Steens-gaard, in the county of Jartberg; that they both enjoyed a very good state of health, and that the old man could do the work of a labourer. In the year 1735, Nans Gafmand, a labourer at Eegelands iron-works, died, being a hundred and nineteen years old; at a hundred and two he married a second wife, and was so vigorous that he could walk from Eegeland to the town of Dramen, which is about twenty Norway, or a hundred and twenty English miles. Wieland Relat. ad hu. ann. p. 7. But there is still a more extraordinary instance, an account of which was delivered into the Royal Chancery in the year 1737, by his excellency de Witth, relating to a farmer of that province by name Knud Knudsen, who, in the year 1705, and in the eighty-first of his age, married his deceased wife's sister, Ingri Tallach's daughter, who was then thirty-nine years old, and were both sentenced to death for the incest committed. Upon this they fled to the mountains and hid themselves thirty years in the woods, living like hermits, or rather like wild beasts upon what they could catch by hunting, &c. They continued in this solitary place till the woman was seventy years old, and the man a hundred and eleven, and perhaps would have liv'd some years longer, if the minister, whom he solicited to administer the holy sacrament to him, had not out of an indiscreet zeal, delivered this extraordinary couple up to the hands of justice, and put them into a prison; where the poor old man could not survive the return of the king's pardon, and the woman was obliged to do penance publicly in the church. There is another most remarkable account, and perhaps, so extraordinary an instance is not to be met with in the history of any country, which I have from undoubted authority, and

An extraordinary incident.



and therefore cannot leave this subject without inserting it. In the year 1733, when his late majesty Christian VI. and his royal consort Sophia Magdalena, visited their Norwegian dominions, they took up their residence in the house of lieutenant-colonel Colbjørnsen in Friderickshald, who was desirous of diverting his royal guests with what they call a jubilee-wedding. This was performed in the garden under tents pitched for that purpose.

An extraordinary jubilee-wedding.

There were four couples married, being country-people invited from the adjacent parts, and out of all these there were none under a hundred years old; so that all their ages put together made upwards of eight hundred years. Their names were, Ole Torresen Sologsteen, who lived eight years afterwards, and his wife Helje, ten years; Jem Oer who lived six years after, and his wife Inger who lived seven years; Ole Bessøber and his wife N---, and Hans Torlakfsen who lived ten years after, and brought with him Joran Gallen who was not his wife, but being a hundred years old, he borrowed her for this ceremony; she also lived ten years afterwards. These eight married people, being each upwards of a hundred years old, made themselves extremely merry at this jubilee-wedding, and the women, according to the custom of the country, danced with green wreaths on their heads, which brides always wear on their wedding-day.

The royal family and nobility were present to see this extraordinary ball, which without doubt, was as innocent a one as ever was exhibited. They had each a genteel bride-present given them to carry home. I thought myself in a manner obliged to take notice of this uncommon entertainment, as it has not, as far as I can learn, hitherto been remarked by any writer. The Scots, who partly breathe the same air with us, have also amongst them a great many examples of persons of an uncommon great age. Dr. Bab. Sibbald tells us in his *Prodom. Hist. Nat. Scotiæ*, p. 44. and lib. iii. p. 4. of a man whose name was Lawrence, that married a second time in the hundredth year of his age, could row out in his boat to fish till he was a hundred and forty, and died at last worn out with age, without the least symptoms of any distemper. Amongst the Swedes, who are our neighbours on the other side, and likewise breathe the same air, are found still more extraordinary instances, of persons living to a hundred and fifty-six and a hundred and sixty-one years; of this, as well as of the fruitfulness of the

Norwegian

Norwegian-women, Mr. Buffon's words concerning Olaus Rudbeck's account are as follows: "In Sweden the women are very fruitful: Rudbeck says that they have frequently eight, ten, or twelve children; and it is not at all strange that some women should have eighteen, twenty, twenty-four, or even thirty children. Rudbeck says farther, that there are men who live to be upwards of 100 years old, and some to 140; and that there were two in particular, one of which arrived at 156, and the other at 160 years of age. But it is true that this writer is a little enthusiastic in the praises of his own country, (*Il est vray que cet auteur est un enthufiate au fujet de fa patrie*) and according to his representation, Sweden must in all respects be the finest country in the world," &c. Buffon. *Histoire Nat.* Tom. iii. p. 172.

## S E C T. IX.

Health af-  
fected by dif-  
ferent airs.

Though Norway, like Sweden, is in general a very healthful country, yet it is not exempted from its peculiar diseases; especially the inhabitants of the diocese of Bergen, along the sea-side, and on the west-side of File-field. The air in these parts is not very salubrious, and differs very much from that of the eastern and southern parts of Norway; for on the other side of that long chain of mountains, which I have taken notice of before, they have both in winter and summer a fine clear sky, with as dry and healthful an air as in any part of Europe. In this province the air is generally damp, thick, and foggy; and tho' it causes milder winters, it is not so healthful as a thinner air. This appears by the effect it has on our peasants, when they come here from other parts of the country; for they seem as if they were entirely out of their element, and can hardly breathe in it; nor does it agree with their health. This must be attributed to the great western-ocean, that extends from America to Norway, from the surface of which a vast quantity of damps, or particles of water, are daily evaporated. These are driven by the southerly, westerly, or north-west winds to our coast, without meeting with any obstruction, till at last they strike against the high chain of mountains mentioned above, which are ninety-six English-miles east of Bergen. There they meet with resistance, and being condensed, their gravity prevents them from rising above the tops of the mountains to go farther, and they cannot get back except they meet with

an east or north-wind. On the other side of those mountains they are quite free from these damps and fogs. File-field is like a bank to keep back all those moist vapours that come from the sea, and prevents their loading the atmosphere, till they fall in immoderate rains, as they do here in the summer; for it is seldom known to rain in those parts but in spring or autumn.

Amongst all the trading-towns in Norway, Christiansand is reckoned the most healthful. The truly learned and Rev. Mr. Jens Christian Spidberg, dean of that diocese, gives me in his letter of May 12, 1751, this reason for it: He observes that Christiansand lies in a more moderate climate than most of our other towns; that the horizon is free all round, and cleared by the winds from every quarter; so that thick fogs and heavy rains do not last long there. The ground it stands upon is a dry sandy soil, twenty or twenty-five feet deep, so that the rain is soon dried up; for which reason epidemic diseases are seldom known there, or disappear and are stopt by the change of the season. Hence the inhabitants of that city live to be very old, often to eighty, ninety, and sometimes even to an hundred years of age.

Among the diseases which mostly appear in the diocese of Bergen, which is the most unhealthful spot in all Norway, I shall first take notice of a kind of scab or itch. This is chiefly found amongst those that live along the coast, occasioned probably by eating great quantities of fat fish, and especially the liver of the cod. This is properly a Scabies-Scorbutica, which may be called a leprosy, but not so infectious as the Oriental Leprosy; for married people live together many years, and the healthy is not infected, tho' the other party has it. But if they have children, they sometimes take the infection, tho' not always. This distemper generally lies in the blood a long time before any eruption appears; at last it breaks out in ugly boils on the face: they are then generally sent to hospitals erected for that purpose, of which there is one at Bergen, and another at Molde in Romsdalen. Our physicians are of opinion that this disease may be cured in young people; but tho' they have often attempted it, I do not find that any one has been thoroughly cured, without some remains of the distemper. This may be said, however, that when they get tolerably well, they do not confine themselves to the regimen that

Leprosy. is prescribed them so punctually as is required \*. What Mr. Luke Debes observes in his description of Faroe, p. 283, ought to have a place here, concerning the northern-leprosy, which in the diocese of Bergen, is found to be of the same kind and quality as that on the opposite coast of Faroe. His description of this distemper is as follows. "The physicians say there are three sorts of leprosy; namely, Tyria so called from the serpent Tyro. The skin of the person infected with this kind of leprosy is soft, and full of spots like warts, and sometimes peels off in scales.

The second sort is called Alopecia, from the hair turning foxy, and then falling off. Persons afflicted with this are red-faced, and shed their beards and eye-brows.

The third sort is called Elephantia; the skin of a person infected with this sort resembles that of an elephant; and the face, with every part of the body, is full of tubercles.

The leprosy that this country is most subject to is the elephantia. For the leprous persons here are full of livid tubercles, which sometimes break out into boils, and disfigures their faces extremely. They are hoarse, or speak through the nose; but the distemper is more virulent at spring and fall, and carries off a great many. What chiefly occasions this disease is the quality of the air, and the diet of the inhabitants; for, as I have intimated before, the cold is not immoderate here, but we have a very damp air. This, in general, produces the scurvy, which is a species of leprosy, especially in those who do not use much exercise. Besides the air, their food, especially of the poorer sort, which consists of meat and fish half rotten, in the winter, and fresh fish without any salt, and milk, in the summer, contri-

\* In the north of Holland the damp air, and their daily-nourishment, which is chiefly fish, have the same effect, and I am informed that the same sort of Scabies-Scorbutica likewise appears amongst the common people there, which seems to be confirmed by the following testimony: "We are now in North-Holland, and I have never seen amongst so few people, so many infected with the leprosy as here. They say the reason is because they eat so much fish". James Howell's Familiar Letters, Part I. Book II. N<sup>o</sup> xiii. p. 151, Dr. Russel published a piece in the London-Magazine of June 1752, p. 278, wherein he says, "That common sea-water, applied both internally and externally, will cure not only the scurvy, but the above-mentioned leprosy, if it has not taken too deep root, and the glands are still preserved." And in the same place he adds, "That there is a kind of sea-weed, called Quercus-Manna (of which there is enough here) which is good for the scurvy in the gums, if rubbed with it." If it be so, then God's providence shews itself remarkably by distributing such universal remedies, according to the wants of each nation. Concerning the Norwegian sea-weeds, I have given all the account I can, in the first part of this work.

butes, in a great measure, to this distemper. Such diet, especially in those who are not of a strong constitution, must gradually corrupt the blood, and then the disease diffuses itself through the body, till at last it appears externally. This distemper may be communicated to others, for it is infectious; and as it lies a long while in the blood before it breaks out, several persons marry, and think they are both free from it; but at last one of the parties appears to be leprous.

It is somewhat surprising, and shews the care of providence, that children do not always inherit this distemper from their parents. I have known three instances, where women have been infected with these leprosy, and have had several children, most of which are now married, and have not yet discovered any symptoms of it. For this reason, the inhabitants, when they choose a wife, give themselves no concern whether her parents are leprous or not. I have likewise known instances where the father has been leprous, and the children quite free from that distemper. It often happens, that when a married couple have lived together some time, and the parties find that one of them is infected, they will still cohabit together, so long as it does not appear externally, till they are separated by orders from the government. However, the party that was healthy, remains uninfected; and yet sometimes a person may be infected by a very slight contact of a leprous person.

On the other hand, there are instances of poor miserable wretches who are quite free from the leprosy, but being destitute, are therefore put into these hospitals amongst the leprous patients, where they eat, drink, and daily converse with them, and still remain uninfected all their lives." So far Mr. Debes.

The ordinary scurvy would prevail in this country a great deal more, if it was not for hard work, which is the best preservative against it, and keeps the juices in constant circulation. Hence those that use but little exercise, and have a good appetite, seldom or never escape this distemper. Nature has ordained several berries and roots in this country, which are excellent antiscorbutics, especially cochlearia, or scurvy-grass. Some eat this herb raw, others make a decoction of it with milk; and in Nordland, where

where it grows very strong, and is called erichs-græs, they use it as a pickle in the winter \*.

Catarrh.

Catarrhs, and other distempers which affect the head and breast, and are called here kov and kriim, appear very frequent along the coast in the spring. Those that don't come out into the air every day, and therefore are the soonest sensible of the cold, are most afflicted with these phlegmatic disorders; but the expectoration caused by this kov is generally serviceable to the constitution.

The common people, who are the least troubled with this distemper, drink sour whey as warm as they can bear it, by way of remedy or preservative, which cuts and attenuates the viscid obstructing phlegm, and promotes the discharge of it.

Landfarfoct is the name the peasants give a certain fever, which, however, comes but seldom; it is contagious and epidemic, from whence it has its name. Mr. Luke Debes, in his description of Faroe, compares it to the distemper which the soldiers are apt to catch when they are encamped in damp places. It is malignant and painful, and carries off great numbers, and those that survive are cured by God's blessing, and the strength of constitution, for we know of no remedy for it.

Allevilde.

Allevilde is the name of a disease, which seizes the patient at first with violent shooting pains, which move about from one part of the body to another, like the arthritis vaga, and often breaks out into sores and ulcers. The superstitious peasants ascribe this to a sort of blast which comes from the sea, or out of the earth or mountains, which according to their opinion, is caused by witchcraft, and the remedy they make use of, is as absurd as the imaginary cause of the distemper. But those that are wiser, use tar-water, or the oil extracted from the raw liver of fish, and apply it both internally and externally.

Begavning.

Begavning, is the name of a kind of epileptic disease, but seldom so violent as in other countries. The women are most subject to it here in Bergen, from a suppression of the menses, occasioned by the dampness of the air. Some pretend to say that

\* On Hitland, God's providence has provided them with the same remedies against this disease which is contracted there, by the same manner of living, for they eat so much salt-fish that they are very subject to the scurvy. Nature has furnished them with plenty of scurvy-grass; they have no physicians or surgeons, neither have they any occasion for them. London Magazine for June 1752, p. 276.

it is occasioned by the eider-down beds they lie upon; but Th. Bartholinus in his *medicina Danor. domest.* par. 65, is not of that opinion, as I have before observed, in the description of the eider-bird.

In the east-country, or on the other side of File-field, they hardly know any thing of the diseases, which are common here along the coast. The air in those parts, as has been observed before, is much purer, drier, and lighter, and as healthful as in any part of Europe. The long and deep valleys are like ventilators, or channels, thro' which the wind, as it were, runs in a current from one end or the other, and keeps the air always fresh and in motion. The mountains or high grounds, are remarkable for the salubrity of the air, for most people die of old age there, without ever having experienced what it is to be sick.

In the last century, however, this fine healthy air was twice infected with a plague; especially in 1630, when the new city of Christiania, lost 3000 inhabitants.

In 1684, the same contagious distemper appeared afresh, but did not rage so far about, because they burnt several woods, and the heat and smoak occasioned by those fires, dispersed and purified the infected air. What the reverend Mr. Spidberg observes, in the letter quoted above, is very remarkable, namely, that when the plague raged here, it did not affect Roraas, Quikne, or Mel-dal's copperworks; for the poisonous and infectious effluvia, were corrected by the strong sulphureous smoak and vapours, that incorporated with the air, for twelve or fifteen English miles round those copper works. But disorders of the lungs and consumptions are more frequent there, than in these western parts, caused probably, by the same sulphureous vapours; and persons afflicted with those disorders, finds themselves much relieved by the damp air, which affects weak lungs less, than that which is clearer; for a dry, keen air, is too penetrating and subtle for them.

If the rickets, called here the English sickness, with which children in other countries are much afflicted, be derived from a damp and foggy air, according to Mr. Daubenton's opinion\*;

\* Il n'y a que deux cent ans, que cette maladie est connuë; elle a commencé en Angleterre, & de là elle a passé en France, en Hollande, en Allemagne, &c. Des célèbres médecins ont cru, que le rachitis pouvoit être causé par un air froid & nebuléux, chargé de vapeurs & d'exhalaisons, &c. *Hist. nat.* tome iii. p. 56.

then one would imagine, that it must be very frequent here in Bergen, which is contrary to experience. For this distemper is unknown here; and we can say the same of agues or tertian and quartan fevers, which we know only by report from other countries. The small-pox, which annually rages in Denmark, comes amongst us about once in seven years, and farther north, in the diocese of Tronhiem, every tenth or twelfth year; but in the manners of Nordland, perhaps it seldom appears above once in sixteen years, and then makes great havock amongst both young and old. The last time that the small-pox raged in these parts, which was in the year 1749, it swept away in the city of Bergen alone, 528 persons, most of them young.

## C H A P. X.

A continuation of the former, concerning the Norwegian nation.

SECT. I. *The food or diet of the Norwegians.* SECT. II. *Apparel.* SECT. III. *Habitations and manner of building.* SECT. IV. *Various ranks and occupations.* SECT. V. *The Norwegian nobility, both ancient and modern.* SECT. VI. *Some thoughts concerning the Norwegian freeholders, &c.*

### S E C T. I.

**N**EXT to the complexion and disposition of the Norwegians, and the account of the various diseases to which they are subject, it is natural to give some account of their food or diet, their houses and manner of living.

The Norwegians food in the towns.

In the first article, namely, diet, there is a great difference betwixt those who live in the country, and the inhabitants of the trading towns; a great part of these consist of Danes, Germans, Dutch and English, who make their bread, and dress most of their victuals in the Danish fashion. They may have almost all sorts of provisions here in perfection, excepting butchers meat, which is not so plentiful in Norway, as it is in Denmark. As for wild-fowl, and all sorts of game, as also fish of all kinds, except carp, we have them as good, and in as great abundance as in any country in Europe. It is observed, that when any foreigners come to Norway, they are surpris'd to see heaps of oyster and lobster-shells lying at the doors of poor little huts, and conclude



that people of some fortune must live there. The milk of our cattle is very good and rich ; and as for all sorts of wines, spices, &c. greater quantities of these are imported than there is occasion for, or good œconomy requires, of which I could say a great deal, if my intention were to moralise in a natural history. Be this as it will, most of our merchants live in a more elegant manner than the noblesse in other countries. All kinds of wines (which I mention as a proof of this) are so common in Norway, that it may be questioned whether there is not more consumed here in private families than even in the wine-countries. This makes it appear the more extraordinary, that pope Innocent VIII. in the year 1490, dispensed with the Norwegian Church from using wine in the sacrament, and allowed them to use mead instead of it. It was pretended that wine would not keep, but turned sour and was spoiled by the severe frost, though, in all probability, it was then not colder than at this present time, and we can preserve wine here now, as well as in any climate. This remarkable fact is denied by Bzovius in *contin. annalium*, N<sup>o</sup> 39, p. 329, but on this slight foundation, that the pope (which is very true) had not power to grant such a dispensation. “ *Falsum est, eum aliquod tale dispensasse, cum summus pontifex aliquid circa integritatem sacrificii immutare non possit.*” This conclusion drawn, à jure ad factum, might make one doubt whether the priests in the Roman church do receive the cup alone, and deny it to the rest of the congregation. But we may more safely depend upon what Volateranus writes on the occasion, in *commentar. Urban. lib. viii.* where he says, “ *Norvegiæ Innocentii VIII. concessione permiffum, sine vino calicem sacrificare, quod immenso frigore vinum in illa regione importatum accescat. Cujus rei gratia legatio missa.*” See more relating to this in *anal. eccles. Dan. tom. ii. lib. vi. cap. i. p. 331.*

The peasant in Norway, as in other places, keeps close to the customs and manner of living of his forefathers ; and as he follows them in other things, so does he likewise in eating and drinking. Upon this account he enjoys, as has been observed, a constant series of health, and lives to a good old-age. Bread, which is the chief support of life, is not made of rye, among the peasants, but upon particular occasions, as weddings or entertainments, because they sow but little of that grain, as has been ob-

The farmers  
food.

ob-

observed before; nor would they choose to eat it constantly, for the leaven which is always put in rye-bread would not agree with their stomachs. This our Norwegian soldiers find by experience, when they are commanded to march far from home, and receive the bread (which is provided by the government) that is baked for the regiment; which always purges them pretty severely at first.

Flat-brod.

Oats, in most of the provinces, is the best grain, and is larger, whiter, and fuller, here than that of other countries. Of this the peasant makes his bread, but not in the form of the loaves of rye-bread; which they call *stumpe-brod*, but in flat round cakes, about as big as a small dish, and extremely thin, this they call *flad-brod* \*. They bake it upon a round iron plate, or a flat stone set over the fire; they roll out a handful of dough with a rolling-pin, to the extent of the iron plate, and before it is quite enough on one side, they turn it with a small stick made for that purpose. These cakes are soon baked, so that the baker, who is generally a woman, can dispatch enough in one day to last a whole year; for this sort of bread will not mould or spoil, if kept in a dry place. Some reckon the oldest to be best; and in former times, she used to be esteemed a good housewife that saved for her son's wedding, a piece of bread that she had baked for his christening.

If grain be scarce, which generally happens after a severe winter, the peasants are obliged to have recourse to an old custom, as a disagreeable, but sure method of preserving life. Their bread, in time of scarcity, is made thus, they take the bark of the fir-tree, boil it and dry it before the fire, then they grind it to meal and mix a little oatmeal with it; of this mixture, they make a kind of bread, which has a bitterness and a resinous taste, and does not afford that nourishment, that their usual bread does. However, there are some people, that think it is not right to disuse this sort of bread entirely, and even in plentiful years they sometimes eat a little of it, that they may be prepared against a time of scarcity, which by the goodness of providence, does not happen in a century †.

Our

\* In Mingrelia and Georgia, and those parts, just such bread is used. *Il s'ont du pain mince comme du papier*. Cheval. Chardin, *Voyage en Perse*, tome i. p. 186.

† In the province of Bergen, which is the most barren, we have the least reason to complain of the want of corn; for by the continual trade our merchants carry on to Den-

Our neighbours the Swedes, make the same shift, even when there is no necessity for it. Mr. Peter Hogstrom, in his description of Lapmark, §. 19. p. 375, says, “ We know how to make use of our fir-trees, even to the support of life, and many a brave fellow, and bold soldier, in the western bottom, has been brought up with the fruits of them. Nor is it always out of necessity, that they feed on them, but to keep up an ancient and laudable, but now utterly despised virtue, called frugality. A labourer does not find his strength impaired, by eating bread made of the bark of trees.” So far Mr. Hogstrom, whose last words give me a good deal of surprize, if they are grounded upon sufficient experience. In the last years of scarcity in this country, namely, in the years 1743, and 1744, when they were obliged to make use of the old expedient, several made an experiment on the bark of elms; they first dried it, had it ground, and made bread of it. This they found sweeter, and rather more agreeable to the taste, than that made of the bark of the fir-tree. Others made use of it in another way; they soaked it in water, which received a sweetness from it, and became viscid like the white of an egg, so that it might be drawn out several yards. In this they put some oatmeal, and the meal of the fir-tree bark, and kneaded it well; this water binds it together, and renders it more agreeable to the palate. In those parts where the peasants have large fisheries, they attempted to mix the row of cod with oatmeal, and knead them together. This made the bread very close, soft, and well-tasted, at least to a hungry stomach. But I have been informed that it did not agree with some of a less robust constitution, and gave them the bloody-flux\*.

This bread made of bark, as well as the flad-brod or bake bread in general, Th. Bartholin. speaks of in his med. Dan. domest.

Denmark, and other places in the Baltick, they keep their magazines always full, so that they can furnish other countries upon occasion, and even this year several thousand tons of corn have been exported from hence to France and Portugal.

\* The Norwegians that live by the sea-side, eat dried stock-fish instead of bread, like the Icelanders and Finlaps. Marc. Paul. Venetus gives us the same account of the inhabitants of Aden, a province in Arabia, p. 163. “ Fiunt etiam ab incolis panis biscocti ex piscibus idque in hunc modum: concidunt pisces minutim atque contundunt in modum farinæ, & postea commiscent & subagitant quasi pastum panes, atque ad solem desiccari faciunt.” Gemelli Careri writes the same, in his voyage autour du monde, Tome ii. p. 319, of the inhabitants of the island Lundi and Augon in the Persian gulph. “ Ils n’ont de meilleure aliment que des fardines. Ils les font sécher au soleil, & elles leur tiennent lieu de pain, pendant toute l’année.”

p. 304, and supposes that Pliny had some knowledge of the last. “ Ex abietis corticibus in Norvegia panem conficiunt frugum inopia, & in regionibus boreæ frigidioribus ex glandibus, corylo & fago. Placentæ illæ Norvegicæ ex corticibus arborum compactæ sunt tenuissimæ, & longiorem ætatem ferre possunt, quàm panis coctus, seu buccellatus, quo nautæ in longis itineribus utuntur. Alias placentas pinfunt ex farina hordei & avenæ quas flad-brod vocant, quasi panes planos. Plinii Artoptitii creduntur, de quibus.” Lib. xviii. C. II.

The peasants make themselves a mess like hafty-pudding, of oatmeal and barley-meal: this they call soup, and sometimes they will boil a pickled-herring in it, or else a half-salted mackrel, or salmon, along with this soup. It seems they do not chuse to salt any kind of fish thoroughly, but rather let it turn sour first. Cod and other fish they dry in the air, which is the well-known Berg-fish, so called either because most of it is exported from Bergen, or because it is dried on the rocks by the wind and the sun.

\* They are better provided in Norway with fresh-fish than in most countries, and up the country in the fresh lakes and rivers, they catch the salmon-trout, the Gedder, and other fish in abundance. Likewise Growse, partridges, hares, red-deer, rain-deer, &c. and what they cannot carry in the winter to market to the trading-towns, which are sometimes at a great distance, they make use of themselves. They kill cows, sheep, and goats, for their winter-stock. They do not pickle and smoak all, but cut some of it in thin slices, sprinkle it with salt, then dry it in the wind, and eat it like hung-beef. This they call Skarke, and it requires a ploughman’s stomach to digest it. They prepare various kinds of cheese from the milk, and they also boil it to a thick consistency, and call it *Mosse-Brüm*, This, according to their opinion, is a great delicacy. But taste, as well as every thing else, is regulated by custom among our peasants.

They prepare themselves liquors according to the custom of the country, and at set times, namely, against Christmas they must

\* They dress a particular dish, which I believe they used formerly in Denmark, from whence the Germans have taken the name of *Grütz-koph* or *Groats-head*. This dish is made of one half groats, or meal, and the other half fat cods livers, well chopped and mixed together; then they fill a cod’s head with it, and boil it. This they call *Kams-hovet*, or *Kamperute*.

have a stock of good strong ale in the house, as also against christenings and entertainments. On other occasions they regale themselves with very indifferent small beer, which they call mungat. But their common drink in summer is milk and water, and in the winter, water and sour whey, called fyre; This the peasants wives in the summer boil, and lay up for the winter\*.

Qua virtus et quanta boni si vivere parvo  
Discite ----- Hor.

Here must also be observed, that as cold climates do not admit of so much transpiration as warmer countries, but keeps the heat in the stomach by closing up the pores, it consequently gives the Norwegians a much greater appetite, and a stronger digestive faculty than common. Our merchants are very sensible of the difference caused by change of climate with regard to the appetite; for in March, when they fit out their ships for the Greenland and Spitzberg voyages, the people require twice as large a stock of provisions as will serve the same number of men in June or August, to go to Spain, or up the Straits.

What the Norwegian peasants, seamen, and fishermen (next to brandy, which they are all extremely fond of) admire most, is tobacco. This weed they not only smoke but also chew, which they think is as wholesome, and as well-tasted as the Indians do their Betel-areck. The smoking tobacco was first introduced into Norway in the year 1616, and then a foot of roll-tobacco was sold for eighteen-pence. If it could be planted here, and brought to perfection (for our summers are warm enough, but perhaps of too short a continuance) it would be a great advantage to the country, and would save the nation several hundred thousand dollars, that are annually paid for that commodity. However, we ought not to grudge it the seamen and the mountaineers, to whom it is a great refreshment in cold winds and severe frosts. Snuff, which they call here Næse-meel, they are not less fond of, and always carry their snuff-horn about them. His excellence the Stadtholder Gyldenlove, knew their taste so well in this particular, that in his invasion on Viig-Sidero, he distributed a certain

\* This Syre, becomes at last as sour as vinegar, and is often used for that purpose; but when they drink it they generally mix a good deal of water with it.

quantity to every common man; and there is still several casks of the snuff that was left lying in the magazine at Aggerhuus.

## S E C T. II.

Their ancient  
drefs.

The Norwegians who live in towns have nothing remarkable or particular in their drefs; but the peafants differ pretty much from thefe, as to the fashion of their garments, and the manner of wearing them. The ancient drefs ufed in Norway, was without doubt, the fame as the Fin-laplanders ftill ufe, confifting of ordinary furrs made of the rain-deer's skin. The Afers, or the followers of Othin, that poffeffed themfelves of the north, and obliged the old Celto-Scythians either to retire to the mountains, or to conform to their manner of living, introduced another fort of drefs, which is described in Otto Sperling's *Commentat. de veteri Danorum veftitu* \*. I think their firft change did not make fo great an alteration, nor was it fo fplendid or fuperfluous, as that which was introduced in the middle of the eleventh century, in the reign of king Oluf Haraldfen. That monarch founded the city of Bergen, and drew a great concourfe of merchants thither from foreign parts, who brought new fashions with them; of which, Snoro Sturlefen writes thus in his *Norwegian Chronicles*, pag. 383. "Then the Norwegians took up many foreign customs and drefles, fuch as fine laced hofe, golden plates buckled round their leggs, high-heeled fhoes ftitched with filk, and covered with tiffue of gold, jackets that buttoned on the fide, with fleeves ten

\* Concerning the Norwegians ancient mantle, called joop, Otto Sperling treats at large, in his learned obfervations on archbifhop Abfolon's testament, p. 119, 123. from which I will quote a paffage, to fhew, that formerly others took their fashions from us, as we have fince done from them. "Quis vero crederet, Danicam vocem joop tot terras peragrâffe, et tantam gloriam fui excitare potuiffè. Bene concludit Menagius, poftquam in lexico fuo omnia recensuit: les Allemans difent Giupp, pour dire un Juppon, et je crois que c'eft de ce mot Allemand que l' Italien Giubba a été formé. Unde Germani traxerint ac habuerint hoc nomen et alia plura, nemo haftenus folicitus fuit. Ex Dania enim, Norvegia et Suecia nemo credit quicquam proficifci poffè quod juvet, cum tamen ad antiquitatem omnem illuftrandam, hinc fere petenda fint omnia, fi quis rectè fapere vult. Ufus eft illa voce chronici Norvegici fcriptor in manuſcr. de magno Barfod, rege Norveg. dum ejus armaturam et veftitum defcribit, p. 399. (Hann hafdi oc filki Hiup rautan y firſkyrto, oc ſkorit fyrer oc a bak med guli filki leo. h. e.) Tunicam rubram fericeam anterieus et pofterius leone flavi ferici ſignatam, ſuper induſio geſtavit. Quod ſatis docet, vocem Joob et Hiup antiquam Danicam et Iſlandicam eſſe. Ita quoque pauld poſt eadem hiftoria memorat: (Eivindr. hafdi oc filki Hiup, med fama hoetti ſem Konnungr. h. e.) Evindus etiam tunica ferica, eodem modo quo rex indutus erat." In the tranſlation of the laſt words, I think it is likely, that the good O. Sperling has been miſtaken, da med fama hætti, may probably be rendered with the fame hat, eodem pileo, non eodem modo.

feet long, very narrow, and plaited up to the shoulders; to these dresses were added many foreign customs." By this description may be seen how much the Norwegians were inclined to pride and vanity in their dress.

After this however, we find that the long garment of the Afers or the oriental dress, was still in use, which was not changed for shorter, till the reign of the son of this king Oluf, about the year 1100. For king Magnus Olufsen was called, Magnus Barefoot, from his introducing short clothes and bare legs. Snorro Sturlesen, in p. 397, gives this account of the affair. "It is said, that king Magnus wore the western dress himself, and his example was followed by his men, and some of his people, who went bare legged, and wore short jackets, for which reason, the king was called Magnus Bare-leg, or Bare-foot."

The peasants here, as in most other countries, are the only people that do not trouble themselves about fashions and changes of modes. However, they have some difference in the cut and make of their jackets and breeches, but that difference is so small, that it is hardly perceptible to any but themselves. Those peasants, which we call strile-farmers, have this particularity in their dress, namely, their breeches and stockings are all of a piece, something like those of the Hussars. They do not wear a jacket with plaits, pockets, and buttons, like those now worn by the Danes, but a wide loose jacket made of a coarse woollen-cloth which they call vadmell. Their waistcoats are of the same, and some that will appear finer than ordinary, cover the seams, and put a border all round, of the same sort of stuff, but of a different colour, which looks like lace, and has a gay appearance. The Hardanger peasants in particular, are remarkable for wearing black clothes, edged with red, which distinguishes them from their neighbours. The Vaasserne wear all black; and the Strile peasants wear white edged with black: about Sognefiord, they wear black and yellow, so that the inhabitants almost of every parish in the province, vary in the colour of their clothes.

The Vademel is a coarse cloth, which the country people use, and is woven in the old fashioned way, in what they call an opsta-gang. This is a frame, in which the yarn hangs down against the wall, with stone weights at the end of the warp, to keep it tight, and is done much in the manner of tapestry weaving. Instead of a

shuttle made of a reed or cane, they use an instrument that resembles a fabre, made of bone or iron, which they think preferable. This is a slower way of weaving, than that practised in common, which is called here *ror-gang*; but then they think that the *Vadmel*, woven in an *opsta-gang*, is much closer than other cloth, and after it is shrunk, it looks as close and strong as a felt. I have taken notice of the herbs and moss that they use to dye with, in another place.

The Norwegians wear a flapped hat, or a little brown, grey, or black cap on their head; this last is a sort of quarter-cap made quite round, and the seams are ornamented with black ribbands. They have shoes of a peculiar fashion without heels, or what may be properly called soles; they consist of two pieces, namely, the upper leather, which fits close to the foot, to which the other is joined in a great many plaits and folds. When they travel, and in the winter, they wear a sort of half-boots, that reach up to the calf of the leg, these are laced on one side, almost like the ancient Roman buskins. When they travel on the rocks in the snow, and find that they sink in too deep, they put on what they call *truiers*, which are round like the hoop of a small barrel, work'd cross with twigs or wicker, and this keeps them up\*. But as this way of travelling is troublesome, when they have a long way to go, they put on scates about as broad as the foot, but six or eight feet long, and pointed before; they are covered underneath with seals-skin, so that the smooth grain of the hair turns backwards towards the heel. With these snow-scates they run about on the snow, as well as they can upon the ice, and faster than any horse can go, and for which reason the corps of soldiers, which are called *keir-lobere* or scaters, in times of war, march with great expedition, like the *Huffars*.

Open neck  
and breast.

The peasant never wears a neckcloth, or any thing of that kind, except when he is dressed; for his neck and breast are always open, and he lets the snow beat into his bosom, which he thinks is an ornament. On the contrary, he covers his veins

\* Mr. Chardin represents, in his *voyage en Perse*, tom. i. p. 140, in a print, a *Mingrilia* peasant near the *Euxine-sea*, with such snow-shoes, or Norwegian *truiers* on his feet. By this one may see how nature and necessity teach the inhabitants of the most distant countries, in equal circumstances, the same means in providing against difficulties. But who knows whether the northern *Afers*, *Othin's* followers, who came from the east, were not driven from those parts.

close



close to keep them warm, binding them round with a woollen fillet, called *Vaflunger*, which goes several times round his wrist, and is supposed to contribute to their strength. About their body they wear a broad leather-belt, ornamented with convex Slire. brass-plates; to this belt hangs a brass chain, which holds their toll-knive, or their large knife, gimlet, and other tackle; the name of the whole is *slire* †.

The women's dress I am not so well acquainted with, though that has its distinctions; and at church, and genteel assemblies, Women's ornaments. they dress themselves in jackets laced close, and have leather-girdles, with silver ornaments about them, commonly worth sixteen or twenty rix-dollars. They also wear a silver-chain three or four times round the neck, with a gilt medal hanging at the end of it. Their handkerchiefs and caps are almost covered with small silver, brass, and tin-plates, buttons, and large rings, such as they wear on their fingers, to which they hang again a parcel of small ones, which look brilliant, and make a gingling noise when they move.

A maiden-bride has her hair platted, and hung as full as possible with such kind of trinkets, as also her clothes. For this purpose they get all the ornaments together that they can, off those belts and buckles, buttons, plates, rings, &c. the more the better, so that she makes a grotesque figure, not much to the advantage of her person\*.

### S E C T. III.

What the ancient Norwegians habitations were, and their manner of building, may be seen by the Finlaplanders tents or huts, on *Kolens* mountains, which consist of six or eight poles, covered with skins or *Vadmel*. The ancient Germans lived in the same sort of huts, according to Tacitus's account of their manners. They wandered about from place to place, and lived chiefly by hunting, fishing, and their cattle. When they had cleared one Habitation and building.

† Such belts and tackle hanging to them, Mr. Chardin, in the place cited above, tells us the inhabitants of Mingrelia use. "Les grands ont des ceintures de cuir, larges de quatre doigts, couvertes de plaques d'argent, & chacun attache à la sienne un couteau, & la pierre à équifer."

\* This kind of dressing is called in these parts *anfti*, which some say is derived from the *Agnus Dei* in popish times, which was their most important ornament, especially when it was fetched from Rome, and had the pope's benediction; and then whoever wore a piece of silver in the form of a lamb, considered it as a sure amulet against all evil spirits, &c.

spot of ground, so that the few families that lived together, could not find any more subsistence there, they easily moved their tents or huts, with all their baggage, to the next place that they found convenient: for the whole country belonged to them and their company, and prior occupation was, amongst them, the only right and title\*.

The Asiatic colony, that, a little before the birth of Christ, over-ran the northern countries, and spread themselves there, built houses of a more durable kind. For this purpose they found plenty of materials in Norway, which now furnishes other countries with great quantities of timber. However, they did not care to trouble themselves with hewing of stones in order to build walls.

In some trading cities, especially at Bergen and Christiana, they have, in this century, begun to build stone-houses; and even in the old times, there were some churches built of stone, especially of that valuable stone called veeg-steen, of which Tronhiem cathedral is built. Those churches were formerly an ornament to the north.

Their houses here, in general, are built of fir and pine-trees, the whole trunks of which are used in building, being laid one upon another, and only chopp'd even to make them lie close. At the corners they are joined by mortices, so that they can never give way. These trunks are left round as they grew, both inside and outside of the house, and are frequently boarded over and painted, especially in the trading-towns, which gives them a genteel appearance. These wooden-houses are counted drier, warmer, and more healthful to live in than stone or brick-buildings, but they are in much greater danger of fire; for which reason, they have generally vaults in the trading towns, in which they deposit their valuable effects. The inhabitants of Bergen do not trust goods of value, which are not in constant use, in their dwelling-houses; but keep them in their warehouses out of the town at Sandvigen.

\* Strabo lib. vii. confirms this to be the manner of living of the ancients, even in the middle of Europe. "Commune omnium est, qui istis in locis degunt, facilis & expedita soli mutatio, ob tenuitatem victus & quod neque colunt agros, neque fructus reconduunt: sed in casis habitant, structura in unum diem constantibus. Cibus eis à peccore plurimus, ut & Nomadibus, quorum etiam imitatione, rebus suis in currus positus, facile cum peccore abeunt."

In the country-villages, they do not build their houses adjoining together, but in the manner of a great many towns in Switzerland and Holland, every house standing by itself, with their fields and grounds about them \*; and there are some farm-houses inhabited by one family only, that look like small villages; but they are generally let to three, four, or five families, and frequently consist of six, eight, or ten separate apartments, and the stavburet, or magazine for all the provision, is generally put at a considerable distance from the dwelling-house, for fear of fire. It stands very high upon poles, to keep the provisions dry, and preserve them from mice and all kind of vermin. The kitchen, where they dress their victuals and brew their beer, stands also separate, as do the barns, hay-loft, cow-houses, stables, and the like. Such a farm has generally a mill belonging to it, situated by some rivulet, besides a smith's forge; for every farmer, as has been observed, is his own smith. Up in the country, where timber for building is but of very little value, there is many a farm-house as large and handsom as a nobleman's seat. The dwelling-house frequently is two stories high, with a railed balcony in the front; with handsom windows, and the rooms wainscotted.

It may seem superfluous to take notice of the windows, to them that are not acquainted with Norway, for they are new things, and seldom seen in our peasants-houses; for on this side of Filefield, in the whole diocese of Bergen, where we seem more tenacious of ancient customs, it is rare even among the rich farmers, to see what they call a Glar-Stuerne, that is, a dwelling-house with windows. If it be asked how they receive light, I must observe that there is at the top of the house (which is but the height of the room) about the middle, a square-hole about as big as a window, called a Liur, which gives them light. In summer, and fine weather, they leave this hole quite open; but in winter, or wet weather, it is stopped up with what they call a Siaa. This is a wooden-frame made to fit the Liur, which is covered with an inward membrane (probably the midriff) of some animal that is

\* At Sundmoer, and other places in this diocese, there is to be seen some lonely houses on the tops of high mountains, surrounded with rugged and steep projecting rocks, so that there are few castles so inaccessible; for there is often but one way to come at them, which is by small steps, and here and there some wooden pegs, fixed so that the ascent is very dangerous, and few people venture up that are not used to them.

Rog-stue, or  
rooms with-  
out windows.  
Glar-stue, or  
rooms with  
windows.

very strong and transparent as a bladder. This Siaan, is lifted off or put on with a pole, which is reckoned a most necessary piece of furniture in every farm-house. Those that come to a farm-house about any important business, especially courtship, must lay hold of this pole before they utter a word, according to ancient custom. The smoke passes through the said Liur, or lighthole, out of those kind of rooms which are called Rog-Stuer, to distinguish them from the Glar-Stuerne, or house with windows. The chimney in the former, as in the farm-houses in Holstein, does not go through the ceiling, which is arched, and about six or eight feet high in the middle; so that the smoke flies about till it finds a vent at the above-mentioned opening. This custom seems to be very hurtful to the eyes; but as the smoke meets with no obstruction, it soon rises so high as to be above a man's head, and it is easily seen how low it falls by the colour of the walls, which are not so black in such Rog-Stuerne, or smoke-rooms, as in some that have chimnies.

Even kings have formerly lived in such houses, nor did they know of any better method till the eleventh century, when king Oluf Kyrre broke that disagreeable custom of building fire-places in the middle of the rooms, and ordered chimnies and stoves to be erected. This must be understood of his own palace, and at the houses of persons of distinction; for to this day stoves and chimnies are used but in few places by the common peasants in this province. Under the Liuren, or light-hole, generally stands a long thick table and benches of the same wood. At the upper-end of the table is the Hoy-Sædet, or high-seat, which belongs to the master of the house only, who has also a little cupboard for his own use, in which he locks up all his valuable things. In towns they cover their houses with tiles; but in the country they lay over the boards the sappy bark of birch-trees, which will not decay in many years. They cover this again with turf, three or four inches thick, which keeps the house close and warm. Sometimes you may see service-trees, and always good grass growing upon the turf, which induces the goats to leap about, and climb up there for good pasture; and many a farmer mows it, and gets a pretty good load of hay from the top of his house\*.

#### SECT.

\* As I have before quoted out of Chev. Chardin's Voyage en Perse, several examples of the Georgians and the Mingrelians agreeing with the Norwegians in bread,

## S E C T. IV.

According to the natural order, I must now take some notice Their various occupations. of the trades and occupations of the Norwegians which are these following; commerce, mechanic-trades, agriculture, grazing and breeding of cattle, cutting of wood, working in the mines, sailing, fishing, and hunting.

Commerce, or trading with foreign nations, has for many Commerce. ages been in a flourishing condition in Norway, and even before the planting Christianity amongst us. It was constantly encouraged by all our kings, as may be seen in several places in the Norwegian Chronicles; and particularly Snorro Sturlesen says, page 89, and king Sagur, page 11, "That when Biorn Haraldsen reigned in Vestfold, he did not often go to war; but trafficked with the merchants that came from various places and countries to Tonsberg. He had merchant-ships at sea which brought him precious jewels and valuable things. Upon this account his brother called him Biorn the merchant." In the following king's reign there is often mention made of merchants from Denmark and Germany, especially at Bergen, which was probably a place of trade long before\*.

In the year 1170, king Oluf Kyrre made great regulations at Bergen with regard to trade, and granted great privileges to foreigners, particularly the English, and Scotch, who for many ages have carry'd on a great trade in this country, and continue it to this day, as do the Dutch, and other trading-nations. I have spoken at large in another place of the German hanse-company, so that I need not say any thing more of it here †.

bread, habits, especially belts and snow-shoes. I must likewise observe, that those Asiatic-mountaineers, have just such houses, Rog-Stuer, and sky-lights. "Les maisons sont bâties de grosses poutres jusqu'à comble, ce qui est fait en terrasse et couvert de Gafons. Ils laissent une ouverture au milieu, c'est par où la lumière entre et par où sort la fumée. On bouche ce trou quand on veut. Ces sortes de cavernes ont cela de commode, qu'elles sont plus chaudes en hiver et fraîches en été, et qu'elles ne sont sujettes à être percées par les voleurs."

\* I know not otherwise what to make of Pliny's words, which seem to shew that they had a confused idea of the northern countries in his time; in Lib. iv. cap. 16. he speaks thus: "Sunt qui etiam alias prodant Scandiam, Dumniam, Bergum, maximamque omnium Norigon, ex qua in Thulen navigaretur. A Thule unius diei navigatione mare concretum." Here Norway is put after Skaane, Denmark, and Bergen, which last the Romans must also have imagined to be a country.

† Forty or fifty merchant-men deeply laden from different parts of the world come in annually in the spring, and about eight hundred ships loaded with the produce of the country sail out of Bergen-harbour, where two or three hundred sail are seen lying at a time.

Produce of  
the country.

Tronhiem Christiania, and Bragnæs, are the most considerable trading cities of this kingdom, next to Bergen, whose trade is very considerable to all parts of Europe, and brings in annually more than 100,000 rixdollars duty on a moderate calculation. The commodities or produce of the country which are exported from Norway, are copper, both wrought and unwrought, Iron cast into cannon, stoves, and pots, or forged into bars, lead, though but in small quantities, mafts, timber, deal-boards, planks, marble, veeg-stone, mill-stones, feyl-stones. Variety of fish are also exported, as cod, herring, salmon, ling, flounders, and lobsters; also cow-hides, sea-calf-skins, goat-skins, some dressed into corduan leather, various kinds of coarse and fine furs of bears, loffer, vielfras, wolves, foxes, beavers, ermins, and martens; eider-down, and other feathers; butter, tallow, train-oil, tar; juniper, and several other sorts of berries, and nuts; salt, allum, glafs, vitriol, and pot-ashes †.

This nation has a genius for trade and navigation, though, as has been observed before, their splendid manner of living in some places is an obstruction to it. We send our youths abroad to English, French, and Dutch-merchants counting-houses, to improve themselves, and learn the languages; as some young people come here from the same parts for a year or two for that purpose.

Mechanic  
trades.

Mechanic trades are not in any great vogue in Norway, because the peasant, as I have before observed, manufactures every thing himself that he has occasion for, and does not want the assistance of any professed mechanic. For this reason, there are but two cities in the heart of the country, which are Kongberg, and Roraas: all the rest are situated on the coast, because they depend entirely upon trade and commerce; only some few mechanics are daily employed in making necessary utensils. All fine and curious works we choose to import from England, or Holland, though in those articles we begin to improve, and by degrees find the advantage of it, especially in joiners and cabinet-makers work. Agriculture is carry'd on by the farmers in all the provinces, though not with equal diligence and advantage, according to the difference of the soil, as has been shewn before, in the chapter of the growth and produce of this country. In the eastern provinces,

† All the above-named products of Norway, especially fish, metals, and timber, may, upon a well-grounded calculation, amount to three million of rixdollars annually.

particularly at Hedemark, and also in the manor of Nordland, there are many farmers that every year sell several tuns of corn, of their own growth, not only to their neighbours, but also export it to Sweden. But on the contrary, there are found many more that are obliged to buy above half the corn they use, especially on the west side of Norway; there he is counted a good farmer that can supply his own family with corn. This in a great measure proceeds from the peasants negligence in many places, who choose to work in the woods, or at their fisheries, rather than employ themselves in cultivating their lands; but now they begin, more than ever, to improve waste grounds. These peaceable times occasion a great increase of people, and the ground belonging to one house, is often divided into three, four, or five parts, among as many families; which makes these new inhabitants see the necessity of being industrious in cultivating the ground in order to support their families. However, in most places their industry is not so great as it might, and ought to be in draining the marshy grounds, and turning them into good pasture, or arable land, which in other countries has improved many waste places, and rendered them populous in a short time, according to the words of the poet.

-----Sterilisque diu palus aptaque remis,

Vicinas urbes alit et grave sentit aratrum.

As for the rest, the Lord of nature has distributed various dissimilar means of living among different nations, that one may have need of the other; and that one country may dispose of its superfluities to another, and import other things which it wants at home. Thus if Norway was to produce a sufficient quantity so as not to want foreign corn, I do not know where Denmark would dispose of its superfluity in that commodity. Grazing, and breeding cattle is the chief part of the farmer's employment, by which he not only supplies his own wants, but gets a considerable profit by sending to market their flesh, skins and hides. In the mountains the peasants make grazing almost their only occupation, and, as has been observed before, send their cattle at a great distance to graze, in fatens, or fruitful spots on the tops of the mountains, or in the small valleys, and along the rivulets that run between the hills. They generally send good dogs with them, and women servants to look after the cows, to take care of the

Grazing.

milk, and to keep a fort of dairy, in little huts built for that purpose.

That the employment of a shepherd has been in esteem even in these later times, may be concluded from Baron Holberg's description of Bergen, p. 133, where he says, that Gudleich Offmundarson, one of the King's stewards, in the year 1328, had been one of his Majesty's shepherds before. And Adam Bremenf. says, in his hist. eccles. pag. 239. "In multis Normanniæ vel Sueciæ locis pastores pecudum sunt etiam nobilissimi homines, ritu patriarcharum & labore manuum viventes."

Cutting of  
wood or fell-  
ing of timber.

Cutting of wood, felling and floating of timber, burning charcoal, extracting tar, and every thing that belongs to the woods, is the principal employment of the peasants here in Norway. Some do it in their own grounds, but most of them are employed in the large woods, at a great distance from their place of abode, which belong to the public, and are no one's peculiar property. They have the wood, &c. for their labour, and generally stay there for several weeks together, taking as much provision with them as they can carry, or have it sent after them. When the timber is felled and cut, they are obliged to leave behind a great deal of what they lop off, to rot. They fetch away the large timber in the winter, putting a horse, or two, or more, to each piece, and drag it over the snow to the nearest river or lake, and in the spring the merchants, or their agents, are there to receive it, and to order it to be floated where they think proper. In this work, as well as at the saw-mills, and preparing wood for faggots, making staves for casks, and hoops for the fisheries, a great number of people are employed, and greater numbers still in burning charcoal. Of this commodity vast quantities must be delivered at a set price to the melting furnaces, namely, at four Danish marks, or two shillings and eight pence English per last, each last consisting of twelve tons, and every ton two feet square. The peasants that live within eighteen English miles of every melting-house, is obliged to furnish his quota at that price, for it is not left to his option. If this privilege were not granted to the mines, it would be impossible to work them.

Out of the roots of the fir-trees, which, after the trees have been cut down, have stood several years in the ground, and imbibed



bibed the fatness of the soil, they burn for tar. This they do in the open fields, and then they carry it to the towns to be sold and exported.

Silver, copper, and iron-works, afford a livelihood to many <sup>Mines.</sup> thousands of people in Norway, (as has been shewn in its proper place) for a great number of men are employed, not only in the mines, but at the furnaces and stamping-mills.

About a hundred and fifty years since, when they first began to open the mines, and work them in earnest, they were obliged to send to Germany for miners; but now the Norwegians know, as well as any people, what belongs to mining\*.

Great numbers of the Norwegians are employed in navigation and <sup>Navigation and Fishery.</sup> fishing, and maintain themselves and families by these occupations. Several thousands go annually from this country to the Baltick, England, Holland, France, Spain, and the Mediterranean, especially when any of these trading nations are at war; for then the Norwegians get a great deal of money in a little time, by freighting their ships with the commodities of other countries, and transporting them from place to place. At such times, many a sailor never returns to his own country, and several of them acquire a fortune sufficient to end their days comfortably. Along the coasts of Norway, a vast many get their livelihood by fishing, which is the chief employment they have on the west side of the country. Hence all the peasants that live near the sea, are so accustomed to it from their childhood, that, like amphibious creatures, they cannot live without rowing or dabling about in the water. There a great many spend, at least, half their time, and many end their days in that element, of which they are so fond. And though their dead bodies are seldom found, yet there is a ceremony used and a funeral sermon, which they call *gravfæstelse*, preached on the occasion.

The ancient and reverend Mr. Erich Leeganger, minister in Karfund, has assured me, that in one of his annexes, called *Ud-fire*, during the time that he has held it, which is fifty years,

\* Mr. John Anderson says, in his account of Iceland, sect. 11. that mines were discovered in the northern countries long before any were found in Germany. Vide *Locenii antiquit. Suev. Goth.* cap. xvii. and it may still be proved, that that art was carried first to Germany from hence, (but was practised more in Germany) and so much improved, that the northern people were afterwards obliged to go to learn of them, and the Swedes have, in most things of that nature, naturalized the terms used by the German-miners.

there has not died ashore, above ten grown men; the rest have been drowned, being mostly fishermen, and pilots, who are obliged to venture out in the greatest storms, when they hear a signal of distress from a ship. In several of the out-islands that are at some distance from the coast, and chiefly inhabited by pilots, the case is much the same; especially at Lindesnæs, in the diocese of Christianfand\*. They say, that most of the women there, have had five or six husbands, one after another, and people of credit have assured me that it is true. They say it is occasioned by the great number of ships of all nations (sometimes several hundreds in a day) that go up the Baltick, which by endeavouring to avoid the dangerous rocks Jydske Rev, must pass by Lindesnæs, so that by attempting to save these ships, many a Norwegian pilot has lost his life, and left a widow behind him. In Nordland and Sundmoer, where the greatest fisheries are, such as are perhaps not to be equalled in the world, most of the inhabitants get their living from the sea, and every year a great many lose their lives there. This often happens by their own rashness and presumption; for they make a point of honour of outfailing one another, and every one strives to be the first that hoists sail. D. Steinkuhl, in his *Topographia Norvegicæ*, p. 121, speaking of this infatuation, expresses himself thus, "Many plunge themselves wilfully into misfortunes, by their rashness and presumption, as well in boats as in ships, by being so bold and daring; for they look upon it as a disgrace to lower their sails, in the hardest gale of wind; and when they are going through a narrow channel, they will not give way, but run foul of, and sometimes sink each other." The Norwegians were good sailors, and used to the sea in very ancient times: they discovered the West-Indies some hundred years before the Spaniards, and have left behind them a colony still subsisting, as I have shown above. If we enquire what expedient they used instead of the compass, the Norwegian chronicles tell us, that it was a raven which they took with them, and let it fly as the Patriarch Noah did; by this

\* The reverend Mr. J. Spidberg, who has a great knowledge of his mother country, and its antiquities, observes, in one of his letters to me, that Lindesnæs, which name I rather think is derived from linde-tree, was formerly called Lidas-næs promontorium afflictionum, from the many damages and shipwrecks which the trading-vessels suffered there, as the Portugueze, when they first sailed round Africa, called the cape of Good-hope, cabo de los Tormentes, on account of the dangerous travados, or storms of wind that they observed here.

means they discovered when they were near any land; for it is said, the raven always turns itself towards the nearest land\*.

In the last place, I shall observe, that hunting, shooting, and bird-catching, afford some of the inhabitants of Norway, a comfortable livelihood, for every body is at liberty to pursue the game, especially in the mountains, and on the heaths and commons, where every peasant may make use of what arms he pleases, without controul. They are allowed not only to destroy the hurtful beasts, such as bears, goupes, wolves, foxes, vielfras, badgers, wild-cats, martens, ermines, &c. the skins of which alone, reward them well for their trouble; but also the inoffensive creatures, such as the elk-deer, the rein-deer, harts, and hares; and also grouse, mountain-cocks, francolins, partridges, &c. which are carried to market in the winter in great quantities in sledges. The best marksmen live in the mountains, and still in some places, use bows, as they did in ancient times, especially to kill those creatures, whose skins are valuable, for they are not damaged by the flat-arrows. But they chiefly make use of firearms, and the country-fellows can shoot pretty exactly at a great distance, which qualifies them in time of war, to lie in defiles and to annoy the enemy greatly. In ancient times, hunting and shooting, were the Norwegians chief support, which may be concluded by this particular, they paid their taxes in many places in hides and skins, which gave rise to those words that are still in use in the Norwegian matrikul. In the fragment published by John Spelman, which is supposed to be eight hundred years old, called *Paripus Otheri*, it is there illustrated in § 7. “Unusquisque reddit secundum facultates suas; ditissimus communiter reddit quindecim martium pelles, cervorum rangiferorum quinque, urfi unam, ac decem modios plumarum, cum tunica e pellibus urfinis et lutrinis, atque duobus insuper funibus nauticis, quorum uterque sit sexaginta ulnas longus, alter e balænarum, è phocarum alter

Hunting and shooting.

\* In this sense, we should not look upon this as a superstitious prognostication by the flight of birds, as some do. “Si autem exorta tempestate navis in altum cogetur, incertique essent quorum iter capiendum, aves emittebant, ex quarum volatu de itinere iudicium ferebant, easque sequebantur. Exemplum est in Landnama Saga & Edda, mythol. fab. 34. conf. Jon. Rami Ulysses & Othinus unus & idem, cap. ii. p. 71. quod alii ruditati populi tribuunt, ad auguria tamen rectius refert.” Bartholin in antiquitat. Dan. lib. ii. cap. ix. p. 476. Joh. Christoph. Cleffelius in antiquitat. Germanor. septentrional. l. 10, § 4. p. 359.

corio confectus," that is, every person gives according to his abilities, the richest people generally give fifteen skins of the martin, five of rein-deer, one bear's skin, and ten bushels of feathers, with a jacket made of bears and otters-skin, and two cables, each sixty ells long, one made of whales-skin, the other of the skin of sea-calves.

The taxes which the Finlaplanders, or the mountain Fins pay to the king's receiver consist, to this day, of skins. These Finlanders are quite a distinct nation from the Norwegians, and they do not only inhabit the north-side of the mountains, but likewise the south-side, and particularly those rocks, that part Sweden and Norway: they also live in the woods, and on the barren tops of the mountains. They are good marksmen, and live partly by hunting, and partly by cutting down the woods, clearing the ground, and sowing rye, from which they are called Rye-Finlanders. They do their country a good deal of damage by this practice, for many fine woods are destroyed by them, and the overseers connive at it for a small bribe. Those that get their living by hunting, do less hurt to the community, only that way of life makes their habitations unsettled, and their supplies uncertain; and in their distress they sometimes of a sudden fall upon the farmers, and partly by threats, and partly by begging, oblige them to relieve their necessities. In time of war they are employed as guides, and sometimes as spies and scouts, for they will find a way, or make one, thro' the wildest and thickest woods, and almost impassable mountains, and generally a short one. These people seem to me to be, in this country, something like the Morlak nation, which wanders about the Dalmatian mountains. They seldom forsake the tops of the rocks, and in time of war are very serviceable to the Venetians. They live chiefly by hunting; but I don't know whether they are looked upon in as despicable a light by the Dalmatians, as the Finlanders are by the Norwegians, who command them like slaves, and treat them with such contempt, as in other countries the people do the Jews\*. I have already treated of bird-catching, and how it is  
prac-

\* In former times, and before they forsook their original home by the Bothnic gulph, the Fins lived then in contempt and poverty, according to the words of Tacitus de mor. Germanor. "Fennis mira feritas, fæda paupertas, non arma, non æqui, non penates, victui herba, vestitui pelles, cubile humus. Sola in fagittis, spes, quas inopia

practised, particularly by the inhabitants of Nordland, at the hazard of their lives, in another place.

## S E C T. V.

Having enumerated the employments and occupations of the Nobility. commonality among the Norwegians, which constitutes the bulk of the nation, I shall now treat of the nobility of Norway. There are at present but few of this class left, for which this reason may be assigned, that a nobleman's estate has not the privileges belonging to the demesne of the nobility, longer than it is inhabited by the lord in person. Formerly the nobility were very powerful here, and consisted of dukes, jarler, and herzer, that is, earls and barons\*. Their merits and achievements may be seen in the the Norwegian Hird. Skraa, or Hof, ret. cap. vii. & seq. Jens Dolmer, who published this work, which, notwithstanding its antiquity, is very intelligible, says in his dedication of it to king Frederic third, "a more magnificent and numerous court was not in those times in any kingdom; then the king with his courtiers and retinue, could receive the unexpected invasions, and secret attacks of his enemies; or meeting them openly in the field,

"They bravely conquer'd, or they bravely died."

Thus the valiant king Hagen Adelfteen and his nobleffe routed the sons of Erich Blodox. In those days every courtier gave proofs of their fidelity to their king, of courage, valour towards their enemies, good-manners and civility toward their equals, and affability towards their inferiors." So far the said Dolmer.

Though my plan does not require it, yet it may not be thought impertinent or superfluous in this place, to enquire into a subject

*inopia ferri offibus asperant. Idemque venatus viros pariter ac fæminas alit.*" The Boygde Eins in Nordland, live something better, and have a more certain livelihood, but still keep up their customs and language, though they likewise talk the Norwegian dialect.

\* Concerning the extinction of those titles, Andr. Buffæus says, in notis ad Arii Polyhiflor Shedæ, cap. ii. p. 12. *Hic obiter notandum, regem Norvegicæ Haconem A. C. 1308. Comitum, baronumque titulos, intra regnum suum abrogâsse solis regum filiis comitibusque Orcadensibus eorum usu permisso, teste Thorm. Torfæo historia Orcad. lib. ii. ad memoratum annum.*" The last-mentioned author also speaks of it in *hist. Norv. p. iv. l. xvi. c. xii. p. 366*, and says the king ordered, that all those honorary titles should be changed to a general one, viz. *Herre, dicitur circa hæc tempora rex magnus, titulos procerum honorarios immutasse: fatrapas, barones, ac equites, utroque communi dominorum vocabulo nominibus præfixo appellari jubens.*

that is obscure and little known, I mean the origin of all the ancient and noble families in Norway. I shall give an account of these, as far as their names and actions are recorded, either in chronicles, ancient writings, patents, &c. I have given myself some trouble to pick out those, that by strict examination, are found to be what we call *Giæv*, or good ancient nobility, which are now extinct, or degenerated to peasants. The names of these families are as follow :

Akeleye, Alfsøn, Arildsøn, Aflakssøn, Auftrat, Baad, Baardsøn, Bakke, Bilt, Bing, Biørnsøn, Blik, Bolt, Bos, Brat, Brimsten, Bruse, Budde, Darre, Doka, Drotning, Dufa, Egilssøn, Endritssøn, Erikssøn, Erlingssøn, Findssøn, Flida, Frille, Gaas, Galde or Galle, Galtung, Giske or Giskio, Giordssøn, Green, Griis, Grot, Guldbandsøn, Gunnarssøn, Gulsko, Gyldenhorn, Hak, Halvorsøn, Haraldssøn, Hierne, Jonsøn, Kakal, Kalis, Kane, Kold, Koppe, Krækidans, Kroko, Krukow, Kyr, Lauden, Lep, Liodhorn, Lior, Medalby, Mok, Nellsøn, Ormsøn, Orning, Ottesøn, Pederssøn, Philipsøn, Plit, Raudi or Röd, Remp, Ro, Sigvortsøn, Skaktavel, Skancke, Skialdarbrand, Skreiding, Smør, Staffensøn, Stenveg, Steiper, Stumpe, Svarte, Söbiörn, Söllersøn, Teist, Tordsøn, Torgerssøn, Torp, Torstenssøn, Vagkal, Verdal, Vikingssøn, and perhaps many more that I have not been able to find out.

Since the time of Frideric I. when the old Norwegian nobility, according to Huitfeld's account, used to be called away, many Danish families, on account of civil employments, places in the army, and other occasions, were sent to Norway, tho' very few of them are left ; and to that class belong the following families : Bagger, Benkestokker, Bielker, Bilder, Brokenhusen, Friser, Holker, Höger, Huitfelder, Jernskægger, Krabber, Krager, Kruser, Lindenover, Lunger, Lystruper, Rosenkrantz, Sehesteder, Totter, Walkendorfer, Uggeruper. Of the nobility of other countries, especially Germans, French, and Scotch, there are some come in, and some still reside there, as Ahnen, Barklay, Butler, Cicignon, Coucheron, Crequi, Cromarti, Ferry, Flemming, Kleinov, Lutzou, Lutzov, Marschall, Movat, Osten, Reichwein, Richelieu, Schak, Sincler, Storm, Wedel.

And since the sovereignty of Denmark, some Norwegian families, by his majesty's favour, have been raised to the dignity ;

and are Adelaer, Blixencrone, Blixenskiold, Hufmand, Knagenhielm, Lillienpalm, Lillienkiold, Lövenhielm, Lövenskiold, Lövenstjerne, Rosencrone, Stockfleth, Svanenhielm, Sundt, Tordenskiold, Tordensstjerne, not a new title, but received anno 1733. Tönfberg, Wærneskiold, Wessel, Ulrichsdal.

As for the first-mentioned ancient Norwegian families, some of which are still left in different provinces, it is remarkable, that though most of them have begun to live like other peasants, as to dress, diet, and appearance, yet they carefully pick up all the intelligence they can get by tradition, &c. of their pedigree, and publish it\*. This they particularly do at some of their funerals; for the whole pedigree is generally traced in their funeral sermons. And the escutcheons are preserved in some of their houses as a mark of distinction. In others, where they have old-fashioned windows, the panes of glass are stained with their coats of arms, which is but a frail monument of their nobility. In another place I have observed there are many peasants, that by report are said to be descended from noble families, and even some from the royal-line, who are careful in marrying their children to their equals in birth and blood †.

## S E C T. VI.

Exclusive of these foibles, every freeholder in Norway has vanity The right of freeholders. enough to think himself as good as noble by Odel, or right of inheritance. This consists in having, from time immemorial, the Jus primogenituræ united with the Jus relictionis, or the right of primogeniture and power of redemption, which in this country has always taken place.

There are several peasants who now inhabit the house, which they can make appear their ancestors possessed, and inhabited for three or four hundred years before them. According to the Norwegian-law (which in this, and other points, greatly differs

\* In the year 1713, when 5000 Norwegian soldiers were sent to Denmark, General Budde, colonel of a Tronheim regiment, told the commanding-officer, M. Hufmand, that in his battallion he had two country-fellows that were descended from one of the ancient Norwegian kings. "Their faces (adds he) and mein distinguish them so remarkably that your Excellence can find them out yourself." The general tried the experiment, and discovered the two fellows amongst several hundreds. One of them died a serjeant at the siege of Stralfund.

† Of the privilege granted the Norwegian nobility by Christian IV. anno 1591, see the Danish Magazine, Tom. iii. p. 113. and also by king Frederic III. anno 1648, *ibid.* p. 368.

from the Danish,) \* no odels-gods, or freehold, can be alienated by sale, or any other way whatsoever from him, that can make it appear, that he has the best title to it, by being the right heir, or odels-mand. If he has it not in his power to redeem it, then he must declare every tenth year at the sessions, that the want of money is the only reason; and if he surmounts that difficulty, or, if he, or his heirs, to the second, or third generation be able to redeem it, then he that inhabits it who is only a possessor pro tempore, must turn out directly, and give up the premises to the odels-mand †. For this reason, they keep a strict account of their pedigree, and formerly about midsummer, every family used to meet together and make themselves merry, and if any of their kindred had deceased since their last meeting, they marked his name in the tal-stock provided for that purpose. When king Harald Haarfager, in the eleventh century made himself sovereign lord of all Norway, and suppressed all the petty kings; his power extended likewise to the Odels-bonden, and they were obliged to pay him a tax, which was without doubt, the origin of the Odels-skat, or taf, which is still imposed upon them, though king Hagen Adalsteen, afterwards promised that it should be taken off. By this we may conclude that they are mistaken, who think that the odels-right was not instituted till the time of the crusades, and took its rise, from a certain Norwegian having permission on his return from the holy land, to reclaim his patrimony which was taken from him during his absence. According to the old law, called odels balken, thirty years possession was required to establish the Odel's-right; ‡ and then this right could never be forfeited to the crown unless by treason or felony. This Odel's-right is preferable to that of the fele-eyers, or freeholders in Denmark, not only because it is better secured to their families by the right of redemption; but because they possess it with all the privileges which

\* The real signification of the word Odel implies real property, according to Joh. Gramm, in his dissertation upon the word Herremand; "ut ad Adelbonde redeamus, is non alius quam locuples et copiosus colonus aut fundi possessor. Schefferus autumat ab Adel et Odel oriundum esse, quod proprietatem omnimodam, scilicet ab Odh proprietas, et All totum omne denotavit, atque Adelbonde esse eum qui haberet Odel, hoc est proprium et à majoribus per hæreditatem acquisitum possidebat fundum." Vide Acta Societatis, Reg. Hafn. T. ii. p. 270.

† What there is else to be observed by putting it up, or lengthening the time for redemption, is to be seen in Doct. Frid. Christ. Sevel inaugural. dissertatio de prorogatione termini retrahendi bona gentilitia in Norvegia. Written in the year 1749.

‡ The law now requires but twenty years.



a nobleman has in Denmark; for the Norwegians Odelsgaard, or freehold is only subject to the crown. Whether this Odels-right be to the advantage, or disadvantage of the country, is a question <sup>Important question.</sup> that cannot be easily resolved. However, we may say of this as of most human institutions, which are always imperfect, that it may produce both good and bad consequences. It has this good effect, that it fixes the peasant's affections on his native place, with hopes of keeping his little patrimony in his family, and consequently, improves with pleasure those possessions which he looks upon to be so strongly secured to him. It likewise induces many a peasant's son, who sees the possession that must one day devolve to him, to keep near at hand, with hopes of enjoying and improving it by his industry. On the contrary, when it must be sold to a stranger, it never fetches its value; because the buyer possesses it with a great uncertainty, and does little to improve the ground that cannot properly be call'd his own, according to the words of the poet.

“Sic vos non vobis nidificatis aves.”

However, one very great evil arises from this odels-right, namely, many an undutiful and wicked son, because he is the eldest, and depends on his odels-right, which nothing can affect, behaves extremely ill, not only to a deserving mother-in-law after the death of his father, but also to his own parents. This might certainly be remedied, without infringing the odels-right, where there are younger children of a better disposition, and more deserving of the inheritance. By this means, great sins against the law of nature might be prevented, if the legislature would think fit to set proper restrictions to the odels-right. But this extends beyond the bounds of my subject, which does not allow me to introduce any thing foreign to a Natural History. I shall therefore willingly leave this point to be discussed by others, who are more conversant and experienced in those affairs.

T H E E N D.

Direction for the Binder in placing the Plates.

PART I.

		Page
<i>Carte de la Norvege</i> ———	The map of Norway,	1
<i>Montagne des sept Sœurs</i> —	1 Mountain of the seven sisters,	46
<i>Roc de Torge Hatten</i> ———	2 The rock of Torge-Hatten,	47
<i>Montagne pres Stene Sund</i> —	3 The mountain near Stene-Sund,	54
<i>Chem. dangereux sous la montagne</i>	4 A dangerous way under the mountain Filefield,	60
<i>Plan de Bings fossen</i> ———	5 A plan of Bings Fossen,	93
<i>Recoltes de froment &amp;c. &amp;c.</i> —	6 Hay and corn-harvest,	102
<i>Stur-grafs</i> ———	7 Stur-grafs, &c.	126
<i>Tegebet</i> ———	8 Tegebet, &c.	134
<i>Arbres marins</i> ———	9 Sea-trees, N <sup>o</sup> 1, 2, 3,	152
	10 Sea-trees, N <sup>o</sup> 4, 5, 6, 7,	154
	11 Sea-trees, N <sup>o</sup> 8, 9, 10, 11, and 12,	155
<i>Coraux de diverses sortes</i> —	12 Corals of several kinds,	158
<i>Stones &amp; crystals</i> ———	13 Stones and crystals,	169
<i>Mines d'argent pur</i> ———	14 The mines of pure silver,	184

PART II.

		Page
<i>Le Elk</i> ———	15 The elk, &c.	9
<i>Le cheval marin &amp;c.</i> ———	16 The sea-horse, &c.	41
<i>Maniere de prendre les oiseaux</i>	17 The manner of fowling,	60
<i>Oiseaux de diverses sortes</i> {	18 The Haw-heft, &c.	76
	19 The Godwill, &c.	102
<i>Poissons de mer</i> ———	20, 21, 22, Of fishes,	103
<i>Mollusques &amp; coquillages</i> —	23 Of muscles and shells,	165
<i>Coquilles de diverses sortes</i> —	24 Various kinds of sea-snails,	168
<i>Le crabe épineux &amp;c.</i> ———	25 The prickly crab, &c.	177
<i>Le poisson étoilé &amp;c.</i> ———	26 The star-fish, &c.	179
<i>Le grand serpent marin</i> ———	27 The great sea-serpent,	196
<i>Vêtement des paysans</i> ———	28 The drefs of the boors in Norway,	240

---

---

# GENERAL INDEX

OF

The MATTERS contain'd in the  
NATURAL HISTORY of NORWAY.

The NUMERICAL LETTERS denote the PART, the FIGURES the PAGES.

A.

**A**AL, the Eel, Anguilla, II. 107.  
AALQUABBE, the Lamprey, II. 108.  
AARFUGL, Urogallus, or Tetrao Minor, the  
Growfe described, II. 64.  
AASKIÆR-NIOT, the Gurnard a fish, II. 108.  
ABORRE, the Perch, II. 108.  
ACCIDENT, unhappy and singular, an account  
of, I. 93, 94.  
AGATES, of several kinds found in Norway,  
I. 173.  
AGRICULTURE, a particular account of, as  
practis'd in Norway, I. 101, & seqq.  
AIR varies much in different parts of Nor-  
way, I. 1, & seq.  
AKERLOE, a bird, II. 65.  
AKER-RIXE, or Wag-tail, II. 65.  
ALK, a bird peculiar to Norway, II. 66.  
ALLIKE, the Jack-daw, Monedula, II. 65.  
ALLUM, found in abundance in Norway, I.  
204.  
AMAZONIAN Republic in the North, II. 223.  
AMETHISTS found in Norway, I. 172.  
AMIANTHUS, or Asbestos described, I. 168.  
Used for wick in lamps, *ibid.* Method of  
preparing stone-silk from it, *ibid.* and 169.  
A rock of it, 89.  
AMPHISBÆNA, a Serpent with two heads, II.  
37.  
ANDERSON: his description of Iceland, I. 71.  
An ingenious naturalist, 149.  
ANTIQUITY, a remarkable piece of in the nar-  
row pass of Nagroe, I. 58. Note.  
ANTS, with and without wings, II. 48.  
ANT-HILLOCKS: a resin found in them but  
PART II.

little inferior to the oriental, call'd Norfk-  
Virak, II. 49.  
ARBUTHNOT, Dr. his treatise of the effects of  
air, I. 33. Note.  
ASERS, an Asiatic people settled in Norway,  
II. 223. Probably expelled out of Asia by  
Pompey, *ibid.*  
ASKE-SMITTEL, a balsam well known in Nor-  
way, I. 139.  
AURORA BOREALIS and sea-lights, I. 4. Cap-  
tain Heitman's sentiments concerning them,  
5, & seq. The author's opinion concerning  
the northern light, 8, & seqq.  
AUTHOR: his account of the sources from  
whence he drew the materials of this work,  
I. Pref. XI. & seqq.

B.

BADGER, Brock or Greving, II. 28.  
BAKING-STONE, I. 166.  
BARLEY, produced in Norway, I. 105. Af-  
firmed by some to degenerate into Oats,  
106.  
BEAR, Biorn: two sorts of Bears, II. 12.  
Particular properties of the Bear, 13. Dan-  
gerous time of meeting it, *ibid.* Knows a  
pregnant woman, and will strive to get the  
foetus, *ibid.* Its manner of feeding and at-  
tacking its prey, 14. Will not touch a  
dead carcase, *ibid.* Has never been known  
to hurt a child, *ibid.* Its prudence and dif-  
cretion, 15. Lies the whole winter in a re-  
treat, without food or water, 16.  
BEAR-FISH, Fisk-biorn, a sea insect, II. 50.  
BEAVER, Bævar, Castor, II. 26. Its wonder-  
ful contrivance in building, *ibid.* & 27.  
BEESS,

# I N D E X.

- BEEES,** Beer, don't breed in Norway, II. 47.  
**BEEETLES,** Skarnbasser, II. 48.  
**BERGGYLTE,** the Rock-fish, II. 109.  
**BERGEN,** City of, in no danger of a land-force, I. 63. Fortified with two castles, *ibid.* The most unhealthful spot in Norway, II. 261.  
**BERGRAP,** an extraordinary natural accident described, I. 60, 61.  
**BERG-UGLE,** a small bird, II. 68.  
**BERRIES,** wholesome and palatable in Norway, I. 132, & *seqq.* Many forts peculiar to that country, 133.  
**BIELLANDS-BRØE,** a famous bridge, being the most curious piece of architecture in Norway, II. 134. A high cascade near it, *ibid.*  
**BIRDS,** an alphabetical list of those of Norway, in the Norwegian language, whether land, sea or shore birds, II. 57.  
**BIRKE-DAHL,** a fen in Norway that has a strong petrifying quality, I. 89.  
**BLAAS-KAAL,** the blue fish, II. 109.  
**BLACK-DEATH,** an epidemical distemper, I. 24.  
**BLACK-LOAM** like Indian ink found in Norway, I. 205.  
**BLANKENSTEEN,** a sea fish, II. 109.  
**BLECK-SPRUTTA,** Sepia, the Ink-fish or sea gnat, II. 177. Described, *ibid.* & 178. Its uncommon shape and qualities, 179.  
**BLEEGE,** the Bleak, II. 109.  
**BLUE COLOUR** found in Norway, I. 205.  
**BOG-FINKE,** or Brambling a small bird, II. 68.  
**BONES** mollified, I. 128, 129.  
**BOTTOM** of the sea full of inequalities, I. 67.  
**BOUGET** and Comandine, Messieurs, their observations on a mountain in Peru, I. 26. Note.  
**BOYLE,** Mr. Robert: his instructions for travelling with advantage, I. 28. Note.  
**BRASEN,** the Bream, Brama, II. 109.  
**BREAD,** generally made of Oats in Norway, II. 268. Made of the bark of the fir-tree in time of scarcity, *ibid.*  
**BRIDGES,** not strongly built in Norway, I. 58, 59. Many of a surprising construction there, 95. A Bridge of 1000 paces long at Sunde, *ibid.*  
**BRIGDE,** a large fish of the whale or porpoise kind, II. 109.  
**BRISLING,** Encrasicholus, the Anchovy, II. 109.  
**BROSNER,** a sea fish, II. 110.  
**BROWN,** Sir Thomas: his vulgar errors, I. 157.  
**BRUNSHANE,** or Ruffe, a bird, II. 68.  
**BUEHUMMER,** a sort of shell-fish described, II. 168, 169.  
**BUEDYE,** a maid servant to look after the cows, I. 109.  
**BUFFON,** Mr. agrees with Burnet, I. 52. Note. And with our author, with regard to petrified reptiles, 55. His account of fissures in the rocks, 56.  
**BUTTERFLIES** of various colours, II. 47. A curious fort found in Norway, *ibid.*
- C.
- CATARACT** in Norway said to have been made use of for the execution of traitors, I. 95.  
**CATERPILLERS,** a small sort of, found in houses called Mol, II. 47. Great variety of them in Norway, *ibid.*  
**CATS,** both tame and wild, found in Norway, II. 8.  
**CAVIAR,** made of Sturgeon's roe, II. 113. Method of making it of the roe of Mackarel, *ibid.*  
**CAVITIES,** deep and long in mountains, like secret passages, I. 47, & *seqq.*  
**CELTO-SCYTHIANS,** the first inhabitants of Norway, II. 222, driven out of Norway by the Asers, or followers of Othin, *ibid.* Settled partly in Finland and Lapland, *ibid.* Anciently called Keltrings, 224.  
**CENTINELS** died on their posts in France by the severity of the weather in 1740, II. 99.  
**CENTIPES,** Tufind-been, II. 41.  
**CHALCEDONY** found in great quantities in Norway, I. 173. Glittering angular grains of it, about twice the bigness of a pea, *ibid.*  
**CHARLEVOIX,** P. a learned Jesuit: his account of a certain people in America, supposed by the author to be descended from a northern colony, II. 234.  
**CHASMS** in the snow dangerous to travellers, I. 43.  
**CHRISTIANSAND,** the most healthful among the trading towns in Norway, II. 261. Reason assigned, *ibid.* A terrible fire there in 1734, I. Pref. XIV.  
**CLAY,** both yellow and blue, found in Norway, I. 38.  
**CLUSTER-WORM,** DRAG-FÆ, an insect peculiar to Norway, II. 41, 42. Probably known to Juvenal, *ibid.*  
**COAL-MINES,** in Norway, especially in the diocese of AGGERHUUS, I. 39.  
**COASTS** of Norway described, I. 66, 67.  
**COLD,** most severe in the east part of Norway, I. 17. Method of providing against it, 18.  
**CONCHÆ ANATIFERÆ,** what, II. 52.  
**CONJECTURE** of the author concerning the dissolution of the earth, I. 52.  
**COPPER-MINES** described, I. 192, & *seqq.* Quantity of copper exported from Norway for several years, I. 194, 195. Iron transmuted into copper, 195.  
**CORALS,** northern, described, I. 157, & *seqq.* The author's collection of Corals, 158, 159.  
**CORMORANT,** or Sea-raven, II. 91.  
**CORN** produced in great quantities in Norway, I. 98.

## I N D E X.

I. 98. Grows very thick there, 102. Ripe in Lapland in 58 days from the sowing-time, 101.

CORUSCATION of the Sea-water by night, caused by certain Animalcula, I. 74, 75.

COWS, of a small size in Norway, I. 108. Kept in great numbers by the Peasants, *ibid.* Live upon Cods-heads and Fish-bones in some places, II. 5. Feed upon the bones of their own species, *ibid.* Peasants give them a little salt once a day, 6.

CRABS, Cancrini marini, of various sorts, described, II. 175, & *seqq.*

CRYSTAL found in great quantities in Norway, I. 169. Several curious pieces of it in the author's possession, 170. Mother of crystal, 171. Formation of it, *ibid.*

CUMMIN grows wild in Norway, I. 114.

### D.

DANES incorporated with the Norwegians since the union of Colmar, II. 237. The terms of that union, *ibid.*

DANTILAS, Mr. his account of a very remarkable stone, I. 177.

DAPPER, Odoard, his voyage to Africa, I. 26.

DAY-LIGHT and length of day at Bergen, I. 2. A table of the increase and decrease of it for the horizon of Bergen, 3.

DEBES, Luke, his authority questioned by the author, I. 34. Note. His account of a cloud called Oes, 35. Note. His strange account of a fresh-water lake, 76. Note. Three Vortices in Ferøe described by him, 79, & *seqq.* His account of the increase of corn, 100. Note. Relates that the sheep eat one another's wool when covered with snow, II. 6. His account of the strange method of taking the Sea-fowl, 60; & *seqq.*

DEER, almost destroyed by the wolves in Osterlandet, II. 9. Their manner of crossing broad lakes or rivers, *ibid.*

DEPTHS, unfathomable, I. 68.

DERHAM, Mr. highly commended by the author, I. Pref. VI. His Physico-Theology quoted, I. 16. Note, & *passim.* Referred to by the author to assist our meditations, 65.

DESAGULIERS, Dr. his dissertation on electricity, I. 8, 9.

DIET of the Norwegians, II. 266, & *seqq.*

DISEASES, an account of those that are most frequent in Norway, II. 261, & *seqq.*

DIVERSITY of weather in parts contiguous to each other, I. 27. Common to Norway with other mountainous countries, 28.

DOPRE-FIELD, the highest mountain in Norway, if not in all Europe, I. 41. Computed to be half a Norway mile in perpendicular height from the level of the plain, 42.

DOG, remarkable fidelity of, I. 112.

DOGS trained up to hunt Sea-fowl, II. 60. Of several kinds in Norway, 8.

DOMM-HERRE, the Coccothraus, a bird with a melodious voice resembling an organ, II. 69.

DRAGON, or Serpent, with seven heads, seen by the author, II, 37, 38. Is still to be seen at Hamburg, *ibid.*

DRESS of the Norwegians described, II. 268, & *seqq.*

DROSSEL, the Thrush, Turdus, II. 69. Comprehends many species, *ibid.*

DUCATS of Norway-gold struck, I. 179. Spectacle ducats, what, *ibid.*

DUE, Pigeons, of several sorts in Norway, II. 69.

DYBRENDÉ, i. e. deep courses described, I. 69.

### E.

EAGLE-STONES, I. 176. Why so called, *ibid.*

EASY way of travelling upon the lakes and rivers in Norway during winter, I. 96.

EDDER-DOWN, fine duck feathers, II. 71.

EDDER-FUGL, the wild duck described, II. 70, & *seqq.*

EGDE, the Nightingale, Luscinia, II. 72.

ELECTRICITY, supposed by the author to be the cause of the Aurora Borealis, I. 10.

ELK, a kind of deer, described, II. 9, 10.

ELVE-KONGE, the Owzel, Merula, II. 72.

ELVEN, a general name for rivers in the old northern languages, I. 90.

ELVERITZE, a small fish, II. 110.

ENGLISH, partial to their own country, II. 5. Note. A colony of English in Norway, 238. The apostles or first instructors of the Norwegians in the christian Faith, *ibid.* Built the first churches in Norway, *ibid.*

ERLE, a bird described, II. 72.

ERMINE, Hermelian, described, II. 24, 25. Its blood good for the epilepsy, 25. Note.

ESQUIMAUX, a people in America, supposed to be descended from the Cambri, who sail'd to that country under the command of Madoc, II. 236. The author thinks they are descended from the Norwegians, 234, 235.

EXORCISM, a form of one used by the Romish clergy, II. 33.

### F.

Note. FUGL, signifies a fowl or bird, FISK a FISH, and FIELD a mountain.

FABULOUS, account of geese or ducks said to grow on trees, II. 52. True account of that phenomenon that gave rise to it, *ibid.* & *seqq.* Fabulous accounts of the mermaid, 186, 187.

FALK, the Falcon, Accipiter, II. 72. Twenty-seven different sorts of Falcons, *ibid.*

FANTER, a sort of strolling gypsies in Norway, II. 225.

FERTILITY,

# I N D E X.

- FERTILITY of the soil in Norway, I. 96, & seqq. Cause of it, 100.
- FIELD-FLAGGERS, mountain squalls or sudden storms, I. 33.
- FIGS, ripe in M. Carbiner's garden at Bergen, I. 22.
- FIGURE, a remarkable one of a stone on the mountain Suuku, I. 177.
- FIGURATED stones, I. 174, & seqq.
- FISH, Norway plentifully supplied with fresh and salt water fish, II. 103. Bred in great quantities near the north pole, *ibid.* Come annually near the shore to discharge their spawn, *ibid.* Note. Their numbers and peregrination, 104. Love the coldest waters, *ibid.* Fish of prey drive the smaller and useful sort towards the coast, by the direction of providence, *ibid.* Their order and division, 107. Exsanguineous and testaceous, 161.
- FISKE-KONG, king of the fish, II. 110.
- FISK-ORN, the fish eagle, II. 90. A remarkable story of that bird, *ibid.*
- FLAGGER-MUUS, the bat, II. 73.
- FLAX and hemp grow in Norway, I. 108.
- FLEAS, Frosk, II. 48.
- FLIES, large and small in great quantities in Norway, II. 47.
- FLINTS, none to be found in Norway, I. 169.
- FLYE-FISK, the flying fish described, II. 111, 112.
- FLYNDER, the Flounder, II. 110. A remarkable one marked with a cross, *ibid.* & 111.
- FOREIGNERS, their mistaken notions concerning the air and climate of Norway, I. 22.
- FOSSEFALD, the Water-wagtail, II. 73.
- FRESH-WATERS in Norway good and salubrious, I. 88. & seqq.
- FROST: night frost pernicious in Norway, I. 97.
- FUGL-KONGE, Regulus, the Wren, II. 73.
- FYR, the Fir-tree grows almost every where in Norway, I. 141. Is the richest produce of that country, *ibid.* An attempt to sow them in England, 143.
- G.
- GAAS, the Goose, Anser, II. 73. Wild geese of two sorts, *ibid.* & 74. The order they observe in their flight, 74.
- GEDDE, a fresh-water fish, II. 112.
- GERMANS carried on a great trade in Norway, II. 238, 239. Chastised by Frid, II. *ibid.*
- GIANTS among the ancient inhabitants of Norway, II. 241.
- GIERTRUDS-FUGL, or Gertrude's bird, II. 75.
- GIORS, Sanderl, a scarce fish, II. 112.
- GIN-SENG, described by P. du Halde, I. 133. Note.
- GIRALD, Cambrensis, his mistake, I. 89.
- GLAAMEN or Glommen, the largest river in all Norway, I. 91.
- GLENTÉ, the Kite, II. 75.
- GNATS, very numerous in Norway, II. 47.
- GOATS and Kids hurtful to trees, II. 7. Too many of them kept in Norway, *ibid.* Frequently attack serpents, *ibid.* A certain field of a poisonous quality to goats and kids only, II. 7. Note.
- GOC, the Cuckow, II. 75.
- GORKYTER, a fish, II. 112.
- GOUGE or Loffen, the Lynx, of three sorts in Norway, II. 20.
- GRAIN of all kinds sown in Norway, I. 104.
- GRANATES, found in Norway, I. 172.
- GRASS in great abundance in Norway, I. 108.
- GRASSHOPPERS, Faare killinger, II. 41.
- GULD-LAX, the Trout, Trutta, II. 112.
- H.
- HAAE, the Shark, Canis Carcharias, a very extensive tribe, II. 113. Several sorts described, *ibid.* & seqq.
- HALES, Dr. Experiments in his vegetable statics, I. 10.
- HALOGALAND, one of the fish-inhabited provinces in Norway, I. 85.
- HARES, very common in Norway, II. 9. Change colour in winter, *ibid.* Catch mice in the woods like cats, *ibid.*
- HARVEST, early in Norway, I. 21. Its difficulties there, 102. Method used in Norway, *ibid.*
- HAV-AARE, a bird, II. 75.
- HAV-HEST, a sea-fowl, II. 75, 76.
- HAUKSBEE, Mr. a famous experiment by him, I. 9.
- HAV-MAND and Hav-fruen, Mer-man and Mer-maid, II. 186. Fabulous account of them, 186, 187. Truth of their existence, 187. Frequently caught in the sea of Angola, 188. Particularly described, *ibid.* & seqq. Several of them seen in the north sea, 190, 191. A Mer-man 36 feet long taken in the Adriatic, 192.
- HAV-SULE, a large sea-bird, called by the Scots, Gentleman, II. 76.
- HEALTH affected by difference of air, II. 26.
- HEAT, intense in Norway in summer, and the causes of it, I. 20, 21.
- HEJEITELS, what, I. 56.
- HEILOE, a bird of passage, II. 77.
- HEIRE, the Heron, Ardea, II. 77.
- HELLE-FLYNDER, the Turbot, Hypoglossus, II. 116. A particular story of one, 117. Manner of catching it, *ibid.* Has no air bladder 118.
- HERBS, medicinal, a catalogue of those in Norway, from Ramus, the Herbarium Vivum, &c. I. 115. & seqq. Of Norway adapted to the diseases of the inhabitants, 125.
- HESGIERS,

# I N D E X.

HESGIERS, a moveable garden, I. 110.  
 HIORT, Hans, his letter to the Author, I. 61.  
 Note.  
 HOEG, the Hawk, of three forts, II. 78.  
 HOGMAN, opinion espoused by him, I. 106.  
 Note.  
 HOGS, but few in Norway, II. 8.  
 HONEY-DEW, fabulous account concerning it,  
 II. 43, 44.  
 HOPS grow in Norway, I. 108.  
 HORN, many northern mountains so call'd,  
 I. 45. Note. And some in Switzerland,  
 ibid.  
 HORN-FISK, the Muræna, a sea-fish, II. 119.  
 HÖRR, a small fresh-water fish, II. 118.  
 HORSE-GOG, a bird, II. 77, 78.  
 HORSES, Norwegian, described, II. 2, 3. The  
 first person that gave them oats in Norway,  
 2. Not usually gelded in Norway, ibid.  
 Their method of fighting with bears, 3.  
 HOUSE, still subsisting in Norway, in which  
 king Oluf lodged five nights, above 700  
 years ago, I. 143.  
 HOUSES stand so high in Ulland and Nordel,  
 that the peasants climb up to them by lad-  
 ders, I. 58.  
 HUAL-FISH or Qual, the Whale, Balæna, di-  
 vided into several species, II. 118. The  
 reason of its growing less in size of late  
 years, 119. Is God's instrument in driving  
 the Herrings, &c. towards the coast, ibid.  
 Its form and shape, 120. Its food, 121.  
 Often harassed by other fish, 122. Smaller  
 sorts of Whales, 123.  
 HUDLING, the Whiting, *Astellus candidus*,  
 II. 124. Its wonderful property, ibid.  
 HUNDSTIGLER, the common Stittle-back, *Au-  
 culeatus minor*, II. 124, 125.  
 HURRICANES and Whirlwinds, II. 34. Call'd  
 by the Norway peasants *Ganskud*, ibid.  
 HYERNES, Urban, his observation on the co-  
 lour of the sea-water, I. 70.  
 HYSSE, call'd by the Germans *Schelfisk*, is  
 very like the Whiting, II. 125.

I.

JASPER, a set of tea-cups of it presented to  
 king Frederick IV. I. 173.  
 ICE, in the North-sea, affirmed to be of a blue  
 colour, Peyrere, I. 71.  
 ICELAND, great quantities of fish caught  
 there, II. 104. Note. In great want of  
 wood, ibid.  
 JERPE, the Francolin, described, II. 79, 80.  
 JERVOR VIELFRAS, Gulo, a creature peculiar  
 to Norway, described, II. 22, 23.  
 ISELKIER, the Sea-Urchin, *Echinus Marinus*,  
 and *Pomum Marinum*, a curious sea ani-  
 mal, described, II. 170, & seqq.  
 IGLEGRASS, a noxious root, I. 130.  
 IGNES FATUI, I. 75.

PART II.

IGNES LAMBENTES, cause of them conjec-  
 tured, I. 75.  
 JISGALT, *Vulpecula marina*, the Sea-fox, II.  
 125.  
 IMBER, the North Diver, a bird, II. 80.  
 INUNDATION, a surprising one of the river  
 Galen in Norway, I. 90.  
 JO-FUGL or JO-THIEF, a remarkable bird, II.  
 81.  
 IRON, most abounds in Norway and Sweden,  
 I. 88. Tinges most of the waters there,  
 ibid. Transmuted into copper, 195. The  
 process, ibid. Chymical analysis of iron,  
 199.  
 IRON MINES, a list of those in Norway, I.  
 200, 201.  
 ISLANDS, floating, in several lakes, I. 92.  
 JUBILEE-WEDDING, a remarkable account of,  
 II. 259.

## K.

KARPE, the Carp, *Carpio*, II. 125.  
 KARUDSE, a fresh-water fish, II. 125.  
 KAT UGLE, a kind of Owl, II. 102.  
 KIÆLD, a strand bird, Red-flanks, II. 81, 82.  
 KIOD-MIESE, the Black-cap, a bird, II. 82.  
 KNURHANE, the Gurnard, II. 129.  
 KOBBE, or *Sælhund*, the Sea-calf, *Phoca*, de-  
 scribed, II. 125, 126. Manner of taking  
 and killing the Sea-calves, 126, & seqq.  
 KONGSBERG, famous for silver mines, I. 189.  
 Number of its inhabitants, 190.  
 KRAFT, professor, his observations on the wea-  
 ther, I. 26. Note.  
 KRAGE, a bird of prey, II. 82.  
 KRAKEN, the largest creature yet known, II.  
 210. Described, 211, & seqq. Confirma-  
 tion of its existence, 214, & seqq. The  
 opinion of floating islands took its rise from  
 the Kraken, ibid. Not entirely unknown  
 to Pliny, 215. Supposed to be of the *Po-  
 lypus* kind, or the *Stella arborescens*, 215.  
 KRIKKIE, a sea bird, II. 82.  
 KROCKLE, a fresh-water fish, II. 129.  
 KULLEBARS, a small fresh-water fish, II. 129.  
 KULMUND, the golden Salmon, II. 129.  
 KULSTROM, a remarkable phænomenon in the  
 North-sea, I. 87.

## L.

LAKE, the fresh-water Herring, *Maræna*, II.  
 130.  
 LAKES, the principal in Norway, I. 92. Float-  
 ing islands in some of them, ibid.  
 LANDSCAPES very pleasant in Norway, I. 64.  
 LANGE, Ling, or the long Cod-fish, described,  
 II. 130, 131.  
 LANGVIE, a large sea bird, II. 83.  
 LAPIS SUILLUS, or Swine-stone, a production  
 peculiar to Norway, I. 168. Called *Lapis  
 fœtidus*, ibid.  
 G g g g

LAX,

# I N D E X.

- LAX, the Salmon, *Salmo*, II. 131. Its nourishment, *ibid.* Its breeding-place, *ibid.* Method of catching it, 132. Its aversion to red colour, *ibid.* and 133.
- LAX-KAR, what, II. 133.
- LAX-TITE, a water fowl, II. 83.
- LEAD-MINES in Norway, I. 201, 202.
- LEMMING, *Mus Norvegicus*, II. 30.
- LEPROSY, of three kinds, frequent in Norway, II. 262, 263. Described, *ibid.*
- LERKE, the Lark, II. 83.
- LETTER to the author concerning a particular fort of stone, I. 174, 175.
- LINNÆUS, his curious observation, I. 101. His remarks upon mountain plants, I. 132.
- LINES, of different forts, for fishing, described, II. 131, 132.
- LIST of the authors quoted in this work, I. Pref. XXI, & seqq. Of all the nobility of Norway, II. 288. Of Danish nobility, settled in Norway, *ibid.*
- LIZARD, Ogle, or Fire-been, II. 40.
- LOAM, fragrant white loam, I. 206. A black loam like ink, 205.
- LOBSTERS, method of catching them, II. 173. Vast numbers exported from Norway, and in what manner, *ibid.*
- LODDE, the stinking Fish, II. 134. A mischievous Fish in driving away other Fishes, &c. *ibid.* and 135.
- LOM, *Colymbus Arcticus*, described, II. 83, & seqq.
- LONGEVITY, several instances of, in Norway, II. 257, & seqq.
- LUND, *Anas arctica*, the Pope, described, II. 86, 87.
- LUSUS NATURÆ, an absurdity, I. 54. Several pieces of what is so called found in Norway, I. 184.
- LYNX, Goupe, II. 20.
- LYR or LYSSE, the Piper, probably the fish call'd Lyra, II. 135.
- M.
- MAAGE, Sea-gulls, of various species, II. 87, 88.
- MAAR, the Marten, described, II. 23, 24.
- MACKAREL, Scomber, II. 135. Voracious like the Shark, *ibid.* Melancholy accident occasioned by Mackarel, 136. Has no air bladder, and yet swims very quick, *ibid.*
- MAGNET, or Load-stone, found in great quantities in Norway, I. 167.
- MAGNUS OLUFSEN, king, why called Bare-foot, II. 273.
- MAIL, in Winter, drawn over the steepest mountains not far from Bergen, I. 58.
- MARBLE, of several kinds, I. 162, & seqq. Account of the principal forts, 164, 165.
- MARE, no peasant dares keep one about Bergen, II. 2, 3.
- MARIENGLAS, or Ifinglafs, used for windows in Russia, I. 172.
- MARMATE, a fish of the Mer-maid species, II. 195.
- MARSVIN, the Porpoise, described, II. 136.
- MARTIMIRE, M. de la, his account of the copper mines in Norway, I. 196. & seqq.
- MARTIN, Mr. his description of the Western islands of Scotland, well worth perusing, I. 149.
- MEAD, Dr. an extract from his treatise de imperio solis & lunæ, &c. I. 77. Note.
- MECHANIC trades not in any repute in Norway, II. 280.
- MER-MAN and Mer-maid, see Hav-mand.
- MILE, Norwegian, equal to five or six English miles, I. 1. Note.
- MINES, Norwegian, in general, I. 178, 179. Produce of them doubled in Norway for these last hundred years, *ibid.* A gold mine discovered, 179. But soon failed, *ibid.* Silver mines in Norway, 180, & seqq. Method of discovering them, 184, 185. Great depth of some mines, 188. The mines of Kongsberg described, 189, 190. Copper mines at Roraas, 192, & seqq. Iron mines 199, & seqq. Lead mines, 201, 202.
- MINERS, their drefs, I. 197. Their revels and dances, 198.
- MIXTURE, wonderful, in the mountains of Norway, I. 53.
- MOLE, Vond, Talpa, II. 28.
- MORT, see Sey.
- MOSKOEOSTROM, a remarkable Phænomenon, I. 77. & seqq.
- Moss, Norway over-run with it, I. 147. Several forts of it, *ibid.* Treated of particularly by Buxbaum, *ibid.* Note.
- MOTIVES of the Author for publishing this work, I. Pref. I. & seqq.
- MOUNTAINS of two forts in Norway, I. 40. the greatest part of that country cover'd with them, *ibid.*
- MOUNTAIN-STOVES described, I. 44.
- MOUSE, Muus, Mus, white, with red eyes, II. 29.
- MUSHROOMS, and the champignons of several forts found in Norway, I. 148.
- MUSLINGER, Cockles, *Pectuncli*, II. 164.
- N.
- NAPER, a fort of Turnip, of a very large size, II. 114. Instance of one weighing 27 pounds, *ibid.*
- NATVAKE, a small bird, II. 88.
- NEBBE-SILD, the Needle-fish, II. 138, 139.
- NEWEN-OGEN, the Lamprey, II. 139.
- NIGHT-RAVEN, *Nycticorax*, II. 91.
- NOBILITY, antient, of Norway, a list of, II. 288. Danish settled there, *ibid.*
- NODDE-



## I N D E X.

- NODDÈ SKIGER**, a bird, II. 88.
- NORDBERG**, Mr. an historian of great credit, I. 19. Censured by the author, *ibid.*
- NORHVAL**, *Unicornu marinum*, the Unicorn fish, II. 137, 138.
- NORWAY**, its extent, latitude and climate, I. 1, 2. Milder winters there than could be expected in that climate, 13. Produces figs, cherries, and other fruit, 22. Roses and other flowers common there, *ibid.* Produces a great quantity of corn, 98. Affords beautiful landscapes, 64. More fruitful than foreigners imagine, 99. Surpasses many countries in pasturage and meadows, 108. Properest place for the study of Ichthyology, II. 105. First inhabitants of Norway, 222. Colonies of strangers there, 237. Seldom visited by foreigners, I. Pref. IX. Surpasses most countries in *Singularia Naturæ*, *ibid.* Customs of Norway totally different from those of Denmark, I. Pref. X.
- NORWEGIANS**, antient, driven from their country before the birth of Christ, II. 223. Had particular kings of their own after they were expelled, 226. Modern Norwegians a mixture of Celtæ and Afers, *ibid.* Send several colonies into various countries, 226, & seq. Sail to America long before the Spaniards, 227. An account of several expeditions thither, 228, & seqq. Descendants of a Norwegian colony, probably still to be found there, 134, 135. The Norwegians genius, stature and features, 240, 241. Their strength and hardiness, 242, 243. Their complexion, 243, 244. Cause of it, *ibid.* Qualities of their mind, 245, 246. Ingenuity, *ibid.*, & seq. Their bodily exercises, 246, & seq. Their genius for trade and navigation, 280. Send their youth abroad for education, *ibid.* Many of them spend half their time at sea, 283. Their funeral ceremonies, 247. Note. Their capacity for literature, 248, 249. Their authors of note, 249. Their politeness and fidelity, 250. Their valour and courage, 251, 252. Their diet, 266, & seqq. Subject to quarrels and broils, 253, 254. Their ambition commendable, 254. Their vanity, *ibid.*, & 255. Fond of imitating the English, *ibid.* Their generosity and hospitality to strangers, *ibid.*, & 256. Their cheerfulness and good nature, *ibid.* Their health and long life, *ibid.* Their dress, 272, & seqq. Their habitations and building, 275. Their various occupations, 279, & seqq.
- NORWINDS-PIBE**, a bird, described, II. 88.
- O.
- OATS** produced in Norway, I. 106. The grain most in use there, *ibid.* First given to horses in Norway, II. 2.
- OCCUPATIONS**, various, of the Norwegians' II. 275, & seqq.
- ODEL-RIGHT** explained, II. 289, & seqq.
- OESKÆL**, the Muscle, the Pearl-muscle, II. 165. Rivers in which they are chiefly found, *ibid.* Farther account of the Pearl-muscle, 166, 167.
- OGYGIA**, supposed to be the island Hinde, I. 86.
- OKER**, very good found in Norway, I. 205.
- OLAVE**, St. his Serpent described, I. 54.
- OLAUS DALIN**, his History of Sweden, I. 41.
- OLAUS MAGNUS**, his account of a rock in Norway, I. 41. Note. Of the mountains, 63. His opinion of the Norway crystals, 172. His account of Chalcedony, 173. Of Jasper, *ibid.* Says some sort of mice are poisonous, II. 29. His description of the Lemming, &c. II. 30.
- OLUF KYRRE**, king, founds the city of Bergen, II. 238. Grants the English great privileges, which they enjoyed near 300 years, *ibid.* and 279.
- OPSTA-GANG**, an ancient method of weaving coarse cloth, II. 173.
- ORIGIN** of mountains, rocks and stones, I. 56.
- ORN**, the Eagle, Aquila, II. 89. Said to carry away young children, *ibid.* This confirmed by Mr. Ray and Anderson, *ibid.*
- ORTE**, the Salmon-trout, II. 139, 140.
- OTTER**, Odder, II. 27. May be tamed when young, and taught to fish for its master, *ibid.*
- OUTIN**, supposed to be Ulysses, I. 85.
- OXEN** and Cows of a yellowish colour, and very small in Norway, II. 4. Their flesh fine-grained, juicy and well tasted, *ibid.*
- OYSTERS**, of various sorts, treated of, II. 162, & seqq.
- P.
- PARACELsus**, his pompous prediction of a golden age to the Northern countries, I. 178.
- PARTRIDGE**. See Ripe.
- PATRICK**, Dr. Simon, a passage in his works relating to Norway confuted by the author, I. 22.
- PEAS** sown in Norway, but in no great quantity, I. 107. Yield 610, for one there, *ibid.*
- PEASANTS**, Norwegian, cheerfully venture their lives for a sheep or a goat, I. 59. Their fidelity to their friends, *ibid.* Bigotted to ancient customs, 102. Will not move a stone which their fore-fathers suffered to lie in any one place, 102. Much improved of late, 103. Their best dainties, milk, and variety of cheese, 108. Chew Angelica, and make snuff of it, 116. Their houses, 142. Their dress, II. 273. Grazing and breeding cattle chief part of their employment, 281. Some of the peasants descended from noble

# I N D E X.

- noble families, and even from the royal line, II. 289.
- PEDIGREE** of the Norwegians traced in their funeral sermons, II. 289.
- PEBBLES** in Norway, I. 160, 161.
- PENNA MARINA**, a remarkable Muscle, described by Dr. Shaw, I. 75.
- PERLE-BAND**, a Fish, like a string of pearls, II. 182.
- PHEASANTS**, none seen in Norway, II. 78.
- PHYSICS**, never the author's chief study, I. Pref. XI.
- PHYSICAL** knowledge: the utility of it, I. Pref. V. & seqq.
- PHYSICIANS**, to be found only in the chief towns in Norway, I. 24. Are established in those cities, with a public salary, *ibid.* But one or two at most at Bergen, *ibid.*
- PIIR**, the Trachurus, or Horse-mackarel, II. 140.
- PLAGUE**, an account of it in Norway, II. 365.
- PLINY** computes the measure of the highest mountains in the world at 400 stadia, I. 45. Mentions floating islands in Italy, 92.
- PLOW-WORM**, Muld-oxe, II. 41.
- POLIGNAC**, Cardinal, his observation on the Maramots in his *Anti-Lucretius*, II. 27. Note.
- POPE**, Mr. his remark upon the universality of genius, II. 294. Note.
- POPE**, Innocent VIII. dispenses with the Norwegian church from using wine in the sacrament, II. 267.
- PORCUPINE**, Pindswiin, II. 28.
- PORPOISE**, see Marfvn.
- PRESERVATIVES**, against the cold, I. 19.
- PRODUCE** or commodities of Norway enumerated, II. 280.
- PUUR**, the Dove, a small fresh water fish, II. 140.
- Q.
- QUABBE**, see Aal.
- QUADRUPEDS** of Norway described at large, II. 1, & seqq.
- QUALITY** of the air in Norway, with respect to sickness and health, I. 23.
- QUARTS**, a sort of pyrites or fire-stone, I. 169.
- QUEITS**, see Helle flynder.
- QUENER**, an antient people in Nordland, II. 223.
- QUICKSILVER**, none found in Norway, I. 202.
- QUIN-ZENDER**, a sort of wild duck, II. 66.
- QUOYAS MORROV**, a strange creature, resembling the human species, described by Odoard Dapper, II. 188.
- R.
- RAATE**, the Sea-carp, II. 140.
- RABBITS**, very few in Norway, II. 9.
- RAGE-KNIV**, the Razor-fish, *Novacula*, II. 141.
- RAINS** and dampness on the West side of Norway, I. 25. Cause of them at Bergen, *ibid.* Excellently adapted by Providence to the necessities of the country, especially about Bergen, I. 26.
- RAMUS**, M. his History of Norway, I. 2. Computes the length and breadth, *ibid.* Says the air in Norway is very healthy, I. 23. His account of the Moskoeftrom, I. 78. Endeavours to prove it to be the Scylla and Charybdis of the ancients, whither Ulysses was driven, I. 85.
- RATS**, Rotter, of several kinds in Norway, II. 28. Will not live in Nordland and Helgeland, *ibid.*
- RAVN**, the Raven, *Corvus*, II. 91.
- RAZ**, Mr. his account of a child being carried away by an eagle, II. 89. Note.
- REAUMUR**, M. his account of Insects, II. 34, 35.
- RED-WORMS**, Roe-aet, in prodigious numbers, so as to colour the sea, II. 50.
- REIN-DEER**, peculiar to the North country, II. 9. Will not live any where else, *ibid.*
- REMORA**, a small fish, the vulgar notion of its stopping a ship under sail confuted, II. 217, 218. This more probably occasioned by the Krake, 218.
- RICCIOLI**, reckons the highest mountains in the world to be 512 stadia in perpendicular height, I. 45.
- RIPE**, Partridge, Perdix, of two sorts in Norway, II. 91. Change colour three times a year there, *ibid.* Manner of taking and exporting them, 92.
- RIVERS** and **RIVULETS** of Norway describ'd, I. 90, & seqq.
- Roads**, difficult and dangerous in Norway, I. 58.
- ROCKS**, and mountains, the inconveniencies arising to Norway from so many of them, I. 57, & seq. Conveniencies, 6, & seq.
- ROD-FISK**, a sea-water fish, II. 141.
- ROGN-KAL**, the Square-fish, Ostracion, described, II. 141, 142.
- ROKKE**, the Thornback, *Raja Clavata*, II. 142.
- ROLLIN**, M. his *Physique des enfans*, a passage from it quoted, II. 105, 106.
- ROOTS**, of all kinds, grow in the gardens in Norway, I. 114.
- ROSE**, a common flower in Norway, I. 22.
- RYSGLAF**, used for glafs in Russia, I. 172.
- S.
- SALT-PANS**, in Norway, I. 72.
- SALT-WORKS**, described, I. 203, 204.
- SAND**, that of Norway described, I. 37.
- SAND-STONES**, I. 165.
- SANDTAL**, the Lapwing, II. 93.
- SANDTÆRNE**, a bird, II. 93.
- SAVORREN**, a sea-bird, II. 93.
- SAW-WORKS**, or Saw-mills, I. 137.

# I N D E X.

- SCHEUCHZER, Mr. conjectures that the highest of the Alps does not exceed 987 ells in perpendicular height, I. 46.
- SCHROEDER, Peter, his letter to the Author, I. 103.
- SCOTCH Islands have all kind of birds in common with Norway, II. 91.
- SCOTS, a colony of them in Norway, II. 238, 239. Still distinguished there by a particular dress, *ibid.*
- SCYLLA and Charybdis situated in Norway, I. 85, & *seqq.*
- SEA, Fresh springs in the bottom of it, I. 72. Nocturnal coruscations and effulgence of the sea, 72. & *seqq.* Cause of this effulgence, *ibid.* Motion of the sea by currents, &c. 76.
- SEA-BEAN, *Faba Marina*, I. 156.
- SEA BEAVER, an insect, II. 51.
- SEA-CALF, see *Sælhund*.
- SEA-FOWL, their numbers almost incredible, II. 58. Their general properties, *ibid.* Their eggs, *ibid.* Their flesh, 59. Turn their heads against the wind in stormy weather, *ibid.*
- SEA-GRASS of several kinds, I. 50. Its use and benefit, 151.
- SEA-MONSTERS, treated of, II. 183, & *seqq.* Not mere chimeras, 107.
- SEA-NETTLE, the *Manæte Urtica Marina*, II. 181, 182.
- SEA-SNAKE, See *Ormen*, *Serpens marinus magnus*, a wonderful Sea-monster, II. 195. Many testimonies to prove its existence, 196, & *seqq.* Its form and properties, 199, & *seqq.* Dangerous to the fishing-boats, 203. Fishermen's method of guarding against it, *ibid.*, & 204. Supposed to be the Leviathan or Crooked serpent, mentioned in scripture, 206. North-sea its native place, 208. Account of very large Snakes or Serpents in other places, 210. One mentioned by Pliny, Livy, and Val. Maximus, *ibid.*
- SEA-SUN, or *Caput Medusæ*, a remarkable fish, II. 180. Supposed by some to be the spawn of the Krake, 181.
- SEA-TREES, I. 152. The use of them, *ibid.* Their branches observed to grow four or five feet in two years, 156.
- SEA-WATER, weight of it, I. 70. Its colour, *ibid.* Its softness, 71. Not so salt about Norway as in warmer climates, *ibid.* Oily, 73.
- SEY, a Sea-fish, II. 143.
- SERPENTS, and other venomous creatures, not found beyond the Temperate Zone, II. 35. Of several sorts in Norway, *ibid.* Singular incident concerning a Serpent, 36.
- SEVEN-SISTERS, a range of mountains of a singular appearance, I. 46.
- PART II.
- SHARK, see *Haac*.
- SHEEP, Norwegian, described, II. 6.
- SHRIMPS, *Squilla marina*, II. 177.
- SIEBEN-SHWANTZ, *Micro-phœnix*, la *Grive-Bohemienne*, II. 94.
- SIK, *Albula nobilis*, a fresh-water fish, II. 143.
- SIISGEN, a bird, II. 94.
- SILD, the Herring, *Harengus*, II. 143. Its food 144. The king of the Herrings, *ibid.* Prodigious shoals of them, *ibid.*
- SILVER, a piece taken out of the mines in Norway weighing 560 pounds, and preserved in the museum at Copenhagen, 185. Quantity of silver exported from Norway from 1711 to 1734 inclusively, 139.
- SILVER MINES in Norway described, I. 181.
- SCADE, the *Mæspie*, of two or three sorts in Norway, II. 94, 95.
- SCALLE, *Alburnus*, a fresh-water fish, II. 149.
- SKARV, Columbus, the Loon, of three kinds, II. 95.
- SKELETON of a Whale found at Tistedale, 1687, I. 39. Of a man of gigantic size, II. 242.
- SKUE, the Black Diver, II. 96.
- SLEDGE-CHAISES, drawn by peasants in Norway, I. 42.
- SLOW-WORM, *Slæbe*, II. 41.
- SNAILS, of several sorts, *Snegle*, II. 40.
- SNEE-FUGL, the Snow-bird, II. 96.
- SNEE-KREED, or SNEE-FOND, Snow-falls, very dangerous in Norway, I. 30. Not unknown in Switzerland, *ibid.* Described by the poet Claudian, *ibid.* Note.
- SNEGLE, Sea-snails, *Cochlea*, II. 167.
- SNEPPE, the Snipe, *Scolopax*, II. 96.
- SNOWS, deep on the mountains, advantage and disadvantage of, I. 28, & *seqq.*
- SOE-KAT, the Sea-cat, II. 149.
- SOIL, of Norway in general, I. 35.
- SOLIDA INTRA SOLIDA, what, I. 54, 55.
- SOLSORT, the Miffel-bird, II. 97.
- SOLV-FISK, a sea-fish, II. 150.
- SONDEN-WINDS-FUGL, South-wind-bird, described, II. 99, 100.
- SPECULUM REGALE, an antient manuscript, supposed by the author to be lost, I. Pref. XIV. This proved a mistake, it being still extant, II. Pref. VI. The notion of its being written by king Sverre without foundation, *ibid.* & VII.
- SPEK-hugger, a sea-fish, II. 150.
- SPETTE, the Wood-pecker, II. 97.
- SPIDBERG, Jens, his description of Christianland, I. 16. Note.
- SPIDER, Kongro, or Spindel, *Aranea*, II. 42.
- SPOVE, a Strand-bird, II. 97.
- Spurre, the Sparrow, *ibid.*
- SQUIRREL, *Egernet*, II. 24.

# I N D E X.

- STAR-FISH, Kors-fisk, Stella-marina, a curious fish, and particularly described, II. 179, 180.
- STÆR, the Starling, II. 98.
- STEEN-bider, Lupus-piscis, the Sea-wolf, II. 151.
- STEENS-BROSMER, a fish, II. 151.
- STEENSKREED, disrupcion of a rock, its fatal consequences, I. 60.
- STEEN-ULK, Rana Piscatrix, the Frog-fish, or Sea-devil, 151, 152.
- STILLITZ, the Gold-finch, II. 98.
- STOCK-ÆNDER, a kind of Wild duck, supposed to grow on trees, I. 67. That opinion confuted, *ibid.* & 68.
- STONES, allowed by the French academy to have been originally a soft or slimy paste, I. 53. Note. Not vegetative, *see* <sup>showing</sup> their substance to have been soft and fluid, but suddenly indurated, 176. Remarkable figure of a stone on the mountain Svuku, 177.
- STORK, seldom seen in Norway, II. 98.
- STORRE, Sturio, the Sturgeon, of several sorts, II. 153, 154.
- STORY, a remarkable one of two brothers, I. III, & seqq. Of a Bear, 13, 14.
- STRANSIDDERE, a sort of people that live by fishing, II. 5. Feed their cows with cods-heads and fish-bones, *ibid.* The Arabians do the same at Balfora, *ibid.* Note.
- SVALE, the Swallow, Hirundo, an account of its retreat in Winter, II. 98, 99.
- SVANE, the Swan, not common in Norway, II. 99.
- SULPHUR, found in great plenty in Norway, I. 203.
- SUMMER-NIGHTS, the cleanness and ferenity of them in Norway, I. 3.
- SUN, continually in fight in Summer in the district of Tromsen, I. 3.
- SWÆRD-FISH, Serra priftis, the Saw-fish, II. 154. Held sacred by the Negroes on the African coast, 155.
- SWEDES, several thousands of them perished by extreme cold, I. 18.
- SYRE, a Norwegian river that shoots into the sea like an arrow, I. 91.
- T.
- TALE-STONE, or Veeg-steen, I. 166, 167.
- TAR, extracted from the roots of fir-trees, II. 282, 283. A profitable commodity, I. 143.
- TART, or Pinke, a small kind of Salmon, II. 155.
- TARTARS, a colony of, settle in Norway, II. 240.
- TEIST, a sea bird, II. 100.
- TERRA ANTISCORBUTICA, found in Norway, I. 206.
- THISTLES, some of them bear corn in Norway, I. 117.
- THUNDER-STONES, I. 176. Unanimously allowed to be artificially wrought, I. 176.
- TIDES, greatest height of them in Norway is eight feet, I. 76. Much higher in England, and the Netherlands, *ibid.*
- TIELD, a strange bird, II. 100. A great enemy to the raven, *ibid.* The farmers favourite, *ibid.*
- TILAS, Daniel, an entertaining little book of his quoted by the author, I. 193, 194.
- TIMBER, exported from Norway in vast quantities to different parts of Europe, I. 137.
- TIUR, Urægallus major, the Cock of the wood, or Cock of the mountain, II. 101.
- TOADS, Tudfer, not very common in Norway, II. 40.
- TORBOE, the Norwegians fond of it, II. 269, 270. First introduced into Norway, *ibid.*
- TORBOE, a plant fatal to horses, I. 131.
- TORGHATTEN, a remarkable mountain in Norway, I. 47.
- TORSK, the Cod-fish, Afellus major, II. 155. Way of catching them, *ibid.* & seqq.
- TOURGRASS, a noxious plant, I. 131.
- TOURNEFORT, his ascent to the top of Mount Arrarat, I. 132.
- TRADE and commerce flourished in Norway for many ages, II. 279. The most considerable trading cities there, II. 280.
- TREES, a catalogue of those in Norway, I. 138, & seqq.
- TRUVIERS, a kind of Snow-shoes, I. 29, II. 274.
- TUNGE, Solea, a flat fish, II. 159.
- TURBOT, *see* Helle-flynder.
- TURF, both black and brown found in Norway, I. 38.
- V. U.
- VADMEL, a kind of coarse cloth worn by the Norway peasants, II. 276.
- VAGTEL, Coturnix, the Quail, II. 101.
- VALRUS, the Sea-horse, II. 159, 160.
- VAS-SILD, the Herring, II. 160.
- VEAL, in Norway, not inferior to that in England, II. 5. Note.
- VEEGSTEEN, a valuable stone for building, II. 276.
- VEITER, a sort of trenches, described, I. 103.
- VEGETABLES, all kind of esculent and garden, thrive in Norway of late years, I. 113.
- VEGETABLES, chiefly noxious, growing in Norway, and little known elsewhere, described, I. 126, & seqq.
- VETCHES, reckoned by M. Ramus among the vegetables of Norway, I. 107.
- UGLE, the Owl, Bubo, II. 102. Two sorts in Norway, *ibid.*
- VIBE, the Plover, II. 101.
- VIOLA CANINA, a plant of extraordinary quality, I. 110. Supported the lives of two brothers several days, I. *ibid.*
- VITRIOL,







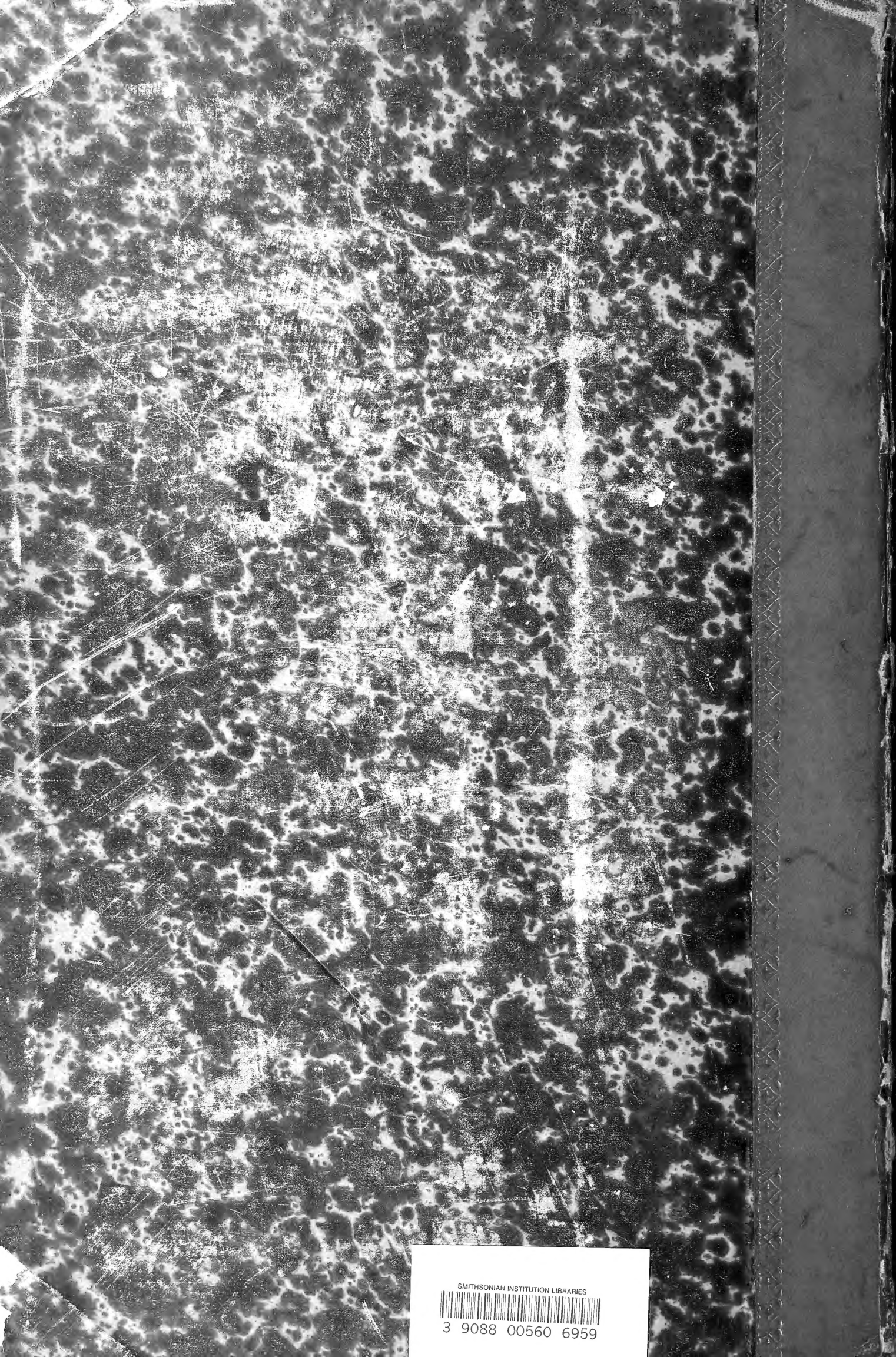













SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00560 6959