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WISH VS. THE WIND SOUTH



DANIEL B. FEARING
NEWPORT R. I.



Nat. Hist.

Angling p. 229

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face p. 221

THE
NATURAL HISTORY
OF
FISHES
AND
SERPENTS,

INCLUDING
SEA-TURTLES, CRUSTACEOUS,
AND SHELL FISHES,

WITH THEIR
MEDICINAL USES.

ILLUSTRATED WITH CUTS.

By R. BROOKES, M.D.

THE SECOND EDITION CORRECTED.

To which is added

AN APPENDIX,

CONTAINING

The whole Art of Float and Fly Fishing, the best Rules for the
Choice of Tackle, and a Description of natural
and artificial Baits.

VOLUME III.

LONDON,

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30 JUNE 1910

CONTENTS.

CHAP.	Page
I. O <i>F Fishes in general,</i>	1
II. O <i>Of Fishes of the Whale kind,</i>	5
III. <i>Of Fishes of the gristly kind,</i>	16
IV. <i>Of Flat-fish of the gristly kind,</i>	20
V. <i>Of Fish produced from Eggs, which are generally bony, and have Spines in the Flesh,</i>	28
VI. <i>Of Flat-fish, with longer Bodies,</i>	30
VII. <i>Of Fish of the Eel kind, that want the Belly- fins,</i>	31
VIII. <i>Of Fish that want the Belly-fins,</i>	38
IX. <i>Of bony-Fish, that have soft flexible skins on their backs,</i>	44
X. <i>Of Fish of the Tunny kind,</i>	51
XI. <i>Of Fish of the Trout kind,</i>	54
XII. <i>Of slippery Fish, of the Eel kind, with Belly- fins,</i>	65
XIII. <i>Of Fish that have two Back-fins, and whose Belly-fins unite in one,</i>	72
XIV. <i>Of small Fishes, that have two Fins on the Back with soft flexible rays,</i>	74
XV. <i>Of Brasilian Fish with two Fins on the back,</i>	75,
XVI. <i>Of barbed, and prickly Brasilian Fish,</i>	76
XVII. <i>Of spinous Fish with two Fins on the Back,</i>	the

CONTENTS.

CHAP.	Page
<i>the foremost of which is radiated with Spines,</i>	79
XVIII. <i>Of Fish of the Gurnard kind,</i>	80
XIX. <i>Of Fish without Thorns, with one Fin on the Back,</i>	87
XX. <i>Of Leather-mouthed River Fish,</i>	102
XXI. <i>Of bony or spinous Fish, with one Fin on the back, whose forward rays are stiff and thorny, and the hinder soft and flexible,</i>	115
XXII. <i>Of Fish of the Wrasse, or Old-Wife kind,</i>	117
XXIII. <i>Of American Fish with a single Fin on the Back, whose Rays are all spinous,</i>	122
XXIV. <i>Of East-India Fish not fully described,</i>	128
XXV. <i>Of the West Indian Fish,</i>	126
XXVI. <i>Of the African Fish, near the Cape of Good Hope,</i>	134
XXVII. <i>Of bloodless soft Fish,</i>	136
XXVIII. <i>Of Crustaceous Fish,</i>	138
XXIX. <i>Of the Tortoise, or Land and Sea Turtle,</i>	148
XXX. <i>Of turbinated Shell-Fish,</i>	154
XXXI. <i>Of Turbinated Shells,</i>	163
XXXII. <i>Of Wreathed Shells,</i>	165
XXXIII. <i>Of Limpets,</i>	169
XXXIV. <i>Of Shells, called the Sea Ears,</i>	171
XXXV. <i>Of Dentalia, or Tooth-Shells,</i>	172
XXXVI. <i>Of Cylindric Shells,</i>	173
XXXVII. <i>Of Dolia, or Pipe Shells,</i>	174
XXXVIII. <i>Of Porcelain Shells,</i>	176
XXXIX. <i>Of Bivalved Shells,</i>	178
XL. <i>Of Muscles,</i>	182
XLI. <i>Of the Heart-Shells and Cockles,</i>	185
XLII. <i>Of Scollop Shells,</i>	186
XLIII. <i>Of the Finger Shell Fish,</i>	187

CONTENTS.

CHAP.	Page
XLIV. <i>Of the Acorn Shell Fish,</i>	188
XLV. <i>Of Thumb-footed Shell-Fish,</i>	189
XLVI. <i>Of the Pholades, or File Shell Fish,</i>	190
XLVII. <i>Of fresh Water Shell Fish,</i>	192
XLVIII. <i>Of the Sea Nettles,</i>	195
XLIX. <i>Of Serpents,</i>	198
L. <i>Of Vipers and Serpents from Seba, that have no particular Names,</i>	221

APPENDIX.

I. <i>Of Angling in general,</i>	229
<i>The Qualifications of an Angler,</i>	230
II. <i>Of the Angler's Rods and Lines,</i>	ib.
<i>Directions for making Rods,</i>	231
<i>Of Lines for Float and Fly-Fishing,</i>	232
<i>Of twisting Hairs for Lines,</i>	233
<i>Of Indian or Sea Grass,</i>	234
<i>Observations on Floats,</i>	ib.
<i>Rules for the Choice of Hooks,</i>	235
III. <i>Of other Sorts of Tackle necessary in Angling,</i>	ib.
<i>Of the Landing-Net,</i>	236
<i>The Clearing Ring,</i>	ib.
<i>The Gorgier,</i>	ib.
IV. <i>Of Float-Fishing, and of Live and Dead Baits. —</i>	
<i>Of the Ash-Grub, Bees, Bobs, Brandlings, Cadews, Rough Coat, Dock-Worms, Earth Bobs or Grubs, Gentles or Maggots, Lob-Worms, Red Worms, Water Frogs, Snails, Wasps, and Pastes,</i>	237, &c.
V. <i>Of Fly Fishing,</i>	243
<i>Of Materials necessary to make artificial Flies,</i>	245
<i>Of the twelve principal artificial Flies,</i>	247
<i>Short Account of the principal natural Flies,</i>	248

C O N T E N T S.

CHAP.	Page
VI. <i>Of Rock-Angling, Night-Angling, &c.</i>	252
<i>Of Snapping, Trolling, and Angling by Hand,</i>	254
VII. <i>Containing some Particulars not generally known by young Anglers,</i>	256
VIII. <i>Rules and Cautions to be observed by young Anglers,</i>	257

TABLE TO THE PLATES

OF

FISHES AND SERPENTS.

* * The Figures in the first Column refer to the Pages in which the Accounts of the Fishes, &c. are given ; and the Figures in the second Column direct to the Pages, which the Engravings front.

A

✓ Albicore,	53	—	99
✓ Amboina Pearch,	86	—	86
✓ American Toad Fish,	27	—	101
✓ ——— Crab,	146	—	146

B

✓ Balance Fish,	18	—	19
- Bald-Pate Fish,	126	—	99
- Bonettoe,	53	—	88
Butter Fish,	121	—	99
✓ Butterfly Fish,	70	—	21

TABLE TO THE PLATES

C

Cabos, - -	128	—	115 ✓
Cramp Fish, - -	24	—	24
Crook-back Fish, - -	129	—	96 ✓
Cuttle Fish, - -	137	—	27

D

Dart, a Snake, - -	207	—	221 X
Dolphin of the Ancients, - -	15	—	6
Dolphin of the Moderns, - -	87	—	88
Dög Fish, - -	18	—	24
Doree, - -	87	—	39
Dung Fish, - -	115	—	115

E

East-Indian Hog Fish, - -	128	—	96
———— Gurnard, - -	128	—	96
———— Whiting, - -	131	—	132
Elephant's Trunk Fish, - -	96	—	96

F

Father Lasher, - -	121	—	27
Fin Fish, - -	13	—	6
Flying Fish, - -	83	—	83
Frog Fish, - -	27	—	27

G

Grey Gurnard, - -	81	—	81
Green and large spotted Lizard, - -	221	—	221 X

OF FISHES AND SERPENTS.

Grunting Fish,	-	127	—	86
Guarerua,	-	90	—	132

H

Harwich Gurnard,	-	82	—	39
Hooded Serpent,	-	215	—	221X
Horn Fish,	=	129	—	24

I

Jacob Evertsen Fish,	-	135	—	135
Indian Eel Pout,	-	128	—	96
—— Flat Fish,	-	129	—	129
—— Herring,	-	95	—	86
—— Kaelt Fish,	-	127	—	126
—— Lamprey,	-	128	—	54
—— Land Crab,	-	147	—	141
—— Sea Crab,	-	146	—	141
—— Sea Cat,	-	130	—	146
—— Sea Eel,	-	127	—	54
—— Sea Hog,	-	126	—	135
—— Shrimp,	-	141	—	141
—— Spotted Fish,	-	131	—	81
—— White Fish,	-	127	—	86
Ifinglafs Fish,	-	101	—	101

K

King-Fish,	-	54	—	54
------------	---	----	---	----

L

Lump,	-	73	—	83
-------	---	----	---	----

TABLE TO THE PLATES

M

Monk Fish,	-	-	23	—	19
Mullet,	-	-	79	—	117

O

Old Wife,	-	-	117	—	117
Orb, or Sea Weather-Cock,	-	-	38	—	81

P

Pen Fish,	-	-	128	—	135
Pit Fish,	-	-	129	—	132
Piper,	-	-	82	—	88
Pogge,	-	-	73	—	83
Porpus,	-	-	14	—	6
Prickly Orb,	-	-	39	—	39
Pyed Fish,	-	-	132	—	132

R

Rattle Snake,	-	-	209	—	221
Raven-Fish,	-	-	127	—	126
Red Gurnard,	-	-	81	—	27
Ribbed Mufic Shell,	-	-	159	—	146

S

Saw Fish,	-	-	19	—	19
Scad,	-	-	84	—	117
Sea Bat,	-	-	131	—	21
Another,	-	-	131	—	115
Sea Bream,	-	-	88	—	88

OF FISHES AND SERPENTS.

Sea Cat,	-	-	-	130	—	124.
— Cock,	-	-	-	127	—	126.
— Devil,	-	-	-	124	—	124.
— Eagle,	-	-	-	20	—	115.
— Fox,	-	-	-	17	—	43.
— Hedge Hoge,	-	-	-	39	—	129.
— Horfe,	-	-	-	40	—	101.
— Korette,	-	-	-	130	—	54.
— Lark,	-	-	-	70	—	54.
— Loufe,	-	-	-	128	—	146.
— Pigeon,	-	-	-	40	—	129.
— Snail,	-	-	-	71	—	101.
— Snipe,	-	-	-	130	—	124.
— Wolf,	-	-	-	38	—	43.
Shark,	-	-	-	16	—	19.
Sharp-fnouted Ray,	-	-	-	23	—	81.
Sheat-Fish,	-	-	-	66	—	24.
Skate,	-	-	-	21	—	21.
Snake of Æsculapius,	-	-	-	208	—	221.
Soldier Crab,	-	-	-	145	—	146.
Star Gazer,	-	-	-	85	—	83.
Stone Bream,	-	-	-	126	—	135.
Sturgeon,	-	-	-	99	—	99.
Sucking Fish,	-	-	-	69	—	129.
Sun Fish,	-	-	-	43	—	43.
Sword Fish,	-	-	-	43	—	19.

T

Tortoise, or Land Turtle,	-	-	-	151	—	221.
Triangular Horned Fish,	-	-	-	40	—	124.
Tunny Fish,	-	-	-	51	—	43.

TABLE TO THE PLATES.

U

Umbra, - - - - - 84 — 117

W

Whisk, - - - - - 6 — 6 ✓

Y

Yellow Tail, - - - - - 126 — 126



T H E

N A T U R A L H I S T O R Y

O F

F I S H E S.



C H A P. I.

Of Fishes in general.

W H E N we consider what numberless sorts of fishes have hitherto escaped human curiosity, what a variety are already known, and the amazing fecundity of which they are possessed, we are almost led to wonder, how the ocean finds room for its inhabitants. A single fish is said to be capable of producing eight or ten millions of its kind in a season. *Leuwenhoek* has computed, that there are no less than 9,344,000 eggs in a single Cod.

Nature, however, has removed every inconvenience, which might arise from this amazing encrease, by making the subsistence of one species depend on the destruction of another. The same enmities that subsist among land animals prevail with equal fury in the waters, and with this aggravation, that by land the rapacious kinds seldom devour each other; but in the ocean it seems an universal warfare, fish against fish: the large devour the small even of their own species;

2 THE NATURAL HISTORY

and those that escape, in their turn, become the tyrants of such as are smaller than themselves.

As fishes are pressed by unceasing hunger, we may reasonably imagine, that they lead a life of continued hostility, of violence and evasion. It is natural to suppose, that the small fry stand no chance in this unequal combat: their usual method, therefore, of escaping, is by swimming into shallows, where the great ones are afraid or unable to pursue them.

The pursuit of fishes is not, like that of terrestrial animals, confined to a single region: shoals of one species follow those of another through vast tracts of the ocean, from the vicinity of the pole, even down to the equator. Thus the Cod, from the banks of *Newfoundland*, pursues the Whiting, which flies before it, even to the southern shores of *Spain*.

Fishes in general may be divided into those that have lungs, and those that have gills, though they both serve for respiration. Of the first sort are the Whale kind; of the second, naturalists make two divisions: those that bring forth their young alive, and those that produce spawn. These last are distinguished by the name of spinous, because they are provided with small sharp bones, to support and strengthen their muscles; whereas those that bring forth their young alive, such as the Scate and Thornback, have only a very soft sort of gristles. The spinous sort are said to generate without coition; instead of which the females dig holes in the bottoms of rivers, ponds, &c. wherein they deposit their spawn, upon which the male immediately after emits his impregnating fluid. However, there are some spinous or bony fish, which bring forth their young alive. Among these, some think the Eel may be placed, though this is uncertain; for, after various researches, it has not yet been discovered in what manner they generate.

There are some fish, which produce large eggs, in the manner of birds, with the yolk and white; and these are hatched in their bodies, before they are excluded.

The shape of most fish is much alike; for they taper a little at the head, and by that means are able to tra-
verse

verse the fluid they inhabit with greater ease. The tail is extremely flexible, and in this lies their greatest strength: by bending to the right and left, they repel the water behind it, and advance their head with all the rest of the body. The fins are chiefly used to poise the body, and keep it steady, as also to stop it when it is in motion. It has been found by experience, that when a fish would turn to the left, it moves the fins on the right side; and when to the right, it plays those on the left; but the tail is the grand instrument of progressive motion.

The bodies of most fish are furnished with horny scales, which are strong, in proportion to the dangers to which Nature has exposed them. The scales are generally besmeared with a slimy liquor without; and under them, all over the body, there lies an oily substance, which supplies the fish with warmth and vigour.

They are enabled to rise or sink in the water, by means of an air-bladder, which is included in their bodies: when that is contracted, they sink to the bottom; but, when it is dilated, they rise to the top. That this is the true use of the air-bladder, and not, as some have supposed, only a reservoir of air, for the fish to breathe from while under water, has been proved from experiments. What is very extraordinary, some fish have been kept alive and fattened, after having been taken out of their natural element. Carps, when hung up in a cool cellar, in a small net, and covered with wet moss, their heads however being at liberty, may be fed and fattened with white bread steeped in milk. This method has often been practised with success in *Holland*, as well as at home.

Most fish are furnished with teeth, or something analogous thereto: they are not, however, designed for chewing, but only to retain their prey. These teeth are placed in different manners, according to their method of feeding; for in some they are in the jaws, palate, and tongue; but in others in the throat; and these last are called leather-mouthed fish.

The eyes of fish are generally flat, which is most suitable to the element in which they live.

4 THE NATURAL HISTORY

Most fish are provided with a tongue; but some of them, as the Carp, have none at all: however, instead of it, they have a fleshy palate. It is hard to determine, what use fish make of their tongues; for it does not serve to form their voice, since they are mute; nor does it assist them in chewing, because they swallow every thing whole: nor is it likely to be the organ of taste, because it is gristly in all fish, except those of the Whale kind: if it does serve them for that purpose, it must be in a very obscure manner.

Some fish have no throat, for the maw or stomach is placed next their mouths; but those whose bodies are long and slender, particularly the Eel kind, have a throat, though they have no lungs. Though the stomach of a fish has no sensible heat, yet it has a wonderful faculty of digestion; since those of the voracious kind swallow not only great numbers of other fish, but even Prawns, Crabs, and Lobsters, which their stomachs really digest or dissolve.

There are some of the watery inhabitants, which may be called fishes of passage, while others never stir from their native country. The Herring first has its station towards the north of *Scotland*, from whence they regularly every year make their way, and at length arrive in the *British* channel. Their voyage is performed with the utmost regularity: the time of their departure is fixed from the month of *June* to *August*, and they always assemble together before they set out: no stragglers from the general body are ever seen.

It would be a vain attempt to assign the cause of these migrations: whether it proceeds from the fear of pursuers, or from a desire of propagating their kind in greater security; whether they find pleasure in the change, or whether this long voyage is undertaken in quest of food, is a subject that might supply much conjecture, and little satisfaction. Certain it is, their numbers are astonishing: they satisfy in their passage the rapacity of all the voracious kinds; and, when they arrive at their appointed stations, they there fall to the share of man, and make the food of the poor, for a certain season, throughout all *Europe*.

Fishes

Fishes are eaten either fried, roasted, or boiled; but those that are fried are hardest of digestion; because the butter, oil, or fat that are used, receive bad qualities from the action of the fire. Those that are roasted or broiled are certainly most agreeable to the stomach; because they are always easy of digestion, and their taste is more agreeable on account of the consumption of the moisture in their flesh. However, there are many physicians, who recommend boiled or stewed fish to valetudinarians, provided they are not seasoned too much. Some kinds of fishes are salted in order to preserve them; after which some of them are dried with smoke, and others in the sun before they are salted; but all these preparations render them hard of digestion, especially to those that are of tender constitutions; for some are so robust that scarcely any thing comes amiss to them, and more particularly if they lead a laborious life.

In general, the flesh of fishes yields little nourishment, and soon corrupts; it abounds in a gross sort of oil and water, and has but few volatile particles, which renders it less fit to be converted into the substance of our bodies; for it is beyond all doubt, that all sorts of animals, which abound most in active and volatile principles, are most proper for the aliment of mankind; such is generally the flesh of quadrupeds and birds that we are accustomed to feed upon; whereas that of fish, for the contrary reasons, is less proper for nourishment, though it generally digests and passes off the stomach very soon. However, fish is the most proper aliment in some kinds of diseases, in which stronger nourishment would be very prejudicial.



CHAPTER II.

Of Fishes of the Whale-kind.

THIS sort of fish, as we observed in the first chapter, are endowed with lungs, with which they breathe, use coition, bring forth their young alive, nourish them with their milk, and resemble

6 THE NATURAL HISTORY

quadrupedes in their internal parts. Authors very much disagree with respect to the size of this fish: *John Faber* asserts, that he saw one at *Corfica* an hundred feet long; while *Frederick Martens* insists, that the largest Whales caught at *Spitzbergen* seldom exceed sixty feet in length. It is however certain, that there are Whales of a larger size than those mentioned by *Martens*, there being at this time the skeleton of a Whale, at *Mr. Rackstrow's* in *Fleet-Street*, which measures seventy-two feet in length, and of which we shall say more in its proper place. We shall divide our descriptions of the Whale only into two classes, the one *without*, and the other *with* teeth.

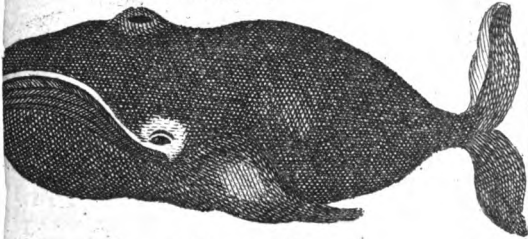
6' * The COMMON TOOTHLESS WHALE, without fins on its back, has the cleft of its mouth eighteen feet long, which is near one third the length of the fish. Instead of teeth, there are long, black, and somewhat broad, horny flakes, all jagged like hairs. It differs from another kind of Whale, called the *Fin-fish*, which has a great fin on its back, whereas the Whale, properly so called, has none on that place; but there are two fins behind the eyes, of a bigness proportionable to the body, covered with a thick black skin delicately marbled with white streaks. In the tail of one that was marbled very delicately, there was the number 122 figured very evenly and exact, as if painted. This marbling is like veins in a piece of wood, and gives this animal great beauty: these fins serve to steer the Whale. The tail does not stand upright, as in other fish, but lies horizontally.

On both lips there are short hairs in front. These lips bend a little like an S, and terminate underneath the eyes, before the two fins. Above the upper bended lip there are streaks of a darkish brown, which are as crooked as the lip itself.

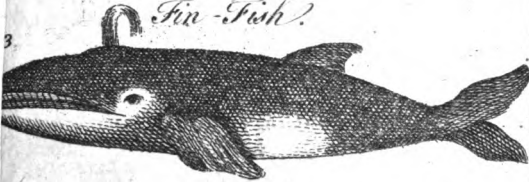
On the inside of the upper lip is the whalebone, which is of a brown, blackish, and yellow colour,
with

* Where the above mark is prefixed to any description, it is to inform the reader, that such fish, &c. is represented among the engravings. By referring to the index at the beginning of this volume, he will there see in what page to find it. Where it could be done, the engraving fronts the description.

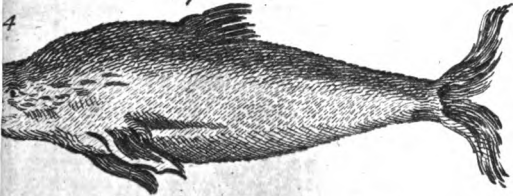
Whale?



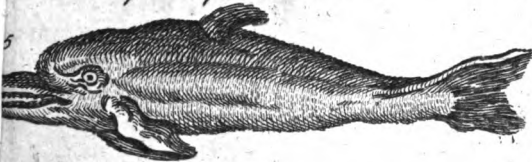
Fin-Fish.



Porpus



Dolphin of the Antients.



with streaks of several other colours. In some Whales these are of a light blue, sometimes of a darkish blue. Just before, on the under lip, is a cavity or hole, which exactly fits the upper, which slides into it, as a knife into a sheath. Within the mouth there are hairs, like those of a horse, hanging down on both sides all about the tongue.

The smallest whalebone is in the fore part of the mouth, and behind, towards the throat; but that in the middle is the largest and strongest; it being sometimes of the length of twelve or fourteen feet. On one side, all of a row, there are two hundred and fifty pieces of whalebone, and as many on the other. However, there are more than these; but the sailors do not think it worth while to cut the very small pieces out, and probably they cannot easily get at them.

The lower part of the mouth of the Whale is commonly white, and the tongue lies among these whalebones, being very close tied with the under chap: it is very large and white, with black spots on the edges, and consists of a spongy fat, which cannot easily be cut. Upon the head is a bump, placed before the eyes and fins; and on the top of it, on each side, there is a spout-hole placed over against each other, which are bent like the holes cut in the upper part of a violin. From these holes they blow the water very fiercely, insomuch that it roars like a hollow wind, which may in common be heard three miles, but much further when he is wounded.

The head of the Whale is not round at the top, but somewhat flat, and slopes downwards, like the tiling of a house, to the under lip. This under lip is broader than any part of the body, and most in the middle; for before and behind it is somewhat narrower, like the shape of the head.

Behind the bump, and between that and the fins, the eyes are placed, which in some are not much bigger than those of an ox, and have eye-lids and hair, like those of a man. The eyes are placed very low, and almost at the end of the upper lip.

3 THE NATURAL HISTORY

The belly and back are quitered, except the middle of the belly, which is white; though in some it is as black as a coal. They make a beautiful appearance when the sun shines upon them; and the waves of the sea, which run over them, glitter like silver. Some Whales have been seen entirely white, and it is not uncommon for one half of them to be white. Those that are black are so in different degrees; for some are as black as velvet, others as charcoal, and others again are of the colour of a Tench. The skin is as slippery as that of an Eel, and yet a man may stand upon it, because it is so soft, that it sinks beneath his weight. The outer skin is as thin as parchment, and may be easily pulled off; but the real skin is an inch thick. The penis is a strong sinew, and is from six to eight feet long; part of which appears outwardly, like the haft of a knife in a sheath. At the sides of the pudendum, in females, there are two breasts, with teats, like those of a cow. It is generally supposed, that they have but two young ones at a time; for never more than that number has been discovered within them.

The flesh is coarse and hard, and looks like that of a bull; but it is mixed with a great number of sinews. Some of it looks green and blue, like salted beef, especially at the meeting of the muscles. When the sailors feed upon any of it, they cut large pieces off the tail, where it is best, and boil it like other meat. Some seem to like it pretty well, especially the *French*, who dine upon it almost every day; nor will they reject that which has lain till it is black.

There are now, in the *British Museum*, the jaws of a Whale of the toothless kind. This fish was taken in the year 1718, at the mouth of the river *Thames*, and before the bones were deposited where they now are, were the property of Sir *Hans Sloane*. It is probably owing to their bulk, that this curiosity is kept in a very obscure part of the *Museum*, and not shewn with the other valuable and less cumbersome productions of nature. The two bones, which form the lower jaw, are each about nineteen feet in length, and measure above four feet round in the largest part.

Though

Though they come nearly to a point at the extremity of the snout, where they join closely together, yet, within little more than half way, they are almost eight feet asunder, when they begin again to taper a little towards the upper part. The upper jaw is not divided, like the lower, into two wide-spreading branches, but seems at first view to be only one solid bone; though, on a closer inspection, it appears to be in four pieces, which nature had joined together in a most curious manner. It measures nearly the same in circumference as the lower jaw, to which it bends down, and joins at the snout. The socket of the eye is not so round as that of the spermaceti kind, it being a yard one way, and only about twenty-one inches the other. The gullet hole, for so large a fish, is very inconsiderable, being hardly six inches wide; but a narrow swallow is said to be common to all Whales.

As these are affirmed to be the jaws of a very young fish, when we compute the length of it to have been three times that of the head, which is considered as the proportion of this species, we may be permitted to conjecture, that those, which are aged and full grown, may much exceed the extent prescribed by either *Martens* or *Faber* in the beginning of this chapter.

On a stone pedestal, in the court-yard of *St. James's*, is placed one of the bones of the *lower jaw* of a Whale, which is of the same kind, and nearly as large, as the above described. We should not have thought this a matter worthy of any notice, had it not been to rectify a mistake of the numerous spectators who daily view it, and who are apt to call it a *rib*. The jaw bone may, however, be easily distinguished from the rib; for the former is of an irregular bend, whereas the latter is circular; the rib also measures three fourths less in circumference than the jaw bone.

The SPERMACETI-WHALE differs much from the former: it has teeth, whereas the other has none; nor is the head near so large, in proportion to the body, as that of the toothless Whale.

In *January*, 1762, a spermaceti Whale was brought into *Greenland-Dock* by a trading vessel. Those, who were concerned in taking it, give the following account of this fish, and the manner in which they killed it.

As they were going through the *Hope*, they saw something floating at a distance, which appeared to them like the mast of a ship; but, as they approached it, they discovered it to be a large fish, and, upon seeing it cast up a great quantity of water, concluded it was a Whale. They chased him ashore below the *Hope-Point*, and then went off to him in their boats. He seemed a motionless lump, his head and tail being concealed in the water. They first pierced the prominent parts; and, after having dug a hole twelve inches deep, a great torrent of blood issued forth. Upon this they withdrew to a distance, and soon after the boat had passed him, (as the water was deep enough over his tail) he struck the ground with such violence, as to force up stones and mud to a great height in the air. They waited about three quarters of an hour, and then he expired with the most horrible groans. After this, they fastened a cable to his body, and at last brought him to *Greenland-Dock*, where he was seen by several thousands of people.

They took out of his head eight puncheons of spermaceti, which lay between the eyes and the spout-hole, in different cells of the brain. Its extreme length was fifty four feet, and its breadth fourteen; the lower jaw was ten feet, and the length of the penis eight: the tail measured fifteen feet.

At Mr. *Rackstrow's* Exhibition-Room, in *Fleet-Street*, is the skeleton of a Whale of this kind. Those who shew this curiosity say, that it will contain thirty people in its head, and fifty in its chest; and that twelve hogheads of spermaceti oil were taken out of its upper jaw, or rather that part of the head above it, which was entirely composed of flesh and oil.

This Whale was thrown ashore on the *Isle of Thanet*, Feb. 2, 1762*, and measures, from the snout to

* This date is agreeable to the information given by the person, who shews Mr. *Rackstrow's* curiosities; but, if we may judge

to the tail-fin, seventy-two feet. The upper jaw, which appears to be one solid bone, is sixteen feet long, and six broad at the top, where it is widest, and from whence it grows narrower to the end of the snout, which terminates in a point. Along the middle of it runs a deep round groove, through which he sucked up the water, which he afterwards discharged at the spout-hole. From the top of this jaw proceeds a large thick bone, which turns upwards almost perpendicularly to the height of about four feet, and forms as it were part of a kind of skull. The under jaw is not near so wide as the upper, herein being just the reverse of the toothless Whale. At the distance of about eight feet from the snout, it divides and becomes forked, in order to receive in the cavity a protuberance of the upper jaw, which seems exactly to fit it. This jaw had two rows of teeth, of which only one tooth is now remaining; but as this is quite loose, and kept in its place only by a piece of wire, it leaves some room to doubt, whether it be the real tooth or not. The upper jaw has no teeth; but, instead thereof, there is a groove or socket to receive those of the lower: so that, when the mouth was shut, they must have resembled so many pointed weapons in a sheath. The sockets of the eyes, which are nearly round, and placed almost at the furthest part of the jaws, measure about eighteen inches over. Hence, what is told us by some writers, that the chrystalline humour of the eye in this fish is not bigger than a pea, must appear to common reason as a fable; for we must not suppose, that Nature is so unequal in her proportions. Beyond the sockets of the eyes are the two fin bones, which are very thick, five feet long, and two feet three inches in the broadest part. There are eleven ribs on each side, the largest of which is ten inches in circumference. The ribs form a cavity, eight feet wide, within the body of the fish, and in which were contained

judge from the appearance of the skeleton, the animal must have been thrown ashore many years previous to the time here mentioned.

tained the heart, lungs, &c. The back-bone is at much the same distance from the floor, by which the ribs are supported. The back-bone, which is three feet ten inches thick, (measured in the round part only; for the upper part of it is closely set, throughout the whole length of it, with spinal bones, like those of a hog) and the tail-fins, compose the rest of this skeleton. The tail-fins, which are yet remaining, are each eight feet long; and the penis, though dried, seven feet six inches.

Though many parts of this skeleton seem much decayed, probably owing in a great measure to the injuries it must have unavoidably received in being removed from place to place, it is nevertheless highly worthy the attention of those, who delight in natural curiosities.

Naturalists divide the different species of Whales into various classes; but to enumerate them all would be too tedious, and perhaps very little interesting to the reader: we shall content ourselves with observing, that the substance called Spermaceti, which is prepared from the brain of this fish, is an excellent balsamic, and a very valuable medicine in diseases of the breast; as also to blunt the sharpness of the humours. It is very efficacious in old coughs, proceeding from defluxions, and in all internal ulcers. Indeed, various are the uses of this medicine, with respect to internal application: when applied externally it is emollient and vulnerary, and is often used as a cosmetic, to soften the skin, and to render the complexion clear*.

The

* The Dutch, for three hundred years, had the whale-fishery almost to themselves, and it is still one of the principal branches of their trade. Each vessel of three hundred tons has six shallops, and each shallop is allowed a harpooner, with five sailors to row it. The instrument, with which they strike the fish, is a harpoon or javelin, five or six feet long, pointed with steel, like the barb of an arrow, of a triangular shape. The harpooner, standing at one end of the sloop, when at a proper distance from the Whale, darts the harpoon with all his force into the Whale's back, where, if it fastens, he lets go a string tied thereto, at the end of which is a dry gourd: this, by its swimming on the water, shews

✱ The FIN-FISH is as long as a Whale, but three times less in bulk. It is known by the fin on the back near the tail, and by its spouting up the water more violently and higher than the Whale. The back is straighter than that of a Whale, and the lips are of a brownish colour, appearing like a twisted rope. The Whalebone hangs from the upper lip, as it does in the Whale, but not out of the mouth at the sides, as in that animal. The inside of the mouth, between the whalebones, is all over hairy, and is of a blue colour, that is when the bone begins to grow; for the other is brown with yellow streaks, which are thought to be the oldest. The colour of this fish is like that of a Tench; and the shape of the body is long and slender. The tail is flat like that of the Whale, and he seldom appears till the Whales are gone.

The BUTS-KOPF, that is, the FLOUNDERS-HEAD, is best known in *England* by the name of GRAMPUS. In the snout, fins and tail, it resembles a Dolphin, but the body is four or five times as thick, especially about the belly: it is eighteen feet long, and above ten feet thick. The snout is flattish and turns upwards, and the lower lip is so thick, that it falls from the upper as the fish lies along. The mouth is armed with forty teeth, of which the foremost are blunt and slender, but the hinder are sharp and thick.

The SEA UNICORN is often met with near *Iceland*, and other countries that lie very far North. It is a kind of Whale, is from sixteen to twenty feet in length, and has a large horn growing at the end of the snout.

shews whereabouts the Whale is; for, as soon as he is struck, he plunges to the bottom. However, great care is taken, that the line may be long enough; for if that in one shallop should be too short, they fix it to another from the nearest shallop, and another after that, if there should be occasion. The cord often runs out so swiftly, that it takes fire, if it is not kept wetting with a swab. When the Whale rises for breath, they attack him again and again, till he begins to grow weak by loss of blood, and then they plunge their javelins into various parts of his body, by which means they soon dispatch him.

14 THE NATURAL HISTORY

It is of a spiral shape, and may be seen of different weights and sizes in the cabinets of the curious; some of which are at least three ells in length. These were formerly thought to be the horns of a land animal called a Unicorn; but now the learned are convinced, that no such creature is any where to be found.

It is very uncertain, whether these sort of fish are every where of the same shape, and the horns of an equal length; for we are informed they are seen in very distant seas.

6 * The PORPUS, or PORPESSE, is a fish often seen in the North seas, and particularly about *England*. It is so called from PORCUS-PISCIS, or the HOG-FISH, from the great quantity of fat that covers the whole body, much in the same manner as in a hog. It is about six feet long, and is frequently seen leaping in and out of the water, making an uncouth kind of a noise like snorting. Its shape is long and round, but towards the tail it is small, tapering like a cone, and at the very root of the tail it is flat. The snout is long and sharp, and well furnished with strong muscles, to enable it to dig up small fish out of the sand. The skin is thin, smooth, and destitute of scales; and the back is of a very dark blue, inclining to black. About the middle of the sides it begins to grow whitish, and the black spots and streaks, wherewith it is beautifully painted, at the meeting of the colours, gradually change into a perfect white.

It has no gills, nor holes where the gills should be; but on the top of the head there is a wide pipe, which opens like a half-moon, and inwardly is divided by a bony substance, as it were into two nostrils. These afterwards unite in one, and open with a single hole into the mouth near the gullet.

The eyes are small when considered in proportion to the bulk of the body, at least as to outward appearance. The mouth is not wide, but is furnished with forty eight teeth regularly placed and disposed, there being spaces left between the teeth of the lower jaw to receive those of the upper, and

on the contrary. They are all sharp, and seem to be a little loose in their sockets; the tongue is flat, smooth, and connected throughout its length to the bottom of the mouth. There are only three fins besides the tail; one of which is seated on the back, and two near the parts where the gills are seen in other fish. The tail is placed horizontally, like that of a Whale, which is supposed to be necessary to enable this fish to rise often and take breath.

The belly, as well as all other parts of the body, is covered with fat, which has a tendency to preserve the equilibrium between the fish and the water; for otherwise it would be difficult for it to rise therein. The fat is likewise a great defence against the cold, as it tends to preserve the natural heat, serving for the same purpose as warm cloaths does to men in the severe weather of the winter. The flesh is red, and looks very much like pork*.

6 * The DOLPHIN of the Ancients, properly so called, is of the Whale kind, and is covered with a smooth hard skin. It has an oblong roundish body, with a long round snout, turned a little upwards. The cleft of the mouth is long, and shuts very close; and the teeth are small and sharp. The tongue is large and fleshy, and the eyes also large; but they are outwardly so much covered with the skin, that nothing but the pupil appears. They are placed near the corners of the mouth, and almost in the same line. There is a double tube, or pipe, on the top of the snout, through which it spouts out water. It is placed just before the brain, and communicates with the wind pipe; and there is a very strong fin on each side, not far from the mouth, and another on the back, which is partly bony, and partly gristly. The tail is made up of two fins.

The skin is thick and firm, but soft, on account of the fat that lies underneath; and on the back it is black, but on the belly white. The flesh is blackish, and resembles that of a hog, and the inner parts are not unlike those
of

* This fish is seldom caught but by chance, or when they run on shore in pursuit of their prey; for the flesh is not desirable to feed upon, and there is nothing but the fat to tempt fishermen to take them.

of the Porpus; but it differs from that fish, in having, a long snout somewhat like a goose, and being more slender and fleshy, though not so fat. They live to a considerable age, some say twenty-five or thirty years; and sleep with their snout out of the water. When they seem to play on the top of the water, many affirm it is a sign of an approaching tempest. They swim exceeding swift, and pass at a stated season out of the *Mediterranean*, through the *Dardanelles*, into the *Black-sea*. They are sometimes seen in shoals, and there is supposed to be always a male and female at least together. They will live three days out of water, during which they are said to make such a mournful noise, as to affect those greatly, who are not used to hear them.



C H A P. III.

Of Fishes of the gristly kind.

18 ✱ **T**HE WHITE SHARK is the largest of this kind, for some of them weigh one thousand pounds, and are sixteen feet in length. Some pretend that they have seen those of four thousand pounds weight, and particularly one that had an entire man in its belly.

The head is large, and somewhat depressed, and the snout oblong. The mouth is enormously wide, and the teeth very numerous and terrible, there being five or six rows of them, which are extremely hard and sharp, and of a triangular figure.

The fins are larger, in proportion, than in other fish, and the tail is forked; but the upper part is considerably longer than the lower. There is one fin on the back, another near the tail, two on the belly, between which the vent is placed, and there are also two near the gills and mouth. The skin is rough, the eyes large and round, and furnished with variety of muscles. The mouth is not placed, as in other fish, at the end of the snout, but under the eyes at some distance from it, which obliges him to turn on his back when he takes his prey.

The

The flesh is white, and has no great rankness in its taste; for which reason it is frequently eaten by some of our sailors, especially when they can come at nothing better.

Sharks often follow ships for a long while together, at which time the sailors catch them by striking a barbed instrument, called a fizing, into their bodies, and so draw them up into the ship. As soon as he is laid upon the deck, he begins to flounce in a terrible manner with his tail; and therefore they cut it off with an ax, as fast as they can. They sometimes bait a large iron hook, made fast to a thick rope, with a piece of salt beef, which he will swallow very greedily, and then they drag him on board.

This fish is not only found in the *Mediterranean*, but also in most parts of the ocean; and it is no uncommon thing for them to lay hold of a man's leg or thigh, when they have an opportunity, and either drag him into the water, or bite the limb off.

The **BLUE SHARK** is as bold and mischievous a fish as any that swims, and has a back of a lively blue colour, but its belly is of a silver white. The skin is not rough; the snout is long, sharp, flat, and indented with many small holes above and below. The length is from six to eight feet, to which the thickness is proportionable. The mouth is very large, and placed as in the former, with teeth sharp and notched like a saw; but there are not so many as in the *White Shark*. The holes of the gills are five on each side, and the tail is divided into two parts. It is to be met with in various parts of the ocean, and often appears near the sea-coasts of *Cornwall*.

* The **SEA-FOX**, or **SEA-APE**, so called on account of the length of its tail, and the strong smell of the flesh, which is like that of a fox, is sometimes so large as to weigh above a hundred pounds; and has a round thick body, a small mouth, a little below the snout, which is sharp, and armed with teeth. This fish resembles the shark in almost every part of it, except the body and tail; for the body of that is thicker and shorter, and the tail much longer than in any of this kind. The skin of the belly is white, and that of the back

back of an ash-colour. The tail is crooked, and has some resemblance to a sword, being as long as the rest of his body, and at the root there is a fin. It is usually met with in the *Mediterranean sea*.

16 * The BALANCE-FISH is often as large as some of the Whale kind. It differs from all others in the monstrous shape of the head, which resembles a smith's large hammer, at each end of which the eyes are placed; but the fore part swells out into a sort of semicircle, only it terminates in an edge. The mouth is very large, and armed with exceeding strong, broad, sharp teeth, notched at the sides like a saw, of which there are three or four rows. The tongue is broad, and like that of a man; and the body is round and long, without scales, and covered with a skin like leather. The spines on the back are continued to the upper part of the tail, where there are fins on each side. The lesser horn of the tail, if it may be so called, is very short. In other things it resembles a Shark, and is a native of the *Mediterranean sea*; but it may be easily distinguished, from all others of this kind, by the shape of its head.

24 * The PICKED DOG, or HOUND FISH, has a roundish oblong body, which is covered with a rough skin, that is generally known among us by the name of fish-skin, and is used by joiners and other artificers for polishing wood and other things. The back is of a brownish ash-colour, and the belly white, and smoother than in other parts. The eyes are in the shape of a boat, and covered with a double membrane. The mouth is placed just under the eyes, and is armed with a double row of small teeth. The two back fins have strong, sharp spines or prickles standing before them, of which that nearest the head is thicker and longer, and that nearest the tail shorter and less. It has not any fin on the lower part of the body between the vent and tail; by which it may be distinguished from all fish of this kind. It brings forth its young alive, which are produced from eggs hatched within its body. It is frequently taken in the *British* ocean, and in the *Irish* sea.

The

23

Monk-Fish?



43

Sword-Fish?



19

Saw-Fish.



18

Balance-Fish.



16

Shark?



The SMOOTH DOG-FISH has no teeth ; but, instead of them, the bones of each jaw are as rough as a file. The skin is smooth, whereas in all others of this kind it is rough, and by that mark may be readily distinguished from the Picked dog-fish.

The TOPE, so called in *Cornwall*, differs from the preceding fish in size, for it is much larger ; and in having a great number of teeth. The eyes have smaller pupils, in proportion to the bulk of the body, and the snout, so far as it runs beyond the nostrils, is transparent.

The GREATER CAT-FISH, called in *Cornwall* the BOUNCE, differs from Dog-fishes in having a broader back, and a shorter and blunter snout, reaching but a little beyond the mouth. It is all over speckled with reddish black spots ; but the skin is much rougher. It is often met with in the *British* sea.

The GREATEST CAT-FISH differs from the Bounce, in being of an ash-colour, in having larger and fewer spots, with a longer and thicker snout, and the nostrils are at a greater distance from the mouth. The fins at the vent are not joined together as in the Bounce ; but are distinctly separated ; likewise, the fin beneath the vent is nearer to it than in the Bounce.

10. * The SAW-FISH has its name from a saw, which the bone of its nose is supposed to resemble ; but they are more like the teeth of a comb, placed at some distance from each other. They are from twenty to thirty in number, placed on each side the bone, and are in some five feet in length when the body of the fish is ten feet. On the back it is of an ash-colour, and the belly is white ; and there are no teeth in the mouth, which is transversely cleft like that of the Balance-fish ; but the lips are as rough as a file. There are two fins on the back, and that next the head is like the *Butskopps* ; and that towards the tail is hollowed like a sickle. On the belly there are four fins, two on each side ; and those next the head are broadest and longest ; those next the tail are placed directly under the uppermost fin on the back ; and the tail is widened behind and before ; but it is not divided into two parts. The shape somewhat resembles a man's naked arm, and the nostrils are oblong.

long. The eyes stand high out of the head, and the mouth is directly underneath the eyes.

The Saw-fish are great enemies to the Whale and Fin-fish; for many of them will gather about one, and never leave him till he is killed. They are fond of nothing but his tongue, for they leave all the rest behind. When seamen and sailors happen to see this fight, they never offer to intermeddle, but let them alone till the Whale is conquered; for, should they do otherwise, their long-boats would fright the Saw-fish away, and then the Whale would make his escape. Though they inhabit different parts of the ocean, they are in greatest plenty in the North seas; perhaps because there are the greatest number of Whales.



C H A P. IV.

Of Flat-fish of the gristly kind.

115 * **T**HE SEA-EAGLE has a head almost like that of a toad, and the eyes are large, round, and prominent. The sides are expanded like wings, and the tail is long and slender, being sometimes above two ells in length. It is armed with a long sharp weapon; and the body, in bigness, exceeds a Fire-flaire. The weapon is not less dangerous than that of the Fire-flaire, being greatly dreaded by fishermen. The mouth is full of teeth, and the skin is soft and smooth; the upper part being livid, and the under white. They are generally taken small; but some of them have been found to weigh 300 pounds. It may be distinguished from other gristly fish by the length of its tail, and by its large weapon or spine, which is sometimes single, and sometimes double, but always venomous. It is an inhabitant of the *Mediterranean* sea, and is often brought to *Rome* and *Naples*. The flesh is soft and moist, with a rank nauseous smell, and therefore is seldom or never eaten.

The FIRE-FLAIRE differs from other gristly fish of this kind, in having a remarkable weapon-spine on its tail,

Butterfly-Fish.

70



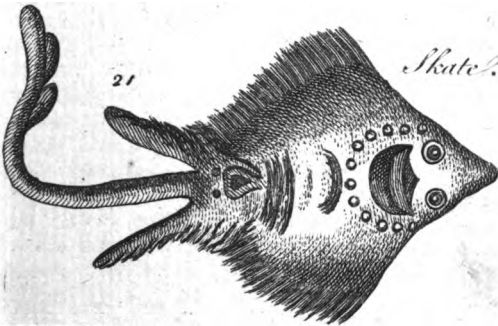
131

Sea Bat.



21

Skate.



tail, of the length of a man's middle finger, which is stiff, exceeding sharp, and notched like a saw; and the teeth bend backwards. The tail is remarkably long, and the head flat and depressed, like the body. The eyes are in the upper part of the head, and the mouth in the lower. There are two apertures, or holes, behind the eyes; that is, on each side one; and the eyes themselves are large. The mouth is large, and placed transversely, and the snout is long and sharp at the end. The apertures on the gills are five on each side, beginning a little below the mouth, and ending on the breast. The sides are terminated, throughout their whole length, by a broad fin.

The WHIP-RAY has a large broad body, almost of a triangular shape; and on each side there is a broad fleshy triangular skin. The head is of the size of that of a middling hog; but it is thick, compressed, and has a sort of pit in the middle. The mouth, instead of teeth, has a great many small bones: the eyes are small, and the upper part of the body is of an iron grey, almost blue, with white spots throughout; the lower part is white. The skin is smooth; and behind the tail there are two hooks like fishing-hooks, placed one upon another, and near three inches long.

20. * The SKATE, or FLAIRE, is remarkably large, and sometimes weighs above one hundred pounds; but, what is still more extraordinary, there was one sold, by a fishmonger, at *Cambridge*, to *St. John's college*, which weighed two hundred pounds, and dined a hundred and twenty people. The length was forty-two inches, and the breadth thirty-one. The colour on the upper part is ash, thickly speckled with black spots; and the belly is white, which is likewise interspersed with small black spots. It has but few prickles; there being one row of them upon the tail; and the males are distinguished from the females by having several rows of crooked prickles on both sides the broad part of the fins.

All fish of this kind are more rank, when first taken, than when they have been kept for two or three days. The winter is the proper season to feed upon them: for then the smell is not so strong, and the taste is more agreeable.

The

The THORN-BACK differs from the former in being less, and in being armed with a greater number of prickles, from whence it has its name: one single row only runs down the back, but on the tail there are three. The shape, except the tail, is nearly square, and yet a transverse line, drawn from corner to corner, is longer than another drawn from the head to the root of the tail; so that in some sense the fish is broader than it is long. One of these, being measured, was found to be sixteen inches and a half broad, and only twelve long, the tail excepted.

This fish has no scales, but is covered with a sort of slime, which renders it very slippery. The upper part is of a dusky colour, speckled with round white spots; and the under part is entirely white. The row of prickles, or thorns, on the back, are about thirty in number, and on each side the tail, besides that in the middle, there are two rows of prickles; but the lower part of the tail is smooth. The eyes are placed on the upper side of the head, being very prominent, and having no bone, or any thing else to defend them; only, on the inner side, there are small prickles. The pupils have round, jagged covers underneath the horny coat, which are let down from the upper part of the eye; and near the eyes there are two holes, which some think serve for hearing, if it be true that any fish hear at all; for this is a matter still in dispute.

When a Thorn-back is laid with the belly uppermost, the nostrils appear in sight, being contiguous to the mouth, which is void of teeth; but the jaw-bones are as rough as a file. The gills, as in other fish of this kind, are five holes, placed in a semicircular form; and on the belly there are two semicircles, one of which encompasses the breast, and the other the lower belly, which is divided from the upper by a bone where these circles touch.

The prickles of the Thornback are not always disposed in the same manner; for in some they are more numerous, and others have thorns on the belly. The flesh is much like that of a Skate, but not quite so pleasant, and more hard of digestion; however the

the liver is accounted by some a great delicacy. Both the Skate and the Thornback are very common in all parts of *England*.

81/ * The SHARP-SNOUDED RAY is of a more slender make than the Flaire, and is brown on the back, and white on the belly. Some of them weigh upward of ten pounds, and have teeth in the mouth. The snout is slender, and pretty long, terminating in a sharp point like the end of a spear, by which it is easily distinguished from other fish of this kind. There are spines or thorns on each side the tail. These fish are exposed to sale in the markets at *Rome*.

19 * The MONK, or ANGEL-FISH, is of a middle nature, between a Shark and a Skate, and grows to a large size, often weighing above one hundred and sixty pounds, and to the size of a man. The colour, on the back and sides, is of a dusky ash, and the belly is white. The mouth is broad, and placed at the end of the head, in which it differs from other flat gristly fish. The head is roundish at the extremity, and there are three rows of teeth in each jaw, each row consisting of eighteen, so that there are an hundred and eight teeth in all; however, the number is not exactly the same in all fish of this kind. The tongue is broad, and sharp at the end; and the nostrils are wide, being placed on the upper lip, and filled with a sort of slime. The eyes are of a middle size, placed not far from the mouth, and do not look directly upwards, but sideways. Instead of gills, it has five holes like the Thornback. The two fins, which are placed near the head, look very much like wings; for which reason it is called the Angel-fish, because Angels are painted with wings. On the extremities of these fins, near the corners, there are short, sharp, and crooked prickles. The lowermost fins, which are placed near the vent, have also the like. Below the vent there are two fins on the back, and the tail is forked. The flesh is so rank, and of so disagreeable a taste, that it is neglected even by the poorest people; but the skin is in great request for making cases for instruments and the like. This fish is to be met with in all parts of the

24 THE NATURAL HISTORY

ocean, and is frequently taken on the coast of *Corn-wall*.

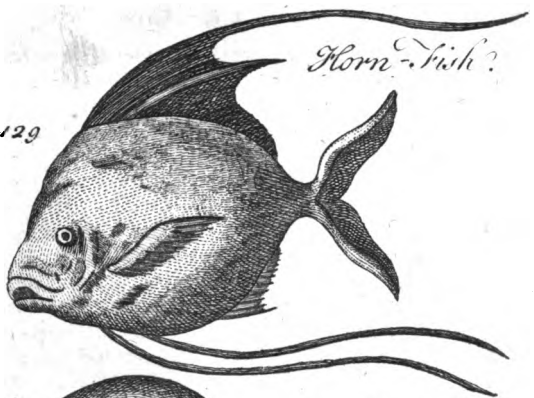
The MONK RAY seems to be of a middle nature between a Monk-fish and a Ray, but more like a Monk-fish; from which it differs in being of a longer make in proportion to the bulk of the body, and in having a sharp snout, which extends beyond the mouth, as in the Sharp-snouted Ray. For this reason the mouth is under the snout, as in Dog-fish, and not at the end, as in the Monk-fish. Likewise, the lower part is flatter and broader than in the Monk-fish. The skin is rough and dusky in the upper part; and, instead of teeth, there are roughish tubercles as in Rays. It is common at *Naples*, and seldom grows to above four feet in length; the weight being about twelve pounds.

24

* The CRAMP-FISH, or TORPEDO, is of a round or circular shape, except the tail, which is long and slender. It is of no extraordinary bulk, it seldom weighing above sixteen pounds. The colour is of a dirty yellow, like that of sand or gravel; and the eyes are small, being almost covered with skin; behind which there are two holes, shaped like half-moons. On the upper part of the body there are five remarkable black spots. The head is broad, and joined to the body, for which reason it seems to have no head at all. The extremities of the body terminate in fins; and a little above the vent there are two fins, which have two appendages that serve for a penis, as in the rest of this kind. Below those in the middle of the back or tail, for it is hard to say which term is most proper, there are two more, the one a little below the other. The upper corner of the tail is a little longer than the other, somewhat in the manner of a Shark, and other fish of that kind.

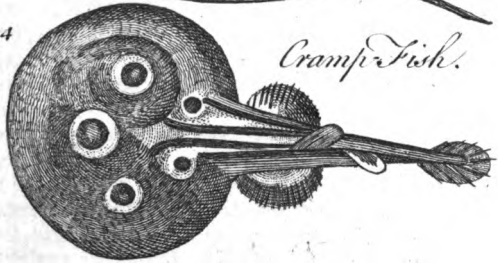
The mouth of a Cramp-fish is like that of a Skate, and is furnished with small sharp teeth; the nostrils are placed near the mouth, and, instead of gills, there are five holes as in Thornbacks. There are no prickles in any part of the body, it being smooth and soft to the touch; but there are a great many small holes, especially about the head, through which a
slimy

129



Horn-Fish?

24



Cramp-Fish.

18



Dog-Fish.

66



Sheat-Fish?

limy liquor is secreted, that renders the body slippery, and defends it from the sharpness of the salt water.

The most remarkable quality of this fish is to stupefy, or benumb the hand of the person that touches it, to such a degree that it seems to be affected with the cramp; from whence it derives the name of the Cramp-fish. Captain *Jobson* being at *Cassan*, a sailor caught one of these fish, which he took for a Bream; but, as soon as he had touched it, he cried out, that he had lost the use of his hand. His companions laughed at him, and immediately one of them trod upon it with his naked foot, upon which the whole leg became motionless. Then they called the cook, and desired him to take the fish and dress it. He took it in both hands, but let it fall directly, and declared, in a mournful tone, that he was seized with the palsy. However, a negro, who was acquainted with this fish, told them, that after it was dead, this numbing quality would cease. The famous *Redi* ordered one to be caught, that he might make a trial of the numbing quality. He had no sooner touched this fish, but he found a tingling in his hand, arm, and shoulder, attended with a trembling, and so acute a pain in his elbow, that he was obliged to take his hand away. The same troublesome symptoms were renewed as often as he repeated the trial; however, they grew weaker and weaker till this creature died, which was in about three hours time. After it was dead this quality was quite lost, and it might be handled as safely as other fish.

Borelli imagines the stupefactive quality does not proceed from any poisonous steam, because, if it be touched, when entirely at rest, it produces no effect at all; besides, if the fingers compress the extremities of the sides ever so strongly, the hand receives no damage at all; but if the hand is laid upon the fleshy part over the back-bone, the violent vibrations of the fish will stupefy it, and affect it with a sort of cramp. He likewise observed a very remarkable difference in the manner of touching this fish; for, if his fingers were quite extended, and he touched the fish lightly with them, he received no damage; but

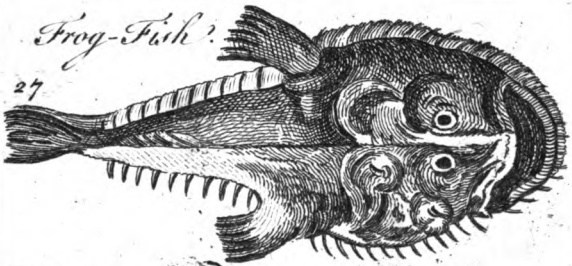
if they were bent, and the knuckles laid upon it, especially the joint of the thumb, then the strong vibrations produced a cramp. From hence he concluded, that the tendons, and nervous ligaments of the joints, being exquisitely sensible, were very much affected with the violent and repeated strokes of the fish, which produced a cramp, in the same manner as a blow upon the elbow. However, Mr. *Reaumur* affirms, he could never procure any such trembling or vibration of the fish that *Borelli* speaks of; and he is confident, the numbness proceeds from the velocity of one single stroke, which is equal to that of a musket-ball. Accordingly, a person, who feels this pain, imagines his fingers are affected with a violent stroke. As a proof of this he informs us that, before the fish gives this stroke, he draws up his back quite round, which was before depressed and flat.

The flesh of this fish is seldom or never eaten, as being very unwholesome; for it is moist, soft, fungous, and of an ill taste.

The AMERICAN CRAMP-FISH is one foot nine inches long, and nine inches broad, having fins on each side like a Ray. The head ends in the shape of a cone; and the mouth is on the under part, and void of teeth. The fore part of the body, to the length of eight inches, is in the shape of a heart; but the remaining part is roundish, and only a little depressed. The number and place of the fins agree with other gristly fish of this kind. It is covered with a soft skin of the colour of glue on the upper part, variegated with dusky and whitish blue spots. The fore part underneath is white, and the hinder of a flesh colour, mixed with white. If it be touched in the middle, it causes the joints to tremble.

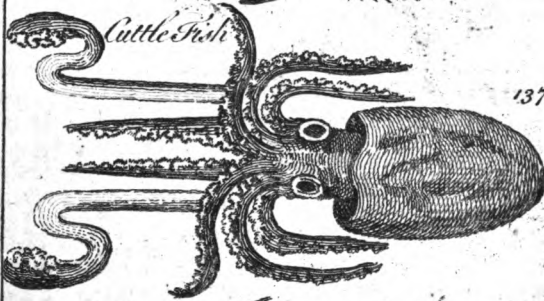
Frog-Fish?

27



Cuttle Fish

137



81

Red-Gurnard.



Father-Sasher.

121



C H A P. IV.

Of irregular Fish, akin to those of the gristly kind.

27 * **T**HE FROG-FISH, or TOAD-FISH, seems to be of a middle nature, between the gristly and the bony; but it more probably belongs to these, because it generates in the same manner. The head is rather bigger than the rest of the body, and is of a round or circular shape. The mouth is exceeding large, and inclines a little to the upper part of the head, like that of the Star-gazer. On the head, near the corner of the upper jaw, there are two long strings, which this fish is said to make use of as anglers do fishing lines. Both the jaws are armed with long sharp teeth; and there are also teeth in the palate, and at the root of the tongue, which is large and broad. The back is flat, and of a grey colour, with somewhat of a reddish and greenish cast. On the middle of the back, there are three bristles or strings, that seem to be in the room of a fin; and round the circumference of the body, there are several strings hanging in the manner of fins. On the lower part of the body, under the throat, two fins are placed, which resemble the feet of a mole; by the assistance of which they creep at the bottom of the sea. The flesh of this fish is white when boiled, and has the taste of that of a Frog.

The AMERICAN TOAD-FISH is very small, being but four inches long, from the tip of the snout to the end of the tail. The mouth is large, and armed with exceeding sharp teeth; but the eyes are so small, that they are no bigger than a grain of millet. Between the eyes and the middle of the forehead, there is a horn which stands upright, only it bends a little backwards; and before it there is a slender thread, about half an inch long, hanging forwards, which it can draw back, and hide within a pit on the top of the head. In the middle of the body, on each side, there is an arm with one joint, which terminates in a fin armed with prickles, which

run through the length of it, and are like eight sharp nails: it has no scales, but is covered on the belly with a soft skin; though on the other parts it is rough. The colour is of a dark red, waved with black spots.



C H A P. V.

Of Fish produced from Eggs, which are generally bony, and have Spines in the Flesh.

THE TURBOT, so called in the southern part of *England*, but in the northern a **BRETT**, is the largest of all this kind, the Holibut excepted, though it seldom exceeds a yard in length, or two feet and a half in breadth. It has no scales, but a rough spotted skin, full of exceeding small prickles, placed without order, on the upper part of the body, where the colour is ash, and diversified with a great number of black spots; some of which are large, and others small. The lower part is white. At the roots of the fins, about the circumference, there are no prickles.

The mouth of a Turbot is proportionably wider than that of the Plaice, and has a greater number of teeth, both in the jaws and on the palate. The nostrils are not placed in the same line with the back-fin, but below it; and the eyes stand on the right side of the mouth. There is likewise a greater distance between them, and they are farther from the back than in others of the same kind. It is taken very frequently in the *British* and *German* ocean; and the flesh is white, firm, delicate, and wholesome, being much preferable to that of any other flat fish. *

The

* The *Dutch* have entirely monopolized the Turbot fishery, there being hardly any taken by our own people, though they are in the highest perfection on the coast of *Cornwall*: thirty thousand pounds are said to be cleared annually by this single article. All the laudable efforts of the Society for the Encouragement of Arts, &c. have not yet been able to awaken us to a sense of our own interest.

The PEARL, so called by the *Londoners*, but, by the inhabitants of *Cornwall*, LUG-A-LEAF, differs from others of this kind, in having a scaly body, and from a Plaice in the prickles which surround the roots of the fins; in having the eyes on the right side, to the left of the mouth; and the back-fin, on this side the eyes, arising near the mouth, and running almost to the tail. Besides, at the beginning of the fin, which is placed behind the vent, there is no prickle; and the distance of the eyes is greater than in a Plaice. The body is of an ash colour, and the tail is round; but in most other things it resembles a Turbot.

The PLAICE is on the upper part of a dirty olive colour, or brown, and speckled with round red spots, of which there are some also on the fins. There is no roughness at the roots of the fins, and the scales, if any, are exceeding small, and lie in round cavities. The eyes are on the right side, to the left of the mouth; and, at the upper edge of the coverings of the gills, there are seven bony tubercles or warts; the fifth, from the eyes, being highest and largest. There is one row of teeth in both jaws, and a cluster of teeth on the palate. One of the nostrils is seated on the upper side near the eyes; and the other on the lower side under the eyes; likewise the tail is long, and roundish at the end. Some of these fish have grown to the length of a foot, and to the breadth of seven inches.

The DAB is a little thicker than a Plaice, but much of the same size. They have pretty large scales, which are rough on the edges, in which it differs from a Plaice, as well as in not having any tubercles near the head, nor red spots. But the situation of the eyes is like that of a Plaice, and the colour, on the upper part, is of a dirty olive, with a reddish cast, and some spots of a dusky yellow. The mouth is of a middle size, and has a row of teeth on each jaw. Some prefer the flesh of this fish to that of a Plaice, it being much firmer.

The FLOUNDER, FLUKE, or BUT, is in shape like a Plaice, only the body is a little longer; and when full grown it is thicker. The olive-colour is

more dirty, and sometimes brown with dusky spots; for they are not red as in a Plaice; however, they have sometimes been observed to be yellowish, as well on the body as the surrounding fins. In the upper part of the surrounding fins there is a row of prickles, which bend backwards; and the eyes are on the right side, to the left of the mouth. The scales are exceeding small, and stick so close to the skin, that it does not appear to be rough. The lateral line is composed of small prickles, from whence arises the roughness that may be felt along it, from the head to the tail. The mouth is small, the tongue narrow, and there is a row of teeth in both jaws. *



C H A P. VI.

Of Flat-fish, with longer Bodies.

THE HOLIBUT, or HALIBUT, called in the north of *England* a TURBOT, is the largest of all flat-fish in these parts of the world, for it greatly exceeds a Turbot, and is of a longer make. One of these fish being measured was found to be a yard long,

* The Flounder is an inhabitant of the ocean as well as of rivers, and very excellent ones are taken in the *Thames*, and in the rivers of *Essex* and *Surry*. The proper places to seek for them are in the sides of sand-banks, or on gravel, especially if there be a deep declivity. The tail of mill-streams, the ends of other streams, and deep still places, are haunted by them; but they are never seen where there is mud. Small red-worms, the bluish marsh-worm, gentles, and wasps, are proper baits; and the ground should be likewise baited with a handful of either cut in pieces. They spawn from *June* to the middle of *July*; but are in season all the rest of the year. From *April* to *August* they will bite all day long. The best way to fish for them is to lie upon the grabble, which is done by sinking the line, by means of a leaden plummet at the end of it, when the hook-line will play in the water. Another method is, to throw in a long line, with several hooks upon it, placed a yard distance from each other, and properly baited with lob-worms and small fish, taking care to have a lead at the end of the main line to sink it. If a float is used, let it lie flat on the surface. When, after moving along slowly, it stands upright, then is the time to strike. Let your hook be very small, and take time in striking.

long, and about half a yard broad; but there are many of a much larger size. The colour of the upper part of the body is of a dusky green or blackish, and the scales are small. There is no roughness thereon, nor are there any prickles at the roots of the fins. The eyes are placed on the right side, or to the left of the mouth. The fins are at a greater distance from the head than in other Flat-fish. It has a double row of teeth in the upper and lower jaw, which are a little crooked at the ends, and very sharp. The tongue is very stiff, and at the bottom there are two places full of a great number of small sharp teeth; there are likewise very sharp prickles on the gills. It is an inhabitant of the *German* and *British* ocean, as also of the *Irish* sea.

The SOLE is a longish flat-fish, in shape like the sole of a shoe, from whence it has its name. It sometimes is found to exceed twelve inches in length. The upper part is of a dark ash-colour, and the lower white; and it is covered with rough scales. The lateral line passes directly from the head to the tail, through the middle of both sides. The corners of the mouth are rough, with a sort of small bristles or hairs; and the body is surrounded with short fins, which on the upper edge begin near the eyes, and are continued to the tail. The eyes are small, round, and covered with a loose skin; the pupils are of a shining green; and the tail is round.



C H A P. VII.

Of Fish of the Eel kind, that want the belly-fins.

THE MURCENA is by the writers of *English* dictionaries called a Lamprey, but very improperly; however, we have no *English* name for it. The body is broader and flatter than that of an Eel, with a longer sharp and flat snout. The colour is a mixture of blackish yellow and gold colour; and the mouth opens exceeding wide. At the end of the snout there are two short hollow appendages; and above the eyes there are another pair, that are thicker but shorter. The eyes

are seated in the upper jaw, in the space between the end of the snout and the corners of the mouth. A fin rises not far from the head, in the middle of the back, and is continued to the tail.

LAMPREYS, in general, have a round or oval mouth, with a hole or pipe on the top of the snout, as in those of the Whale kind. There are seven holes on each side, which serve instead of gills, where there are no fins, nor yet on the belly: by which they are distinguished from all other fish of this kind; that is, the long and slippery.

The LAMPREY, or LAMPERN, or *Pride of the Isis*, is brown or livid on the back; and the belly is of a silver colour. It is about five or six inches in length, with a round mouth, furnished with six or seven teeth.

This fish has not so much as a back bone. The time of spawning is in *April*. There are two fins on the back, the hinder of which joins to the tail, and to the fin behind the vent. There are great numbers of this fish in the river *Mersey*, that runs between *Cheshire* and *Lancashire*; there are also some in the *Isis*, a river near *Oxford*. *

The LAMPREY-EEL is sometimes three yards in length; the body about the gills is near fourteen inches in circumference; and the skin is of a blackish colour, marked with pale angular spots. The mouth is round, with which it adheres to a piece of wood, stone, or any other substance, as if it was sucking it, and cannot be parted from it without difficulty. The skin is tough, and yet they do not take it off to dress it. It has a hole in the head like the Lampern, and there are seven holes on each side of the head, under which the gills are concealed. On the top of the head there is a white spot, and the edge of the mouth is jagged; the teeth are placed within the mouth, and those that stand farthest backwards are largest. It has no bones but a gristle down the back full of marrow, which should be taken out before it is dressed. In short, they resemble a Lampern in all things.

The

* This little fish is considered by anglers as a good bait for Eels.

The **BLIND LAMPREY** is round and slender, and not much bigger than our large Worms, usually called Dew-worms and *May* worms. It has no scales, and its body is divided into small rings, by transverse lines, in the manner of worms. The rings are about eighty-four in number, and the mouth is round and always open; but it has neither teeth nor tongue. There is a hole on the head, and seven holes on each side, instead of gills, as in the former. There is a **YELLOW LAMPREY**, which differs only in colour, but not in kind from the river Lamprey.

The **EEL** has a small head, in proportion to its bulk, a little flatted before, but more round behind, with a long body a little flatted on the sides, and principally from the vent to the tail. It is slippery, and seems to be without scales, because they are not to be perceived unless the skin is dried; the lower jaw is longer than the upper, and there are four holes, namely two before, that is one on each side the end of the snout, and two backward, just before the eyes, which are the nostrils. The eyes are placed on each side the head, and are round, small, and covered with a thick skin that is a little transparent; the iris is reddish, and the pupil blackish, small, and round. There are small holes on both the jaws, which are about sixteen in number on the lower, and many more on the upper. The membrane of the gills is sustained on each side by six small bones, or crooked slender spines, which do not appear outwardly on account of the thickness of the skin. There are several rows of small teeth in the lower jaw, as well as in the upper; and a dentated bone on the fore part of the palate, which is longitudinally placed, and contiguous to the teeth of the jaws; there are also two small oblong dentated bones, seated upwards, towards the throat, and as many downwards towards the gills, which are more oblong, and less dentated. The tongue is smooth, but immoveable; and is supported in the middle by a hard bone. The gills have no opening, either upwards or downwards, but only on the fore part near the fins on the breast. It is only a small hole, about a quarter of an inch in length, placed perpendicularly. The
back,

back, the sides, and the fins are of a blackish grey colour; but in some sort of Eels, greenish, especially when they are fat; and the belly is of a whitish yellow. The vent is nearer the head than the tail, and there are three fins in all, namely two on the breast near the gills, which are small and blackish, and composed of eighteen or nineteen spines, of which those on the edges are small, and those in the middle long and branched at the point. The back-fin is single, and begins at a distance from the head, running almost round the body in length, and extending from the tail to the vent. It consists of many spines forked at the end, and about a quarter of an inch long. The tail, or the extremity of the back-fin, is a little pointed.

Some authors divide Eels into four kinds, the Silver Eel, the Greenish or Greg, the Red-finned, and the Blackish Eel. This last has a broader, flatter, and larger head than the rest, and is considered as the worst; but whether these distinctions are essential, or accidental, will admit of a doubt.

With regard to the generation of Eels, authors are divided in their opinions; for *Aristotle* assures us, that he could find no difference of sexes, nor yet any parts of generation; for which reason they have been thought by many to proceed from the putrefactions of mud on the sides of ponds and rivers. *Pliny* talks much in the same manner, and affirms that, though there are neither male nor female, they will rub themselves against rocks and stones, and by that means detach particles or scales from their bodies that quicken by degrees, and afterwards become small Eels. Some maintain that they couple, and that at the same instant they shed a kind of viscosity, which, being retained in the mud, gives birth to a great number of the same animals; but, as we have no certain accounts, whereon may be grounded any kind of conclusion, we must leave this dispute unsettled.

An Eel contains a great deal of oil, thick phlegm, and volatile salt, and those are best that are taken in the clearest water. The flesh is tender, soft, and nourishing, because it is full of oily balsamic particles;

ticles; but then it is hard of digestion, and is bad for those that have weak stomachs; however, they are better when they are salted, because the salt corrects the phlegm, and in some measure imbibes it. Eels are generally eaten boiled, but they are better broiled or roasted, on account of their clamminess; they ought likewise to be well seasoned, and two or three glasses of wine should be drank after to help digestion. But, let them be dressed which way they will, they are never very agreeable to weak stomachs, and are apt to cause obstructions; but they will do no harm to those of strong robust constitutions, provided they are not eaten to excess. Some physicians pretend, that the fat of an Eel, put into the ear with a bit of cotton, will cure deafness; others use it to take away the spots of the small pox, to cure the piles, and to make the hair grow.*

The CONGER, or SEA-EEL, is somewhat like the common Eel, that is, with regard to shape, but differs in size; for some Congers are several yards long, and as thick as a man's thigh; likewise, the colour
on

* The usual haunts of the Eel are in weeds, under roots and stumps of trees, in holes, and clefts of the earth, both in the banks and at the bottom, and in the mud, where they lie with only their heads out, watching for prey. They are also found under great stones, old timber, about flood-gates, bridges, and old mills: they delight in still waters, though the smaller Eels are to be met with in all sorts of rivers and soils. Eels may be caught with salt beef, a lob or garden worm, minnow, fowls-guts, and indeed with almost any bait. They are always in season; but best in winter, and worst in *May*. They bite best in a shower, after a thunder storm, and in windy, gloomy weather. He is frequently caught in the night by laying night-hooks, baited with small Roaches, the hook being in the mouth of the fish, as for Pike. He may be grabbed for in the manner already mentioned under the article of the Flounder, page 30. The best way of taking Eels, in dry hot weather, when the water is low, is by snigging, which is done in the following manner. Take an ordinary sized needle, whip it, about the middle part, to three inches of fine strong twine, waxed and fastened above to several yards of packthread. Thrust the end of your needle into the head-end of a large lob-worm, and draw him on till you have got to the middle of the worm; then, in the end of a small long stick, which you may fix in a joint of your rod, let another needle be stuck, fastened well to prevent slipping out, with half an inch of the point appearing. Put this also into the

on the back is lighter, being more of an ash, and the belly is whiter. The eyes are larger in proportion, and the iris is of a silver colour; on the sides there is a straight, white, broadish line that seems to be composed of a double row of points, which reaches from the head to the tail. The fin placed on the body has its upper edge blackish throughout its whole length; add to this, that the end of the snout, or upper chap, is furnished with two short horns or tubes, from which a liquor may be squeezed out. Some pretend the flesh is as sweet and good as that of an Eel; but this is not true, for the taste is not so good by far, and it is much more hard of digestion.

The greatest spotted *Indian CONGER*, called a *KOMMER-EEL* by the *Dutch*, grows to the length of a man, and is proportionably thick. The body and fins are speckled with dusky spots.

The *SAND-EEL*, or *LAUNCE*, is a fish in the shape of an Eel, being round and long, but it seldom exceeds the length of a foot. It is blue on the back, and of a sil-

ver

head of the baited worm, and holding the whole length of the cord in your hand, together with the stick, thrust your worm into the hole where the Eel is, till you have lost sight of it: then draw your stick softly away, laying it aside, and keeping the line in your hand, till you perceive it to draw. After some time, strike, and pull him out by degrees. The needle, which before this lay straight in the worm, will by your stroak be pulled across the throat of the fish, and hold him fast. When he is landed, you may, by squeezing one of the points through his skin, draw the whole line after it, without the trouble found in dislodging a hook. Bobbing is another method of catching Eels, which is done by stringing a bunch of worms, on a fine but strong packthread, with a needle, running them on from head to tail, to the quantity of about a pound. Tie them fast, in such a manner, that they may hang in links, in form of a tassel. Fasten these to a strong cord, about two yards long, and about eight inches above the worms tie a knot. Let a plummet of lead, in the shape of a pyramid, and of about half a pound weight, rest on this knot, the broad end downwards. Tie this cord to a strong pole about three yards in length, and angle with it in deep waters, or at the sides of streams. When you find Eels tug heartily at it, then draw up worms and Eels with a steady, swift, and even hand, and, by a sudden jerk, shake them off on land, or into a boat. By this way you may catch three or four at a time. There are plenty of this fish, as is well known, in the river *Thames*, and in many other rivers in *England*.

ver colour on the belly and sides. It has no scales, and has a sharp snout, a wide mouth void of teeth, and the lower jaw is longer than the upper. On the back there is a long fin, which, however, does not reach to the tail; and there is a pair of fins at the gills, but there are none on the belly. They generally lie half a foot deep in the sand, and when the tide is out the fishermen of *Cornwall*, and the *Isle of Man*, search for them with hooks made for that purpose. The flesh is very sweet and good, and it is an excellent bait for other fish. There is another sort of Sand-eel, which differs from the former in having two fins on its back, whereas that has only one. However, this has only one pair of fins that are placed at the gills, and there are none on the belly, as in the former.

The SEA SERPENT is about five feet in length, and has a body exactly round, slender, and of an equal thickness, except near the tail, where it grows sensibly less. The upper part of the body is of a dusky yellow, like the dark side of parchment or vellum; but the lower part is of a brightish blue. The snout is long, slender, and sharp; and the mouth opens enormously wide. Near the end of the lower jaw there are four or five large teeth bending inwards, but the rest are so small as hardly to be perceived. The upper jaw has likewise four large ones, and the rest are as small as in the lower. The eyes are little, of a gold colour, and speckled with brown, and are covered with a thick transparent skin. It has only one pair of fins, which are placed at the gills; but there is a fin on the back, which rises a little below the gill-fins, and reaches within an inch of the tail, but is not flat, as in an Eel, but round. The belly-fin, or that which is seated on the lower part of the body, begins at the vent, and ends about an inch on this side the tail. The holes of the gills are at some distance from the head as in Eels. The flesh is very well tasted and delicate, but is full of very small bones, and therefore cannot be eaten without some trouble. It is taken very frequently in the *Mediterranean sea*.

There are other Sea Serpents, distinguished by the names of the Flat, the Spotted, and the Livid Sea Serpents; but those, who have read the description of the

the above, will easily, on inspection, observe the difference.

The SEA-CRICKET is a fish of the Cod or Whiting kind; it is in shape like a Conger, though shorter in proportion, for it is only nine inches long; besides it is flatter on each side, and of a lighter colour. It has four barbs or strings under its chin, two of which proceed from one root, and two from another. The tail fins are black on the edge as in the Conger, and there are small scales that are of an unusual shape and situation; for they are narrow, longish, and do not lie upon each other as in other fish, but are distinct, and placed in no manner of order.

43 * The SEA-WOLF has a smooth body, being without scales and very slippery. It is somewhat in the shape of an Eel; but is of a brownish grey, and the sides are adorned with blackish transverse shades. The head is large, and flat above the eyes, and the cheeks seem to be swelled and puffed out. It is a most voracious fish, and will bite hard with its terrible teeth. The fin on the back, which runs from the head to the tail, has very soft rays, and there is another opposite to it, that runs from the vent to the tail. At the gills there are two roundish and large fins. It is taken in the sea near *Yorkshire* and *Northumberland*, and is sometimes seen about a yard in length.



C H A P. VIII.

Of Fish that want the Belly-fins.

41 * THE ORB, or SEA WEATHER-COCK, by some called the SEA PORCUPINE, has a roundish globous body, from whence it has its name. It can blow up its body much like a bladder, and is beset with long prickles, especially on the sides, where the bases of the prickles are divided into two other short ones, and end under the skin. It differs from our Sea Porcupine in having the eye-brows placed higher, and in having the head more round; likewise, it is all over spotted, which ours is not.

The

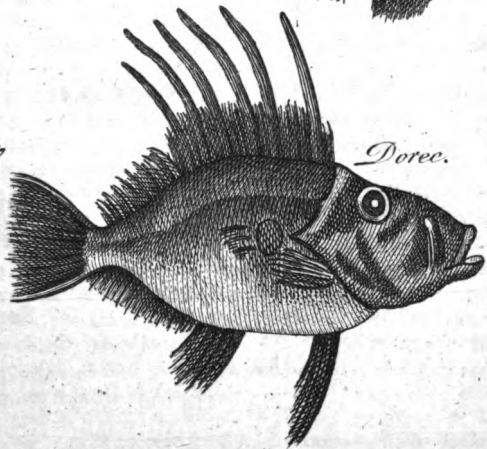
Harrick Gurnard.

82



87

Dorec.



39

Prickly Orb.



29

* The PRICKLY ORB, or SEA PORCUPINE, of *South America*, has a mouth like that of a frog, and is above seven inches long. The head is broad, and speckled with black spots, especially near the gill fins. The prickles of this fish are of a flattish shape, whereas those in the former are round : there are also broad dusky stripes, which run along the back.

To enumerate the various species of the Orb, as described by naturalists, would be endless, and indeed unnecessary, since the description of the above will always be sufficient to enable the curious to distinguish fish of this kind from any other, and their own observations will point out to them wherein they differ.

129

* The SEA HEDGE-HOG is covered all over with thick thorns or prickles, and has a head less prominent than the former, but the body is rounder and bigger. It swims very slowly, and consequently would be an easy prey for other fish, if it was not so well armed with prickles.

It has no head, for the eyes and tail are fixed to the belly. Instead of teeth it has two hard small stones an inch broad, which it makes use of to crush Sea-crabs to pieces, as well as small shell-fish, on which it lives. It is all over armed with thick prickles about as long as the tags of laces, and as sharp as needles, which it can raise upright, or lay down at pleasure. In the middle of the belly there is a sort of a bladder or bag filled with wind, of which they make exceeding good isinglass or fish-glew. The other sorts of Sea Hedge-hogs differ little from this, except in the situation and size of their prickles ; for they are shorter in some and slenderer in others, and in some again they form a sort of large stars. *

The

* This fish is taken by throwing a line into the water, at the end of which is a hook covered with a piece of Sea-Crab. When the fish has swallowed it, and wants to get away, finding itself stopped by the line, all the prickles are bristled up ; insomuch that, when he is drawn on shore, it is impossible to lay hold on any part of the body : for this reason they drag it some distance from the water, where it dies in a short time. Sometimes this fish is thicker than a bushel, and yet there is no more flesh fit for eating than is found on a small Mackrel.

129 ✱ The SEA PIGEON has its name from its head, which is thought to be like that of a Pigeon, and its breast is also like that of a Cropper. It has scales, but there are spots on the skin of various figures. It is seldom caught, and has a disagreeable taste.

124 ✱ The TRIANGULAR HORNED-FISH, that has a long spine or prickle in the middle of the head which is covered with skin, is of a middle size, and is beautifully marked with pretty broad waved spots, of a dusky colour on the back and jaws. In many other triangular fish, that have horns on their heads, there are no scales on the top of the tail, but sometimes there is a single scale either on the upper or lower part, and sometimes one on both. There are various other sorts of this fish, that differ only in some few particulars, which, for the sake of brevity, may here be very properly omitted.

101 ✱ The SEA HORSE, best known by the ancient name of HIPPOCAMPUS, never exceeds nine inches in length; and, in the head, snout, and mane, is somewhat like a horse. It is about the thickness of a man's thumb, and the body is full of clefts and furrows. The snout is a sort of a tube, with a hole at the bottom, to which there is a cover that he can open and shut at pleasure. The upper part of the body seems to have seven sides; but below the vent it resembles a figure consisting of four sides. The eyes are small and prominent, and between them are two high tubercles. The tail ends in a point, and is generally very much bent. Behind the eyes, where the gills are placed in other fish, there are two fins which look like ears, and above them are two holes, but there are no gills, neither outwardly nor inwardly. The whole body seems to be composed of gristly rings, and on the intermediate membranes of which several small prickles are placed. The colour is of a dark green, but towards the tail inclining to black. The belly is marked with spots of a whitish blue. It is taken in the *Mediterranean*, and also in the western ocean.

The SEA HORSE WITH A MANE is four times as large as that without, and in the middle of the belly there is a small fin or blackish membrane. From the top of the head and neck there are long hairs, which

hang

hang down like a mane. The smooth Sea-horse without prickles has but few furrows. The small smooth Sea-horse, with a great number of furrows, has thirty-five on the tail. It is found in the straits of *Sunda* in the *East-Indies*. In the prickled Sea-horse there are thirty furrows from the back fin downwards; and in the greater smooth Sea-horse there are twenty-five, and in another thirty-five. Likewise, in the greater smooth Sea-horse, there are a great number of blackish specks or spots, whereas all the rest are entirely without.

The SEA GOAT has a compressed head, with the eyes placed in the upper part. The mouth is small, and in each jaw there are eight teeth, not serrated, but joined together like those of mankind. There are four gills that have not a bony but a skinny cover. Almost in the middle of the back there are three very strong and large prickles joined together by a membrane, of which that before is three times as big as the two others. This fish can raise them, or lay them down when he pleases, in a bony furrow made for that purpose; which particular seems peculiar to this fish. It is covered with scales which are not like those of a fish, but rather of a Serpent; for besides their being placed in such an order, that the lines between them, intersecting each other, make a sort of chequer work, they also stick so extremely fast to the skin, that they cannot be separated from it. The colour is of a dusky green, speckled with blue; but the blackish fins of the back and belly are marked with blue and red spots. The shape is broad, very flat, and almost roundish; but it seldom exceeds two pounds in weight.

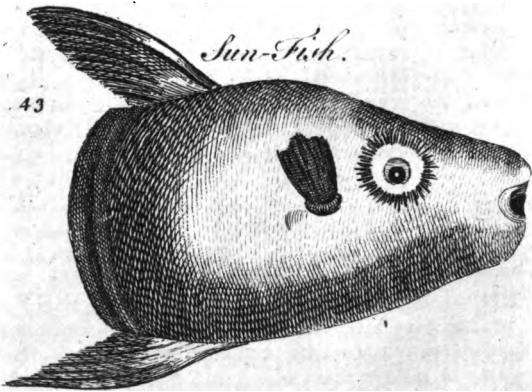
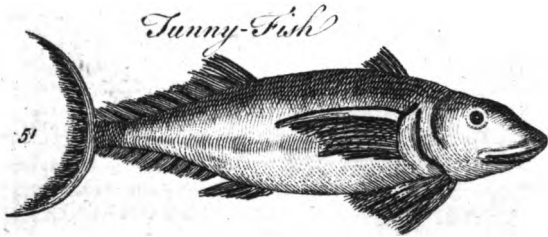
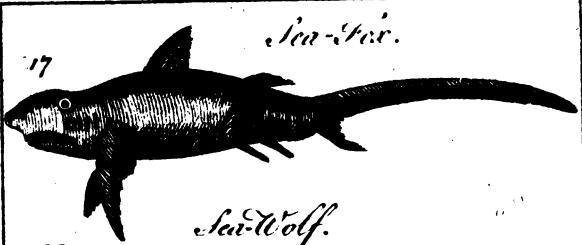
The GUAPERUA is a long fish, with a tail almost square, and not forked, and the top of the head is broad. It differs from the former in having its teeth sharpened in a peculiar manner, in having but two horns on its back, of which the first, in a dried fish, had a double row of pretty large teeth as rough as a saw. The top of the head is not so flat. The length of this fish is near sixteen inches, and it is almost five broad. There are other sorts of this fish; but the description of this is sufficient.

The

The BELLOWS or TRUMPET FISH is small, near four inches long, and about an inch and a half broad. It is covered with rough scales, and has a long snout, for it is almost equal to one third of the length of the whole body. The eyes are large, and their iris is white: on the back there rises a very strong spine of a great length, to which there corresponds a furrow on the back part.

The PAMPUS, of Sir *Hans Sloane*, is the least of its kind, being only six inches long, and four and a half broad in the middle part. It is roundish at the beginning, and from thence to the tail it grows gradually more slender. The tongue is round, fleshy, and spotted; and the jaws are armed with small sharp teeth. The eyes are large, with an ample iris of a silver colour. There are four fins; one beginning on the middle of the back, and ending at the tail; the second, opposite to this, runs from the vent to the tail; and at the gills there are two long ones, but there are none on the belly. The tail is forked, and two inches and a half in length; and there is an arched line running along the upper part of the side, which is strait in the middle. It is covered all over with small white scales. The belly is round, the bones sharp, and beset with teeth like wool-cards.

The RIBBAND FISH is pretty strait along the belly. The back is roundish, and forms an edge along its ridge. It is six inches in length, and two in breadth where broadest, for near the tail it is little more than a quarter of an inch broad. It is much compressed sideways, brown on the back, and of a lightish colour on the belly. It has a fin on each side the head, and a pair of fins beneath them, between the head and the belly. There is also a single fin on the lower part of the belly near the vent. A long sharp fin rises from the highest part of the back, and behind that a narrow fin, which runs the whole length of the ridge of the back towards the tail. The fins and tail are of a dusky colour: there is a reddish circle round the eye, and a black spot between the nostrils; there is also a broad black list running round the head and passing through the eyes, besides two other black or dusky lists bordered with white; the first passing a little obliquely



obliquely below the head, and the other from the long fin on the back quite through the tail, which makes this fish appear as if it were bound with ribbands. It is a *West Indian* fish, and was caught near the *Caribbee Islands*.

43 * The SUN FISH has a broad short body, which is covered behind with a circular fin that serves instead of a tail; so that it seems to be only one half of a fish, with the tail-part cut off. Its common length is about two feet, and yet it is found to weigh upwards of one hundred pounds. It has no scales, but is covered with a hard rough thick skin. The back is blackish, and the belly of a silver colour; but both belly and back terminate in a sharp ridge. The mouth is very small for the bigness of the fish, and when opened is roundish. The jaws are hard, rough, and sharp, and seem to be armed with several rows of sharp teeth. There are four holes in the head, besides the nostrils, which last are placed between the eyes and the mouth. The eyes are small, and of a dusky yellow near the pupil; and about the circular fin, which surrounds the tail, there is a broad stripe, which makes it appear to be bound as with a fillet. There are two large fins near the back part, and two small ones at some distance behind the eyes, but in the same line with the eyes.

It is called the Sun-fish from the roundness of its body, or perhaps because it shines in the night. However, this quality does not belong to this fish alone. It is taken both in the *Mediterranean* sea and in the ocean, as well as near *Penzance* in *Cornwall*.

19 * The SWORD FISH may be easily known from any other by its snout, being in the shape of a sword. It is fifteen feet in length, and two hundred pounds in weight. The body is long and round, and the head thick, but it grows gradually smaller towards the tail. The skin is very thin and smooth. The upper jaw terminates in a very long snout like a two-edged sword; and the lower is exceeding sharp at the end, making a very acute angle. The snout is one third of the whole length of the fish, and there is only one fin on the tail, which runs almost the whole length of the back. The tail is forked and almost in the shape of

of a half moon, and has only one pair of fins at the gills. There are two fins on the lower part of the body near the vent, and the stomach is long, almost in the shape of a cone. *



C H A P. IX.

Of bony Fish, that have soft flexible skins on their backs.

THE COD-FISH, or KEELING, is about three feet long and upwards, and has different names from the different places, as well as from the different manner of curing it. Hence it is called *Green-fish*, *Iceland-fish*, *Aberdeen-fish*, *North sea-cod*, *Stock-fish*, *Poor John*, and *Barrelled-cod*. Those that are small and young of this kind are called *Codlings*.

It is a thick round fish, with a large head, and a prominent belly. It is brown on the back, white underneath, and interspersed with yellow spots. The scales are small, sticking close to the skin, and the eyes are large, and covered with a loose transparent membrane. It has a barb on the lower jaw, about an inch in length; and the tongue is broad, round; soft, and smooth. There are several rows of teeth in the jaws,
one

* The Sword-fish is still taken between *Italy* and *Sicily*, as it was formerly. Their custom is to place watchmen on the high cliffs that hang over the sea, whose business is to observe the motions of these fish. As soon as they perceive any, they give notice to the boats below, and, by signs before agreed upon, they direct them what course to take. As soon as they draw near them, a fisherman, who is used to the sport, climbs up a small mast placed in the boat for that purpose, to observe the fish he designs to strike, at the same time directing the rowers which way to steer. When they have almost overtaken one, the fisherman immediately comes down, and strikes a spear or harpoon into his body, the handle of which, being loose in the socket, parts from it, while the iron part, which is made fast to a long cord, remains in the body: then the fish is suffered to flounce about till he is tired, and grows faint with loss of blood. After this they either hoist him into the boat, or if he is very large tow him on shore.

one of which is longer than the rest, and there are likewise teeth in the palate and in the throat.

The flesh is exceeding good, and in high esteem, and is greatly in request when salted during the Lent-season. Fresh Cod for immediate use is caught in the seas all round *Great Britain*; however, there are particular times for fishing in particular places; and they are to be found in greater plenty in some places, at some times of the year, than in others. Thus, from *Easter* to *Whitsuntide*, is the best season at *Alanby*, *Workington*, and *Whitehaven*, on the coast of *Lancashire* and *Cumberland*; on the west part of *Ireland*, from the beginning of *April* to the beginning of *June*; to the north and north east of *Ireland*, from *Christmas* to *Michaelmas*; and to the north east of *England*, from *Easter* to *Midsummer*.

But the chief support of the Cod-fishery at present are the fishing banks of *Newfoundland*, which are a sort of mountains covered with the sea, where the water is much more shallow than in other places. One of these is called the **GREAT-BANK**, and well deserves that name, for it is four hundred and fifty miles in length, and an hundred in breadth. It is about seventy five miles from the island called *Newfoundland* in *America*; and the best, largest, and fattest Cod are those taken on the south-side of the bank, for those on the north-side are much smaller. The season for catching them on this bank is from the beginning of *February* to the end of *April* and the beginning of *May*; for at this time the fish, which had withdrawn during the winter into deep water, return back and grow very fat. Those that are taken from *March* to *July* will keep pretty well; but those that are caught in *July*, *August*, and *September*, will soon be good for nothing, without a great deal of care. However, this fishing is sometimes over in a month or six weeks, and sometimes it continues six months.

When Lent begins to draw near, though the fishermen have caught but half their cargo, yet they will hasten homewards, because the markets are best at that time; however, some will make a second voyage, before others have got a sufficient cargo for the first.

Each

Each fisherman can take but one at a time, and yet those who are expert at the business will catch from three hundred and fifty to four hundred in a day. They are all taken with a hook and line baited with the entrails of other Cod-fish, except the first. This is a very fatiguing employment, both on account of the heaviness of the fish, and the coldness of the weather : for though the GREAT-BANK lies between forty and forty-eight degrees of latitude, which might be supposed to be a warm climate, yet the weather in the season of fishing is generally very severe.

They salt the Cod-fish on board the ships in the following manner : they cut off the head, open the belly, and take out the guts, and then the salter lays them side by side, head to tail, at the bottom of the vessel, for about a fathom or two square ; when one layer is completed he covers it with salt, and lays on another, which he covers as before. Thus he disposes of all the fish that is caught in one day ; for care is taken not to mix those of different days together. After the Cod has lain thus three or four days, they are removed into another part of the vessel and salted afresh. After this they are suffered to lie till the vessel has procured its full cargo, or till they think proper to depart for their designed port. Sometimes they are put into barrels and packed up, and this is generally known by the name of Barrel-cod, which is accounted the best.

They do not always salt the Cod-fish, for they dry some on shore ; and this they fish for along the coast of *Placentia* in *Newfoundland*, from *Cape Race* to the bay of *Experts* ; within which limits there are several commodious harbours and places to dry the fish in. Those who intend to dry their fish in the sun always take them in the summer season, that being the only time proper for that purpose. The fish that are chosen for drying are of a smaller sort, which are more fit for their purpose, because they sooner take salt.

When the fishing vessels are arrived at any particular port, he who gets in first is entitled to the quality and privilege of admiral, and has the choice of his station, as well as of the stage which they make use of. As
soon

soon as they are got into a harbour they unrig all their vessels, leaving nothing but the shrouds to sustain the masts. In the mean while the mates go on shore to provide tents, which are covered with branches of fir, and the sails are laid over them. They also make a scaffold fifty or sixty feet long, and twenty broad. While these things are preparing, the rest of the crew are busied in fishing, and as fast as they catch any they open them, and salt them on moveable benches; but the main salting is performed on the scaffold. When the fish has taken salt, they then wash them, and lay them in heaps on the galleries of the scaffold. This done, they afterwards range them on hurdles, only a fish thick, head to tail, with the back uppermost. While they lie in this manner, they take care to turn and shift them four times during every twenty-four hours. When they begin to dry, they lay them in heaps, ten or twelve together, to retain their warmth, and continue to enlarge the heap every day till it is double its first bulk. At length they make one heap out of two, and continue to turn them every day as before; but when they are quite dry they lay them in huge piles, as large as hay-stacks.

They not only salt the body of the fish, but their tripes and tongues, which are afterwards barrell'd up, as also the roes; which last are of service to throw into the sea, in order to draw other fish together, particularly PILCHARDS. They also get an oil from this fish, which is used for dressing leather, and all the other-purposes of train oil.

The WHITING POLLACK is larger than a common WHITING, but is pretty much of the same shape, only it is broader, and not so thick: the back is of a dirty green colour. It differs from a Cod-fish in being less; in being proportionably broader, and not so thick; in having a lesser head, in wanting a barb, and in having the lower pair of fins much less.

The sides beneath the lateral lines are variously streaked with a dusky yellow, and the body is scaly, but the scales are very small. The mouth is large, the teeth little, and the tongue is sharp at the point. The eyes are of a silver colour and large, and the
lower

Lower jaw is a little more prominent than the upper. He feeds upon fish, particularly Sand-eels.

The flesh is of little use in medicine, though the teeth are said to be absorbent when reduced to powder, and good against loosenesses and spitting of blood. *

The COAL FISH, called in *Cornwall* the RAWLING POLLACK, is very much like the former, only it is a little longer, and more slender. The lateral lines are not bent at the beginning like a bow, as in the former; besides which they are white and broad, by which mark they distinguish it from the Whiting-pollack. It is not variegated with yellowish streaks like that, and the colour is blacker, more lively and shining; from whence it is called the Coal-fish. The flesh is not so good as that of a Cod, but it is better than a Haddock. They are taken on the coasts of *Northumberland* and *Yorkshire*, as well as on those of *Cornwall*.

The BIB, or BLIND, so called by the inhabitants of *Cornwall*, has a barb under its chin, in which it agrees with the Cod; but it differs from it in its size and shape, being shorter and broader, and the colour lighter. The size of the scales are also twice as large as those of a Cod, and adhere closely to the skin. The Cod has likewise a spine or thorn at the tail fin, which this wants.

The YELLOWISH POLLACK is pretty much like a Whiting-pollack, only the fins are less, and those which are under the chin are yellowish as well as the rest, but the back and sides are of a dark yellow, and full of saffron coloured spots.

The

* This fish is taken near *Penzance* and *St. Ives* in *Cornwall*; but he is sometimes caught by what they call Rock-fishing; that is, by standing upon the rocks while they angle. Those that fish out of a boat or smack must have a line sixty yards long, with three or four hooks, one above another, and baited with different baits. The best time for sea-fishing is in warm weather, either early in the morning, or after sun-set, provided the tide has been ebbing near half an hour. The flesh of this fish is well tasted, pourishing, and flaky like that of a Cod. The northern people have always been accustomed to dry their fish, because it is their principal nourishment; and when a Cod is so dried it is called Stock-fish, because it must always be beaten before it is used.

The **HADDOCK** is of a middle size between a Whiting and a Cod, and the colour is blackish on the back with small scales. A black line runs from the upper corner of the gills to the tail; and on the middle, on both sides, not far from the gills, there is a large black spot, which distinguishes it from all others. The eyes are large; a barb hangs down from the lower jaw about an inch long, and the tail is forked. In other things it resembles a Cod.

The **WHITING** differs from all other fish of this kind, in being the least, in having the upper jaw longer than the lower, and in the teeth, which appear out of the mouth when it is shut. Likewise, the belly fins in this kind are placed more forward than in the rest, and it wants a barb. It is called a Whiting, because the colour of the back is much lighter than in any other of this kind. It is a slender fish for its size, especially towards the tail, for about the head the make is considerably larger. The fins below the vent are speckled with black, the scales are small, and the eyes are large, and covered with a transparent loose skin. The flesh is sweet, tender, and univerfally esteemed in all parts of the world, where it is caught, for its wholesomeness. *

There are two small oblong stones in the head of a Whiting that are said to be good in fits of the gravel, and are proper to stop loosenesses, and to absorb acids in the stomach.

The **WHITING POUT** is a remarkable broad fish, in proportion to its length, by which it may be readily distinguished from all other fish of this kind. The extremity of the tail and fins are blackish, and at the roots of the gill fins, on each side, there are large black spots. It is about eleven inches in length, and three and a half in breadth, and the first back fin, which is of a triangular shape, is produced into a longish

VOL. III.

D

horn.

* The catching of Whittings in a boat or smack is diverting enough, because they bite very freely, and require no nice tackle to take them. The places where they lie may be readily known from the Sea-gulls that always hover over them; and they may certainly be met with if they seem to dip into the water every now and then.

horn. The scales are small, and every where of a silver colour, as in the Whiting; but the mouth is much narrower than the rest of its kind. The young fish of this sort are called *Whiting-Mops* by the *Londoners*, and are generally very common in the month of *October*.

The *HAKE* is above a cubit in length, and is of the shape of a river Pike; for which reason some call it the *Sea-pike*. The back is of light colour, and the belly of a dirty white, with small scales. The head is broad and flat, and the mouth large like that of a Pike, being full of sharp teeth. The tongue is smooth, the eyes large and of a gold colour, being covered with as transparent a membrane as in some of the Cod kind. The tail is not forked, but terminates in a right line. It feeds upon other fish, and the flesh is soft and tender*.

The *LING*, so called by the *English* on account of its length, is for shape and colour much like a Hake, only it is longer, and the scales are not closely adhering to the skin. The head is flat and depressed as in a Hake, from which it differs in being bigger and longer in proportion to its bulk. The tail is round, not forked, and there are a multitude of rays on the back fin. The rays of the second pair of fins are long, though less than the fins themselves. The lower jaw of a Hake is a little longer than the upper, but in this the upper is longest. The Hake has no barb, but this has, besides many appendages, perhaps forty, and that has none. Likewise the flesh is much better, and more wholesome than that of a Hake, and is preferred to all other salt fish †.

* The Hake is caught in great plenty about *Penzance* in *Cornwall*, and is to be met with almost every where in the *British* and *German* oceans. The proper time of catching Hake at *Fiscard*, and other places between *Wales* and *Ireland*, is from *Whitfuntide* to *St. James's* tide.

† This fish is frequently taken near *Penzance* in *Cornwall*, and may be caught among the islands of *Scotland* all the year. To the north-east it may be met with from *Easter* to *Midsummer*, and to the north-east of *Ireland* from *Christmas* to *Michaelmas*.

C H A P. X.

Of Fish of the Tunny kind.

43. * **T**HE TUNNY FISH, or SPANISH MACK-REL, sometimes grows to so great a bulk that it might be placed among the Whale kind; for some have weighed above an hundred pounds. They are seven feet long, and have a round body, which decreases gradually from the middle till it becomes exceeding slender at the tail. It resembles in all things a common Mackrel, except its bulk, and therefore needs no farther description. *

The TUNNY is a fish of passage, for it rambles from one part of the sea to another at a considerable distance. In the months of *September* and *October* they leave the ocean, and pass through the straits of *Gibraltar* into the *Mediterranean* sea towards the *Levant*. They are often taken on the coast of *Cornwall* with their stomachs full of Pilchards. Most authors seem to think that the place of spawning is the *Black sea*, and that they cross the *Mediterranean* for that purpose. The flesh of this fish, though not very delicate, is said to eat well enough when properly cooked. †

D 2

The

* These fish always swim in shoals, and they may be readily known by the great noise they make when they pass along; for they agitate the sea with great violence. They are extremely afraid of thunder: at that time they are easily taken with nets, which are made for that purpose, in the *Mediterranean*.

† The time of fishing for Tunnies begins in *September*, and they are caught by a sort of wears made of small canes, which the *French* call *Madragues*, some of which are said to be a mile in compass. They are divided into several partitions, and the fish, having entered the large ones, are drove from thence into the smaller; for they are like sheep, if one leads the way, all the rest will follow. The inmost partition of all is of a closer contexture than the rest, and is floored as it were with a net. When they take out the fish, they draw it so near the shore, that the bottom may be within five feet of the surface of the water, and then the fishermen leap into it, as into a fish-pond, laying hold of the fish by the small part of their tails, and throw them into boats, where they immediately die.

When they are brought to land, they hang them up in the air, and then cut off their heads; taking out their entrails, and cutting their

The MACKREL is generally a foot, and sometimes a foot and a half in length. The body is long, round, thick, and fleshy, but towards the tail very slender and small. It is not entirely without scales, for it has some that are thin and small. Underneath the lines, that divide the sides in the middle, it is of a bright silver colour, but above them of a bluish green. On the back, towards the sides, proceed several dark streaks, which by diversifying the colour contribute greatly to the beauty of the fish. The tail is so very much forked, that it seems almost to be parted into two distinct fins. The jaws are of an equal length, and furnished with small teeth: the eyes are large, the tongue sharp, and the nostrils small and round. The Mackrel may be distinguished from the Tunny by the smallness of its size, and by the blackish lines on the sides, some of which are straight, and others crooked. It is a fish of prey; for these are often small fish found in its belly. *

The flesh of Mackrel is very good when fresh, especially if they are dressed when just taken out of the water. There is such a difference between them at that time and when they are brought to *London* as is not to be conceived but by those who have made the trial. However, they are not to be despised when they are well

their bodies into pieces; they broil them on large gridirons, or fry them with oil-olive. This done, they season them with salt, pepper, cloves, and a few bay leaves, and then put them into barrels, with fresh oil-olive and a little vinegar. In this condition they are transported into different parts of *Europe* by the name of *Sea-tunny*. The flesh of this fish, though not delicate, is very useful; for, when it is properly cooked in the manner above directed, and cured with good oil, it is as firm and white as veal, and eats pretty much like it. Some are very fond of it at all times, thinking it to be a fish of very good taste, very wholesome, and yielding good nourishment.

* Mackrel swim in large shoals in divers parts of the ocean, but particularly on the coasts of *England* and *France*. They enter the *English* channel in *April*, taking their course through the straits of *Dover*; and in *June* they advance as far as *Cornwall*, *Suffex*, *Normandy*, and *Picardy*. They are taken either with an angle-rod, or with nets; and, when they are angled for, it must be out of a boat, smack, or ship that lies at anchor. They will snap at any thing, insomuch that they will take a bit of scarlet cloth.

well cured by pickling and put up in barrels. There are two ways of pickling them; the first is by opening and gutting them, and filling their bellies with salt, cramming it in as fast as possible with a stick; this done they range them in rows at the bottom of the vessel, strewing salt between the layers. The other way is to put them immediately into tubs of brine made of fresh water and salt, letting them steep long enough to imbibe salt sufficient to preserve them from corrupting. After this they put them into barrels, taking care to press them down close.

99 * The ALBICORE is six or seven feet in length, with yellowish eyes, and a forked yellowish grey tail. The bottom of the belly is blue, inclining to green, and near the tail there are several short fins on the under part. These fish are very bright, and shine like silver when they are caught at sea with hooks, which they often are by the sailors to their very great refreshment, the flesh being very good and well tasted. They are very common between the tropicks, but they wander farther to the north when the sun is in the northern signs.

100 * The BONETTOE is about three feet in length, and two in circumference. It is often seen in company with the Albicore, and has a sharp head, a small mouth, large gills, full silver eyes, and a tail like a half-moon. It has no scales except on the middle of the sides, where there is a line of a gold colour, which runs from the head to the tail. On this line there is placed a double row of scales, which are smooth two thirds of the length, but it begins to be rough when it reaches the tail. It is greenish on the back and sides, but shines on the belly like silver. It has seven fins, two on the back, two at the gills, a pair on the belly just below the gills, and one in the middle of the belly opposite to the largest on the back. From the last on the back proceeds a small narrow one, which reaches to the tail; and another that extends from the last on the belly to the tail in like manner. Some have erroneously thought that the Bonettoe and Albicore are the same fish; but I can contradict this from my own experience, having often examined and eaten of them both.

54 ✱ The KING'S FISH, called by the *Brafilians*, GUARAPUCU, and by the *Portuguese*, CAVALLO, is seven feet in length. It is of the thickness of a man's body, and every where equal, except towards the back part, where it grows gradually smaller. The snout is pointed, and the teeth sharp, round, and regularly placed. The eyes are large, with an iris of a silver colour; and the fins and tail are like others of this kind. There are also small fins on the top of the back and under the belly, between the hinder back fin, and the fin near the vent, and at the tail. It is covered with a skin of a silver colour, which on the belly has a blueish cast, but on the back is of a deeper blue. On each side there is a crooked line which reaches to the tail, and is covered with exceeding fine scales.



C H A P. XI.

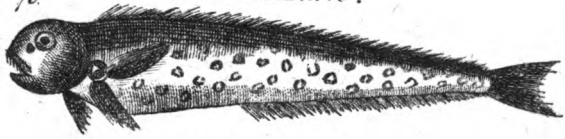
Of Fish of the Trout kind.

THE GUINIAD, so called in *Wales*, is bred in *Pemble-meer*, a lake in *Merionethshire*. The shape is not much unlike that of a Salmon, and the usual length is about twelve or thirteen inches. The back is of a dusky colour, and the belly is white. The top of the head is of light blue, speckled with darker spots, and the ends of all the fins are of a dark blue. The mouth is much like that of a Herring, the upper jaw being somewhat more prominent than the lower; and it has no teeth either in the jaws or throat. The belly does not terminate sharp like a wedge, but is about three quarters of an inch broad; and the scales are of a middle size. The eyes are large, but have no pellicle or skin to cover them, as many other fish have. The lateral lines run directly from the corner of the gills to the tail, which is forked at the end.

The Guiniad generally lies at the bottom of the lake, among the weeds termed water gladiol, which is peculiar to these mountains. It is called Guiniad from the whiteness of its body; this word signifying much

70.

Sea-Lark.



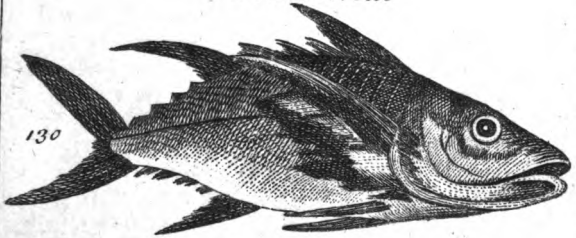
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Indian-Lamprey.



130

Sea Korette



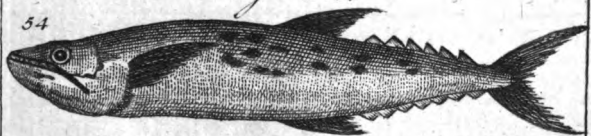
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Indian Sea-Eel.



54

King Fish.



much the same as Whiting in *English*. They are in season in summer time; and though the flesh is white, it tastes like that of a Trout; but it is in much higher esteem, because it is a greater rarity.

The SCHELLY, so called by the inhabitants of *Cumberland*, is the LAVARETO of other authors; and is found in the lake termed *Hulfe-water*, not far from *Pereth*, a town in *Cumberland*. It is not a very large fish, for it rarely exceeds two pounds in weight; and for its size, it is longer than a Trout, and of the shape of a Herring. The scales are larger than those of a Trout, and the sides and belly are of a silver colour. A line runs from the corners of the gills directly to the middle of the tail.

The GRAY-LING, termed in some places the UMBER, has a long and flatter body than that of a Trout, and in size seldom exceeds eighteen inches: in weight it is about half a pound, but in some places they are three times as heavy. Its back is of a dusky green inclining to blue, and the sides are grey, from whence it has its name of Gray-ling, though they seem to glitter with spangles of gold; and are marked with black spots irregularly placed. The lateral line, common to all fish, is nearer the back than the belly; the top of the back fin is painted with red, but the lower part is of a blueish purple; the fins of the belly are likewise of the same colour, that is, of a blueish purple spotted with black. It has a little head with protuberant eyes, whose iris is of a silver colour, speckled with a dusky yellow. The mouth is of a middle size, and the upper jaw is longer than the lower; but it has no teeth; the lips are rough like a file, the tongue smooth, and the gills quadruple. *

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The

* This fish delights in rivers that run through mountainous places, and are to be met with in the swiftest and clearest parts of those streams, particularly in the rivers *Hodder*, *Dove*, *Trent*, *Derwent*, *Wye*, and *Lug*. The flesh may be eaten all the year; but their chief season is *December*, at which time the head, gills, and the list that runs down the back, are black. It is firm, white, cleaves like that of a Salmon, and is accounted very good and wholesome. It is a brisk sprightly fish when in the water, swimming as swift as an arrow out of a bow. They spawn in
May;

The SALMON has different names, according to its different ages; for those that are taken in the river *Ribble* in *Yorkshire*, are in the first year called Smelts, in the second Sprods, in the third Morts, in the fourth Forktails, in the fifth Half-fish, and in the sixth, at which time they are thought to have attained their proper growth, they are judged worthy of the name of Salmons. The size of this fish is much the same in most parts of *Europe*; and when they are largest they weigh near forty pounds.

The Salmon is a very beautiful fish, and is every where in great esteem; the body is longish, covered with small thin scales, and the head is small with a sharp snout, and the tail is forked. The colour on the back is blueish, on the other parts, white, generally intermixed with blackish or reddish spots, placed in a very agreeable manner. The female may be distinguished from the male, by having a longer and more hooked snout, in having scales that are not quite so bright, and having its body speckled over with dark brown spots. Likewise the belly is flatter, the flesh is more dry, and not so red; nor yet is the taste so agreeable.

The excrescence which grows out of the lower jaw of the male, and is a bony gristle like the beak of a Hawk, is not a sign of his being sickly, as *Walton* and others have thought; but is a defence provided by nature against such fish as would devour their spawn. It grows to the length of about two inches, and falls off

May; and in *December*, when in their highest perfection, on a mild, sun-shiny day, they bite best for about two hours before noon, and, in summer, his hours of biting are like those of a Trout; but your tackle must be finer than for that fish, and your hook whipped to silk-worm gut, well waxed with virgin's-wax. Fish six or nine inches from the bottom, he being more apt to rise than descend. He is the quickest-sighted and most easily to be scared of any fish; so that the angler must keep concealed as much as possible: he is tender mouthed, and will break his hold, if not gently used when struck. He will take all the Trout's baits but the Minnow: his flies must be small, and under water. An ash-grub, dock-worm, wheat or malt, or a small red-worm, are better than any. He seeks the largest and swiftest streams, and is generally found near middle-water.

off when he returns to the sea. He is likewise more spotted in fresh water than in the sea. The teeth are small in proportion to its body; and the gills are four double, with a broad cover full of red spots, of the same colour as on the sides; for towards the back, they are more dusky. The flesh is not so red at first, as when it is boiled or salted; and it is tender, flaky, and luscious; for which reason it satisfies sooner, and is harder of digestion, though generally preferred to that of other fish. About the time of spawning it grows more insipid, and loses a great deal of its lively colour. Some begin to be out of season about the beginning of *July*, and others much later: which may be known by their falling away, their losing their beautiful spots, and by their colour; insomuch, that when they are quite out of season, they look like fish of a different kind.

The SALMON-FRY, called in some countries a Salmon-Smelt, is by most thought to be the offspring of a sickly Salmon, which has been forcibly detained from visiting the salt water; but however that be, it is agreeable enough to the eye, though its taste is very ordinary and insipid. The Salmon chuses the rivers for its abode about six months in the year, entering the fresh water about *February* or *March*, in some countries, where they continue to the autumnal season, at which time they cast their spawn, and soon after return to the sea. However, it is said, that the Salmon of the river *Ex* in *Devonshire*, and of the *Wye* and *Ussk* in *Monmouthshire*, are in season during the other six months, and that they never frequent the *Wye* and *Ussk* the same year; for when they are found in the one, there are none in the other. In general, the salt water contributes most to their growth, and the fresh renders them fat.

When the time of spawning comes, the female makes a hole in a gravelly bottom, like a kind of nest of her own dimensions; which done, she discharges her spawn and retires. Then the male, or milter, advances and covers the spawn with its belly, emitting at the same time a whitish fluid like milk. After this the female returns, and they both endeavour to cover their brood

with gravel, in which they work with their noses like hogs. Then they return to the deeps to recover their strength, which they do in about twenty days time.

There is nothing more remarkable relating to this fish than its agility in leaping over obstacles that oppose its passage to and from the sea; for they are frequently seen to throw themselves up cataracts and precipices many yards high. They sometimes make several essays before they can gain their end; and at that time there are sometimes baskets set to catch them, into which they leap. There is a remarkable cataract in the river *Tivy* in *Pembrokeshire*, where people often stand gazing to observe the strength and sleight, which they use to get out of the sea into the river. This is well known in those parts by the name of the *Salmon-leap*. In the river *Wear*, near the city of *Durham*, there is another, which is accounted the highest in *England*. Likewise, at old *Aberdeen* in *Scotland*, there is one where Salmon have been caught in such great plenty, that they have carried on a great trade in that fish. The Salmon when he returns from the sea, is always said to enter the same river in which he was spawned. This is evident from the experiments made by fishermen, and others, who have caught them when very small, and have run a bit of tape through the tail fin; for by this mark they have been certain they have retaken the same fish, in the same river, after his return from the sea. *

The

* The chief rivers in *England*, frequented by this excellent fish, are the *Tbames*, *Severn*, *Trent*, *Medway*, *Dee*, *Ex*, *Ufk*, *Wye*, *Lon*, *Tyne*, *Warrington*, *Wewer*, *Loane*, and others. However, the *London* markets are chiefly supplied from the North, where they are not only more plentiful, but are in season sooner than those in the southern rivers.

The chief Salmon fisheries in *Europe* are along the coasts of *England*, *Scotland*, and *Ireland*, where the fishing usually begins about the first of *January*, and ends in the latter end of *September*. It is performed with nets near the mouths of the rivers, and along the sea-coasts thereabouts, when the fish are seen to crowd thither, from all parts, in quest of fresh water. They also fish for them higher up in the rivers, sometimes with locks or weirs, made for that purpose, with iron gates. These gates are so contrived, that the fish in passing up the river can open them with their heads; but they are no sooner entered, than the gates clap

The gall of Salmon is only used in medicine, and that to take away spots of the eyes, and to cure a noise in the ears, by putting a little therein with a bit of cotton.

The SAMLET, so called in *Herefordshire*, is named a BRANDLIN, and FINGERIN in *Yorkshire*. It is very like a Trout, and yet differs from it in being much less, for it is but seven inches long, and an inch and a half broad. It is also a little broader in proportion than a Trout, and has fewer spots; these are not so lively, and the back spots are less: besides it is whiter, and has a more forked tail; the sides are not so yellow under the spots, and the lateral lines in a Trout are greater, and more red than in this fish. Add to this, that there are transverse spaces near the lines, of a blueish colour, which the Trout has not. It is taken in the river *Wye* in *Herefordshire*, and elsewhere.

D 6

The

elap to and prevent their return. Thus the Salmons are enclosed as in a reservoir, where it is easy to take them. In some places, they fish for Salmons in the night time, where they light up torches or kindle straw, which invites this fish to draw near, and then they may be either struck with a spear, or taken with a net. In some parts of *Scotland*, it is said, they shoot Salmon, when they espy them in the shallows, with fire arms. When they are caught, they are either salted and dried, or pickled, and put into casks, and then transported to distant markets.

Salmon resort to the clearest waters, and in summer near the spring heads, in the middle of the deepest part of a rapid stream, and near the ground on pebbly, chalky, or gravelly bottoms. He takes all the Trout's baits, but especially a lob-worm, well scoured in moss. There are some particular methods of preparing this worm, of which we shall inform the angler in the little treatise at the end of this volume. He is not fond of a Minnow or a fly, though, of the latter, the live one succeeds best. The artificial fly must be large, and of glaring, gaudy colours, the body made with gold and silver threads, with four or six long wings standing one before another, and likewise a long tail: they are very nice and whimsical in changing their baits. He bites, from the middle of *April* to *August*, about nine in the forenoon, and three in the afternoon, in sun-shiny days that are rough and windy, if it blows against the stream. Fish five times stronger than for a Trout. The hook must be large, armed with gimp, or whipped on to hogs bristles. You may either trowl for him, or make use of the ledger bait.

The GRAY is probably the same fish which in *Scotland* they call the GREY-LORD ; it differs in size but little from a Salmon, but the shape is very unlike, for they are considerably broader and thicker, and the tail is not forked. The body is every where speckled with ash-coloured or grey spots, from whence it derives its name. The flesh is preferable to that of Salmon, and bears almost double the price. It is a very strong and nimble fish, making its way from the sea into the rivers with extreme swiftness, surmounting almost all obstacles with the greatest ease. This fish is seldom taken, and therefore is known but to few ; and it does not come into the rivers before *August*, which is the time of spawning.

The SALMON-TROUT, the BULL-TROUT, or SCURF, differs from the Salmon, in having a tail not so forked at the end ; from a Gray, in its head, which is shorter and thicker ; and from both, in being less, for it seldom exceeds twenty inches in length. The flesh is not red as in a Salmon, and it has a much stronger, and more disagreeable smell than that of a Gray.

The BARRACADA is about fifteen inches long and three broad, in the middle where it is broadest. The lower jaw is a quarter of an inch longer than the upper ; and the eyes are two inches distant from the end of the snout, being nearly of the same length as the cleft of the mouth. The lower jaw is furnished with very small teeth, and the upper has a double row, of which the outer are the shortest. The fore part is narrow as far as the gills, gradually increasing to those parts, from whence this fish is almost of an equal thickness to the vent, where it begins to grow less to the beginning of the tail. The colour is dusky on the back, as far as the lateral line, which runs from the head through the middle of the sides to the tail ; but it is white on the belly. It is sprinkled with black specks, and covered with small thin scales. There are two fins on the back about an inch long as well as broad ; and the same number at the gills. On the belly there are likewise two, and one behind the vent. The fins are soft, the tail broad and forked. The name of this fish

fish is probably *Spanish*, and it has no *English* name in Sir *Hans Sloane's* catalogue.

The MUD-FISH is akin to a Trout, and is about seven inches long, and one thick, near the head, where it is thickest; and from thence to the tail it becomes gradually smaller: there are seven fins placed as usual. It is covered all over with minute scales, which are partly white, partly yellowish, and partly black, only on the belly they are all white. The under jaw is longer than the upper, and they are both armed with several rows of small sharp teeth. It is found in the lakes and rivers in the *West-Indies*, and is accounted very good eating.

The TROUT is of a longish make, and resembles a Salmon more than any other fish. The head is short and roundish, the snout blunt, the body thick, and the tail broad. The mouth is wide, and there are teeth not only in the jaws, but the palate and tongue. The eyes are large, with a reddish circle round the pupil; but the rest of the iris is of a silver colour. The scales are small, and the skin readily falls into wrinkles, and separates from the flesh. In the larger Trouts, the back is of a dusky hue, and full of black spots, which in some are mixed with red. The sides are painted with spots of a purple or vermillion die; but on the belly they have a yellowish cast. There are two fins on the back; that next the head is full of black spots, and the edge of that near the tail is of a vermillion colour. On the belly there are two pair, which are always either red or yellow.

Trouts generally delight in cool and small streams which descend from hills and rocky mountains; and seem to take a pleasure in swimming against the course of the water, striving to gain, as it were, the spring head of brooks and rivulets, let their descent be never so rapid. Several authors inform us, they are found in small rivers among the *Alps*, which are so cold, that no other fish can bear them company. The time of spawning is in *November* or *December*, when they dig holes in stony or gravelly places, and deposit their spawn therein. They are not in the highest season when fullest of spawn; for they are fattest, and have the

the most delicious taste in *July* and *August*. However, they begin to be in season in *March*, and are sooner so in some rivers than in others; particularly in the *Wandle*, they are more forward than in any other about *London*, and there is near a month difference between that and *Hertford* river. In the winter time Trouts are sick, lean, and unwholesome, breeding a kind of worm with a large head, which is not unlike a clove in shape. Then this fish seems to have a head of a larger size than ordinary, those beautiful spots disappear, and the lively colour of the belly becomes dusky and disagreeable. But towards the latter end of *March*, when the sun with its genial warmth and influence begins to invigorate the earth, he then makes a shew of some spirit, and rousing as it were from a sort of lethargy, forsakes the deep still waters for the more rapid streams, where he rubs off his in-bred foes against the gravelly bottoms, and soon after recovers his former strength and vigour. The flesh is drier, and not quite so tender as that of a Salmon; however, it is esteemed the most agreeable of all fish that make their constant abode in fresh water. *

The

* To the haunts of this fish already mentioned, may be added, that he is frequently found in dead holes, behind some stone, stump, or a point of land, that stands shooting out, and makes a motion in the water like an eddy: he is also sometimes taken under the shade of a bush, or hollow, hanging bank, and at a stream tail in spring, and the latter end of summer. A lob-worm and brandling are his chief baits; a large one in a thick, and a small one in a clear water. Cadis are excellent baits at the bottom, two or three on a hook together, and sometimes joined to a worm. A Minnow, or any small fish, will do half an inch under water; and all flies, natural and artificial, at top. He bites from sun-rising to sun-set, or later, and may be angled for all night; but nine in the morning, and three in the afternoon, are his most certain hours, either at ground or fly. A water-clearing after a flood, or dark, cloudy, and gloomy weather, when windy, is favourable for the sport. In *March*, *April*, *September*, and part of *October*, the most sunshiny weather, and middle of the day, is best. In little brooks, when a shower has disturbed them, or a mill is just set agoing, there is good diversion, and on the contrary little or none. Fish strong and fine, and conceal yourself as much as possible; but in muddy water you may be bolder. When you angle with a float or ledger-bait,

lia.

The **FORDICH TROUT** is of a different species from a Common-Trout; for it is almost as large as a Salmon, and continues nine months in the sea. Besides it is seldom or never caught with an angle, being supposed not to feed at all in fresh water; at least, when their maws have been opened, there has been nothing found therein. However, they return to the river so very constant and punctual, that the fishermen know almost to a day when to expect them. Perhaps this fish, though called a Trout, is the same as the Gray-Lord before mentioned.

The **RED CHAR** is taken in the lake called *Winandermeer* in *Westmoreland*, and by the *Welch* is named **TORGUCH**. It has a more long and slender body than a Trout, and the back is of an olive-green colour, speckled with whitish spots. The belly is generally red, tho' it is sometimes white, especially in the spawners. The scales are exceeding small, and the lateral lines straight. The mouth is wide, the jaws pretty equal, only the lower is a little sharper and more protuberant than the upper. The lower part of the fins are of a vermilion die, and the gills are four double. There are teeth both in the jaws and on the tongue; but in the upper jaw there is a double row. The flesh is more soft and tender than that of a Trout, and it is but very little tintured with red when boiled. It is in very high esteem, perhaps because it is exceeding scarce; and in *Wales* it is accounted the chief dish at the tables of people of fashion. *

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lie as near as you can to the bottom, without dragging; but when with a fly, keep it always in motion on the top. After a shower, this fish will rise at a gnat. In the evenings of hot days, dib with a grass-hopper, as for Chub. You may take this as a rule, wherever you find any Minnows or Chub, expect no Trout. Ground-bait, where you intend to fish, the night before, as it will allure the Trout to those places.

* The only place in *England*, where this fish is taken, is *Wirander-meer*; but in *Wales* it is caught in five different lakes. In *Merionethshire* they are smaller than in other places, and are taken in *October*; but in one of the lakes of *Carnarvonshire* they are caught in *November*; in another, in *December*; and in a third, in *January*: so that the fishing ends in one when the other begins. They swim together in shoals; and, though they appear on the surface

The GILT CHAR is the same as the Red Char of *Winander-meer* in the county of *Westmoreland*; and is like a Trout, only it is much broader, and has a more prominent belly. The scales are very small, and the colour on the back is lighter than that of a Trout, though variegated with black spots. The belly and sides are of a silver colour; the snout is blueish, and the skull transparent. It has teeth in the palate, and two rows of them on the tongue. The flesh is red, and is in high esteem among the *Italians*. It never exceeds twelve inches in length.

The TARANTOLA, so called by the inhabitants of *Rome*, is a round oblong fish, more slender near the head, and grows sensibly thicker to the first back fin, from whence it gradually decreases to the tail. It is a foot in length, and broader than a man's thumb. The belly is whitish; the back of a blackish-green, speckled with green, blue, red, and black spots on the back, head, and sides. The top of the head is flat, and there is a small pit between the eyes; the mouth is extremely wide, and the snout terminates in an acute angle. There is one row of long sharp teeth in both jaws; and the hinder fin on the back, placed not far from the tail, is little and destitute of rays, being nothing else but an appendage of fat or flesh, as is common to the Trout kind. This is a singular sort of fish, for there is no sea fish like it.

The SMELT is so called, from having the smell of a violet, though some say it is like a cucumber. It is six inches long, and near an inch broad. It is the least of these kind of fish, and the shape of the body is more long and slender. The scales fall off with the slightest touch; and the skull is so transparent, that all the lobes of the brain may be plainly and distinctly seen. The back is of a dusky colour, but the belly and sides shine like silver. Those that examine them attentively, will find

surface of the water in summer time, yet they will not then suffer themselves to be taken either with an angle or nets. The only season for catching this fish is, when they resort to the shallow parts of the lakes to deposit their spawn. At this time they set trammel-nets baited, and so leave them for whole days and nights, after which they are generally sure to find some therein.

find small black spots on the head and back, and the lower jaw a little more prominent than the upper; but they are both well furnished with teeth, and there are some on the tongue. The flesh is soft and tender, and of a delicate taste; for which reason it is in high esteem.*

The RIVER SMELT, of the river *Sein* in *France*, is very like a Bleak, and only differs from it in the roots of the fins, which are red, and in having the lateral line bended as it were like a bow. It is near five inches long, and a little broader than a man's thumb. It has a particular smell, and is thicker and shorter than a Sea Smelt.



C H A P. XII.

Of Slippery Fish, of the Eel kind, with Belly-fins.

THE SEA LOACH, so called in *Cheshire*, is termed the WHISTLE FISH in *Cornwall*. It is nine inches in length, and the head is flat and depressed. It has a mouth like an Eel, furnished with several teeth, and on the upper jaw are only two barbs, one on each side, and another at the lower corner: The eyes are not far from the end of the snout, and their iris is of a silver colour. The scales are exceeding small, and the head, back, and sides, are variegated with large blackish-red spots. In a dent or pit almost in the middle of the back, instead of a fin, there is a low membrane or skin edged with extremely small hairs; by which it may be known from all other fish of this kind; for, with regard to the spots, it greatly varies, they being white

* The Smelt is a fish of passage, and visits the *Thames*, and other great rivers, in *March* and *August*. In the first of these months they generally advance up as high as *Mortlake*; but in the latter they make a stand about *Blackwall*; and this is probably the fish, which is there so much admired under the name of *White-Bait*. He must be fished for with a paternoster-line, which is made of six or eight very small hooks tied along a line, six inches above each other. Bait with gentles, white paste, or a bit of one of his own species.

white in some, and others have none at all. The colour of the back is of a dusky yellow, but the sides are lighter, and the belly almost white. The gills on each side are quadruple.

The EEL POUT has a smooth, soft, slippery body, like an Eel, and has either no scales, or those that are exceeding small. The head is broad and depressed, and the jaws are as rough, with very small teeth, as a file. The tail is flat and roundish: on the lower jaw there grows a barb about half an inch long; and between the nostrils and the snout, there is a pair of short barbs. The colour is of a blackish green, which is easily wiped off, and then there appears a mixture of yellow, white and black. *

* The SHEAT FISH grows to the length of eight cubits and upwards, weighing one hundred and fifty pounds of eighteen ounces each. In the river *Vistula*, which runs into the *Baltick*, they are sometimes caught of the length of sixteen feet, and twenty seven inches in breadth. They are of the colour of an Eel, only the belly and sides are variegated with white and black spaces, or large spots. The body is slippery, being covered with slime, and is without scales. The head is very broad and flat, and the mouth exceeding wide: the body, to the vent, is thick and roundish, but the lower part of the belly is flat. In the upper jaw, before the eyes, there are two very long and hard barbs, which this fish thrusts out as it were to make some discovery. There hang four barbs from the lower lip, which are slender and more short. There are no teeth properly so called; but the lips both above and below, as well as the palate, are as rough as a file, which might pass for small teeth. There is only one fin on the back, which is very small, and consists of three nerves. From the vent to the tail runs a very long fin, which joins to each gill-fin, and it has a hard thorn or prickle, with which it drives away troublesome

* This fish is chiefly found in the river *Severn*; they spawn in *December*, and are so fruitful, that one roe is said to contain no less than 128,000 eggs. Their usual length is about fourteen or fifteen inches, though they sometimes grow to twenty. The flesh is good and sweet, and in great esteem.

blesome fish. It is found in several rivers in *Germany*, as well as lakes, and keeps chiefly at the bottom. It is a very voracious fish, and does a great deal of mischief wherever it comes. The flesh is said to be wholesome food, and they dress it in the same manner as an Eel.

The **CALLORHYNCHUS** is a fish without scales, and has gristly fins. It is of a silver colour on the back, and of a shining gold colour on the sides; the lower lip is long and broad, and covers the upper when the mouth is shut. The teeth are only smooth tubercles placed in each jaw; and the nostrils are seated on the lower part of the head, having only a single hole each. The eyes are placed on the sides of the head, and are covered with a single coat; the iris is of a silver colour, and the eye-lid oval. The belly is large and flat, and the vent nearer the tail than the head, being seated between the belly fins. There are seven fins, namely, two on the back, as many on the breast and belly, and the tail makes the seventh. The length of this fish, from the top of the snout to the end of the tail, is nine inches and two thirds.

The **BLACK FISH**, so called by the *English* at *Aleppo* in *Syria*, is thought by *Dr. Ruffel* to be like the Sheat-Fish in shape, though it is not above twenty inches in length, nor twenty ounces in weight. However, they are of different sizes, and the head and back are black. The lateral line runs directly from the head to the tail, through the middle of the side; below which, to the belly, the colour generally changes to a dark purple, and the under part of the head is of the same colour. The head is flat, and near five inches in length; and the body round, till within a few inches of the tail, where it becomes flat. The mouth is not so large in proportion as the Sheat-fish, and it has no tongue. The make of the mouth and palate agree exactly with the description of that fish. The eyes are placed near the corners of the mouth, near the lower edge of the upper jaw. There are four gills on each side, which are all armed with a double row of sharp points, like the teeth of a comb. There are two fins near the gills, consisting of seven rays; and to
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the fore part, a pretty strong prickly bone is connected. About an inch above the vent, are two smaller fins, and another long one that extends from the vent to the tail. There is likewise another of the same kind, that runs from the neck all along the back; but neither of these join to the tail, which is round at the tip. It is found in the river *Orontes*; and the markets of *Aleppo* are supplied with it in great plenty, from *November*, to the beginning of *March*. The flesh is red like beef, and has a rank taste.

The MISGURN, or FISGURN, so called at *Norimberg* and *Ratisbon* in *Germany*, is of the shape of a Lamprey, and is broader and flatter than an Eel; but it is much of the same breadth from the head to the tail. The mouth is like that of a Lamprey, surrounded with barbs, there being six on the upper jaw, and four on the lower. It differs from a Lamprey, in having fins on the belly and at the gills, which a Lamprey wants; and they have gills and not lobes.

The body of this fish is covered all over with a yellowish-red slime; the head is higher than broad, and but little narrower than the middle of the body; the upper jaw is longer than the lower, and the mouth is round and very small, being without teeth. The nostrils are placed between the eyes and the end of the jaws; and the eyes are small, and placed on the side of the head; they are covered with the same skin that covers the head, which is a sort of a veil. Under the eyes there is a forked prickle, of which the outward point is shortest; the gills are double on each side, with an oblong covering, which opens on the sides only; near the fins of the breast, the membrane of the gills contains three small bones or spines, distinct from each other, the first of which is the largest. The skin on the back between the fin and the tail rises into a sort of a bump. The colour of the back and head is of a blueish green, marked with greenish-red spots; the upper part of the sides is marked with a yellowish red line speckled with black, and another line of the same colour as that on the back, runs along the middle of the body of this fish. Under the first line is another that is yellow, besides

sides another that is very narrow, and of a bluish green, speckled with yellow; the belly is red, inclining to yellow. This fish has seven fins, two on the back, a pair on the breast, another at the vent, and one on the tail, which are all of a reddish-brown colour speckled with black. When this fish is touched, it gathers itself into a round form, and makes a sort of a whistling noise, from whence the *Gramans* call it *PFRIFFER*, or *WHISTLER*. It is found in ponds, pools, and marshes, when the sun has almost dried up the water, which happens in *August*.

The *RED TAPE FISH*, termed at *Genoa*, where it is common, *CAVAGIRO*, and *FRAGGIA*, has a long slender body, which is more flat on the sides than an Eel, and grows gradually more slender from the head to the tail, which is very small and sharp at the end. It is all over of a palish red, except the belly, which is white. It has no scales, or at least exceeding small ones; and the mouth is large, turning upwards. It has only one row of slender sharp teeth, and near each side of the upper jaw there is a black spot. The eyes are large, with a silver coloured iris; the back fin runs along from the head to the tail; and opposite to it there is another from the vent to the tail. These, in the larger fish, are of a beautiful yellow on the lower part; and the upper edge is of a reddish purple. The outward rays of the tail are purple, and those in the middle yellow.

129

* The *SUCKING FISH* is remarkable for its sucker on the top of the head, by which it fixes itself to other fish, and to the bottom of ships, when they sail so fast that it cannot keep up with them by swimming. It is about eighteen inches long, near four thick, of a roundish make, and slender towards the tail. The mouth is triangular, and the lower jaw is longer than the upper. From the upper part of the head towards the back, for the length of six inches, there is a gristly substance of an oval form, like the head or mouth of a Shell Snail, but harder, and it has the appearance of the palate of a quadrupede, being deeply furrowed, and consequently has small ridges wherewith it fastens to any thing at pleasure. The eyes are small
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with a yellow iris, and instead of teeth, there are many small eminences. It is of an ash colour, and from the middle of the body, as well above as below, to the tail, it has a narrow fin, and there are two pair of fins near the head. The flesh is thought by sailors to be good eating.

21 * The BUTTERFLY FISH is about seven or eight inches in length, and has a thick head, but towards the tail it is slender. The colour is of a light blue or ash, with olive or dirty green stripes. The eyes are pretty large, and placed near each other on the top of the head; and above each eye, some of these fish have a small fin. The fore teeth are long and round, near each other, and regularly placed. The back fin is very high at the beginning, and near the top of the fifth ray there is a very beautiful spot like an eye, surrounded with a white ring ending at the eighth ray; by which mark this fish may be readily distinguished from all others: this fin is all over variegated with dirty green, or olive, and blue, brown and white spots, placed in no regular order. The belly is a little prominent, and there are no scales. This fish is often exposed to sale at *Venice*, among other small ones in the winter time.

54 * The SEA LARK, called in *Cornwall* the MULGRANOCK, or BULCARD, is a small smooth slippery fish, which is very lively, for it will live several hours out of the water. It is of a dirty greenish olive colour, and some have transverse light blue lines on the back, back fin and sides; but the colour differs in several of these fish. The covers of the gills seem to be swelled; and the tail when expanded is of a circular figure. On the back part of the head there is a small depression, which makes it look as if it had a neck. The top of the head rises almost to an edge, and the eyes are small and white, with a reddish cast. The mouth is not large, but is armed with long smooth fore teeth, placed like those of a comb. The tongue is round, soft, and fleshy.

The PUNARU, so called by the *Brasilians*, is four inches in length, and has an oblong body with a thick head, blunt on the fore part. The mouth is little, and there

there are only two small teeth in the lower jaw, which are oblong, and as sharp as needles. The eyes are placed upwards on the forehead, and the iris is of a gold colour; over them are two sharp barbs, and the gills are large. There is a fin begins behind the head, that runs along the back to the tail, which is full of prickles.

There is likewise another fin that runs from the vent to the tail: It is covered with a brown skin, and the fins are of the same colour. There is another fish of the same name, and of the same shape; but the jaws seem to be composed of small teeth. On the top of the head there is a broad fin which runs to the root of the tail, which is covered with soft spines, that do not stand upright. The colour is like that of the former, only it is variegated with dark purple crooked lines.

The SEA SNAIL, of *Rondeletius*, has a head like a Rabbit, and a small mouth without teeth, but the jaws are rough. There is a broad stripe runs from the head to the tail, and the body is covered with small scales. It has a fin on the back, which runs from the neck to the tail, and has soft rays; the tail is forked. It is so fat, that it turns all into oil, so that it seems nothing but a lump of fat. This description is too general for so singular a fish.

101. * The *English* SEA SNAIL, so called by the inhabitants of *Durham* and *Yorkshire*, is a small fish, being only five inches long. The colour is brown when it is just caught, but after ten or twelve hours, turns lighter. The head is thick and round, and the mouth without teeth; but the jaws are a little rough. The apertures of the gills are small holes that will scarce admit a pea; and under the throat there is a round spot like the impression of a seal of a light blueish colour. There are also twelve brown spots placed in a circle; below which, at half an inch distance from the vent and behind it, a fin begins, that runs to the tail, and unites to it, as does likewise the fin on the back, from the shoulders where it takes its rise; insomuch, that the hinder part of the fish is in the shape of an Eel. It is taken in the mouths of rivers, four or five miles distant from the sea.

C H A P. XIII.

Of Fish that have two back fins, and whose belly fins unite in one.

THE COMMON BULL-HEAD, or MILLERS-THUMB, is about four or five inches in length, with a large broad depressed head of a roundish shape. The gill fins are round and beautifully notched on the circumference. At the beginning of the cover of the gills, on each side, there is a crooked prickle. The mouth is large, and full of small teeth: the back is yellow, with three or four black stripes; and the body is without scales. It is found in brooks and gravelly rivers, where they lie hid like Loaches under stones, and such like places.*

The SEA GUDGEON, or ROCK FISH, is a slippery soft fish, covered with small rough scales, and the shape of the body is long and roundish, being about six inches in length. The colour is variegated with a mixture of white, yellow brown, and other colours, interspersed with black spots: there are likewise transverse streaks of an olive colour, which make these fish appear agreeable enough. The head is large, the cheeks tumid, and the mouth is armed with a double row of rough teeth: the belly fins unite into one, which is proper to this kind, insomuch that it may be taken for a double fin in the middle of the breast; this enables them to stick close to the rocks, from whence they have obtained the name of the ROCK FISH. The eyes are small, yellow, and pretty near each other, looking upwards. †

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* The haunts of this fish are in clear and gravelly brooks and rivers, under stones or in holes, and in hot weather he suns himself by lying on flat pebbles. He will bite at a small red-worm all summer long, and is so silly a fish, that whatever number there may be of them together, the most inexpert angler may take them all. When young, he is a good bait for a Trout; but the gill-fins must be cut off. His spawning time is in April.

† This fish is caught on the coast of Cornwall, and is common in the fish-markets of Venice, being taken near the shore, or in ponds made by the sea-water. The flesh is fat and tender, and is in very great esteem.

73. * The LUMP, or SEA OWL, called in *Scotland* the COCK-PADDLE, is a thick ugly fish, having a broad flat belly and a sharp back. The colour is partly blackish, and partly of a light red, and though it wants scales, yet the skin is rough with sharp tubercles, of a black colour in all parts. On each side there are three rows of spines or prickles, which are crooked; and on the top of the back, there is another row of the same. The belly or throat fins are connected on each side by their extremities, and form one circular fin like a funnel, by which they are enabled so fasten themselves to the bottom of the sea, and to rocks under the water; and this so firmly, that it is difficult to oblige them to remove. The mouth is like that of a Sun fish, but larger, being three inches broad from corner to corner. The lips are fat and thick, the jaws full of teeth, and the nostrils are tubes or pipes which rise above the skin.

73. * The POGGE, so called in the north of *England*, is of the length of two palms, and has a triangular depressed head, which is not smooth but angular, and about two inches broad. Both sides have tubercles upon them, which give this fish a very rugged aspect. The fore part is furnished with a great many slender barbs, and the hinder is armed with prickles. The snout is flat, and furnished with four prickles, of which the two foremost are in the shape of a half moon. The mouth is small, semicircular, and at the corners, and under the chin, there are several barbs. The trunk of the body near the head is of the figure of an octagon, or eight cornered, and near the tail it is like a hexagon, or six cornered. It is covered all over with bony scales, in the middle of each of which there is a hooked tubercle, which makes this fish seem full of angles; but the body near the tail becomes very slender. The belly is flat and white, in the middle of which the vent is placed, and the back is brown spotted with black. It has no teeth, but the lips are as rough as a file. *

* This fish is frequently taken in *Yorkshire*, and the bishoprick of *Durham*. The flesh is accounted exceeding good eating, when the head is taken off, and the body stripped of its armour.

The **ARMOUR FISH** is somewhat less than a foot in length, and is four inches in breadth. A small part of the belly is gristly, except which this fish is covered with a hard thick bone, but in a different manner; for the head and fore-part are covered with bony plates, extending from the back to the belly, and advancing over each other. It is armed with three strong pointed bones thick set, one of which is placed near the back, and one near each gill. These bones are six inches long, and so fixed in sockets, that the fish can point them in any direction to defend itself. However, it has no teeth, but the want of them is fully compensated by his weapons and armour.

The **TAMOATA**, so called by the *Brasilians*, but by the *Portuguese* **SOLDIDO**, is a river fish three inches and a half in length, from the back part of the head to the beginning of the tail. The head is about an inch long and a little more broad, almost like that of a Frog. The mouth is not large, nor has it any teeth, but on each side of it there hangs a barb an inch in length. The eyes are very small, and have an iris of a gold colour; all the upper part of the head is covered with a hard shell like a helmet; and the whole body clothed as it were with armour, consisting of oblong scaly pieces, which are minutely serrated round about, and are placed in a quadruple row. There are scales on the middle of each side, on the back and lower part of the belly, which, as it were, grow together. The colour is every where of an iron grey, but more particularly on the head.



C H A P. XIV.

Of small Fishes, that have two fins on the back with soft flexible rays.

THE **SMALL DRAGON FISH** is nine inches in length, and taken in the sea. *Ray* says, he has never seen any of this kind above six inches long. It has an oblong body depressed, and almost square, and

and the colour on the back is of a yellowish green, but on the belly white : the sides are speckled with small spots of a blueish silver colour. This fish may be known from all other small fish by the spots just mentioned, by the round holes of the gills, by three pointed prickles at the extreme corners of the gills, by the rays of the fore back-fin rising higher than the membrane that connects them, and by the jaws being furnished with exceeding small teeth. It is a common fish at *Venice* and *Rome*.

The *ANGUELLA*, so called at *Venice*, is a small oblong slender transparent fish, except where the back bone and the intestines lie. The tail is forked, and the back is beset with black specks. The eyes are depressed, and large in proportion to the bigness of the fish. The mouth is so formed, that the lower jaw stands out farther than the upper, and makes, as it were, a cover for the mouth. The sides are of a silver colour. This fish is very common at *Venice*.



C H A P. XV.

Of Brasilian fish with two fins on the back.

THE *AMORE PIXUMA* has a broad head, and a wide mouth with teeth. The body is oblong, the colour on the back is of a dark iron, and the belly, which is prominent, is white. The skin is soft, and the tail is roundish at the circumference.

The *AMORE GUACU* is about six inches in length, with an oblong body and a thickish head. The gills are large, and the mouth is furnished with small teeth. The eyes are small, and have a gold-coloured circle round the pupil. The tail is of an oblong square form, and terminates in a semicircle. The scales are large for the size of the fish, which is of an iron colour, with a whitish belly.

The *AMORE TINGA* is of the same shape with the former, but less, and the scales are whitish every where, except some brown spots.

The TAREIRA D'ALTO has a round body, ten inches long and five thick; but it grows gradually less towards the tail. The head is like that of a snake, and over the eyes, which have a yellow iris, there are two tubercles. The mouth is wide, yellow within, and sharp at the end of the jaws; as also furnished with very sharp teeth. All the fins are as thin as poppy leaves, being supported by soft spines. The scales are in the shape of a half moon, and so neatly put together, that the fish is smooth to the touch. The belly is white, and the sides and back are streaked with yellow and green lines, running according to the length; but the edges of the scales are brown. There are three brown fins on the back, but the rest are yellow, and the tail is streaked with brown.

The PIRACOABA is a foot in length, and has a wide sharp mouth without teeth, likewise the upper jaw is longer than the lower; and the upper part of the mouth is prominent with a round gristly cone. The eyes are large, and have an iris of a gold colour. On each fin behind the gills, there is a white barb, consisting of six thickish hairs almost three inches long. The scales are of a middle size, and of a silver colour; but towards the top of the head and back, they are a little hoary: all the fins are of a light ash colour, except those behind the gills, which are blackish.

The PIABUCU is a small fish, about six inches long, and an inch and a half broad. The belly is a little prominent, and the iris of the eyes of a silver colour, but on the upper part, there is a little mixture of red. The tail is forked, the scales of a silver colour, and there is a broad white line runs along the sides, above which the back is of an olive colour mixed with a shining green; the fins are white.



C H A P. XVI.

Of barbed, and prickly Brazilian Fish.

THE *first kind* has an oblong body of about a foot in length, and the beginning of the back

is a little raised. The head is of the shape of a cone, and covered with a hard shell to the beginning of the rising of the back. The barb consists of six threads, of which the four lower are an inch and a half long, and the two upper as long as the fish itself. Before each gill fin, there is a strong toothed bony prickle, as well as before the forward back fin, and is of the same length as that; and the tail is forked. It has no scales, but is covered with a skin that shines like silver. All the fins are of a silver colour, as well as the barb on the head; and through each side to the tail there runs a line of a silver colour. The eyes are large, and the mouth small without teeth.

The *second kind* has an oblong body, and is above two feet in length. The head is compressed and flat; and the mouth is blunt. The head is covered with a shell like the former, which has small points thereon, and the eyes are small, and near four inches distant from each other. The barb consists of six threads, whereof the outer are four inches long, but the rest are shorter. It has thorns or prickles like the former, and the tail is divided into two horns. All the upper part of the body and sides, as far as the belly, are white, with a mixture of yellow and gold colour. All the fins and the tail are grey; but the belly is white. This likewise has no scales.

The *third kind* is of the same size and shape as the former; but the barb consists only of four threads, two of which are eight inches long, and pretty broad, being in the shape of a tongue; the other two are very short. Near the back fin there is another of the shape of a tongue nine inches long, as also behind the gill fins. In other things it is like the former.

The *fourth kind* has likewise an oblong body, ten inches in length, and the head is broad and flat, with a mouth that is void of teeth. The barb consists of six threads, of which the four lowermost are one, and the upper two inches in length. The eyes are small, of a blueish colour, and placed four inches from the mouth. The top of the back is covered with a hard shell, and on each side behind the gills there is a narrow shell that covers the sides. The forward back fin has a bony

thick ferrated thorn, two inches and a half broad, and the tail is forked. The head, beginning of the back and sides, that are covered with shells, are of the colour of umber; but the other parts are lighter, though variegated with dusky spots of a middle size. From the broader end of the shell to the tail on each side, there is a row of short sharp teeth, with their points turned backward, that run in a straight line.

The *fifth kind* is like the former, and spotted with large round spots; but it is without teeth on the sides; and of the six threads of the barb, two are longer than in the former.

The NHAMDIA, so called by the *Brazilians*, but by the *Portuguese* BAGER DE RIO, has a body twelve or fourteen inches long, and the head is compressed as in the former, with a mouth furnished with small teeth. The eyes are small, and a little protuberant, with a gold coloured iris mixed with umber. The barb consists of six threads, two above, and as many below the mouth; the former of which are five inches long, and behind each, there is an oblong dent or pit, in which the beginning of the barb lies, when it is turned backward, as it almost always is. Each of the lower is an inch and a half long, and not so thick as the upper. The forward back fin is square and large, being supported with many spines. It has no scales, but the head is covered with a hard shell, and the upper part of the mouth is of the colour of umber; but the back and sides are of an ash colour, with a small mixture of blue. The forward back fin near its rise is of the same colour, but the remaining part is black, and the spines are of an ash colour; the backward fin is of the same colour, as well as the back and sides, and the rest of the fins, the barb, and the tail, are black; but the lateral lines are red. This fish is taken in rivers, and is very well tasted.

C H A P. XVII.

Of spinous Fish with two Fins on the Back, the foremost of which is radiated with Spines.

THE BASS is by many authors called LUPUS, that is the WOLF FISH, on account of its greediness. It weighs about fifteen pounds, being not much unlike a Trout in shape, only it has a thicker head. The colour on the back is of a blackish blue, but on the belly like silver. When young, the back is variegated with black spots, which vanish when the fish grows old. The scales are of a middle size, but thick, and adhere very close to the skin. The mouth is wide, as well as the apertures of the gills, and there are rough teeth in the jaws. It has thorns or prickles about its head, and the eyes are large, with an iris of a silver colour. The forward back fin is radiated with no more than nine spines, and in the palate, there is a triangular bone, besides two more in the throat. The tongue is broad, slender, and rough, there being a rough bone in the middle. The flesh is extremely well tasted, and exceeding wholesome. It is an inhabitant of the sea; for it was never known to enter the mouths of our rivers in *England*.

The SEA PIKE is of the shape of the RIVER PIKE; but, in proportion to the magnitude of the body, it is longer and rounder. It is covered with small scales, and has an oblong conical snout, the lower jaw being longer than the upper, and ending in a sharp point. The inside of the mouth is yellow, and the jaws and tongue are furnished with teeth. The eyes are large, having each a silver-coloured iris, but a little clouded. The tail is forked. This fish is an inhabitant of the *Mediterranean sea*.

* The MULLET is much like a DACE in shape, with a sharp snout, a flat head, and large scales, not only on the body, but on the covers of the gills, as well as all over the head, as far as the nostrils. The back is of a blueish brown, and the belly white. The lateral lines are variegated alternately with black and white,

running according to the length. The eyes have no other skin except their own coats, and the forward back fin is radiated with five long spines. The mouth is without teeth, but the tongue is a little rough, and there are two rough bones on each side the palate; besides a bone at the corner of the mouth beset with prickles.

This fish, when it is at its full growth, is about half a yard long. It visits the rivers on the south of *England*, in the beginning of the summer, with every tide, and returns back when the water ebbs.*

The *American* MULLET is of the size and shape of a middling Trout, with eyes of an oval form, and scales of a silver colour; between the rows of which there are grey lines. On the top of the back there is a fin larger than all the rest, and the tail is forked. All the fins are whitish.



C H A P. XVIII.

Of Fish of the Gurnard kind.

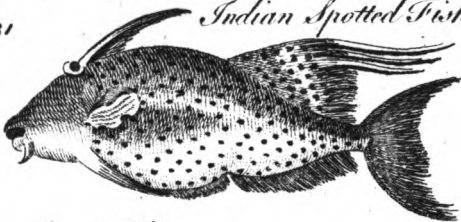
THESE fish are called in *Latin* CUCULI, that is CUCKOWS, from a sort of a cry or grunting which they are said to have; on which account, that is, from their grunting like a Hog, they are called by the *English*, GURNARDS. They have two or three barbs or tufts under their gill fins, which some call fingers. Some of this kind make a shriller sort of a noise, whence they are called Pipers; and they have two very large membranous fins at the gills, with which some of them may be said to fly; as also large bony square heads; but their body grows sensibly more slender from the head to the tail.

The

* The rivers *Exe* in *Devonshire*, and the *Arundel* in *Suffex*, are noted for this fish. The proper baits are red-worms, wasps, and gentles; and at the top of the water, he takes the same flies as the Trout. A lob or marsh worm will do within two feet of the bottom. They are in season from *May* to *September*.

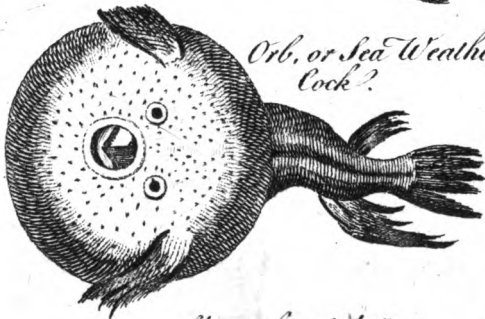
131

Indian Spotted Fish.



38

*Orb. or Sea Weather
Cock?*



23

Sharp-snouted Ray.



81

Grey Gurnard?



21. ✱ The GREY GURNARD has a back of a dirty green, sometimes variegated with black spaces, and there are always specks or spots of a yellowish or white colour. The pointed line is higher and more rough than in others of this kind; and the head is very large, covered with bony plates that have prickles thereon. The snout terminates in two horns; the mouth is large, and the jaws, palate, and tongue, are armed with very small rough teeth. The eyes are large, and their iris is of a silver colour. The body grows sensibly smaller from the head to the tail, and there is a furrow in the middle of the back, armed on both sides with a row of bony thorns, from which the fins arise. The teeth of the spines are less in this than in others of the same kind, and it is common in the *British* seas. The flesh is firm and of a good flavour.

The SEA SWALLOW, called in *Cornwall* the TUB FISH, has a large bony angular head, armed with prickles; and from the head to the tail it becomes sensibly more slender. The back is of a dirty green, the sides of a reddish colour, and there is a cavity between the eyes; the upper jaw is notched in the middle, but not divided into horns, and the scales are small; the teeth are much like the former, but the gill fins are exceeding large, strengthened with a membrane, and extended with branched rays beautifully coloured, the upper edge being of a shining blue. In some fish of this kind, towards the bottom, there are seven or eight rays spotted with black, in a space of whitish green, which makes a very beautiful appearance. Under these fins there are three tufts or fingers on each side. It is caught in the sea near *Cornwall*.

29 ✱ The RED GURNARD, or ROCHET, is like the former, only it differs in the size; for it never grows so large, being very seldom above a foot in length; the head is less, and the space between the eyes is more narrow; the body and fins are more red, and the gill fins are shorter and less, not of a blue, but rather of a purple colour on the edges. Likewise, the covers of the gills are engraved with streaks or rays, proceeding as it were from a center;

on these there are also three thorns or prickles, two on the lower part on each side, and one on the upper.

00 * The PIPER, so called in *Cornwall*, is of the same colour as the former, only the head is lighter, tending to yellowish. The snout is divided into two broad horns, fenced with prickles about the edges. The spines on the back are larger and longer than in other fish of this kind; and the nostrils stand out, being two small round tubes, as in the bird called the Cuckow. It is common in the *British* ocean; and, from the noise that it makes, it is called a Piper.

The GREATER GURNARD is fourteen inches long, and the back fins are beautifully painted with yellow and red. The scales are thick, and stick close to the skin; and, on the sides, there are three or four parallel golden-coloured lines, that run according to the length. It is taken near *Perzance* in *Cornwall*.

The KING OF THE GURNARDS is, perhaps, so called from the size. It is without barbs, the scales are large, and the body is reddish all over. The eyes are also large, and the jaws are as rough as a file. It is frequently caught in the sea, about the isle of *Malta*.

39 * The HARWICH GURNARD, with a very long back-fin, has a head larger than the whole body, which is convex above, and marked with several blue spots. The body, from the head to the tail, grows gradually less, and has six corners or sides; the upper jaw is longer than the lower, and the mouth is large, and furnished with teeth. The two right lines, that run from the head to the breast fin, may be called lateral lines. The skin is smooth, without scales, and of a blue colour, as well as all the fins, except the second back fin, which is whiter. It has eight fins, two on the back, two on the breast, as many on the belly, and one at the vent and the tail, which makes the eighth. The back fin near the head, is composed of three flexible soft spines, the first of which is as long as the body, that is, from the head to the beginning of the tail; the second is three quarters of the same length, and the third one half. The second fin
on

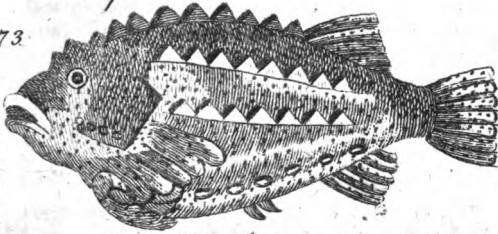
Flying-Fish.

83



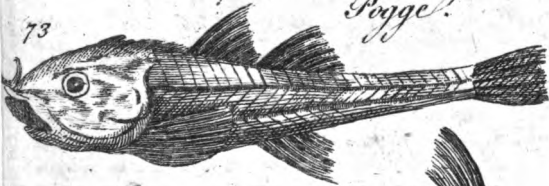
Lump.

73



73

Pogge.



85

Star-gazer.



on the back is not so long as the third spine of the former, and is composed of ten simple spines, the three last of which are the longest. The membrane that covers them is white, marked with four double blue lines: those on the breast are white spotted, and consist of twenty-nine spines that are forked at the end, of which those next the belly are smallest, and those in the middle longest. The fins on the belly are blue, and very near those on the breast, and armed with five very strong spines, of which that in the middle is divided into others that are less; the fin at the vent is blue, and consists of ten spines, much shorter than the second fin on the back, but the two last spines next the tail are much the longest; the tail fin is round, and consists of ten spines forked at the end. It is eleven inches long.

12, * The FLYING FISH has a body, which in shape and colour resembles pretty nearly those of a Herring; but the eyes are larger in proportion. It has two pair of fins like wings, the greater of which are placed a little behind the gills, and the lesser about the region of the vent: they are thin, and variegated with dark dusky spots, on a light ash-coloured ground. With the assistance of these wings they rise out of the water, and fly a considerable way, to avoid the pursuit of the Dolphin. Near the tail it has a narrow fin on the back, and another on its under side, of an ash colour. The tail is of the same colour, and forked; but the lower part of the fork is much the longest.

The WEAVER, called by some authors the SEA DRAGON, is a long fish with flat sides, a crooked belly, and a straight back. The lines on the sides are partly yellow, and partly dusky, running obliquely from the back to the belly; the scales are thin and small, and the head moderately compressed; the eyes are placed on the top of the snout, and nearer together than in other scaly fish; the forward back fin has six venomous rays; the fin behind this, and almost close to it, reaches very near the tail. It sometimes grows to a cubit in length, and lurks in the sand, in the same manner as the Sand-eel.

117 ✕ The SCAD, so called by the inhabitants of *Cornwall*, and by the *Londoners*, A HORSE MACKREL, is like a common Mackrel in colour, shape, and taste; but it is less, and the body is not so thick and round, nor spotted like it. In the middle of the body, there is a line that runs from the head to the tail, covered with bony plates; but it is not straight, for in the middle it is turned downwards; and at the bending, there are small prickles that grow on the plates. Towards the tail they grow larger and more prominent, being toothed like a saw. It is caught in the sea near *Cornwall*, as well as in other places.

117 ✕ The UMBRA, called CORVO by the *Venetians*, is a fish of the Whale kind, which often weighs sixty pounds. The shape is more compressed, and broader and slenderer than a Carp, in proportion to its bulk. The back is sharp on the ridge, and rises from the head. There are lead-coloured lines, and others of a pale yellow, which run alternately from the top of the back to the bottom of the belly, in an oblique manner, being undulated, and make a very beautiful appearance. The scales are of a middle size, and the covers of the gills, as well as the head to the mouth, are scaly. The head is of a moderate size, and the eyes are not large; but the mouth is small, and the upper jaw is longer than the lower. The teeth in the jaws, and the bottom of the mouth, are exceeding slender; and from the corner of the lower jaw, there hangs a small short barb. The tail is flat, and terminated almost in a right line. It is a very common fish in *Italy*.

The GREY GRUNT has a broad crooked back, and is six or seven inches long, and four broad. The mouth is not large, but it is furnished with very small teeth, and the eyes are big, having a white iris. The back fin runs the whole length of the back, and the middle part is supported with spines; but the rays of the hinder part are soft, and there is no furrow to hide them in, as there is for the fore part. All the fins, as well as the tail, are of a shining gold colour, and the body is covered with scales of a shining silver colour, mixed with that of gold. On each side there are seven large stripes that run according to the length, as far as

the tail, of a shining brown; but in some they are of a gold colour. It is taken in the ocean near the island of *Jamaica*.

85 * The STAR-GAZER, called at *Rome* and *Venice* LUCERNE and PESCE-PRETE, as also BOCCA IN CAPO, is commonly about nine inches in length, and sometimes twelve, with a large, almost square head, that is bony and rough. The body is roundish, and all the upper part is of an ash colour, with a white belly. The scales are small, and the lateral lines behind the fin approach each other and descend to the middle fin of the tail. The face is flat, looking upwards, whence this fish has its name; and the eyes are near each other, being protuberant and small, with golden circles. The mouth is pretty large, and the chin beneath it is almost like that of a man. The jaws are armed with teeth, as well as the palate; and the lower lip is fringed with barbs. The whole face, and the covers of the gills, are very rough, with a sort of warts or tubercles, some of which are prickly. This fish is frequently taken in the *Mediterranean* sea; but the flesh is indifferent.

The PEARCH is generally, when full grown, about twelve or fourteen inches long; and sometimes, though but seldom, they attain to fifteen, which is an extraordinary size. This fish is hog-backed like a Bream, having a broadish body of a dusky yellowish colour, with five or six spaces like girdles, proceeding from the back towards the belly. The scales are small, thick, and rough, drying much sooner than those of any other river fish. The iris of the eye is of a yellow or gold colour: the mouth is wide, and the jaws very rough, with small teeth. The belly fins, and the forked tail are of a fine red, sometimes with a mixture of white; some parts of the principal back fin are spotted with black; and often the whole fin next the tail is yellow. The covers of the gills end in an acute angle, and the uppermost thereof terminates in a prickle.

The flesh of this fish is firm, of an agreeable taste, of easy digestion, and very wholesome; for which reason it is called by some, the WATER PARTRIDGE. A Pearch is armed with certain spines or prickles, with which

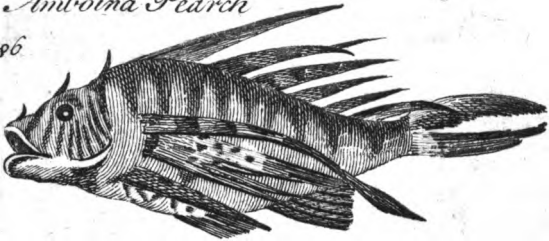
which it defends itself against much larger fish: when a Pike comes near, it raises them up, and prevents an attack; however, a Pike will swallow small Pearches, because they are then too soft to do him any harm. The only parts used in medicine, are the bones that are found in the head, near the origin of the spine of the back. They have the same virtue as other absorbent powders*.

06 ✕ The AMBOINA PEARCH is so called, because it is chiefly found in the rivers of *Amboina*. It is about a span in length, and somewhat like the common Pearch, both in shape and taste. Its colour is inclining to brown with blue streaks under the head; and the fins below the mouth are also blue; but those on the sides are green and speckled. The figure that *Nieuboff* has given of it, shews several stripes on the sides very like those
of

* Though Pearch, like Trout, delight in clear, swift rivers, with pebbly, gravelly bottoms, yet they are often found in sandy, clayey soils: they love a moderately-deep water, and frequent holes by the sides of or near little streams, and the hollows under banks. The Pearch spawns but once a year, which is about the beginning of *March*, and the best time to angle for him is from the beginning of *May* to the end of *June*, though he is fished for to the end of *September*. He is easiest taken in cloudy, windy weather, and, as some say, from seven to ten in the morning, and from two till seven in the afternoon. He will bite very little in winter, unless in the middle of a warm day. You must give him time in biting, especially when you fish with a Minnow or a small frog. The Minnow must have the hook put through his back fin, or his upper lip; the frog through the upper part of the skin of his leg, and you must fish with them but little lower than midwater. Your float must be pretty large, and many, when they use worms, let the bait touch the bottom; but about six inches from it is better. If you find a hole of them, you may catch them all, provided you do not drop one off your hook; for, in that case, your sport is over for that day. When you fish with a Minnow, whip your hook to a small wire, for fear of a Pike. Bobs, gentles, pastes, and Roach and Dace cut small, are good baits; but he will not rise at a fly. When you fish at the bottom, in *March*, use the red-worm; in *April* the oak-worm, a young frog, or a red snail; in *May*, dock-worms; in *July*, a grub or grass-hopper; in *August*, red-worms or brandlings; and so every month after, always taking care to use the bait natural to the season. You may ground-bait with lob-worms cut to pieces. He is to be found in most rivers in *England*, as well as in some ponds,

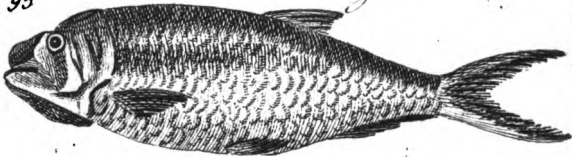
Ambonia Pearch

86



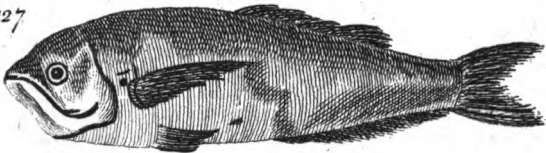
Indian Herring

95



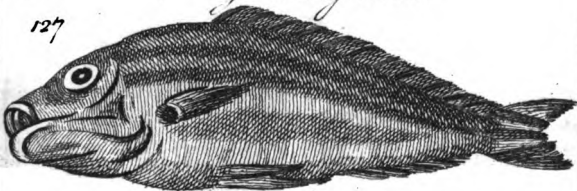
Indian White-Fish?

127



Grunting Fish

127



of a Pearch ; and the tail is long and forked, or rather divided into two horns.

39 ✱ The DOREE, which signifies, the GILT FISH, has a broad compressed body, not unlike that of a Flounder ; but it swims erect, and not on one side as that fish does. The head is very large and compressed, and the mouth is monstrously wide.* The colour on the sides is olive, and on the middle of each side there is a large round black spot, by which it may be known from other fish of this kind. The forward back fin is furnished with ten prickly rays, and as many that are soft underneath, which leave the prickles, and by themselves run to a considerable height. There are short rows of prickles in some places, that is, at the roots of the back fins, as well as those at the vent. In general, it is a very singular fish, and is about eighteen inches long, and seven or eight broad. The flesh is tender, and easy of digestion, being so delicate, that some prefer it to a Turbot. This fish is taken in the ocean, as well as in the *Mediterranean sea*.



C H A P. XIX.

Of Fish without Thorns, with one Fin on the Back.

THE DORADO is a sea fish, which has a sort of a crest on the head, joining to a large fin, that runs to the tail ; there is likewise another that is shorter, and runs only from the vent to the tail. The belly fins reach almost to the vent, which is placed in the middle of the body, and the mouth is of a middle size, having small sharp teeth in the jaws, palate, and tongue. The eyes are large, the scales exceeding small, and the colour of a blueish green. The thickness of this fish grows gradually less from the head, and the flesh is fat, sweet, and hard, like that of a Tunny.

dd

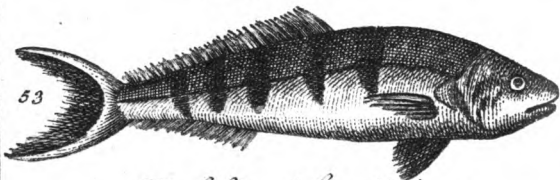
✱ The DOLPHIN of the Moderns, called by most authors DORADO, is not of a very agreeable shape, for the snout is flat and roundish, and the body grows very taper from the head to the tail ; but its beauty consists

consists chiefly in its colours, which are very fine. The back is all over enamelled with spots of a blueish green, which shine like jewels set in a dark ground. The tail and fins are of a gold colour; and nothing can be more brilliant than this fish, when seen in the sea, or when it is not quite dead. It is about six or seven feet in length, and near the thickness of a Salmon. There is a remarkable fin, which runs from the head, along the back, to the root of the tail, which in the middle is seven or eight inches broad, and consists of a membrane that feels like leather, and the spines thereof are soft. There is another opposite to this, that runs from the vent to the tail, and is not an inch broad. The tail is about a foot and half long, and is divided into two large horns. The scales are very small, and can scarce be felt when touched. It is a very swift swimmer, and will very often accompany a ship for a long while together.

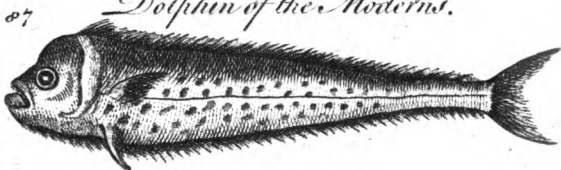
♣ The SEA BREEM has a forked tail, and is a flattish fish, not unlike a Roach. The flesh is firm and solid, and the body is covered with scales. It is twenty inches long, ten broad, and the tail is very slender. The back is black, but the sides are of a lighter colour, which on the belly becomes like that of silver. The lower jaw has two rows of teeth, but the upper has only one, and these are very small. The eyes are large, and the covers of the gills like those of a Salmon. There is only one fin in the middle of the back, which is continued throughout its whole length; and opposite to it, at the bottom of the belly, there is another that runs from the vent almost to the tail. They are not very common in *England*.

The RAZOR FISH, called at *Rome* PESCE PETTINE, has a very large head, but compressed, as well as the whole body, and there is scarce any thing that can be called a snout; for the line, which terminates the fore part of the head, runs almost perpendicularly from the top of the head to the mouth, which is small, and armed with little sharp teeth, except four, which are placed forward, that are longer. The eyes are small, placed on the top of the head, and at the beginning of the back there is a fin, which is not very broad, though
it

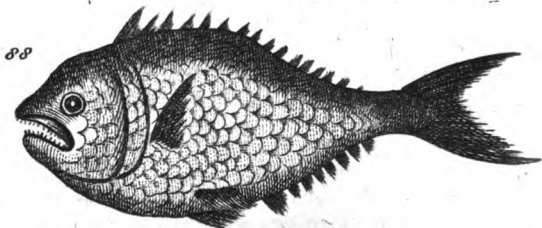
Bonettoe.



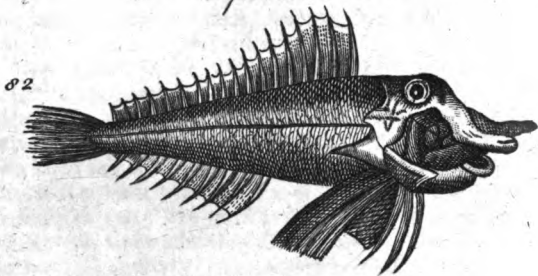
Dolphin of the Moderns.



Sea-Bream?



Piper.



it runs from thence to the tail. There is another opposite to it, on the lower part of the belly, that reaches from the vent almost to the tail, which is broad, and covered with large scales. The head and covers of the gills are marked with several blue lines: the belly and tail fins are of a yellowish, and greenish colour, as it were chequered in a very pretty manner: the back fin is red, sprinkled with a few blue spots; and the rest of the body is of a yellowish red. It is seldom above a palm in length, and is scarce at *Rome*, though it is common in the isles of *Rhodes* and *Malta*. The flesh is tender, yields good nourishment, and is easy of digestion.

The RHAQUUNDA, of the *Brafilians*, has a body near ten inches long, and two broad, being almost of the same breadth from one end to the other. The head and mouth are made almost like that of a Pike; and though it wants teeth, the jaws are almost as rough as a file. The iris of the eyes is brown, and from the beginning of the back, there runs a fin almost to the root of the tail, which is three inches long, and nearly one broad, except towards the end, where it is a little broader. The tail is covered with a hard black shell, and the scales are of a middle size. The colour of the back and sides is a dark grey, with a silver gloss, and on each side there is a row of round black scales, of the size of a pea; and between these, there are many blue specks. All the fins, and the tail, are of a gold colour; but those on the back are spotted with blue. The lateral lines are black, and on each side the tail there is a line of a gold colour.

The PARU, of the *Brafilians*, is a broad, roundish, but not thick fish, being about twelve inches long, and seven broad. The back fin, and that which runs from the vent, are about two inches broad, and reach to the tail, and each of them have a prominence at the end, that on the back being five inches long, and that on the belly three. The head is small, with a high narrow mouth, and exceeding small white teeth. The iris of the eyes is yellow. The whole body is covered with middle sized scales, half of which are black, and the other half yellowish, in such a manner that the body seems

seems to be marked with yellow half moons. Behind the gills, on both sides, there are yellow spots, and the tail is two inches and a half long, and as many broad.

The ACARAUNA, of the *Braflians*, is of the size of the PARU, but not so broad, and is covered with blackish scales. The tail is forked, and on the length of the whole back, as also on the bottom of the belly, there runs a sharp fin, which towards the hinder part, is about an inch broad. The mouth is small, narrow, and furnished with exceeding small teeth; and on each side near the tail, there is a sharp spine or prickle, almost an inch long, which he can conceal in his sides, or thrust out so as to hurt other fish.

132. ✱ The GUARERUA, of the *Braflians*, has a broad compressed body four inches long and three broad, with a little mouth, and very small teeth. On the upper part of the body, and on the belly, there is a long broad fin, which both end in a point like a bodkin. The tail is square, the scales black, with a gloss like silk, and yellow edges. All the fins are black, and about the mouth there is a broad line of an iron colour, and another placed perpendicularly over it. The body is surrounded with three stripes, whereof two run through the broad and hinder part of the fins; likewise, the tail is cut by such another stripe.

The HERRING is a well known fish, nine inches, or a foot long. That which distinguishes this fish from all others, is a scaly line that runs along the belly from the head to the tail; the colour on the belly and sides is of a shining silver; besides, the scales are large, and come regularly off. It has no spots, and the belly is sharp like a wedge, with red eyes. The tail is forked, and the swimming bladder is of a silver colour. The nostrils of this fish are very apparent, and have two apertures, of which the foremost cannot be seen with the naked eye; it is a little nearer the snout than the eyes. The lateral bone that covers and closes all the lower parts, is slightly dentated on the edges; there is a long space, with teeth in the middle of the fore part of the palate; or rather two rows of small teeth seated in a right line, according to the length of that part of the
palate

palate nearest the end of the snout. The lower jaw is a little longer than the upper, and there are very small teeth at its extremity; but those at the extremity of the upper jaw are so slender they can hardly be seen. The tongue is sharpish, free, and disengaged below, of a blackish colour, and armed with small teeth turned backwards. There is generally a red or violet spot at the extremity of the covers of the gills, the remaining parts of which are of a silver colour, and consist, below, of three or four bony plates, and eight spines a little crooked, joined together by a membrane. The scales are large in proportion to the body.

A Herring dies immediately after it is taken out of the water, whence the proverb arises, *As dead as a Herring*; the flesh is every where in great esteem, being fat, soft, and delicate, especially if it be dressed as soon as caught; for then it is incomparably better than on the next day. There are vast quantities of these fish taken, salted, smok-dried, and consumed all over *Europe*. They make a progress every year from the seas near the *North of Scotland*, into the *British* channel, coming, as some suppose, in pursuit of worms and small fish, which at that time abound there. There is also plenty near *Norway* and *Denmark*, from whence they proceed annually, as far as the coast of *Normandy*.

Herrings are distinguished into six different sorts; as the Fat Herring, which is the largest and thickest of all, and will keep two or three months. The Meat Herring, which is likewise large, but not so thick nor so fat as the former; the Night Herring, which is of a middling size; the Pluck, which has received some damage from the nets; the Shotten Herring, which has lost its roe; and the Copshen, which by some accident or other has lost its head*.

As

* The Herring-fishery is begun, both by the *English* and the *Dutch*, towards the latter end of *June*; but the *Dutch* send abroad forty times the quantity of Herrings that the *English* do, especially to *Germany* and the *Baltic*, though this fishery lies along the coasts of *Scotland* and *England*, and the *Dutch* have scarce a Herring on their own. As this fishery was the principal foundation of the *Dutch* greatness, so is it still one of the greatest supports

As for the medicinal uses of Herrings, it is said, that the ashes of one, taken to the quantity of a dram in a glass of white wine, is good for the gravel. Sometimes salt Herrings are applied to the soles of the feet of patients in a fever, to divert the humours from the head.

The

supports of their state. Sir *Walter Raleigh* was of opinion, that they made ten millions *per annum* profit of this fishery in his time; and the great *De Wit* assures us, that they employed a thousand busses therein, from twenty-four to thirty tons each, which are now encreased to seventy, and some to an hundred and twenty tons burthen. These busses, with the vessels that attend them, are employed in carrying Herrings all over *Europe*; and thus this trade, besides finding employment for upwards of an hundred thousand hands on shore in their maritime provinces, is the great nursery of their seamen. It might undoubtedly be of equal advantage to this nation, if properly attended to. It has been sufficiently proved, that *Great Britain* might carry on this fishery cheaper, and to greater advantage, than the *Dutch* can; for they are every year obliged to begin their fishery six hundred miles from home, and do part of their business at sea. They send out busses of about one hundred tons, with fourteen or fifteen hands, and provision for three months. They drive at sea, and are forced to cure and pack their fish, mend and dry their nets, &c. on board so that, computing the expence of wear and tare, provisions and wages, every barrel of Herrings stands them in six shillings as soon as taken. On the contrary, these shoals of Herrings being on our own coasts, and even in our harbours, bays, and roads, our people may lay on shore every night; and, with two of their boats, called three-men and five-men cobles, (having persons ready to take off their fish, to cure and pack them) may take as many Herrings in a month, as a *Dutch* dogger, of one hundred tons and fifteen men, can do in three lying out at sea. Thus our fishermen, being employed on the coast by those who will take them off their hands immediately, may deliver them at twelvingence, and sometimes six-pence the barrel; which low price, in the prime cost, must enable us to undersel the *Dutch*, who are at six shillings charges for every barrel of Herrings they take, as they fall from the net. However, let us return to the little use we make of this valuable fishery.

The best time to catch Herrings, on the coasts of *Norfolk* and *Suffolk*, is from the latter end of *September* to the latter end of *October*; and the nets they make use of are about twenty-five yards long, and five deep. They sometimes fasten so many of these nets together, as will take in a mile in compass. They judge where the Herrings lie, by the hovering and motion of the sea-birds, which continually pursue them in expectation of prey.

The

The PILCHARD is very like a Herring, but differs from it in some particulars; it is a third part less, and for the size, has a broader body. The belly is not so sharp, and near the upper corner of the gills there is a black spot. There are no teeth either in the jaws, the tongue,

The fishermen row very gently along, letting the nets fall into the sea, and taking their course, as near as they can, against the tide. As soon as any boat has got its load, it makes to the shore, and delivers it to those that wash and gut them.

These Herrings are put into a tub with salt or brine, where they lie for twenty-four hours, and are then taken out and put into wicker baskets and washed. After this, they are spitted on sharp wooden spits, and hung up in a chimney, built for that purpose, at such distances, that the smoke may have free access to them all. These places will hold ten or twelve thousand at a time; and they kindle billets on the floor in order to dry them. This done, they shut the doors, having before stopped up all the air-holes. This they repeat every quarter of an hour, inasmuch that a single last of Herrings requires five hundred billets to dry them. A last is ten barrels, and each barrel contains about one thousand Herrings. When they are smoke-dried in this manner, they are called Red Herrings.

Pickled Herrings are cured after a different manner. When they are designed for the white pickle, as soon as they are taken out of the sea, one of the crew, appointed for that purpose, cuts them open, and carefully separates the guts from the roes, the firmness of which is a great mark of their being well done. Then casting away the guts, and leaving the roes whole, the fish are first washed well with water, and then put into a strong brine that will bear an egg, where they are suffered to lie fourteen hours. They are then taken out, and, when well drained, are regularly disposed in rows in barrels, pressing them well down, and strewing a layer of salt both at the bottom and top. When the barrel is thus filled, they stop it close down, lest the air should get in, or the brine flow out, either of which would prejudice the fish. The longer they lie thus packed, and kept from the air, the less salt they taste; for all fish, different from flesh, grow better by lying some time in pickle; and the Herrings cured by the *Dutch*, for this reason, taste better than ours, which are generally used too soon.

Herrings always swim in shoals, delighting to be near the shore. They spawn but once a year, which is about the beginning of *November*, a little before which, like most other fish, they are in highest season. There are likewise Herrings on the coast of *North America*; but they are not in such plenty as in *Europe*, and they never go further south than the rivers of *Carolina*. There are none near *Spain*, *Portugal*, in the *Mediterranean*, nor on the coast of *Africa*.

tongue, or the palate. The flesh is firmer, and is by some preferred to that of a Herring, but without reason. If you take a Pilchard by the back-fin it will hang even, which a Herring will not do*.

The SPRAT, Mr. Ray takes to be nothing else but a young Herring or Pilchard; because this fish exactly resembles either the one or the other in every particular except the size; and he likewise thinks they have much the same taste.

The SHAD, called by some, the MOTHER of HERRINGS, differs from a Herring, in being broader and not so thick, but more compressed on the sides; in being larger, for it grows to the length of a cubit, and is four inches in breadth, weighing four pounds. It has a black round spot on both sides, near the gills, and six or seven less, placed in a right line towards the tail, in which it agrees with the Pilchard. Likewise it enters the mouths of rivers, which Herrings do not. It passes into the river *Severn* in the months of *March* and *April*, at which time they are fat and full of spawn; but in *May*, they return back to the sea, very lean and prodigiously altered; in some rivers, as the *Thames*, they stay till *June* or *July*; and the flesh would be pretty good, if it was not so full of bones. The eyes and mouth are large, and the upper jaw only is furnished with teeth. The tongue is small, sharp, and a little blackish. There is such a difference between the *Thames* Shad, and that of the *Severn*, that they do not

* The Pilchard is a fish of passage, and swims in shoals, in the same manner as Herrings. The chief fisheries for them are along the coast of *Dalmatia*, to the south of the island of *Issa*, on the coast of *Bretagne*, from *Belle-isle* as far as *Brest*, and along the coasts of *Cornwall* and *Devonshire*. The season for fishing is from *June* to *September*, and sometimes they are caught on the coasts of *Cornwall* to *Christmas*. On the coasts of *Devonshire* and *Cornwall*, they set men to watch on the tops of mountains and cliffs, whom they call *Huers*, who know when a shoal of Pilchards are coming by the blackness or purple colour of the water in the day time, and in the night by its shining. When the *Huers* perceive, by these marks, where the fish are, they direct the boats and vessels, by the usual signs, how to manage their nets, which they call *Saines*; and in these they often take an hundred thousand Pilchards at a draught. This fishery yields great profit to the people of those counties.

not seem to me to be the same fish ; for the *Severn* Shad eats much the best, and is not so full of bones*.

86 * The lesser *Indian* HERRING is broader and shorter, though of the same colour with the common Herring. The tail is forked, and the head is of an uncommon shape, with a large snout and eyes. They swim in large shoals together with the Herrings, principally on the coast of *Malabar*. These fish will take salt like other Herrings, which is an unusual property in these parts ; and by this method, they are carried all over the *East-Indies*.

The ANCHOVY is about a palm in length, and proportionally thick : they are only taken in the *Mediterranean* sea. There is a sort near *Chester*, that are longer and thicker than a man's thumb, which however are different from those of the *Mediterranean*. They have a rounder body than the Herring, and are not so compressed ; they are also transparent, except where the spine of the back prevents it, and their colour is nearly like that of a Sprat. They have a sharp snout, and the upper jaw is longer than the lower ; but the mouth is monstrously wide in proportion to the size of the fish ; likewise, the apertures of the gills are very large, as well as the eyes. It has this peculiar property, that it will dissolve almost in any liquor, when it is set over the fire †.

The GOLDEN-ANCHOVY is an *East-Indian* fish, and is so called on account of its shining golden colour. It has a very large long mouth, armed with sharp teeth, and if the body had been more slender, it might have been placed among the Eels.

The ARGENTINA, so called at *Rome*, has an oblong round body void of scales, and is like a Pike. Above the lateral lines, it is of a greenish ash colour, but beneath them of a silver colour, as if leaf silver had been laid thereon, especially over the covers of the gills. The

* Shads will take red-worms, wasps, and gentles, and are in or near salt waters, when the tide ebbs and flows. They bite at the same times as the Flounder.

† They most commonly fish for Anchovies in the nights of *May, June, and July* ; for in these three months they leave the ocean, and pass up the *Mediterranean* towards the *Levant*.

The snout is oblong, the mouth of a moderate size ; but there are no teeth in the jaws, and yet there are six or eight crooked ones near the end of the tongue. The eyes are large, having a silver coloured iris, and the brain may be seen through the skull. There is a fin on the back, about the middle of its length, supported by ten rays. The tail is forked, but the principal mark by which it may be known from all other fish, is the air bladder, which is conical at both ends, and outwardly looks as if it was covered with polished shining leaf silver. This is made use of to counterfeit pearls, and by this means they are made like the right sort. It is often brought to the fish-markets at *Rome*.

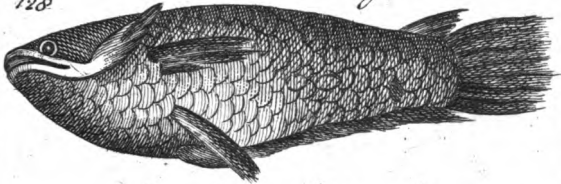
The GAR-FISH or HORN-FISH, is a long slender roundish fish, and yet a little broad at the bottom. The back is greenish, and there are several marks by which it may be distinguished from all other fish. The snout is very long, sharp, slender, and each jaw is armed with extremely sharp teeth ; there is a single stripe that runs from the mouth to the vent, and there is no sign outwardly of the stomach and intestines ; the spine of the back when it is boiled, becomes green, and the upper jaw is moveable as in the Crocodile. The belly and sides are of a silver colour, the back of a blueish green, and the tail is forked. The lateral lines that run along the sides are scaly, but the rest of the body is smooth. It does not grow to any large size, for six of those that are usually taken, will not weigh a pound ; and yet there have been some caught that have weighed two or three pounds each. There is another species of this fish, which is said to be much larger.

96 * The ELEPHANT'S TRUNK FISH is of the size of a large Smelt, and has a roundish body elegantly spotted, with a broad streak of a greenish colour running down the middle of the sides. The under jaw is very long, and terminates in a point almost as sharp as a needle. The taste is much like that of a Smelt.

The TOBACCO-PIPE FISH is three or four feet long, and has a body like an Eel. The snout is sharp at the end, and the mouth is without teeth. The upper jaw is shorter than the lower, and both are a little pointed. The lower jaw is scarce two inches long,
and

East Indian Hog Fish

128



East Indian Gurnard

128



Indian Eel-Pout

128



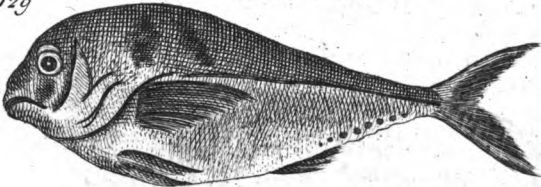
Elephant's Trunk Fish

96



Crook-back Fish

129



and consequently the cleft of the mouth must be exceeding small; the upper jaw is bony or horny, and elegantly streaked. The head is one third part as long as the whole body. The thickness of it behind the eyes is five inches, and then it gradually decreases till it comes to three at the mouth. The eyes are of the size of a hazel nut, and almost of the same shape, with a silver iris, mixed with a little red on the fore and hinder parts. Behind the vent there are two fins, and as many on the top of the back, that answer to those below, which is peculiar to this fish. The skin is as slippery as that of an Eel, and the whole back and sides are of a liver colour. There is a double row of blueish spots on the head, and another on each side. The belly is whitish.

The PIRAYA, and PIRANAH, of the *Brazilians*, is a foot in length, and six inches broad. It is hog-backed; the head is blunt like that of a Dorado, and the mouth cannot be shut close, for it has teeth that cover the lips; these are white, triangular, and exceeding sharp, being fourteen in number in each jaw, and placed in a single row. The eyes are small, and of the colour of chrysal; and a fin begins from the vent, which is armed before with a strong spine; but the other parts are soft, and covered all over with scales reaching to the root of the tail. The tail is divided into two horns, and the colour of the upper part of the body, to the lateral lines, is a light ash colour, mixed with a little blue; but the edge of every scale shines with flame and blueish colours. The lower part is of a dark yellow, as well as the fins. It delights in the muddy bottom of a river. There are two other kinds of this fish, which differ a little in colour and size.

The PIKE, or PICKEREL, has a roundish oblong body with a flat head, and square back. The snout is very prominent, almost like the bill of a duck; but the lower jaw is somewhat longer than the upper. The mouth is very wide, and the tail forked. The body is covered with small thick scales, which are moistened on the edges with a kind of slime that has a greenish cast; and the younger the fish is, the greener he appears.

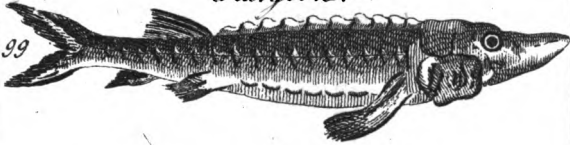
pears. The back and sides, when turned towards the light, appear to have somewhat of a golden hue. The sides are spotted with yellow, and the belly is white; but on the tail there are dusky spots and reddish lines, especially towards the corners. The teeth on the lower jaw are crooked, and there are none in the upper; but on the palate there is a triple row. The tongue is broad, black, a little forked, and rough with teeth; and the eyes are of a gold colour, seeming to be a little sunk into the head. The head and gills are spotted with a variety of small holes*.

Some

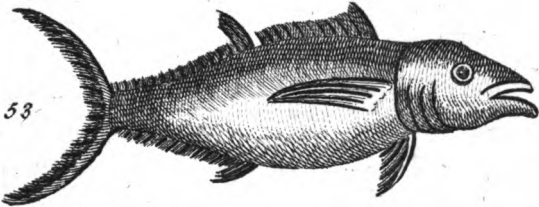
* Pike will swallow other fish almost as big as themselves, not excepting those of their own kind. The usual time of their spawning is in *March*, and sometimes sooner, if the spring is forward. They are prodigious breeders, for in one roe there were 148,000 eggs. They are in season all the year, except in spawning time, and about six weeks after it. The flesh is white, firm, dry, and sweet; but, when they weigh above twelve pounds, they contract a sort of rankness.

Pike are found in many rivers in *England*, as well as in some lakes and ponds. They haunt unfrequented places, that are shady, among rushes, water-docks, weeds, and under bushes, on a sandy, chalky, or clayey bottom, and are fond of any part of a river, where a brook or spring runs into it. They are upon the clear and gravelly shallows from *May* to *September*, and then retire into deeper waters. He takes all baits but the fly, the principal being large Gudgeons, Roach, or small Dace, of which the two last are his favourites. For want of these, you may bait with Minnows, Loaches, Bull-heads, and Bleaks, small Grigs, or a bit of an Eel; but, whatever bait you use, it must be fresh and sweet. In *July* young frogs, and in winter fat of bacon, will allure him. They bite early and late from *April* to *July*: three in the afternoon is a good time, from *July* to *September*; in the winter months all day long, but seldom in the night at any time. The best sport with him is in clear water and a gale of wind, in a dark, cloudy day; and in muddy rivers only after a flood, when the water is becoming clear. In hot, bright, sultry weather, when he suns himself at the top, he will not bite at all; nor in dark, rainy weather, when the water is discoloured by the swellings of land-floods. You must give him time to pouch the bait, and strike him directly upright. You may use either the ledger or walking-bait. Let your rod be long, and use strong tackle, with brass wire next your hook. Never let your fish-bait lie still, but move it up and down, taking care to sink it not above half a yard under water. Give him plenty of line, and his own time; and, when he returns and goes off again, strike briskly, but not too hard. He is also taken by the trowl, the snap, and snaring.

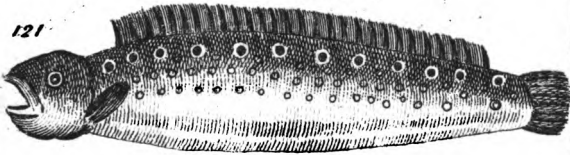
Sturgeon?



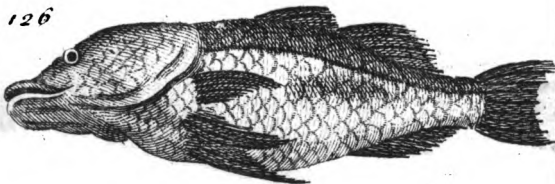
Albicore?



Butter-fish?



Bald-Pate Fish?



Some have employed the fat, the gall, the lower jaw, and the small bones that are found in the head of this fish, in medicine. The lower jaw is absorbent and detergent; many pretend it is a specific in the pleurisy and quinzy; but they are seldom used at present for these purposes, unless among the *Germans*.

90 * The STURGEON is a long fish, with a five-cornered body, so formed by five rows of horny scales, on each of which there is a thorn that is very strong and crooked. The upper row of scales, which runs along the middle of the back, are larger, and rise higher than the rest, and their number is not exactly the same in all, there being eleven in some, and in others twelve or thirteen. This row reaches to the back fin, and there ends. The lateral rows begin at the head, and end at the tail, consisting of thirty, or thirty-one scales. The lower rows, which bound or terminate the flat part of the belly, begin at the foremost fins, and end at the second pair, containing each eleven, twelve, or thirteen scales. Besides these five rows, there are only two scales in the middle of the belly below the vent. The head is of a moderate size and rough, with very small prickles, as has the rest of the body between the rows of the scales. The eyes are very small, in proportion to the bulk, and of a silver colour; the snout is long, broad, and slender, ending in a point. In the middle of the lower part of the snout, which is extended beyond the mouth, there are four barbs placed in a right line which cross the snout transversely. The mouth is small, void of teeth, and placed over against the eyes; and it has a kind of small tube or pipe, which it can draw in or thrust out at pleasure. There are no jaws, for which reason it is plain that it gets its nourishment by sucking. The tail is forked, but in such a manner, that the upper part stands out much farther than the lower. The colour of this fish is of a dusky olive, or dark-grey on the back; but the belly is of a silver colour, and the middle part of the scales is white.

They are brought daily to the markets of *Rome* and *Venice*, from whence it is plain that they abound in the *Mediterranean* sea. Yet they are but small, as they al-

ways are when they keep constantly in the salt water ; but when they enter rivers, and continue there, they grow to a monstrous size, some of them having been found to be eighteen feet in length ; and they sometimes will weigh upwards of two hundred and sixty pounds. The flesh is very common here in *England*, but then it is brought from distant places in pickle ; however, they sometimes come up the *Thames*, and other rivers, though but seldom.

It was formerly in great esteem among the *Romans*, and some pretend, that those caught in rivers are best ; while others affirm, that those taken in the sea are much finer eating, provided it be at a good distance from the shore. The flesh is every where in great esteem, and it is certainly very nourishing ; but it is so strong, that some would have Sturgeon, with regard to fish, the same as a hog among quadrupedes. It is not very proper for tender constitutions, because it is not easy of digestion ; but it suits those that are strong and robust. The male is better than the female, except she is full of spawn, and then she is generally preferred on that account, as well as for the goodness of the flesh at that time. The fat always lies heavy on the stomach, and it loosens the belly, because it relaxes the fibres of the intestines. There is a tender thick gristle that runs from the head to the tail, which some look upon as good eating after it is dried in the sun.

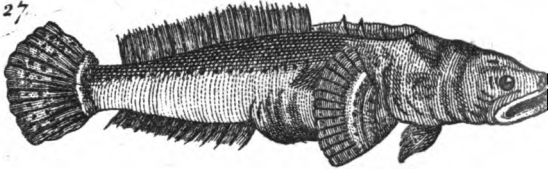
The parts of this fish used in medicine, are the bones, and the caviar, which is made of the spawn ; that brought from *Hamburg* is not much unlike green soap, with regard to the colour and substance. There are likewise large quantities brought from *Russia*, *Muscovy*, and other places. The *Italians* settled in *Russia*, carry on a great trade with it throughout that empire. They consume a great deal of caviar in *Italy* ; and it begins to be in request in *France*.

The *ADELLA* and *ADONA*, so called by the *Italians*, is thought to be a fish peculiar to the river *Po* in *Italy*. It sometimes grows, as we are told, to the weight of one thousand pounds, and is taken with a large hook fastened to the end of a chain ; and they are obliged to draw it out of the water with a yoke of oxen.

It

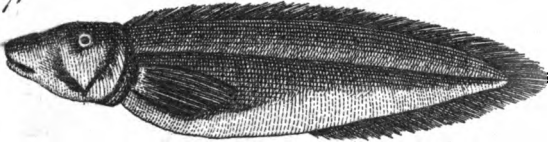
American Toad Fish?

27



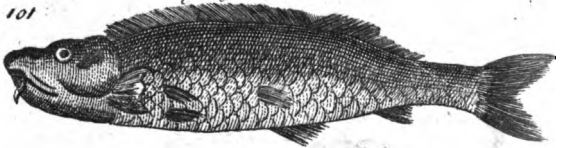
Sea Snail?

71



Isinglass-Fish?

101



Sea-Horse.

40



It differs from a Sturgeon, in being a river fish, and in its bulk. When it arrives at a certain size, it loses its barbs, which before were like those of a Sturgeon. The flesh of the Sturgeon is firm and of a pleasant taste; but that of this fish is soft, and not so agreeable. The mouth is like that of a Sturgeon, but much larger, and divided a little obliquely; besides, it is not so pointed as in a Sturgeon; add to this, that the colour of the back is whitish, and looks woolly.

100. * The ISING-GLASS FISH is of the Whale kind, and is gristly, without bones, spines, or scales. The head is thick and broad, with a large mouth, and from the upper jaw there hangs four fleshy wattles. The eyes are small for the size of the fish; and the flesh is very sweet, but stammy. The shape is oblong and roundish: it has no snout, and is covered with a yellow, hard, slippery, smooth skin. There are two small holes before the corner of the eyes, and the two fins on the back are placed erect near the tail. The gills have a thorny cover, in the same manner as a Sturgeon; but the tail is more forked, and there is also a little above the thorny covering of the gills, and on the sides of them a sort of a hole.

The HUSO, so called by the *Germans*, has a very long snout, and under it there are from four to eight barbs. There is only one fin on the back, not far from the tail; but on the belly there are two. The shape is not much unlike that of a Pike, and the belly is yellow, like that of a Carp; but the back is blackish. The body is without scales, and has no bones, but gristles. The flesh is sweet, and very agreeable to the palate, being white when raw, but red when boiled. It sometimes weighs four hundred pounds.

It is usually met with in the seas about *Muscovy*, and in the river *Danube*. They make that sort of ising-glass of the guts, stomach, tail, fins, and skin of this and the former fish, which is used by wine-merchants to fine or force their wine.

C H A P. XX.

Of Leather-mouthed River Fish.

THE mouths of these sort of fish are without teeth ; but they have some in the throat, or in the bottom of the mouth, near the stomach.

The CARP sometimes grows to the length of a yard and a half, being of a proportionable thickness ; but they are not so large in *England*, though there was one caught in the river *Thames*, near *Hampton-Court*, that weighed near thirteen pounds. The colour of this fish, especially when full grown, is yellowish, and the scales are large : the head is short, like that of a Tench, and the mouth is of a middle size, with flat, fleshy, yellow lips. It has no teeth in the mouth, but there is a triangular bone in the palate, and two other bones in the throat, which serve for the same purpose. On the upper lip, near the corner of the mouth, there are two yellow barbs, which some call mustachoes, from the situation. The fins are large, the tail broad, a little forked at the end, and of a reddish-black colour : the lateral line is straight, and passes through the middle of each side. It has no tongue ; but instead thereof there is a fleshy palate, which, taken out of the mouth, looks like a tongue.

There were no Carps in the ponds or rivers of *England* till they were brought over by *Leonard Mascall*, about one hundred and ninety years ago, as he himself informs us in his *Treatise of Fishing*. The flesh of the river Carp is better than that of ponds ; and some are highly pleased with it, while others dislike it for its being soft and insipid.

The Carp is perhaps a fish, that has the largest scales in proportion to its bulk. Some of these are brown, and others yellow and white ; the brown colour prevails in the largest scales ; the middle are of a yellow and gold colour, but the white are small and silvered.

All the scales are connected together by the membrane that covers them, but this does not hinder them from playing a little ; for, otherwise, the Carp could not bend to either side, as it always does in its motions.

If

If the outside of this fish is carefully observed, a brown line may be seen on each side, that reaches from the head to the tail : this appears to be brown, because the membrane that connects the lower part of the scales is very brown in the middle*.

The BREAM is a broad flattish fish, with a small squarish head, and a sharp snout: the top of the head is pretty broad and flat, and the back, which rises like

* Whoever fishes for Carp, especially those in rivers, must have a tolerable good share of patience, which is a virtue every angler should possess. Many very good sportsmen have angled four or six hours, for three or four days together, for a river Carp, without having had a bite; nor is it less difficult to catch a Carp in some ponds, especially where they have plenty of food, and the water is of a clayish colour. Those who angle for him must be very early; for in hot weather he never bites in the midst of the day, and very seldom in cold seasons of the year. He may be taken either with worms or paste. If you use the former, the blue marsh or meadow worm is esteemed the best, though he has been taken with other worms, when not too big, as well as the gentle. As for pastes, they are innumerable; but, doubtless, sweet pastes are best, such as are made with honey or sugar: and it would not be improper to bait the ground with your paste some hours before you angle for this crafty fish. In order to draw the Carp together in ponds, or particular parts of rivers, where you intend to try your skill, it will be conducive to your sport, to throw in, some days before, either grains or blood mixed with cow-dung or bran, or any garbage, as chickens guts, or the like, and then some of your small pellets, with which you propose to angle. If you throw in a few of these small pellets, while you are angling, it may help your sport.

That very ingenious angler, Mr. *Hawkins*, of *Twickenham*, gives the following directions for making your paste. Take the flesh of a rabbit, or cat, cut small, and bean flour; but, if that cannot easily be got, common flour may be used. Mix these together, and add to them either sugar or honey, of which the last is perhaps the best. Beat these together in a mortar, or work them in clean hands, and then make it into one or more balls for your use; but you must work or pound it so long, as to make it tough enough to hang upon your hook without washing from it, taking care, however, that it is not too hard. You may, in order to stiffen your paste, knead with it a very small quantity of white or yellowish wool. If you would have this paste keep all the year for any other fish, then mix with it virgin-wax and clarified honey: work them together with your hands before the fire, and make them into balls.

If you fish for a Carp with gentles, then put upon your hook a piece of scarlet, about half an inch square, dipping it first in oil

like that of a hog, is of a blackish-blue colour; but the belly and sides are white: the scales are large, and the mouth, for the size of the fish, very small: the mouth is without teeth; but there is a triangular bone in the palate, which is soft and fleshy, like that of a Carp: the iris of the eye is of a silver colour, and the pupil is small*.

The

of *Peter*, called by some Oil of the Rock. If you put your gentles, two or three days before, into a box or horn anointed with honey, and then place them on your hook alive, you will be as likely to kill this crafty fish this way as any other. While you are fishing in this manner, chew a little white or brown bread in your mouth, and throw it into the place where your float swims. There are many other baits used, such as grass-hoppers, green pease, &c. but *Mr. Hawkins* assures us, that, with diligence and patience, he has found the above succeed best.

The haunts of river Carp, in the winter months, are the broadest and most quiet parts of the river; but in summer they live in deep holes, nooks, and reaches, near some scour, under roots of trees, hollow banks, and, till they are near rotting, among or near great beds of weeds, flags, &c. Pond Carp cannot, with propriety, be said to have any haunts; but it is to be observed, that they love a fat, rich soil, and never thrive in a cold, hungry water. They breed three or four times a year; but their first spawning time is the beginning of *May*, and in that month and *August* they are out of season: in *March* and *April* they are in high esteem. You must fish with strong tackle, very near the bottom, and with a fine grass or gut next the hook, and use a goose-quill float. Never attempt to angle for a Carp in a boat; for they will not come near it. There are many Carp in the *Thames*, westward of *London*; and it is said, that about *February* they retire into the creeks of that river, in some of which many have been taken, with an angle, above two feet long.

* The Bream breeds both in rivers and ponds, but they delight chiefly in the latter; for which reason they are never found in swift rapid streams, but only in such parts of the river, which most resemble standing water, and have muddy bottoms. They love to keep company with each other, one hundred of them being sometimes seen in a shoal. In some places they have been found to grow to the length of three feet, and here in *England* they have weighed ten or twelve pounds; but this is not very common. The flesh, though in no great esteem, may be rendered agreeable enough with good cookery. His baits are a dock-worm, found at the roots of that plant or rushes; green flies, and butterflies; the grass-hopper in *June* and *July*, with his legs cut off, gentles, the young brood of wasps, pastes of brown bread and honey, and sheeps blood; but the best of all is a large red-worm. Barley, malt, or red-worms, are good ground-baits. They spawn

at

The **RED EYE** is akin to the **Bream**, and the shape of the body is much like one, only it is a little thicker. It is hog-backed; all the fins are of a reddish colour, and the whole body is tintured with red, especially the iris of the eyes. There is a saffron-coloured spot on the tongue, and the scales are larger than those of a **Roach**. It may be distinguished from a **Roach** by the redness of the eyes, by the saffron-coloured spot under the tongue, by the back fin having more rays, and the gut more folds. When full grown, these fish are about ten inches long.

The **TENCH** weighs with us about five or six pounds, when full grown; but in other countries they have been found to weigh twenty.

It has a small head and snout, in proportion to the size of the body; for this is broad, thick, and short: the opening of the mouth will admit one's little finger, and the jaws are without teeth; but in the throat there are five on each side: the covers of the gills consist of four plates and three crooked spines; the lateral line is crooked, and nearer the belly than the back. There are small ducts or holes on the head over the eyes; that is, one row on each side, that form a sort of a line; and under the eyes there are two other lines or rows of holes, one of which is seated near the covers of the gills, and the other beneath the lower jaw: the eyes are small, seated on the sides of the head, and the iris is red: the openings of the covers of the gills are not so large as in other fish of this kind; there are four gills on each side, each of which is furnished with a double row of knots made in the shape of a comb, and which are equal on each side to the three inner gills; but in the last of the inner knots they are almost equal to each other, and the external are longer than the internal on the upper part, though much

F 5

shorter

at *Midsummer*, and may be fished for from the end of *July* to the end of *August*, or from *April* to *Midsummer*. He bites from four to eight in the morning, and at the same hours in the evening; in windy, dull weather, all day. Though they are scarce about *London*, yet they are found in plenty in the rivers of *Surry*. When you angle for him, you must keep still and out of sight, and use strong tackle: you must fish near the bottom, give him time to bite, and strike gently.

shorter at the lower: these are all soft. The back, which is thick, rises a little above the head, and the belly is broad and flat throughout: the scales are oblong, and small, in comparison of other fish of the same kind; they adhere close to the skin, and are black upon the back, and blackish on the sides, with a little mixture of a golden or greenish-yellow colour; but it is whitish under the belly. There is a sort of slime all over this fish, that renders it as slippery as an Eel. All the fins, as well as the tail, are black or blackish, and sometimes of a dark-grey colour: the fins on the breast are blackish, almost round, and consist of seventeen rays, of which the sixteenth is longest, and the first is single and strong; but all the rest are branched at the end, and the last is small. The belly fins are also black and roundish at the edge, and consist of eleven rays, of which the first is small, the second robust and thick; but all the rest are branched at the ends. There is a single black fin on the back, consisting of twelve rays, of which the first is very short, and the second is somewhat longer, and reaches to the middle of the rest: the third is single, as well as the two first; but the rest are branched at the ends: the fin at the vent is black, and consists of eleven rays, of which the two first are small, but the third is pretty long and single, like the two former, and all the rest are branched at the ends. The tail is blackish, somewhat square, and consists of nineteen rays that are hard to count, except the last.

The flesh of this fish is a little clammy, like that of an Eel, and may probably want a little spice in the dressing; but in general it is as much in esteem as most other fish.

In the head of the Tench there are two small stones, that have an absorbent, detergent, and diuretic quality. Some apply Tenches to the feet in fevers, to cause a revulsion from the brain*.

The

* The haunts of the Tench are nearly the same with those of a Carp: they delight more in ponds than in rivers, and lie under weeds, near sluices, and at pond heads. They spawn about the

The RUDD, or FINSCALE, is broader than a Roach, or even than a Carp, and thicker than a Bream. The colour is of a dusky yellow, and the scales are of the same size as those of a Carp. The eyes are reddish; but the belly fins, and those next the vent, are of a more deep red. The covers of the gills are generally marked with blood-coloured spots, and the holes of the nostrils are double on each side: the teeth and palate are like those of a Carp, and the back fin is placed in the middle of the length of the back, having ten rays, of which the third is longest, and the first shorter by one half than the second; but it is not hooked as in the Carp, from which it may be distinguished by this mark only. The fin at the gills, on both sides, has nineteen rays, of which the first is larger than in other fish of this kind, and there are two on the belly; but that pair over-against the back fin has nine on each side. The gill-fins are whiter than the rest, and that on the back is darker: the pointed lines on the sides are but in two places; and this fish is generally from twelve to sixteen inches long. The flesh is in great esteem, and is always in season, except in the time of spawning, which is in *April*, and then it is not very good*.

The

the beginning of *July*, and are best in season from the beginning of *September* to the end of *May*: they will bite all the hot months, but are best taken in *April* and *May*. His hours are, like the Carp, early and late, in a smooth water; but the best time to angle for him is in a cloudy, drizzling or rainy morning, with a south or west wind. His baits are marsh, lob, or red worms, anointed with tar, or oils, such as will be mentioned in their proper place. He likewise takes wasps, gentles, cadis, paste made of brown bread, with a little tar; and blood and grains mixed are a good ground-bait. He must be fished for strong and near the bottom, or with worms near the middle, and must not be hurried in biting. In hot weather he may be snared, like the Pike, on the top of the water, with a double-haired link, not over-twisted, hung in a noose, and tied to a line on a long rod. Let it fall softly before him on the water, without touching him, till you have brought it over his gills; then pull gently, and you will have him. This fish is found mostly in the *Stower* in *Dorsetshire*, and is likewise in many of the ponds about *London*, particularly those of *Epping Forest*.

* This fish is common in the river *Rhine* in *Germany*, and is found in the lakes of *Holderness* in *Yorkshire*; as also in the lakes

The NOSE FISH, or BROAD SNOOUT, is a foot in length, and of the colour and shape of a Dace. The belly and sides are of a silver colour; but the fins on the lower part of the body, and the part below near the tail, are sometimes a little reddish. There is a blackish spot on the hinder part of the head, which is small; and the belly is flat and broad, with ample scales. The lateral lines are nearer to the belly than the back, and the snout, which is flat and blunt, is a little more prominent than the mouth, by which it may be distinguished from all other fish of this kind; from whence it has the name of Nose-Fish. The mouth is small without teeth, and the skull is transparent. The back fins, with regard to their situation and rays, are like those of a Bream.

The CHUB, or CHEVIN, has a longer body than a Carp, and a large blackish head. The back is of a dark green, and the belly and sides of a silver colour; however those that are fat and full grown have them of a gold colour, sprinkled with small black specks. The temples are yellowish, and the scales, as in a Carp, large and angular. The mouth, which is not large, is without teeth, and the upper jaw is a little longer than the lower. The palate is soft and furnished with a triangular bone; and the nostrils are large, open, and have each a double hole, one of which is every now and then covered with a fold. The eyes are of a middle size with an iris, which is a mixture of gold and silver colours. The tail is forked, and all the fins are of a blackish blue, though in some there is a tincture of red. The belly is broadish, and the lateral lines run parallel to the bottom of the belly*.

The

not far from *Lincoln*, besides the river *Charwell* in *Oxfordshire*. They swim in shoals, casting their spawn among the weeds that grow in the water; and the largest weigh about two pounds. They may be fished for at top-water with a fly, or a red-worm a little under. It is strong, struggles hard, and requires stout tackle, and time in landing.

* The Chub spawns in *March* or *May*, and is good till *Candlemas*, but much the best in winter. This fish, though a sharp biter, is very timorous. He will bite from sun-rise to nine in the evening

The BARBEL is about a cubit in length, and the back is of an olive colour, but a little palish, and the belly is that of silver. The back and sides are sprinkled with black spots, and the shape of the body is long and roundish, but the back is sharp, and arched. The scales are of a middle size, and the lateral lines run through the middle of the sides. The belly is so flat, that, when this fish lies with its mouth downward, it touches the earth; which circumstance is perhaps common to all fish that keep at the bottom of the water. The snout is a little sharp, and the mouth is not large, being without teeth, like the rest of this kind. The upper jaw is longer than the lower, and there are four barbs, of which two are at the corners of the mouth, and the other two are higher near the end of the snout. The tail is forked, the eyes small, looking downwards, and their iris is either of a silver or gold colour, spotted with brown. In the summer time their bellies are red.

The weight of this fish is commonly about seven or eight pounds, and yet there was one caught at *Stains* that weighed twenty-three pounds. The flesh is soft and flabby, and in no great esteem; and the spawn

is

morning in summer, and from three in the afternoon to sun-set, especially if there is a gentle wind. His baits are, in *March* or *April*, worms; in hot months, cherries, soft berries, or flies, particularly the owl-fly, which is found in gardens, with a large head, light wings, and a yellowish body. A bit of soft cheese, gentles, beetles without the legs and wings, and snails, (the black one slit, to shew the white of his belly) are proper baits. A grass-hopper on the top of a stream, and the humble bee at the bottom, a Roach in small bits, or very little Eels, generally prove remarkably successful. In *August*, and the cool months, you may use yellow paste, made of the strongest cheese pounded, mixed with a little salt butter, and died of a lemon colour with saffron: boiled malt or wheat will sometimes answer very well. He will also take paste made of cheese and turpentine, the earth-grub, ox brains, or fat bacon. He loves a large bait of two or three kinds on the hook together. He delights in large rivers under shady trees, on sandy or clayey bottoms, and where cattle come to dung, in fords, in hot weather. They swim in droves together, and are in almost every river. Strong tackle must be used, and the angler must keep out of sight. He must be played with when struck, and landed in a net. In the warmest weather, he should be fished for at mid-water, and at top; in cold weather, lower; and, when it is very cold, at the ground.

is unwholesome, purging both upwards and downwards*.

The DACE, or DARE, is like a Chub, though it is less, and a little whiter; the head also is less and not so flat; and the tail is more forked. Besides, the body is more slender and compressed, and the scales are less. The colour is generally white, and there are a sort of strait streaks between the scales. The iris of the eyes is not so yellow; nor are the tail, and back fins so black, though they are sometimes sprinkled with black spots. The teeth are not placed in the jaws, but in the throat, as in other fish of this kind. The *French* give it

* Barbel flock together like sheep, and are at the worst in *April*, about which time they spawn; but are soon after in season. He is able to live in the strongest current of water, and in summer he loves the shallowest and sharpest streams; he delights to lurk under weeds, and to feed on gravel against a rising ground: he will root and dig in the sands with his nose, like a hog, and there nest himself; though sometimes he retires to deep and swift bridges or flood-gates, where he will nest himself among piles, or in hollow places, and take such hold of moss or weeds, that, be the water ever so swift, it will not be able to force him from the place for which he contends. This is his constant custom in summer, when he and most living creatures sport themselves in the sun; but, at the approach of winter, he forsakes the swift streams and shallow waters, and by degrees returns to those parts of the river, which are quiet and deeper. Probably about this time, as well as in *April*, and in these places, they spawn, with the help of the milt: they hide their eggs in holes, which they both dig in the gravel, and then they mutually labour to cover them with the sand, to prevent their being devoured by other fish. The Barbel is curious in his baits, which must be clean and sweet, the worms well scoured, and not kept in sour and musty moss. At a well-scoured lob-worm he will bite as boldly as at any bait, especially if a night or two before you fish for him you bait the place, where you intend to angle, with big worms cut into pieces; and you need not fear either over-baiting the place, or fishing too early or late for the Barbel. He will also bite at gentles, which being green, and not too much scoured, are deemed an excellent bait. Cheese is likewise much in his esteem, if it is not too hard, but kept a day or two in a linen cloth to make it tough. If the cheese is laid in clarified honey an hour or two before you use it, it will reward your trouble. Some advise, to fish for the Barbel with sheep's tallow and cheese beat into a paste, which is an excellent bait in *August*. Observe that your rod and line be long, and of proper strength; for you will find him a heavy and dogged fish to deal with.

it the name of *Dard*, which signifies a dart, from whence the *English Dare* is derived. It is a very brisk and lively fish, and seems to dart along the water, it swims so swiftly. The flesh of this fish is sweet, soft, and yields good nourishment; but is in no great esteem*.

The ROACH is less than a Bream, and about one third as broad as long. The back is of a dusky colour, and sometimes blueish; but the belly is pale. The iris of the eyes, as well as tail and fins, are red. The lateral lines run parallel to the belly, and the tail is forked.

* Dace are found in almost every river of the kingdom, and are very large in those near *London*. They are found on gravelly bottoms, in the deepest and most shady places, as well as on the shallowest gravelly scour in hot weather. They also haunt the eddies between two mill streams, under the water-dock, and generally near the top of the water. Their baits are small red-worms: in *April*, cadews, and every sort of worms from plants and trees, more especially the oak-worm. In winter, past s, earth-grubs, and gentles; and in summer, ant and house flies. The ground-bait should be a mixture of bread and bran. Their spawning time is in *February* and *March*; but they are good again in *April* or *May*, and best in *September*. In summer they bite all day, in morning and evening best, and pretty late in the latter. The float must be very small for the deeps, having only one shot to poise it, and the hook and line very fine. The angler must not expose himself too much, it being a very shy fish; and he must strike nimbly, as soon as he bites. Between two mill streams use a cork float, and fish in the eddy, within a foot of the bottom. You must be provided with a cane rod of seventeen feet long, and the line a little longer, with three or four hooks, with single-hair links, not above four inches long. Though Dace are frequently caught with a float, yet they are not properly float fish; for they are to be taken with an artificial gnat or ant-fly, or, indeed, with almost any other small fly in season. In the *Thames*, above *Richmond*, the largest are caught with a natural green or dun grass-hopper, and sometimes with gentles; with both which you are to fish as with an artificial fly. They are not to be come at till about *September*, when the weeds begin to rot; but when you have found where they lie, which in a warm day is generally on the shallows, it is incredible what havoc you may make. Pinch off the first joint of the grass-hopper's legs, put the point of the hook in, at the head, and bring it out at the tail. But this sport can be pursued only in a boat, and is to be recommended to none, but such as live near the banks of that delightful river, between *Windsor* and *Ipsworth*, who have or can command a boat for the purpose, and can take the advantage of a still, warm, gloomy day.

forked. About the gills it is of a gold colour, and the mouth is round but void of teeth, it being a leather-mouthed fish. It will breed in ponds as well as rivers; and though the pond Roach is largest, that of the rivers is the best*.

The BLEAK, or BLEY, is a very small fish, being seldom above six inches long. The body is broadish, the head little, the scales thin, and of a silver colour, easily coming off. The back is of a blueish brown or greenish, and the eyes are large, marked on the lower side with a blood coloured spot. The skull is transparent, and the inside of the mouth is like that of a Carp. The flesh is sweet, nourishing and pleasant, and it would be in high esteem if the fish was larger.

The scales of the common Bleak are used to imitate pearls in the following manner. They take off the scales, put them into a basin with a little water, and then rub them against the bottom in the manner of grinding colours. This done they pour off the silver-coloured water into a glass, leaving the scales at the bottom; and then repeat the operation till nothing comes off; putting the water into other glasses. Then they let it settle for ten or twelve hours, when the silvery matter will sink to the bottom; and pouring off the water by inclination, that which is left behind is of a consistence of oil, and of the colour of pearls. Then they

* The Roach is principally found in shallow, gentle streams, which run over sand or gravel, with here and there deep holes at the end of scours, where they usually lie, and more especially against the mouth of a small brook or river, entering into a larger. They spawn in the middle of *May*, and may be fished for six weeks after: they bite all day. They are very plentiful in the *Thames*, but are largest in ponds. The baits for this fish are the same as those for the Dace and Chub, except that the flies must be used under water. At a *May* or ant-fly he will rise in the hot months, if they are sunk with a little lead to the bottom, near the piles or posts of bridges, or those of a weir. You must pull up your fly very leisurely, and the Roach will follow it to the very top of the water, gaze on it, run at it, and take it, lest it should escape. Gentles or paste are proper in winter; worms or cadgers, in *April*; in the hot months, a shrimp, the little white snails or flies, and a red-worm in windy weather. The ground-bait must be the same as for the Dace.

they mix it with ising-glass or fish-glew, and with this they varnish any sort of substance of the size of beads, particularly wax, alabaster, and glass; after which they will have the exact appearance of pearls. But as these are not proof against moisture, they have a method of lining the inside of glass beads therewith, blowing a little of the liquor into the inside with a small pipe. Then they shake it about till it fixes itself all over the internal surface. It has a small blueish cast, which causes these beads the more to resemble pearls. After they have done this, they throw them into a basket, and shake them together so long, that they become quite dry; and then, to render them more solid, they fill them with wax. This is the method of making the true *French* necklaces, and there are great numbers employed in *Paris* for this purpose*.

The GUDGEON is five or six inches long, with a round body, small scales, a brown back, and a whitish belly. It is sprinkled with about nine or ten pretty large blackish spots, which are placed in a right line, directly running from the head to the tail on each side. There are also others that are small on the back, tail, and fins, and at each corner of the mouth there is a barb or thread. They are to be met with in rivers almost every where; but grow to a larger size in some than others, for in that near *Uxbridge* there were four taken that weighed a pound. The flesh is in high esteem, and some think it not much inferior to a Smelt †.

The

* Bleak spawn in *March*, and are most in season in the autumn; it is an eager fish, and is found in almost every river in great plenty, and in all parts of them, having no particular haunts. You may fish for him under water in winter, with gentles, or small red-worms; and in summer, at the top or middle, house or ant-flies are good baits for him, as well as are all those for the Roach, only they must be less. He bites all day in *August*. A little bread chewed, and loosely thrown in, is a good ground-bait. Fish with a paternoster line, or whip with a fly.

† The Gudgeon spawns two or three times a year, and always in summer. They haunt the clearest sandy or gravelly bottoms, and middling sharp streams, where they lie in shoals on the shallows in summer; but get deeper about autumn, under any bridge
or

The LOACH, or GROUNDLING, is like a Gudgeon in shape and colour; but is much less and shorter, seldom weighing above four ounces. The body is soft and slippery, and the tail broad, but not forked; and there are few or no scales. The head, back, fins, and tail are sprinkled with blackish spots, and sometimes with a dirty yellow. On the upper jaw there are three pair of barbs, one at the corners of the mouth, and two near the end of the snout. The eyes are small, and have their iris yellow. The flesh is tender and delicate, and is by many swallowed alive, being thought good for a consumption*.

The PINK, or MINNOW, is a great deal less than a Gudgeon, having a roundish body only three inches long, with scales that are hardly visible, and there are no barbs. On each side there is a gold-coloured line, which runs from the head to the tail; and below that, it is mottled with scarlet in some, in others white, and in others again with a shining blue. Lastly, in some there are three lines, two being of a gold colour, and that in the middle blue †.

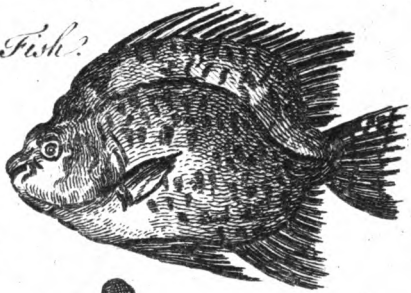
or plank in small rivers, being fond of the shade. The artist must always fish at the bottom, and a cork float is best; but the running line is preferable to all. Rake the ground very often with a long pole, or throw the earth in by handfuls, or ground-bait with crumbs of bread chewed small. Strike slowly, fish pretty fine, and let your hook and bait be small. You need not stand under cover; but may, if you chuse it, go up to the middle of your legs in water, and catch them at your feet, for they are not a shy fish. He bites all day, from *March* to *October*, the baits being gentles, pastes, wasps, cadews, red-worms, or the blood-worm found in the mud of cow-ponds near *London*. They never rise at flies, nor take them under water.

* Loach are generally found in small, clear, swift brooks, and lie under stones, pieces of wood, and the like. They spawn in the beginning of *April* among the weeds; but are never out of season. He bites at a small red-worm, or the gilt-tail, and may be fished for at any hour. The hook must be of the smallest size.

† The Minnow is found in all Trout rivers: not in deep still places, where the Trout lies; but in shallow and swift streams. His baits are any small worms, paste, cadis, or gentles, and must be angled for with a float. He spawns in *April*, and bites at bottom or mid-water all day, if it is clear; but never in dark, windy weather, or in the night, when the Trout is most ravenous

Dung-Fish.

115



Sea-Bat.

131



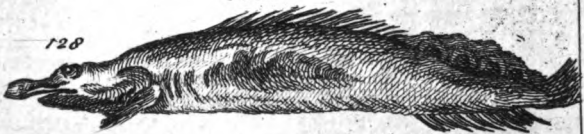
Sea Eagle.

20



Cabos

128





C H A P. XXI.

Of bony or spinous Fish, with one fin on the back, whose forward rays are stiff and thorny, and the hinder soft and flexible.

THE CUGUPU GUACU of the *Brasilians* is a very large fish, being sometimes six feet in length. The head and mouth are large; which last is without teeth, and the eyes are of a middle size, with a yellow iris. The tail-fin is almost square, and the scales are small. The whole head, back and sides, are of an ash-colour mixed with umber; but towards the back it is a little deeper. The belly is whitish, and all the fins with the tail are of a light brown. The whole head, back and sides, are sprinkled very fine with small black specks; but the belly and the rest of the fins have none.

✱ The DUNG-FISH is so called, because it delights to be near privies, where it seeks for food, and where it is generally taken. It is a broad, flat fish, hardly a span in length, and about the same breadth, with a blueish belly, and a body variegated with dusky spots. According to the figure, the forward rays of the back fin are spiny, and the backward soft.

The PARGIE differs from the *European Sea Bream* in little else besides the shape of the forepart of the body, which is almost circular, and of a greyish colour, with

nous for prey. He is considered as an excellent bait for either Trout, Pike, or Perch. They are placed on the hook in this manner: Put the hook in at his mouth, and out at his gills; then draw it through two or three inches, and put it again into his mouth, and the point and beard out at his tail; then tie the hook and his tail about with white thread, which will make it the apter to turn quick in the water; then pull back the part of the line, which was slack when you put in your hook the second time: pull that so far back, that it may fasten the head in such a manner, that the body shall be straight on the hook. Loach and Sticklebacks are put on the same way. Artificial ones of tin are now sold common at the shops.

with streaked yellow lines, that reach from the head to the tail.

The GILT HEAD or GILT POLL, is a broad fish compressed on the sides not much unlike a Bream. It seldom grows to be above two spans in length, nor weighs more than eight pounds. The scales are of a middle size, and the back is blackish; at the upper corner of the cover of the gills there is generally a black spot, and below them is sometimes another of a purple colour. Between the eyes there is an arched stripe, somewhat like a half moon of a gold colour, from whence it takes its name. The convex part turns towards the snout, and the horns towards the eyes. The teeth in each jaw are oblong and roundish, and the back is sharp and furrowed; the tail is forked, and the flesh is greatly esteemed for its fine taste and wholesomeness. It is often seen in the fish markets of *Genoa*, *Venice*, and *Rome*; and is sometimes taken near the coasts of *England*.

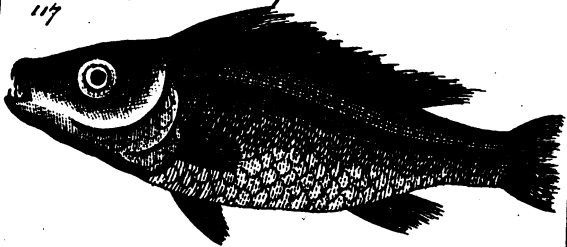
The DENTALE, so named by the *Italians*, is not much unlike a Sea Bream, though it is thicker and longer, in proportion to the size. The head is depressed, the snout oblong, and the back sharp, being of a dirty green, or yellowish colour, and sometimes purplish, in those that are large, sprinkled with bright blue and black spots, as well as on the sides. There is a row of teeth in each jaw, of which four are more conspicuous than the rest, and are like dog-teeth; from whence this fish has its name; for *dens* signifies a tooth. The eyes are large, with a golden iris. It is a common fish at *Venice* and *Rome*, and commonly weighs three or four pounds, though some have been seen that weigh ten.

The SEA BARBEL is of a silver colour, but whitest on the back, and the body is oblong, with ten transverse blackish lines on each side. The tail is forked, the head longish, and the iris of the eyes is of a gold colour. The lips are thick, prominent, and rough, it having no teeth, except in the bottom of the mouth, where there are grinders. The barbs are joined by a thin membrane to the lower jaw, and the scales stick closely to the skin. The flesh is well tasted.

The

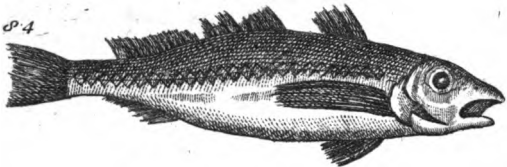
Old Wife?

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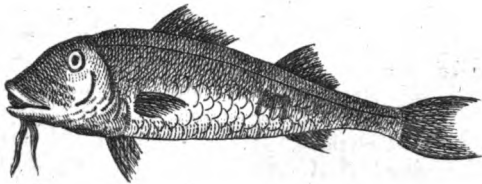
Sind?

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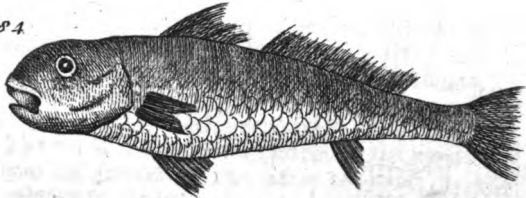
Mullet?

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Umbrá

84



The MÆNAS is in shape like a Pearch, but broader and more compressed, and six inches in length. The colour is of a light green or yellowish, and there are darkish transverse spaces, and blueish lines that run according to the length of the body, with a large black spot on each side. The tail is a little forked, and the eyes are less than those of the Ox-eye, with a silver coloured iris. The mouth appears small when shut, but when open it is very wide; for the upper lip expands itself like a tube, and is contracted again when the mouth is shut, the upper part having a sort of prop, which is received into a kind of sheath made in the upper jaw, which make is peculiar to this fish. It is caught in the *Mediterranean sea*.

The BOGA, so called by the *Italians*, is about a span in length, and of a slender roundish make. The scales are pretty large, and the back of a yellowish olive colour. The lateral lines are dark and broad, and beneath them, on each side, are four golden parallel lines, with a mixture of silver colour, that run from the head to the tail. The eyes are large, for which reason it is called by some BOOPS, that is OX-EYE, and they have a silver coloured iris. The mouth is of a middle size, and furnished with small teeth. It is common in the sea near the coast of *Italy*. There are some other species of this fish.



C H A P. XXII.

Of Fish of the Wrasse, or Old-Wife kind.

✱ THE COMMON WRASSE, OR OLD-WIFE, is nearly of the shape of a river Tench, and nine inches in length, but it has larger scales. The colour is mottled with red, yellowish, and brown lines placed alternately, and running from the head to the tail, being five or six in number. The snout is oblong and turns upwards; and the lips are thick, fleshy, standing out beyond the jaws; but the mouth is small. The teeth in the jaws are serrated, but not very

very sharp; and the fins are mottled with red, blue, and yellow. The tail when expanded is roundish. This fish is called in *Latin* TURDUS, with signifies a THRUSH, because it resembles one in its spots and colours; and indeed there is no sort of fish we know of, which has so great a variety. It is to be met with in the *British* and *Irish* seas, and is more delightful to the eye, than pleasant to the taste.

The LESSER GREEN WRASSE is green over all the body, as well above as below; but some of them have blueish spots about the belly, and the body is more broad and thick than that of others of this kind. The fins are a little spotted, and it has a purple tubercle near the vent. The Black Wrasse, is so called from its black or dun colour, inclining to blue. The Leprous Wrasse of *Belonius*, does not differ from the former, except in the variety of its colours.

The PAINTED WRASSE is of a middle size, between the longer and broader fish of this kind, and weighs about three pounds. The variegated Wrasse is like the former, and the greater Green Wrasse has an oblong body, which is in shape not unlike a Pike. The lower part of the body is of a lighter colour, and sprinkled with yellowish and ash-coloured spots. The oblong brown spotted Wrasse differs little from the former, except in the colours.

The ANTHIAS is of the colour of a Sea Bream, that is reddish. The fin that runs from the head to the tail is almost red, and the first prickle of it is tall and strong. The belly fins are much longer and more slender than those on the gills, and they are all, as well as the tail, of a reddish colour. The head is roundish, and the snout prominent.

The SACCHET, of the *Venetians*, is a small fish of the shape of a Pearch, and like it in colour as well as in the transverse rings. The fins are like those of the Mænas, and the mouth is wide, the snout sharp, and the lower jaw longer than the upper; but they both are furnished with very small teeth. The iris of the eyes is of a silver colour, and the tail is forked, variegated with transverse golden lines. The scales are small, and the back-fin behind the spiny rays are marked with a
black

black spot, which is the peculiar characteristick of this fish.

The CHARMA is a sea fish, with a body in shape like that of a Sea-Wolf, as is also, the cleft of the mouth. The lower jaw is longer than the upper, which makes the mouth seem to be always open. The teeth are sharp, the eyes small, and the back is of a blackish red. The lines that run from the head to the tail are reddish, and the tail is sprinkled with red spots, as well as the fin behind the vent, that runs to the tail.

The SEA PEARCH is a foot in length, and of the shape of a River Pearch, nor is the colour much different; besides, the back and sides are marked with six or seven transverse stripes. The whole head, and the fore part of the belly, are elegantly painted with blue and red stripes, and the back fins, as well as that behind the vent, are sprinkled with spots, partly yellow, and partly of a saffron colour. The tail, belly, and gill-fins are variegated with yellow specks, or red lines. But the colours in these fish differ with regard to age, sex, and the places which they frequent. The snout is more sharp than that of a river Pearch, and the mouth is exceeding large, in proportion to the bulk of the fish, being always open. The eyes are large, with a yellow, and sometimes red iris, and the aperture of the gills is very wide. At the corner of the outward plate of the cover of the gills there are two great broad spines. The scales are of a middle size, the belly a little prominent, and the flesh delicate. It is very common at *Venice* and *Marseilles*.

The ACARA-AYA is three feet in length, and is of the shape of a Carp. The teeth are sharp and small; but there are two more long and thick on the upper jaw. The eyes are large, with a blood-red circle without, and silver-coloured within. There are said to be two fins on the back, and the tail is broad, and almost divided into two horns. The scales are middle sized, and of a silver colour, shaded with another of the colour of blood. The belly is entirely white; but all the fins are of a blood colour, except the belly-fins, which are white: their extremities are of the former colour.

The

The SEA SCORPION weighs about a pound, and has a thick body in proportion to its length. The head is very large and full of prickles; but the body is small towards the tail, and the belly tumid. It is hog-backed, and the shape in general is like that of a *Pearch*. The colour is of a dirty yellow, spotted with black, and the scales are small like those of Serpents. The covers of the gill-fins are also full of prickles. The space between the eyes is concave; and the eyes are large and prominent placed near each other; and over each there is a small fin. The mouth is very wide, and the jaws are rough, with small teeth. The fin on the back is low in the middle, and the tail is roundish. There is another Sea Scorpion, which differs from this in being three or four times as big, in being red all over, and variegated with black spots.

The RUFF is of the shape of a *Pearch*; but is less, and wants the transverse blackish stripes. The scales are of a middle size, and are a little fringed on the edges, which render this fish very rough, from whence it has its *English* name. The back is of a dirty yellowish green, and the lower part of the sides of a palish yellow; about the covers of the gills, it is of a shining gold colour, whence it is called by some the *Gilded Pearch*. The back, and upper part of the sides are sprinkled with blackish specks and spots. It is a river fish*.

The SCHRAITFER, so called at *Ratisbon*, is very common at that place. It is taken out of the *Danube*, and agrees with a Ruff, in having spines on the edge of the upper plate of the covers of the gills, and in having only one fin on the back, with rays, partly spinous, and partly soft, and spotted membranes between them. It differs from it in being of a longer and rounder make, and a back that does not rise so much; likewise the snout is longer, and in the prickles, which in that are only fourteen in the back fin, but in this are

* This fish usually haunts deep waters that run quietly, and there are generally great numbers of them together in one favourite place. It is a greedy biter; and, if the angler has found where they lie, he may catch forty or fifty, and sometimes as many more, at one standing. His bait is a small red-worm.

are eighteen. There are also two blackish lines running on the length of the sides, of which the upper begins above the pointed line, and then crosses it; besides, the colour between the lines is whiter, and the tail more forked.

✱ The GUNNEL, so called in *Cornwall*, and by some the BUTTER-FISH, is sometimes about six inches long, but scarce an inch broad. The body is slender and compressed, and the colour is mottled with dark, red, green, and white, with transverse stripes alternately placed. At the root of the back-fin, which runs from the head to the tail, all whose rays are spinous, it is beautifully spotted with round spots on both sides, which are black, and surrounded with a whitish ring; these are ten or twelve in number, and placed at equal distances through the whole length of the back, from the head to the tail, which mark is peculiar to this fish. One straight continued stripe runs from the head to the vent.

✱ The FATHER-LASHER, so called by the boys of *Cornwall*, and by the *Dutch* POT-SHEFT, is six or nine inches long, and of the shape of a Bull-head. The head is pretty large, and covered with prickles; but the body is small, and the belly broad and flat. On the back, above the lateral lines, there are three or four roughish broad transverse spaces of a blackish colour; but the intermediate spaces are more pale. The covers of the gills are connected below, and appear like a mantle thrown over his head and shoulders. There are two fins on the back, the more forward of which has eight or nine rays; which, when the fish is grown up, are a little stiff, as well as spinous. The circumference of the tail, when it is expanded, is somewhat roundish. The nostrils are small, the mouth large, and armed with several rows of sharp teeth, and the tongue is broad, large, and smooth. The eyes are covered with a loose transparent skin, and the pupils are small, and encompassed with a red circle. It will live a long while out of the water, and it feeds upon shrimps, the young fry of fish, and sea insects.

The STICKLEBACK, or SHARPLING, is the least of all fish we know. It has only one fin on the back, with three distinct prickles placed before it. On the belly there are two others that are larger, stronger, and joined to a very hard bone; for, in the room of belly fins, there are two bony triangular plates. It can raise the prickles up, or depress them towards the tail, as it pleases. The mouth is furnished with very small teeth: the upper jaw is a little longer than the lower; and about the vent it is spotted with black*.

The SEA STICKLEBACK has a square body about an inch thick, and nine inches long; towards the tail, it is also square and very slender. The skin is smooth, and blackish on the back, but the belly is of a whitish yellow. The head is not unlike that of a Pike, only it is longer. It hath two gill-fins, and another of a triangular shape on the back, from which there runs a straight row of fifteen prickles a little inclined, but distinct, and not connected together by a membrane. In the middle of the belly there are two prickles, and one at the vent. A triangular fin terminates the tail.



C H A P. XXIII.

Of American Fish with a single Fin on the Back, whose Rays are all spinous.

THE ACARAPUCA, of the *Brafilians*, is a river fish half a yard in length, and four or five inches broad. The snout is sharp at the end, and the mouth is without teeth. The eyes are large, with an iris mixed with white and brown. Every part shines with small scales of a silver colour, only on the back there is a little mixture of gold. On each side there are six oblong blueish red spots, which are not very conspicuous, and the

* This fish is found in every river, lake, brook, pond, and even in ditches. It is taken with a bit of red-worm; and, with his prickles cut off, is used as a bait for Pike, Trout, Eels, &c. For the manner of placing him on the hook, see the note at the bottom of page 115.

the back fins, as well as the tail, are of a light blue, and so are the side fins. There are two at the bottom of the belly, which, with those near the vent, are a little yellowish.

The GUATACUPA JUBA, of the *Brafilians*, grows to the length of two feet, and has a back a little crooked. The snout is triangular, and sharp at the end, and the teeth are exceeding small, with large eyes, which have a red iris. The fins are as in the former, only they are white as well as the belly. The scales are pretty large, of a silver colour, and there are stripes of a silver colour with a reddish cast, which run along the body from the head to the tail. The head is of a yellowish silver colour mixed with red.

The ACARA, of the *Brafilians*, is three inches in length, and has a body not unlike a Pearch. The mouth is narrow, and the jaws as rough as a file. The eyes are not large, but have a golden circle, and the fins are as in the former. The tail is oblong, and the scales are pretty large, of a silver colour; but on the head, back, and sides, they are mixed with umber. In the middle of each there is a large black spot, as also near the root of the tail. This is a river fish, and keeps constantly in fresh water.

The ACRAPITAMBA, of the *Brafilians*, has an oblong body like a Barbel, and grows to the length of two feet and better. The mouth is small, furnished with teeth, and the eyes are large, with a red iris. The tail is five inches long, and forked; and the scales are like those of a Carp, but of a blue purple colour. The lateral lines are of a gold colour, and an inch and half broad, running from the eyes to the tail. Above these lines there are golden specks, and under them fine yellow lines running according to the length of the fish. The back-fin and the tail, are as it were gilded, and those on the belly and sides are of a whitish yellow. Their fins shine greatly in the night.

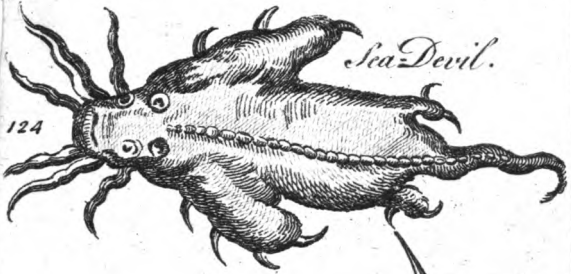
The URIBACO, of the *Brafilians*, has a crooked back, a protuberant belly, and is fifteen or sixteen inches long, and five or six broad. The teeth are small and sharp, the gills and the eyes large, with a silver coloured iris mixed with a little red. The fins are like

the rest of this kind, only those on the sides and belly are whitish, or of a silver colour. The back-fin, and the tail, which is divided into two horns, have more of red than of a silver colour. The scales are large, and are all of a silver colour, with a little reddish cast. The lateral lines are red, above which there is a large black spot on each side of the backward part of the body.

The SEA DEVIL is four feet long, and broad in proportion. It has a bunch on its back, covered with thorns or prickles, like those of a hedge-hog; and the skin is hard, unequal, rough, and of a black colour, rising into several small bunches, between which there are two small black eyes. The mouth is extremely wide, and armed with several very sharp teeth, two of which are crooked, like those of a wild boar. It has four fins and a broad tail forked at the end; but that which gave it the name of a Sea Devil, are two black sharp horns over the eyes, which bend towards the back. It is a very frightful fish, and its flesh is a deadly poison.

✱ There is likewise another SEA-DEVIL on the gold coast of *Guinea*, which has four eyes, is twenty-five feet in length, and about eighteen broad. On each side there is an angular substance as hard as horn, and very sharp; the tail is as long as a whip, and has also a dangerous point. The back is covered with small lumps, two inches high, and sharp at the ends; the head is large, but there is no appearance of any neck, and the mouth is furnished with flat cutting teeth. Two of the eyes are near the throat, which are round and large; and the other two are placed above them, but very small. On each side the throat there are three horns of an equal length, the middlemost of which is three feet long, and an inch and a half in diameter; but they are flexible, and can do little harm. The flesh is tough, and not fit to be eaten.

The PIRA ACANGATARA, that is the fish with a hard head, is of the size of a middling Peach, being seven or eight inches long; it has a mouth of a moderate size, with eyes that have an iris of a dark gold colour mixed with red, and the tail is forked. The scales are of a silver colour, with a flame-coloured cast, and on the belly they are of a silver colour, inclining to a
sea.

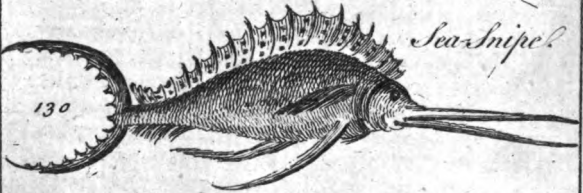


Sea-Devil.

Triangular-Horned-Fish?



Sea-Cat?



Sea-Snipe?

sea green. The back-fin shines like silver, and is marked with brown spots. The side fins are white, those on the belly blueish, and the tail-fin is blueish at the end.

The PIRA NEMA, of the *Brafilians*, is of the size of a middling Carp, being ten or eleven inches long, and three broad. The mouth is wide, roundish, and without teeth, but the jaws are rough. The eyes are large, with a white iris, only the upper part is red. The gills are very large, and the fins are placed as in the rest of this kind, but the back-fin reaches from the hinder part of the head to the tail, and has twenty-two spines. The whole fish is of a silver colour, with a cast of that of gum lack; but in the body it is lighter, being almost white.

The RED PUDIANO, or BODIANO, is of the size of a middling Pearch, and two inches in breadth. The head is small, the snout sharp, and the mouth armed with little sharp teeth. The eyes are a little prominent, with a double circle, the outermost of which is white, and the inner yellow. The fins are the same with regard to the number, shape, and situation, as in the former; and the body is covered with fine scales, closely united. The colour of the whole body is yellow mixed with gold, only the top of the head, and the whole back, to the middle of the sides, is of a fine purple mixed with black.

The GREEN PUDIANO has an oblong body, and from the extremity of the snout to the beginning of the tail, is ten inches long and three broad, with a sharp snout; at the end of the upper jaw, there are two sharp long teeth, and then a row of small ones. In the under jaw, there are four of the same kind, and behind them a row of lesser white teeth. The eyes are small, with a circle about the pupil, which is of a gold colour within, and whitish on the outside. The back fin is of a gold colour, with blue undulated streaks according to the length, and the lateral fins are whitish, with a blue line about the circumference. The belly-fins are of the same colour, and that at the vent of a reddish brown, with blue streaks. The tail is reddish, streaked with a sea green colour, and the scales are broad and yellow,

inclining to gold, with a most beautiful blue on the edges. The upper part of the head is of a gold colour, with a large sea-green spot surrounded with azure, and variegated with blue, yellow, greenish, and whitish streaks.



C H A P. XXIV.

Of East-India Fish not fully described.

✱ **T**HE SEA HOG is about fifteen or sixteen inches long, and seven broad. It has a very thick skin, and such close hard scales that scarce any instrument will pierce them; but when boiled, the scales come off with ease, and then the skin is very soft. The flesh is white, resembling the breast of a chicken, and the mouth small in proportion to the size, but is armed with two rows of white shining teeth. On the back, which is brown, there is a sharp fin, which this fish can erect at pleasure, and such another opposite to it on the belly. The belly is of a shining silver white, but the sides are mixed with yellow, which gradually turns to an ash colour on the back. It has large brown shining eyes, and when boiled, is very well tasted.

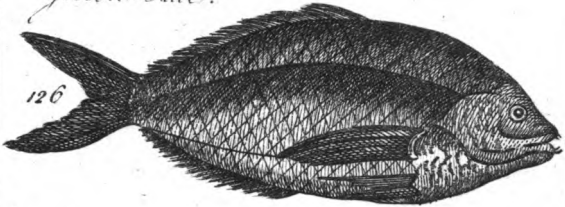
✱ The **STONE BREAM** is four feet long, and in shape like our common Breams, with large eyes, a big red mouth, and the fins, and extremity of the tail, are of the same colour. They are taken at sea with a hook, and the flesh is excellent, dressed any way.

✱ The **BALD PATE** is so called, from having no scales on the head and neck, though the rest of the body is covered with them. It is of a greyish colour; the mouth, which is very wide, is spotted with red, and the eyes are large, yellow, and prominent. It is taken in the rivers as well as the sea, and the flesh is exceeding good.

✱ The **YELLOW TAIL** is of the shape and size of a Bream, with very sharp prominent teeth on the fore part of the mouth. The back is inclining to yellow, and

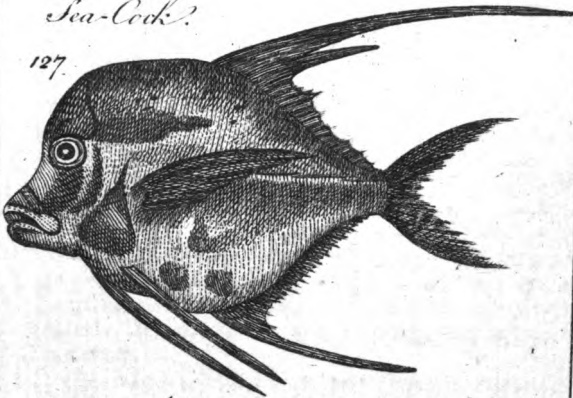
Yellow-Tail?

126



Sea-Cock?

127



Raven Fish

127



Indian Kaelt Fish.

127



and the tail is of a bright yellow; but the belly is blue, inclining to brown towards the fore part. It has red fins; it is caught in the sea near the rocks, and is in high esteem.

✕ The KAELT FISH is somewhat like a Pike, with a mouth full of sharp teeth, and the eyes are large and bright. The belly and tail are of a purple colour, and the back brown. It is about a foot and a half in length. It swims very swiftly, and is well tasted, though the flesh is a little hard.

✕ The RAVEN FISH has a mouth like a bill under the head, and is about a span long, with a red back and tail, but the belly is inclining to yellow, and has two yellow streaks on each side. It is a very firm fish, and wholesome. It is taken in salt waters.

The KING'S FISH is so called, because it is in the highest esteem in the *East-Indies*. It is five feet in length, with a long forked tail, and the back and sides are full of brown spots; but the belly is white.

✕ The INDIAN SEA EEL, or WATER SERPENT, is about three feet long, and of a brown colour, variegated with black spots, like the skin of a Serpent: the fore part of the body is slender; but it is as thick again towards the tail, and has a long head and mouth, with sharp teeth, which are exceeding small. It delights in rocky places, and is valued as a dainty.

✕ The SEA COCK is more like a sea monster than a fish, and is about two feet long, with a broad thick body, a great part whereof belongs to the head. On the back there are two long fins, but one is longer than the other, and below there are three more that are very long and slender. The tail is forked, and of a brown colour, but the belly is yellow: the skin glitters like silver, and the fins are red. It is caught in the salt water.

✕ The WHITE FISH has a thick short head, and a brown back, with a blue belly, inclining to yellow: the flesh is pretty well tasted.

✕ The GRUNTING FISH is so called from the noise it makes when taken. It is very plump, and about a span in length, with a head not unlike a Ruff:

there are three lines, which run on each side, two brown, and one yellow. The flesh is very well tasted.

✱ The HOG FISH is not above a span in length; the colour of the scales is inclining to a blackish green; the fins and tail are of the same colour, but the eyes are yellow. It is a fresh-water fish, very plump, fat, and well tasted.

✱ The *East-Indian* GURNARD is almost round, with a skin full of knobs and spots, and of a brownish colour streaked with black: the head is very thick, short, and full of knobs, with a large mouth and red eyes: the tail is also very round and short, and on each side of the body is a red fin. The flesh is pretty well tasted.

✱ The SEA LOUSE is an odd sort of a fish, covered with a shell, about a foot in length. It has the appearance of a round lump, with a very long tail, and small legs or fins on each side. Its colour is gray, inclining to green. It is caught near *Batavia*, and is very seldom eaten, unless by the *Javanese* and *Chinese*.

✱ The *East-Indian* LAMPREY, or rather EEL-POUT, is about a foot long, with a smooth skin, slippery like an Eel, though not shaped like one. It is brown on the back, there are yellow spots on the belly, and the fins under the belly are purple: the head is made like that of a Snail, having feelers thereon: the fins are venomous, though the flesh is agreeable to the taste. It is caught in ponds and lakes.

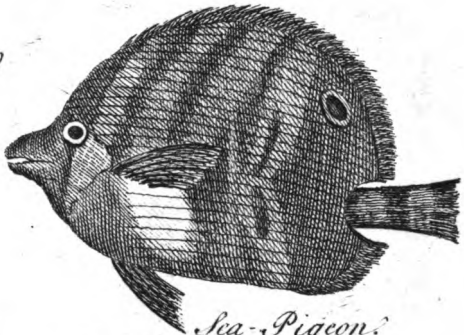
✱ The CABOS is a kind of an Eel-Pout, but larger than the former, being about two feet in length, and very fat: the skin is also very smooth, without scales, and of a brownish colour: the snout is pale, spotted with black, and the head is short, with the eyes in the forehead. The flesh is very well tasted.

✱ The PEN FISH is also a kind of Eel Pout, with a smooth skin, without scales, and is about a foot in length: the back is brown, the belly of a pale blue, and the fins are also brown; but they are very sharp and venomous. The flesh is well tasted, but unwholesome when eaten too freely. It inhabits lakes and ponds.

The

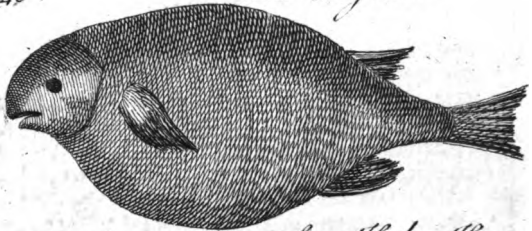
Indian Flat - Fish?

129



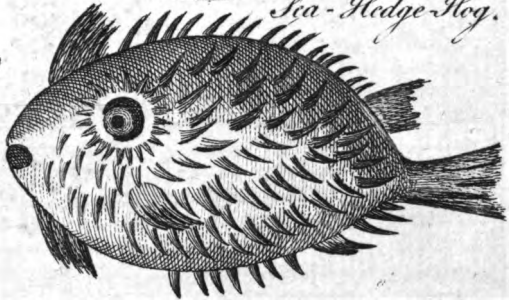
49

Sea-Pigeon?



39

Sea-Hedge-Hog.



69

Sucking-Fish?



✱ The CROOK-BACK FISH is so named from its shape, and has a smooth skin without scales, with a white belly, yellow fins and tail. It sometimes grows to above four feet in length, and the flesh is in great request all over the *East-Indies*, on account of its agreeable taste.

✱ The HORN FISH is so called from the horn it has on the top of its head, or beginning of the back. It is about a span in length, or somewhat more, with a large head, and little mouth, one half of this fish being nothing but head: the skin is very bright, the back blueish, the belly white, and the fins and tail yellow.

✱ The FLAT FISH is about a foot long, with a smooth skin without scales, and a white mouth: the body shines all over like silver, and on the back there is a small fin, with one on each side. Under the belly there is a single fin, which is in the room of a tail. It is a fresh-water fish, and is very well tasted; but is full of small bones, for which reason it is of no great value.

The PARROT FISH is so called from its mouth, which is hooked like the bill of a Parrot. It is a foot in length, and sometimes more, and the colour is greenish, variegated near the head with yellow: the fins are blue as well as the eyes, which are very sprightly and large, having a yellow iris: the scales are very large, and there are two rows of strong teeth in the mouth, with which it breaks open Muscles and Oysters. The flesh is very firm and well tasted.

The CHINESE FISH is round, and about a span in length, with a head like an Eel, small eyes and a long tail. It is green on the back, and white on the belly. It is a fresh-water fish, and those caught in rivers are good; but those taken out of ponds are unwholesome.

✱ The PIT FISH is no bigger than a small Smelt, and has a round body without scales, and full of green and yellow spots: they are remarkable for their being able to thrust their eyes out of the head, and to draw them in again. The fins on the back are sharp pointed, and, though they delight in muddy places, the flesh

is very well tasted. It is a very nimble fish, and will leap a great way.

The EAST-INDIAN MULLET is a very fine fish, which they dry in the sun, and transport to distant places. It is of a white colour, chequered with blue and purple, and swims very swiftly. It is so nimble, that it will not only leap over a net, but even a fisherman's boat.

* The SEA SNIPE is so called from its mouth, which resembles the bill of the land Snipe. Some are five feet long, with a head like that of a hog, and have large bright eyes: there is a long sharp fin on the back, which reaches from the head to the tail, and is very broad and full of spots.

* The SEA KORETTE is six or seven inches in length, with large yellowish eyes, and a forked yellowish grey tail: the fins are yellow, and under the belly, which is blue inclining to green, and under the tail, there are several fins: they are very bright, and shine like silver, when they are caught at sea with hooks. The flesh is very well tasted, and not unwholesome.

* The SEA CAT is an odd-shaped fish, whose eyes are exceeding large, in proportion to the body: the back is of a purple colour, and the belly is blue spotted with purple: the tail, in proportion to the body, is very broad, besides which there are no fins, except on the fore part of the head, where there are seven, which point directly forwards like the feelers of Shrimps.

* Another SEA CAT is of a very strange shape, the back part being an oval lump, on which the head seems to hang. It has long large eyes, and a smooth skin inclining to blue, only the belly is brown. The entrails of this fish contain a glutinous matter, which serves the *Chinese* to make ink of.

The LEAPING FISH is so called, because they are always leaping and playing on the surface of the water. It is about the size of a Herring, and is without fins on the back: the head is full of knots, and the body is of a greyish colour, spotted with black; but towards the belly the spots are lighter. It is a sea fish, and well tasted, especially when broiled.

The

The PAMPUS is about a foot in length, and a span broad, being not unlike a Plaice; but the skin is smooth: the eyes are placed on both sides, and the mouth directly in the middle. It is well tasted.

✱ The *East-Indian* WHITING is about the size of our Whiting, and has a round prominent belly, a straight back, and a turned-up mouth. The tail is forked, and it has only one large fin on the back, with several small ones between the belly and the tail. It is full of streaks all over the body, and there are two barbs under the mouth. The flesh is very well tasted.

The FIVE-FINGERED FISH takes its name from five black spots on each side, resembling the prints of fingers. It is about a foot and a half long, with a small head, a large mouth, and brown pointed fins towards the tail: the colour is of a shining blue, mixed with purple; but there are no scales on the body. It is pretty well tasted, and is very common in the *East-Indian* seas.

The ROUND FISH has some resemblance to a Whiting, only it has a small head and tail, and a prominent belly, with fins on the lower part of it, like those of an Eel. The flesh is very well tasted.

✱ The SPOTTED FISH is of a light colour, spotted with brown: the head is short and conical, on the top of which is a sharp fin bending backwards: the tail is broad, and on the back is a very wide fin, near the tail, and a small one under the belly.

✱ The SEA BAT is about eight inches in length, and nearly as broad: two large spines proceed from the under jaw, and on the back and belly are two large fins, which resemble wings: the tail fin is like that of a Dorado.

✱ Another SEA BAT has a head like a toad, is of a darkish colour, and the fins very much resemble the wings of the bird called a Bat. The tail is long, and something like that of the Sharp-snouted Ray.

The FORK-TAIL FISH has a long round body, with a very long forked tail, from whence it takes its name. Its head resembles that of a Herring, with a long barb or bristle on the top of it, and two more below the mouth, like those of Shrimps, but larger,

which they keep close to the body when they are swimming. The size is like that of a Mackrel, but the taste is not extraordinary.

✕ The PYED FISH is so called from its colour, its tail and fins being brown, spotted with pale blue spots. It is about a foot in length, pretty thick, and without scales: the eyes, which are yellow, are surrounded with a blue circle, and under the throat there hangs a crop. It has a little mouth, and on each side there is a yellow fin. It is in great esteem among the native *Indians*, being well tasted; but in some part of the belly there is a venomous matter, which must be taken out when gutted.



C H A P. XXV.

Of the West Indian Fish.

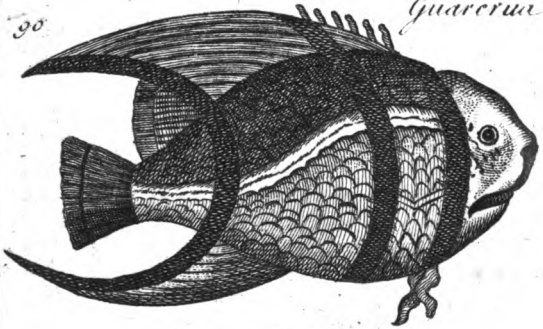
THE BECUNE, or SEA PIKE, is very like a river Pike, only it is much larger; for sometimes it is met with above eight feet in length. It is a very greedy fish, and most dangerous in the water; because it can bite more easily than a shark, and will not be driven away by any noise that can be made. The flesh has the same taste as a fresh-water Pike; but there is often great danger in eating it; for, unless the teeth are white, and the liver sweet, it is venomous.

The CARANGUE is a white flat fish, and yet the eyes are placed on each side the head. It is from two to three feet in length, eighteen inches broad, and six thick: the back fins are very unequal, and those on the gills are pointed, and very near the head: the tail is forked. These fish are in great numbers near the *Caribbee* islands, and the flesh is exceeding good, even preferable to that of a Trout.

The CAPTAIN is a fish that is red all over, and has one fin on its back, which is very long when it is erected, and armed with large prickles; the gill fins are of the same make, and they fight other fish therewith. It is pretty much like a Carp, being covered with

90

Guarcrua?



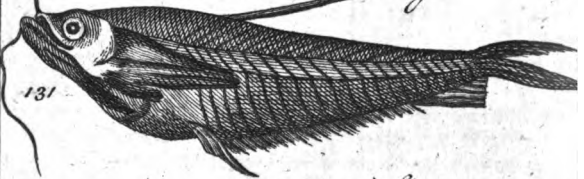
129

Pit-Fish?



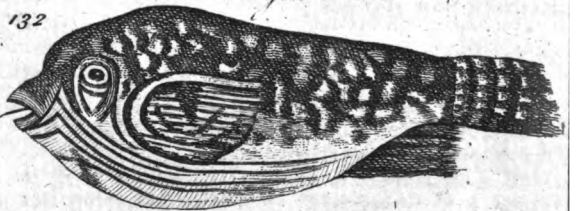
East-Indian Whiting

131



132

Pyed-Fish?



with scales like that fish ; but it is much more long and thick, some being above three feet long, and ten inches in diameter. These fish swim in shoals, and it is common to take ten or a dozen of them at a time in a net : there are some six feet long, thick in proportion, and covered all over with spots twice as big as those of a Carp. The flesh is white, well tasted, and very nourishing.

The SEA NEEDLE, of the *West Indies*, has a square body, above a foot in length, and of a blueish colour. It is a little greenish on the back, and of a silver colour under the belly : the head is almost triangular, and at the two upper corners of it there are yellow eyes, and a snout near ten inches long, which is hard, slender, and as sharp as a needle : the mouth is armed with small hooked teeth, and the lower jaw is longer than the upper : the fin that runs from the head to the tail is green, and shines like glass ; and there are two fins near the head, besides two others under the belly : the tail is forked like that of a Mackrel, and is white and well tasted.

The SEA PARROT is in shape much like a Carp, and all the scales on the back are of a brownish green ; but those below it, as far as the belly, are of a light green. It has no teeth, but in their room there are two exceeding hard bones : the fins and tail are beautifully variegated with blue, yellow, and red, insomuch that, when they are expanded, they look as beautiful as a Parrot or Parroquet, from whence it has its name, and not from its snout, like that taken notice of before. The flesh is good, well tasted, and nourishing.

The MURÆNA, of the *West Indies*, is a sort of a Sea Serpent, but shaped like an Eel, though not so round : they are seldom seen above two feet in length, and four inches in breadth. The head is round, and the mouth wide, armed with two rows of strong teeth, as sharp as needles : the skin of the female is brown, and variegated with spots, like flowers of a gold colour ; but the male has only a row of gilt spots that run from the head to the tail. The greatest particularity of this fish is, that the great fin, which runs from

from the head to the tail, has rays that bend forward instead of backward.

The **PILOT FISH** is about the size and shape of a Mackrel, with a long smooth head, and a snout which advances four inches beyond the mouth. It has two small fins near the head, and one that runs along the back from the head to the tail, besides another under the belly of the same length: the head is very small, and the body is covered with a skin that has spots in the form of a lozenge. The *French* call it a Pilot Fish, because, as they say, when it meets with a ship it always follows it till it reaches the harbour; it likewise keeps company with Sharks.



C H A P. XXVI.

Of the African Fish, near the Cape of Good Hope.

THE SILVER FISH is of the shape and size of a Carp of a pound weight, and the taste is not much different. It is of a whitish colour, and adorned with silver shining stripes, that run transversely from the back to the sides, whence it seems to be covered with leaf silver: the mouth is furnished with small sharp teeth.

The **BENNET** is a sea fish, and is often taken with a hook by the sailors. It is nearly as long and as thick as a man's arm, and weighs six or eight pounds. It is a very beautiful fish, having large scales of a deep purple colour streaked with gold: the eyes are red, the mouth little, and without teeth; and near the gills there are two fins of a gold colour: the tail is red, and looks like a pair of scissors when open: the scales are transparent, for when they are taken off the skin is of a shining purple: the flesh is red, and divided into flakes by a sort of membrane; though it is a little dry and hard, it is well tasted, and easy of digestion.

The **HOTTENTOT FISH** are so called, because the *Dutch* first bought these fish of the *Hottentots*. They are of two or three sorts, one of which has its back
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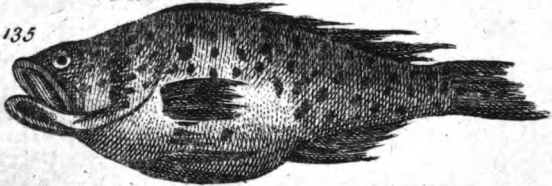
128

Pew-Fish.



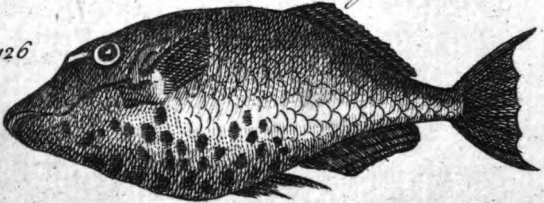
135

Jacob-Evertsen Fish.



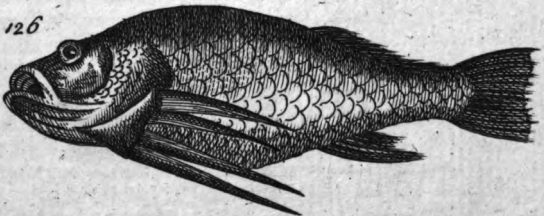
126

East-Indian Sea-Hog.



126

Stone Bream.



and sides of a blackish colour, and the head of a dark purple. Another sort is of a deep blue, and seems to be spotted. The first sort is somewhat more round, broader and shorter than the second. It weighs about a pound, and is seven or eight inches long. These may be called Sea Breams, from their likeness to that fish*.

* The JACOB EVERTSEN FISH is called the SEA-BREAM by the *Dutch*. There are two sorts of them, the first of which is covered with red scales spotted with blue, except the middle of the body, which is of a gold colour, and on the belly it is of a pale red. The eyes are large and red, with silver-coloured circles about them; but the mouth is small, and furnished with slender teeth; it appears to be under the throat, and its flesh is excellent and very wholesome. The second sort differs from the former in being larger, in having a smaller mouth, and under the throat it is of a deep red. All these fish keep in the sea, but the two last are seldom met with in deep water.

This fish has its name from *Jacob Evertsen*, who lived at the *Cape*, and had a large red nose, with a skin so pitted with the small pox, that when he was shaved some of the hair always remained in the pits. At this time his face had a great resemblance to the Red Bream, as well on account of its colour, as the spots which remained. This man sailed once to the island of *St. Maurice* to take these fish; and the ship's company being on shore, and in a pleasant humour, bestowed upon them the captain's name, which they have kept ever since, not only at the *Cape of Good Hope*, but in the *East-Indies*.

The CABELJAU, so called by the *Dutch*, is of an ash colour, and covered with large scales, and there is

* These fish feed upon sea-weeds, and any filth that is thrown into the sea. They are but seldom caught with a net, unless driven by a tempest near the shore. The *Hottentots* take them with an angle, whistling and making as much noise as they can at the same time; for they imagine this makes them bite sooner. This fish is very wholesome and well tasted, and when the fishermen cannot dispose of them while fresh, they salt and dry them in the sun, and keep them to sell to the masters of ships.

is a black list runs from the head to the tail. It is two or three feet long, and has very hard fins. This fish is very nourishing, and good for the slaves as well as such as work hard.

The PLAICE, so called, because it is like one, being a flat fish near an inch thick. On each side the mouth there is a large round spot, which shines like crystal. The snout is pointed, and almost transparent; but the lower jaw is covered with a rough skin. There are also shining spots on several parts of the body, and the tail is very thin. The flesh is very hard and not easy of digestion, nor is it well tasted. It has no spines or bones, it being a gristly fish.

The STOMPNEUSEN, that is the flat nose, is so called, because the fore part of the head is flat, the scales are large and of a purple colour, and they have great eyes, with round sharp teeth.

The ZEE-TONG is little different from a Sole, if not the same fish. Some of those that are so called have small scales, and others have none at all. The eyes are upon the back, which is blackish as well as the fins; but those under the belly are white, the belly itself being of the same colour.



C H A P. XXVII.

Of bloodless soft Fish.

THE POLYPUS, or MANY-FOOTED FISH, is large, and resembles a Cuttle Fish, having a belly of the same shape. The gullet is long, and at the end of it there is a crop connected to the belly, with only one gut that has no fold. The head, when it is alive, is very hard, and seems to be inflated. It has eight long thick paws or feet, which serve for swimming, walking, and bringing any thing to its mouth when it wants to eat. These paws are at some distance from each other, but they are joined together by a thick membrane; and the four on the middle are the largest. The other four may be called barbs, and

and the eyes are placed on the top of two of these paws, and between them is the mouth furnished with teeth. It carries on its back a long body made like a tube or pipe, which it makes use of like a rudder when swimming. The flesh is not covered with any apparent skin, and it is spongy, hard, and not easy of digestion*.

* The CUTTLE FISH is of an oblong shape, being about six inches in length, and three and a half in thickness. The body is somewhat oval; but broadest near the head, and grows smaller towards the extremity, where it is obtusely pointed. Its back is covered with a shell as large as a man's hand, and about an inch thick in the middle, but it is more slender on the sides. It is hard above, but very spongy and brittle below, being very white, and tastes a little saltish: the goldsmiths make use of it for many purposes. Under its throat there is a vessel or bladder full of liquor blacker than ink, which it sheds in the water when it wants to be concealed, or would escape from the fishermen. There are two sorts of legs joined to the head, which serves this fish for swimming and bringing any thing to its mouth. The two shortest are in the middle, and are ferrated on the inside. Next to them are two long ones, one on each side, and the six remaining are generally turned backwards, being of a pyramidal figure. It lives upon small fish, and is met with near the shores of the ocean, as well as of the *Mediterranean* sea. The flesh is good to eat.

The CALAMARY, or the SLEEVE FISH, is akin to a Cuttle Fish, and has an oblong gristly body covered with two skins, in which it differs from the Cuttle Fish, and in having softer flesh; however, it has ten legs, four of which, in the middle, are pyramidal, and have rough bony tubercles on the insides of each. On each side of these is another, which is very long and thick at the extremities, which seem to have tubercles like shells thereon, as the two following pair

* This fish is found in the *Adriatick* sea, and feeds upon shellfish, as well as upon human bodies, when it meets with any; it will likewise eat fruits, herbs, and is fond of oil.

pair have through their whole length, that is on the inside, and are also of a pyramidal shape. On the belly there are two receptacles full of very black liquor, which might serve for ink.



CH A P. XXVIII.

Of Crustaceous Fish.

TH E S E are of a middle kind, between the soft and shell-fish; for being covered with a thin shell, they in some sort agree with the shelly kind; and as the inside is fleshy, they in that respect agree with those just described. There is one circumstance peculiar to these animals, or at least as far as we know hitherto, namely, that if by any chance they lose one or more of their claws, not excepting the largest, they will grow again.

The LOBSTER is so well known, that it stands in little need of a description. The shell is black before it is boiled, but afterwards it is red. It has eight claws, or legs, of which the two foremost are by much the largest. Lobsters always feed at the bottom of the water, and seize on their prey with their large claws; and when nothing better offers, they search the beds of mud and gravel for the worms that lie therein. The flesh is well known to be a great restorative, and good for consumptive people.

The stones taken out of Lobsters, falsely and improperly called Crab's eyes, are found in the bodies of fish of this kind, which produce two every year, that is one on each side the lower part of the stomach, and nearest the head. These stones take their origin between the two membranes of that organ.

Lobsters once a year, and about the beginning of *May*, cast their old shells, and nature supplies them with a new one. Some days before this necessary change, the animal ceases to take its usual food. Just before casting its shell, it rubs its legs against each other, and uses other very violent motions of the body.

body. It then swells itself in an unusual manner, and by this means the shell begins to divide at its junctures, between the body and the tail. Then, by the same operation, it disengages itself of every part, one after the other, each part of the joints bursting longitudinally till the animal is quite at liberty. This operation, however, is so violent and painful, that many of them die under it: those which survive are feeble, and their naked muscles soft to the touch, being covered with a thin membrane; but in less than two days this membrane hardens in a surprising manner, and a new shell, as impenetrable as the former, supplies the place of that laid aside*.

The SEA LOCUST, or PRAWN, is a sort of Lobster, and has two large horns or feelers placed before the eyes. They are rough and prickly near the roots, where they are very thick, and from thence they grow smooth and more slender till they terminate in a point. They can move them on which side they please. The eyes are horny, standing out of the head; they are moveable every way, and are defended with exceeding sharp prickles. On the sides of the mouth there are small appendages like little feet, the back is very rough, with prickles, and on the forehead there is a large one. On each side there are five claws, the foremost of which are very small in comparison with those of a Lobster. The tail is smooth, being without prickles, and they consist of five shells, which terminate in fins on each side, which enable them to swim from place to place; and in this tail the whole strength of the Prawn consists. The two fore teeth are very large, and between the mouth and the stomach there is a small one, as also several in the stomach itself. They receive the water through the mouth, which they transmit to the gills, that are more numerous in this fish than in any other of this kind. The back is of a blueish black, and the
upper

* Lobsters are taken in pots, as the fishermen call them, which are made of wicker-work. In these they put the bait, and throw them to the bottom of the sea, in six or ten fathom water. The Lobsters creep into these for the sake of the bait, but are not able to get out again.

upper fore teeth are three times larger than the lower ; but they are both sharp pointed. They are found in the *Mediterranean sea*, particularly near *Genoa*. The flesh is very good, and they are best when the spawn is within the body at the time of the full moon *.

The ELEPHANT LOBSTER is shaped pretty much like a common Lobster, only the fore claws are longer, and the nippers, which are more thin and broad, open wider than in any of this kind. There are three small claws next the large ones, which are long and prickly ; and there are two more, one on each side, which are very small and smooth, having neither prickles nor hairs. There are two very long feelers that are exceeding small, besides other short ones, on the forehead, among which there is a short one in the middle, which is not ferrated. These last serve as a defence for the eyes, which are horny and prominent. The whole body is undulated, like watered tabby, and the shells of the tail, as in other Lobsters, end in five fins variegated with lines. The flesh is accounted a delicacy in *Italy*.

The RIVER CRAY FISH differs little or nothing from some Lobsters, except that of being less. The body is round, and the head is terminated by a pretty broad horn, which is short and pointed, under which the eyes are placed. On the fore part of the head there are four feelers or horns, two long and two short, and the ends terminate in hairs. The pinchers are forked, rough, dentated, consisting of five joints, and there are four feet on each side, the two first of which, next the pinchers, are cloven at the end, and the next two are each furnished with a spur. The upper part of the body is covered with five shelly plates, and on the tail there are five fins †.

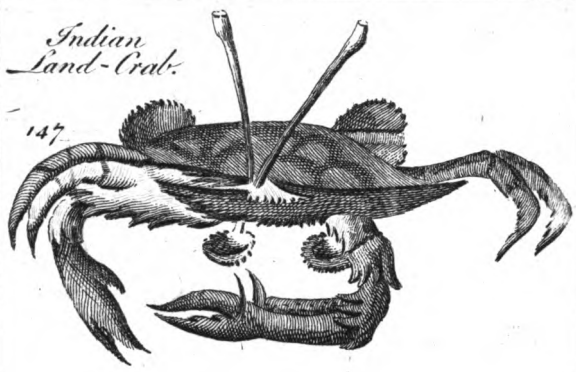
- The

* In the winter, these fish frequent the rocky places near the shores ; but in the summer they go back to the deeps. They feed upon the fry of fishes, and spawn about *August*.

† Cray-fish are to be found in almost every brook, river, and rivulet in *England*, though in some parts more than others. Their places of abode are in holes on the sides of banks, under the surface of the water, where those employed in taking them put in their hands and draw them out. Some are so expert in taking them, that they will catch several dozen in an afternoon.

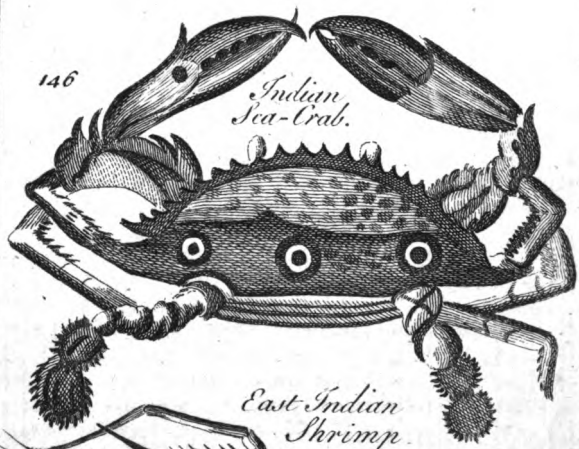
*Indian
Land-Crab.*

147



146

*Indian
Sea-Crab.*



*East Indian
Shrimp.*

141



The SHRIMP has a tail somewhat like the Lobster kind, but it has no nippers; yet has more claws. In some places they are blackish in the spring, but afterwards become white. Some have sharp horns fixed at the top of the head; among which the eyes are placed, and the gut runs through the tail, as in the former. They live in salt water lakes, and in rocky places on the sea shore. In the *East-Indian* seas, they are of a larger size, and keep at the bottom.

The COMMON SHRIMP is the smallest of this kind, and is truly and properly the Shrimp. Some of these are so small, that a thousand will scarce weigh a pound; but this kind is not known in *England*, though it is common at *Venice*, and in *Gascony*, where they eat them without taking off the shells. The shape of our Shrimp is like that of the gibbous kind, from which it differs very little, except in size. It is common on the sea shore, and in the mouths of large rivers, as well as at a considerable distance from the sea. The flesh is very sweet, and is commonly used as sauce for other fish, though sometimes they are eaten alone.

✱ There is a SHRIMP in the *East-Indies*, that grows to be near a span in length, and has a shell like ours. It is of a fallow colour, with a red forked tail. Several feelers proceed out of the head, two of which are more remarkable than the rest, being long and slender. The flesh is very well tasted, and five or six are sufficient for a meal.

The SEA CRAB is of different kinds, and therefore it is no wonder the description should differ in different authors. They have generally a roundish body; the back is a little arched, and the tail turns up under it, lying in a cavity made for that purpose. They are of different sizes, for some will weigh a great many pounds, but those that are most common, are equal to about twelve ounces. The male is distinguished from the female by having a broader tail, in the same manner as Lobsters. But as a Crab is generally well known, it does not need any farther description.

The SQUARE CRAB, of the *Caribbee-Islands*, is not above two inches long or broad. It has two nippers, which are very short and brittle, as well as the shell and every

every other part of its body. They are met with among the rocks by the sea side, where great numbers of their old shells are seen, which they cast every year; and they are so entire, that any one would think the bodies of the Crabs were still within them. The only difference is, that when they are living they are grey; but when the shells are deserted, they are beautifully variegated with red and white. They have two small prominent eyes, which look like transparent grains of barley, and they shine like crystal. They are said to be very careful in watching the opening of Oysters, Mussels, and other shell-fish; for then they throw themselves into the shells to devour the fish. There is another sort, that have a shell, which conceals all their feet, and the tail is as sharp as a dagger at the end. The shell is not larger than a crown-piece; but the tail is as long as a man's little finger. Under this shell there are five small feet, which are all nippers, and with which they pinch those that catch them; however, they can do no great harm.

The VIOLET CRAB, of the *Caribbee-Islands*, is a land animal, and is in shape like two hands cut through the middle and joined together; for each side looks like four fingers, and the two nippers resemble thumbs. All the rest of the body is covered with a shell as large as a man's hand, and bunched in the middle; on the fore part of which there are two long eyes, of the size of a grain of barley, as transparent as crystal, and as hard as horn. A little below these is the mouth, covered with a sort of barbs, under which there are two broad sharp teeth, as white as snow: they are not placed, as in other animals, above and below, but on each side, not much unlike the blades of a pair of scissors. With these teeth they can easily cut leaves, fruits, and rotten wood, which is their common food.

The shell is full of a thick, fat, fibrous liquor, with which the inhabitants make sauces. In the middle of this there is a bitter substance, which the inhabitants call the gall; but which, however, is nothing else than the stomach. Under the body there is a sort of breast-plate, composed of several pieces set together, and under it there are five or six barbs on each side.

These are generally of a violet colour, though there are some variegated with blue, white, and violet. The circumstance most worthy of admiration in this fish is, their descending from the mountains in *April* or *May*, when the rains first begin to fall; for then they fall out from the hollow trees, and rotten stumps, under the rocks, and from a vast number of holes, which they make in the earth. Then the ground is covered with them, insomuch, that you cannot set your foot thereon without treading upon them. They seem to be afraid, that the rain should not last long enough; for they get down to the river sides and marshy places as fast as they can, that they may secure a retreat, if the weather should become fair, and that they may shelter themselves from the heat of the sun-beams, which they do not at all like.

They descend in as much order as an army under the command of a general, and are commonly divided into three bands or companies; of which the first consists of the males, which are more strong, large, and robust, than the females, and consequently are most proper to overcome obstacles, and clear the way for the rest. These are like the avant-guard of an army, and are often obliged to halt for want of rain, and seek a new lodging till the weather changes. The main body of the army is composed of females, which never leave the mountains till the rain is set in for some time; and then they fall into the fields, being formed as it were into battalions, near three miles in length, and forty or fifty paces in breadth, but so close, that they almost cover the ground.

Three or four days after, the rear-guard follows, which consists of males and females, in the same number and order as the former; but they do not all take the same rout; for some follow the course of the rivers and canals made by the floods, and some march across the woods, but not in such great numbers as the former. They proceed very slowly in the night time, and in the day, when it rains; but when the sun shines, they get to the sides of woods to avoid the heat, waiting till the cool of the evening. When they are terrified, they march back in a confused and disorderly manner, holding

holding up their nippers, with which they pinch so hard, that they tear off a piece of the skin : they clatter these nippers from time to time, by striking them together, as it were, to threaten those that come to disturb them.

If it happens, in their descent, that the rain ceases, and the weather becomes fine, which is not seldom, they all make a halt, and take up their lodging where they can, some under the roots, and others within hollow trees ; but those that have no such opportunity, make holes in the earth.

In dry seasons, they are sometimes three months in getting down to the sea side ; whereas, in heavy rains, they will reach it in eight or ten days.

When they have gained the sea, they go into the water and cast their spawn. All the Crabs in these islands, as well great as small, males and females, make a progress once a year down to the sea, where, when they are arrived, they let the waves, that beat upon the shore, flow over them two or three times, and then withdraw to seek a lodging. In the mean time, the spawn grows larger, proceeds out of the body, and sticks to the bars under the breast-plate. There is a bunch of them as big as a hen's egg, which are like the roes of Herrings. Some days after, they go to the sea again, where they shake off their eggs, and about two thirds of them are immediately devoured by the fish, which the native *Caribbees* call *Tytira*, that are then so numerous, that the sea near the shore is quite black with them. This is an excellent season for fishing ; for then, with one draught of the net, they catch as many fish as twenty men can draw out. The eggs of the Crabs that escape are hatched under the sand, and soon after millions at a time of these little Crabs are seen travelling towards the mountains.

When the spawning time is over, these animals become so feeble and lean, that they can hardly creep along, and the flesh at that time changes its colour ; for which reason most of them stay in the flat parts till they recover, making holes in the earth, which they stop the mouths of with soil and leaves, that no air may enter

enter therein. There they throw off their old shells, which they leave, as it were, quite whole; and it is hard to say how they can get out, especially when it is considered what a great number of joints there are. After this, the Crabs are quite naked, and almost without motion for six days together; but then they are fat, fleshy, and in very good order, being covered with nothing but a very fine skin, which in process of time hardens into a shell.

The WHITE CRAB, of the *Caribbee Islands*, is also a land Crab, and has nearly the same property as the former; but with this difference, that they are so much bigger, that one of the White ones is worth three of the Violet.

* The SOLDIER CRAB is about three or four inches long, and half the body is covered with a hard skin or shell. Four of the feet have two nippers, of which one is no larger than the other feet; but the other is thicker than a man's thumb, with which it can pinch very strongly, and it serves to stop up the mouth of the shell wherein it lodges. The rest of the body is like a little pudding, covered with a rough thick skin, and is of the size of a man's finger, though not above half as long. At the end of this, there is a short tail, composed of three small nails or shells.

They descend every year to the sea side to change their shells; for the back part of the body is quite naked. As soon as they are hatched, they every one go in search of a shell proportionable to their bulk, thrusting their back parts therein, and then they march along as cloathed in armour, from whence they have the name of Soldiers. They go up to the tops of mountains, and take their lodgings in hollow trees, where they live upon leaves, rotten wood, and fruits. The next year, when the shells begin to grow too little, they travel down to the sea side again, in search of others that fit them better. When they are there, they stop to examine the shells that they meet with, and, when they have found one they think will do, they immediately quit their old one, and get into it.

Sometimes it happens, that two make choice of the same shell, and then a battle ensues; for they will

fight and bite each other till one of them yields, and resigns the shell to the conqueror. When he has got possession, he takes three or four turns upon the shore, and if he likes it, he keeps it; otherwise he betakes himself to his old one again, and then chuses another. This they do often five or six times, till they get one to their liking. Within these shells there is about half a spoonful of clear water, which is looked upon as a sovereign remedy against pimples or other breakings out, especially those that are caused by the water that drops from the leaves of the machineel trees. When they are taken, they seem to be very angry, and have a cry like *gre, gre, gre*, endeavouring to lay hold of the person's hand, which, when they do, they will sooner suffer themselves to be killed, than to let go their hold.

* The SEA CRAB of the *East Indies* is about a span in breadth, and of a most curious colour, the shell being speckled with yellow spots; besides which there are three of a purple colour inclosed with white rings. The claws are yellowish next the body, afterwards white, and at the extremities of a deep purple. The eyes have somewhat the appearance of small tacks, and stand out an inch from the head.

* The GUAIA APARA is a *South American* CRAB, beautifully variegated, One end of the body is terminated with a circle, and the other by a right line. It is three inches broad, and two and a half long, though some of them grow to a larger size. The fore part of the shell is of a dark brown, variegated with whitish spots; and the hinder is of a whitish yellow, adorned with brown streaks that run according to the length. It has eight roundish feet or claws, with four joints, which are of a whitish yellow colour. Besides these, there are two great claws or nippers, each two inches and a half long, and half an inch broad: the nippers themselves are but small; for which reason it cannot lay hold of any thing so firmly as other Crabs. The upper part of these claws is armed and dentated like a Cock's comb. The nippers are somewhat like the bill of a Cock, which, with the whole leg or claw, represents the fore part of the head
of

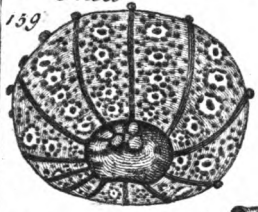
130

Indian Sea-Cat?



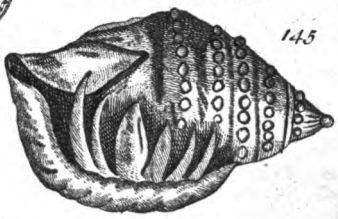
Ribbed Music Shell

159



Soldier Crab.

145



American Crab.

140



Sea-Louse?

120



of that animal, together with its comb. These are also of a whitish yellow, variegated with brown spots. As it swims in the water, it blows it up like the bubbling of a spring.

✱ The GUANHUMI, or *Indian LAND CRAB*, is of a roundish body, but a little compressed, and of the size of an orange. It has eight legs or claws five inches long, with four joints, and the lower parts are covered with long hairs: the mouth is large, and hairy on its sides for about an inch, as well as the rest of the body. Of the great legs or claws, the right is big, and the left small, the right being eight inches long and two broad; but the left is scarce so long by three parts: the eyes are thrust out like two small pills, and are drawn in at pleasure. About the mouth there are two feelers, if they may be so called; for they are short, and can be drawn in at the will of this animal.

All these Crabs have one property, which is very wonderful. When their nippers are laid hold of, they can part with them very easily to make their escape; besides, if one of them is wounded, they immediately part with it, and so get rid of the limb and wound together. However, in a year's time, there are other claws, which grow in the room of the former.

There are, besides these Crabs already mentioned, a great variety of others taken notice of by naturalists, such as the Blue Crab, the Green Crab, &c. all which we shall here omit as very little interesting to the youthful student, or the generality of readers.

The POTIQUIIYA, of the *Brafilians*, is a Sea Prawn. The length of the body, from the fore part of the head to the tail, is seven inches, and the tail six: the breadth of the shell on the back is seven inches, and of the belly two and a half: the tail consists of seven shells, with as many joints placed over against each other, and on the lower part of each side there are four fins an inch and a half long, and one broad; likewise the lateral extremities of each plate end in a sharp horn. There are ten claws, five on each side, with five joints, and the first pair are six inches long, the next nine, the third a foot, the fourth seven inches, and the fifth five. They have each a crooked sharp

nail, beset with many yellow hairs, like hair-pencils. The fore-leg is an inch thick, but the rest are smaller: the shell is covered with various sorts of tubercles, like horns, with sharp points: the eyes are prominent, and of the shape of a cylinder, having behind them two straight horns bending forwards, and an inch in length. Before the eyes, and over the mouth, there are four feelers, two of which are as thick as a man's thumb at their rise, where there are four joints; and they are a foot and a half long, being beset with prickles on all sides. Between these there are two less with four joints, but they are smooth, being without prickles; and about half way from the head they are divided in two, being all together ten inches long.

The PARANCARE is a sort of Crab, or rather Lobster, that lives in a borrowed shell, and is three inches long; but the flesh is not eatable. The two fore-legs have nippers, and there are four others three inches long, and behind these four more that are short. The tail is an inch and a half long, and the eyes are long and prominent. There are two barbs consisting of tufts of hair. The body is covered with a skin of a dark chestnut colour; and the tail is of the same colour streaked with black, according to its length. The lower part of the body is blueish, as are the eyes and barb; and over every part are hairs of the colour of oker. The shell it lives in is about four inches long and turbinated, being of a palish yellow colour.



C H A P. XXIX.

Of the Tortoise, or Land and Sea Turtle.

THIS animal is by some authors placed among Quadrupeds; but it may without any great impropriety be inserted here; especially as all systems of this kind are arbitrary.

The TORTOISE, or TURTLE, is of various kinds, and these are distinguished into Land and Sea Tortoises.

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That dissected by the academists at *Paris* was of the former sort, and was brought from the coast of *Coromandel* in the *East-Indies*. It was four feet and a half in length from the extremity of the mouth to the extremity of the tail, and fourteen inches thick. The shell was three feet long and two broad.

Some of the ancient writers, particularly *Pliny*, pretend to have seen Tortoise-shells fifteen cubits in length; and that one of them was sufficient to cover a hut which was large enough to lodge several persons. However, this was a Land Tortoise, and those mentioned by the *Roman* authors were Sea Tortoises, where animals generally grow much larger than those of the same kind which live on land. However it may be a doubt, whether *Pliny* was not mistaken in the measure of the shells mentioned by him; because there have been none so large ever seen since.

The shell, and every part of this creature, was of a very dark grey. The upper part was composed of several pieces of a different figure; though most of them had five corners. All these pieces were connected to a bone, which like a skull inclosed the entrails of the animal. It had one opening before to let out the head, shoulders, and fore-legs, and another behind to let out the hinder legs and thighs. This bone, to which the scales or plates were fastened, was in some places near an inch and a half thick.

One part of this bone lay upon the back, and the other under the belly; they were united on the sides, and were tied or connected together by strong ligaments, which however allowed the liberty of motion. What we commonly call the shell will loosen from the bone, after it has been kept some time; but when it is to be taken off immediately, the bone is to be laid upon the fire, and then the shell will readily separate from it.

At the great opening before there was a raised border at the top, to allow sufficient liberty for the neck and head to raise themselves upward. This bending of the neck is of great use to the Tortoise; for by this means they can turn themselves when laid upon their back. A certain Tortoise being laid upon his back, and not

being able to make use of his paws to turn himself, because they can only bend forwards towards the belly, endeavoured to help himself with his neck and head, which he turned sometimes on one side, and sometimes on the other, by pushing against the ground, and so rocked himself as in a cradle, till at length he was able to rowl quite on one side, and so get upon his legs.

Three great pieces of shells lay forwards upon the back; and in the middle of each was a round stud about a quarter of an inch in height, and an inch and half broad. Those parts which were not under the shell were all covered with a loose skin of a grain like *Spanish* leather, full of wrinkles. There was no skin under the shell to cover the parts which were enclosed therein; but it was connected to the edge of each of the two apertures or openings. The skin on the head was much thinner than that on the other parts. It was seven inches in length and five in breadth; and had some resemblance to the head of a Serpent.

The lower jaw was near as thick as the upper, and there were no apertures for the ears. The nostrils at the end of the mouth were only two little round holes, which made a very uncouth appearance. The eyes were small and frightful, and had no upper eye-lid, they being shut only by means of the lower, which may be lifted up to the eye-brow. Towards the extremity of the jaw bones near the lips, the skin was as hard as a horn; the lips themselves were jagged like a saw, and on the inside there were two rows of teeth.

On each of the fore-paws there were five toes, or rather nails; for the toes could not be distinguished but by the nails, the paws themselves terminating in a round mass, from which the nails grew out. The fore legs were nine inches in length, from the top of the shoulder to the end of the nails, and the hinder legs eleven from the knee to the same parts. The nails were an inch and a half long, and rounded away both above and below, being as it were cut in an oval figure, or perhaps worn away with use. Their colour was black and white in different places, and without any regularity.

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The tail was large, being six inches in diameter at the beginning, and fourteen inches in length, terminating at the point like the horn of an Ox. The tail happened to be bent at the time of this animal's death, and could never be made straight by any artifice or force whatever. The same inflexibility was found in the muscles of the jaws, which could not be opened but by cutting these muscles asunder*.

The tongue was of a pyramidal shape, and was an inch in length, and one third of an inch broad; but it was but the twelfth part of an inch in thickness.

The ears had no outward orifices; but under a skin which lay over a depression, on the side of the temples, there was a round hole like the orbit of the eye, which was closed by a kind of gristly plait, that was very moveable, and was connected all round the hole to the parts below by a very thin membrane.

Those that have given a description of the *Caribbee Islands* have affirmed, that this animal is deaf; but there is little reason to think so.

* The COMMON LAND TORTOISE is full of yellow and black spots on the back; the upper part of the shell is very convex, and the lower is flat. It has a little head much like that of a Serpent, which he can put out or hide within his shell just as occasion requires. He has no upper eye-lid; nor has he any ear or orifice instead of one like the former. In the winter time he hides himself in the earth, and there continues without any food.

The COMMON SEA TORTOISE differs from the LAND TORTOISE chiefly in size, which is larger; but the shell is not so beautiful, and is of a softer consistence. The feet are like the fins of fish, because they are used for swimming. They grow to a very great bulk, for some of them near *Brazil* and the *Caribbee Islands* are sufficient to dine eighty or an hundred men.

H 4

The

* The academists at *Paris* give us an instance of the head of a small Tortoise, which, for half an hour after it was cut off, would clack with its jaws, and make a noise like that of castanets. They suppose, from the stiffness of the tail, that the Tortoise must have vast strength in that part, and that he may use it as an offensive weapon.

The HAWKS-BILL TURTLE has a long and small mouth, somewhat resembling the bill of a Hawk. This is the Turtle that produces the shell so much admired in *Europe* for making combs, snuff-boxes, and the like. They generally weigh about three pounds; but the largest of all six pounds. The shell consists of thirteen leaves or plates, and of which eight are flat and five hollow. They are raised and taken off by the means of fire, which is made under it after the flesh is taken out. As soon as the heat affects the leaves, they are easily raised with the point of a knife. The flesh is but indifferent food.

The GREEN TURTLE is so called, because the shell is greener than that of any other. It is very clear, and better clouded than that of the Hawks-bill, but it is so exceeding thin, that it is only used in inlaying. These Turtles are generally larger than the Hawks-bill, and sometimes weigh three hundred pounds. Their heads are round and small, and their backs flatter than that of the Hawks-bill.

The TURTLE in general is a dull, heavy, stupid animal, its brain being no bigger than a small bean, though the head is very large. The flesh is so like beef, that it would hardly be distinguished from it, if it was not for the colour of the fat, which is of a yellowish green.

They feed upon moss, grass, and sea-weeds, unless in the time of breeding, when they forsake their common haunts, and are supposed to eat nothing. Both the male and female are fat at the beginning of this season; but, before they return, the male becomes so lean, that he is not fit to eat, while the female continues in good plight, and the flesh agreeable, to the very last. They couple in the water, and are said to be nine days in performing this work. They begin in *March*, and continue till *May* *.

Authors

* The coupling time is one of the principal seasons for catching Turtles; for they are very easily discovered when they are in the action. As soon as they are perceived, two or three people draw near them in a canoe, and either slip a noose round their necks or on one of their feet. If they have no line, they lay hold of them
by

Authors mention other kinds of Tortoises ; but the preceding descriptions may be sufficient to distinguish this species of fish from all others, however they may differ in some few particulars ; we shall therefore only

H 5 further

by the neck, where they have no shell, with their hands only ; and by this means they catch them both together ; but sometimes the female escapes, being more shy than the male.

Another way of taking them at this time is with a spear, which being thrown at the back of the Turtle pierces the shell and bone, and sticks as fast therein as if it was solid oak. They struggle hard to get loose, but all in vain ; for they take care that the line, which is fastened to the spear, be strong enough to hold him.

The time of taking Turtle upon land is from the first moon in *April* till that in *August*, it being the season in which these creatures lay their eggs. The number of them is prodigious ; for they will lay several hundred in one season. The night before she intends to lay, she comes and takes a view of the place, and, after taking a turn about, she goes to sea again, but never fails to return the night following.

Towards the setting of the sun, they are seen drawing near the land, and seem to look earnestly about them, as if they were afraid to be discovered. When they perceive any person on shore, they seek for another place ; but if otherwise, they land when it is dark. After they have looked carefully about them, they begin to work and dig in the sand with their fore-feet, till they have made a round hole of a foot broad, and a foot and a half deep, a little above where the water reaches when highest. This done, they lay eighty or ninety eggs, or upwards, at a time, each as big as a hen's egg, and as round as a ball. They continue laying about the space of an hour, during which time, if a cart was to be driven over them, they would not stir. The eggs are covered with a tough white skin, like wetted parchment. When they have done laying, they cover the hole so dextrously, that it is no easy matter to find the place. This done, they return to the sea. At the end of fifteen days they lay eggs again, in the same manner ; and, at the end of another fifteen, they do the same again, laying three times in all.

In about twenty-five days after laying, the eggs are hatched by the heat of the sun ; and then the little Turtles, being as big as young quails, run directly to the sea, without any guide to lead them, or shew them the way. When there are any caught before they get into the sea, they are generally fried whole, and are said to be delicious eating.

The men that watch for the Turtles, as soon as they have an opportunity, turn them on their backs, which is not performed without some difficulty ; for they are very heavy, and struggle hard. After this, they haul them above high-water mark, and leave them till morning.

further observe, that they may be all kept out of the water for several months together, without any sensible nourishment.



C H A P. XXX.

Of turbinated Shell-Fish.

TURBINATED Shell-Fish are somewhat in the shape of a top, and are surrounded with spiral furrows, much like a screw, being wide at the mouth, and terminate by degrees in a point. However, they are greatly different in their shape and size, as well as in their texture, some being harder, and others softer; but within they are all nearly alike with regard to their surface, which is exceeding smooth.

The NAUTILUS, or SAILOR, is of two kinds, one of which generally keeps near the sea shore, on which it is often thrown by the waves, where it comes out of the shell, and is taken, or perishes on the ground. This is a small sort; but the other keeps in its shell like a snail, or at least seldom comes out of it; but sometimes thrusts out a sort of arms. This is spoken of by *Pliny*, who says, this is one of the principal wonders of nature, because it can swim on the surface of the sea like a boat. They delight to be on the surface when the water is calm, and their shells serve instead of boats. Then they raise up their heads, and spread out a kind of sail, provided by nature, sailing along in a very agreeable manner. While they are thus employed, if any thing appears that affrights them, they take down the sail, hide themselves within the shell, and disappear.

The shell seems to consist of two parts, the keel, and the sides, whereas in reality it is but one. It is generally so large, that it may be just grasped with both hands, though it is but an inch broad. They are not thicker than a skin of vellum, and are streaked according to the length; the sides are jagged, but the divisions

vifions are roundish. The hole by which the Nautilus gains its food, and fhews itself out of the shell, is large. The shell is brittle, of a fhining milk colour, and very smooth, being in all things like a round vefsel or fhifp. When it rifes out of the fea, it comes up with the fhell upfide down, that the afcent may be more eafy, and that the boat may empty itfelf of water; but when it is on the furface, then it fets the fhell to rights. Between the arms of this fhifp, the membrane or fail is placed as it were like the webbed toes of a bird, but much more thin, being not much thicker than a fpider's web; but it is ftrong, and holds the wind as this fhifp fails along. There are feveral threads on each fide, which it makes ufe of inftead of rudders, and yet, when any thing comes near it, this fhifp will immediately dive under water.

The PEARL SHELLED NAUTILUS is fo called, from having a fhell exceeding bright on the infide, infomuch that it may vie with the fineft pearls.

It is found in the *Archipelago*, as well as in the ocean, and is fometimes feen in the clay pits and ftone quarries in many parts of *England*.

The LITTLE THICK NAUTILUS is of a roundifh form, and rarely exceeds an inch and a half in diameter. The furface of the whole fhell is fmoth; the opening of the mouth is large, and nearly circular, but partly filled up behind by the turn of the fpiral part of the fhell into it. The colour of the outfide is of a pale tawny brown, with lines or ftreaks of a darker colour. The infide is bright and fhining like the former, and the mouth opens to a much greater depth, in proportion to the fize. At the bottom there is an aperture, which runs through a multitude of fhells, into which the inner cavity is divided. It is a native of the *Gulph of Perfia*, and the *East-Indian* fea.

The THIN EARED NAUTILUS has a very beautiful fhell, which grows to ten inches in length, and is exceeding thin. The opening of the mouth is very large, and of an oval fhape, but truncated at the hinder part, where the fpiral turn enters into it. The edge of the mouth is undulated, and at the hinder extremity there are two appendages called ears, one on each fide.

the turn of the shell. The whole shell is as white as snow, and its outer surface is beautifully marked with undulated ridges with circular lines, and a great many tubercles. The back is hollowed all the way, and from its center there arises a denticulated ridge. This species is common in the *East-Indian*, and some parts of the *American* seas.

The **PAPER NAUTILUS**, so called from the thinness of its shell, it being no thicker than strong paper or parchment, is often met with twelve inches long, and is compressed on the sides. The opening of the mouth is very long and narrow, and there are no ears; but the corners of the hinder part of the mouth, between which the spiral turn of the shell enters the cavity, are high and sharp. All the outer surface is beautifully variegated with undulated lines, and hollow spaces between them. A furrow runs all along the back, and the ridges on each side it are sharp and serrated.

The **THIN NAUTILUS, WITHOUT EARS**, is smaller than the former kind, for it is but five inches long, and three or four deep. The opening of the mouth is very long and narrow. The colour is of a yellowish white, and the shell is very thin and delicate. Though there are several other kinds of this fish, yet these alone seem worthy of a particular description.

The **PURPURA** is of the size of an egg, and sometimes bigger, and there are several sorts of them. The **YELLOW LONG SNOUDED PURPURA**, with long crooked spines, is about four inches in length, and sometimes more, and the shape is nearly of an oval: the snout is almost twice as long as the rest of the shell, and both this and the body are armed with four rows of long spines or thorns, some of which are an inch in length, though slender, and pointed at the ends, but most of them are somewhat crooked. The mouth is nearly round, only its opening is continued to the form of a cleft up the snout. The natural colour of the shell is a tawny yellow, mixed with brown; but when it has lain long upon the shore, it becomes white, as most other shells do.

The **VARIEGATED LONG SNOUDED PURPURA** is four or five inches long, and the body of the shell is
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short,

short, and nearly of an oval shape. The snout is slender, and about five or six inches in length; the mouth is round, but not very large, and the lip which surrounds it is of a reddish colour. The snout joins to the end of this, and there is a cleft that runs all along it from that part. The external surface of the shell is covered with large tubercles irregularly placed. The colour is of a dusky yellow, variegated with brown and grey.

The SHORT SNOUDED PURPURA is about two inches long, and its diameter, with the spines and thorns, is an inch and a half. The shape is nearly oval, and the snout is very short. The surface of the shell is beset with six rows, or oblong protuberances, some of which are a third of an inch in height, and jagged at the top. These are generally black, at least in part, though the body of the shell is white. This shell is frequently found on the shores of the *Caribbee-Islands*.

The SHORT SNOUDED PURPURA, with three rows of spines, is about three inches long, including the spines, and as much in diameter. The body is large at the head, gradually decreasing till it becomes almost of the shape of a cone, and it has about six volutions. All the surface of the shell is deeply furrowed transversely, and adorned with three rows of spinous protuberances, some of which are half an inch in length, and a quarter of an inch broad; but the broadest part is at the extremities, where they are hollow below. The colour of the whole shell is of a dirty white. What we have before said of the Nautilus, may be applicable to the Purpura, that there are more sorts of them than merit a description.

The BUCCINUM, or TRUMPET-SHELL, is so called from its imaginary likeness to a trumpet or horn. It consists of one single piece, and has a large belly, and a wide mouth.

The TRUMPET SHELL, of the island of *Goree*, is seldom much above half an inch long, and its breadth is less by one-half. It has but eight turns, which are a little swelled, very narrow, and rough, with tubercles on the outside. There are five or six on the first turn,

two

two on the second, and one on the rest. The summit is of an equal length with the first turn, and the length of the mouth, or opening, is not quite three times as much as the breadth. The right lip is generally thin, and without teeth. The ground colour is of a deep purple; and in some the first turn is surrounded with two obscure whitish lines.

The TRUMPET-SHELL of *Senegal* is small, thick, and of an oval form, blunt at the upper part, and pointed at the top. It is but half an inch long, and much less broad. It is composed of ten turns or spires, which are all smooth, polished, and flattened, except the first; but they are not very distinct from each other. The mouth or opening is oval, except in the lower part, where it forms a narrow channel, with a slight furrow, roundish above, and twice as long as broad. The upper extremity forms a short channel, and is cut on the back of the shell by a furrow, which is somewhat more deep than broad. The right lip is blunt and very thick, though without a border, and somewhat wide, being adorned inwardly with eight small roundish teeth. The left lip is rounded, and crooked in the middle, like the portion of a circle; it is covered with a small shining plate without any swelling, and, as it were, wrinkled on the outside towards the upper extremity. The surface of the shell is covered with a reddish membranous skin, so thin and transparent, that the colours may plainly be perceived through it. The ground is generally brown, and marked with round white specks in the shape of lozenges. The animal that inhabits this shell has a small cylindrick head, slightly furrowed at the extremity; and the feelers are almost cylindrick, being blunt at the top, and longer by one-half than the head. The eyes are two small prominent points, placed at the root of the feelers, and the mouth appears like a little round hole placed under the head, about the middle of its length, from which is almost continually darted out a cylindrick trunk, almost as long as the feelers, which seems to be divided at the ends like two lips. The mantle consists of a very slender membrane, which extends from the external surface of the shell, and is folded like a cylindrick pipe, which proceeds from a
length

length equal to the fifth part of the shell, and lies a little on the left side. The body is of a pale white, with oval reddish specks when beheld above; but underneath it is of a dirty white, without any spots. The feelers are red in the middle, and of a dirty white at the extremities.

The HEDGE-HOG MUREX is three inches and a half long, and about two and a half broad where thickest. The body of the shell is nearly of a conick shape, and of a whitish colour, wrinkled on the surface with circular furrows. It is also surrounded with several rows of long, erect, strong, and sharp spines, or prickles, from whence it has its name. The spines are all black, as well as some other parts of the shell, which give it a very singular appearance. It is brought from *Africa* and the *East-Indies*.

The HEDGE-HOG SHELL, with a smooth clavicle, is two inches and a half long, and near two in diameter where broadest. The shell is of a brownish white, variegated with a deeper colour, which seems to be a mixture of brown, olive, and purple. There are three rows of spines at some distance from each other, connected by a ridge, and the clavicle has about five turns. The spines are white, which add greatly to the beauty of the shell. It is found on the shores of *Africa*, near the *Mediterranean sea*.

✱ The RIBBED MUSIC SHELL, with streaked rings, is about two inches long, and near an inch and three quarters in diameter. The body of the shell is short, and there are several broad low ribs at some distance from each other. The colour of the shell is of a whitish brown, and is surrounded with three or four rings, consisting of four or five slender black lines, with reddish and blackish spots between them. It is brought from the *East-Indies*.

The GOLD-MOUTHED COCHLIA, or SNAIL, is about two inches high, and an inch and a half in diameter. It is thickest about the middle, and is somewhat small near the mouth; but it gradually tapers the other way to a point. The surface of the shell is deeply furrowed with spiral lines, which are somewhat irregular, and have a great number of tubercles thereon, disposed
into

into five rows : they are pretty large and blunt at the end, and the surface is variegated with a deep and pale brown ; but the extremities of the tubercles are palest. The colour is not the same in all ; but the mouth is always of a fine bright gold colour within. It is round, and edged on the circumference with a narrow lip. It is common in *America*, and is found in some parts of *Europe*.

The HEDGE-HOG SNAIL is about an inch high, and two inches in diameter near the mouth. The clavicle is a little flatted for two or three turns, and then the shell lengthens, and grows broader till near the mouth, where it again becomes a little smaller. The mouth itself is nearly round, and edged with a narrow lip : there are prominences on the shell, which are high, and follow the spiral turn, being a third part of an inch in length, and pointed at the ends ; and there are others which consist of three or four placed together, and den- tated at their extremities. The predominant colour is yellowish, and the tubercles are of a fine rose colour, sometimes a little tinged with violet : the inside of the shell is white, like the mother of pearl. They are brought from the *East-Indies*, and sometimes from *America*.

The SMOOTH RIBBAND SNAIL is one of the tallest and longest, in proportion to its breadth, of all this kind, it being two inches long, and a little more than an inch in diameter. It consists of five spiral turns, and terminates in a very sharp point : the surface of the shell is smooth, and the colour dusky, but paler in some places than others. It is variegated with several beautiful stripes, like ribbands, following the spiral turn of the shell : these are of a fine reddish brown, with a little mixture of white in some places. It is found on the shores of many parts of *Italy*.

The WHITE AMMON'S HORN SNAIL differs greatly from the two former, and consists of five spiral turns, though it is quite flat, that which should be the point, being sunk lower than any other part of the shell. The diameter is about two inches, and the thickness no more than half an inch. The mouth is round, and there the shell is largest ; for it tapers from thence to the

the point in the center. The surface is smooth, and the colour white.

The **WARTY SNAIL** is seldom above three quarters of an inch long, and half an inch in diameter. It consists of four spiral turns, and its top is bluntly pointed. All the outer surface of the shell is marked with spiral lines, and there are others that cross them, forming a sort of chequer work. The upper part of the shell is of a pale brown, and the tubercles whitish; but on the lower part it is tinged with grey, and the protuberances are large, blunt, and of the same colour. The mouth is nearly round, and both that and the whole inner surface is of a fine pearly white.

The **SMOOTH BROWN SNAIL**, with a great mouth, is about an inch high, and as much in diameter: the surface of the shell is smooth and even, and the colour is of an agreeable brown, which becomes paler towards the edges, where it is almost white: the mouth is large, and of a semicircular shape: the inner surface of the shell is whitish. It is brought from the *East Indies*.

The **THREE RIBBED SNAIL** is an inch and a half in diameter, and the body is large, with a small spiral depressed clavicle: the whole surface of the shell is smooth, only where there are three narrow stripes, which rise above the surface, and run along the whole body, dividing it into so many spaces: the prevailing colour is a reddish brown, which is paler in some parts, and the mouth is large and semicircular. It is brought from *South America*, and sometimes from the *East Indies*.

The **TOOTHED SNAIL**, or **NERITE**, is about an inch in length, and three quarters of an inch in diameter. The body is large, and the clavicle small, with a depressed spiral turn; the colour is grey, variegated with iron grey or a blackish colour: the mouth is large and semicircular, and the hinder lip is furnished about the center with two longish blunt teeth, which are sometimes reddish; for which reason it is called the *Bloody-toothed Nerite*.

The **BANDED SNAIL**, with four teeth, is nearly round, and about an inch in diameter: the clavicle is very

very small and depressed, and the outer surface of the shell is formed into raised broad bands, running parallel to each other, and separated by narrow furrows. The colour is whitish grey variegated with black; but the inside of the shell is of a pearl colour: the fore lip is broad, thick, and prominent, and that behind is very broad, having each two teeth, which are sometimes white, and sometimes red, as if they were bloody.

The PRICKLY SNAIL is about three quarters of an inch long, and near half an inch in diameter: the shell consists of four turns, and there are upright blunt ridges, with small hollow spaces between them. Round the larger turns there are two rows of long slender prickles, and the outside of the shell is variegated with a deep reddish brown, and a whitish pale colour.

The CLOUDED SNAIL is about an inch and a half long, and an inch in diameter, consisting of five spiral turns, and the extremity of the clavicle is small and blunt: the outside of the shell is smooth, and of a pale brown, variegated with small clouded spots of very dark brown: the mouth is large, and the inside of the shell of a silver colour.

The CONICAL TUBERCULATED SNAIL, OR ROUGH TROCHUS, is sometimes three inches long, and two broad at the base: the mouth is moderately large, and the shell has six spiral turns, and blunt at the end; it is beset with tubercles that are large, blunt, and broad at the base, being disposed into five or six rows, and the rest of the surface is undulated: the colour is of a fine grey, variegated with another that is blackish.

The FRENCH-HORN SNAIL has a flat depressed shape, and the extremity of the clavicle is sunk within the rest of the surface. It is about two inches broad, and half an inch thick. The colour is yellowish. Most of these Snails are brought either from the *East* or *West Indies*.

There are many other sorts of *Buccinums*, *Murex*, and *Snails*, taken notice of by authors; but these are sufficient to satisfy the curiosity of most readers. Perhaps, many of the other distinctions are in a great measure owing to fancy, though it is allowed there may

may be a greater variety, with regard to the colours, and perhaps in the shapes; but to allow each of them a distinct name, would be extending this work to a tiresome length.



C H A P. XXXI.

Of Turbinated Shells.

TH E S E shells are of the simple kind, consisting of one piece, and of a long slender make, always terminating in a very long fine point. The mouth is narrowest towards the base, and has a sort of an ear. They are of different shapes, and in general they are called Screw-shells.

The THICK TURBO, or SCREW-SHELL, with an oval mouth, is sometimes seven inches in length, and two in diameter where thickest. The shell consists of about fourteen turns, of which that next the mouth is the largest, from which they gradually diminish to the end, which is pointed. They are all round on the surface, which is smooth and white, but beautifully variegated with yellow rays and broad bands, consisting of a mixture of blue and brown lines; but interrupted by irregular spiral lines of the same colour. The mouth is large and wide, and the lip thin and not dentated. It is found in *America*, as well as *Europe*.

The NEEDLE-SHELL, or SLENDER SCREW-SHELL, with roundish spires and a small round mouth, is five or six inches long, and the diameter where thickest, is not much above half an inch. It becomes gradually smaller from the mouth to the other end, where it terminates in a point. It consists of fifteen spiral turns, which are all roundish or bellied, rising very high in the middle. The furrows between them are deep and narrow, and the mouth small and roundish. It has only a notch, where the ear is placed in the other, and the whole surface is perfectly smooth. The colour is white, variegated with yellow.

The

The TURBO, or SCREW-SHELL, with bellied spires and elevated ribs, is an inch and a half in length, and the largest turn a little more than the third of an inch in diameter. The colour is white, and the mouth round and pretty large, with a thick lip. It is common on the shores of *Barbadoes*.

The CONICAL TURBO, or SCREW-SHELL, with plain streaked and numerous spires, is by some called the TELESCOPE SHELL.

The SLENDER TURBO, or SCREW-SHELL, with spiral lines on the turns, is four or five inches long, and scarce half an inch thick where thickest. The colour of the shell is yellow, unless it has lain long on the shore. It is found on the shores of the *American* islands, as well as in the *East-Indies*.

The TURBO, or SCREW-SHELL, with distant and prominent spires, is about five inches long, and the diameter of the spire next the head, is about three quarters of an inch. The colour is whitish, with a tincture of yellow and red, and it is brought from the *East* and *West-Indies*.

The WARTY TURBO, or SCREW-SHELL, with a broad depressed mouth, called by some the CATERPILLAR-SHELL, is about two inches and a half long, and near three quarters of an inch in diameter next the mouth. The shell in general is pale, variegated with a darker colour; but the protuberances are blueish. It is brought from *China*.

The TURBO, or SCREW-SHELL, with a long wide mouth, is three inches long, and of the thickness of a man's little finger. The colour is brownish, variegated with a deeper brown, and a reddish tawny. The surface is smooth, only there are a few tubercles on the second turn. It is brought from the *East-Indies*.

The OBLONG MOUTHED TURBO, or SCREW SHELL, with spires jagged at the edges, is about two inches long, and the third of an inch thick at the base. The colour is of a faint brown, a little variegated with tawny and reddish, and regular rows of little black dots. It is found in *America*, and some parts of *Europe*.

The

The THICK-EARED TURBO, or SCREW-SHELL, with turns deeply jagged at the edges, is three inches long, and an inch in diameter where thickest. The colour is a whitish pale, variegated with irregular spots of a darker hue, and the extremities of the spires are paler.

The SCREW-SHELL, of *Senegal*, is like a cone rounded at the base, and grows gradually smaller to the top, where it terminates in a very fine point. The largest are not much above an inch long, and a quarter of an inch in diameter. The ground colour is a dirty white; but on the upper middle of each turn, it is of the colour of agate.

There are other Screw shells mentioned by authors; but these may be sufficient for our purpose.



C H A P. XXXII.

Of Wreathed Shells.

THE VOLUTA, or WREATHED SHELLS, are of one piece, and of a figure nearly conical, but short, the clavicle being commonly depressed, and the mouth long, perpendicular, and narrow.

The JAMAR, is a Voluta of *Senegal*, which is very thick, and nearly of a conical shape. It is about six inches long, and two in diameter, and consists of twelve spiral turns. The first makes of itself the chief bulk of the shell, and turns off at a right angle towards the lower part, to form almost an horizontal plain slightly hollowed in the middle. The remaining eleven are also flattish, and nearly horizontal. The mouth, or opening, is a long straight cleft, larger by one half in the upper part than in the lower, whose length is terminated by the first turn, infomuch that it is seven times longer than the clavicle. The right lip is acute and very sharp at the edges; the left is swelled roundish and very simple. A membranous skin of a reddish colour furrounds the whole surface of the shell, and when this is taken off, it appears of a fine polish, and beautifully variegated

variegated with different colours. The ground is white, red, yellow, or brown, marbled with spots without any regularity, and sometimes encircled with pointed streaks. This shell is highly valued by the curious, who have given it different names, according to the varieties.

The ADMIRAL SHELL, or VOLUTA, with a broad yellow band, and a pointed line thereon, is an uncommon and very beautiful shell, bearing a great price. It is about two inches long, and near an inch in diameter towards the head, from whence, to the extremity of the mouth, it gradually decreases in size, so as to form a sort of a cone, with an obtuse point. The clavicle also diminishes in diameter, and terminates in a blunt point. The ground colour of the shell is of a beautiful yellow, but so variegated, that it does not take up above one third of the surface. There is a circle or ring of this colour at the head, of about the breadth of a straw, and below it there are three broad belts or rings finely variegated. The lowest of the three are broader than the others, and separated by five yellow lines. Under the belts the fine yellow again makes its appearance in the form of a broad belt; and in the center there is a narrow pointed line of the same colours with the other variegations, which is the characteristic of this shell. From the verge of this, to the extremity of the shell, the yellow gold colour prevails again. It is brought from the *East-Indies*.

The VICE-ADMIRAL SHELL is nearly as beautiful as the former, and is somewhat more than two inches in length, and about an inch in diameter at the head. The clavicle is a little longer than that of the Admiral, and has about ten turns; the ground is of a bright gold colour, with the same variegations as the former, only they have a greater mixture of white. There is a line of gold colour at the head, of the breadth of a straw, below which there is a circular line of the variegations, much of the same breadth. Under this there is a narrower line of yellow, and under that a very broad belt of the variegations. Below this there is another of yellow, as in the Admiral, but without the pointed line. Next to this there is another broad belt

belt of the variegations, and then comes the point of the shell, which is yellow. The clavicle is beautifully clouded with variegations. This is brought from the *East-Indies*, and likewise bears a great price.

The FALSE ADMIRAL SHELL is by some taken for the true one; but it is not near so valuable. It is about an inch and a half in length, and half an inch in diameter at the head. The body is conical, though it does not taper very much; and the clavicle is not quite so long in proportion as the two former. The ground colour is of a dusky white, variegated with several faint colours, and there are two broad belts of a beautiful yellow that run round it, the one being near the point, and the other a little higher than the middle. The surface is smooth, and the mouth narrow. It is brought from the *East-Indies*, but principally from *China*.

The TIGER SHELL is about two inches and a half long, and an inch and a quarter in diameter. Its mouth is very long and narrow, and its clavicle has about four turns. The ground of the shell is of a dusky red, sprinkled all over with irregular spots a little whitish. Some of these are oblong, and others angular and indented. It is a scarce shell, and is brought only from the *East-Indies*.

The YELLOW TIGER SHELL, with smaller white spots, is about two inches and a half long, above an inch and half thick at the head, from whence it gradually diminishes to the opening of the mouth. The clavicle consists of about six turns, and terminates in a fine point. The ground colour of the shell is yellow, and beautifully variegated with white irregular spots of the size of a pea. It is brought from the *East-Indies*.

The WHITE VOLUTA, variegated with a cloudy reddish colour, is about two inches long, and above an inch in diameter at the head. The clavicle is pretty large and blunt at the end, and has only four or five turns, and these not very distinct. The colour in general is of a faintish white, variegated with dusky red spots, that are very large, and of irregular figures disposed without any order.

The

The CROWN IMPERIAL SHELL is three inches long, and near an inch and a half in diameter at the top. The clavicle is so depressed, that in a front view of the shell it is not to be seen. The head is surrounded with a very beautiful row of tubercles pointed at the ends, and the ground colour is pale, with two broad beautiful belts running round it, the one near the head, and the other towards the other extremity. They are of a fine yellow, prettily variegated with black and white. It is brought from the *East-Indies*, though few of them are quite perfect.

The HEBREW LETTER SHELL is smaller than the rest of this kind; for it is rarely above an inch and a quarter in length, and three quarters of an inch in diameter at the top. The body is in the shape of a cone, and the clavicle pretty long, with about five turns, but it is blunt at the extremity. The ground colour is of a pearly white, variegated with large irregular black marks, disposed in about four rows on the body, and there is a single row on each turn of the clavicle. Some have fancied they resemble *Hebrew Letters*. It is brought both from the *East* and *West-Indies*.

The WHITISH VOLUTA, variegated with brown and purplish blue spots, is more than four inches long, and two in diameter at the head, from whence the body tapers very gradually, and is large and blunt at the end. The clavicle consists of seven or eight turns, and is blunt at the extremity; the ground of the shell is white, variegated with spots of different sizes running in circles round it; these circles are from twenty to thirty in number on the shell, some of which are brown, and others of a purplish blue. It is brought from the coast of *Guinea*.

The HALF CROWNED VOLUTA, with an undulated surface, is more like the Crown Imperial than any other shell of this kind. It is about two inches and a half in length, and near an inch and three quarters at the head. The edge of this is deeply indented, so as to form a kind of crown. The colour is white, and the variegations of a faint brown. It is brought from the coast of *Africa*.

The

The **SLENDER VOLUTA**, with a long clavicle, is about two inches long, and near three quarters of an inch in diameter at the head, from whence the body forms a sort of cone tapering very regularly to a point: there are three white broad belts variegated with purple spots and lines, and between these there are three others that are broad and of a beautiful orange colour.

The **BUTTERFLY SHELL** is three inches long, and about an inch and three quarters in diameter near the head: the body is in the shape of a pretty regular cone, tapering very gradually, and ending in a blunt point: the clavicle has five or six turns, and is pointed at the extremity: the general colour is yellow, finely variegated with brown spots, placed in regular round rows: there are three very beautiful belts round the body, and one narrower near the head, consisting of large spots of a deeper and paler brown, with some white: they resemble the spots, in the form of eyes, on the wings of some Butterflies.



C H A P. XXXIII.

Of Limpets.

A **LIMPET** is a simple shell of a conical or gibbous shape, with a very wide opening at the bottom. This shell-fish always fixes itself very firmly to some solid body, which serves as it were in the room of another shell. The top of the Limpet in some is acute, in others blunt; in some depressed, in others perforated; and in others again turned down or crooked.

The **STREAKED LIMPET** is an inch broad at the mouth, and three quarters of an inch high; but the base is not exactly round, and the top is sharp or pointed: the colour of the outside is of a dusky brown, with an olive-coloured cast; and it has about ten ridges placed nearly at equal distances, being rough all over: these streaks are most conspicuous towards the mouth; for they become fainter as they approach to the top,

where they disappear, the sharp point being smooth : the inside of the shell is variegated with yellow, brown, and whitish colour, and disposed in irregular circles.

The **STARRY LIMPET**, with seven ribs that form as many prickles at the rim, is of an oval shape, being about an inch one way, and two thirds of an inch the other ; but not raised very high, it being scarcely half an inch that way. It is pointed at the top, but not exactly in the center of the shell ; and on the outer surface there are seven very high ribs placed at a considerable and nearly equal distance from each other : they run distinctly to the very point of the top, and to the edge, where they terminate in a point beyond it, forming so many prickly rays, with furrows between them, in the form of segments of circles : the colour is whitish on the outside, variegated with black clouds and spots, especially about the ribs. This, as well as the former, is found adhering to the rocks in the *East-Indies*.

The **OVAL SMOOTH LIMPET**, with a depressed top, is two inches and a half one way, and two inches the other. Its height from the center of the base to the top, which is somewhat depressed, is an inch and a quarter, the rim is even, and the whole surface smooth : the colour is of a dusky white, finely variegated with black clouds. It is found sticking to the rocks on the shores of the southern parts of *Europe*.

The **GREAT OBLONG LIMPET** is near three inches long at the base, and an inch and a half in diameter at the largest end : the edge is smooth and even, and the height is about an inch ; the surface is almost smooth, only there are several longitudinal rays, and some transverse or circular. Its colour is of a dusky brown, and the shell is more thick and strong than that of many others : the colour on the outside is of a dusky grey, and the inside is whitish. It is met with in the *East-Indies*, and southern parts of *Europe*.

There are many other sorts of Limpets ; but the preceding descriptions may be sufficient to distinguish them from all other shells.

C H A P. XXXIV.

Of Shells, called the Sea Ears.

THE HALIOTIS, or EAR SHELL, is a simple shell of a depressed shape, with a large mouth, having somewhat of a spiral form at the top. Some have supposed it to be of the shape of an ear, from whence it has its name.

The GREAT EAR SHELL, with an even edge and seven holes, is five inches long, and nearly three broad; but it is no more than three quarters of an inch high: the shape is of an irregular oval, and the end where the spiral turn is placed is the largest: the back or hinder edge is thick, and so turned as to form a sort of lip: the fore edge is thin, simple, and even, and the upper surface is brown, rough, and uneven, with a kind of undulated line: the part towards the head is thickest, and the spiral turn short and depressed. Along the back part of the shell, near the thicker edge, there is a row of holes of a roundish shape, of which seven are open, and there are the marks of others, that do not penetrate quite through the shell: the inside of the shell is of a beautiful pearl colour, which seems to be variegated with several bright colours when placed in different directions of the light: there is also a kind of watery protuberances, which look like pearls. It is met with chiefly in the *East-Indies*.

The LONG EAR SHELL, with an undulated head and eight holes, is three inches long, and an inch and a quarter broad, where broadest; but it is not half an inch high: the head is large, and the spiral turn very beautiful and fair: the back of the shell forms an even lip, and the fore edge is thin and undulated: the outside is smooth, only it is a little undulated from the spiral turn, and is of a greenish colour, variegated with a brownish red: the inside of the shell is of a pearl colour, finely variegated with others: there is a long row of holes on the back edge of the shell, eight of which are always open. It is found sticking on the rocks of the *Malabar coast* in the *East-Indies*.

The STREAKED or WRINKLED EAR SHELL, with six holes, is three inches and a half long, and two in diameter near the head; but it is not above three quarters of an inch high: the outside of the shell is of a dusky brown, and on it are many slight irregular undulated ridges, which begin near the spiral end, though they almost disappear before they reach it.



C H A P. XXXV.

Of Dentalia, or Tooth-Shells.

THE STREAKED and RINGED TOOTH-SHELL, of a shape approaching to a cylinder, is two inches long, and of the thickness of a swan's quill. This shell looks as if it was broken off from some other, and is of a greyish white, generally variegated with green, and sometimes tinged with red. It has about ten deep longitudinal furrows, running all the way down its surface, and the ridges between them are rounded: there are generally three circles or rings passing round it at unequal distances, somewhat interrupting the longitudinal furrows. This shell is thin, and is easily broken. It is common on the shores of *Italy*.

The DOG TOOTH-SHELL is about an inch in length, and of the thickness of a goose quill: the shape is conical, and largest at the mouth, from whence it gradually tapers to a point, which is sharp and without any opening: the surface is smooth and polished, and the colour is white. It has sometimes a purplish cast, and sometimes that of a bright red or brown. It is common in most parts of the world.

The CONICAL, CROOKED, STREAKED, and RINGED TOOTH SHELL, is four inches long, and of the thickness of a child's finger. It is largest at the mouth, and from thence gradually tapers to a sharp point. It is a little crooked, and the surface is furrowed with eight deep longitudinal lines placed in pairs with a vacant space between them. The ridges are rounded,
and

and there are two broad annular marks surrounding the shell towards the base, and another much narrower towards the point. The colour is of a dusky grey, and the surface is not polished. It is found on the shores of *Italy* and other places.

The GREAT SEA PIPE, open at each end, is six or seven inches long, and three quarters of an inch in diameter near the mouth, which has a kind of irregular lip an inch and a half broad: and the shell grows gradually smaller at the other end, where it is of the thickness of a Goose-quill. The whole surface is of a dusky brown, and there are about twelve annular ridges upon it, but they are not much raised above the surface. It is common in the *German* ocean, where the waves throw it on the shores; but it is seldom whole, being thin, brittle, and easily broken.



C H A P. XXXVI.

Of Cylindric Shells.

THE BROCADE SHELL, is large and beautiful, being three inches and a half in length, and near two and a quarter in diameter. The circumference is much the same throughout the whole shell, only it is a little smaller at each extremity. The head is denticulated, or crowned as some call it, and the clavicle has four or five turns terminating in a point. The colour is as white as silver, and is beautifully variegated with a bright brown in fine irregular lines, clouds, and spaces. It is finely polished, and the whole has the appearance of brocade. It is brought from *Africa* and *America*.

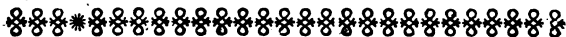
The TULIP CYLINDER SHELL is about three inches long and two in diameter, though the shape is not so regular as that of the former; but it is largest a little below the head, from whence it grows gradually smaller to the other end. The clavicle has ten or twelve turns, and terminates in a blunt point. The colour is white, variegated with clouds and spots of blue

and brown. It is very scarce, and is brought from the *East-Indies*; but seldom in perfection.

The PORPHYRY SHELL is about two inches and a half long, and an inch and quarter in diameter. The shape is nearly like that of a cylinder, with a short blunt clavicle. The colour is of a pale white, with a reddish cast, clouded with a deeper red approaching to purple, which takes up much the greater surface. This colour appears in most places in irregular longitudinal and dentated lines. It is brought from *South America*.

The SLENDER WHITISH SYLINDER SHELL, variegated with brown, is three inches and a half long, and near an inch and quarter in diameter. It is shaped nearly like a cylinder, only it is somewhat smaller towards the point than elsewhere. The clavicle has four or five turns, and the body of the shell is cloven at the other extremity, by the continuation of the mouth. The colour is white, with a broad belt near each end, variegated in such a manner that some have imagined there are letters thereon. It is brought from the *East-Indies* and *South America*.

The SLENDER SYLINDER SHELL, variegated with brown and white, is three inches long, and about an inch and quarter in diameter. Its shape is nearly like that of a cylinder, only it is a very little smaller at both ends than in the middle. The clavicle is blunt, though it has four or five turns, and the whole shell is variegated with a bright white, and a pale tawny brown. They are disposed in denticulated lines, and the surface appears to be finely polished, it being very bright. It is brought from *South America*.



C H A P. XXXVII.

Of Dolia, or Pipe Shells.

P I P E S H E L L S are so called, from being imagined by some to be like the pipes or casks made to hold wine. However their shapes differ so much, that

that it may be doubted, whether this appellation is proper.

The **OVAL PIPE SHELL**, with spiral ribs, is about two inches and a half long, and nearly as much in diameter in the largest part. The clavicle is longish, and pointed at the end; but it is continued in such a manner from the body of the shell, that it is hard to say where it begins. The other extremity is formed like a short snout or bill, which turns a little up. This shell has a large belly, which is greatest near the head, and all its surface is covered with many ribs of the breadth of a straw, separated by furrows of the same breadth. The ribs are yellowish, and the spaces between them of a whitish yellow, only they are sprinkled irregularly with a deeper yellow, that is, both the ribs and furrows. It is brought from the *East-Indies* and *America*.

The **PARTRIDGE SHELL** is about two inches and a half long, and near two in diameter. It is a thin shell with a pretty long clavicle that has four turns, the lowermost of which is separated from the body of the shell by a furrow. The other end terminates without a bill or beak, and the mouth is large and reddish within. The external surface is perfectly smooth and of a brown colour, variegated with a deeper brown and grey, somewhat resembling the plumage of a Partridge, whence it has its name. It is brought from the *East-Indies* and the *American* islands.

The **HARP SHELL** is about two inches and a half long, and a little more than an inch and a half in diameter; the body however is bellied in such a manner as to render it like others of this kind. The clavicle has five turns, and that next to the body of the shell is large, but the others are small and pointed at the top. All the surface of the body of the shell is furnished with large ribs, which stand at such distances as make the spaces between them equal to twice or thrice their own diameters. The colour is of a deep brown, variegated with a paler sort and white in a very beautiful manner. It is brought both from the *East* and *West Indies*.

The **ÆTHIOPIAN CROWN SHELL** is about three inches long, and two in diameter. The shape is oblong.

oblong, and somewhat oval, being smaller at each end than in the middle. The mouth is long and wide, and cleaves the extremity of the shell a little way. The clavicle is short and blunt at the end, and has four turns; that next the body, as well as the upper edge of the body, are deeply dentated, or as some say crowned, and the teeth are formed into regular even conical points. The surface is pretty smooth, only there are impressions of longitudinal lines; and the colour is of a pale brownish yellow. It is brought from *Africa* and the *East-Indies*. There are some other sorts of this shell, which, for the sake of brevity, we shall omit.



C H A P. XXXVIII.

Of Porcelain Shells.

THE PORCELAIN is a simple shell, consisting of one piece gibbous on the back; the mouth is long, narrow, and dentated on each side.

The **WHITE PORCELAIN SHELL**, yellow within and beaked at each end, is of an oblong shape and very gibbous. The length, including the beaks, is about three inches, and its diameter in the middle nearly two. It is white on the outside, and yellow within; and the mouth is large, having a sort of a snout or beak at each end. It is brought from *Africa* and the *East-Indies*.

The **ARGUS SHELL** is about three inches long, two in diameter, and somewhat less in height, though it is gibbous like the former. The mouth is wide, and the lips are continued at each extremity in the form of a broad, short beak each way. The general colour is yellowish, only there are three brown bands of a considerable breadth running over it; the whole surface is adorned with a multitude of round spots like eyes, from whence it has its name. It is brought from *Africa* and the *East-Indies*.

The **MAP SHELL** is about two inches and a half long, and nearly as much in diameter, with a gibbous back. At the head there is a short clavicle, placed a little

little above the extremity of the mouth, consisting of about four imperfect turns. The other end of the shell is blunt, and the general colour brown, only there are irregular undulated lines of white thereon, which with spots, and clouded marks of the same colour, give it the appearance of a Map. The mouth is dentated, and near it the shell is paler than elsewhere. It is brought from *Africa* and the *East-Indies*.

The **BLUISH BANDED PORCELAIN SHELL**, with a clavicle at one end, and a beak at the other, is about two inches long, and nearly an inch and a half in diameter. The general colour is bluish, only there are two or three greyish brown bands. It is brought from *Africa* and *America*.

The **OVAL PORCELAIN SHELL**, with a long beak at each end, is about three quarters of an inch in length, and half an inch in diameter, with a remarkable gibbous back. The colour is white, and its surface smooth and shining. It is brought from *Africa* and the *East-Indies*.

The **WHITE PORCELAIN SHELL**, variegated with brown, and beaked at each end, is three quarters of an inch long, and about half an inch in diameter. The colour is a fine white, variegated with bright brown, and disposed in crooked and irregular angular lines. It is brought from the *American* islands.

The **SMALL POX PORCELAIN** is not above three quarters of an inch long, and half an inch in diameter. All the surface is covered with beautiful round studs of a fine white colour, not unlike pearls. It is brought from *Africa*.

The **BEEBLE PORCELAIN SHELL** is about an inch long, and two thirds of an inch in diameter. The colour is white, only on the back there is a large irregular brown spot, which some fancy to be like a Beetle. It is brought from the coast of *Guinea*. There are many other shells of this kind, as well as of the rest; but what has been said is sufficient to give a general knowledge of them.

C H A P. XXXIX.

Of Bivalved Shells.

OF these there are six kinds, namely, OYSTERS, BASTARD COCKLES, MUSCLES, HEART-SHELLS, among which COMMON COCKLES are included, SCOLLOPS, and RAZOR SHELLS.

OYSTERS have two valves or shells, one of which is hollowed on the inside, and gibbous without, and the other is more flat; but they both consist of several plates, and the outside of each shell is generally rough; but the gibbous more than the other*.

The HAMMER OYSTER has one of the most extraordinary shells in the world, it being in shape like a Hammer, or rather like a Pick-ax, with a very short handle and a long head. The body of the shell, which is taken for the handle, is about four inches long, and three quarters of an inch broad; but the head is five or six inches long, and except where it joins to the body, is little more than half an inch broad. It is of an irregular form, uneven at the edges, and terminates in a narrow blunt point at each end. The hinge or joint is at the lower end of the body; and the shells open all the way from each end to this part, and yet they shut very close. The edges of the body and head have often great irregularities and protuberances on the surfaces,

* Oysters usually cast their spawn or spat in *May*, which at first appears like a drop of candle-grease, and sticks to any hard substance it falls upon. It is covered with a shell in two or three days time, and in three years they are large enough to be brought to the market. These Oysters they term *Natives*, and they are incapable of moving from the places where they first fall; for which reason the dredgers make use of nets, which are fastened to a strong broad iron hook, with a sharp edge, which they drag along the bottom of the sea, and so force the Oysters into the nets. When they are thus taken, they are carried to different places, where they are laid in beds or rills of salt water, in order to fat them. When the spawn happens to stick to the rocks, they generally grow to a very large size, and are called *Rock Oysters*. Between the tropicks there are millions of them seen, sticking at the roots of a sort of trees they call *Mangroves*, at low water.

surfaces, being deeply furrowed in all directions. The colour is of a deep brown, with a tincture of violet-purple on the outside; but within it is of a pearly white, with a faint purplish cast. It is found in the *East-Indies*, but as it is very scarce it sells for a great price, six guineas having been given for one that was imperfect.

The great PRICKLY OYSTER is nearly of an oval form, being four inches long, and three broad at the larger extremity; but at the smaller where the joint is, it is about an inch and a half. Both shells are gibbous on one side and hollow on the other, but the under one most. The surface of each is furrowed long-ways, but somewhat irregularly, and is covered with a vast number of spines or prickles, which are strong, sharp-pointed, and from a tenth of an inch to half an inch long. Some of these are straight, others crooked, and the colour on the outside of the shell is of a dirty red, but on the inside white and pearly. It is found on the coasts of *Africa*.

The CONICAL OYSTER, with undulated spines at the rim, is two inches long, and an inch and a quarter broad at the larger extremity, from whence it gradually becomes smaller to the other, where the hinge or joint is placed. The body of the shell is rough and undulated, and there are a few short spines or prickles at the edges. There are three or four rows of them near the rim of the larger extremity, which are sharp pointed and not straight, but undulated or bent backwards and forwards, making a thick sort of fringe: those of the upper and lower shell meet and hide the place where the shells shut together. The body of the shell is of a dirty white; but the prickles are of an elegant purplish red, making a fine appearance. It is common on the shores of *South America*.

The HEDGE-HOG OYSTER is about an inch long, and the same broad and deep: the shells are both gibbous, and so shaped, that the upper one being smaller than the under, they never shut close: the whole shell is furrowed long-ways, and very thick set with short crooked prickles, the points of which

turn towards the joint: the colour is white. It is a native of the *East-Indies*.

The PEARL OYSTER has a large, strong, whitish shell, wrinkled, and rough without, but not streaked, and within smooth and of a silver colour. These shells are commonly called *the Mother of Pearl*, on account of their breeding Pearls. However, the shells are of different sizes, some being four times as large as those of our Rock Oysters. There are a great number of Pearl fisheries in *Asia* and *America*. One of the most famous is in the *Persian Gulf*, near the isle of *Babren*, and another between the coast of *Madura* and the isle of *Ceylon*. Besides these, there are five in the gulf of *Mexico*, near the *American coast*. There have Pearls also been found in some rivers, particularly in *Scotland* and *Bavaria*; but they are not near so valuable as those in other parts.

Pearls are not all of the same colour; for some are white, others yellowish, and others again of a lead colour; and some affirm they have been found as black as jet, particularly in *America*. However, the Oriental Pearls are the best, being the largest and most perfectly round and shining.

They fish for Pearls, or rather the Oysters that contain them, in boats twenty-eight feet long; and of these there are sometimes three or four hundred at a time, with each seven or eight stones, which serve instead of anchors. There are from five to eight divers belonging to each, who dive one after the other: they are quite naked, and have each a net hanging down from the neck, and gloves on their hands, wherewith they pick the oysters from the rocks. Each of these has also a stone a foot in length, and weighing fifty pounds, to make him dive the swifter: this stone has a hole at the top, by which it is fastened to a rope; and, when they are going to dive, they place one foot in a kind of stirrup, laying hold of the rope with their left hand, and the other end is fastened to the boat. They stop their noses with their right hands, to hold in their breaths, and so they go to the bottom, where they are no sooner come, but they give a signal, by pulling the rope, for those that are in the boat to draw up.

up the stone. This done, they go to work, filling their nets as fast as they can, and then pull the rope again, when those in the boat draw up the nets first, and immediately after the divers. They dive to the depth of fifteen fathoms, but not deeper.

These boats near the isle of *Ceylon* generally go every morning by break of day with the land winds, and return in the afternoon with the sea winds: the owners of the boats hire both the divers and the rest of the boat's crew, as we do our labourers, at so much a day. All the Oysters are brought on shore, where they are laid in a great heap till the Pearl fishery is over, which continues all *November* and *December*. Every Oyster does not contain a Pearl, though there are some that have from five to eight. The natives stew and eat the flesh of these Oysters; but they are not near so good as the *English*, they being more hard, and somewhat rank. There are several other sorts of Oysters; but these are the most remarkable.

The **BASTARD COCKLE** is a two-valved shell, each of which are convex or gibbous, and of an equal bigness; but that which distinguishes it from other shells is the opening that remains when the valves are shut.

The **TRUNCATED BASTARD COCKLE** is about an inch in diameter each way: the head is rounded and small, and truncated at one extremity. All the surface is furrowed with deep lines, and a few broad ridges between them; the truncated end has two whitish wrinkled lips, which leave a small, long opening between them, and the edges of the shells are dentated or ferrated on the rim: the general colour is a dull white, beautifully variegated with a glossy brown. It is brought both from the *East* and *West-Indies*.

There are other species of the Cockle; but they do not seem to merit a particular description.

The **ARABIAN SHELL** is three inches in diameter where largest, and two and a half from the joint to the opposite rim: the head, where the joint is placed, is not in the center of the top, but near one side, and the whole surface of the shell is perfectly smooth and even, having a fine natural polish: the colour is a pale

pale brown, variegated with lines and streaks of black, which are narrow, angular, and run cross each other in an irregular manner, insomuch that they have some resemblance to the *Arabick* letters, whence this shell has its name. It is common on the coasts of some parts of *Europe*.

The **VENUS SHELL**, or **CONCHA VENERIS**, is about an inch and a half in length, and as much in diameter towards the larger end: the valves are both convex, and are deeply streaked long-ways: the joint is placed at the extremity, where the shell is rounded and prominent; the end, that should have gone the other way, seems to be cut off, and the opening is covered with a very elegant lip, proceeding from each side. It is wrinkled, and of a beautiful reddish colour, with some white among it: the lips do not join perfectly in the middle, but leave a long aperture, and at the further edge of each there is a row of long, slender, beautiful spines. It is brought from the *American* islands, and is seldom perfect; but when entire it is of a great value.

The **ORIENTAL CONCHA VENERIS** is not so beautiful as the former. It is two inches and a half in diameter each way, and the head near the joint is small and rounded: the truncated part has two lips, which meet near the top, and leave only a small opening under the hinge, except lower down, where it gapes again: the surface of the shell has eight or ten obscure bands, and the lips are smooth at the edge. It is common on the shores of the *East-Indies*.



C H A P. XL.

Of Muscles.

THESSE are composed of two valves or shells, of a longish shape, that shut all the way, and are both convex. They are not liable to be carried along by the motion of the water, like many other shell-fish; for they are capable of forming several strings, of the

the thicknefs of hairs, about three inches long, and fometimes to the number of two hundred and fifty: with thefe they lay hold of any thing that is near them. With regard to the finenefs and number of the threads, they are as fine as filk, and made ufe of for the fame purpofes at *Palermo* in *Sicily*; for there they make various kinds of ftuffs and other curiofities of thefe threads. The instrument that the muscle employs in producing thefe threads is what we commonly call the tongue, in the midft of which there is a narrow channel, which ferves as a fort of mold for their firft formation. Our fea and river *Mufcles* are too well known to need any defcription.

The *CAROLINA MUSCLE* is four or five inches long, and an inch and a half broad: the fide where the joint and head are placed is pretty blunt, though that oppofite to it is more pointed; but it fhould be obferved, this joint is placed at one end of the Muscle. The fhells fhut very clofe, and are deep, their middle being raifed into an irregular angular gibbofity: the colour is yellow, with a fmall tincture of purple in fome places; but the infide is of a pearl colour, with a purple caft near the edges. It is brought from *Carolina*, as well as *South America*.

The Muscle called *ADER* is a very curious fhell, of a fine fky-blue colour, with yellow rays one over another towards the bottom. It is very fmall, being never above a quarter of an inch in length, and thre-twelfths broad. It is pointed at the top, and has flight folds near the hinge, where there is a fmall cavity. Each valve has about fifty deep furrows, which run longways from the top to the oppofite extremity, and the edges are all round with fmall teeth, the fame in number as the furrows. When the fkin is taken off, it appears to be of a fhining violet colour: the fhell on the infide is generally white, though fometimes of a dark violet.

The *ANPAN* has a bivalved fhell, and is one of the largeft that is met with at *Senegal*; for it is feven inches long, and four inches and three quarters broad. It is fo flat, that the breadth is twice as much as the thicknefs. The fhell is very thin, and as brittle as
glafs;

glafs; but appears like horn, it being of the same colour, and as transparent. It is polished, and shines on the inside; but without, towards the extremity, there are a great number of crooked very small cylindrical pipes, of the same nature as the shell: these pipes owe their original to the wrinkles of the animal, which are like others of this kind, only its mantle has about thirty large furrows, instead of threads. The ligament, that joins the two valves, reaches from the top to three quarters of the length towards the upper extremity; but the joint or hinge has no tooth*.

The PINNA MARINA is the largest of this kind; some of them being two feet long, and near one broad. Neither of the shells is very deep; it is small and narrow at the head, from whence it grows gradually larger for two thirds of the length; but from thence to the extremity, though it still grows larger, it becomes of a roundish shape, terminating in an oval: the colour on the outside is of an olive brown; but within it is partly of a pearl colour, and partly reddish: the outward surface is rough, in several places, with a kind of scales, and there are furrows that run from near the top to the bottom. It is brought from the *East-Indies* as well as the *Mediterranean* sea.

The PRICKLY PINNA is six or seven inches long, and three broad at the base, from whence it becomes gradually smaller to the opposite end. It is not so round at the end as the last sort, though it bellies out a little: the colour is of a pale olive on the outside, and of a pearly white within; the outward surface has deep furrows running long-ways, at some distance from each other, and the raised parts between them are consequently broad. It is furnished with a sort of scales, many of which terminate in prickly points.

* The negroes fish for this Muscle about the capes of *Bernard* and *Daker*, where they meet with large quantities at the depth of three fathoms. The flesh is exceeding good, especially when it is boiled, and dressed properly, and is in great esteem with the *Europeans*.

C H A P. XLI.

Of the Heart-Shells and Cockles.

TH E S E consist of two valves or shells, which are equal and gibbous; but they have no ears or appendages near the head. As for the common Cockle, it is so generally known, that it needs no description.

The thin white HEART SHELL, with ten ribs, has roundish and very deep valves, being three inches in length from the joint to the opposite rim, and about as much broad: the head next the hinge is prominent and blunt, and is nearly of the same shape as a heart on cards: there are ten ridges or ribs, that run along each shell from the head to the rim, which are very high and of a triangular shape, being edged at the top, and continued with denticulations beyond the rim of the shell. It is of a fine white colour, and appears transparent when held up to the light. They are brought from the *East-Indies* as well as *South America*.

The deeply-furrowed and spinous HEART-SHELL is three inches and a half long, and much the same broad: the shells are so hollow, that the thickness when closed is not much less than its length; and the head is rounded and large, with beaks that meet in such a manner over the joint, as to give it the appearance of a heart. The colour is of a greyish white, and there are furrows on its surface that run long-ways, at some distance from each other: the ridges between them are rounded; but the back of the shell is sometimes smooth, and towards the end, and at the edges there are long, sharp, strong prickles; some of which are straight, and others crooked. It is brought from the *American Islands*.

There are several other kinds of Heart-Shells, peculiar to *Africa*, *America*, and the *East-Indies*.

C H A P. XLII.

Of Scollop Shells.

TH E S E shells have two valves, that shut close all round, and are usually pretty flat with ears, for so the two processes are called, that proceed from the head of the shell near the joint.

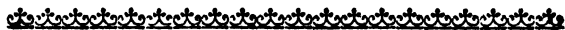
The ribbed and variegated SCOLLOP, with large equal ears, is about two inches and a half in length, and two and a quarter in breadth. The shells are pretty flat and rounded, and sinuous on the edge, from whence they become smaller to the head, and terminate in an oblong point. On each side there is an ear, which joins to the edge of the head, and runs down a third of an inch farther on the shell; they unite at the top, where they rise a little above the level of the head, and the surface of the shells is adorned with ribs; there are twelve on each, broad and rounded at the top, having furrows between them about half their own breadth. The ears are also furrowed and ribbed, and the general colour is white, finely variegated with large spots of brown. It is very common in *England*.

The red ribbed and furrowed SCOLLOP, with unequal ears, is four inches long and about as much broad, and is of a roundish shape. The colour is of a deep red, with a mixture of purplish brown, and large and regular ribs on the surface, which are broad, depressed, and furrowed, and have several undulated tubercles thereon, and some that are more regular. The ears are large, but one of them is considerably bigger than the other. It is brought from the *Mediterranean*.

The DUCAL MANTLE SHELL is three inches long, and nearly as much broad, with a regular sinuous edge. The head is furnished with two large beautiful ears nearly of the same size, and the surface is adorned with about thirteen ribs, that are broad and somewhat elevated in the middle. The general colour is a deep fine red, and the edges are orange; but the surface is every where variegated with yellow and white. The head

head is somewhat paler than the other parts, and the ears are beautifully variegated. It is met with on the *European* shores, but is not very common.

The IRISH SCOLLOP is about two inches long, and almost as much broad, having on its surface about fifteen ribs, that are broad, depressed, and nearly at equal distances from each other. The shells are very little raised; but the ears are moderately large, and one is a little bigger than the other. The general colour is reddish, which changes gradually from the deepest purple to the palest flesh-colour; but in some it is every where the same, and in others it is beautifully variegated with irregular spots of white. It is very common on the *Irish* coasts.



C H A P. XLIII.

Of the Finger Shell Fish.

THE thick red FINGER SHELL is about three inches long, and of the thickness of a man's finger. The surface is smooth, except towards one end, where there are a few crooked lines or rather furrows; the shell is pretty thick for one of this kind; but at the end where the plates are entire, it is thicker than the other. It is open at both the extremities, and the colour is of a fine pale red, variegated from the strongest damask rose colour to the faintest carnation. It is brought from the *East-Indies*.

The crooked FINGER SHELL, variegated with brown and blue, is six inches long, and three quarters of an inch broad. It is of an equal thickness from one end to the other, and is bent in the manner of a bow. The surface is smooth and glossy; but there are the extremities of many broken or imperfect plates seen thereon, so that it is never quite uniform. It is variegated with brown and violet blue; but the inside is of a pearly white.

The slender, straight, brown and white FINGER SHELL, is three inches long, and near a third of an
inch

inch in diameter. It is perfectly straight and open at both ends; but the surface is somewhat irregular, as in the former, though very glossy. The general colour is of an olive brown, variegated with white in some places, but the inner surface is of a pearly white. It is brought from the *East-Indies*.

The violet purple FINGER SHELL is four inches long, and near half an inch in diameter, being quite open at both ends. The shell is no thicker than strong paper, and is very brittle. The surface is irregular from the broken plates that appear thereon; and the colour is of a fine blueish purple, and nearly like that of a violet, but somewhat redder. It is brought from the gulf of *Persia*, and the *East-Indies*.



C H A P. XLIV.

Of the Acorn Shell Fish.

TH E S E sort of shells are of a longish shape, nearly approaching that of an acorn, and are composed of several valves from six to twelve in number; but they are not moveable; for they are fixed to each other by an intermediate substance.

The great furrowed ACORN SHELL, with a large mouth, is the biggest of this kind, it being about an inch and a half in height, and above an inch in diameter where largest. It is broad at the base; and firmly fixed to a solid substance, and it is nearly of the same diameter at the top as at the base, where it is wide open. The mouth is not exactly round, nor the edges even; it is composed of twelve valves that touch each other at the base, but recede from each other at the top. These valves are furrowed lengthways, and are of a brownish red; but the intermediate substance is of a lighter colour, and irregularly undulated in a transverse direction. The inner surface is whitish, with a mixture of carnation and blue. The animal contained in this shell is of a triangular shape at the head, and there are four pieces that belong to it, which serve to close up the opening.

opening. It is found sticking to the rocks in the *East* and *West-Indies*.

The bell-fashioned ACORN SHELL, with a large mouth, is usually found in great clusters, fixed to each other at the tops, which makes the surface of the whole appear like net-work, but there are large cavities underneath between their bodies. The shell is narrowest at the base, where it is fixed to a solid body, and from thence becomes gradually wider to the top, where it is broad, open, and bent a little down at the edge, so as to appear somewhat like the shape of a bell. It is composed of eight firm, hard portions of a conical shape, connected by a firm, shelly substance. The colour is of a brownish grey, and the intermediate matter of a deeper brown. They are brought from the *American* islands.

The greyish-white furrowed slender ACORN SHELL is seldom more than a third of an inch long, and is two thirds less in its diameter. It is broadest at the base, and narrowest at the top, where there is a small mouth. The colour is of a greyish white, and the shell exceeding thin. It is composed of six portions, which are broadest at the base and smallest at the top. The furrows run long-ways, and are most distinct near the top. The intermediate matter is transversely and irregularly undulated. It is common on the *English* shores.



C H A P. XLV.

Of Thumb-footed Shell-Fish.

THE BLUISH-GREY THUMB-FOOT, with a pedicle longer than the body, is a third of an inch in diameter at the top, and near a quarter at the base. It is tolerably firm and fleshy, and is covered with a tough thick skin, with irregular transverse furrows on the surface. Above this is the shelly covering, which is about half an inch long, and of a pyramidal figure; the diameter at the base is equal to the top of the pedicle or foot, and it terminates in a pretty sharp point.

point. The shell is composed of an uncertain number of portions, of which the middle ones are the largest, and the rest surround them at their bases. The pedicle is of a brownish colour, and the shelly part of a mixture of blueish-grey and white. It is found in several parts, and the flesh when boiled becomes red.

The REDDISH THUMB-FOOT is about two inches in length, and the pedicle or foot is more than an inch and a half; but the shelly part is only the third of an inch. Its surface is deeply wrinkled, and its colour is of a pale whitish red. The substance is fleshy, but less firm than that of the former kind. It is found on the coasts of the north of *England*.

The WHITE THUMB-FOOT is three quarters of an inch in length where largest, which is at the head of the foot, and is about half an inch in diameter. The body is of a pyramidal form, and somewhat longer than the pedicle. It is composed of a great number of longish pyramidal portions of a whitish colour, and the pedicle is white. It is found on the northern coasts of *England*.

There are other kinds of the Thumb-Foot; but these already mentioned are sufficient to distinguish them from all other shells.



C H A P. XLVI.

Of the Pholades, or File Shell Fish.

THE PHOLAS is a shell-fish, whose shell is made up of five pieces, but, so as to have the appearance of a muscle. Two of these are large, and exactly resemble the bivalved kind, or those that have two shells; besides which, there are three other portions or valves that are very small, and serve to close up an opening left by the irregular meeting of the two principal shells. They inhabit holes made in rocks and other solid bodies, and sometimes they are met with at the bottoms of ships.

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The longish white chequered and rough PHOLAS is about two inches long, and an inch and quarter in diameter at the largest part, which is nearer the head than the other end. It has five portions, as observed above, the largest of which appear like those of common bivalved shell-fish, and besides these there are two on the back, that are very broad and short, and another single one, which is long and narrow, lying under the joint. The colour is whitish, with a small mixture of a faint yellow or brown, and the surface of the two large shells has furrows both ways, which give it a chequered appearance. The surface is as rough as a file, and this animal lies so close in the holes of stones, that it has no way of getting out, the opening being no bigger than the diameter of a Goose-quill, but it thrusts out a sort of trunk. It is common on the sea coasts of most parts of *Europe*. How these creatures make these holes, or how they get in, is not certainly known.

The WHITE PHOLAS, or FILE SHELL FISH, with short oval and pretty large valves, has a shell not large enough to enclose the body. It is of a whitish colour, somewhat hollow and streaked long-ways. The surface is rough, and the texture tender and delicate; the two smaller valves are placed at the back of the others in a contrary direction, and the fifth is long, slender, and convex, covering the whole joint. It is found on the coasts of *Kent* and *Suffex*. There is another of this kind called the reddish rough Pholas.

The *West-Indian* FILE SHELL FISH is the largest of this kind, being seven inches long, and two in diameter. The two large shells are very tender and brittle, hollow within, and of a beautiful white. There are deep furrows on the outside, which cross each other as in a file. The other valves are as in the former kinds. It is brought from *America*, but is very seldom met with.

C H A P. XLVII.

Of fresh Water Shell Fish.

THE OVAL LIMPET, with a crooked snout, is very thin, oval, and depressed, except in the middle, where it rises into a beak. It is no bigger than a man's finger nail, and is found sticking to stones in the brooks of *Northamptonshire*.

The roundish TARGET LIMPET is smaller than the former; and, instead of a beak, has a sort of a button at the top. It is very thin and delicate, and has a pretty smooth surface, of an olive brown colour. It is found in some of the rivers of *Leicestershire*.

The OVAL LIMPET, with a hole at the top, is a quarter of an inch in diameter, and an eighth in height. The shell is very thin, rounded at both ends, and of a dusky brown colour. The hole is small and oblong, and seems to be formed of two round holes broken into each other. This is common near *London*.

The SPIRAL SNAIL SHELL, with a clavicle a little elevated, and a round mouth, is three quarters of an inch in diameter, and the shell is firm, solid, and smooth at the surface. It consists of about four turns, and the clavicle at the center is raised above the rest of the surface. The colour is a greyish white, and the large turn has a streak of black running along it, but loses itself before it reaches the next turn. It is found in the lakes of the north of *England*.

St. *Cutburt's* HORN SHELL is of the spiral flattened kind, and about half an inch in diameter. It is firm and solid, and of a fine glossy brown, with a tincture of olive colour. It consists of two or three turns, and the clavicle is depressed in the center; the mouth is partly filled up with the next turn of the shell, and the lip is narrow, but thicker, and of a paler colour than the rest of the shell. It is common every where in *England*.

The taller SNAIL SHELL, with a long clavicle, is one of the most beautiful of this kind, being about an inch high, and three quarters of an inch in diameter.

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The mouth is half round, and partly filled up by the succeeding turn of the shell: It is surrounded with a thin rim, of a palish yellow colour, and the clavicle has four turns, terminating in a point. The colour is of a dusky yellow, variegated with olive brown. It is sometimes met with in deep rapid rivers.

The variegated oval SNAIL SHELL, with a blunt clavicle, is about three quarters of an inch high, and near half an inch in diameter. The body is large, but pointed at the extremity of the mouth. The clavicle has three turns, and the top is blunt. The colour is of a greyish white, variegated with belts of a deep brown. It is found in large rivers.

The large-mouthed brown SNAIL SHELL, with a sharp clavicle, is about half an inch high, and the same in diameter. The body is oval, and the clavicle long and pointed at the top. The shell is of a dusky brown, and the mouth is remarkably large, and edged with a thin rim or lip. It is common in brooks.

The chequered fresh-water NERITE, or SNAIL SHELL, is about half an inch in length, and nearly as much in diameter, being almost of an oval shape. The clavicle has but two turns, and the mouth is narrow, with a lip on each side. The surface has furrows lengthways, and others transverse. The colour is almost white, variegated with blackish clouds or spots. It is met with in the Trout streams about *Uxbridge*, and other places.

The red fresh-water NERITE, or SNAIL SHELL, is about half an inch long, and above a third in diameter. The colour is of a pale red, but a little dusky, and the shell is more firm and thick than most others of this kind. The surface is pretty smooth, the mouth narrow, and the lips of a pale red. The clavicle is short, and has two turns near one edge, at the smaller end of the shell. It is found in plenty in the rivers of *Northamptonshire*.

The great conical SNAIL SHELL, with a depressed mouth, is about a third of an inch high, and its diameter is near as much at the base, where it terminates in a blunt little button. The colour is of a pale grey, and the substance is very thin and tender. The mouth

is partly filled up with the succeeding turn of the shell. It is found in several large rivers of *England*.

The long-mouthed **SCREW SHELL** is about three quarters of an inch long, and one third in diameter at the base. It consists of about thirteen turns, and has a longish narrow mouth, edged with a furrowed lip. The surface is smooth and the turns flat, only the upper edge of each is deeply denticulated. The colour is grey, inclining to that of a pearl, but not always pure. There being many sorts of this shell, the colour is not always the same; for in some it is of a brownish cast; in others greenish.

The brown **PIPE SHELL**, with a very large mouth, is about three quarters of an inch long, and half an inch in diameter. The body of the shell is bellied, and the clavicle very short, consisting only of four indistinct turns, but it is pointed at the end. The mouth is large, and the lip extended a great way; the surface is smooth and extremely thin; and the colour is of a dusky brown. In others it is white, and in some yellow.

The large mouthed *Ammon's* **HORN-SHELL** is of a roundish, depressed figure, being in diameter about an inch, and towards the mouth a quarter of an inch thick. It consists of about four turns, which grow gradually smaller, and form a little button at the center. The mouth is large in proportion, and surrounded with a little raised lip. The surface is undulated transversely, and the colour is of a pale grey. Others are brown, and some yellowish.

The white smooth depressed **BASTARD COCKLE** is three quarters of an inch broad, and the same in length, from the joint to the opposite edge. The shells are not very much bellied, and are very thin. The surface is perfectly smooth, and the colour of a dusky white.

The gibbous whitish variegated **COCKLE** is about half an inch broad, and rarely as much from the joint to the opposite verge. The shells are considerably deep, and slightly streaked with obscure circular lines. The colour is of a dusky white, variegated with olive spots.

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The reddish round streaked COCKLE is about an inch and a half in diameter, and as much from the joint to the opposite edge. They are lightly streaked with a pale brownish red colour on the outside, and are of a fine pearl colour within.

The blueish oval BASTARD COCKLE is about half an inch long from the joint to the opposite edge, which is broad and rounded; but at the top it runs up smaller, terminating bluntly. It is finely streaked long-ways, and the colour is of a pale blueish grey.

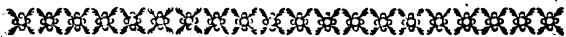
The extremely thin greenish MUSCLE is near an inch from the joint to the opposite edge, the surface is lightly streaked, and the colour is of a pale fine green.

The whitish variegated streaked MUSCLE is an inch long, and half an inch broad. The colour is whitish variegated with brown, and the shells are both pretty hollow.

The narrow brown angular MUSCLE is near an inch long, but not half an inch broad, and the shells are both very deep. The substance is pretty thick and strong, and the colour is a pale brown, with a tincture of olive.

The blueish rounded HEART SHELL, when viewed side-ways, looks like a heart painted on cards, and is about an inch long, and as much broad; as also but very little less in thickness. The surface is elegantly, but not deeply furrowed, and the colour is a dusky blue.

The reddish streaked HEART SHELL is about half an inch long, and nearly as much broad; both the shells are very deep, and of a pretty firm, solid substance, lightly streaked; but the intermediate surface is smooth and polished, and the colour is white with a tincture of red.



C H A P. XLVIII.

Of the Sea Nettles.

THE SEA NETTLE is of two kinds, one of which comprehends those that always remain fixed in one place, like sea plants, and the other contains those

those that change their place. This division is according to *Aristotle*; but *Reaumur* affirms, that there are none of these Nettles, not even those that are found in the holes of stones, that are not capable of some progressive motion, though it is very slow. He also thinks, that the name of Nettle is not proper to many of them, since those on some parts of the coasts of *France* have not that stinging property that many pretend they have. *Pliny*, as well as *Aristotle*, takes the former kind of them to be of a middle nature, between plants and animals; though *Aristotle* imagines, that they have no vent for their excrements, and *Pliny* says, that they have a narrow tube for that purpose. But *Reaumur*, who has carefully observed them, affirms, that what they void is nothing at all but clear water, quite different from the nature of an excrement. However, he thinks they are real animals; because they have organized bodies, and give signs of feeling when they are touched; besides which, they lay hold of fish and shellfish, which they eat, and have also a progressive motion. These Nettles assume so many different shapes, that it is not possible to describe them under any determinate figure; but, in general, their outward form approaches nearest to a truncated cone, having its base fixed to some stone, to which it is found always adhering. Some are greenish, others whitish, and others again of a rose-colour; likewise there are others of all the degrees of brown. In some of these Nettles, these colours appear every where on the surface, and in others they are mixed with streaks or spots. Sometimes again these spots are distributed regularly, and at other times irregularly, but always in a very agreeable manner.

The wandering SEA NETTLES have nothing common with the preceding, except in the name, and they have different appellations in different places, as also according to their sizes. These may be more properly called Sea Jellies, according to *Reaumur*, which is very proper to the substance of which they are formed; for in reality their flesh, if it may be so called, has always the colour and the consistence of a jelly. When they are thrown upon the sea coast, they appear to be quite motionless, which perhaps may be owing to the
shocks

shocks they have received against stones or the sand, which may be sufficient to deprive them of life; for it is certain they are a sort of animals.

The first Sea Nettle is so called by the ancients, on account of its stinging quality, which produces an effect much the same as the common Nettle. The second is called by *Rondeletius* the ash-coloured-Nettle, and has no flesh; for it resembles a head of hair. This is found in the clefts of rocks, which it never leaves. The third is red, and is like the first kind, but has more hair, and is more thick and broad. This is sometimes fixed to the rocks, and sometimes wanders here and there. The fourth adheres to the heads of Oysters, but principally to the *Purpura*. The upper part is more hard and thick than that of other sorts, and all round it there are short hairs; but from within there proceed long strings of a purple colour.

The fifth kind, which is of the wandering sort, is called by the *Genoese* CAPELLO DI MARE; that is, the SEA HAT; for one part of this Nettle is a spongy, hollow, round mass, and pierced in the middle. Round about it there is a little red cord, which gives it the appearance of a hat, or rather of a bonnet. The other part resembles the feet of Cuttle-fish, of which there are eight that are large and square at the beginning, and terminate in a point. The body is so shining and transparent, that it dazzles the eyes. They melt like ice, when they are handled for some time, and they sting the hands, which causes a painful itching. The sixth Sea Nettle has but four feet or branches, which are long; and on the upper part there are oval figures, which are disposed in the form of stars.



T H E

N A T U R A L H I S T O R Y

O F

S E R P E N T S.



C H A P. XLIX.

Of Serpents.

A VIPER differs from other Serpents, not only in moving more slowly, and in never bounding or leaping; but in bringing its young to perfection before they are excluded; whereas the females of other Serpents lay eggs, which are either hatched by the heat of the sun, or in the place of their retreat. Some have thought, that a Viper is an emblem of Malice and Cruelty; but without reason; for they never do any mischief, unless they are exasperated, and then they become furious, and bite very hard. However, it must be allowed, that it attacks and kills the animals designed for its nourishment, nameiy, Cantharides, Scorpions, Frogs, Mice, Moles, Lizards, and the like, which it swallows whole, after they have been killed with its large teeth.

Vipers will live several months without nourishment, nor will they eat after they are taken; for though they are

are very fond of Lizards, yet, when these have been thrown into a tub, in which were several Vipers, they were never touched. The flesh of a Viper is viscous and hard, and does not digest very easily: the skin is scaly, and its colour on the upper part of the body is yellow, with a reddish cast in the males, which is whitish in the females. In the middle of the back, there is a blackish line dentated on each side, or rather a chain of blackish spots, which runs along from the head to the end of the tail. A little below is another row of blackish spots, and on the lower part of the sides there is a line consisting of little white spots, and then another of black, which are larger, and at last a third, which are whitish. The belly is covered with long transverse black scales, which are less on the other parts. Besides, the colour is not the same in all, at least the ground is different; for it is sometimes whitish, sometimes red, grey, or yellow, and at other times tawny. This is always spotted with black, or at least with a dark colour. Upon the head there are two rows of spots, which resemble horns, that rise between the eyes, and run along the sides on the top of the head. Opposite the middle of these horns, there is a spot of the size of a lentil, which is the beginning of those that run along the spine of the back.

They are generally about two feet in length, and about the thickness of the thumb of a large man. The head is flat, and has a border at the extremities of the upper part, in which it differs from Snakes. It is about an inch long, and at the top two thirds of an inch broad, which, diminishing by little and little, is one third of an inch about the eyes, and half as much at the end of the muzzle. The neck, at the beginning, is about as thick as a man's little finger; and the tail of the females is always more thick and long than that of the males, and they terminate in a point in both.

Vipers cast their skins generally twice a year, and the new ones seem always more beautiful, and the colours more bright, than that which they have quitted. Soon after this, another skin begins to be formed, so that it may be said, that they always have a double

skin. When a Viper is cut into several parts, after the skin is taken off, and the bowels out of the belly, they will all live for several hours, and the head is always ready to bite; nor will this be less dangerous now than at another time. Vipers do not make holes in the earth, like other Serpents; for they generally hide themselves under stones, or the ruins of old houses. However, in fine weather, they delight to lie among bushes, and in tufts of grass.

Vipers have generally two large teeth without the upper jaw, surrounded, about two thirds of their height, with a pretty thick vesicle full of a transparent yellowish liquor, and pretty fluid. In this vesicle, and in the middle of the liquor under the large and principal tooth, there are several teeth irregularly placed, some longer than others, and all crooked. There have been sometimes six or seven on the same side, under the same tooth, and in the middle of the same vesicle. These large teeth are about one sixth of an inch long, and are hooked, white, hollow, and transparent throughout, even to their very point, which is extremely sharp. These teeth generally lie close to the upper jaw, and their points do not appear till the moment the Viper is going to bite. There are likewise other crooked teeth in both jaws, which are hollow and transparent, but very small. Their number is uncertain, they being seldom found the same in any two Vipers, which perhaps may be owing to their being so liable to be broken off.

There is a great difference between the teeth and jaws of Vipers and those of Snakes; for these last have four upper jaws, and two lower. Two of the former lie near the edge of the lip, and serve, as it were, to defend the other jaws, which have the same situation as in Vipers. Some Snakes have near an hundred teeth, which are all fine, crooked, hollow, white, and transparent, as in Vipers.

The tongue of a Viper is composed of two long fleshy round bodies, which terminate in sharp points, and are very pliable. It is about an inch and a half long, and its root is connected very strongly to the neck by two tendinous bodies, near a quarter of an inch in length.

length. The tongue of some Vipers have three or four points; and, though they are often darted out, they do no harm, except terrifying those that behold them; for they serve principally to catch the small animals, which the Viper lives upon.

The VIPER, of *Ceylon*, has small eyes, seated over the nostrils, which seem to be four in number; because over the jaw, on each side, there are two whitish spots that resemble eyes. The nose is covered with pretty large scales, and these are adorned with an undulated black and red streak. The belly is of a bright yellow, spotted with a reddish colour, and furnished with whitish scales.

The *Javan* VIPER is covered with scales of a feagreen colour, and surrounded with stripes of a dark tawny, that run transversely round the body from the head to the tail. The head is defended by large reddish scales, only over the eyes there are two white transverse stripes. About the neck there is a red circle, and the scales on the belly are of a bright yellow, but bordered on the sides with a black line, like a silken thread.

The MARASSUS is an *Arabian* Viper, with reddish scales on the upper part of the body, shaded with large dark brown spots, which reach to the sides. These spots on the back are mixed with streaks of a forrel colour, which run cross-ways. The head is covered with large uniform scales, and the mouth is edged with a beautiful border; the scales on the belly are of a yellowish blue, speckled with red.

The AMMODYTES, of *Ceylon*, is a very large and dangerous Serpent, with a mouth full of sharp teeth. The eyes are large and sparkling, and the forehead is covered with small round scales, some of which are yellow, others red, and speckled with black. On each side of the eyes there are black stripes that reach to the neck; but the body, above and below, is of a whitish ash colour, and on the back are angular spots variegated with white and brown. The scales that cover the upper part of the body are placed like net-work, with large meshes, and the tail is spotted with brown, ending in a bony point.

The AMMODYTES, of *Surinam*, is a Serpent, which the negroes have in high esteem, and think themselves very happy, if they come into their huts; but their colours are so many and beautiful, that they surpass all description.

The AMMODYTES, or SAND SERPENT, so called, because it hides itself in the sand, and is said to be very like a Viper. It is a cubit in length, of a sandy colour, and the head is broader than that of a Viper, as well as the jaws. On the upper part of the nose, or muzzle, there is an eminence like a wart, which has given occasion to some to call it the Horned Serpent. It is to be met with in *Africa, Illyria, Italy*, and other parts of the world.

The BAYAPNA is an *African* Serpent, with a longish white head spotted with chestnut colour, and the neck is adorned with a narrow collar. The eyes are large, seated near the mouth, and the upper part of the body is covered with squarish scales as white as snow, from the head to the tail, which last is long and slender. The neck is small, marked with oblong spots of a bright bay, which are more large on the back. Near the tail the spots are smaller, and the belly is of a yellowish ash colour, speckled with red on each side throughout its length. It lives upon birds and frogs.

The GERENDA, so called by *Seba*, is a Serpent of the *East-Indies*, to which they pay divine honours. It generally lies folded up, and has a skin finely spotted; it is covered with very thin scales of a yellowish ash colour, and encircled with red bands, which look as if they were embroidered, or rather like ribbands. The head is oblong, and like that of a hound, and of a very pale ash colour; it is covered with small scales, that become larger upon the nose; and from thence to the neck, there runs a deep red streak, made like the links of a chain. Another streak, much of the same sort, proceeds from the eyes to the jaws; the edges of the lips are turned outwards and folded. The teeth are small and slender, the eyes lively and sparkling, and the nostrils large; the transverse scales on the belly are of a yellowish ash colour, and the small scales of a bright
ash.

ash colour, spotted in the middle with a deep red. This Serpent is held in great veneration in *Japan* and *Calicut*; though the inhabitants of *Malabar* are greatly afraid of it.

The *African* GERENDA is of a prodigious bulk, and is worshipped by the inhabitants on the coast of *Mosambique*. The skin is not so finely spotted as the former; but is variegated all over the body with very fine white ash-coloured and black spots. The head is somewhat like that of a dog, as well as the nose, which is finely spotted, and small round scales cover the top of the head. The mouth when open seems to be furrowed, and the tongue, which is cloven in two, is red; the tail terminates in a point.

The JAUCAACANGA, so called by the *Brazilians*, is named *Tedagofo* by the *Portuguese*. The *Dutch* that live in those parts call it the Hunting Serpent, because it winds along with incredible swiftness, insomuch that it is very difficult to get out of its way. The natives do all they can to render these Serpents tame, for they receive them into their houses, where they free them from all vermin. The head is oblong, the mouth small, and the nose is like that of a hound; the eyes are large and very fine, as well as the scales on the nose; but those on the forehead are small, thin and round. The rest are pretty large in proportion, as white as snow, shaded with a pale red, and variegated with gold colour. The teeth are crooked, the tongue cloven, and of a pale red, and the tail is of a deeper colour than the body. Under the belly they are ash coloured with red edges.

The HEMORRHOIS, which is the name of the bleeding piles, is so called, because those that are bit by it have hemorrhages or fluxes of blood from all parts of the body. It is but small, being only a foot long, and it has a very bright and shining skin. The eyes are red and shine like fire, and the back is full of black and white spots. The neck is small, the tail very slender, and it has small horns above the eyes.

The ACOALT is a water Serpent found in the *East-Indies* that has very small teeth, and its bite is not dangerous. It is pretty long, and variegated with broad

black streaks; but the back and the under part of the belly are blue: the upper part of the head is black, the lower yellow, and the sides blue.

The ARGUS is a *Guinea* Serpent; it is very uncommon, and is so called, because it is covered with spots from the head to the tail, that resemble eyes. On the back there is a double row of them, which are the largest; the ground colour of the scales is of a bright chestnut colour, only on the back between the eyes it is of a dark brown.

The PRINCE of SERPENTS, so called by *Seba*, is a native of *Japan*, and has not its equal for beauty. The scales which cover the back are reddish, and finely shaded and marbled with large spots of irregular figures. The head is oblong, and the fore part is covered with large beautiful scales. The jaws are bordered with yellow, and the forehead is marked with a black marbled streak, which reaches to the end of the neck; the eyes are handsome, lively, and brilliant. It is a very harmless animal.

The ASP is a Serpent very often mentioned by ancient historians; but they have given us no accurate description of it. Some say it is of the size of a common Snake, only the back is broader, and their necks swell greatly when they are angry. But as to their teeth growing exceeding long and standing out of their mouths like Boars, which some assert, seems to be fabulous. However, it may be true, that two of the longest are hollow, and that they are those which contain the venom. They are generally covered with thin pellicles, which slide down when the Serpent bites. The skin is said to be covered with scales, which are redder than those of any other Serpents; but others affirm they are of very different colours. Some say they are two cubits long; others four; others again five; and *Peter Kolben* affirms he has seen them several ells long; so that in short, there is nothing certain to be said about it. They are undoubtedly bred in *Africa*, and it was by the bite of one of these Serpents that *Cleopatra* is said to have ended her days.

The GIBOYA is the largest of all the *Brazilian* Serpents, being sometimes twenty feet long and very thick.
Travellers

Travellers pretend it will swallow a stag whole; but this must be a fable. The teeth are very small in proportion to its body, and this Serpent is not at all venomous. It lies in wait for wild animals near the paths, and when it throws itself upon one of them, it winds about him in such a manner, and with so much strength, that it breaks all its bones; after which it mumbles the flesh in such a manner, as to render it fit for swallowing it whole.

The HIPPO, an *African* Serpent, so called by *Seba*, is covered with scales of a bright lead colour, appearing very beautiful to the eye; the head is variegated with red, yellow, white, and blue, very curiously mixed; and each side of the head and neck are marked with four spots as red as coral. Along the spine, from the head to the tail, there runs a whitish streak, which seems to consist of a row of oval pearls, and on each side the belly, which is covered with yellow scales, there runs another white streak.

The HŒMACETA is a Serpent of *Asia*, which *Seba* procured out of *Tabarestan*, a province of *Persia*. It is covered with scales exactly resembling oriental agate. On each side the belly there are spots of deep red, and the fore part of the head is covered with uniform pale red scales; but the hinder part of the head and neck are adorned with white spots like roses; the scales of the belly are of the colour of apple blossoms, inclining a little to red in some places.

The SCYTALE is of a long round shape like a staff, from whence it has its name; for Scytale signifies a club or staff in the *Greek*. Some say this Serpent is very full of marks or spots on the back, which render this animal extremely beautiful. It has a very slow motion, and therefore cannot pursue any one to hurt him. The head and tail are so much alike, that it is hard to distinguish one from the other.

The AMPHISBENA, or the double-headed SERPENT, is remarkable for moving along with either the head or the tail foremost, as the *Greek* name imports. For this reason, many authors have affirmed, that this animal has two heads, which must needs be false: for there is no such creature in the universe.

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This error took its rise very probably from the thickness of the tail, which might look at a distance like another head; but, if those who have affirmed it had had a nearer view, they would soon have discovered their error. Some assert, that this Serpent is like the Scytale, and differs only from it in going backward and forward. It is as thick at one end as the other, and the colour of the skin is like that of the earth. It is rough and hard, and variously spotted. It is to be met with in *Lybia*, and likewise in the island of *Lemnos*.

The *American* AMPHISCENA is of a flesh colour, and seems to have neither eyes nor nostrils: its mouth is a small cleft, without teeth or tongue: however, it is thick, smooth, and covered with large scales of a flesh colour; the head is blunt, and as thick as a man's head, as some say; but this may be doubted: some place them among the blind Serpents.

The APAMEA is a *Syrian* Serpent, which seems to have two heads, and the body is smooth and shining. The head is small and of a pale yellow, only there is a streak, which reaches from the eyes to the nostrils. It is round, thick, and flat, and covered with small scales, like lozenges, of a violet purple underneath the body, variegated with a straw colour. The tail is thick, and blunt at the end.

The IBIJARA, so called by the *Brazilians*, and by the *Portuguese* COBRA DE LOS CABECAS, is reported to have two heads, but falsely. The error arose from its striking with the tail, as well as biting with the mouth; besides the head can hardly be distinguished from the tail, because they are both of the same shape and size. It is about as thick as a man's little finger, and a foot and two inches long. It is of a whitish colour: it glitters like glass, and is marked with beautiful rings, and lines, nearly of a copper colour. The eyes are very small, and hardly visible; for they look like small holes in the skin, made with the pricking of a needle. It lives under the earth, and never appears but when turned up by digging. It lives upon Ants, and its venom is so fatal, that the *Portuguese* affirm there is no cure for it.

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The CÆCILIA, the BLIND WORM, or SLOW WORM, some have supposed to be both blind and deaf; but this is a mistake, for they certainly have eyes, though very small. The teeth are set in the mouth like those of a Cameleon, and the skin is very thick. It is of a pale blue, with blackish spots on the sides. Likewise, it is quite smooth, being without scales. It is about a span in length, and as thick as a man's finger. It is to be met with in *England*, as well as in many other countries; and it brings forth its young ones alive like the Viper.

The ACONTIAS, or DART, is so called, because it shoots itself forward like a dart. It is of a whitish ash colour, and on the belly is entirely white, with little spots like eyes upon the back. The neck is black, and from thence there run two white lines along the back to the tail. The spots, which are black, are no bigger than a lentil, and they are all encompassed with a white circle. Authors affirm that they get upon trees, from whence they dart themselves upon people as they pass along, and that their bite is mortal. They are to be met with in *Egypt*, *Lybia*, and the islands of the *Mediterranean sea*. Late authors mention different kinds of them, the descriptions of which have been sent to *Europe* from different parts of the world.

* The DART of *Amboyna* is called by the *Dutch Spait-lang*, which is as much as to say, the *Syringe Serpent*, because it raises itself as swiftly as water out of a syringe. It is as thick as a man's arm, six feet in length, and is covered with scales disposed in the form of lozenges, which are of a reddish brown, and of a sea-green on the back and sides; but those on the belly are of a bright ash colour. The skin is smooth, and the head of a middle size; but the eyes are very large and shining, with small teeth, and a long pointed tail.

The GRILL, of *Surinam*, is a Serpent almost a foot long, and an inch thick, being in the shape of a cylinder from the head to the tail. The skin is smooth without scales; on the back there are points a little elevated, and there are wrinkles on the sides. The head is smooth
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and round, and the upper jaw is long, blunt, and furnished with a thread on the side of each nostril. The holes of the nostrils are a good distance from each other, and are as small as the points of needles, as well as the eyes, which however are very brilliant; the teeth are small, and the tail, if it may be said to have any, is blunt and wrinkled like earth worms.

The *American* BLIND SERPENT is white, mixed with flesh colour, and is covered with small scales from the head to the end of the thick tail; and they are divided by fine longitudinal streaks that cross others which are circular. The head is large and short, and the mouth is furnished with teeth. The eyes are very small, and covered with a membrane; but the nostrils are large. It feeds upon hog-lice, and other small insects.

✕ The ANGUIS ÆSCULAPII, the Snake of *Æsculapius*, is a harmless kind of Serpent. In *Italy*, it is suffered to come into the houses, and often gets into the beds where people lie; but though it is an innocent sort of animal, yet it will bite when exasperated. It is of an oblong shape, an ell long, and of a yellowish colour, except on the back, where it is brown. Both jaws are armed with many very sharp teeth; and on the neck two small eminences appear with an empty space between them. They are very common in *Spain, Italy*, and other warm countries.

The BITEN of *New Spain*, is of a thick short shape, being remarkable for its short tail, which is distinct from the body; the scales which cover the middle of the body are long and broad; but towards the head and tail they are narrow; these are whitish, variegated with red, pale, and deep yellow, mixed here and there with black spots. In the back part of the mouth there are crooked teeth; but there are none before.

The BITEN, of *Ceylon*, is a sort of large Snake covered with great oblong scales, which adhere to the skin by the root; but there are other parts as loose, and so moveable, that when it is angry they rise up like hair that stands an end. They are of a deep yellow where they touch each other, shaded with blackish spots;

spots; but between them there are other scales of a yellowish ash colour. The neck is marked with oval spots, and the head is short and of an oval shape: the eyes are large, brilliant, and full of fire; and in the mouth there are only four long crooked teeth, two above and two below; these are connected to the jaws on each side by tendons; but at the bottom of the palate there are others very small and crooked. The tongue is forked.

✱ The RATTLE SNAKE is bred in *America*, but in no part of the old world. Some of these are as thick as a man's leg, and six feet in length; however, there are many that are no larger than a common Snake, and these are most frequent. They receive their name from the rattle which is at the end of their tails, that consists of several shells, which are very thin and of a horny substance.

They are of an orange, tawny, and blackish colour on the back, and of an ash colour on the belly inclining to that of lead. The male may be readily distinguished from the female by a black velvet spot on the head; and besides, the head is smaller and longer made. The young Snakes of a year or two old have no rattles at all, but those that are older have several. Many have been killed that have had from eleven to thirteen joints each. They shake and make a noise with those rattles with prodigious quickness when they are disturbed, and their bite is very dangerous; but not always of the same force, it being more or less mortal in proportion to the vigour of this animal; for this reason it is always more fatal in *March* and *April*.

This Snake is a very majestick sort of a creature, and will scarce meddle with any thing unless provoked; but if any man or beast offends it, it makes directly at them. Many have affirmed, that a Rattle Snake has the power of charming Squirrels, Hares, Partridges, and the like, in such a manner as to make them run directly into their mouths; but this, upon strict examination, appears to be a mistake.

The large *Mexican* SERPENT, called DEPONA, is remarkable for the enormous size of its head and jaws. The mouth is armed with cutting crooked teeth, among which

which there are two tushes, which other Serpents have not, and which are placed in the fore part of the upper jaw. All round the mouth there is a broad scaly border, and the eyes are so large that they give it a terrible aspect. The forehead is covered with large scales, on which are placed others that are smaller, curiously ranged: those on the back are greyish, and along it runs a double chain, whose ends are joined in the manner of a buckler. Each side of the belly is marbled with vast square spots, of a chestnut colour, in the middle of which is another that is round and yellow: the transverse scales of the belly are variegated with large spots, of a reddish colour, as well as the long slender pointed tail. They avoid the sight of a man, and consequently seldom or never do any harm.

The CENCOALT is a sort of a Viper of *New Spain*, and has an oblong head flatted before, with large nostrils: the mouth has a large dentated border, and the eyes are large and sparkling: the body is covered with speckled scales, shaded with spots that are partly red, partly yellow, and partly of a chestnut colour: the scales on the belly are of a bright ash colour, variegated with yellow, and the tail and neck are long and small.

The BOIGUACU is called by the *Portuguese* COBRA DE VEADO, and is supposed to be the largest of all these kinds of animals. They have been seen from seven to twenty-four feet long; and *Marcgrave* affirms, that he has seen one swallow a goat whole. This seems to be the same that *Condomine* mentions by the name of the Coral, and says it is remarkable for the variety and liveliness of its colours; but more especially for its largeness, for it is affirmed they are from twenty-five to thirty feet long. This author carried two of the skins to *France*, one of which was fifteen feet long, and a foot in diameter. It is thickest in the middle of the body, and grows shorter and smaller towards the head and tail. On the middle of the back there is a chain of small black spots running along the length of it, and on each side there are large round black spots, at some distance from each other, which are white in the center. Between these, near the belly, there are
two

two rows of lesser black spots, which run parallel to the back. It has a double row of sharp teeth in each jaw, of a white colour, shining like mother of pearl. The head is broad, and over the eyes it is raised into two prominences. Near the extremity of the tail there are two claws resembling those of birds.

Piso affirms, that those Serpents lie hid in thickets, from whence they will come out unawares, and raising themselves upright on their tails, will attack both men and beasts. It makes a strange hissing noise, when exasperated, and will sometimes leap from trees, and wind themselves round the bodies of travellers so very closely as to kill them. However, *Condomine* makes no mention of this, but he takes notice of their biting, which he affirms is not at all dangerous; for though the teeth are so large as to inspire any one with terror that behold them, yet their bite is not attended with any other consequence than what may proceed from an ordinary wound.

Dellon affirms, that in the *East-Indies* there are Serpents of twenty feet in length, and so thick, that they are able to swallow a man. They generally haunt desert places, for though they are sometimes seen near great towns, on the sea shore, or on the banks of rivers, yet it is generally after some great inundation. He never saw any but what were dead, and they appeared to him like the trunk of a large tree lying on the ground. The *Americans* pretend that one of these Serpents will swallow a Deer horns and all; and the *Indians*, that it will swallow a Buffalo whole; both which stories are very improbable. However it is pretty certain that one of the *East-Indian* Serpents did actually swallow a child.

The CUCURUCU is a Serpent from nine to twelve feet long, and thicker than a Rattle-Snake. Their scales are much alike, only these are yellow and marked on the back with large black spots. It is a very venomous animal and greatly to be feared, and yet the flesh is eaten by the savages.

The IBOBOCA, of the *Brazilians*, is called COBRA DE CORAL by the *Portuguese*. It is two feet long, and almost an inch thick; and the tail towards the end is round

round and sharp like a bodkin. All the belly is of a shining white, and the head has white cubical scales, which are black on the edges. Next to these is a spot of a bright red colour, the scales of which are black on the edges, as all the red spots are. To this a black spot succeeds, then a white, then a black, and again a red, and so on. The red spot is about an inch long; and two white, and three red, taken together, are an inch and a half long, but equal to each other. The edges of the white spots are always black. The bite of these Serpents is generally fatal; however it can move along but slowly.

The BOITJAPO, of *Brazil*, has the name of *Cobra de Lipo* among the *Portuguese*, and is seven or eight feet in length, but is scarce so thick as a man's arm. The body is round, and the tail ends in a sharp point. The colour in general is olive, except under the belly, which is yellowish, and covered with beautiful triangular scales.

The spine of the back is furnished with a row of prickles, which runs from the head to the tail. The scales on the upper part of the body are placed like the meshes of a net with a double thread, which crossing each other form a sort of lozenges. The head is defended by a buckler, consisting of large long scales, and the eyes are large, sparkling, and full of fire. The mouth is armed with many small teeth. It lives upon frogs, and is very venomous.

The BOYUNA is a Serpent of *Ceylon*, which the inhabitants are fond of meeting with; because they take it to be a sign of good luck, and more especially if it happens to come into their houses. The mantle on its back consists of a fine web of small scales, which are ash coloured and yellow, and made like a net; they are bordered with a mixture of large bay-brown spots, and on the belly there are others that are smaller, inclining to a rose colour and speckled. The head is covered with beautiful pretty large scales, of a bright chestnut colour, speckled with red and brown. The scales on the belly are white, spotted with brown.

There is another Boyuna of *Ceylon*, with a white head defended with large scales, and adorned with a
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fort of crown. The edges of the jaws are transversed with black streaks, and on the hind part of the head is the print of a Tiara. The fore-part of the body is half a *Dutch* ell in length, and there are very large spots, variegated with white, chiefly on the back, though they extend here and there to the belly. The scales of the belly and the tail are surrounded with a very narrow roundish border.

The BOJOBİ, so called by the inhabitants of *Brazil*, is known to the *Spaniards* by the name of *Cobra Verde*, or the Green Serpent. It is about an ell in length, and as thick as a man's thumb. The green colour on the body is like that of a leek, and shines very much. The mouth is large, and the tongue black, and it delights to be near buildings. It is a very harmless animal, unless any one vexes it, and then it will bite, which is always fatal.

Another BOJOBİ is a Serpent of *Ceylon*, with large lips, and is of a beautiful shape, but it has a terrible look; the lips are thick and hanging, and the teeth sharp; but they are hid in sheaths within the jaw, and have a membranous covering. The lips are edged with a border of large, pale, reddish scales made like studs, and the eyes are red and sparkling. The upper part of the body is of a shining orange colour variegated with straw coloured spots, and adorned with belts of a reddish brown.

Seba informs us, that this Serpent is of different sizes, though seldom above that before-mentioned; the scales are large, long, and of a sea-green colour, variegated on the back with long, large transverse stripes as white as alabaster. The scales on the belly are yellow and large; the head is well made, and shaded above with bright red, but greenish underneath; the eyes are surrounded with large scales, and the flat snout is quite covered therewith; the upper lip is bordered with the like scales; and the tongue is forked and pointed, being white and reddish; whereas the tongues of most other Serpents are black.

There is another Serpent called BOJOBİ, and by some the Crowned Serpent. It has a wide, short mouth, with a black head, marked at the top with a yellowish
CROWN.

crown. The eyes are small, and of a sparkling green; but the nostrils are large and open. This Serpent generally keeps in old hollow trees.

The BOIQUATRARA is a Serpent of the island of *St. Maurice*, which word signifies the Painted Serpent. These kind of Serpents live a long while, and become extremely large; the upper part of the body is adorned with a long chain of chestnut-coloured links, somewhat like a net, and on each side the belly there are round saffron-coloured spots, disposed in a beautiful order. The other scales are large and speckled with a pale yellow; the head is not large in proportion to the body; but it is finely adorned with scales, and those on the belly are of an ash-coloured yellow, and barred with rays.

The BOIQUATRARA, of *Amboyna*, is so finely coloured, that it is likewise called by the natives the Painted Serpent. It is beautifully variegated with blue sea-green, and dark green: the scales on the belly are of a sea-green, marked on the upper part with four yellow stripes, which run from the head to the tail. The head terminates like a long-pointed bill; but the mouth is so large, that it can swallow a common fowl whole; but it has no teeth. This Serpent makes a kind of a singing noise, by which it is said to invite birds within its reach, and then leaps upon them.

The CARACARA is a *Brazilian* Serpent, with a greyish head, the back part of which, and the neck, are covered with scales of the same colour, marked with dark-brown spots, that run transversely in the form of a bow, and cuts a blackish chain in the middle of that part. Where this chain terminates the scales become of an oblong shape. That part of the Serpent where this chain begins is a little swelled, and inclinable to a red colour. The scales on each side of the belly are of a bright ash-colour, and on each side the head is a black streak, which terminates at the nape of the neck. The eyes are large and shining.

The JARARACA is a short Serpent, seldom exceeding half a cubit in length. There are prominent veins in the head, as in those of Vipers, and it hisses

much in the same manner. It is marked with red and black spots; but all the other parts are of a dirt colour. The *Portuguese* have a remedy for its bite called by them *Herua de Cobras*, and by the natives *Caatia*, which being applied outwardly, and taken inwardly, cures not only the bites of this, but of all other Serpents.

The TARESBOYA, and CACABOYA, are two amphibious Serpents, that live as well on land as in the water; and upon that account are not unlike our Water Snakes. However they are not so pernicious as those of *Europe*. They are quite black, and not very large, and will bite when angered, but the wound admits of an easy cure. There is one of this kind of a yellow colour, six palms in length, which is more to be feared by the country people, on account of devouring the poultry, than from the danger of its bite.

The GIRAWPIAGARA, which signifies an Egg-eater, is an oblong Serpent or Snake of a black colour, only it is yellowish on the breast. They are very nimble in getting up the highest trees, where they seek birds-nests, and devour their eggs.

The JARARACUCU is about thirty inches in length; its teeth are very large, and when it is about to bite, they are thrust out of the mouth like fingers; but at other times they are hid within the cheeks. The venom is a yellow fluid, so powerful, that it will kill a man in the space of twenty-four hours. These Serpents bring forth several young ones at a time, and some of them that have been killed, have been found to have thirteen in their belly.

* The SERPENS INDICUS CORONATUS is called by the *Portuguese* COBRA DE CAPELLO, which signifies the HOODED SERPENT, and is so named because it has an excrescence like a hood or cap on the top of the head. The skin is of a gold colour, and it is generally about a yard in length, and about three quarters of an inch thick. It is agreed on all hands that the poison of this Serpent is extremely dangerous, and perhaps more strong than that of any other.

The

The *American* COBRA DE CAPELLO, so called by the *Spaniards*, seems to be a sort of Viper. The upper part of the body is of a dark red, and some white streaks run across it: the belly is of a pale red, and the upper part of the tail of a scarlet colour; but the top of the head is whitish. The forehead is marked with a spot in the shape of a pair of spectacles, and the eyes are small. It lives upon spiders and insects of the like kind.

The COBRA DE CAPELLO, of *Siam*, from the head to the end of the tail is of a greyish ash-colour, and has a little brownish red on the back. The scales on the belly are large, and of a reddish pale inclining to an ash-colour. The mark on the forehead is not so large as that of the foregoing, and the chequered scales are without ornament. The eyes are large and shining, and the fore-teeth are so small that they can hardly be seen, being covered with a loose skin; but the hinder teeth are sharp and crooked.

The SERPENS OCELLATUS, or the EYED SERPENT, is so called, on account of the various white spots on its black skin. Some give it the name of the Dart, on account of the swiftness with which it throws itself on its enemy, when it meets with an opportunity. It may be taken with a great deal of ease; for a small blow on the back with a stick will stop its career, and then there is no difficulty in killing it.

The TREE SERPENT is so called, because it perches commonly upon trees; it is three ells in length, three quarters of an inch thick, and it winds itself about the branches of trees; where it continues a long while without motion. One not accustomed to these Serpents, unless he has a very piercing sight indeed, may easily mistake them for branches of trees, which they do not differ from in colour, except in the spots. When any one comes near the place where they lurk, it is usual for them to dart their heads at the person's face, by which means they often wound them. When the mischief is done, they get down from the tree as fast as they can, in order to get away; but as they are slow in their motion they may be soon overtaken and knocked on the head. They do not leap from the tree,

tree, but get down by winding along the branches. Many of these are put in spirits, and sent by the *Dutch* to *Holland* as a present to their friends.

The **BLIND SERPENT** is very common at the Cape of *Good Hope*, and his scales are black, with brown, white and red spots. Its bite is not so dangerous as that of other Serpents, and is often found in the clefts of rocks and other places about them, where they may be killed with little trouble.

The **DIPSAS** is so called from the *Greek* word, which signifies thirst, because those who have the misfortune to be bit by it have always a passionate desire for drink. Some call it *Prester*, which signifies to burn, on account of the burning sensation that it causes. This Serpent is about three quarters of an ell long, and is very thick a little below the head, with a blackish back. It is very nimble in attacking any person; and its bite inflames the blood to such a degree, that it causes a burning thirst.

The **CHAYQUARONA** is a *Brazilian* Serpent, whose male is adorned with rings from the head, which are handsome, to the extremity of the tail. On each side the neck there are nine black spots, which look like eyes, as in some kind of Lampreys; some of the rings are red, and others of a pale yellow, and the scales of the lower belly are of a faint blue. The female is like the male, only the rings are of four colours, and there are no spots on the sides of the neck.

The **HORNED SNAKES** are like the Rattle-Snakes for colour, but rather lighter. They hiss exactly like a Goose when any animal comes near them. They strike at their enemy with their tail, which is armed at the end with a horny substance like a cock's spur; which being venomous, generally kills those that are struck with it.

The **WATER SNAKES**, of *Carolina*, are of four sorts; the first is of the colour of the Horn Snake, but somewhat less; the next is a very long one of a different colour, and will swim over a river a league in breadth. They generally hang upon birch, and other trees, near the water side. Their bite is reckoned venomous. The third sort, is of the colour of an *English*

Viper, and delights in places where there is salt water. The bite is accounted dangerous, but whether deadly or not, is not said. The last kind is of a black colour, and frequents ponds and ditches, which is all that authors say of it.

The SWAMP SNAKES are very near akin to the Water Snakes, and may properly be ranked in that number. The belly of the first is of a carnation or pink colour, and its back of a dirty brown; they are of a large size, but not very venomous. The second sort is large, of a dirty brown colour, and continues always in the marshes. The last is mottled, and very poisonous, with prodigious wide mouths. They grow to the thickness of the calf of a man's leg, and frequent the sides of swamps and ponds.

The RED BELLIED LAND SNAKE is so called, on account of the colour of its belly, which is nearly that of an orange. Some have been bitten by these Snakes without any bad consequence, while others have suffered greatly on that account.

The RED BACKED SNAKES are so called from the colour of the back. They are long and slender, and their bite is so fatal as to admit no cure. However they are happily very uncommon.

The BLACK TRUNCHEON SNAKE lies under the roots of trees, and on the banks of rivers. When any thing disturbs them, they dart into the water like an arrow out of a bow. They are so called from their shape, for they are very thick and short.

The LAMANDA, or the KING OF SERPENTS, so called by *Seba*, is a native of the island of *Java*. It is so curiously coloured and spotted, that a very skilful painter whom he employed, could not come up to the beauty of the original. The head is well proportioned, and the forehead is of a yellowish ash-colour, covered with scales, marked with a red cross made like the iron part of a halberd; and near it are two annular spots, which surround others that are smaller. From the eyes, which are lively and sparkling, to the nape of the neck, there runs along the side of the upper jaw a bay-brown variegated streak; and the lower jaw is encircled underneath with another of the same colour. The hinder
part

part of the head is finely spotted, and the mouth is armed with sharp crooked teeth. The upper part of the body is very beautiful, for it seems to be painted with coats of arms, and crowns of different shapes, so interwoven with each other, that any one would imagine they were the work of some curious painter. The scales are like lozenges of various colours, and the tail is adorned with a singular orange-coloured spot. The transverse scales are of an Isabella colour, that is between white and yellow, and beautifully marked with blackish spots of different sizes. This Serpent is about seven feet and a half long, but the thickness is not proportionable to the length.

The MANBALLA, a Serpent of *Ceylon*, is of a chestnut colour, and the head is like that of a hound: the upper part of the body is covered with pale yellow scales, and those on the forehead and jaws are of a deep red. The whole extent of the back, which is smooth and highly polished, is marked with oval links, which are joined together by a large spot or streak; under this streak the links are of a triangular form, inclining to a pale red, and run uniformly on each side of the belly to the beginning of the tail. Towards the extremity of the tail, the colours become more deep, for the bright yellow changes into a deep yellow, and the brownish red into one the colour of vermillion, with a kind of a black border. The large yellowish spots, and the upper part of the body, are marked with flesh coloured specks; the head is large, the neck slender, and the tongue long and forked. The mouth is armed with long teeth, the eyes are large and sparkling, and the scales on the belly are of a yellowish ash colour marbled with blackish spots and other ornaments.

The NINTIPOLONGA is a Serpent of *Ceylon*, which is of a fine marble colour, and has the head adorned with small flowers. The whole body is of a liver colour, marbled with bright ash colour, and the spots are terminated with black edges, only they are of a fallow colour in some places, and very white in others. The forehead is covered with large bright yellow scales, disposed in the shape of small flowers; and the eyes are large, blue, and sparkling. The opening of the mouth,

which is armed with sharp crooked teeth, is defended by a border of thick scales. The tongue is white, pretty long, and forked. The tail diminishes gradually to a point.

The PETZCOALT is a *Mexican* Serpent, the upper part of whose body is yellow, mixed with a little red, and covered with large scales like lozenges, which are smooth and slippery to the touch. The transverse scales of the belly are mixed with red and yellow, and the head is defended by large strong scales that rise like lumps. It is about four feet and a half in length, and thick in proportion. These sorts of Serpents hide themselves in hollow trees, where they watch for their prey.

The PIMBERAH, according to *Seba*, is a Serpent of *Ceylon*, as thick as a man, and of a proportionable length. It has a terrible aspect, on account of its two large eyes placed on the top of the head next the sides. The jaws are armed with teeth cut like a saw, and the mouth has a border in the form of a shell. The forehead is covered with grey and ash-coloured scales, adorned with large beautiful spots, and furrowed across with three streaks, in the shape of so many crosses. The scales on the upper part of the body are reddish, shaded with large spots of a dark brown, of which some are reddish, and others oblong, ranged in a fine proportion from the top of the head to the end of the tail, which is slender. This variegation is accompanied on the sides with large triangular black spots. Underneath, towards the bottom of the belly, a third row of very small spots extend near the transverse scales, which are large, of an ash colour, and disposed in a beautiful order.

The POLONGA is a Serpent of *Ceylon*, according to *Seba*. The head is covered with small thin ash-coloured scales inclining to yellow, and marked with reddish streaks. The eyes are small, and the edges of the mouth are bordered with a simple lip without scales. The jaws are armed with sharp teeth, and the scales on the upper part of the body are adorned with large beautiful spots, some of which are of a purplish brown, and others of a yellowish ash colour, all which are termi-

terminated by a blackish border; those on the sides are brown and quadrangular, with a yellow ash-coloured speck in the middle. Likewise, on the upper part of the body, there are black irregular specks mixed with the spots; the yellow ash-coloured scales, that traverse the belly underneath, are all marked with black spots. The tail is one-third part of the whole animal, which grows gradually more slender, and becomes insensibly of a more reddish colour. It is generally said to be very innocent, and is admitted into the houses of the natives.

✱ The large *West-Indian Green and Spotted LIZARD* is above a foot in length, and the head, legs and sides, and under part of the body, are of a fine green. The top of the head is covered with broad scales, and the sides and under part of the head with smaller. It has a sort of necklace under the throat, and it thrusts out a black forked tongue from its mouth. The ear holes, which are pretty far behind the eyes, are black. The upper side, except the head and tail, is of a dark brown, covered with very small scales like studs, and variegated with yellowish lines crossing each other, and forming a kind of net-work. On each side, from the fore-legs to the hinder, there are fine blue oval spots, each of which is surrounded with a dusky-colour. The tail is covered with longish scales, which run round it in regular rows to its end, which are all of a dark brown with a greenish cast. The belly has broad transverse scales running across it, and there are five toes on each foot, with small sharp nails. The hinder feet seem to have a thumb, and four distinct fingers.



C H A P. L.

Of Vipers and Serpents from Seba, that have no particular Names.

THOUGH there have been Serpents already described from *Seba*; yet, as he has many more that are not distinguished by any particular names, we

thought it would not be improper to place them in a chapter by themselves.

The first Viper taken notice of, was sent from the island of *Madeira*, and it is represented as lying in a bundle of hair. In this situation Vipers are commonly found when they are asleep, with the head stretched out and exposed to the sun beams. The head is long and flat, and the jaws are placed more backward than ordinary. The upper part of the body is of the colour of lead, and covered with rhomboidal scales spotted with yellow, so as to appear in the form of chains. The scales of the belly are of an ash colour inclining to yellow, but shaded here and there with black, like some sort of marble.

The second is an *East-Indian* Viper, of the island of *Juwa*, otherwise called the SNAKE of *Jararaca*. It is all over of a reddish brown, variegated with white, and the scales are whitish, pretty large, and intermixed with a smaller sort, of a red bay colour, and disposed on the back like a chain. The head is large and puffed up, and the eyes are so sparkling, that this Viper has a terrible look. It is generally met with, under the shoots of a tree, called the *Horned Acacia*.

The third is a male *East-Indian* Viper, and has two long teeth or tusks, which are not very thick, and they are placed in the upper jaw; besides these, the mouth is furnished with others that are small, throughout the whole extent of both jaws. The body is remarkably spotted, and it is covered with brownish scales, disposed in a beautiful order, and speckled with spots, the largest of which join each other, and, as it were, creep along to the end of the tail.

The fourth is a Viper of *Surinam*, which is all over scales, and every part of the skin is hid by small reddish scales.

The fifth is an *American* VIPER, beautifully spotted, and the back is variegated with a mixture of white palish red and black. The belly is of a bright ash colour, and the eyes are lively. The head is pretty large, but compressed, and the nape of the neck is marbled with spots, which are either white or inclining to red. The fore-

forehead is covered with large greyish scales; but the tail is not so pointed as in other Vipers.

The sixth is a male *American VIPER*, sent from the island of *Eustachia*. The colour is reddish, and a chain runs throughout the length of the body, consisting of small links with four points, and marked in the middle with an oval spot. The mouth is full of small teeth, as in other Vipers.

The seventh is a female *VIPER*, sent from the island of *Eustachia*, and yet of a different kind from the former; for it does not only differ in colour, and in the spots, but the head is in the shape of that of a calf, and very large on the back part. The mouth is larger, but the neck more slender, which might seem to render the swallowing difficult; and yet it is able to swallow frogs, toads, and lizards. The upper part of the body is covered with reddish scales, and there is a chain of a bay brown colour.

The eighth is a female *VIPER* of the island of *Saint Eustachia*. The mouth and head are pretty large; the colour is yellow about the neck, and on the nape there are two black spots: the body is covered with large reddish scales; across which, on the back, there are green ones that shine like satin. The belly is of a palish yellow, shaded with black spots, which are extended in the shape of little flames.

The ninth is another female *VIPER*, from the island of *Eustachia*, which is not less beautiful than the former. The scales on the upper part of the body are of a lively blue, and each of them are marked with a whitish spot; but the belly and the scales that cross it fillenot. The head is made like that of the former, only it is covered with large blue scales.

The tenth is a female *VIPER* of the isle of *Ceylon*, which has a large flatish nose, and a terrible look. Its colouring is very fine, consisting of white, chestnut colour, and reddish, curiously diversified. The head is large, as well as the mouth; and it makes a noise, like the voice of one that is singing. It has two rattles at the end of the tail, which may be heard at some distance, and serve as a warning for persons to keep out of the way. It lies concealed among the plants and trees

of open forests. This seems to be like the *American Rattle Snake*.

The eleventh is another VIPER of the isle of *Ceylon*, of a very beautiful kind. It is covered from the head to the extremity of the pointed tail, with small yellow and red scales, waved every where with dark brown spots. The head seems to be gilded, and is covered with very large scales, in proportion to those of the body.

The twelfth is a beautiful VIPER of *Antycira*, whose back is marked with annular spots, which run transversely, and are placed separately. They are of a straw colour, with bay brown edges; but on the sides of the belly, they join other black, or rather chestnut coloured spots, variegated with yellowish rays, made like a crescent. The forehead is of an oblong shape, covered with small thin scales of a saffron colour, reddish on the edges; they are divided, in the middle of the forehead, by a chestnut coloured ray, that extends to the nose; but the jaws and the neck are of a bright yellow. The other scales on the body are of a brownish ash colour, mixed with yellow; but those on the belly are as white as snow.

The thirteenth is a VIPER from *Japan*, marked as it were with a sort of characters not unlike the Hebrew letters. The spots are of a pale yellow edged with a bright chestnut colour. They run from the hinder part of the neck to the end of the tail, especially on the upper part of the body, which is covered with reddish scales. The head is adorned with pretty small scales, somewhat variegated. Those under the belly, that run cross ways, are of a yellowish ash colour, speckled with red.

The fourteenth is the HORNED VIPER of *Sclavonia*, taken on the shore of the *Gulf of Venice*, and is a kind of *Cerastes*. This Viper is curiously spotted, and has a head like a mastiff dog. The jaws are thick and broad and the mouth wide, with teeth that are extremely sharp. The nostrils are very open, and the forehead is but small, though it is marked with a cross that looks like jewels, in the middle of which there is a round spot.

The

The fifteenth is the *Virginian* VIPER, marked with purple spots, and along the back there is a large purple spot, with other large and small ones of the same colour. The scales of the body are of a bright ash colour, and those of the belly of a faintish yellow.

The sixteenth is a VIPER of *Paraguay*, of an extraordinary beauty. The garment is so rich, if it may be so called, that it is impossible to describe it properly. Throughout the whole length of the back, there is a remarkable mixture of great and small chestnut coloured spots, shaded with bright purple, and whitish ash colour, in the form of chains, placed end to end. The head is adorned with thin small scales of several colours, placed in compartments with wonderful skill. The eyes are small, and the nose is marked with a white spot. The jaws are large, and the neck slender, roundish and flat. The body is very long, the skin shining, and the transverse scales finely variegated.

The common SERPENT of *Germany*, according to *Seba*, has blueish scales on the back, spotted with black, as well as the large transverse scales of the belly. There is a large yellow ring or collar about the neck, marked with two spots that are almost black. The scales of the head are large, inclining to brown; the upper jaw is bordered with a white streak, striped with black; the teeth are small. When these sort of Serpents have cast their skin, they are clammy, shining, smooth to the touch, fat, fleshy, and the females are full of eggs. This Serpent was sent to *Seba* from *Franckfort* on the *Maine*, from whence they transport great numbers to *Holland* every year, where they serve for various purposes.

There are a great many other Lizards and Serpents mentioned by *Seba*; but, as they are without names, and as we have already described all that are worth the enquiries of the generality of readers, we shall conclude with observing, that it would be in vain to attempt assigning the uses of these noxious and formidable reptiles. Though the flesh of the Viper has been converted to salutary purposes in medicine; yet in the countries where they abound, man is found to suffer

more from their baneful qualities, than he is benefited by their medicinal virtues. Providence, however, in some measure, seems to secure him from the dangers of those which are most fatal: the Rattle Snake, for instance, whose bite, as we have before observed, is fatal, warns him of his vicinity by sounding his rattles; the most formidable avoid his appearance, and seldom attack him without some kind of previous provocation. In some countries, the Serpent kind are even rendered useful, and like cats, employed for the purposes of destroying domestic vermin. Without penetrating into the designs of Providence, it is sufficient for us to know, that by granting us such powers superior to all other animals, such of them as we think proper to employ, are rendered entirely subservient to all the purposes of our pleasures or amusements.



A P P E N D I X ;

Containing the whole Art of

FLOAT AND FLY-FISHING,

The best Rules for the

CHOICE OF TACKLE,

And a Description of

NATURAL AND ARTIFICIAL BAITS.

Collected from

PRACTICE AND OBSERVATION,

As well as from the Writings of the

MOST EXPERIENCED ANGLERS.



A P P E N D I X.



C H A P. I.

Of Angling in general.

THOUGH much has been said by many writers, concerning the antiquity of angling, and in which they have introduced a great deal of fable, we shall content ourselves with mentioning only two authorities, such as cannot be disputed. It is certain, that angling is much more ancient than the incarnation of our Saviour; for, in the prophet *Amos*, mention is made of fish-hooks; and in the Book of *Job*, which was long before the days of *Amos*, mention is also made of fish-hooks, which must imply anglers in those times.

No diversion is perhaps better calculated to raise the mind, to calm and compose the troubled passions of the soul, to inspire health, content, and ease, than that of angling. While the great lawyer is swallowed up in business, and the statesman is preventing or contriving plots, the angler is perhaps sitting on a bank enamelled with cowslips, listening to the enchanting voices of the little feathered songsters, while the silver stream at his feet with pleasing murmurs glides gently along. Hunting, as well as many other dangerous diversions, may have its charms to allure some people to the pursuit of it; but

but it cannot be so natural as that of angling : the one is all noise and tumult, the other peace and serenity. The angler leisurely surveys the wonderful works of the creation, and adores that Being, from whom he receives all his pleasures. His retirement and solitude are physic for his soul, and delivers it from the hurry and various passions, in which other pursuits are too much involved. As exercise is its necessary companion, and a pure and clear air one of its constant attendants, health always follows in its train. In short, the various objects, which continually offer themselves, as subjects for the angler's contemplation, inspire the mind with that innocent cheerfulness, ease, and tranquillity, that is hardly to be expected from any other diversion, and never to be found amidst noise and tumult.

With respect to the qualifications of an angler, Mr. *Markham* in his book entitled *Country Contentments*, says, that he should be a good scholar, and master of the liberal sciences; as a grammarian, to know how to talk or write of his art in correct language ; he should have sweetness of speech, to entice others to delight in an exercise so laudable ; and should have strength of argument, to defend and maintain his profession against ridicule and slander : he must be bold and resolute, neither to be afraid of storms, nor affrighted at thunder. If he is not possessed of that excellent virtue, patience, and cannot endure a little fasting, he loses all the delight which contributes to make this pastime pleasing.



CHAP. II.

Of the Angler's Rods and Lines.

THE choice of the angler's ROD is a matter of no small importance. For fishing at the bottom, whether with a running line or float, the reed or cane-rod is, on account of its lightness and elasticity, to be preferred to the hazel, especially if you angle for those fish, which bite but tenderly, as the Roach and Dace :
of

of these, some are put up in the form of a walking stick. There are others, which are composed of many joints, and put up all together in a bag, and are therefore called bag-roads. These last are very useful to travel with, as they take up but little room.

Next to these is the hazel rod ; but that is more apt to warp than the cane. These, as well as excellent fly-rods, are to be had at every fishing-tackle shop, and therefore need no particular description. Be careful, however, when you bespeak a rod of reed or cane, that the workman does not rasp down into the bark, which grows round the joints. This is a fault, of which rod-makers are too often guilty, and thereby make the rod weaker at the joints than in any other part ; for, there being no bark to repel the wet, it soon rots, by which fault you may lose a good fish, and break your rod.

It may not, however, be improper to give some directions for making rods, as many anglers live in those parts of the country, where they are not always to be bought.

When the sap is gone down into the roots of trees, which is generally between the latter end of *November* and *Christmas*, gather the straightest hazels you can find, in order to use them for stocks : these, at the larger end, must be about an inch, or more, in diameter. At the same time, gather shoots of a less size for middle pieces and tops. Tie them together in a bundle, and let them lie on a dry floor.

At the end of fifteen months match them together ; and to the slender ends of the tops, after cutting off about eight or ten inches, whip a fine taper piece of whalebone of that length. Then cut the ends of the other pieces with a long slant, so that they may join exactly to each other, and spread some shoemaker's wax very thin over the slants : after this, bind them neatly with strong waxed thread. Lastly, fix a strong loop of horse-hair to the whalebone, and let the rod, so made, lie a week to settle before you use it. In this manner also you may make a fly rod ; but observe, that the latter must be much more slender from the end of the stock than the former.

To

To make a very neat fly-rod, you must proceed in the following manner. Get a yellow whole deal board, which is free from knots; cut off about seven feet from the best end, and saw it into square breadths: let a joiner plain off the angles, and make it perfectly round, a little tapering: this will serve for the stock. Then piece it to a fine straight hazel, of about six feet long, and then a delicate piece of fine-grained yew, plained round like an arrow, and tapering, with whalebone, as before, of about two feet in length. There is no absolutely fixing the length of a fly-rod; but one of fourteen feet is as long as can well be managed. To colour the stock, dip a feather in aqua fortis, and chase it into the deal, which will then become of a cinnamon colour.

Rods for Barbel, Carp, and other large fish, should be of hazel, and proportionably stronger than those for Roach and Dace. However, the following portable rod is so neat and useful, that no angler, who has once tried it, will be without it.

Let there be four joints, made of hiccary, or some such very tough wood; and two feet four inches in length. The top must be bamboo shaved; and the stock of ash, full in the grasps of an equal length with the other joints, and with a strong ferrel at the smaller end, made to receive the large joint, which must be well shouldered, and fitted to it with the utmost exactness. This rod will go into a bag, and lie very well concealed in a pocket, in the lining of your coat on the left side, made on purpose to receive it.

The angler's LINE, whether it be a running-line, or for float-fishing, had best be of hair, unless you fish for Barbel, and then it must be of strong silk; but remember, that the single hair is to be preferred for Roach or Dace fishing. The fly line must be very strong; and, for the greater facility in throwing, should be eighteen or twenty hairs at the top, diminishing gradually to the hook. Lines are sold at the fishing shops, which have no joints, but are wove in one piece. But, notwithstanding this and other improvements, as some may perhaps still chuse to make their own lines, we shall

shall endeavour to give some directions for that work.

Your hair must be round and clear, and free from galls or frets; for a well chosen, even, clear, round hair, of a kind of glass-colour, will prove as strong as three that want those perfections. You will seldom find a black hair which is not round; but many white ones are flat and uneven; for which reason, if you get a lock of round, clear, glass-coloured hair, you ought to make much of it.

In making your lines observe this rule: first let your hair be well washed before you set about twisting it; and then chuse not only the clearest hair for it, but such as are of an equal size; for then they generally stretch and break all together, which hairs of an unequal size never do, but break singly, and thereby deceive the angler in the strength of his line. When you have twisted your links, lay them in water for a quarter of an hour at least, and then twist them over again before you tie them into a line.

Though many prefer twisting hairs with the fingers, yet I would rather recommend a little engine for that purpose, which is sold at all the fishing tackle shops in *London*, with proper directions for using it.

When you use the fly, you will find it necessary to continue your line to a greater degree of fineness: in order to which, supposing your line to be ten yards in length, let your upper link consist of nine or twelve hairs, diminishing the number in the succeeding links, till you come to the size of a fine grass, and to the end of this fix your hook-link, which should be either of very fine grass, or silk-worm gut. A week's practice will enable a learner to throw out one of these lines; and he may lengthen it, by a yard at a time, at the greater end, till he can throw fifteen yards neatly; till when, he is to reckon himself but a novice.

As to the colour of your line, you must be determined by that of the river in which you fish; but I have generally found, that a line of the colour of pepper and salt (which is made by mixing a black hair among the white ones in twisting) will suit any water.

Indian

Indian or sea-grass makes excellent hook-links; and, though some object to it, as being apt to grow brittle and snap in using, yet with proper management, it is the best material for the purpose yet known, especially if ordered in the following manner.

Take as many as you please of the finest you can get, put them into any vessel, and pour therein the scummed fat of a pot, wherein fresh (but by no means salt) meat has been boiled. When they have lain three or four hours, take them out one by one, and stripping the grease off with your finger and thumb, stretch each grass as long as it will yield, coil them up in rings, and lay them by. You will then find them become nearly as small, full as round, and much stronger, than the best single hairs you can get. To preserve them moist, keep them in a piece of bladder well oiled, and, before you use them, let them soak about half an hour in water, or in your walk to the river side, put a length of it into your mouth. If your grass is coarse, it will fall heavily on the water, and scare away the fish; on which account gut has the advantage. After all, if your grass is fine and round, it is the best thing you can use.

Silk must never be mixed with hair lines; and, though silk lines are very apt to rot and break, yet they may serve in some places, where good hair is not easily to be come at. In this case a good angler will always make the lowest part of such lines of the smallest lute or viol strings.

The next thing to be considered is the **FLOAT**; which, for river fishing, should be of cork; but, for ponds and standing waters, quills will do very well, as also in slow rivers, when you angle near the top with tender baits or pastes. Let your cork be the finest, and free from flaws; bore it through with a small hot iron, and thrust it on to a sizable quill, after having shaped the former with a penknife to the likeness of a pyramid, egg, or pear, of a proportionable bigness, and finely smoothed on a pumice stone. Run your line through the quill, and wedge it in with the uppermost hard part of the quill, the smaller end of the cork being towards the hook, and the bigger towards the rod. Let the

the cork be so poised with lead on the line, that the quill standing directly upright, the least bite or nibble may sink the cork.

A cork float, for one hair, must be no bigger than a pea; for three, as big as a bean; for six, as a small walnut; and for twelve hairs, as big as a *French* walnut.

Quill floats may be bought every where; and, if it chance to be bruised or split, save the plug, and it will serve another. If the water gets in at the top, cover it with sealing-wax; or if your plug be loose, take bees-wax bruised small, chalk scraped fine, and powdered black rosin, of each an equal quantity. Melt them in a spoon, and mix them well as they melt, which will be a proper cement to fasten it, by dipping the plug in, and immediately putting it into the float; for it cools as soon as sealing wax.

In chusing HOOKS, mind that they are sharp at the point, the beards not broken, of proper length, and the wire well tempered and firm: a short-shanked hook is esteemed best.

Those hooks, which are now known by the name of *Kirby's* hooks, for shape and temper, exceed all others. The size of your hook must be regulated by the fish for which you intend to angle. Barbel and Chub require large hooks; Carp, Eels, Tench, Pearch, and Bream, a moderate sized hook; Smelts, Roach, Dace, and Gudgeons, require a small one. To sharpen a dull hook, you should carry a whetstone about two inches long, and a quarter square, that being much better than a file, which rather leaves it rough than sharp.



C H A P. III.

Of the other Sorts of Tackle necessary in Angling.

THE angler, who pursues his sport at any distance from home, must be supplied with many articles, such as a rod with a spare top; lines coiled up, and neatly laid in round flat boxes; spare links, single hairs, and waxed thread and silk; plummets of various sizes,

sizes, floats of all kinds, and spare caps; worm bags, and a gentle box; hooks of all sizes, and some whipped to single hairs; shot, shoemaker's wax, in a very small gallipot covered with a bit of leather; a clearing ring, a landing net, a sharp knife, and a pair of scissors. All these things, however, may be contained in a wicker panier of about twelve inches wide, and eight high. But let us proceed to examine some of the angler's materials more particularly.

The **PLUMMET**, which is used in order to try the depth of the water, in which you intend to angle, should be made of sheet lead, that, by opening it, you may at any time the more easily fix it on the hook without any fear of losing it.

The **LANDING NET** must be deep, with a round iron rim at top, made to fasten to the end of a long stick, in order to land such fish, as are too heavy for your tackling. At the other end of the stick should be a large hook, which you may thrust into the mouths of Salmon, and such other fish as are too bulky for your net, and by that means bring them safe to shore.

The **CLEARING RING** is used to disengage your hook, when it has caught hold of a weed, &c. It must be thick and heavy, but not wider than the round part of your hook, and is thus to be used. Take off the thick joints of your rod, and slip the ring over the remaining small ones, and holding a cord fastened to the ring, let it fall gently. This, as soon as it reaches the hook, will disengage it, by the assistance of your gently pulling the cord.

The **GORGER** is a small piece of cane, of five inches long, and a quarter of an inch wide, with a notch at each end. With this, when a fish has gorged your hook, you may, by putting it down his throat till you feel the hook, and holding the line tight while you press it down, easily disengage it.

It would be needless to give any description of the use of knives, scissors, wax, thread, &c. as these materials of themselves explain the various purposes they are intended to serve.

CHAP. IV.

Of Float Fishing, and of Live and Dead Baits.

WITH respect to FLOAT FISHING, there are some rules, with which the young angler ought to be acquainted. Let the rod be light and stiff, and yet so smart in the spring, as to strike at the tip of the whalebone: from fourteen to fifteen feet is a good length for the rod.

In places where you sometimes meet with Barbel, the line should be six or seven hairs at top; then diminishing gradually for two yards, let the rest be strong *Indian* grass, to within about half a yard of the hook, which may be whipped to a fine grass, or silk-worm gut. This line will kill a fish of six pounds weight.

For mere Roach and Dace fishing, accustom yourself to a single hair, with which an artist may kill a fish of a pound and a half weight.

For your float, in slow streams, a neat round goose quill is proper; but for deep or rapid rivers, or in an eddy, the cork, shaped like a pear, is indisputably the best, which should not, in general, exceed the size of a nutmeg. Let not the quill, which you put through it, be more than half an inch above and below the cork; and this float, though some prefer a swan's quill, has great advantage over a bare quill; for the quill, being defended from the water by the cork, does not soften; and the cork enables you to lead your line so heavily, that the hook sinks almost as soon as you put it into the water; whereas, when you lead but lightly, it does not get to the bottom till it is near the end of your swim. In leading your lines, be careful to balance them so nicely, that a very small touch will sink them. Some use, for this purpose, lead shaped like a barley-corn; but there is nothing better to lead with than shot, which you must have ready cleft always with you, remembering, that when you fish fine, it is better to have on your line a great number of small than a few large shot.

Whip

Whip the end of the quill round the plug with fine silk, well waxed, which will keep the water out of your float, and preserve it greatly.

In fishing with a float, your line should be about a foot shorter than your rod; for, if it is longer, you cannot so well command your hook when you come to disengage the fish.

Pearch and Chub are caught with a float, and also Gudgeons, and sometimes Barbel and Grayling. For Carp and Tench, which are seldom caught but in ponds, use a very small goose or duck-quill float; and for ground bait, you may every now and then throw in a bit of chewed bread. For Barbel, you may bait the place, the night before you fish, with graves, which are the sediments of melted tallow, and may be had at the tallow-chandlers: use the same ground-bait, while you are fishing, as for Roach and Dace. In fishing with a float for Chub, in warm weather, fish at mid-water; in cool weather, lower; and, when it is very cold, at the bottom.

Having thus given some necessary rules for float fishing, we shall proceed to a particular description of baits in general for that purpose*.

The **ASH GRUB** is a soft, white insect, found, bent head to tail, under the bark of any decayed ash, oak, or alder, that has been some time felled. It is to be preserved in bran.

Of **BEEES**, the black ones that breed in clay walls, at the top of the water, and the humble bees, which breed in long grass, at the bottom, are good baits for the Chub.

BOBS

* The reader must not expect to find here an account of what fish each particular bait suits, that having been already fully mentioned in the former part of this volume. If the angler would know what is the favourite bait of a Salmon, Carp, Trout, or any other river or pond fish, he must refer to the index at the end of this volume, where he will be directed in what page to find the fish for which he intends to angle; and in the note thereon he will be informed, not only of the bait, which is most likely to promote his sport, but also of the fish's haunts, his time of spawning, how to angle for him, and many other particulars necessary to be known.

BOBS are of two colours, yellow and red. The former are gathered in the furrows of fresh-ploughed lands; the latter under cow-dung. They are summer baits only, and must be scoured in bran, dry moss, or meal.

BRANDLINGS are worms usually found in old dung-hills, or places near them, as also in tanners bark, when thrown up in heaps after use. They must not be put in water above an hour before use, and then into fennel for immediate use. If you intend them for long keeping, put them into an earthen pot with plenty of moss, fresh shifted every three or four days in summer, and every week in winter; or, at least, the moss must be clean washed and squeezed. The point of the hook must be put in at the end of his tail, and run up to the belly, and very near the head, which must be left hanging down. Some call this worm by the name of the *Gilt-tail*.

CADEWS, CADIS, or CASE WORMS, are of various sorts, and in their maggot state thus house themselves: one sort in straws, called from thence *Straw-Worms*; others in two or more sticks, laid parallel to one another, creeping at the bottom of brooks; others, with a small bundle of pieces of rushes, duckweed, sticks, &c. glued together, with which they float on the top, and can row themselves therein about the water, with the help of their feet: both these are called *Cad-Baits*.

All these animals have a wonderful faculty in gathering such bodies as are fittest for their purpose, and then glueing them together, some being heavier than water, that the animal may remain at the bottom, where its food is, (for which purpose they use stones, with sticks, rushes, &c.) and some being lighter than water, to float on the top, and gather its food from thence. These little houses look coarse, and outwardly shew no great artifice; but are well secured, and made within of a hard tough paste, into which the hinder part of the maggot is so fixed, that it can draw its shell after it any where, without danger of leaving it behind, as also to thrust out its body to reach what it wants, or to draw it into its cell, to guard it against injuries.

The

The PIPER is a Cadis, whose husk or case is a piece of reed, about an inch long and nearly as big round as a silver two pence. These worms, being kept three or four days in a woollen bag, with sand at the bottom of it, and the bag wet once a day, will in three or four days turn yellow, when they are an excellent bait for the Chub, or indeed for any great fish, being a large bait.

There is also a smaller Cadis worm, called a COCK-SPUR, being in shape like the spur of a Cock, sharp at one end, and the case or house, in which it dwells, is made of small husks, gravel, and slime, in a most curious manner, so as not to be imitated by the art of man.

There is another Cadis, called by some a ROUGH-COAT, whose house or case is made of little pieces of rushes, straws, and water-weeds, which are so knit together with condensed slime, that they stick about the husk or case not unlike the bristles of a hedge-hog.

These three Cadis are commonly taken in the beginning of summer, and are good for any kind of float fishing. These at particular times of the year turn into flies; but to pursue this subject further, would be leading the young angler into a very difficult pursuit, highly improper upon this occasion.

DOCK-WORMS are found by plucking up the plants of that name, and washing their roots from the earth. In their fibres are little cases of a red or yellow colour, which upon being opened with a pin, will discover the worm; they are kept in bran, like the gentle.

EARTH BOBS, or GRUBS, are the brood of a beetle found in the furrows of fresh ploughed land. Gather a number of them, and put them, with a peck or two of their own earth, into a tub, and cover them from frost or cold. Thus you may keep them all winter, and kill fish with them at all times. Put them into earth and honey a day before used, and they will be an excellent bait for Bream or Carp.

GENTLES, or MAGGOTS, are easy to be got or bred by putrefaction, and scoured well with wheat bran. They are sometimes added to a worm on the
hook,

hook, often to a dub-fly ; but oftener by themselves, two or three on a hook. You may breed and keep them thus. Take a piece of the liver of any beast, and, with a cross stick, hang it in some corner, over a pot or barrel half full of dry clay ; and as they grow big, they will fall into the barrel, where they will scour themselves, and be ready for use whenever you want them. In this manner they may be produced till after *Michaelmas*. If you desire to fish with them all the year, get a dead cat or kite, let it be fly blown, and when the gentles begin to stir, bury it and them in moist earth, but as free from frost as you can, and you may dig them up whenever you want to use them. They will last till *March*, when they will turn to flies.

LOB WORMS are found in gardens or in meadow grounds, after rain, by the help of a lanthorn at night. The best are those, which have a red head, a streak down the back, and a broad tail. They may be scoured in fennel or moss washed clean, wetted, squeezed dry, and often changed ; but the best way is to take a piece of very coarse cloth, washed clean and dried, and then soaked in fresh beef liquor, in which there has been no salt ; wring it, but not too dry ; lay it in a broad, deep, glazed earthen pan, and your worms in it, to creep through and scour themselves in. Rinse it out in the same sort of liquor every two days, and your worms will keep a month, if set in a cool place, and be in excellent order. Put what you want for present use in wetted moss squeezed.

RED WORMS are found in rotten earth, or dung-hills, chiefly of cow or hog's dung ; but the best are found among tanners bark.

WATER FROGS, which, about *February* or *March*, breed in ditches, are not venomous, and are a good bait for some fish, Pike in particular. Put the hook through his mouth, and out of one of his gills. Then sew the upper part of his leg, with only one stitch, to the arming wire of your hook, and he will live a long time.

Of **SNAILS**, the little white one is a bait for the Roach, and the black one fit for a Chub.

WASPS, when dried in an oven, or boiled, are good baits.

PASTES are of various sorts ; and, though some of them have been mentioned in the former part of this volume, it may not be improper here to bring them into one general view.

Old cheese and turpentine, and a bit of fat rusty bacon, compose an excellent bait for the Chub in winter.

Take some of the finest flour, drop a little milk or water upon it, and work it well in the palm of your hand; till almost dry. Then temper it with a small quantity of the finest honey, make it into a round ball, and keep it in a moist linen cloth, or it will grow dry and hard. If you would have it yellow, mix turmeric with it ; if of a flesh colour, vermilion, and knead it well.

Take some old *Cheshire* cheese, the crumb of a *French* roll, and some sheep's kidney-suet, beat them in a mortar into a paste, adding as much clarified honey as will soften it. This is excellent for a Chub.

Take Shrimps and Prawns, pull off the shells and skins, and beat the clear meat in a mortar, with a little honey, till it comes to a paste : with this cover the point of the hook.

Grate fine bread in a little clear water, in which gum ivy has been soaked, and you will find it a good bait for Roach and Dace.

For Carp or Tench, you may mix crumbs of bread with honey, and you will often find it answer your wish.

With respect to the use of pastes, observe these general rules. Proportion the quantity of paste you put upon your hook to the size of the fish, for which you angle. Pastes must not be angled with in rapid streams ; but on small hooks, in pits, ponds, lakes, or slow-running rivers.

WHEAT. A handful or two of the best wheat, boiled in a little milk till soft, and fried leisurely with honey, and a little beaten saffron dissolved in milk, is a good bait for Roach, Dace, Chub, or Greyling.

CHAP. V.

Of Fly fishing.

FLY FISHING, or fishing at the top of the water, is of two sorts; with a natural and living fly, or with an artificial and made fly.

Of the natural flies, those mostly in use are the *Green-Drake* and the *Stone-fly*, and these in the two months of *May* and *June* only; but there are others, of which, as well as of these, we shall give a short history at the end of this chapter.

These are to be used with a short line, not more than half the length of your rod, if the wind is still; but, if you have a wind that will carry it from you, it may then be longer. This way of fishing is called *Dapping*, *Dabbling*, or *Dibbling*, wherein you are always to have your line flying before you up or down the river, as the wind serves, and to angle as near as you can to the bank of the same side on which you stand; though, when you see a fish rise near you, you may guide your fly over him, whether in the middle, or on the contrary side, and if you are pretty well out of sight, either by kneeling, or the interposition of a bank or bush, you will be always sure to take him, provided you are quick in your motions: your fish may otherwise remove to some other place, if it be in the still deeps, where he is always in motion, and roving up and down for prey; but in a stream you may generally, especially if there is a large stone near, find him in the same place. Your line, in this case, ought to be of three good hairs next your hook; because, in this kind of angling you are to expect the largest fish, and that, wanting length to give him line after he is struck, you must be forced to tug for it. However, not an inch of your line being suffered to touch the water in dibbling, it may be allowed to be stronger on that account.

We come now to the second way of angling at the top of the water, which is with an artificial fly. In this kind of sport, you are to angle with a line longer

by a yard and a half, and sometimes two yards, than your rod; and with both this and the other, in a calm day in the streams, in a breeze that curls the water in the still deeps, you are likely to strike the best fish.

For the length of your rod, you are always to be determined by the breadth of the river in which you intend to angle. For a Trout river, one of five or six yards is long enough. If it is longer, be it ever so neatly and artificially made, it will soon become tiresome, and change your sport into toil and labour.

The length of the line, to a man that knows how to handle his rod, and cast it properly, is no manner of incumbrance, excepting in woody places, and in landing of a fish, which every one, who can afford to angle for pleasure, has somebody to do for him; and the length of line is a great advantage in fishing at a distance: to fish fine, and far off, is a principal matter in Trout angling.

Your line in this case should never be less, nor ever exceed two hairs next the hook; for one, whatever some may pretend, is not sufficient, as the least accident, even with the finest hand, may break it. However, he that cannot kill a Trout of twenty inches long with two hairs, in a river clear of wood and weeds, deserves not the name of an angler.

To have your whole line as it ought to be, two of the first lengths, nearest the hook, should be of two hairs each, the next three lengths above them of three, the next three above them of four, and so of five, six and seven, to the very top; by which means your rod and tackle will, in a manner, be taper from your very hand to your hook, your line will fall much better and straighter, and cast the fly to any certain place, to which the hand and eye shall direct it, with less weight and violence, which would otherwise circle the water, and fright away the fish.

In casting your line, do it always before you, and in such a manner, that your fly may first fall upon the water, and as little of your line with it as possible; though, if the wind be very brisk, you will then of necessity be obliged to sink part of your line to keep

keep your fly in the water. In casting your fly you must aim at the further, or nearer bank, as the wind serves your purpose, which will be with and against you several times, on the same side, in an hour, as the river winds in its course, and you will be forced to angle up and down by turns accordingly; but you must endeavour, as much as you can, to have the wind on your back, and always be sure to stand as far off the bank as your length of line will give you leave, when you throw to the contrary side. When the wind will not permit you so to do, and that you are forced to angle on the same side on which you stand, you must then go to the very brink of the river, and cast your fly, at the utmost length of your rod and line, up or down the river, as the gale serves.

Having now done with both ways of fishing at the top of the water, and the length of your rod and line for those purposes, we shall proceed to mention what materials the angler should be supplied with, in order to make artificial flies. As to the making them, many writers on angling have attempted to give directions for that purpose; but it is certain, if the angler is supplied with proper materials, and has the opportunity of seeing expert artists make flies, he will learn more from one week's practice and observation, than he possibly can in a twelvemonth from the perusal of any book that was ever wrote on that subject.

First you must be provided with bear's hair of different colours, as grey, dun, light, and dark-coloured, bright brown, and that which shines. Also camel's hair, dark, light, and of a colour between both. Badger's hair, or fur. Spaniel's hair from behind the ear, light and dark-brown, blackish and black. Hog's down, which may be had about *Christmas* of butchers, or rather of those that make brawn: it should be plucked from under the throat, and other soft places of the hog. These should be either black, red, whitish, or sandy. If you want them of any other colour, you may send them to the dyer's.

Seal's fur is to be had at the trunkmakers. This you may get dyed of the colour of calves and cows hair, in all the different shades, from the lightest to

the darkeſt brown. You will then never need cows or calves hair, both which are harſh, and will never work kindly, nor lay handſomely.

Get alſo mohairs, black, blue, purple, white, and violet; camlets, both hair and worſted, blue, yellow, dun, light and dark-brown, red, violet, purple, black, pink, and orange colours.

A piece of an old Turkey carpet will furniſh excellent dubbing: untwiſt the yarn, and pick out the wool, carefully ſeparating the different colours, and lay it by.

Get alſo furs of the following animals, *viz.* the ſquirrel, particularly from his tail, fox cub, from the tail where it is downy, and of an aſh-colour; an old fox, an old otter, a hare, from the neck, where it is of the colour of withered fern; and above all, the yellow fur of the martern, from off the gills or ſpots under the jaws. All theſe, and almoſt every other kind of fur, are eaſily got at the furriers.

Hackles are a very important article in fly-making. Theſe are the long ſlender feathers, which hang from the head of a cock down his neck. Fine ones may be alſo taken from near his tail; but be careful that they are not too rank, which they always are when the fibres are more than half an inch long. Be provided with theſe of the following colours, red, dun, yellowiſh, white, orange, and perfect black; and whenever you meet, alive or dead, with a cock of the game breed, whoſe hackle is of a ſtrong brown red, never fail to buy him. Obſerve, however, that the feathers of a cock chicken, be they ever ſo fine for ſhape and colour, are good for little; for they are too downy and weak to ſtand erect after they are once wet; and ſo are thoſe of the Bantam cock.

Feathers are abſolutely neceſſary for the wings, and other parts of flies: get therefore feathers from the back and other parts of the wild mallard or drake; the feathers of a partridge, eſpecially thoſe red ones that are in the tail; feathers from a cock pheasant's breaſt and tail; the wings of a blackbird, a ſterling, a jay, a fieldfare, and a water-coot; feathers from the crown of the pewit, plover, or lapwing, and feathers from a heron's neck and wings.

Be

Be provided with marking silk of all colours, fine, but very strong; gold and silver flattened wire or twist, a sharp knife, hooks of all sizes, hog's bristles for loops to your flies, shoemaker's wax, &c.

Remember, with all your dubbing, to mix bear's hairs and hog's wool, which are stiff, and not apt to imbibe the water, as the fine furs, and most other kinds of dubbings do; and remember also, that martens fur is the best yellow you can use.

The angler, who possesses these materials, and observes the manner in which skilful fly makers use them, will soon be enabled to form any fly whatever; for this art, like every other, is to be acquired only by practice. We might form an entire volume of nothing but lists of artificial flies for the use of every month in the year, which, instead of improving the young angler, would only contribute to dishearten and perplex him; we shall therefore content ourselves with mentioning only the twelve following.

1. The DUN FLY in *March*: the body is made of dun wool, and the wings of the partridge's feathers.

2. Another DUN FLY, the body of which is made of black wool, and the wings of the black drake's feathers, particularly those under his tail.

3. The STONE FLY, in *April*, whose body is made of black wool, coloured with yellow under the wings and tail. For this fly you must use the wings of the drake.

4. The RUDDY FLY, in the beginning of *May*. Make his body of red wool wrapt about with black silk. The feathers to be used are the wings of the drake, and the feathers of a red Capon, which hang down on his sides next to the tail.

5. The YELLOW or GREENISH FLY, in *May*. Make the body of yellow wool, and the wings of the red cock's hackle or tail.

6. The BLACK FLY, in *May*, whose body may be made of black wool: the wings are made of those of a brown capon.

7. The **YELLOW FLY**, in *June*. His body is made of black wool, with a yellow list on each side. The wings should be formed of feathers taken from the wings of a buzzard, bound with black hemp.

8. The **MOORISH FLY**, whose body is made with darkish wool, and the wings of the same coloured mail of the drake.

9. The **TAWNY FLY**, which is good till the middle of *June*. The body is made of tawny wool, and the wings of the whitish mail of the wild drake.

10. The **WASP-FLY**, in *July*. Make his body of black wool wrapped about with yellow silk: the wings must be made of the feathers of the drake or buzzard.

11. The **SHELL FLY**, which is useful in the middle of *July*. The body is made of greenish wool, wrapped about with the hurle of a peacock's tail, and the wings with feathers from those of a buzzard.

12. The **DARK DRAKE-FLY**, which is good in *August*. The body is made with black wool, wrapped about with black silk. His wings are made with the mail of the black drake, with a black head.

Having said thus much of artificial fly-making, it may not be improper to give the young angler a short account of a few of the most material natural flies, in imitating which he may employ himself at home, when the weather will not permit him to pursue his sport abroad; and he may be assured, that, in collecting and arranging the materials, and imitating the various shapes and colours of these admirable creatures, he will soon find little less pleasure than even in catching fish.

The **GREEN DRAKE FLY** comes in about the middle of *May*; but are never properly fit for use till the end of that month, or the beginning of *June*, though they are sooner or later, according to the season of the year.

The **STONE FLY** comes much sooner, so early as the middle of *April*, but is not properly in season till the middle of *May*. He continues to kill much longer than the green drake remains with us, even so long as almost to the end of *June*.

Both

Both these flies, and perhaps many others, are certainly bred in the very rivers where they are taken. Our cadis, which lie under stones in the bottom of the water, turn into these two flies; and, being taken in their husk near the time of their maturity, are very easily known and distinguished, being the largest of all others.

The green drake never discloses from his husk till he is there first grown to full maturity, body, wings, and all; and then he creeps out of his cell, but with his wings so cramped and ruffled, by being pressed together in so narrow a compass, that they are, for some hours, totally useless to him. Hence he is compelled either to creep upon the flags, sedges, and blades of grass, if his first rising from the bottom of the water be near the banks of the river, till the air and sun stiffen and smooth them. If his first appearance above water happens to be in the middle of it, he then lies upon the surface of the water: for his feet are totally useless to him there, as he cannot, like the stone-fly, creep upon the water, until his wings have acquired the necessary stiffness. In the mean time, it is a chance, if he does not fall a prey to some Trout or Grayling. If he escapes these fish, his wings soon get strength, which stand on his back like those of a butterfly, and his motion in flying is the same.

The body of this fly is, in some, of a paler, in others, of a darker yellow; for they are not in all exactly of a colour. They are ribbed with rows of green, long, slender, and growing sharp towards the tail, at the end of which they have three small whisks of a very dark colour, almost black, and their tails turn up towards their back like a mallard, from whence undoubtedly they have the name of Green Drake.

With these the angler must dabble; and, having gathered a sufficient quantity of them into a draw-box, with holes in the cover to give them air, where they will continue vigorous and fresh a night or two, he may take them out thence by the wings, and bait them upon the hook in the following manner.

First take out one, (for you must fish with two of them at a time) and, putting the point of the hook

M. 5,

into

into the thickest part of his body under one of his wings, run it directly through, and out at the other side, leaving him spitted cross upon the hook. Then, taking the other, put him on after the same manner; but with his head the contrary way. In this posture they will live upon the hook, and play with their wings for more than a quarter of an hour. You must take care to keep their wings dry in playing them on the water, and that your fingers are not wet when you take them out to bait them; for then your bait will be spoiled.

With respect to this fly, it remains only to acquaint the angler, that it is taken at any time of the day.

We must now be a little more particular concerning the stone fly, which has not the patience to continue in his crust or husk till his wings are full grown; but, as soon as they begin to put themselves out, he feels himself strong, squeezes himself out of his prison, and crawls to the top of some stone, where, if he can find a chink that will receive him, or can creep between two stones, the one lying hollow upon the other, he there lurks till his wings are full grown: that is your only place to find him, and from thence he undoubtedly derives his name. For want of such a convenience, he will make shift with the hollow of a bank, or any other place, where the wind cannot come at him to force him away.

His body is long, and pretty thick, and almost as broad at the tail as in the middle. His colours are a very fine brown, ribbed with yellow, and much yellower on the belly than the back. He has also two or three whisks at the tag of his tail, and two little horns upon his head. His wings, when full grown, are double, and flat down his back, of the same colour, though rather darker than his body, and also longer. He makes but little use of his wings; for he is seldom seen flying, though often swimming and paddling in the water with the several feet he has under his belly, without stirring a wing: whereas the drake will mount steeple high into the air, though he is to be found every where high and low near the river.

The

The stone fly is to be used much in the same manner as before directed for the drake; but the Trout is found to take the latter more greedily than the former.

The **LITTLE YELLOW MAY FLY** is in shape exactly as the green drake; but is very little, and of as bright a yellow as can be seen.

The **CAMLET FLY** is in shape like a moth, with fine watered wings, and is an excellent bait for the Grayling. This fly, though it comes in *May*, continues all the month of *June*.

The **PALMER FLY** is a caterpillar or worm, which never continues long in one state, though their colours are very elegant and beautiful. The following is a description of one of them in their most brilliant dress. His lips and mouth are a little yellow, his eyes black as jet, his forehead purple, his feet and hinder parts green, his tail two-forked and black, the whole body stained with a kind of red spots, which run along the neck and shoulder blade, not unlike the form of a *St. Andrew's cross*, and a white line drawn down his back to his tail. At a fixed age, this caterpillar ceases to eat, and towards winter is covered over with a strange shell or crust, called an *Aurelia*, and in that manner remains in a state of total inaction during the whole winter; but, in the spring following, he commences a painted butterfly. To pursue this curious insect through all its various changes would be useless here, as it is sufficiently described in other parts of this work.

The **OAK FLY** is also known by the name of the **ASH FLY** and the **WOODCOCK FLY**. *Bowdler*, in his *Art of Angling*, says, "This fly, as I have lately been informed by a gentleman of veracity, is bred in those little balls, which grow on the boughs of large oaks, commonly called oak apples, which he accidentally discovered by opening several of these balls, which had been gathered in the winter, and brought into the house. In each of them he found a fly, some of which, being enlivened by the warmth of the room, immediately took flight, and fixed in the window, with the head downwards, the position they observe on the trees."

This fly is found on the body of an oak or ash, from the beginning of *May* to the end of *August*. It is of a brown colour, and is easily taken.

The ANT FLY is often found in *June*, tho' it is in its highest perfection in *July*, and lasts till *August* and *September*. They must be taken from their hills, with a handful of their earth and roots of the grass about them, and put all together in a large glass bottle. If they are not bruised in taking, nor their wings hurt, they will live above a month. If you would keep them longer put them into a barrel, first washing it with honey and water. They are very good baits for Roach, Dace, or Chub, fishing near the ground.



C H A P. VI.

Of Rock Angling, Night Angling, &c.

ROCK-fishing is practised chiefly in the *South* and *South-West* parts of *England*, and in some parts of *Ireland*. When you fish from rocks, your line must be very strong, and consist at least of five or six hairs in a link. A float is necessary, and two hooks, one to reach the bottom, and the other to keep in mid-water. The best time for this sport is, when the tide is half spent; and till within two hours of high water. Morning and evening are the most preferable times, if the tide answers. The cockle, lob, and marsh-worms are the general baits used, and a hairy worm found on the sea shore. The prizes of this fishing are only Sea Bream, Flounders, Whiting-pollock, and Rock-Whittings.

With respect to NIGHT ANGLING, few other fish are taken at that time but Trout and Eels. In the night, the best Trout come out of their holes, when they are taken on the top of the water with a great lob or garden worm, or rather two, which you are to fish with in a place, where the water runs quietly; for in a stream the bait will not be so well discerned.

In a dead place, near a current, draw your bait over the top of the water, backwards and forwards, and, if there is a Trout in the hole, he will take it, especially if the night is dark; for then he is bold, and lies near the top of the water, watching the motion of every frog, or any thing else, that swims between him and the sky. He hunts after his prey, if he sees the water but wrinkle, or move in one of these dead holes, where the large old Trouts usually lie, near to their holds; for he is both subtil and fearful, and does not usually stir out of his hole, but lies in it as close in the day, as the timorous hare does in her form. The chief feeding of either is seldom in the day, but usually in the night, and then the large Trout feed very boldly.

You must fish for him with a strong line and a large hook, and let him have time to bite; for he does not usually forsake the hook at night, though he does frequently in the day. If the night is not dark, you must in that case fish with an artificial fly of a light colour, and at the snap; indeed, in the night, he will rise at almost any thing.

Night angling is not, however, to be recommended, as it is in some measure dangerous, and very unwholesome.

The safest method of catching fish by night, particularly Eels, is by lines left in the water from the evening till the next morning. For this purpose, your line must be fifteen or twenty yards long, according to the width of the place in which you intend to throw it. To this, at equal distances, tie five or six hempen lines, of a moderate thickness. To each of these whip a hook, and bait with a Minnow, or any small fish; but, if they are not to be had, you may make use of a large lob-worm, or even a piece of beef. If you bait with a fish, put the point of the hook in at the tail, and out at the mouth, and cover the point of the hook with a small worm. At the hook end of the cord, fasten a weight about two pounds, and throw it across the river into some still deep, or at the tail or side of a deep current, first taking care, however, to fasten the other end of the line round a tree, or to some other secure place.

When

When you go in the morning, it will be a chance if you do not find fish ensnared on the hooks.

There are other methods of catching fish, such as bobbing, dabbling, sniggling, snapping, trolling, and fishing at hand. Of the three first, we have already made mention in the preceding part of this volume; we shall now proceed to describe the three last.

SNAPPING is a method of catching Pike with a rod sixteen or seventeen feet long, a stout whalebone top, as thick as the upper part of your little finger, and a strong line not quite so long as your rod. The snap-hook may be thus made. When it is to be placed at the end of your line, take twelve inches of gimp, and two large Salmon hooks, and turn them back to back. In the middle place the gimp, and whip them together with silk well waxed: then place a Pearch hook between the other two, and fasten it towards the upper part of the shanks with waxed silk: At about eighteen inches from the bottom of your line, put on a large float of cork, and under it as much lead as will poise it. Fix your bait to the small hook, by running it under the back fin, (the best are Gudgeons, Dace, and small Roach) and let it swim down the current. When your float is drawn under water, give a strong jerk, and when you find you have hooked your fish, play him properly, and use the landing net.

TROLLING differs from snapping, in this, that the head of the bait fish must be at the bent of the hook, and that you must give the fish time to pouch or swallow the bait. Trolling hooks, which differ much from those for the snap, are to be bought ready made at the tackle shops, and therefore need no description.

ANGLING BY HAND is of three sorts, which we shall proceed to describe separately.

The first, with a line about half the length of the rod, a good weighty plumb, and three hairs next the hook, which is called a *Running Line*, and with one large brandling, or a dew worm of a moderate size, indeed, with almost any worm whatever; for, if a Trout is in the humour to bite, there is hardly any worm he will refuse. If you fish with two worms, you

you are then thus to bait your hook: First run the point of your hook in at the very head of your first worm, and so down through his body till it be past the knot, and then let it out. Slip the worm above the arming, that you may not bruise it with your finger till you have put on the other, by running the point of the hook in below the knot, and upwards through his body towards his head, till it be just covered with the head, which being done, you are then to slip the first worm down over the arming again, till the knots of both worms meet together.

The second way of angling by hand, and with a running line, is with a line something longer than the former, and with tackle made in this manner. At the extremity of your line, where the hook is always placed in all other methods of angling, you are to have a large musket bullet, into which the end of your line is to be fastened with a peg or pin even and close with the bullet. About half a foot above that, must be a branch of line, of about half a yard long for a swift stream, with a hook at the end, baited with worms; and, at about half a foot above that, another branch of line, armed and baited after the same manner, but with another sort of worm. Both these ways of angling at the bottom are most proper for a dark and muddy water, because, in such a condition of the stream, a man may stand as near as he will, and neither his own shadow, or that of his tackle, will hinder his sport.

The third way of angling by hand, with a ground bait, and by much the best of all others, is with a line full as long, or a yard and a half longer than your rod, with no more than one hair next your hook, and for two or three lengths above it. There must be no more than one small pellet for your plumb, your hook little, your worms of the smaller brandlings well scoured, and only one upon your hook at a time, which is thus to be baited. The point of your hook is to be put in at the tag of his tail, and run up his body quite over all the arming, and still stripped on an inch at least upon the hair, the head and remaining part hanging downwards. With this line and hook thus baited, you are to angle
in

in the streams, always in a clear, rather than a troubled water, always up the river, throwing out your worm before you, with a light one-handed rod, like an artificial fly, where it will be taken, sometimes at the top, or within a very little of the surface of the water, and almost always before the light plumb can sink it to the bottom. Provided the rod is light and pliant, and true and finely made, a skilful hand will do wonders; and in a clear stream, it is undoubtedly the best method of angling for a Trout or Grayling.



C H A P. VII.

Containing some Particulars not generally known by young Anglers.

TH E R E are particular methods of making baits more agreeable to fish than what are commonly practised; and, though the use of oils, ointments, &c. are by many anglers treated with contempt, it is nevertheless certain, from repeated experiments, that the following have been known to contribute greatly to the sport, at the very time, and on the same spot, when others, who despised the use of them, could catch nothing.

Anoint a little box with two or three drops of the oil of ivy berries, made by expression or infusion. Put your worms into this box about an hour or two before you use them, and they will acquire a smell, which is irresistibly attractive, and will force any fish within the smell of them to bite.

Some have dissolved gum of ivy in oil of spike, and therewith anointed a dead bait for a Pike, when the fish has followed it with more than common eagerness. And others affirm that any bait anointed with the marrow of the thigh-bone of a herne is a great temptation to any fish.

Camphire put with moss into your worm-bag with your worms, makes them, if many anglers are not very much mistaken, a tempting bait.

The

The roe of a Salmon or Trout is said to be an excellent bait. You may preserve it, by sprinkling it with a little salt, and laying it upon wool in a pot, one layer of wool, and another of spawn.

To know at any time what bait fish are apt to take, open the belly of the first you catch, and take out his stomach very tenderly: open it with a sharp penknife, and you will discover what he fed on.



CHAP. VIII.

Rules and Cautions to be observed by young Anglers.

WHEN you have hooked a fish, never suffer him to run out with the line; but keep your rod bent, and as nearly perpendicular as you can. By this method, the top will ply to every pull he shall make, and you will prevent the straining of your line.

For the same reason, never raise a large fish out of the water, by taking the hair to which your hook is fastened, or indeed any part of the line into your hand; but either put a landing net under him, or, for want of that, your hat. You may, indeed, in fly-fishing, lay hold of your line to draw a fish to you; but that must be done with great caution.

Your silk for whipping hooks, and other fine work, must be very small. Use it double, and wax it, and indeed any other kind of binding will do with shoemakers wax, which of all wax is the toughest and holds best. If your wax is too stiff, temper it with tallow.

Inclose the knots and joints of your lines in a small pill of wax, pressed very close, and the superfluities pinched off. This will soon harden, and prevent the knots from drawing.

If for strong fishing you use grass, which, when you can get it fine, is to be preferred to gut, remember always to soak it about an hour in water before you use it: this will make it tough, and prevent its breaking.

When

When you begin fishing, wet the ends of the joints of your rods, which, as it makes them swell, will prevent their loosening.

If you happen, with rain or otherwise, to wet your rod, so that you cannot pull the joints asunder, turn the ferrel a few times round in the flame of a candle, and they will easily separate.

Before you fix the loop or bristle to your hook, in order to make a fly, to prevent its drawing, be sure to singe the end of it in the flame of a candle. Do the same by a hair, to which at any time you whip a hook.

Make flies in warm weather only; for in cold your waxed silk will not draw.

In rainy weather, or when the season for fishing is over, repair whatever damage your tackle has sustained.

Never regard what bunglers and slovens tell you; but believe, that neatness in your tackle, and a nice and curious hand in all your works, especially in fly-making, are absolutely necessary.

Never fish in any water that is not common, without leave of the owner, which is seldom denied to any but those, who do not deserve it.

If at any time you happen to be overheated with walking, or other exercise, avoid small liquors, especially water, as you would poison; but rather take a glass of rum or brandy, the instantaneous effects whereof, in cooling the body, and quenching drought, are amazing.

The END of the THIRD VOLUME.

I N D E X.

A

A CARA, 123
Acara-aya, 119
Acaraua, 90
Acarapuca, 122
Acorn shell-fish, 188, 189
Acrapitamba, 123
Adella, 100
Albacore, 53
American crab, 146
Amore tanga, 75
—— guacu, *ibid.*
—— pixuma, *ibid.*
Anchovy, 95
Angel, or monk-fish, 23
Anguella, 75
Anthias, 118
Argentina, 95
Armour-fish, 73
Æsculapian serpent, 208
Asp, 204

Becune, 132
Bellows-fish, 42
Bennet, 134
Bib or Blind, 48
Bivalved-shells, various
 sorts of, 178 to 182
Black-fish, 67
Bleak, 112
Blind-serpent, 217
Boga, 117
Bonettoe, 53
Brazilian fish, barbed and
 prickly, 76
Bream, 103
—— sea, 88
—— stone, 126
Buccinum, or Trumpet-
 Shell, 157
Bulhead, 72
Buts-kopf, 13
Butter-fish, 121
—— fly-fish, 70

B

B Alance-fish, 18
Bald-pate, 126
Barracada, 60
Barbel, 109
—— sea, 116
Barrel cod, 46
Bass, 79
Bat, water, 47

C

C Abeljau, 135
Cabos, 138
Calarmary, 137
Callorhynchus, 67
Captain, 132
Carangue, 132
Carp, 102
Cat fish, greater, 19
Cat

I N D E X.

Cat fish, greatest, 19
 ——— sea, 130
 Charma, 119
 Charr, red, 63
 ——— gilt, 64
 Chevin, 108
 Chinese-fish, 129
 Chub, 108
 Coal-fish, 48
 Cochlea, 159
 Cockles, 181, 194, 195
 Cod-fish, 44
 ——— the method of
 salting, 46
 Cod-fishery, where best, 45
 Conger-El, 35
 ——— Indian, 36
 ——— sand, *ibid.*
 Crabs, 141
 Crab, soldier, 145
 ——— American, 146
 ——— sea, 141
 ——— square, *ibid.*
 ——— violet, 142
 ——— white, 145
 ——— sea, East-Indian,
 146
 ——— named Guiaia-apara,
ibid.
 Cramp-fish, 24
 ——— American, 26
 Cray-fish, 140
 Crook-back fish, 129
 Cugupu-guacu, 115
 Cuttle-fish, 137
 Cylindric shells, 173, 174

D

D A B, 29
 Dace, or Dare, 110

Darts, 207
 Dentale, 116
 Devil, sea, 124
 Dog, picked, 18
 Dog-fish, smooth, 19
 Dolphin of the ancients,
 15
 ——— of the moderns,
 87
 Dorado, 87
 Doree, *ib.*
 Dragon-fish, 74
 Dung-fish, 115

E

E A G L E, sea, 20
 Ear shells, 171, 172
 East-Indian Whiting, 131
 El, 33
 ——— Lamprey, 32
 ——— sea, 35
 ——— sand, 36
 ——— pout, 66
 Elephants-trunk fish, 96

F

F Ather-lasher, 121
 File-shell-fish, 190,
 191
 Fin-fish, a sort of whale,
 13
 Finger shell, 187, 188
 Fire-flaire, 20
 Fisgurn, 68
 Five-fingered-fish, 131
 Flat-fish, 129
 Flounder or Fluke, 29
 Flying-fish, 83

Fordich-

I N D E X.

Fordich-trout, 63
 Fork-tailed fish, 131
 Four-fingered-fish, *ib.*
 Fox, sea, 17
 Fresh-water shell-fish, 192
 to 195
 Frog fish, 27

G

G R A Y-FISH, 196
 Gilt char, 64
 Gilt head, or Gilt pole,
 116
 Goat, sea, 41
 Gray, 60
 Grayling, 55
 Green and spotted Lizard,
 221
 Grey-grunt, 84
 Grunting fish, 127
 Guaina apara, 146
 Guarerua, 90
 Guaperua, 41
 Guatacupa, 123
 Gudgeon, 113
 ——— sea, 72
 Guiniad, 54
 Gunnel, or Butter-fish.
 121
 Gurnard, 80
 ——— East-Indian, 128
 ——— grey, 81
 ——— red, *ib.*
 ——— greater, 82
 ——— king of, *ib.*
 ——— Harwich, *ib.*

H

H A D D O C K, 49
 Hake, 50

Heart-shells, 185
 Hedge-hog, sea, 39
 Hermit, or soldier crab,
 145
 Herring, 90
 ——— Indian, 95
 ——— fishery, 91
 ——— method of curing,
 93

Herrings, mother of, 94
 Hog-fish, 128
 Hog, sea, 126
 Holibut, 30
 Hooded Serpent, 215
 Horn-fish, 129
 Hottentot-fish, 134
 Hound-fish, 32
 Hump-fish, 17
 Huso, 101

J

J A C O B E V E R T S E N fish, 134
 Jack or Pike, 97
 Kinglass-fish, 101

K

K A E L T-FISH, 127
 King's-fish, 54, 127
 Korette, sea, 130

L

L A M P R E Y, 38
 ——— blind, 33
 ——— Eel, *ib.*
 ——— East-Indian, 128
 Lark,

I N D E X.

Lark, sea, 70
 Launce, or Sand Eel, 36
 Leaping-fish, 130
 Limpets, 169, 170
 Ling, 50
 Loach, 114
 Lobster, 138
 ———— Elephant, ib.
 Locust, sea, 139
 Loufe, sea, 128
 Luce, or Pike, 97
 Lump, or sea-owl, 73

M

M Ackarel, 52
 Mœnas, 117
 Minnow, 114
 Misgurn, 68
 Monk, or angel fish, 23
 ———— ray, 24
 Mud fish, 61
 Mullet, 79
 Murœna, 31
 ———— American, 80,
 133
 Murex, 159
 Muscles, 182, 183, 184,
 195

N

N Amelefs-fish, 221
 Nautilus, the several
 forts, 154 to 156
 Needle, sea, 133
 Nettle, sea, 195
 Nhamdia, 78
 Nose-fish, 108

O

O ld-wife, or Wrasse,
 117
 Orb, 38
 ———— prickly, 39
 Oysters, 178 to 181

P

P AMPUS, 42, 132
 Parancare, 148
 Pargie, 115
 Parrot fish, 129
 Paru, 89
 Pearch, 85
 ———— Amboyna, 86
 ———— sea, 119
 Pearl, 29
 Pen fish, 128
 Piabucu, 76
 Picked dog-fish, 18
 Pigeon, sea, 40
 Pike, or Pickerell, 97
 ———— sea, 79
 Pilchard, 93
 Pilot-fish, 134
 Pink, or Minnow, 11
 Piper, 82
 Pipe shells, 174 to 176
 Piracoaba, 76
 Pira nema, 125
 Pira-acangatara, 124
 Piraya, 97
 Pit fish, 129
 Plaice, 29, 136
 Pogge, 73
 Pollock, whiting, 47
 ———— yellowish, 48
 Polypus, 136
 Pope, or Ruff, 120
 Porpus, 14
 Porcelain-shells, 176, 177

I N D E X.

Potiquiquiya, 147
 Prawn, *ib.*
 Pudiano, red, 125
 ——— green, *ib.*
 Punarua, 70
 Purpura, several sorts of,
 156, 157
 Pyed fish, 132

R

R Attle snake, 209
 Raven-fish, 127
 Ray, sharp snouted, 23
 Razor-fish, 88
 Red-char, 63
 Red-eye, 105
 Red gurnard, 81
 Red Tape fish, 69
 Rhaquunda, 89
 Ribbed Music-shell, 159
 Ribband fish, 42
 Roach, 111
 Round fish, 131
 Rud, 107
 Ruff, 120

S

S A C C H E T, 118
 Salmon, 56
 ——— fry, 57
 ——— leap 58
 ——— trout, 60
 Samlet, 59
 Sand Eel, or Launce, 36
 Saw fish, 19
 Scad, 84
 Schraitfer, 120
 Shelly, 55
 Scollop shells, 186, 187
 Scorpion, sea, 120

Sea barbel, 116
 — bat, 131
 — bream, 88
 — cricket, 38
 — cock, 127
 — devil, two sorts, 124
 — dragon, 74
 — eagle, 20
 — ears, 171
 — eel, Indian, 127
 — fox, 17
 — goat, 41
 — gudgeon, 72
 — hedge-hog, 39
 — horse, 40
 — horse with a mane, *ib.*
 — lark, 70
 — loach, 65
 — louse, 128
 — needle, 133
 — nettles, 195
 — owl, 73
 — parrot, 133
 — pigeon, 40
 — pike, 79
 — serpent, 37
 — snail, 71
 — snipe, 130
 — swallow, 81
 — wolf, 38
 Serpents, 198 to 226
 Shad, 94
 Shark, blue, 17
 — white, 16
 Sharp-snouted Ray, 23
 Sheat-fish, 66
 Shrimps, 141
 Silver fish, 134
 Skate, 21
 Smelt, 64
 — river, 65
 Snail, sea, 71

I N D E X.

Snail, gold-mouthed, 159
 — hedge-hog, 160
 — smooth, ribband, ib.
 — smooth, brown, ib.
 — three ribbed, 161
 — toothed, ib.
 — banded, ib.
 — prickly, 162
 — clouded, ib.
 — conical, ib.

Soldier-crab, 145
 Sole, 31
 Spermaceti, what, 12
 Spotted fish, 131
 Sprat, 94
 Star-gazer, 85
 Stickleback, 122
 — — — sea, ib.
 Stompeusen, 136
 Stone bream, 126
 Sturgeon, 99
 Sucking-fish, 69
 Sun-fish, 43
 Sword-fish, ib.

T

T Amoata, 74
 Tarantola, 64
 Tench, 05
 Thornback, 22
 Thumb-footed shell fish,
 189, 190
 Toad-fish, American, 27
 Tobacco-pipe fish, 96
 Tooth-shells, 172, 173
 Tope, 19
 Tortoise, 148
 — — — land, 151
 — — — sea, ib.
 Triangular horned-fish, 40
 Trout, 61

Trout, salmon, 60
 Trumpet-shells, 157, 158
 Tunny-fish, 51
 Turbot, 28
 Turtle, 148
 — — — hawkbill, 152
 Turbinated shells, 163

V

V I P E R, 201, 221
 Umbra, 84
 Unicorn, sea, 13
 Urubaco, 123

W

W Eaver, 83
 Whale, description
 of, 5
 — — — common toothless,
 6
 — — — skeleton of, 10
 — — — spermaceti, 9
 Whip ray, 21
 White fish, 127
 Whiting, 49, 131
 Whiting-pollock, 47
 Whiting-pout, 49
 Wrasse, or Old Wife, 117
 — — — green, 118
 — — — painted, ib.
 Wreathed-shells, 165 to
 169

Y

Y E L L O W - T A I L, 126

Z

Z E E T O N G, a fort
 of sole, 136

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