Notes on

The habits of British stalk eyed Crustacean Animals.

In arrangeing the following Observations on the habits of the British Species of stalk eyed Crustacean Animals it is to be supposed that such Students of Nature as will feel an interest in the Subject will be in possession of Mr. Bell's Natural History of those Creatures; since that work is to be regarded as comprising all that was known of them at the time of its publication. The nature and instincts of this Class of Animals have been but little studied since the publication of Mr. Bell's work on the Subject; perhaps for want of opportunity in favourable circumstances. The continued Observations of the writer are sufficient to persuade him that much of the distinctive Characters of the Species are yet hid in Obscurity; while yet they are of so much interest to the lovers of God's Creation as to be deserving of record the many of them are known to present themselves to our Observation. Referring therefore to the History of these Creatures already mentioned, as containing an Account of what was known of them at the time of its appearance, what is now to be added should be regarded in the first place as the filling up of the Catalogue of the Species that are known as inhabiting the Sea which surrounds the British Islands: and as also describing the living habits of some, of which scarcely any thing beyond their existence was known, or as confirming what has hitherto been considered uncertain: to which will be added remarks on that very surprizing action of their Nature, the manner in which the Crust which covers their bodies and limbs is thrown off, in at least several of the Species; together with the circumstances that accompany or follow that proceeding.

Some figures are added to what is said of the Species for the better illustration of their history and the variety of form which they sometimes assume: as also of some abnormal formations of the Species of these families, to accompany the account that will be given of those variations of structure.

Cranch's Spider Crab.

Achæus Cranchii - Bell.

The representation here given of this small species is somewhat dif-
-ferent from the figure of Mr. Bell - especially in the relative proportion-
of its antennæ or feelers; which may be considered the more re-
-markable as our example was a female, in which sex generally
the organs are less developed than in males. There is also some
proportionate difference in the anterior dimensions and form of
the Carapace; and it was noted in the examination of this specimen
that the terminal claw of all the legs was falcate, with a rows of
small tubercles. The example here referred to was sent to the
British Museum; where it was received as being the true
Achæus Cranchii. But some degree of doubt in reference to
this must rest on another small Spider Crab, of which also I
give a representation, and which differs more considerably than
the other from Mr. Bell's figure: the general form being more length-
-ened, the snout slightly longer, the carapace more flat, without
a protuberance or elevation, except two isolated ones on the
hindmost portion, having a slight spine; and also one on the
anterior portion: the Carapace between the eyes narrower:
the eyes very protuberant; but their stalks without a spine or
protuberance at the middle. Chelæ with the fingers as long
as the rest of the hand: as in the last named example the termi-
-nal claw of each leg slender and curved like a birds claw:
being a female the tail or flap of the abdomen was just exactly
round: Antennæ Antennæ clothed with long hairs - as also the
carapace and legs. The Colour brown. This Example was found
in the crevice of a rock left by the tide, on the same limited space
where the Cochicium Celticum is met with; and the only space
in England where the latter is met with.

Cranch's Spider Crab is scarcely rare along the South Coast
of Cornwall.

Hyas Coarctatus ♀
female

Eurynome
aspera
3 examples at one
from deep water
1866 July

Hyas Coarctatus – Bell.

What is judged to be an example of this Species was drawn up from deep water as it held fast to a baited hook, at the end of May. It was a female, with the Carapace more lengthened than is shown in Mr Bell's figure, and the outline less distinctly incised and the frontal spines less prominent. It was also very slightly armed, and the limbs short as is the case in females of the Spider Crabs generally. In the figure here given, of another example, which is believed to be of the same Species, although differing in several particulars, the Carapace is plain as well in outline as over the Surface.

Corwich Crab

Maia Squinado, Bell. White's Crustacea P 12.

I am not able to refer with satisfaction to Mr Bell's figure of this Species; nor indeed to the Name assigned to it as the Spinous Spider Crab; for it is much less spinous than the Stone Crab – Lithodes Maia; and yet the Carapace is more rough over its surface than is shown in the figure referred to. During the Summer it is vastly more abundant than any other Species of its race, but I confine my remarks to such portions of its history as are not mentioned by Mr Bell. The Males are much less numerous than the females, and considerably larger; so that I have known one of them to weigh six pounds, with the Carapace nine inches in length to the base of the angle formed by the Spines; and the length of the hand Claw fourteen inches. A fisherman has informed me that he has known it soft from ecdysiation in October; but it is at least exceedingly rare to find it in this Condition. They retire from Observation as cold weather begins to be felt; and perhaps for hibernation; but in very cold weather it has been drawn up attached to a baited hook from a depth of thirty fathoms.

Mr Bell has represented – at p 44 – the Series of changes in the progress of development of this Crab – with an omission of the last which lead to the perfect Condition of the Adult; which therefore I have the melancholy satisfaction of copying from a sketch that was drawn by the same hand from which that Gentleman drained his figures. I have never been able to procure it in its earliest stage of perfect growth:

Crustaceans)

Xantho Tuberculata - Bell.

So far as is known this Species has to the present time been noticed only in the County of Cornwall, and no account of its habits has been given. I have not known it taken near the land, nor at a less depth than from thirty to forty fathoms, and circumstances appear to show that its residence is in preference in rough or rocky ground. Several have been found in the stomachs of the all devouring Cods, and folds of the larger Specimens of the Coral Eschara Foliacea are a favourite resort; but I have also obtained examples from the empty shells of the Pinna Ingens, when they have been drawn up by an entanglement of a fisherman's line. The Spawn has been found well developed at the end of april. Contrary to the habits of the kindred Species of Xantho, one of which X. Florida is met with at about the same depth of water, this Species is not only active and lively, but quick to lay hold and bite with its pincer claws. I possess a note of an example which in Captivity devoured two or three little Crabs that were within its reach.

The Common edible Crab

Cancer Pagurus, Bell.

This is the best known and most highly valued of all the Short tailed Crustaceans: as well because it is a valued guest at our table, as that a fishery has been carried on for taking it from times beyond record: although indeed we have been informed that there are districts on some Coasts of our Kingdom in which no one even now will view it as an article of food. Its appetite is voracious, and it is known, not unfrequently to lay hold of the bait of a fisherman, from a considerable depth, and there to be drawn up with his line; but the usual method of fishing for it is with a trap formed of wicker work, with an opening for entrance at the top, and baited with pieces of fish of various sorts: but such as are termed rabble fish by fishermen, as not being usually carried to the Market for sale. The larger examples of the Skate are much used for this purpose; but

When Crabs and Lobsters are confined in their temporary prison it is necessary that it should be kept afloat near the surface, as it is found that if sunk to the bottom they presently die; but it sometimes happens that the weight within is too great for the rods, which therefore give way and the prisoners escape: in an instance of which an opinion may be formed of the agony inflicted by the pin driven into the joint; for although the Crab habitually is little disposed to wander I have the evidence of a fisherman that one which had newly thus escaped was again caught at the distance of thirty miles: as was known by the marks of the pins, and to the pains produced by which I ascribe its rapid and distant journey.

It is generally allowed that the success of the Crab and Lobster fishery has decreased greatly within living memory; and it is not difficult to guess the cause of this, however difficult it may be to obviate it. Fishermen believe that the females, which are termed Buss Crabs are perhaps twice as numerous as the Males; but the latter, which bear the name of Stool Crabs, are much the largest and perhaps chiefly on that account the best esteemed for the Market; where when of a given breadth across the Shell or Carapace they are considered Sale, and the price of such as are of this measure is regarded as the standard of the dozen; whilst all that are of less breadth, however slightly are valued as half crabs, two of which are required to constitute a Sale Crab. There was a time when it was the custom among the fishermen, when a Buss or female Stool crab was caught, to cause it to throw off the hand or pincer claws, and then to set it at liberty; for the fishermen knew that these organs would be restored, and it was their desire to continue the race in the usual abundance. But a higher price has set aside this prudent practice. A couple of Buss Crabs will secure the same amount as a full grown male; and in consequence of this thousands of females are sold to the Merchants, with consequences which fishermen themselves are ready to regret. On one occasion it has been said that when the Cargo of a well boat was full five thousand female Crabs were left behind for want of room; but not

There is a Section of the Short tailed Crustaceans, that is termed Swimming Crabs, and which may be known by the widened and thin structure of the terminal portion of their hindmost legs. Of these the first I shall mention is the Wrinkled Swimming Crab: Portunus Corrugatus.

although a boarder it seems a local Species; and yet perhaps less so than it appears to be, from its general habits, which while they commonly keep it afloat, yet do not lead it into deep water or within reach of the shore. I have known but once only taken in a Crabpot; and this example may be mentioned chiefly because it was found to be alive two days after it had been taken from the water. It may be because it was a female that I found it less corrugated over the Carapace than is the case usually with the males; its colour dark reddish brown, with a white angular spot at the border in front, and another at the hindmost incision that runs across the Carapace.

This Crab is sometimes caught in the Drift Nets employed in the fishery for pilchards and Mackarel, and over a depth of thirty fathoms, and not always close to the Surface: Ten of them have been taken at a single haul; although their activity must in many instances enable them to escape from danger; as it also enables them to pursue and lay hold of fishes that are far from being slow in their motions. It is believed that this predacious propensity is common to all the truly swimming Crabs, and I shall have to refer to it more at length when the mode of action of the Ripper or Henslow's Swimming Crab is described.

A few of the Males that had been taken in a Drift Net were placed together in a tank, where they displayed their wonted activity at the Surface, by means of their hindmost claws or propelling bars, which were lifted over the Carapace and employed in continued action; but when alarmed they dived to the bottom, where there was a layer of sand, in which they presently buried themselves by the action of the same hindmost claws; and where they continued permanently concealed. In dying these same legs remained bent over the Carapace. At the

Summer; but at his time all had disappeared. Fishermen had employed them as bait, by beating them to a pulp, and then enclosing them in a net for the purpose of catching flounders.

Dwarf Swimming Crab.

Portunus Pusillus, Bell.

This, as its name implies, is of smaller size than others of its class; but it is not less active nor less eager after prey so far as its powers extend. In the very warm Summer of 1868 they were entangled by thousands in Drift nets, at some distance from land. They were of various sizes: from that of a silver threepenny piece to some that were much less; and these smaller examples, as a sign of early growth were marked with a white line along the middle of the Carapace. It may have been from the small size that I have not received from fishermen any considerable numbers of this species at different times; but single examples have been obtained on several occasions.

Henslow's Swimming Crab.

Polybius Henslowii, Bell.

This Species received the name of Henslow from the circumstance that this eminent Naturalist and excellent Man was the first to make it known; but it had been long well known to fishermen, by whom, at least in Cornwall it is called the Nipper Crab from the sharpness of its bite and in the west of that County, as the common Edible Crab is known by the name of Canker, this species is termed the Flying Canker. It is emphatically a Swimming Crab, for it is only as such that it comes within our Observation. It is also both wandering and migratory; for besides that we see it only from Spring to Autumn, it also changes its quarters as the associated bodies of our periodical shoals are shifting their haunts. The Mackarel and Pilchards are favourite objects of pursuit, and on this account they sometimes become entangled in the Drift nets to the amount of hundreds and even of thousands. But it is remarkable that it is only the Males which are thus caught, and it is rare indeed to obtain a female in any way. At or near the Surface they appear capable of sustaining themselves

they had been conveyed in a dry box to be still alive and active
contrary to the Nature of most Sections of the female family of
females of these are found to be larger than the Males and in
proportion also to produce a larger number of the grains of spawn
It may be to assist their motions in the peculiar situations in
which usually they find their home, that the terminal portion of
their legs is sharp and with a hook.

The Pinna Pea Crab -

Pinnotheres Veterum - Bell

This is the Species of which some strange reports are given by the
Ancients. It is not common with us, but I have known the female
of considerable size to be found in the Shell of the Pinna Ingens, that
was drawn up from a depth of about fifty fathoms. It measured the
three fourths of an inch across the Carapace, which was covered
with slight marks; and the flap was even wider than the upper
shell. Front of the Carapace wide and very slightly inwaved: no antenn
- nae apparent: the eyes almost obsolete, the colour bright pink: no hair
on the Chelæ, but a slight border of it on the edge of the Caudal plates
a very slight but perceptible tooth at the root of the right claw.

Floating Crab.

Planes Linnæana, Bell.

The Name of Floating Crab must not be confounded with that of
Swimming Crab, since the latter Class of Crustaceans, as we have
noticed, are active at various depths in the water by their own unas-
-sisted powers; while the former is compelled to be indebted to the aid
of something beyond itself in order to be raised and sustained at the
the Surface, and to be conveyed to any distant region in which it may
chance to be found. It is only therefore in a few instances that it has
been seen in the British Islands, and of which it cannot be regard-
-ed as a Native, although in one instance it was found in Cornwall
well loaded with Spawn. This was at Penzance in the Month of June,
where it was discovered as it was crawling on the bottom of a Ship
that had arrived at that port loaded with Coals. This example was

slightly at the eyes: the margin not notched, sloping, incurved at the front or snout, and very slightly so at the inferior portion: the front also elevated, and behind it depressed, and the central ridge passing back through the Carapace slightly marked: a low elevation at the postero lateral part on each side, with a more decided pro-minence at the hindmost portion. The general surface of the Carapace smooth, but the posterior tubercular prominence covered with fine flat grains, which are scarcely seen but with a lens. On the under side the margin is curiously festooned. All the segments of the flap, in the Male, fused together except the two last; and the termi-nal segment fastened on with a small overlapping angle. It is the Character of this Genus that all the Organs of motion are short: hand claws stout, equal, clumsy, the fingers slender, incurved: the two hindmost legs equal: the chela legs granular, finger of the first true legs serrated. When first Caught the Colour of the Carapace was milky white, with two slightly red spots symmetrical; and the four posterior legs were a bright vermilion red; but when dead the Carapace became a tinted flesh colour, and the brilliant colour of the legs disappeared.

Pennant's Ebalia was taken in the same dredge with the fore-going. A male and female were together, prettily coloured; both large, but the female was largest. The depth of water was thirty fa-thoms.

Circular Crab.

Atelecyclus Heterodon, Bell.

An example had laid hold of a fisherman's bait in deep water; and when drawn up it showed itself prepared for combat, by biting eagerly the hand that held it. Of twenty five that were found together in the Stomach of a Cod all were males.

It may be proper to remark that in the structure of these Crustaceans the left claw leg is habitually the largest; and if this be represented otherwise in the plates referred to the error may be explained by the reversed action of the engraver.

Porcelain Crab. Porcellana Longicornis, Bell

This little Crab is usually found very near the shore; but I have a note of its being obtained from deep water, in May: with its flap stretched out so as to bear some resemblance to the position of that part as seen in the Genus Galathea: the Carapace white, claws and legs mottled in lines, a greyish blue: the Ova which had thrust out the flap deep blood red.

Galathea

This is a small family that appears to stand as a uniting link between the proper Crabs, with the flap or caudal portion bent under the body, and the Shrimp and Lobster race, in which that is permanently lengthened and extended. In the Galathea it is formed as in the Lobster, although more depressed and broader; but it is habitually bent under and upward; and even when used as an organ of backward motion, in the manner in which it cannot be employed by Crabs it is never thrust out in a straight line. They are less generally active than the Lobster and Shrimp, and keep close to the bottom. I have known six examples of the larger Species, G. Strigosa to be taken from the stomach of a Cod, and, in the first week of January two of them had an abundant display of Spawn.

Of the other Species recognized as British I will only remark that the G. Andrecossii, which was taken in a dredge in deep water in November, has the Claw legs of greater length than the others of this restricted Genus: in this respect approaching nearly to the kindred Genus Munida: and also — of Galathea Dispersa, while it has been found in the Stomach of a Cod caught at ten leagues from land, it has also been obtained in large numbers in the holes and crevices of a floating wreck of the yard of a Ship: which may have lain for a time at the bottom of the Sea. There is the authority of Professor Kinahan and Mr C. Spence Bate for the authenticity of the Species.

Crawfish

Palinurus Vulgaris - Bell - White, P. Homarus, Pl 6/2.

next to the Lobster this is the most valuable of our long bodied Crustaceans; and in consequence it is an Object of attention to fishermen: - and proportionally the more so as their numbers are of late much lessened, while the price is more than equally increased. It is fished for in the same manner as the Lobster, but it is caught more frequently than the latter with a baited hook: to which it holds fast so as to become entangled with the line. It is eager, and even voracious after food; and when, as not unfrequently happens, it finds it not easy to enter the Crabpot it has recourse to the ingenious expedient of resting on the outside and thrusting its long and slender claw between the rods so as to fetch off portions of the bait and convey them to its mouth. It is observed however, that although eager after food, it is able to live long in Captivity without a supply. As the individual habits of this Crustacean are little known I notice of it that on one occasion in January considerable numbers were caught with a line in rather deep water for a fortnight together, but only at certain spots or marks, and those only. Five were caught at two casts of the line: one boat caught twelve in one day, and in a few days afterwards ten; and from eight to ten in a boat became a common number: but it was observed that the boats which caught them were not able to take any kind of ordinary fish. It was also remarked that of the numbers that taken only about one in ten was a female: I have further been informed on what appears sufficient authority that in the extreme west of Cornwall these Crustaceans have been not unfrequently seen in large numbers, even to the amount of thousands passing along the surface with their antennæ lifted above it, as if performing a migration.

This Species is found with Spawn as well in the depth of Winter as through the Summer, but the more extended observations on the subject of the development and growth of the young, in addition to those of Mr. Bell, as also as regards excavation by this and other Species, will be found at the Conclusion of my Separate Notes of the habits of our Crustacean Animals.

Axius Stirhynchus.

It is an addition to the history of the habits of this Species as given by Mr Bell, that although for the most part it lives bur-ied in the sand, there are times when it wanders in the upper regions. I have obtained it in July, from the harbour of Fowey; where it was taken in a Shrimp Net, as was the Case also the Case with Dr Leach's Specimen at Sidmouth. The weather was at that time fine and warm.

axius Laticaudatus.

In the volume of the Zoologist for 1856. there is given by my late Son Richard Quiller Couch an account of a Species of this Genus which he, with myself, believed to be so far unknown to Science; but to which he did not assign a specific name: which therefore I have now supplied, with reference to a particular in the omission structure of the example, in which it distinctly differs from the figure of Axius Stirynchus in Mr Bell's work. The individual Specimen here referred to was found under a stone in the harbour of Polperro in the month of April 1853; and a description of it was immediately taken of it by myself: after which it was handed over to my Son above mentioned, at Penzance; and I have not since had the fortune to meet with an example — which perhaps may be easily accounted for. My own notes at the time were thus recorded:
colour pale red: form of the middle plate of the tail decidedly differ-ent from that of A. Stirynchus as given by Mr Bell p 228; for in-stead of being pointed at the end it is there as wide as at its origin. The two Setæ of the internal antennæ are five times the length of the pedunicle: external pedicpalps footshaped, very hairy, and the third joint of this part has on its under surface, near its distal end, a spine, more plainly seen after death, on account of the thick and long hair that covers that edge. It has a distinct rostrum or snout, divided by a medium ridge having three crenations and a terminal one at the point. The anterior feet or hands do not differ much in size, and the arm has no hooked process (as in Callianassa.) The moveable finger of the hands moderately strong and obtuse,

but he was also of opinion that a considerable degree of cold has but little effect on their actions. And there are known to be stations which appear to offer them particular attractions - perhaps periodically; and therefore they have become - to fishermen - famous as well for the abundance as the excellency of the Lobsters caught at them - as well as for the reverse. Thus, where the rocks are distinguished by an amount of quartz - on which Seaweeds will scarcely grow, Lobsters will be but few; but a favourable station for fishing is, where the sea is active, but where also between the rocks there are narrow sandy gullies or small spots that are protected by higher by higher rocks which shelter them, and the course of which is so directed as to shelter the gulley from the violence of the waves. The best Lobsters for the Market are said to be those which are caught off the Bolt and Start Points in Devonshire; and a favourite station in winter is said to be near the Eddy Stone and the Hand deep - or Hound deep - rocks; where the fishing has been followed at a time when it could not be exercised near the land. That Lobsters at times are found at a considerable distance from land is shown by the fact that an example of large size was taken from the stomach of a Conger which was caught with a line at ten leagues from land. The Clawlegs and Antennæ were absent, but all besides was perfect and but little digested: as implying that it had been devoured at no considerable distance. It is to be remarked further, that it is only in the stomachs of the Conger and the Skate that I have found the Lobster - and never in any case a very young one; and indeed the young ones of very small size are so seldom seen that, although fishermen have been desirous to oblige in this I have never obtained an example smaller than the size of a finger. Yet they yield abundance of young, as I shall describe, near the land at all seasons; and I have been informed of a belief that they have been seen in the Crab-pot; but their activity has been such as to escape capture, and even close observation. Lobsters move about in search of food usually by night; and there is a probability of their passing out

again when daylight approaches. Among themselves they are exceedingly quarrelsome – even to the loss of limbs; but they are not a match for Crabs, and in one instance where a stout Lobster and two Crabs had been left unusually long together, the Lobster was not only killed but devoured. It is often said that on the occurrence of loud sounds Lobsters in affright will throw off their limbs: as it is known they are ready to do in slight injury. On an occasion of heavy thunder the master of a Lobster Smack reported that he had thus lost a hundred dozen ~~very large number~~ of his Cargo of Lobsters and Crawfish; yet it is certain that Lobsters in our storeponds that were open to the same violence of sound were not affected by it. A Lobster may be found with spawn at any season; and the following notes on the process of development of the young from the egg were made in the height of summer on an example brought to me by a fisherman immediately on its capture. He had noticed among the enlarged grains of spawn some that showed signs of being able to move; and indeed there were some that had already escaped from their confinement in the Case. The length of one of these, as it was measured was about the third of an inch: the eye large, and appearing sessile: the rostrum pointed, and bent down in front: the carapace in one example the Carapace extended back so as to cover the body, but in another it scarcely extended to more than half as far: in the former it appeared to be in three sections, of which each had an edge partially free: – one of these edges was close behind the eyes, and the other at midway on the Carapace: of which the hindmost portion was membranous, – more than the anterior, although all were flexible. The chelæ or hands were perfectly formed, as were also the legs; but I was not able to detect the existence of antennæ. The tail seemed regularly formed, and not forked. Behind the Carapace the body to the Caudal plates was proportionally longer and more slender than in a full grown example; and in the smallest specimens that I have been able to examine it has been noticed this portion of the body is more lengthened and slender than in such as are of full growth; as if these parts did not speedily reach the adult magnitude

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Three of these embrioted Lobsters were compared together, as they had become disengaged from the egg but had not quitted the shelter of the body of the parent; having on the contrary nestled away among the still undeveloped clusters of spawn. As regards the development of the Carapace more particularly these appeared to be in three stages of its growth; which appears to show that at this early stage with its substance still membranous and soft, the extension is by growth without the process of excoriation. In an example that was extracted from the ovum itself the Carapace was seen to cover the side only in part; and yet even in this early state the lateral Caudal plates were round and the Chelæ and smaller legs possessed their fingers. As showing that the Carapace at its earliest stage receives its growth by extension in sections it was observed that in one Specimen, not the most advanced, the anterior of these divisions, which reached a little behind the eyes, was marked with a free edge; and to this another portion was joined, that reach backward to half the distance, where it also possessed a free edge; and again behind this was a slight division with a membranous structure, as if in a still earlier stage of growth: while in another example, that appeared more advanced, although neither of them could have quitted the egg case more than a very few hours, the lines of seperation on the Carapace were scarcely to be discerned. The Colour of the whole surface of these little lobsters was a rather bright red, of which the Colour was formed for the most part of star shaped marks. The pedipalps at the mouth, and the branches were fully formed: the body on the whole wide and rounded, but nearly flat between the eyes and backward over the Carapace. At this early stage of its existence therefore it appears that the Lobster possesses many at least of the principal Characters of the parent and that the first growth of the Crust or Case is on an extension of membrane, and not by excoriation, as afterwards.

We rarely see the Lobster of the size it is capable of reaching, if as I have been informed, an example was once caught by one of our fishermen, that weighed eighteen pounds. I have myself possessed a single Claw that weighed five pounds and half.

Spinous Shrimp.

Crangon Spinosus - Bell.

In addition to what Mr Bell has quoted from the Cornish Fauna, of a Specimen taken off the Coast of Cornwall. I possess the record of another that was taken in a dredge near the middle of the Channel on the same Coast; and I have obtained numerous examples dredged among the Isles of Shetland. As Mr Bell does not mention the Colour I may add, that the hindmost portion of the Carapace and the anterior half of the Caudal plates were reddish: the margins of the Segments prettily marked with Yellow. I have noted of an example more lately found in the Stomach of the Thornback Ray, that the last segment of the body had on each side a ridge, with a narrow level surface between them: marked in Mr Bells figure, but not mentioned in his description.

Alpheus Ruber.

Bell. Whites Crustacea Pl 18. f 3.

Within its limited range this Shrimp far less rare than has been supposed; so that I have obtained four examples at one time from the Stomach of a haddock; with others from a Cod at the depth of twenty fathoms, and from the mouth of the Common Sea Bream at thirty five fathoms. As Mr Bell's description of this Species in some measure defective a few particulars are added, especially in regard to the armature of the claws: in some Specimens of which it was a prominent character while in others it was scarcely perceptible. In every instance it was the larger claw (eg that was on the ~~right~~ left side — the right contrary hand more elongated; the arm and hand moderately ~~hairy~~ hairy, with a line of short fine hair round the ~~upper~~ upper portion of the hand. At the end of the moveable finger of the left hand is a small tuft of bristles. I have supposed that a difference of this armature of the claws may proceed from a difference of sex.

Nika Edulis.

This Species has been supposed to be of rare occurrence; but I have found it far from the scarcest of the British Crustaceans, when sought for in that common receptacle of crustacean animals, the stomach of the species of the Gadoid fishes: Codfishes and Haddocks, as they are caught at the depth of thirty fathoms or beyond it. This Shrimp also is reported as a Native of the opposite extremes of the kingdom. The native Colour is a lively red.

I have also obtained another example of what appears to be a scarce species of this Genus — the Nika Couchii of Mr Bell: of which two or three had been already taken; and of which the largest had been deposited in the British Museum. One of the last that has been met with is believed to have been discharged from the mouth of a whiting. Its length was two inches and a fourth, and of the Antennæ three inches and half.

Of the very small Species of Shrimps, as they are arranged in the Genera Athanas and Hippolyte, I forbear to give a particular account in consequence of the difficulty I have found in referring the numerous Specimens I have met with to the acknowledged Species as they have been described in books; but unless these known kinds are liable to great variation of form and appearance my drawings represent more Species as met with on our Coasts than are commonly recognized. I therefore remark of only a single Species, that is an old block of Black Oak — a portion of a Sunken Ship which had raised with the hook and line of a fisherman — perforated with holes made by the Auger worm — Teredo Norvagica — I found numerous examples of the Shrimp Athanas Alderi, which had made these perforations their home. These various little Shrimps, of the Genera above mentioned, with others — as Thysanopoda Couchii of Bell, will often mount high in the water over a considerable depth; and when they sometimes get entangled in Nets, or still more to their injury become devoured in large numbers by fishes.

Variable Shrimp.

Palaemon varians, Bell.

From Prawns of a small size the species termed the variable Shrimp appears to differ in habit more than in shape; but it is mentioned in this place because it has been found in large numbers in several small pits or pools along the borders of a river a few miles from the sea; and into which they could have been conveyed only by a casual overflowing of the tide after having passed through a mingling of fresh water. The females in every instance were larger than the males; and as it has been supposed a matter of interest to notice the number and position of the teeth of the rostrum it was observed of these examples, that the rostrum itself was directed forward in almost a straight line, with a slight bending downward at the point: in a male there was only one tooth along the lower border with four on the upper line; and in two others, with four teeth above there were two on the lower border, and the point of the rostrum bifid. a female had five teeth above and one below; and in all these Shrimps there was a fine tuft of hair immediately in front of each of the teeth on the upper border. The females had the roe large in the Month of May. The straight line of the lower border of the rostrum appears to form a characteristic mark of this species.

Scyllarus arctus.

This apparently slow moving Species had not found a place in the works which treat of the Natural History of British Crustaceans at the time when Mr Bell was engaged in treating of the Salacia; and if it had mentioned by Pennenton the Authority - under the circumstances certainly a good one - of Dr Borlase it was given so doubtfully a manner as to render its occurrence in our Seas a matter of suspicion. But this is no longer the Case; for I have myself obtained it from the Stomach of a Cod on the South East Coast of Cornwall, and I have examined an example taken near the Mounts Bay: in addition to which a female with well developed roe was met with opposite the little village of Sennen on the North side of the Land's end; and which came into the possession of Thomas Cornish Esquire, of Penzance.

It may be added, that another larger Section of this family has the Abdomen closely united with the thorax, without a well marked distinction, and ending in a very small caudal fin:— This Section again divided into two portions, in the first of which the Abdomen is merely rudimentary, and what appears of it is situated at the middle of a considerable indentation of the posterior border of the thorax. In the other Section of this division of the family the abdomen is large, triangular, so as to fill the whole extent of the hindmost border of the Carapace.

A single example of this curious Crustacean — which is termed the Common Phyllosome - Phyllosoma Communis — had come into my possession; of which an account was read before the Linnean Society, and the Specimen itself was presented to the Collection of the British Museum. But although it appears certain that this little Creature is of rare occurrence in our Seas, it is still not improbable that if carefully watched for it would occasionally present itself to the notice of the Naturalist; for such has been the case with other Objects of Nature of which the existance had not before been suspected among us. It was accident, fortunately united with a wish to oblige in a pursuit that on the part of a fisherman has occupied many a pleasant and it is hoped a well spent hour, which brought this example of a strange form within my reach; and when observed by him, in the month of August, it was still alive in his drift-net, that had been shot for pilchards in the preceding night and morning; so that it had remained in some degree of activity for several hours after it was taken from its native element; which may be accounted for in the fact that it had remained wrapped up in the dripping cordage, in which it had become entangled at about three fathoms below the surface of the water, at four leagues from the land. When in my possession, and placed on the ground it shuffled along with some degree of activity.

Its whole length scarcely amounted to an inch, so that the figure here given is necessarily enlarged: the whole substance very thin, and when alive so transparent that it would not have been discovered

On the Embryo State of the Palinurus vulgaris, by Richard Quiller Couch - M.R.I.S. - of Penzance.

It is with melancholy satisfaction that I add the following Paper as it was written by my late Son, and communicated by him to the meeting of the British association at Dublin in the year 1857.

"At the time of the publication of Professor Bell's admirable work on Brit-
-ish Crustacea, by some inadvertency the particulars respecting the em-
-bryo condition of Palinurus vulgaris were overlooked, and up to the
present time have not been published. as several years have now passed,
and the subject has not hitherto attracted the attention of any other
observer, I would wish to publish the following observations:—
"The Metamorphoses of the decapod Crustacea may now be considered as
established by Observations in every part of the world — The form under
which the young Decapods first appeared was announced as belonging
to the genus Zoea; and all subsequently published observations have
confirmed this. But in the Species to which I now refer there is an impor-
-tant exception. Lest there should be any error on the matter, I have
during the past Summer (1857) again investigated the point, and have
bred many thousands in Confinement, and under the Microscope have
seen them escaping. So there can in my own mind be but little doubt on the
matter. The Young of Palinurus vulgaris differ from every other Spe-
-cies with which I am acquainted. On escaping ex Ovo the different
parts are very obscure, being very closely folded together; but in a few
minutes they spread out sufficiently to become recognisable under a
very moderate magnifying Power. The Carapace is globular, oval slightly
pointed or produced both at the anterior and posterior margin, and also
slightly contracted anteriorly, so as to give the appearance of a rostrum.
The abdomen is moderately long, and from four of the six annulations of which
it is composed arise eight pairs of tendril like appendages. The internal
margin of each ring is expanded into a thin, projecting process, from which
the articulated appendages arise. These tendrils are long, slender and
dichotomous. Their double character commences at the third joint; for
the remainder of their length they are nearly equal, and are covered with
strongly marked spines: their termination is pointed. The caudal ex-
-tremity is simple, contracted, pointed, and somewhat oval; on the cen-
-tre of the rostrum is a dark spot; the eyes are placed on enormously
long and stoutly clubshaped pedunceles, which are attached by very narrow
and slender points. The pedunculated eyes are about two thirds as long
as the Carapace. This concise description, with the figures accompanying

in growth more rapidly in the warmer weather it is certain that
exuviation, and consequently growth will often occur in the
coldest season of the year; and the advance of the Crab in age
may also be supposed to have an influence, at least in rendering
the proceeding less frequent. It is even a matter of doubt whether
parted with; for it has been observed in some instances that
parasitic growths of shells or other substances of considerable
size have been found on the Carapace or legs of apparently
aged Crustacean Animals. The remarks which have been made
on an important portion of the process of exuviation in the family
of short tailed Crustaceans, or Crabs, in addition to those of Mr.
Bell are for the most part contained in a paper by myself, con-
tained in the Report of the Royal Cornwall Polytechnic Society
for the year ... with the accompanying illustrative figures.

"In the Report for the year 1843 of the Royal Cornwall Polytechnic
Society is published a Paper on the process of exuviation in
Crabs and Lobsters; and it appears to have been principally
by means of observations thus recorded that this very remark-
able is now commonly held as an undoubted truth.

It had indeed been partially observed long before this by a few
eminent writers; and in addition to the authorities referred to in
the Report quoted above, Olaus Wormius in the early part of the
seventeenth Century speaks of it as a thing not doubted; but the fact
was still doubted or disregarded by the generality of Naturalists;
and it was not subjected to experimental enquiry by any one except
that excellent French Naturalist Réaumur; who had studied attin
the river Crayfish — Astacus fluviatilis; of which he remarks a por-
tion of the process that has not since been noticed by other obser-
vers, and on which his Observations have been the less regarded
because it is beyond a doubt the different species or families
of Crustaceans pass through this function with considerable
variety of manner. As the writings of this Naturalist have
not come within my reach (and indeed his observations on

under portion of the Carapace, to which they are pressed close by the principal joints of the legs themselves, so that they could not have been attended to without a greater degree of violence than I judged myself warranted in using, with due regard to the other observations I was desirous of carrying out. To this must be added, that as soon as the process of excuviation is completed the seperated sections fall together again so closely, that without being prepared to expect it, no suspicion is likely to be felt, that the parts had ever been drawn or thrust asunder.

The example of this process which first obtained my attention was a female (technically or locally a bon Crab) of the stage of growth only one degree shat of the full size; and it was found, in the month of June, in a Crab pot, into which it had crept, as would appear, when the action of excuviation had newly set in. Its death after being taken from the water, was much quicker than is usual with crabs in their ordinary Condition; and as the process of (throwing off its case) was thus cut short when it had advanced only to about two thirds of its extent, an opportunity was afforded of noticing and making sketches of the particulars at leisure.

The Edible Crab (Cancer Pagurus) is more inert than most other crustaceans when passing through the process of excuviation; for some other species appear to effect this object with a jerk, and are as active presently afterwards as at other times. But in this Crab it more nearly resembles a merely physiological action in which the will has little concern, and even conscious effort is scarcely perceptible on this account it occupies a considerably longer time than is the case with, at least, any of the long tailed races of this family.

It was evident from an inspection of the proceeding in this Specimen, as it was known to me before, and is confirmed by a close examination of several others which have been obtained since that (to use the words of Mr. Gosse in regard to the Maia Squinado) — the smaller legs are drawn out of their bony Cases as a leg out of a boot, and therefore the language quoted from Réaumur will not correctly express what takes place in the Common Crab; nor, I believe for reasons presently to be assigned, even in the Species on which his Observations were made — the River Crayfish. The bony Covering or crust where this remarkable process takes place, is not simply divided by splitting, but by a far more complicated action; which yet is beautifully

[illegible]

carapace or shell, between its margin and the mouth, becomes loosened by absorption, so this curved line on the claw leg has become seperated along its course, while the other lines (those which are straight and meet at an angle) are only so much change from a firm crust, as still to remain connected together by a membrane, and thus assume the nature and office of moveable joints or hinges. The hitherto firm structure of this part of the clawleg being thus turned into a moveable cover which admits of being lifted at the curved circumference, the smooth portion of the limb is protruded through the opening, and by the tension thus produced below the wasted extremity is drawn downward, the greatest accomodation of space being thus afforded with the least expenditure of effort or displacement.

In the specimen examined it was found that a portion of the muscular substance of the limb had become so much distended as to be thrust out of its sheath, and partly wrapped round the outside of loosened Crust. But while this may be supposed to be of great mechanical use in drawing downward the remaining wasted portion of the limb occupying the more distant segments, it offers but a slight hindrance to the final passing of the whole through the final ring or coxa — where the leg is united to the body: — for this last remaining space is narrow; and the distention being chiefly produced by a liquid diffused through the fleshy fibres, it offers but little positive obstruction to the passage a dragging action therefore, accompanied probably by a muscular contracting power, is all that is required to enable it to slip through; at the same time that a portion of the distending fluid, if not the whole, is so much thrust backward as still to occupy the opening, and thus contributes to bring down each succesive part in turn. The extremity of the Clawleg then, being not only smaller naturally, but more wasted in this process than the rest, finds no hindrance to its escape, and thus the imprisoned limb is set at liberty. It is a fact beyond doubt, as appears by examina

tion of many Specimens that no process of splitting takes place in the slender or walking legs: but that, to use an expression already quoted, they are simply drawn out of their case as the human leg is drawn out of a boot.

It is a matter of some interest to ascertain whether and to what extent this remarkable process takes place in others of the great family of crustacean Animals; and I have exercised no small amount of effort in following up the examination in Species of both the Sections; including as well the long bodied or Lobster kinds as the short tailed or Crabs. So far however, my exertions have not been attended with satisfactory success for want of opportunity in obtaining the proper Specimens. For the present therefore I find myself compelled to rest satisfied with some sketch-es of the corresponding parts to those of the Edible Crab, as I have found them in the species named; that is - the River Crayfish, Lobster - velvet Crab, Land to Florida - the Harbour Crab (Carcinus Maenas) - atelecyclus Heterodon - and Pilumnus Hirtellus. This apparently moveable plate is especially large in Polybius Henslowii; but I am compelled to add, that on evidence which was obligingly supplied to me by J. James A. Salter Esquire, considerable doubt is thrown upon the supposition that such a hinge like lid is employed in the Claw ~~like~~ leg of the Lobster. nor does any thing of this sort appear in the Corwich Crab (Maia Squinado) Long stes Caput-lacunes, the Common Crayfish (Palinurus vulgaris - or the various Species of Shrimps: from which we may conclude that all the limbs in these instances are withdrawn from their crust in the same manner as the smaller legs in the Edible Crab. How this can be accomplished in the hindmost or peculiarly shorten-ing legs of Henslow's Swimming Crab already mentioned - where the terminal portion is so very broad, appears not easy to understand; but as with its breadth the substance is also exceedingly thin, it may perhaps become doubled or wrapped together in passing through the narrow innermost joint.

In the figure of the Clawleg of the Edible Crab which accom-
-panies this portion of our subject, the part that is tinted with
Coloured lines describes the border where I have found the open-
-ing to take place, by the absorption or removal of a uniting part
of the Crust; and the blue lines especially are shown on those
parts where, after this absorption a membrane remains to form
the hinge; by the help of which also, when the excoriation is
completed the lids or segments again close, so that all but ap-
-pears as if an opening had never existed. In the Harbour
Crab (Carcinus Maenas) this hinge like opening in its outline
is different from that of the Edible Crab; but the proceeding is
conducted in precisely a similar manner.

(Excoriation

expressive of the simple means to which creative wisdom has had recourse when a natural proceeding was to be regulated. A reference to the figure (fig.) which was sketched while the process was in action, will best express my meaning; and the sketch itself may be compared with Specimens (readily to be obtained) — as has been already said, the specimen particularly referred to was, when it came into my possession, in the middle of the act of excoriation, and the opportunity was taken of sketching a figure of it in that condition; but my attention was chiefly engaged with some particulars not observed before, and which at any other stage of the process were not likely to be observed, on the inner and more concealed portions of the clawlegs.

It is known that the muscular substance of the clawlegs common Crab at the time of excoriation is exceedingly soft and flaccid; & the motions of its parts as the process advances are very inert; as the body therefore passes backward out of its case the soft imprisoned flap or tail becomes tightly pressed, so that the sides of this organ are made to overlap the middle ridge. These sides of the flap also cover the hindmost legs; and as well they and the next pair are squeesed tightly together. One of the smaller legs had been broken off when the specimen was received; and this appears to have been done by the fishermen in handling it. But although the substance of the flesh was soft as dough the Cicatrix had formed as effectually to prevent the bleeding, as it does usually under the circumstances of perfect health. But the most remarkable portion of the process is what was found to take place in the larger or clawlegs: in which the flesh of the two outer Sections was much shrunk, but the portion occupying the third or innermost was on the contrary very much distended. This was especially seen on the inner concave surface of this portion of the limb; where, if we examine the part under ordinary circumstances we find three lines, which meet at an angle, their diverging extremities being bounded by a curved border that is directed at its termination towards the body of the Animal. As a preparation for excoriation, in the same manner as the well marked line in front of the

the Subject now under Consideration do not appear to have been re-printed from the Memoirs of the French Academy in which they first appeared, in the year 1718) I owe my knowledge of them to Mr. Bell's well known History of British Crustaceans, in connection with Mons. Milne Edwards' general History of the same family: Mr. Bell says, "It is impossible to imagine that the Crust of the legs, and especially of the great claws of the larger species could be cast off unless it were susceptible of being longitudinally split"; and Réaumer states that such is actually the Case: each of the segments being composed of two longitudinal pieces, which, after seperating to allow of the passage of the soft limb, close again so accurately that it is very difficult in the Cast Crust to discover the line of division. Mr. Bell goes on to say: "in a recent interesting account of a Maia (Common Crab) Mr. Gosse has however shown that in this brachyurous form no such splitting of the legs takes place, but the animal pulled first at one end and then at another, until they were quite out, as if from boots". The Observations of Milne Edwards are to the same purpose, and equally with those of Mr. Bell show how little the process is understood, even by the most eminent Naturalists. It is clearly to be discovered, says he, that if the Substance of the tubes which confine the limbs do not split asunder lengthwise, it is not easy to understand how these members can be withdrawn from their Case. In a note he adds: In their ordinary condition their divisions of the legs appear to be formed, each one of a single tubular firm Crust: — but Réaumur tells us that they are framed of two almost equal halves, joined together lengthwise; and which seperate when it becomes necessary for the leg to pass through: after which the parts fall together again so closely as to render it difficult to discover the place where the seperation was made.

That in my former Studies of this process I had myself overlooked or mis-apprehended the mode by which the claw legs were withdrawn from the loose end Crust is in the first place to be ascribed to the fact, that my attention was chiefly occupied with what was going on in the body and its immediate organs — the eyes, Antennæ, and its inward frame; and in the next place to the circumstance, that the portions of the legs which alone answer to Réaumur's descrip-tion in any degree are by their situation hidden below the

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Some Additional particulars observed in the process of Exuviation in the Stalk eyed Crustaceans.

The fact long doubted, and by some thought incredible - that the growth in dimensions of the body in the families of Crustacean animals is accomplished only at settled periods; - and that at this time the firm Crust in which they are enveloped is thrown off in a very perfect condition - is now universally acknowledged and a general outline of the proceeding is given in the Natural History of the British Species by Mr. Bell, already referred to.

In different families, and even in different species of what would appear to be the same or nearly allied families of our British Crustaceans there has been noticed some considerable variation in the manner in which the process of throwing off this defensive crust is effected; some remarkable circumstances connected with which have only of late come to light or have been confirmed. It is of these that an account will here be given, with the dates or intervals in some instances, with the addition also of the remarkable and sudden increase of dimensions that has attended the exuviation when it occurs in the progress of advance to maturity. It may be added also, that it is at this time of exuviation in the well grown individuals the process of impregnation usually takes place as a preparation for a future progeny, although the actual appearance of the spawn in its outward development may not be seen until after a considerable interval. In an instance in which a female Crab was kept in Captivity it was observed, that from the time at which the ova first shewed themselves it was after six weeks that they were shed, to undergo their series of transformations, which lead to the permanent adoption perfect shape: soon after which the growth is rapid; in so much that a record has been made of the act of exuviation five times repeated with an interval of only two days through the Summer. But although these Creatures may advance

Crustacea

it, will sufficiently explain the great differences between this and the young of all other species hitherto described. ——

— The contrast between that of the present species and those is very great. In them the eyes are sessile: in this enormously pedunculated. In them the limbs are beneath the carapace — in this they are attached to what, for clearness, I have called the abdominal rings. Instead therefore, of belonging to the Genus Zoe, this would be placed in Phyllosoma of Milne Edwards, as belonging to the Stomapoda".

This last remark is to a large extend applicable, as may be seen by comparing the figure of this embrio Palinurus with that we have given of Phyllosoma vulgare; but the thickness of the body in the former instance affords a conspicuous difference between them.

as it lay in the net. but from the shining brightness of its eyes.
Its general form may be best known from the figure; which was drawn
when it had been for a short time soaked in glycerrhine. The eyes
are elevated on long footstalks, which stand up divergingly, but are
are fixed in the border of the Carapace at one point: the upper portion
of the stalk enlarged; the eye itself kidney shaped, and the fore-
-most half of its globe largest: the antennæ wider apart, and longer
than the footstalks of the eyes: the lower joint of the pedunculewith
a fine spine. The inferior antennæ appear between the footstalks
and the proper antennæ; than which they are shorter, and bifid near
their tip — their slightly longest branch having a slight brush.
Both these pairs of antennæ are directed straight forward. The legs
have their origin in the second leaflike expansion, or thorax: four of
them on each side are long, slender, bifurcate at their second joint, the
posterior branch of this bifurcation scarcely longer than the second
phalanx: the first and last of these pairs having these branches rather
longer than the two intermediate ones: all of these principal branches
and bifurcations simple, pointed, clothed with hairs toward their
ends: between the last of these and the tail on each side two short,
slender, bifid processes, which seem to differ from the other legs.
The lateral caudal plates are oval and more clearly marked than
than those of the middle. The eyes, which were of a rich Sienna brown,
were the only parts that could be said to possess colour; but those who
saw this specimen first remarked that on the sides of the Carapace
there were some small patches that glistened with silver: all besides
was as transparent as glass, and nothing could be discerned of
the inward organization when presented to myself beyond some
slight lines, which might be bloodvessels or nerves, directed from
the upper margin of the thorax to the antennæ or eyes; but when
the Creature had for a time been immersed in Glycerrhine, which
penetrated into its substance without rendering the organization
obscure the whole of the Carapace except a narrow longitudinal
line at the middle, became marked with branches, of the nature

(Crustacea)

Leach's Shrimps

Palaemon Leachii Bell.

18

Phyllosoma Commune.

In a general point of view the Phyllosomes may be known by the
remarkable form of their body, which consists of two distinct disks, which
are exceedingly thin, extended like leaves, and transparent: to which is
added a moderately lengthened body or abdomen, formed of distinct joints,
and which ends in slight caudal plates.

But of a family of Crustacean Animals of such rare occurrence and so
little known, for the better understanding of the species, of which a figure
and description will be here given the following abstract is copied from
the General History of Crustaceans by d.r Milne Edwards: (Vol 2. p 472.

— The Genus Phyllosoma is formed of Creatures of which the whole body
is so thinly depressed that there is scarcely any distinction between the
upper and lower surfaces; so that it is not easy to understand
where there can be any space in which any internal organs can be
lodged. The thin depressed body is separated into three sections, which
these form what is equivalent to the head, thorax and abdomen; and of
these the head has the shape of a thin disk or leaf, in most instances oval,
and united to the thorax which is behind it by its middle portion
only, so that its sides are altogether free: and on its anterior border
it has its eyes, placed on lengthened foot-stalks, and also the antennæ.
This anterior portion is to be regarded as the Carapace; and next to
it is the thorax, which is also flattened, thin, and wider than long,
so as to form a second disk, of which only a small portion is covered
with the Carapace; and it is this portion that bears the legs, or long
and slender paddles, each of which is divided into two about
midway of its length. The abdomen is more lengthened and is divided
into rings, with a few slight caudal plates at its end.

D.r Milne Edwards divides this family into two sections: of which
the first, with which chiefly we are concerned, is marked by having
the abdomen more enlarged, clearly seperate from the thoracic por-
tion, and having distinct rings, with a well developed caudal fin.

Prawn.

Palaemon Serratus - Bell

The Prawn is the most valued of all the kinds of this family that are termed Shrimps; and in some districts also they are the most abundant. It prefers a rocky coast where there are moderate -ly shallow gullies, where it advances or retreats with the tide; or they will seek shelter in a pool, where they hide themselves under the overhanging Seaweeds. I have been informed that more than five gallons have been caught in a Net within an hour in the Scilly Islands. In winter however they retreat into somewhat deeper water; and such as are of the largest size are not unfrequently caught in Crabpots that in the earliest season of the year are set out for the taking of Crabs. At this time I have obtained in consider -able numbers such as I have not been accustomed to meet with close to the shore, and heavily laden with roe; of which it seems remarkable that all taken at one time have been females, and that in about equal numbers on what section of them the grains of roe were coloured of a blueish purple, and in the others a decided pink. The Prawns near the shore are charged with roe generally through the summer, but about the end of August they all at once cease to breed: presently after which they appear to throw of their Case: and indeed it appears to be at the time when the roe has been shed that all the Crustaceans divest themselves of this Covering if the process has not been accomplished before. Prawns, and perhaps all the tribes of Crustaceans that are furnished with lengthened Antenna, appear to be in the exercise of much Curiosity, if it be not rather suspicion, in the examination of an Object with these organs before they approach it; but they are sometimes lured to destruction; for the Lobster has been often observed to extend to its antennæ to the Prawn and then suddenly seize and devour it. - In a very large number of instances the length and shape of the rostrum have been found to vary, in extent and also in direction: of which some are probably be ascribed to injury; but others are obviously a Natural formation, of which an Account may be given in our account of the abnormal formations of marine Animals.

Alpheus Edwardsii

This little species is usually found in the Mediterranean and was unknown in the British List of Crustaceans until a couple of them were obtained under peculiar circumstances at a distance from land at the depth of thirty fathoms off the South East Coast of Cornwall; and of which the particulars were communicated to the Linnean Society, while the specimens themselves were deposited in the Collection of the British Museum.

The Body was inclined to stoutness, thorax inflated; the ringed portion also stout and not much tapering. The rostrum long, slender, pointed, and very slightly diverging. The eyes small, inset, between the lateral spines and rostrum: Antennæ long, very slender, the peduncle about the length of the rostrum. The middle plate of the tail with a depression along the middle as if divided: very slight hair bordering the side plates. The first or anterior claw leg very slender, with a minute moveable finger: the second claw leg has the inner joint very slender, the second joint compressed, small, the hand large, wide, stout — the finger not long but stout. The left hand much the largest in two specimens that were particularly examined, on the right side small.

The length of the largest Specimen from the rostrum to the tail was nine tenths of an inch; the Colour a beautiful reddish orange, dark at the region of the Stomach, where the outline is greatly elevated: Colour of the small example pale white. These little Shrimps were drawn up from the bottom in a clump of the Sponge, Halichondria palmata; and when placed in Sea water they were lively, observant, but when taken from their retreat, on the least alarm they retreated into its cavities, as if these were their usual haunts. When irritated or alarmed they made a cracking noise with their pincer hands — as loud as the cracking of a nut, and to be heard over a room of moderate size. This sound appeared either the effect of terror or to terrify; and in doing it, as if to alarm a foe the claw was raised aloft. It was seen to be the usual habit of this Species, as of Alpheus Ruber, so to gather and place its more slender hand leg, which is the first in order, as if its situation were behind the second or larger claw; which is not the case, but which has led to a mistaken in this particular. The figure of this Species is here given.

That there was a time when the fishery for Lobsters was more successful than of later date appears from the evidence of fishermen; but I record what I learn of its condition at the middle of this present eighteenth Century; when a fisherman informed me, that he has taken sixty seven in a week, and that he regards sixty of all sizes as the general average in the Summer. Of this number twenty will usually form a dozen of what are termed tale fish, as measuring an understood length: thirteen of which constitute the dozen, and one that falls short of the measure, although but a little, must pass for only half of the tale of fish. There are sometimes along the Coast where fifteen or sixteen examples will amount to the required dozen, of which the price at the time mentioned was ten shillings. On several accounts it is not convenient to continue this fishery beyond about the space of six months; and this will be probably with several interruptions; and at last the danger of losing the Craft, or pots, from the fishery of drift nets becomes greater than the profit is likely to defray: on which account the adventure is withdrawn. But if report speaks correctly, the profit is not greater on the opposite Coast of France, in the fishery that lasts for nine months: during which from a thousand to fourteen hundred francs are obtained, of the value of fourteen hundred francs.

Sand Shrimp.

Crangon vulgaris, Bell. White's Crustaceans Pl 8. f 2.

Having observed a motion in the sand, in shallow water, a closer examination discovered it to be effected by the antenna of this Shrimp, while all besides remained concealed below. after disturbing it, and then again suffering it to rest it was seen to make a cavity for itself in the sand: at first by the action of its feet, and then having lowered the body to the required depth, it proceed to throw back the antenna, and by the sweeping action of their inward portion, with a lateral action again to cover itself over, until the body was again concealed. and while doing this the mottled colouring of the Surface greatly contributed to its concealment.

Lobster

narrower than the fixed finger; and each of them has for channels or depressions, with long and strong hairs: a few sparingly sprinkled hairs dotted over the smooth pinkish surface. External antennæ about two thirds the length of the body: and on their under surface for nearly half its length a line of thicket bristly hairs. A second (and smaller) pair of didactyle hands: three pair of feet ciliated on both edges—the outer joints especially so. Abdomen crustaceous. The tail broad, its middle plate having in the centre two distinct spines from which spring two ridges—one on each side. Each lateral plate is marked with a central ridge of fine spines: all rounded except the middle one, and edged with a broad margin of stiff hairs. The abdominal appendages very large; and on the sides of the third, fourth and fifth abdominal plates are tufts of organs much like those on the abdominal appendages; which may have some use in respiration; (but an examination of the branchiæ was not made through fear of injuring the specimen.)

Lobster.

Homarus vulgaris-Bell.

From time beyond memory the Lobster, together with the Great Crab, has been the special object of a fishery; and the usual method of conducting it is with baits suspended in pots made of wicker work: for although it is not infrequently taken with a line that method is too uncertain to be depended on. As a residence it prefers a rocky Coast that is studded with holes for retreat in case of alarm; and into which it shoots itself backwards from a considerable distance with unerring accuracy. In the neighbourhood of these retreats they in a great measure confine themselves; although from the report of fishermen it would appear that they practise a kind of migration from one seat to another in some variation of the seasons; for it is only thus it can be explained that they shall be scarce for a time at an accustomed haunt, and all at once again become abundant. A fisherman has assured me that in his experience they have suddenly become numerous in the first week in July;

Gebia Stellata, Bell. White's Crustaceans
Pl. 7. f. 3.

an example from the Stomach of a fish was much more slender than is represented by Mr. Bell, and in another instance it was much wider; but from the scarcity of specimens I hesitate in the opinion whether the difference may not be sexual. In every Case the texture of the Crust is soft. In an example from the stomach of the Ray (Thornback) I noticed, that the Antennæ were as slender as a Thread, and near the extremity of each hirsute, as was the projection of the Carapace, more than in Mr. Bell's figure. The length of this last example was two inches and an eighth, from the Snout to the end of the tail. There seems reason to suppose, from what has been observed of this Species and other Crustaceans that are accustomed to burrow in the Sand, that they leave their hiding place and wander about in the warmer season of the year; and more especially perhaps when they excoriate. Of the claws it should be noticed that the fixed process of the nippers or fingers is toothed, and much less projecting than the moveable finger; the latter of which has a line of hair or bristle: the processes also, or plates of the tail are oval and not round, with a tendency to a point outward, with a border of hair. A parasite of unknown species was under the side of the Carapace, where it covers the branchiæ.

Gebia Deltura.

I have found this species numerous in the stomachs of fish from the depth of sixty fathoms, in the Summer. as in Mr. Bell's figure the Antennæ are imperfectly represented it is of interest to remark, that in an example of the length of two inches and a fourth, these organs measured a very little less than an inch and half beyond the moderately lengthened peduncle; the antennæ themselves being furnished with hairs not represented in Mr. Bell's figure, and which at about half their length on both sides become of considerable length, and then become gradually shorter to the point: forming what is often termed lanceolate shaped, and being flat it bears some resemblance to the Vane of a quill. The Central Caudal plate is almost square, and the side plates thin, but very strongly marked ribs. The example these referred to was a female, and with two others was obtained from the stomach of a fish.

Munida Rondeletii Bell.

This species is more abundant than is generally supposed; but as it keeps usually in a considerable depth of water it is not caught in the Crabpot nor with a line. But I have obtained in some num-bers from the Stomach of Cods: in company with Xantho Tuber-culata, and Portunus Longipes, and other Crustaceans. It grows to a larger size than is described by Mr Bell; so that instead of the length of the Claw legs extending to almost six inches, I have measured them full nine inches. Pennant represents the antennæ as no longer than the first phalanx of the arm, and even Mr Bell's figure shows them less than the true proportion; since I have found them fully as long as the arm. In the claw arms the fingers have measured an inch and half, with the hand of the same back to the joint an inch and quarter. In a smaller example the fingers measured an inch and one eighth with the hand to the joint three fourth of an inch.

While speaking, as I have often had occasion to do, of the crustaceans found so often in the Stomach of the Cod, it is to be remarked that they do not become crushed as they are swallowed; and therefore they are not for the most part the worse for preservation by the Student of Nature. After a time however, they become so acted on by the gas-tric juice, that even the claws and Carapace are softened, with almost the flexibility of leather.

Stone Crab.

Lithodes maia, Bell. White's Crustaceans Pl 5. f 2.

Mr. Bell's figure of this Species appears to have been taken from a female, and is scarcely an adequate representation of this, the most formidable, in regard to its armature, of all our native crabs; since even the Lorwich, to which it appears nearly allied, falls very short of it in this respect. It has only been found in the Sea of the North of our Islands, from which by the kind -ness of friends I have obtained several examples; of which the colour was a brilliant red; but an individual of about an inch and half in length was of a decided white colour. The formidable array of prominent spines that encompakes the body and clothes the legs has not always protected this Crab from the all devouring appetite of the Cod: in the stomach of which it has been found.

Hermit Crabs.

Paguras Bernhardus, Bell. White's Crustaceans P 5. f 3.

Of this exceedingly curious family my notes will be few; for if extended they would relate only to the distinction of the several Species: of which for the most part the particular habits are little known. But of the species of largest size, to which the reference is especially made, and which is often met with I have with interest watched the remarkable way in which it takes its food; which happened to be a shellfish, which it held in its right claw while with the left it quickly and repeatedly nibbled the substance of its victim bit by bit and conveyed it to its mouth. In the first week in January three examples were brought to me from the harbour of Fowey, with abundance of roe well developed: black and shining, and turned obliquely as it lay on the body.

These Hermit Crabs are a quarrelsome race with each other, and not always in a Contest for each others residence. One or other of them will quit its own shell for the fight, and strut about with ostentation as if challenging its enemy. The most timid peeps within the shelter of its home

a little larger than the figure given by Mr Bell, but as there is little chance that this Crab will be mistaken for any other I do not produce a description of this example, except as regards its Colour: which was light sandy brown, mottled with light green, and with patches of rich deep reddish brown. Other examples have been obtained at Falmouth; but I have an opportunity of recording an instance in a Couple of Crabs these Crabs were brought to my observation, which tends to show that they are ready to lay hold of any support to enable them to float without regard to the direction in which they are carried. An example of the Hawk's Bill Turtle was found swimming near a Ship in the Channel: nearer indeed to the Coast of France than to England; and was soon brought under my inspection in a healthy and active Condition: when on examination two well grown examples of this Crab were found closely attached by their prehensile feet to the surface under the bent of its tail: They measured very nearly an inch in length, and remained alive with their foster parent for a considerable time after their arrival, but never presumed to quit the shelter of their hold.

Ebalia.

The Genus Ebalia forms a distinctly seperate Class, as well in Habits as in appearance; for they wander but little from their haunts at a moderate depth on sand or gravelly ground; where however unprotected they appear to be I have never found them preyed on by voracious fishes which appear to carry on a Constant War on the larger examples of the extensive family of Crustaceans. Nor have I obtained them from Crabpots or the baits of fishermen; and therefore it is only by the Operation of dredging that we have a prospect of examining them. It is thus I have procured what I have concluded to be the Species known as Bryer's Ebalia, although the description differs in some points from that which is given by Mr Bell, and which therefore is here produced more at large. The dimensions of the Carapace were just exactly as wide as long, the general shape as in Mr Bell's figure: the Margin not notched except

Henslow's Swimming Crab.—

X It has also taken a fly from the surface, and has not disdained to feast on a dead fish that has lain at the bottom of the tank.

I The intermediate legs were rowed like oars: while the hindmost or oar legs display a complex action which shows a form of joints specially fitted to their intended use: the inner joint or coxa allowing the limb to be thrown to its destined position above, while the two outer joints admit of action in a plane, with a fixed point in the two inner phalanges, that move but little of themselves, but being of a rounded form, provide space for muscle that shall enable the remainder to act. This Crab will offer to defend itself if threatened with attack.

for an indefinite length of time; but there is proof that they occa-
sionally ease themselves of the effort of swimming by mounting
on any floating Object that comes within their reach. Among
the several kinds of Swimming Crabs that are known in our Seas,
no one is equal to this in Activity; nor are the generality of fishes
able easily to escape from its pursuit; and when therefore the prey is
laid hold of the sharp infliction of its pincer claws is such that no
struggle or effort is of any avail to save it from being overcome by its
eager and hungry devourer. The Mackarel is liable to be the victim,
but nothing alive seems to come amiss, and an instance is reported where this
Crab was attracted by a bait. When in full activity the hindmost
legs, which are shaped like an Oar, are bent upwards over the Cara-
pace towards the front, in which position they are kept in rapid and
continued motion, and by which the body is swiftly propelled and
turned; while the broad, flat and smooth surface of the Carapace
is not liable to a hindrance to the most energetic pursuit; and while the
claw-legs are thrust forward in front as well to balance the body as
to seize more readily they Object of pursuit. It has been observed
that while this Crab has lived a considerable time out of its native
element it had immediately on being plunged into the fresh waters.

Common Pea Crab.

Pinnotheres Pisum - Bell. White's Crustaceans Pl 4. fig 1.

The Pea Crabs form a small class the usual habits of which are to
live within the shelter of living bivalve Shellfish; and the more
common sort is most commonly found thus concealed near the
outlet of harbours. But I have thought it remarkable that in one
instance a female of what I believed to be this Species was brought
up with a line from water of the depth of thirty fathoms concealed
within a Mass of Coral, the Eschara foliacea; which had grown far
from any example of the Pinna known
from any other bivalve Shell. At this time, in May, the flask, which
was wider than the Carapace, was distended with spawn, of a bright
red colour; but also they are found with spawn at Christmas, and
probably through the Spring. Several that had been taken out of the
Pots of Mussels in bales were found after a week and although

middle of May a female taken in a Crab pot possessed spawn appeared ready to be shed; and when raised to the surface it manifested its terror by flying round its prison with the utmost activity.

Cleanser Crab.

Portunus Depurator Bell.

In common with others of the race of swimming Crabs this species is sometimes taken in Drift nets; and I have known this to happen in January at a large distance from land, soon after the hard from boisterous weather, when the wind had begun to blow from the east, which at this season brings with a considerable degree of cold. When high in the water it has had the boldness as well as dexterity to lay hold of a Mackarel, on the side close below the pectoral fin; which is the part of the body aimed at by all the swimming Crabs, as where they can best retain their hold without being shook off; and in this situation it has been known to inflict a wound. Yet itself is also subject to the depredation of an enemy, so as to be found in the stomach of a Whiting.

Marbled Crab.

Portunus marmoreus - Bell.

I have found the capture of this species irregular and uncertain; but on one occasion it was found adhering to a large Skate, that had taken the hook in a considerable depth of water. If the attack had been made to indulge its appetite it at least had not been able to inflict a wound. When confined in a dry box, at the end of several hours it showed Considerable activity.

Livid Crab.

Portunus Holsatus, Bell.

There had been little opportunity of observing the actions of this species; which therefore would appear to be not of ordinary occurrence; but on the other hand it has been obtained in an unusual situation as regards any one of this Section of Crabs, and also in unusual abundance. In the month of February large numbers of full grown examples were caught within the land locked harbour of Fowey; and in November of the same year it was noticed that they had abounded through the

that they might be restored to liberty, although that would have gone far to replenish the fishery.

It appears from the observations of fishermen that all the kinds of Crustacean Animals are influenced by the temperature of the Season; and there appears sufficient proof that some of them become torpid, or at least inactive when the weather is cold; yet I possess a record of the ~~development~~ exuviation of our common Crab in January, when the thermometer in the air was at 46°. and on a like occasion a large number of females, without the presence of a male among them, were caught on plain and not rocky ground in rather deep water. The relative periods of procreation may be judged by the fact that a female Crab was caught, which had no appearance of ova; but soon after being placed in the storepot they appeared; and they were shed at the end of six weeks from their appearance. The process of exuviation, by which the whole of the firm external covering is thrown off, and which is so remarkable an effort of Nature in crustacean Animals, has been more closely observed in this Species than in any other of this extensive family; but a Notice of it is deferred to to another section of our work; in which a more particular account will be given of what I have observed of the proceeding under what may be regarded as favourable circumstances: considered also in connection with the same process in others of the family.

Pirimela Denticulata — Bell. Whites Crustaceans 193. pl.

It is probable that this little Crab is common at some distance from land, although little noticed. It has been found with spawn in April; and in the early stages of its growth I have reason to believe that, with some other Species, it comes by the help of its extended flap or tail to the surface: perhaps for the purpose of profiting by the influence of the light and warmth, which it enjoys while suspended in the crevices of floating wood, or the Corks of the fishermen's marks of the Crabpots. In this stage of its progress towards maturity, what I have supposed to be the larval state of this Species the body has measured in length (including the extended tail) ~~four~~ three twenty fourths of an inch, and in breadth five of the same proportion; and when the caudal portion is bent under the thorax, and the ~~perfect~~ perfect shape is assumed, the breadth is about the same, with the length of the Carapace four twenty fourths of an inch. I give a magnified figure of the larva.

several others come under the same denomination, although as useful for food as those which are better known or more highly esteemed.
The baits for the Crab or Lobster are hung round the descending
channel or passage of entrance by means of skewers; and the Crabs
of various species are thus enticed to enter into the prison from
which they find no way of escape, but which in due time they are
transferred to a larger place of confinement, which is usually
made of the same materials, and in which they remain until
they are to be conveyed to the Market. As regards this last
particular experience has shown that there is considerable dif-
ference in the quality, and in consequence also in the price, of Crabs
that are met with in districts which are not far removed from each
other: so that as they are usually sold by the dozen, all that are ob-
tained with a limited range will habitually fetch a price which
will exceed that assigned to another by the proportion of a third.
Nor is there any difficulty, on inspection to assign a Crab to its pro-
per district, for they display the marks of it, not only in their fur-
ther of growth, but in the Colour and appearance of the Carapace;
which circumstances may be judged to depend in part on the na-
ture of their ordinary food, but it is probable also on the structure
of the ground which they inhabit: a circumstance of no small
importance to the generality of the inhabitants of the Ocean.
However voracious these Creatures may be in a state of liberty
it is remarkable that will live long in a state of confinement without
food; but they thus fast only through necessity; for if not debar-
red from violence the strong would overcome the weak,
and devour them, as is not unfrequently done in the ordinary
Crab pots when an interruption has occurred in the period-
ical visits of the fisherman. To prevent their possibility of
this slaughter in the Storepot their moveable claw, with which
the first attack is made, is usually confined by means of a
wooden pin that is thrust into its joint: a painful infliction it
must be acknowledged, and which it has been recommended
to be superseded by a bandage that shall prevent the action of the joint

perhaps on account of the depth of water close to the shore within the sphere of my researches; but I have been informed of its occurrence on the beach in Mounts Bay, wrapped up in Seaweed: and it was noticed that when measuring two inches in length in this condition it was inert. I was never able to obtain it in this young state from the Crabpots, and fishermen inform me that they have never thus met with them.

Eurynome aspera. Bell. White's Crustaceans Pl2. f2

This little Crab is not rare in our deeper water; and in one instance I obtained three examples from the Stomach of a Cod that was caught at the depth of thirty fathoms; from which also another was dredged, near the Eddystone. It must have begun to form its spawn at a very early age; as in the instance of an example which I believed to be of this species, although smoother over the Carapace than is usual, the Caudal portion or flap was loaded with them so as to be stretched out in a continuous length, although the Carapace measured only three sixteenth of an inch; which was also the dimensions of the flap. On the surface of the Carapace in examples of full growth I have noticed as surrounding the base of the elevations what appeared to resemble a circular corral like formation; and that this was a portion of the Natural Structure is rendered probable by the fact, that it was the same in three individuals examined at the same time.

Inachus Dorynchus, Bell.

This Species, with our best, is passed over by fishermen, indis-criminately, as a Spider Crab, of which the distinctive habits need not be noticed; but I have observed one which at least is not general with these diminutive beings, and the instinctive reason of which it seems difficult to explain. It is, that not long before it sheds the legs are thrown off without any obvious injury. In the cold weather of winter it has been drawn up from a depth of thirty fathoms; and in company with Inachus Dorsettensis it has also been found in considerable numbers in the stomachs of Codfishes from the above or greater depths; and as it is also met with with Spawn, at least in October the conclusion is, that in the winter it does not hybernate.

Another of the Spider Crabs, Inachus Leptochirus, which is not common, has been taken within my knowledge.

Four horned Spider Crab.

Pisa Tetraodon - Bell

The Name of this Species as four horned is not more applicable to it than to the greater portion of the Spider Crabs; since it refers only to an elongation of two lateral anterior spines of the Carapace: and as regards the armature of the Snout would be far preferably entitled to the designation. Mr Bell describes a full-grown Male as being in length two inches and three lines, the with a breadth of one inch and six lines; but I have possessed a female which measured in length two inches and half, and in breadth one inch and half. In this instance the frontal spines were straight where Mr Bell represents them deflected; and their outer border was clothed with hair.

As the Stalk eyed Crustaceans are divided into two principal Classes, which are distinguished as short tailed, or such as have the Caudal portion of the body bent up under the lower part of the thorax; and the long tailed, or such have it shorter, extended, and in appearance forming a portion of the body itself:— so the Shorttailed Class may be divided into two divisions, of which the Carapace of one is more longitudinally oval, with its front directed into a single or doubled point or spine: of the other section the Carapace is for the most part wider than long, and in front unpointed, but crenate or with rounded incisions.

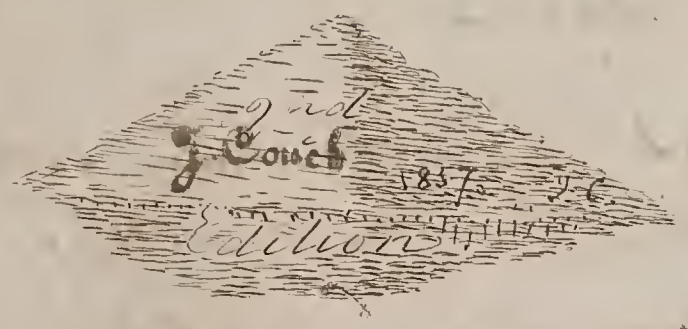
The shorttailed Crustaceans, on which our observations will be first made, with the pointed or spinous front of the Carapace or dorsal Shell,— and generally furnished also with spines regularly arranged on its surface— are popularly known as Sea Spiders, from their fancied likeness to that Class of Animals.

Long legged Spider Crab.

Stenorhynchus Phalangium— Bell.

The figure here represented was seen by Professor Kinahan, who expressed his belief that the difference of form in the frontal spines from that which is often seen had been caused by some accident it had met with in its wanderings; but there is another reason for the notice here taken of this example: which was a female, but was of larger size than the male represented in the work of Mr Bell— although it is a recognized fact that the Males of all our known species of Crustaceans in their full growth are considerably larger than the females. The slender shape of the hand Claws is characteristic of the Sex. I have found this Crab laden with spawn at the beginning of December.

Cornish Fauna.



Bats.

The Cornish name of this family of Animals is Ary or Airy Mouse, which may signify a Creature that flies in the Air, as distinguished from ordinary Mice, which but for their wings, they so much resemble. Or it may be a corruption of the Saxon word Areren, to raise or be lifted up: that is, to fly aloft. Shakspeare uses the name Rere Mouse for the Bat. Seventeen species have been reckoned up as British; by these by Dr. John E. Gray are reduced to fourteen; of which perhaps nearly all may be found in Cornwall; but the following only have been ascertained.

Great Bat. Vespertilio Noctula. Jenyns' Manual of Natural History, p 23. A figure and History in Bell's British Quadrupeds, p 12. Rare or local. The Specimen in the British Museum was caught at Tintagel: found by W. S. Cocks Esq. not uncommon near Falmouth. Reports of R. C. Polyt. Soc. 1849.

Pipistrelle. V. Pipistrellus. Jenyns' M. p 24. Bell's Quad. p 23. The commonest Species, which flies at all Seasons of the Year, when the thermometer is not much below 50°. It awakes in a few hours after the weather has grown mild, and is not uncommonly seen abroad in the middle of a fine day. The Pigmy Bat, Bell's Quad. p 31. is believed to be the young of this Species, perhaps a little varied from its ordinary character.

Notch eared Bat. V. Emarginatus. Mr. Bell describes this Species with the outline of a figure. Quad. p 45. and Mr. Cocks in a periodical publication called the Naturalist, as not uncommon near Falmouth.

But it has been questioned whether the specimens referred to be really the true V. Emarginatus; and it appears probable that they should be rather referred to the V. Dasycnemus, a species not hitherto recog-
-nized as a British animal.

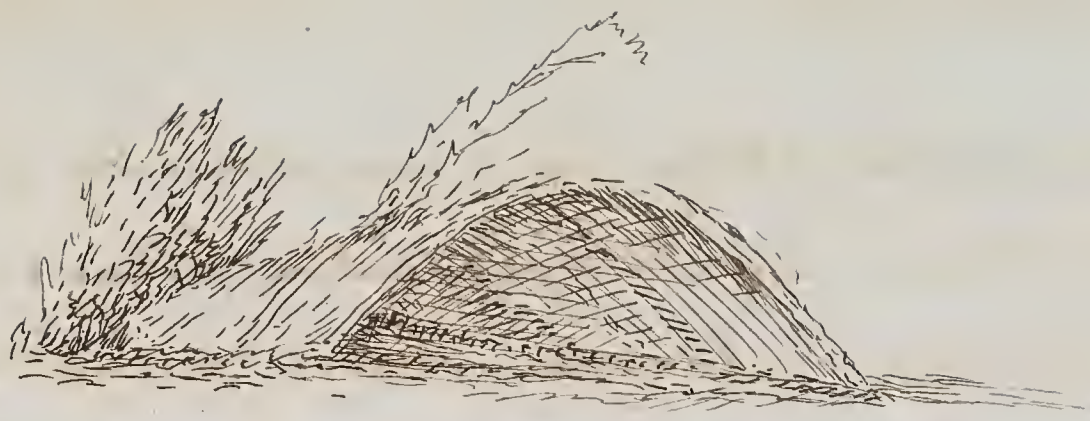
Daubenton's Bat. V. Daubentonii, Bell's Quad. p 47. V. Emar-
-ginatus, Jenyns' Man. p 26. Barbastellus Daubentonii, Gray, as quoted by Mr. Cocks, Report R. C. Polyt. Soc. — who obtained it from a Cave west of Mainporth bay. But although rare it is widely dis-
-tributed; for it has been found in Aberdeenshire.

Long eared Bat. Plecotus auritus, Bell's Quad. p 53. Vespertilio A. Jenyns' Man. p 27. It was Belon who, in his History of Birds, by a figure and history of this species, first gave occasion to believe that there was more than one kind of Bats; and yet this was so little known, even to our great Naturalist Ray, that he did not venture to mention more than One. It is common. The brain is said to be larger than in other bats; and it has great command over the ears, as Organs of sensation. Dr. Gray is of Opinion that the Lesser Long eared Bat of Jenyns - Plecotus Brevimanus, Bell's Quad. p 58. is the same with P. auritus.

Barbastelle. Barbastellus Daubentonii, Bell's Quad. p 63. V. Barbastellus, Jenyns' Man. p 28. It is a question whether this, or Daubenton's Bat mentioned above, is the species referred to by Mr. Cocks, as obtained near Mainporth bay. If the former latter, the former must be blotted from our list; and the latter is not common.

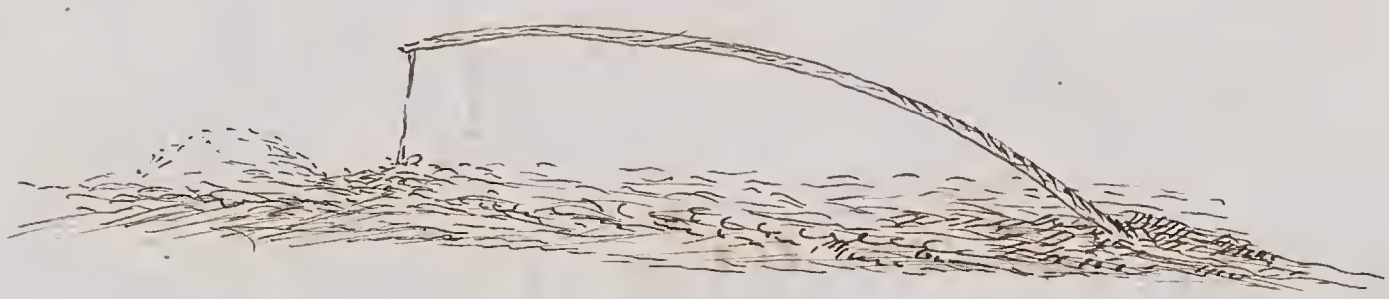
Greater Horse Shoe Bat. Rhinolophus Ferrumequinum Jenyns' Man. p 19. Bell's Quad. p 68. Mr. Cocks found it, with the next species, near Falmouth.

Lesser Horse Shoe Bat. R. Hipposideros. Jenyns' Man p 28. Bell's Quad. p 73. Locally common.



Hedge hog

Hedgehog. Erinaceus Europaeus. Jenyns' Man. p 19. Bell's Quad. p 76. Its internal organization in Ray's Synop- -sis Anim. Quad. p 231. Provincial name, Hedge Boar and Sow. The female is of a much more timid character than the male, & in Captivity has been known to devour her own young. Common, and a favourite food of the Gipsies.



Mole.

Mole. Talpa Europaea. Jenyns' Man. p 17. Bell's Br. Quadr. p 85. Provincial name, The Want. Moel in Welsh signifies a little hill, and the common word Mole implies a small turnover: significant of the heaps it throws up in its progress under ground. Mold also means the earth or Soil, and Moldwarp, another name of the Animal is significant of One that bends or lifts the Soil. The Want

is one that disappears — or is wanting. The general history of this creature is best given by Mr. Bell, and its organization by Ray Synopsis p236. From the information of a mole catcher, sixteen young ones have been found in one nest, and he believed them to have been all from one parent. A proof of the great fecundity of this animal is, that let any number be caught on an estate, and there will be just as many again the next year. They are even less numerous where none are caught; the reason of which is that when left to themselves they soon exhaust the ground of their prey, and then quit it. There is little doubt that they benefit the soil they frequent. In the winter and early part of the Spring, when the weather is fair and dry, although perhaps cold, they are abundant in hedges; from which they throw out the earth; and in those situations they remain well protected, as well from cold, as from traps and other enemies. Moles travel over the surface for long distances, when they seek to change their quarters.

Shrews.

Common Shrew. Sorex araneus, Bell's Quad. p109. corrected by Jenyns, Magazine of Zoology & Botany, Vol2. where it is speciallly distinguished by having the front teeth of a deep brown colour through most of their length. This is not the S. araneus of continental Authors, and therefore is to be distinguished by the name of S. Tetragonurus. It is common: living commonly under ground; but it comes on the surface in very dry weather, and then falls an easy prey to nocter-

-nal Animals. This almost periodical mortality has attracted the attention of Naturalists; but in all that have been examined by dissection, although no outward harm was visible, a fracture of the internal skeleton has been discovered. Many Bats have been found in the like condition, which renders it probable, that it is the Owl which for the most part inflicts the injury.

another Species, which passes under the common name of Shrew, is the true Sorex araneus of Duvernoy, and Jenyns, in the Mag. of Zoology &c Vol 2. p1. the snout not so long as the former: body and tail longer, and the latter, with the ears, different: the latter being more membranous, and very slightly furred. The teeth are brown only at the tips of the lower front teeth - and so generally of the molars. The tail narrow at its commencement - slightly hairy, with no hairs beyond the tip.

Water Shrew. S. Fodiens, Bell's Quad. p115. S. Bicolor, Jenyns' Mag. of Zoology Vol 2. p 37. This is a common Species; but the Cornish examples differ in some particulars from what is described by Mr. Jenyns in the Magazine referred to. The under front teeth are purely white, the upper slightly coloured; their crenations not exactly like any represented in Mr. Jenyns' figures. Although usually keeping in the neighbourhood of water, it sometimes wanders away to a considerable distance. Like the common Shrew it is often found dead on the surface of the ground in July and August; as has been known in a dry season in April; and during a continued and severe frost in January and February, some also were found dead on the ground: - not starved, for they were plump; but probably frozen out of their place of Shelter.

Oared Shrew. Jenyns' Man. p18. Bell's Quad. p119. S. Remifer. Rare; but Mr. Cocks records it as found in a meadow and boggy ground between Dog Kennel and an enclosed pond near Falmouth.

Badger.

Badger. Meles Taxus. Jenyns' Man. p 10. Bell's Quad. p 122.

Local name also Greg. The word Badger was anciently used as equivalent to Tramper or Pedler – meaning one who walks on his feet; which is applicable especially to this Animal, that was placed by Linneus in his Genus Ursus or the Bear, and which is distinguished anatomically from such as bring only their toes to the ground. Ray in his Syn. Quad. p 185, gives an account of the inward structure of the Badger, but omits to mention that its under jaw cannot be displaced out of its sockets, except by breaking the bone: a character not decidedly found in any other British Animal.

At the beginning of this (19th) Century, Badger baiting was a common sport, and a sufficient number of the Animals was easily found to supply the demand; but as the amusement has ceased to be popular, the creature is but little seen; and the injury it was believed to do to the farmer is little noticed. It was on account of its much over rated destructive propensity, that a reward was formerly paid by the Parishes, for the killing of a Badger; and in six years, from 1750 to 1756, twenty two were thus destroyed, at the charge of one shilling a piece. (2 whit. parishes) J. Inspect. Tattand & Lonsdale.

Otter.

Otter. Lutra vulgaris. Jenyns Man. p. 13. Bell's Quad. p. 129.
The greater number of otters in Cornwall obtain shelter among the
rocks on the shore — usually where it projects into the Ocean; and
their food is principally from the sea; in which they may be seen diving,
even when the waves are rough. Sometimes however they go to a
considerable distance, to fish in fresh water. They dive with such
stillness, as scarcely to leave a ripple on the surface or to raise a sound.
Otters were formerly thought sufficiently destructive, to induce the
Parishes to seek their destruction by the offer of a shilling each.

Weasels.

Weasel. Mustela Vulgaris. Jenyns' Man. p12. Bell's Quad. p141. Ray's Synopsis Quad. p195. Local names Fitch, Fairy. The natural Historian Pliny quotes Cicero as saying that this creature is in the habit of removing its young ones, and changing its quarters, every day: (B32g. C16) — a remark not now to be found in any of Cicero's known works, but seemingly characteristic of its habits. It is also remarkable, that although usually solitary, they sometimes assemble in large numbers; and although commonly shy, have been known to attack any one who has come near their nocturnal gambols or migrations. It sometimes becomes partly mottled with white, and this not always under the influence of cold weather.

Stoat. M. Erminea, Jenyns' Man. p13. Bell's Quad. p148. More rare than the weasel, and more frequently disposed to assume a whitish or mottled appearance in winter.

Polecat. M. Putorius. Jenyns' Man. p11. Bell's Quad. p156. Ray's Synopsis Quad. p199. Scarcely common. Local name Fitch.

Marten. M. Foina — Jenyns' Man. p11. Martes F. Bell's Quad. p167. Called Martern by Carew: in Cotgrave's English and French Dictionary the English name is Martron, and in an ancient grant of the privelege of hunting it is, probably by mistake, Matron; and that the Marten was not only hunted, but reckoned a principal beast of the Chace, appears from ancient documents. The skins were in sufficient esteem, as to be specially reserved for payment from Tenants to their high Lords, as is recorded in the Domesday Survey. In the middle of the 18th Century they were sufficiently abundant in some parts of Cornwall, to be included in the list of hurtful animals, for which, under the name of Vermin, rewards were regularly offered

Carew mentions the Marten as an animal of the Chace, and

by the Parishes where they were found; and thus in the Parish of Talland in the year 1755 eleven were killed. Two only are repor-ted in the Churchwardens Books of the same Parish in the year 1780; and there is reason to think that this animal has ceased to exist in the County since the beginning of the present (19th) Century. A specimen was killed near Leskeard in the first Quarter of the Century, and another still more recently near St Germans: since which it is not known that any have been seen. Its loss however, is to be ascribed to a change of habits in Society, rather than to any perse-cution it has endured. Their usual place of residence and shelter was in those pollard trees which abounded in the neighbourhood of the townplaces or farm yards, and which, however hollow, were preserved for their usefulness in supplying the house with fuel. When mineral coal became generally introduced, and the woodcorner had ceased to be an important part of the kitchen, these hollow trees have been have been gradually growing less in number; and the animals whose existence depended on them have in consequence been lost.

It is still a question among Naturalists whether the Martron and the Pine Marten - Martes Abietum - Bell's Quad. p 179 - are the same.

Pine marten killed in Priddacy plantation in 18 .)

Cats.

Wild Cat. Felis Catus. Jenyns' Man. p. 14. Bell's Quad. p. 177.
The true wild Cat of Britain had long ceased to exist in Cornwall, but in Mr. Allen's History of Lesneard, an entry is given from the book of the Churchwardens of that Parish, of rewards for killing them, under the date of 1671. Polwhele says that at the time when he wrote they were sometimes seen in the East of the County; but this can scarcely apply to the true wild Cat.

Tame Cat. Felis domestica. Bell's Quad. p. 182 Ray's Synopsis Quad. p. 170. It is agreed among Naturalists of the present day, that the tame Cat of our houses is not descended from the original wild Cat of Britain. On the contrary it appears to have been imported from the east by the ancient Britons, by whom a high price was set on it for its useful qualities. Its true parentage is in some degree uncertain; but according to Temminck it has proceeded from F. Maniculata: the species which was held in such superstitious regard in Egypt.

A report of the Varieties of the tame Cat, as seen in Cornwall is given by Mr. Cocks, in the proceedings of the Royal Polytechnic Society, for 1853.

Dogs.

Dog. Canis familiaris. Bell's Quad. p200. Ray's Syn. Quad. p170. The Varieties known in England in the Reign of Elizabeth are described by Caius de canibus Britannicis - & those of our own day in Cornwall by Mr. Cocks in the Report of the R. C. Polytechnic Society for 1853.

Fox. C. Vulpes - Jenyn's Man. p14. Vulpes Vulgaris, Bell's Quad. p252. Ray's Syn. Quad. 177. Common: especially in rugged & solitary cliffs. The female is called a Vixen. It is only since the times of the Stuart Sovereigns that the Fox has become a recognized object of hunting; but at this times packs of hounds are specially trained to the pursuit. In the eye of the law however it is still held as a worthy object of destruction, and it is usual for any man who has succeeded in killing it, to carry it from one farm house to another, to obtain some reward for the act. Where several persons have joined in the act they sometimes cut the animal into pieces, and each person takes a portion with him for the same purpose. The reward usually offered by the Parishes for the death of a fox was 5 shillings; and to obtain this, in the Parish of Talland 24 foxes were killed in six years from 1750. So much as 10 shillings was paid for the killing of a fox as late as the year 1821: the greatest number killed in any one year, and thus rewarded, was five: and the amount paid in a long series of years was - for foxes £20. 12. 6: for Badgers £5. 7. 0 - & for Fitches £1. 1. 10 - which latter sum was at the rate of 2 pence a piece. Those rewards are now generally withdrawn.

Seal,

Seal. Phoca vitulina. Jenyns' Man. p 15. Bell's Quad. p 263. Ray's Synopsis Quad. p 189. The name of those Animals in Cornwall is pronounced Soyle; and the reference to this designation to the element they frequent, is in some degree explained by the following Extract of a quotation from Peck's Desiderata Curiosa, given in a Note to Scotts' Lady of the Lake. Note 3, Canto 1. "And having a great stagg in chace, and many Gentlemen in the pursuit; the Stagg took Soyle. And divers, whereof I was one, alighted and stood with Swords drawne, to have a cut at him, at his coming out of the water.

In the last Century Seals were more abundant on the Coast of the County, than now. They are rarely met with on the South coast, yet only a few years since one was taken in a net at Looe. On the north side of the Lands end they are seen more frequently; but opportunities of examining have been too few, to enable us to decide what other species besides the Common Seal, if any, have visited our Shores.

, & Carew says, there was a Cave there in which they abounded in his time.

Near the town of Boscastle there is a Cavern known by the name of Seals Cave, from being frequented by those Creatures; and so lately as the month of September 1854, ten Seals were surprized and killed in it at one time.

Gnawing Animals.

Squirrel.

Squirrel. Sciurus Vulgaris. Lenyns' Man. p 29. Bell's Quad. p 291. Locally common.

Dormouse.

Dormouse. Myoxus Avellanarius. Lenyns' Man. p 30. Bell's Quad. p 295. Common. Its chief time of activity is by night, when it climbs like a Squirrel. Its nest is in a bush, but its winter-sleep is on the ground. The residence is sometimes at a long distance from Acorns and Nuts, which are usually supposed to be its principal food.

Mice –

Harvest Mouse. Mus messorius. Jenyns' Man. p 31. Bell's Quad. p 299. Common in Cornfields, and Mows of Corn. As the Dormouse has much the habits of the Squirrel, so this very little mouse makes an approach to the habits of the Dormouse. It stands or rests on its hind quarters, & holds up its forelegs to its mouth. Its tail is prehensile, not through the whole of its length, but with a particular joint at too great distance from the end. It is surprizing how small an opening it will pass through.

Longtailed Field Mouse. Mus Sylvaticus. Jenyns' Man. p 30. Bell's Quad. p 305. Common. An albino variety has been found in a Nest, paired with one of the common colour. It is the opinion of farmers that the leaves of Mentha rotundifolia placed among corn keeps them away.

House Mouse. M. Musculus. Jenyns' Man. p 31. Bell's Quad. p 308. Common, in houses only. It is an authenticated fact, that individual mice are highly sensible of musical notes, which they also sometimes utter.

Black Rat. M. Rattus. Jenyns' Man. p 32. Bell's Quad. p 311.

This Species, the ancient inhabitant of our Country, is almost lost among us; through the persecution it has received from the more powerful grey Rat. Yet a few still linger. Mr. Cocks has found it at Falmouth; and some are said to exist in the Scilly Islands: where indeed the grey rat is of late introduction: Woodley's Scilly Islands.

Brown or Grey Rat. M. Decumanus. Jenyns' Man. p 32. Bell's Quad. p 315. Common.

Water Rat. Arvicola Amphibia. Jenyns' Man. p 33. Bells Quad. p 321. Common. Wilson (Encyc. Brit.) says that this Species frequently occurs exclusively of a black colour, over a large extent of Country. One such was caught near Looe.

Short tailed Field Mouse. A. Agrestis. Jenyns' Man. p 33. Bell's Quad. p 325. Common.

Bank Vole. A. Pratensis. Bell's quad. p 330. A. riparia, Jarrold in London's Mag. Nat. Hist. 05. p 598. Jenyns' Man. p 34. Taken near Looe, and Falmouth.

—— Mus intermedius. Bellamy in Nat. Hist. of South Devon. a kind of Mouse thus denominated is described by Mr. Bellamy; and the Specimen was shown for the examination of Naturalists at the meeting of the British Association held at Plymouth; but it was the Opinion there expressed that it only a variety of the common Mouse. Mr. Cocks reports its occurrence also at Falmouth. Report R. C. Polyt. S. for 1849.

Hare.

Hare. Lepus Timidus. Jenyns' Man. p. 34. Bell's Quad. p. 333. Ray's Syn. Quad. p. 204. In Loudon's Mag. Nat. Hist. Vol 7. p. 504 is an Account of a white variety, which from the year 1829 for ten years had continued to frequent the Norval Estate, the seat of John Butler, Esquire. As several of them had been killed in these successive years it is clear that the peculiarity of colour had been propogated in the race; while their not being found at any considerable distance from their original haunts, — within which no hunting of them was allowed, is a proof of the little disposition evinced to wander from a favourite district.

Rabbit. L. Cuniculus. Jenyns' Man. 35. Bell's Quad. p. 348.
A black variety is sometimes seen; and a wild individual has been caught, covered with very long and silky fur. Common.

*Woodley says, there are no hares in the Sylleh Islands; but there is a pile of rocks off St. Martin's Isle, called Carn Leveroth; which may be presumed to mean Hare's pile; certainly, from the description, not so named from any supposed likeness of form to a hare: Woodley's View. p. 264.

Hog.

Wild hog. Sus Scrofa. Jenyns' Man. p 39. Bell's Quad. p 357.
Dr Caius, in the reign of Elizabeth, speaks of wild Swine as if they were common in England. De Canibus - p 18. And Macaulay says, that so lately as the time of Charles the 1st they were suffered to range thro' cultivated land; but in the Civil war the people took the opportunity of destroying them. Yet there is some probability that those were a new importation for the purposes of hunting; for long before this date Leland thought it worthy of mention, that "wild Bores Swine" existed at Trescow, one of the Sylleh Island, in a wood; which, according to Whitaker, was of Elder trees; but neither wild Swine nor wood now exists. There is traditionary remembrance, that the last native wild Boar seen in Cornwall was killed in the marshy ground in the neighbourhood of Marazion.

Tame Swine. The usual variety are kept in Cornwall, as in other parts of England.

Horse.

Horse. Equus Caballus. Jenyns' Man. p 39. Bell's Quad. p 365. Ray's Syn. Quad. p 62. If antiquity be suffered to decide, the earliest inhabitants of Britain possessed a race of horses, for employment in that for which only the horses were at first taken into subjection by man. In the invasion of Cæsar they were as well trained to the use of war as in our own day. The horse of Cornwall was a valuable variety of this original British breed, which has continued down to our own times; and Leland notices a "boyld moore called Gunhelly, that is, Hilly Hethe: wher ys brood of Catyle": part of which Cattle may have been some variety of the Ox, but part at least must have been the Goonhilly Ponies; of which Norden says, that they are the "hardiste Naggs and beste for their bones within this kingdom; resembling in body for quantity, goodnes of mettle, the Galloway naggs". ✕ The kinds of horses now in Cornwall are the same as in the rest of the kingdom. ✕ Mr. Allen, in his Hist of Leskeard quotes the Exeter Copy of Domesday as saying that, among other Beasts, the Earl of Mortain had in the Manor of Lesskeard eight wild horses.

Ass. L. Asinus, Jenyns Man. p 39. Bell's Quad. p 283. Provincial names, Donky, Neger, Jackass.

However abundant the Ass is with us, it is not an original, nor even an early Native of England. Carew says it was first brought into Cornwall as a Curiosity, from France, in the reign of Elizabeth; but as it is mentioned in Domesday it must have been known in England in the reign of the first William

Ox.

Ox. Bos Taurus. Jenyns' Man. p 36. Bell's Quad. p 29 & 38.
When speaking of the horse we have noticed a breed of Cattle, which may have included the Ox also; various sorts, and even of species, of which existed in Cornwall in very ancient times; as is shown by what we have said in the Introduction, concerning the remains of Animals which have been dug out of the earth, in Mines and Stream works.
The old race of farm Oxen was called Collectively Black Cattle, from their colour, which resembled black velvet. They were also of small size, so that, as Carew says, they sold for about £3 a piece. The same Author adds, that from the abundance of pasture ground in Cornwall, the farmers were accustomed to take in Cattle to keep in Summer, from Devon and Somersetshire; but as they do the same from a very different Cause in our own times, it may be supposed that the reason was different from that assigned by the Cornish Historian, in the time of Q. Elizabeth. The high Downs in the middle of the County are well supplied with grass in Summer; and at this season the Cattle are driven thither from the more cultivated lands near the Coast, that the herbage of the latter may have rest, and be the better able to sustain a large Stock in the Winter. They are driven back to their owners in the Autumn; after which the land thus occupied would be unable to support them. It is not therefore from the scarcity of Stock, but the abundance of it, that their taking in of Cattle on the high Downs, has become a settled trade. According to the same Cornish Historian, when Athelstan subdued Cornwall, in the year 937, as a punishment for their resistance he laid a fine on the people, of, among other things, 25 Oxen, with hounds and hawks. Mr. Allen says that about the time of the Tudor Sovereigns some Gentlemen suffered their Oxen to run wild like Deer; and when they wanted to catch them they hunted them with Cross bows and pieces.
The practice of Bullbaiting is now extinct; but it was in use in the

remembrance of persons now living. The town of Lesheard commemorates this fact in the name of one of the principal Stations of the Borough.

Sheep. Ovis Aries. Jenyns' Man. p 37. Bell's Quad. p 437. Carew says, "what time the Shire, through want of good manurance, lay waste and open, the sheep had generally little bodies and coarse fleeces, so as their wool bore no better name than of Cornish hair, and for such hath (from all ancienty) been transported without paying custom. But a great improvement had taken place in the time of Queen Elizabeth; in so much that Sheep with 4 horns were found in the County. In our own times it abounds with flocks of as good a race as is generally found in the Kingdom; and from the hilly nature of the ground they are not liable to some of the most dangerous diseases which affect them in more level districts. In a granite Soil the fleece is much more white than where other rocks abound.

Goat. Capra Hircus. Jenyns' Man. p 37. Bell's Quad. p 432.
Large numbers of these Creatures are kept in the midland Districts of the County.

C. F. 2

Deer.

J. Couch

Stag. Cervus Elephus. Jenyns' Man. p 37. Bell's Quad. p 394

There is no doubt that this species is an original inhabitant of Cornwall, although in a wild Condition it is only now seen when, on rare occasions a single one may stray into the County from Dartmoor. Leland says, that in his time they were found in the neighbourhood of Dosmerry pool;— from which probably, when driven by severity of weather, they came down into lower ground; for there are places which take their names from Deer, in which they could not have remained familiarly for any length of time. When those wanderers were chased, Leland says they took refuge in the wild region lying about the remarkable inland lake above mentioned. Norden mentions the Hundreds of East and Stratton as the only parts of Cornwall in which Deer were found straggling from Dartmoor and other parts of Devon in his day; and De la Beche, in his Notes to the Geological Report on Devon and Cornwall, quotes from Borlase — that when this Cornish Historian wrote — in 1758 — Red Deer — the present species, were seldom seen in Cornwall; but some occasionally appeared in the hilly Downs near Bodmin; where they haunted the woods about the neighbouring Moors. He mentions that they were then found plentifully between Launceston and Stratton; where, when he (De la Beche) wrote (in 1838) they were become rare; although two or three are occasionally seen.

It was Henry 8th who disparked the Royal Parks in Cornwall; as being too far off for the sport of Royalty. It is believed that the Deer of the last Park of the Duke of Cornwall — at Hurewood, the present residence of the head of the ancient family of Trelawny, were all destroyed at the beginning of the present Century.

Fallow Deer. C. Dama. Jenyns' Man. p. 38. Bell's Quad. p. 402. —
Preserved in Parks, of which there are several in the County.

Whales.

There is no department of Natural History, unless perhaps we except the minute and microscopic which is so little understood, especially in regard to the distinction of Species, as that which comprizes the Whale tribe; two or three of which, that have been numbered among British Animals, appear to have been confounded together by different writers, while others have been considered as distinct that are only varieties, and some have probably escaped observation altogether: — circumstances which were the chief inducements to F. Cuvier, brother of the more celebrated Baron Cuvier, to write his well known and excellent work on these Animals, in which however he has carried his scepticism to a somewhat unwarrantable extent.

This Confusion of Species, with its attendant ignorance of habits, is in part owing to the distance which the larger species keep from the haunts of men — to their migratory habits according to the Seasons or the destribution of their food — or to their mighty bulk and strength, which prevent their becoming the prey of the fisherman; whose efforts are only directed against such as, by the abundance of Oil they furnish are likely to pay him for his danger & expence. It is rare for a practical fisherman to be a scientific Naturalist; and therefore if an individual of a rarer Species should chance to fall in the way of such as are most likely to meet with it, there is no examination of it with such intelligent attention as is likely to add to the amount of the knowledge we already posses, or to correct any of our mistakes.

It is again only after long intervals that, most frequently com-

-pelled by the violence of some disease, an individual of the lar-
-ger sort has become stranded on our shores; and in Cases like this
it is to be regretted that the fact has not been known to a competent
observer until the Animal has suffered such mutilation as obli-
-terates the particular character of the Species. Or perhaps such
fragments only are left for his inspection, as serve to increase ra-
-ther than diminish the general amount of error regarding them.
Unfortunately for the Cause of Science it has very rarely happened
that any one Observer has had an opportunity of inspecting more
than a single Specimen of the rarer species, and consequently
of comparing one individual with another: a circumstance
which, perhaps more than any other, has led to the multiplication
of Species in the Catalogues of Naturalists. And under the more
ordinary circumstances a great amount of uncertainty, both
in the description and drawing, will unavoidably arise, from
the presence of a Crowd of people who are sure to gather together to
the sight; and also from the awkward manner in which the enor-
-mous bulk is likely to settle on the ground as the tide leaves it:
at which time only for the most part the whole of the body can be seen.

It must have been from Causes such as these that the mistake so
long existed, in supposing that the great Greenland Whale was
an ordinary visitor to the British Seas; in which it is now be-
-lieved it has never been seen. It seems strange also, that
another Species, which is inserted among the Cornish Species
with a mark of doubt, but which is now said to be common in
the Northern Ocean — Megaptera Longimana or Longfinned Whale,
should not have been noticed by even close Observers until a
very late date.

The remarks now offered, on the hindrances to satisfactory observation

and the detection of Species, are not only intended as an Apology for the imperfection of the Notes I have brought together, of such of those Animals as have been met with on our Coasts; but also to point out to fishermen and others how much it may be in their power to assist the researches of Naturalists: which more especially may be done by communicating the occurrence of a Specimen that might not otherwise be known. By refraining from mutilating it until a detailed examination has been made, considerable advantage may also accrue to the fisherman himself; since the preservation and Sale of an unknown or rare example may prove of far higher value than would arise from the mere price of the Oil it shall produce. a measurement of the length and compass round the body, the preservation of the bones of the jaws, with a Note of the Situation & form of the teeth or Whalebone, and also of the blowing holes on the top of the head — whether single or double, with the place and shape of the hump or dorsal fin, and the presence or absence of a Series of longitudinal folds under the throat, will considerably help in determining the Character of an uncertain Species. But as also in some instances it has happened, that even an observing fisherman has been at a loss to decide whether the Creature he has seen at Sea was a Whale or one of the larger Species of Sharks (& more than One of the latter class has been known to attain the size, with much of the shape, of a Whale of the middle order, so that the Basking Shark was long confounded with the Whales, even by Naturalists) it is proper to remark — that Cetaceous Animals or Whales may be readily determined, even when moving thro' the water, by being seen to have their tails placed horizontally, or across the direction of their Course; whereas the line of direction of the tail in all true fishes, as the Shark, is upright,

or perpendicular to their Course; and consequently with a lateral, and not a lifting or depressing motion. The circumstance of spouting water or vapour from the head is also a character of most of the species of Whales.

Whales in fact are not to be classed with fishes; for they give suck to their Young with milk drawn from teats, and receive air through breathing holes on the top of the head into real lungs — spouting it out again through the same orifices, and not by gills; and it is an excellent fitting of parts to the necessities of the Creature, that this horizontal direction of the tail is so well adapted to the purpose of raising the head with a slight effort above the surface, and of again causing it to sink below. It is by this action that the rolling motion is obtained, which is seen in almost all Whales when they offer themselves to an Observer: but especially in the family of Dolphins.

It appears also that some of the larger Whales possess a power which enables them to sink in the water by an imperceptible action, independant of the motion of the tail; for a fisherman has informed me that he has seen and carefully noted a large Whale very near his boat; which more than once threw itself on its back, with its white belly uppermost; and after lying in this position for a time, it sunk without apparent effort deeper and deeper for several fathoms untill it was out of sight. The Rev. Mr Scoresby, who was a Greenland fisherman for several Years, has I believe, noticed the same thing; and it is known that several of the Diving birds are able to keep themselves deeply immersed without apparent effort, while swimming and seeking to avoid observation: — a fact which is accounted for by the supposition that they have the power of increasing the specific gravity of their bodies by means of an inherent muscular contraction. It is probable that this quiet sinking of the Whale is effected by a somewhat similar action.

Balaena.

This Clafs of Whales is generally of large size; and they have no vesible teeth in their jaws, but in place of them a large number of plates of baleen or whalebone, which hang from the sides of the roof of the mouth and upper jaw. When the mouth is shut they are inclosed within the Compafs of the lower jaw; which therefore takes a wider sweep than in other Whales.

Such Animals of this Clafs as have been seen on the Cornish Coast are comprized under two Sections or genera; and are di-vided as follows in the Arrangement of Dr. John E. Gray, in the Catalogue of the Cetaceous Animals of the British Museum.

Rorquals:

or such Whales having Whalebone as are marked with regu-lar longitudinal plaits, which pafs from the throat backward along the belly.

Of those the Genus Balænoptera has a distinct fin or elevation on the back: the pectoral fins of moderate length.

Rorqual. — B. Musculus, Fleming's British Animals, p. 30;
Bell's Br. Quad: p. 520. 13. Böops, Zoologist, vol. p. 33.
Gray's Catalogue of the British Museum, p. 32.

Under the Name of Razorback (Physalus Antiquorum) Dr. Gray describes a Whale that was brought into Plymouth by some trawlers in October 1831; and which by others has been described

as the Species B. Musculus. It was found floating on the Sea in a decomposed state, and is said to have been 102 feet long, and 75 feet in circumference; but most likely the abdominal cavity was distended by the internal decomposition. These particulars, with others in the same volume, are so very different from Notes in the Writer's possession concerning a Whale that was towed into Plymouth at the time mentioned, that they might seem to refer to another capture and Species; although there is no account of any one of those enormous Creatures, as having been obtained about the same time. The advertisement which drew public attention to the skeleton of this Whale, as it was exhibited at Plymouth in December 1831, announces it as being 75 feet in length; and the Writer's Note, written at the time is: — "B. Musculus; a female Specimen of this Species was found dead, and towed into Plymouth by some trawlers, September 27, 1831; its length was 79 feet. Its gullet was found filled with a large quantity of Pilchards, by which it was supposed to have been choked."

This Whale frequented our Coast for a few years. It was first noticed in February 1828, and was described by a fisherman as about 60 feet in length, with a low fin far back on the body; and blowing or spouting from the top of the head. In February 1831 it approached very near the Shore, and came so close to our fishing boats as to excite alarm. Three individuals, supposed of the same Species, were in company, and one of them was judged to be near 100 feet long. In August and September one of them, supposed to be the same that afterwards was found dead, kept close to the land, and remained in the neighbourhood of Lantivet Bay (near Fowey) for three weeks, feeding on the abundance of young Clupea (herrings or pilchards) that were assembled there.

This Species seems to be not uncommon, and most usually comes near us in winter. There are traditionary notices of perhaps the same kind of Whale having come on shore near Padstow about the

end of the last Century; and at the beginning of the same Century a very large individual was stranded near Looe. About the year 1810 another much mutilated from decomposition, was thrown on shore at Polperro; but as the head was defective, after close examination the species could not be determined.

Pikeheaded Whale. B. rostrata, of Gray - Hunter; Bell's Brit. Quad p 521.

There is little doubt that this is the B. Böops of some Naturalists, & perhaps of F. Cuvier, pl 20, — but if so he has confounded two species together under this name: the name of Böops having been assigned to a single Specimen by an Observer who had never seen any other.

An individual was caught in a Mackarel net and brought into Polperro, in May 1850. By the obliging assistance of the fishermen I had an opportunity of making a Sketch of this Specimen before it was quite dead, and while yet afloat; the body being sustained on its side with ropes for this purpose. All the published figures I have seen are imperfect in form or expression. This example is particularly described in the Report of the Natural History Society of Penzance for . The blubber was 2 inches in thickness. Another individual was carried into Plymouth a few years before, and it appears to be not uncommon on our Coasts.

In the Museum of the Natural History Society of Penzance there is a ramus of the jaw bone of some Species of Whale, which is marked as belonging to the Genus Hyperöödon; but, for anatomical reasons it cannot be assigned to a species classed by Naturalists under that name. It resembles much more closely a branch of the jaw of B. rostrata; and it is here noticed more particularly, because of the information supplied by Mr. Chirgwin, who presented it to the Museum: — That the Animal, which was 22 feet long, produced 90 gallons of oil. Another Whale, 18 feet in length, & which the same gentleman called the lesser Rorqual, but which I suppose the same Species, afforded also 90 gallons.

The Genus Megaptera

has a low protuberance or hump in place of a dorsal fin: the pectoral fin very large and long.

M. longimana, Gray (Catalogue of Brit. Mus. p 26); who, quoting Professor Eschricht says: "this is the most common whale in the Greenland seas;" but it is not distinguished by Scoresby, Cuvier or Bell. I have supposed it to be the species referred to in the information given me by an observing and intelligent fisherman.

In the middle of July 1835 a whale came about his boat, and continued near it at intervals for a long time: sometimes at no greater distance than a fathom. It was such as, although an old fisherman, he had never seen before; and he supposed it to be between 30 and 40 feet long; but he could not well distinguish the hinder part of the body. The body itself was very thick and solid, and it had a fin on the back, of an extraordinary shape — appearing like a hump: — not high, but as he judged, about 2 fathoms long, having the upper portion in a waved form as if in seperate humps, and tapering behind into the general shape, where the body grew to be more slender. Such was the language expressed by the fisherman; and it is highly descriptive of what is sometimes seen in whales. This individual appeared to blow or breathe from the middle of the head, and it seemed by no means shy, although at times it moved swiftly.

A doubt must rest on this species as a visitor to our Coast, until an instance of its capture shall enable some fortunate observer to examine it more closely; but there is little difficulty in believing that some of the larger whales which come to us are still little known to Naturalists.

It is to this Class of whalebone whales that writers refer when they tell us that whales, Sturgeon, and as some assert, Porpusses, are royal fishes; which the King by his prerogative has a right to claim,

when cast on the shore in any place within the kingdom: except this right has been granted, as in a few instances it has been, to any of his subjects. "The king himself" says Jacobs in his Law-Dictionary, "is to have the head and body, to make oil; and the Queen is to have the tail, to furnish whalebones for her royal vestments." More will be said on this subject when we come to speak of the fisheries of former days.

The royal vestments would have been badly supplied, if stiffened only with the bones obtained from the whale's tail; and the whale itself is so seldom thrown on shore, that we might suppose the regal cupidity to have received but little gratification from the occurrence of such an accident. But we shall by and by discern other reasons which made it valuable; and therefore it was thought not unworthy of being included within a grant by the Crown, of the Charter which constituted the Black Prince the first Duke of Cornwall; and in it whales and Sturgeons occurring within the King's dominions on that coast are specially granted to him.

It is uncertain what other permanent lay grants besides this in our County, of the same objects, exist; but at least there is one of small extent along the eastern shore of the County, in the Parish of Talland, and which is claimed — and for other objects besides whales has been exercised, even in recent instances, by the ancient family of Trelawny, in right of purchase with the family mansion from the crown in the reign of Queen Elizabeth.

But it can scarcely be supposed that ecclesiastical persons would overlook an acquisition esteemed so valuable; & although in this instance there were no Ladies to require in their garments the stiffening of the bones found in the Animals' tail or mouth, yet at least the Oil would serve to light the midnight lamp, supposed

supposed to be employed in enabling him to pursue his studies; and a tithe of it therefore was secured by the Bishop.

This will be seen from the following extract of a letter, written by the famous antiquarian Herald Anstis - himself a native of Cornwall - to his Patron the Bishop of Exeter; and it is to be observed that, in the grant referred to the word Balaena, which signifies the large Whalebone Whale only, is not used; but another, which might be interpreted to mean any of the family that was worthy of notice. "I met with", says he, "an Inspeximus of a grant made by Henry the 3rd wherein is granted to the Bishop of Exon and his Successors for ever omnes decimas Craspesciorum within Cornwall and Devon, and is confirmed to them by Edward the 2nd This, without doubt, was of value, otherwise the Bishopps would not have been solicitous to have had a Confirmation of itt, But it is a question of what it is, the word not being to be found in any of the Glosaryes, And I have asked many persons whose business lyes among the old Records, who never remember that they mett with any such word, But I think that I have since mett with the meaning thereof in the Patent Rolles of R.2, wherein are those words de piscibus regalibus vocatis Whales sive Graspes, from which word I suppose like Lawyers they make Craspesiorum, But if it only extended to such great fishes, it will be of no great value. — The word Craspisces is used in Bracton, not only for Royall fishes, but for any big fish whatever, and I take the word in the Grant to be of the same signification. Oct. 10. 1700."

The doubts of the learned John Anstis about the meaning of a name applied by Lawyers to a species of Animal, of the Nature of which they were clearly ignorant, will also apply to the designation given in another document, of which I possess a Copy, to some one of the same class of creatures, and of which I have not been able to obtain any

probable explanation in books to which I have been able to obtain access. It is found in a Commission under the Great Seal of Charles the 2^d^ in which that Sovereign appointed Sir John Trelawny, Baronet, Vice Admiral of the South Coast of Cornwall: and under the Authority of which the latter appoints Nicholas Saunders of Truro his deputy: authorizing the latter therefore, "to serra, secure, recover, recerize and regave — among other rights of the admiralty — all fishes Rogall: namely, Sturgeon, whales, Rigges, Porpusses, Granpoles, and generally whatsoever fish of a great bread th & fatness antiently of right belonging to the Lord High Admiral." I confess my ignorance of the Creatures here mentioned under the name of rigges: a name which does not occur in any of the Ancient books on Natural History: any more than I am able to explain what was meant by serra, recerize or regave, — or to reconcile the terms of this grant with the royalty long before assigned to the Duke of Cornwall. Perhaps indeed, as Charles had no Son, the rights of the Duchy might have been for a time suspended. And in regard to names, as we see in the Case mentioned by Anstis, the Lawyers were under little restraint in the invention and application of names, the name of Rigg, now applied to a dance, might be judged no more than equivalent to whirl: whirlpole being a name applied to an active kind of Whale by the older Naturalists; and of which Thirlpool was only a Corruption

Blowers or Sperm Whales:

having the lower jaw narrow, and containing teeth; no teeth in the upper jaw.

Whales of this Section are called Blowers by our fishermen,— a term equivalent to the generic name Physeter,— from their habit of frequently spouting from their breathing holes a column of water; which may be easily distinguished from the Vapour that accompanies the breath.

It appears however, that this habit of spouting is not confined to whales of this genus; for F. Cuvier informs us that it is also practised by the Leading Whale, a species of Delphinus.

Genus Physeter:

having many teeth, placed in order in the jaw. This Genus has also been called Catodon, and by the French, Cachalot.

Blunt headed Blower — P. Macrocephalus, Lin.; Fleming's Br. animals, p 39. Jenyns' Manual, p 44; F. Cuvier, Cetacées, Pl 9; Bell's Brit. Quad. p 506; Gray's Catalogue Brit. Mus. p 49; Humped Blower, Cornish Fauna.

Dr. John. E. Gray says, "the dorsal fin or hump forms a very obtuse angle and is ill defined, being about 10 inches in length and 3 inches in height; there being also between it and the caudal two or three quite small finlets". But it is probable that these finlets, humps, or irregularities, vary in number; being in fact no more than the waved line, influenced perhaps by the spines of the vertebræ, of a ridge which exists in all whales to some extent; it is also probable that these posterior elevations sometimes disappear, and that the proper dorsal fin or hump is more lofty

and like a fin in the younger condition.

This Whale grows to a large size; but the only one I ever had an opportunity of examining – which I supposed to belong to this Species, but of which I did not obtain a figure – was less than 20 feet in length. It had run itself on shore in pursuit of small fish, and was left by the tide. There is no particular account of the capture in Cornwall of an individual of full growth, although in the eastern Counties of England this has often happened; – and there is a Specimen of the lower jaw of this Whale in the Museum of the Royal Institution at Truro. It has certainly been seen at the entrance of the British Channel; and in the Zoologist Vol 3 – is a notice of one that was taken at Ilfracomb. An individual which was caught or found at Ropehaun, on the South Coast of Cornwall, 20 feet in length, was called in the Newspapers the Lesser Cachalot, but probably did not differ from the present Species. Its stomach contained 300 hundred Mackarel.

High finned Blower. Pl. Tursio, Fleming's Br. An. p 38; Bell's Br. Quad. p 512. Compare Gray's Catalogue of Br. Mus. p 48.

This is a rare Species – not often seen and still less frequently caught; but although doubted by some its existence as a Species cannot with any probability be called in question. I myself once saw the dorsal fin of what could only be this Species, as it is described by those who have examined it more closely. It was tall and slender, in shape like the trisail of a boat, and it passed along the surface for a considerable space without dipping under, while the body remained concealed below. Fishermen also have informed me of a similar circumstance. In the month of May 1850, an observant fisherman told me that he had noticed a cetaceous Animal, the fin of which rose above the surface to the height of not less than 7 feet, and of the form I have described; and

although accustomed to a fisherman's life for more than 40 years, he had never seen the like before. Another of our fishermen saw one of those Whales in the month of April, while engaged in the Drift fishery for Mackarel; and his attention was particularly di-
-rected to the height of its fin, which remained above the surface for a quarter of an hour, as the body continued its progress beneath. The accuracy of these remarks, made by unscientific but intelligent fishermen, is authenticated by a communication made by Mr. William Thomson to the Annals, &c, of Natural History, Vol 18; where it is illustrated by a characteristic sketch. Captain Walker, who was Mr. Thomson's authority, reports that he saw several of those Whales, which came close to his boat. Two of them appeared, as com-
-paring them with his boat, to be about 25 feet long; and they were so near as to cause him to be afraid they would overturn the boat. This was off Boxford. The backfin appeared to be from 10 to 12 feet high, and there was a round white spot on the back. They went on steadily in the Water, without rolling over: a circumstance which implies some difference of structure from that of the Whales with which we are best acquainted; and it is remarkable that this habit should have attracted the attention of myself, and also of the only fishermen who, as far as my knowledge extends, have particu-
-larly noticed these Animals.

Sir Robert Sibbald quotes the Polyhistor (of Solinus) as saying, that Whales were so common in Britain, that the inhabitants em-
-ployed the teeth to ornament the handles of their Swords: the sub-
-stance being polished like ivory. This could only apply to the teeth of the family now under consideration; of which also, according to Belon — or of Whales in general, the bones were commonly employed as pales for their gardens. It is to be concluded however, that this

excellent observer committed the common error of confounding a special instance with a general practise; for we have opportunities of knowing from the Chronicles of Whatage that whales of any sort were not more abundant in the reign of Elizabeth than in our own day.

Genus Hyperöödon:

having two teeth only — one on each side, in the lower jaw.

This genus is to be distinguished from another — the Diodon, in which, among other marks of difference the teeth, although only two in number, are placed about the middle of the jaw on each side. In the genus Hyperöödon they are found in the front part of the lower jaw; and the forehead is high whereas in the Diodon it is low.

Bottlehead. — H. Butzkopf. Bell's Br. Quad. p 402. H. rostratum, Gray's Catalogue of Br. Mus. p 64. Thomson. Mag. Nat. Hist. for 1838. p 221.

In the year 1828 a specimen which appears to have been of this species, was washed on shore at Looe in a putrid state, with much of the tail and the dorsal fin gone. It measured 18 feet in length: the pectorals not large: the under jaw slender in front, at which part were two blunt teeth, in size and form resembling the eggs of the common Bantam fowl. It is said that, at least sometimes, these teeth are embedded in the gums.

Genus Delphinus:

having teeth in both jaws.
all the species of this genus are popularly Porpesses; a name derived from their supposed resemblance to a hog. They are divided into two Sections. —

1 Delphenus:

having a projecting snout or beak, which is divided from the head by a distinct furrow.
Dolphin. D. Delphis, Lin. Fleming's Brit. An. p 35. Jenyns' Manual p 40. Bell's Br. Quad. p 463. Gray's Catalogue of Br. Mus. p 120.
This very prettily marked Species is the Dolphin of ancient Greek and Roman writers, who tell surprizing Stories of its affection for the human race; none of which however have been verified in later ages. It must not be confounded with a fish which is called by the same name by Sailors, who have noticed the remarkable change of colour these fish undergo when they are dying. These fish belong to the genus Coryphana, but the transfer to them, of the name of the proper Dolphin is not easily accounted for.
Dolphins come to our coasts in considerable numbers — more especially when Pilchards and Mackarel abound; and not unfrequently they are taken in the Drift nets, in the meshes of which they get entangled by their teeth. In the month of September 1846, so many as eight or ten in a day were brought on shore in Mounts Bay for many days in Succession.
This Species more particularly was esteemed as food, and even as a royal dainty, by our ancestors; & even now foreign fishermen, especially French, which come to English ports in pursuit of their Calling, are eager to obtain them for that purpose.

Battle nosed Dolphin. D. Tursio, Bell's Br. Quad. p 469; Gray's Catalogue of Br. Mus. p 109.

It seems probable that the figure in Borlase's Natural History of Cornwall, which he calls a Porpus, compared with his first figure, of the true Dolphin, belongs to this Species. That it is furnished with a snout is a proof that it is not the common Porpus or Skeffer, and the inferior dimensions of that part are sufficient to show its distinction from the true Dolphin.

This Species is not so beautifully marked with lines as the last named. The snout is much shorter: the upper jaw not so long as the lower: the dorsal fin smaller and placed further behind, as was noticed also in a dried Specimen inspected at Plymouth. The Eye also appears smaller, and placed more directly over the angle of the mouth: the teeth small, conical, and 23 on each side. It is not known in what respect its habits differ from those of the more common Dolphin.

Double finned Dolphin. D. Mongitore, Rafinesque?

We are informed, in Mons. F. Cuvier's Hist. des Crustacées, that the French Naturalists, MM. Quoy and Gaimard, when in the South Sea, had an opportunity of observing in the Water a kind of Dolphin which they perceived to be furnished with two fins on the back; one of which was so far ~~forward~~ behind as not to be far from the tail, and the other close to the head — if indeed it was not on the very forehead itself: — for the Creature was not caught, and the observers were not able to discern with certainty the head itself. Several examples of this remarkable species were seen at a short distance from the Ship; but those naturalists remained at last uncertain whether they should regard the anterior protuberance as a fin or a horn; although we may judge that their final opinion inclined to the latter supposition, from the fact of their assigning to it the name of the "Rhinoceros Dolphin". We can scarcely suppose that this

remarkable Species, seen in the South Pacific Ocean, can be the same with that which was noticed in the Mediterranean by M. Rafinesque, and which also was furnished with two fins on the back; but unfortunately in the last named instance also no specimen was caught; and we can only judge it to be the same with an example lately seen under favourable circumstances on our own coast, by the closeness of the described likeness, and the known disposition to wander, which all the sorts of Cetacean Animals possess.

In the month of April in the year 1857 a close and accurate observer of Nature, in company with some friends, had an opportunity of observing a company of Dolphins at play, at a very short distance from him, with the water so clear that the projecting snout was easily seen and all their actions closely traced. Being elevated on a rock above them an individual was made out, which without difficulty was distinguished from the others, by the remarkable character of having two dorsal fins. It was the belief of the observers that there was a pair of those two finned Dolphins in the herd; but one of them was especially the Object of their attention: the snout like that of a Dolphin distinctly visible: length of the body from 6 to 8 feet — the shape more slender than in the common Dolphin: of which about a dozen were in the Company. — The colour much as in the ordinary Species; and as it repeatedly came to the surface it was noticed that the first dorsal fin was about the middle of the length, and the other two feet nearer the tail. Its motions were like those of the other Cetacea and that were then amusing themselves at their leisure near the rocks in Lantevet Bay; but they appeared a little more active.

There is no reason to suppose that this Species has ever been taken; but should it fall into the hands of a fisherman, it is important

to Science that it should be examined by some competent Naturalist, as there can be no doubt it will show some other peculiarities besides that of having two dorsal fins.

2. Phocæna:

having a blunt head, not furnished with a projecting snout.

Pilot or Leading Whale. Delphinus Deductor, Scoresby; D. Melas, Fleming, Br. An. p 24. Phocæna Melas, Bell's Br. An. p 483. Gray's Catalogue Br. Mus. p 87.

The figure given by Mr. Bell, copied originally, as I think, from Scoresby, is altogether unnatural; for it is only by great violence that the tail could be thrown into the posture there represented. In the specimens I have closely examined the teeth in the upper jaw were loosely, yet securely, attached by a tendinous or cartilaginous substance, and not inserted into sockets; although the Animals were of full growth and having the appearance of age. They seem to be common on our Coasts; since I have known the capture of three specimens at different times; two of which ran themselves on shore: a fate which not unfrequently befalls the larger sorts of Whales, and which has been variously accounted for. By some it has been judged to arise from pain or disease the Animal has been laboring under: by others it has been supposed to have been caused by the persecution of some parasitic Animal. But the most extraordinary attempt at an explanation is that advanced by ancient Naturalists, and copied from them by writers of the middle ages. They believed that every Whale was accompanied by a little fish, of the size and shape of a Goby, and which went before it to direct its Course; and which on that account was called its guide. It was the loss

of this guide that was supposed to have been the cause why the bewildered Giant had become perplexed, and so lost its way. In one instance 60 gallons of oil, and in other 70 gallons, were obtained from one of these animals; and in the stomach of one of them were the remains of hakes.

From two of these specimens figures were taken, and the following notes in reference to Mr Bell's figure: — "It is far too slender — not enough compressed posteriorly, nor sufficiently ridged above and below at that part: the tail not characteristic: the forehead not sufficiently prominent and rounded: the teeth too numerous and prominent, and in the under jaw too projecting. I find eleven in the under jaw on each side, well worn down, with a seperation of teeth at the symphysis". The Men reported that when one of these individuals was taken it made a loud bellowing; and that some species of whales are able to utter loud sounds the following instance among others, will render highly probable. A fisherman was not far from land early in the morning in the month of June, and a herd of porpuses — probably Dolphins — were in their gambols near him, when there rose up close to his boat, an individual of another sort: as he judged, about 20 feet long, and much blacker than a Porpus (in this respect as in some others answering to the Leading whale) and it uttered a loud Note, which the fisherman compared to the sound of the horn then usually employed by the postman, and which for three times as the Animal rose to the surface, was repeated with a continuance of half a minute at a time. At the hearing of this sound the Porpusses or Dolphins hastened towards it, and followed its progress to the westward for a long distance.

M. F. Cuvier says that this Species blows, or spouts water from its breathing hole in the same manner as the Physeters.

Grampeus - Delphinus Orca, Fleming's Br. An. p 34; Sh. Orca, Bell's Br. Quad. p 477. D. Gladiator, Gray's Catalogue of Br. Mus. p 92.

This Species is either rare or rarely taken. One was found dead on the shore near the Ligard in October 1846; - a female, containing a young one. Of another, the remains of which came on shore in Mount's Bay, I had an opportunity of examining the jaw bone, which cannot be mis-taken for that of any other of the British Whales. The decay had ad-vanced so far, that the two sides had seperated at the Symphysis, & the teeth had dropped out. It was 17 inches long, with nine sockets for teeth - rather closely placed together, and occupying one third of the space of the jaw; with five openings also for bloodvessels or nerves, at increasing distances from each other backward. The line of insertion of the teeth was remarkably deflected.

Pliny the Naturalist - Bg C6. - gives a curious instance of the gla-diatorial habits of this species; and something not much unlike it took place in the Autumn and Spring of 1855 - 6, as reported to me by several persons who were witnesses to it. The Visits of this Animal in Plymouth Sound were continued at intervals for the space of about six months. It was very active, and attracted much notice by the boldness, not to say fierceness, of its conduct. On one occasion it laid hold of a boat's hawser with its mouth; and as the rope hap-pened to be unfastened it carried it entirely away. It seized the blade of an Oar a Man was sculling with; - went in among the boats & vessels in Plymouth pool without fear, so that some of the men who had occasion to go on the water in small boats became afraid of it. It not unfrequently leaped out of the water, and on one occasion was seen to lay its head on a buoy in the harbour, and appeared to rub its face against it. To an observer it appeared to be about 12 feet long, very thick and solid in the body, with a blunt head: the dorsal fin not sufficiently high to be conspicuous: the Colour dark. At-tempts were made to shoot and catch it, but in vain.

Sniffer, or Common Porpus. — D. Phocæna, Lin. Fleming's Br. an. p 33. Ph. Communis, Bell's Br. Quad. p 473; Gray's Catalogue of Br. Mus. p 81.

This is the most common, although perhaps not the most abundant of our Cetaceous Animals; usually keeping in pairs. The name of Sniffer is bestowed on it by fishermen, from the sound which proceeds from it as it rolls itself up to the surface, to expel its breath and take in a new supply of air. A description of the Skeleton of this Animal is contained in the Report of the R. C. Polytechnic Society for 1852.

White individuals of some one or other of the Cetaceous Animals are not uncommon, and such as are mottled are still more frequently seen. Fishermen frequently see them; and on one occasion three individuals which were supposed to be more than 16 feet in length, and consequently of a larger kind than the Sniffer, were observed to keep themselves seperate from others, and to remain about the same place for a few weeks. In August 1853 a herd of Cetaceans was noticed, 8 or 10 in number, all of which were cream coloured; and on another occasion the actions of a herd were traced, as well under water as above; and among them was seen a single white one, which accompanied the rest in all their movements. But as thus it appears highly probable that some tribes of these Animals are much disposed to assume a white appearance, and perhaps by keeping constantly in one herd preserve this distinction in the race for several generations, on the other hand there is reason for believing that we are sometimes visited by the Beluga, which from its colour is preëminently called the White Whale. There is also some reason for supposing that there is a Species of which white or light grey is the prevading colour, but which has not yet been scientifically recognized.

White Whale. Delphinus albicans, Jenyns' Manual. p 43. (Delphinapterus albicans, Fleming's Br. An. p 36. Beluga Leucas, Bell's Br. Quad. p 488.

The following description of a species of Whale that was seen in mount's Bay in 1854, communicated by a friend, can only apply to the well Known Beluga — an inhabitant of the northern Seas. It was judged to be about 20 feet in length: the head blunt — of a conoidal form: the body spindle shaped, or tapering much towards the tail: no dorsal fin; and as on one occasion it rose above the surface the pectoral fins were seen to be very small: the mouth small: the body of a reddish cream colour. It remained in the Bay for several weeks, and appeared to be feeding on pilchards.

The only reason for doubting whether the following account refers to the same species, arises from the mention of a dorsal fin; but as this was assigned to a situation on the body where it is unusual, if not unknown, in any Known Whale, it was more probably a mistake in the Observer. It was about mid channel that the fisherman found himself surrounded by a multitude of Whales, the numbers of which he estimated by hundreds; scattered as they were over a wide space, where they were feeding on herrings. He saw them for several days in succession; and they were so little afraid that they came very near his boat, and even went under it at no great depth in the water. They were all white or a pale grey, about 18 feet long, and remarkably slender: the proportions being much like those of the Blue Shark. He supposed he could perceive a low fin on the back, about 4 feet from the head. In some instances about half the body was raised out of the water, but he never saw any one that leaped entirely out of it.

we have already referred to a supposed prerogative of the Crown, by which Whales and Porpuſses are claimed as belonging exclusively to the King; and this very remarkable right, however it arose, is recognized in an Act of Parliament paſsed in the year 1324 — the 17th of Edward the second, Stat 1, C2 —; where "Balenas et sturgiones captos in Mari vel alibi infra regnum, exceptis quibusdam locis priviligiatis per Reges" are particularly specified, but without, in this instance at least, any mention of the Grampus or Porpus: the latter, with the Dolphin, so highly esteemed as a royal dish at table, on which it was usual for it to appear, even so late as the reign of Charles the first. Whales, Porpuſses and Thulapoles formed part of a feast made by Bishop Cosin in that reign. I suppose the last named to be Grampuſses, which have also been called Whirlpools and north-capers, from their residence near Ultima Thule; from whence the Bishop of Durham might obtain them. It is not unlikely however, that the Leading whale may have been the Species meant by some of the strange and unmeaning names which have been bestowed on the kinds of whales above & hereafter to be referred to; for it is certain this comparatively enormous Species was also regarded as affording a choice dish for the table. According to an ancient Chronicle of Jersey, quoted in Notes and Queries for the Year 1857 - a herd which from the description could only have been of this sort, in number 87, in the year 1575 ran themselves on shore on that Island; and by the Governour were destributed as delicacies, among the princi-pal inhabitants of the Island. In the ancient Chronicle of Grafton, to shew how little the names of these Animals were un-derstood or the Species defined, the Whirlpool is also given as

whirpooles, wharpooles, and by foreign writers Horlepoole, whyrlepole, & whorpoul. Willughby in Ray's History of Fishes says, that the Physeter of Rondeletius is the whirlepool; and Elyot in his Latin Dictionary, that Balaena is a greate fishe which he supposes to be a Thurlepoll. Palsgrave, quoted with the rest in Notes and Queries calls the whirlepole, a fische, Chaudron de Mer; and William Turner, writing to Gesner, gives the name whorpoul.

If strictly interpreted the Act of Parliament before referred to, would authorize a royal claim to any whalebone Whale — Balena — na and Sturgiones for Balena and Sturio or Accipenser — when caught in a regular fishery within the jurisdiction of the British Admiralty; and that it was not suffered to lie a dead letter under the Norman Sovereigns, appears from a grant made by King John to some merchants of Bayonne, who rented the monopoly of this fishery, through the British Channel, from St. Michael's Mount to Dartmouth, for which they paid him £10 yearly: — a large sum at the time when a quarter of wheat was sold for 12 s. The same claim also appears from the grant, already quoted, of the Droits of Admiralty to Sir John Trelawny, in the reign of the second Charles. It was in acknowledgment of the same prerogative that, on the authority of Tonkin, as quoted by Lysons, in the early part of the last (18th) Century, Mr. Corker of Falmouth, Mr. Kemp of Rostenge, and some other gentlemen, procured a patent for a whale fishery, and were at some expence in providing expert harpooners; but it did not answer; — not however, for want of fish, if they could have taken them. They disposed of their patent among the bubbles of 1720, and "saved themselves harmless."

Tonkin mentions the existence of two fisheries for cetaceous animals – that of the Porpus and the Whale; the former of which, he says, would have been of great value if they had understood how to extract the oil and make the most of it. He once saw, in 1720, between eight and nine Score of Porpusses (but which from their number may have been the Leading Whale) taken in a Creek under St Mawes. The second fishery he mentions took its rise from the quantity of what he calls Grampusses and Blowers, that frequented the Coast in the Pilchard Season; but owing to mismanagement or some other cause the concern did not prosper.

These Grampusses would not have been recognized by Naturalists as the Species now known by that name; for this Species seems always to have been rare, and usually solitary in its habits; but they were probably the more common Dolphin. The numbers of all the Sorts taken at times at some remote dates would seem to show that the ecclesiastical right of the Bishop of Exeter, as mentioned by Anstis, was not unworthy of attention; but it is to be presumed that the Merchants of Bayonne were too much alive to their own interests to bring the produce of their fishery within reach of the Bishop's Officers, or of the clerical incumbent of the Parish, who made claim to tithe from fish thus caught. Buchanan says, as quoted by Sibbald, that on one occasion – of course in Scotland, 27 Whales were taken as tithes for the number that were caught.

Birds

Hawks,

White tailed Eagle. Falco albicilla Yarrell's Br. B. Vol 1. p 15.
Aquila A. Jenyns' Man. p. 80. Bewick's Br. B. Vol 1. 9.
Rare. In a Report on Cornish Birds by E. H. Rodd Esq^re to the Nat. Hist Society of Penzance for 1850: a specimen is recorded as killed at Cornekay in the Parish of Kilkhampton - Nov. 9. 1844: on the authority of the Revd. John Davis. Another was seen at Skewjack in Sennen; and at an earlier date a Specimen, believed of this Species, was obtained in the Parish of Lansallos.

Osprey. Aquila Haliaetus. Jenyns' Man. p 81. Yarrell's Br. B. Vol 1. p 20. Bewick's Br. B. Vol 1. p 13.
Scarce. Said sometimes to have its nest near the Lizherd; and a Specimen was caught in a trap at Moorswater near Leskeard in the year 1848. Not being injured it was kept in captivity, until it appeared reconciled to the presence of men; but it afterwards escaped; and after remaining on the coast for a few days, and was no more heard of. A nest with three young ones was found, and robbed, in Burgan cliffs, near the Land's end.

Peregrine Falcon. Falco Peregrinus. Jenyns' Man. p 82. Yarrell's Br. B. Vol 1. p 32. Bewick's Br. B. Vol 1. p 17.
Scarce; but it can hardly be said to be rare. It keeps chiefly in retired cliffs, and hence is called the cliff hawk. Adult birds, says Mr Rodd, of both sexes have

the back light blue. It is a powerful bird, & finds no difficulty in stooping down a Rook.

Gyrfalcon. F. Islandicus. Jenyns Man. p87. Yarrell's Br. B. Vol 1. p 26. Bewick's Br. B. Vol 1. p 15.

Rare. One Specimen taken in Cornwall is recorded in Borlase's Nat. Hist. of the County. Another was killed near the Lizard, and a third at St. Germans.

Goshawk. F. Palumbarius. Jenyns' Man. p 85. Yarrell's Br. B. Vol 1. p 57. Bewick's Br. B. Vol 1. p 28.

We have no proof that this bird has ever been taken in Cornwall; but Gilbert, in his History of the County, says, that the Owner of the Manor of Penpele in Egloskerry was bound to pay for the Livery of it and other lands in Cornwall, a fine of 300 marks and two Goshawks. This is a proof that these birds were highly valued for hawking, but we are not necessarily to conclude that they could be procured in the County.

Hobby. F. Subbuteo. Jenyn's Man. p 82. Yarrell's Br. B. Vol 1. p 40. Bewick's Br. B. Vol 1. p 42.

Not common. One is recorded as taken near Launceston, and another on Bodmin Moors.

Red footed Falcon. F. Rufipes. Jenyn's Man. p 83. Yarrell's Br. B. Vol 1. p 44. Bewick's Br. B. Vol 1. p –

a single Specimen, described as Cornish, but not obtained, is reported by Mr. Cocks, to the R. C. Polytechnic Society, 1861. p 14.

Merlin. F. Æsalon. Jenyns' Man. p 83. Yarrell's Br. B. Vol 1. p 48. Bewick's Br. B. Vol 1. p 48

Scarce generally; but a regular visitor near Penzance, and especially at Madron. Mr. Rodd says, that the old male with a light blue back is the Stone Falcon of Bewick. It is probably the Marlion of Carew; but Dame Juliana Barners, in her Treatyse on Hawking, in the Boke of St. Albans, speaks of the Merlioun as being large, and thus fitted for the sport of an Emperour; whereas this bird is of small size.

Sparrow hawk. Accipiter Fringillarius, Jenyns' Man. p 85. Bewick's Br. B. vol 1. p 68. Yarrell's Br. B. vol 1. 62. The Nisus of the Roman Poet Ovid is supposed by Translators to be this bird: a supposition not countenanced by Ray, who was unable to appropriate the name in his trilingual Dictionary: — and pronounced by the learned Gesner to be a mistake. Common, but not abundant.

Kite. F. Milvus. Bewick's Br. B. vol 1. p 32. Yarrell's Br. B. vol 1. p 66. Milvus Ictinus, Jenyn's Man. p 86.
a casual visiter. Two or three Cornish specimens are beyond question; and one was shot September 1st 1848.

Buzzard. F. Buteo. Buteo Vulgaris. Jenyn's Man. p 87. Yarrell's Br. B. vol 1. p 76. Bewick's Br. B. vol 1. p 57.
It was formerly common in the Cliffs on the eastern part of the County, but has become much more rare. It still to be seen in several stations of the western Cliffs: its common name, the Kite or Kitt; and there is a proverb — of any things being as yellow as a Kitt's foot. A reward was formerly paid by the Parish for the killing of this species, as well as of the Kestrel, of 4 each.

Kestrel. F. Tinnunculus. Jenyn's Man. p 87. Yarrell's Br. B. vol 1. p 52. Bewicks Br. B. vol 1. p 76 & 78.
Cresst Hawk, windhover. The most abundant and stationary of our Hawks; frequenting cliffs, and continuing to have young very late in the Year.

Rough legged Buzzard. F. Lagopus. Bewick's Br. B. vol 1. p 28. Yarrell's Br. B. vol 1. p 81. Jenyns' Man. p 87.
Rare. A single Specimen is reported as having been killed near Bodmin.

Honey Buzzard. F. Apivorus. Bewick's Br. B. vol 1. p 24. Yarrell's Br. B. vol 1. p 85. Jenyns' Man. p 88.
a bird of the first Year, killed in Cornwall, fell into the hands of Dr. Leach, and is now in the British Museum. Mag. Nat. Hist. London. N. S. vol 1. p 539; and

another Specimen was shot at Carclew, in June 1855.

Moor Buzzard. F. Aruginosus. Bewick's Br. B. Vol. I. p 26. Yarrell's Br. B. Vol I. p 90. Buteo Rufus. Jenyns' Man. p 88. Rare and Mr Rodd say, becoming more and more so. A Specimen killed on the Moor near Liskeard towards the end of December, 1853 - was in the possession of Mr Clement Jackson, of East Looe, who was well acquainted with the Birds of Cornwall, having preserved in an excellent manner Most of those which are in the museum of the Royal Institution at Truro, and he remarked it beautifull and rich dark colour, which confirms a remark made by Mr Strickland, in the History of Birds by the Rev.d J.G. Morris, that this bird is regularly migratory; but if it were to remain in England in winter, its plumage would become much darker than it is found to be in Summer. In the Stomach of this Specimen were found a Rat and a Shrew.

Henharrier. F. Cyaneus. Bewicks. Br. B. Vol. I. p 34. Yarrele's Br. B. Vol I. p 94. Buteo C. Jenyns' Man. p 89. Not uncommon.

Montagu's harrier. F. Cinereaceus, Bewick's Br. B. Vol I. p 37. Buteo C. Jenyns' Man. p 90. Circus C. Yarrell's Br. B. Vol I. p 100. Ash coloured harrier, Cornish Fauna. 1st Ed. p 11.
In a Communication to the Royal Institution of Cornwall in 1840 - Mr Rodd has expressed his Opinion, that the Specimen in the Museum at Truro supposed to represent this Species, is erroneously marked; but he announced the possession, in his own collection, of two Specimens, a male and female, killed in Cornwall. Another female is included in this list, in a Paper on the Birds of Britain, printed in the Report of the Nat. Hist. Society of Penzance, for 1850.

Owls.

Scops Eared Owl. Strix Scops. Bewick's Br. B. Vol 1. p 71. Yarrell's Br. B. Vol 1. p 113. Bubo Scops. Jenyns' Man. p 91.

A specimen was caught in the Scilly Islands in April 1847.

Long eared Owl. Strix otus. Bewick's Br. B. Vol 1. p 60. Yarrell's Br. B. Vol 1. p 117. Otus Vulgaris, Jenyns' Man. p 91.

Not common; but Mr. Rodd says that several instances of its occurrence have been recorded in the neighbourhood of Penzance; and one is to be added since the date of Mr. Rodds Report, in December 1853. It's scarceness shows that, although this bird inhabits Britain all the year, it does not breed in Cornwall.

Short eared Owl. Strix Brachyotus. Bewick's Br. B. Vol 1. p 62. Yarrell's Br. B. Vol 1. p 121. Otus B. Jenyns' Man. p 92.

Scarce, and in winter only - arriving with the woodcock; on which account and perhaps because of its colour, it is called the woodcock owl. It is sometimes roused to flight by the sportsman; and occasionally enters houses.

White Owl. Strix Flammea, Bewick's Br. B. Vol 1. p 65. Yarrell's Br. B. Vol 1. p 126. Jenyns' Man. p 92. Barn Owl. Owla.

Common; but more numerous in the eastern parts of the County, than in the west.

Tawny Owl. S. Stridula. Bewick's Br. B. Vol 1. p 67. Yarrell's Br. B. Vol 1. p 131. Syrnium Aluco. Jenyns' Man. p 93. Ivy Owl.

Common.

Snowy Owl. S. Nyctea. Bewick's Br. B. Vol 1. p 58. Yarrell's Br. B. Vol 1. p 134. Noctua N. Jenyns' Man. p 93.

Its occurrence in Cornwall is reported by Mr. Bellamy, in his Nat.

Hist. of south Devon. p 200; and an opportunity of inspecting it was afforded, as it remained in the possession of the Reverend Mr Hore. As it bore the marks of having suffered from the buffetings of the weather, it had probably been driven hither by a storm.

Hawk Owl. S. Funerea. Temminck. Noctua T. Jenyns' Man. p 526. Yarrell's Br. B. Vol 1. p 139 Canada Owl. Cornish Fauna p 12. This species, which is found in the north of Europe and in America, has been twice recognized as British; and in one of those instances it flew on board a ship on the Coast of Cornwall.

Little Owl. S. Passerina. Bewicks Br. B. Vol 1. p 69. Yarrells Br. B. Vol 1. p 142. Noctua P. Jenyns' Man. p 94.

A single specimen has been taken, near Helstone.

Butcher Birds.

Great Butcherbird. Lanius Excubitor. Bewick's Br. B. vol 1. p 75. Jenyns' Man. p 95. Yarrell's Br. B. Vol 1. p 149.
Rare; but it has been known to have had a nest in Cornwall.

Red backed Butcherbird. L. Collurio. Bewick's Br. B. vol 1. p 75. Jenyns' Man. p 96. Yarrell's Br. B. Vol 1. p 154.
An irregular visitor; leaving us in winter, and returning about the beginning of May. ~~[illegible]~~

Woodchat Shrike. Lanius Rufus. Bewick's Br. B. Vol 1. p 81. Jenyns' Man. p 96. Yarrell's Br. B. Vol 1. p 160.
It is only of late that this bird has been recognized as British; although this may have been caused by the likeness it bears to the Redbacked Butcherbird, rather than to its absolute rarity. In the Year 1849 a young bird of the Year was reported to the Nat. Hist. Society of Penzance, as having been obtained in Scilly; where, according to the Authority of Mr. North, in his Account of these Islands, p 148, several Specimens have been taken, both young and adult. Mr. Rodd, who has peculiar opportunities of knowing what birds are caught in the Scilly Islands, and whose discrimination of Species is beyond question, informs us — Report of the Nat Hist. Soc. for 1850. that an adult bird was caught in a boat near Scilly; and in the Autumn of 1849 several examples of the young of the Year were captured here, apparently driven thither by a strong east wind which intercepted their migratorial movement southwards. This he adds may lead us to believe they were bred in the British Isles. On the 25th of August in the Year 1845 - a young bird of the year flew on

board a fishing boat, shortly after midnight, at about 5 miles from the land, south of Polperro; and it appeared to new from the nest as to be scarcely thought able to fly the distance across the Channel.

Fly Catchers.

Spotted Fly catcher. Muscicapa Grisola. Bewicks' Br. B. Vol. 1. p 213. Jenyns' Man. p 97. Yarrell's Br. B. Vol. 1. p 164.
Common; but Mr. Rodd says, most so in the last part of the County.

Pied Fly catcher. M. Luctuosa. Jenyns' Man. p 97. Yarrell's B. B. Vol. 1. p 169. M. Atricapilla. Bewick's Br. B. Vol. 1. p 210.
Not recorded as Cornish, until the Autumn of 1849, when one was taken at Penzance. Others have since been obtained at Scilly, under the same circumstances as the Wood chat Shrike, already mentioned. Mr. Rodd, in the Report of the Nat. Hist. S. for 1850.

Thrushes

Missel Thrush. Turdus Viscivorus. Bewick's Br. B. Vol. 1. p 117. Jenyns' Man. p 98. Yarrell's Br. B. Vol. 1. p 179.

Provincial Name, Holm Screech - Holm being the Cornish name of the Holly tree, on the berries of which it feeds when they are to be had, and from which it obtains its trivial name Viscivorus. Its loud and scolding tones, when any one approaches the nest after the young have left the egg, is a sufficient explanation of its second local name. It is common, and sometimes even abundant; as thirty have been seen together in some districts. It has its nest in Orchards, and is not very careful in concealing it. Where one side of the nest has been feebly supported, it has been known to strengthen the weak side with mortar. In the year 1838 when what were called Black Caterpillars were destroying the young turnips through the kingdom - those birds assembled in great numbers in some districts, & by devouring them preserved the Crop.

Thrush. T. Musicus. Bewick's Br. B. Vol. 1. p 119. Jenyns' Man. p 100. Yarrell's Br. B. Vol. 1. p 193. Grey Bird.

Common; but in increased numbers in cold winters: and sometimes we are visited with very large flights, which appear to have been driven into Cornwall from the Continent, where for the most part the Thrush performs a regular migration. When those intreading birds again leave us they do not take any of our settled residents with them.

Fieldfare. T. Pilaris. Bewick's Br. B. Vol. 1. p 121. Jenyns' Man. p. 99. Yarrell's Br. B. Vol. 1. p 189.

A common winter Visiter; coming to us early in November; and

sometimes remaining through a part of April: consequently after the resident birds of the same family had produced their first brood.

Redwing. T. Iliacus. Bewicks Br. B. vol 1. p 123. Jenyns' Man. p 100. Yarrell's Br. B. vol 1. p 198. Loinnard.
A common winter visiter, arriving for the most part early in October; but continuing to drop in singly afterward. In the month of November a single bird to fly from seaward, but so much fatigued that when it was chaced by a ~~hawk~~ gull it fell on the water, and finally died.
In very cold seasons, especially with much snow, multitudes of these birds are driven from the eastern Counties into Cornwall, where they become more pinched with cold and want of food than our native birds of the same family:—or indeed any other. When not pressed with hunger they are very shy: keeping in the high and open fields; but when driven to extremity they enter gardens, and even the streets of small towns. They sometimes remain late in Spring; but leave us before the Fieldfare.

Blackbird. T. Merula. Bewick's Br. B. Vol 1. p 125. Jenyns' Man. p. 101. Yarrell's Br. B. vol 1. p 202.
Common, and generally destributed in retired and sheltered situations. White and mottled Specimens are not uncommon.

Ring Ouzel. T. Torquatus. Bewick's Br. B. vol 1. p 127. Jenyns' Man. p. 101. Yarrell's Br. B. Vol 1. p 206.
The word ouzel signifies the throat; & the name of this bird therefore has reference to the white band or collar by which its throat is distinguished. In contradiction to this, the Blackbird is sometimes called the Black Ouzel. This Species inverts the habit of the other migratory Thrushes, by coming to us in the Spring, when it is seen for a few days near the Coast, but they pass on to their

breeding grounds, in lofty, silent and rocky situations. Mr Hare has found them breeding to the north of Leskeard; & they are scarcely rare in other portions of the middle lands of the County.

Dipper. Water Ouzel. Cinclus Aquaticus. Jenyns' Man. p 98. Yarrell's Br. B. Vol 1. p 173. — Bewick's Br. B. vol 1. p 126. Water Thrush. Common, about rapid streams in solitary places; but it has been known to depart so far from its usual habits as to frequent, and even have its nest, in a very populous neighbourhood.

Our Native birds of this family, together with the immigrant Fieldfares and Winnards, were extensively destroyed by cold and hunger, in the winter of 1854 5. as were several other sorts of our smaller birds, so that for more than a year scarcely one was to be seen, of such as had always been common before.

Golden Oriole. Oriolus Galbula. Bewick's Br. B. vol 1. p 109. Jenyns' Man p 102. Yarrell's Br. B. vol 1. p 212.
This beautifully coloured bird has been so often seen in the eastern parts of the County, as to lead to the supposition that it may perform some sort of regular immigration. It has also been noticed in the west of Cornwall.

Hedge Warblers.

Hedge Warbler. Sylvia modularis. Yarrell's Br. B. vol. 1. p 223. Bewick's Br. B. vol. 1. p 251. Jenyns' Man. p 103.

Common, especially in cultivated grounds & gardens; where it remains unaffected by the coldest weather.

Redbreast. Sylvia Rubecula. Jenyns' Man. p 103. Yarrell's Br. B. vol. 1. p 227. Bewick's Br. B. vol. 1. p 240. Robin.

One of our commonest and familiar birds. It breeds so early, that it has been known to have a nest with eggs in the second week of January. It also moults earlier than most other birds; so that it usually resumes its song in the first moist weather after the middle of August.

Blue throated Warbler. This Bird has received the various Generic names, Motacilla - Phoenicura, Sylvia and Ficedula; with the addition of the trivial name of Suecica; although the propriety of the latter may be well questioned; since it appears to be scarcer in Sweden than in most of the other Countries of Continental Europe. Bewick's Br. B. vol. 1. p 244. Jenyns' Man. p 104. Yarrell's Br. B. vol. 1. p. 233.

In the first edition of the Cornish Fauna the probability was suggested, of this bird's having been seen in the County; and this has been since confirmed by Mr. Cocks, who reported its being obtained near Falmouth, to the Meeting for 1849 - of the R. C. Polytechnic Society. Mr. Cocks, it is true, advances some doubt of the accuracy of his information on this point, although the preserved skin was submitted to his inspection; as appears from the Report of that Year, p 41.

Red Start. S. Phoenicurus. Yarrell's Br. B. vol. 1. p 237. Jenyns' Man. p 104. Bewick's Br. B. vol. 1. p 246.

Very rare in Cornwall; and the only place, where it has been known to have

a nest is at Trebartha; the seat of the family of Rodd. In other places, it has been only seen as an accidental visiter, perhaps in the act of migration; as at Falmouth and Looe Island: at the latter place in April.

Black Start. Phanicura Tithys. Yarrell's Br. B. Vol 1. p 241. Jenyns' Man. p 105.

It is known from the observations of several years, makes the Coasts of the south of Cornwall its retreat in winter; and that for this purpose it chooses some favourite spot, from which it never wanders far. A few instances have been reported, of its remaining through the Summer also

Stone chat. Sylvia Rubicola. Yarrell's Br. B. Vol. 1. p 245. Bewick's Br. B. Vol 1. p 278. Jenyns' Man. p 121. Furze Chat. Stone chatter.

Common. The nest is hidden with great art. It has been known to cross the channel to us. This bird, although of a hardy nature, appears to have almost disappeared from our Southern cliffs, in the cold weather of 1854-5. and they were long before they returned.

Whin chat. S. Rubetra. Yarrell's Br. B. Vol 1. p 249. – Bewick's Br. B. Vol 1. p 277. Jenyns' Man. p 120.

This bird, which is common in the eastern Counties, is exceedingly rare in Cornwall. Yet it has been found in some favourite situations; as on the moors about Helmar and Hawkstor – & the open downs near Castle an Dinas, in the Penzance District. It has also occurred near Falmouth.

Wheat ear. S. Ananthe. Yarrell's Br. B. Vol 1. p 253. Bewick's Br. B. Vol 1. p 274. Jenyns' Man. p 119. Nacker. Stone Nacker. White ear.

A regular summer visiter, arriving about the middle of March. They cross the channel early in the morning; few arriving after nine o'clock; and it is not uncommon for them to alight on the fishing Boats when the weather is misty. They, in common with other

small migratory birds, are often waited for by hawks as they draw near the land; and, fatigued as they are with a long flight, they often fall an easy prey to the enemy. Those which arrive first are not usually the inhabitants of the District; and therefore they hurry on, and are succeeded by new immigrants in a day or two; but it is not generally noticed that the Sexes arrive seperately, as is commonly reported. They leave our shores in October; but it has been noticed that a few sometimes remain, having changed their colour from the Summer dress; and have assumed a browner tint.

Grasshopper Warbler. Grasshopper Lark. S. Locustella. Bewick's Br. B. Vol 1. p 236. Jenyns' Man. p 106. Yarrell's Br. B. Vol 1. p 261.
Locally common in Summer: its remarkable craking Notes sounding far off in the evening; but the bird is seldom seen.

Sedge Warbler. S. Salicaria, Yarrell's Br. B. Vol 1. p 265. Bewick's Br. B. Vol 1. p 253. S. Phragmites - Jenyns' Man. p 106. Cornish Fauna. p 13.
In Summer, common.

Reed Warbler. Reed Wren. S. Arundinacea. Bewick's Br. B. Vol 1. p 254. Jenyns' Man. p. 107. Yarrell's Br. B. Vol 1. p 269.
Rare. Mr. Rodd says, that several were taken in Scilly, with other Summer migrants, in the Autumn of 1849.

Blackcap. S. atricapilla. Jenyns' Man. p 108. Yarrell's Br. B. Vol 1. p 280. Bewick's Br. B. Vol 1. p 258.
A Summer Visiter, but local, and irregular in its attachment to places. It is this bird, which has been mistaken for the Nightingale, by those who have supposed they have heard the Song of the latter bird in Cornwall.

Garden Warbler. Pettychaps. S. Hortensis. Bewick's Br. B. Vol 1. p 248. Jenyns' Man. p. 108. Yarrell's Br. B. Vol 1. p 285.
Most frequent in the eastern parts of the County; but obtained at Falmouth by Mr. Cocks, & noticed at Penzance by Mr. Rodd. Several were obtained

in Scilly, with others of our smaller summer visiters, in the autumn of 1849. Mr. Rodd adds, that it breeds annually in the woods at Trebartha.

White throat. S. Cinerea. Jenyns' Man. p 109. Yarrell's Br. B. Vol 1. p 289. Bewick's Br. B. Vol 1. p 260.
Common in Gardens & Orchards in Summer.

Lesser White throat. S. Sylviella. Yarrell's Br. B. Vol 1. p 293. Bewick's Br. B. Vol 1. p 262. Jenyns' Man. p 109.
Mr. Rodd does not include this species in his Catalogue of Cornish birds, nor is it mentioned in the first Edition of the Cornish Fauna; but it is reported by Mr. Cocks as having been seen near Falmouth. Report of R. C. Polyt. Soc. for 1849.

Wood Warbler. Wood wren. S. Sylvicola. Yarrell's Br. B. Vol 1. p 297. Bewick's Br. B. Vol 1. p 264. Jenyns' Man. p 110.
Mr. Rodd says, common in the eastern parts of the County, & breeding near Trebartha; but not known in the west. Mr. Cocks recognized it near Falmouth.

Willow Warbler. Willow wren. S. Trochilus. Jenyns' Man. p 111. Yarrell's Br. B. Vol 1. p 302. Bewick's Br. B. Vol 1. p 266
Locally abundant. Colonel Montagu, whose accurate observations in Natural History are well known, remarked that this bird did not visit either Devon or Cornwall; but other instances besides this, are known; where birds have ceased to visit a neighbourhood for several years, and then have become plentiful again.

Chiffchaff. S. Hippolais: Jenyns' Man. p 111. Yarrell's Br. B. Vol 1. p 307. Bewick's Br. B. Vol 1. p 267 & 268. Local name Egypt.
It has been remarked by all Cornish Observers, that a few remain with us commonly through the winter.

The whole of these smaller kinds of warblers are occasionally seen crossing the Channel to us in the Spring; and are confounded together by fishermen, who see them alight on their boats early in the morning, to

rest for a short time – under the general name of Miller's Thumbs. It seems indeed surprizing, that little birds, with such small extent of wing as some of them have, and which when once landed cannot be induced to trust themselves to any lengthened flight, should be able to fly over such a wide extent of sea as lies between the Coast of France and Cornwall; but when with us their activity of limb and voice is without ceasing, by day and by night. And if, in the middle of summer, it seems to find a lull at midnight, a stone thrown into the bush on the bank of the stream, will bring it into action again.

Dartford Warbler. S. Dartfordiensis. Yarrell's Br. B. Vol 1. p 311. Bewick's Br. B. Vol 1. p 239. Jenyns' Man. p 112.
Scarce, and local. Mr. Clement Jackson obtained the male & female & nest near Looe; and Mr. Hare presented the nest and eggs to the Museum of the Natural History Society of Penzance: obtained near Leskeard.

Gold Crest. Gold Crested Wren. S. Regulus. Yarrell's Br. B. Vol 1. p 317. Bewick's Br. B. Vol 1. p 270. Jenyns' Man. p 113.
Generally destributed, but rather scarce. Certainly some of them leave us in Winter, if not all. In the beginning of November 1844 a large number, amounting to a few hundreds, were found on Looe Island; where they had sought refuge from a strong wind from the S. E; which appears to have stopped their progress across the Channel. One flew on board a boat in the middle of the Channel at the same time. Those birds were so tamed and hungry, as to take food from the fingers of the Coast Guardsmen on the Island. They ate flies; but a blowfly was too large to be swallowed; and the men tore it to pieces to assist the birds in passing it down the throat. Their arrival, and after two or three days their departure, which probably were by night, were equally unnoticed. It has been known to fall dead from the shock of a blow struck on the face or bush in which it was sheltered.
Fire Crest. S. Ignicapilla. Yarrell's Br. B. Vol 1. p 322. Jenyns' Man. p 113.

although long overlooked, this pretty little bird appears to be of no uncommon appearance in the western part of the County, as a winter visiter. Mr. Rodd obtained a Specimen close to his house at Penzance in the beginning of March 1845; and in the early part of the same year Mr. Nicholas Tresidder of Falmouth procured two Specimens; which were found dead together, in a Gentleman's garden, in the Parish of Gwennap. Another Specimen is remembered; which was obtained twelve years before this, by a Brother of Mr. Tresidder, near Falmouth; & Mr. Passmore shot a pair of those birds near Truro, in the middle of December, 1846.

Titmice.

Great Titmouse. Parus Major. Bewick's Br. B. Vol. 1. p 282. Jenyns' Man. p 121. Yarrell's Br. B. Vol 1. p 326.

Common.

Blue Titmouse. P. Cæruleus. Bewick's Br. B. Vol 1. p 286. Jenyns' Man. p 122. Yarrell's Br. B. Vol 1. p 330.

Common, but more wandering in its habits than the Great Titmouse.

Cole Titmouse. P. Ater. Bewick's Br. B. Vol 1. p 288. Jenyns' Man. p 123. Yarrell's Br. B. Vol 1. p 237.

Not uncommon, but local.

Marsh Titmouse. P. Palustris. Bewick's Br. B. Vol 1. p 292. Jenyns' Man. p 123. Yarrell's Br. B. Vol 1. p 340.

Not so generally seen as the others, but not uncommon.

Long tailed Tit. P. Caudatus. Bewick's Br. B. Vol 1. p 289. Jenyns' Man. p 124. Yarrell's Br. B. Vol 1. p 344.

Common; and as the young appear to remain with the parents through the first winter, they are usually seen in small companies; appearing to be travelling in haste, in pursuit of something they do not know where to find.

Bearded Tit. P. Biarmicus. Bewick's Br. B. Vol 1. p 293. Jenyns' Man. p. 125. Yarrell's Br. B. Vol 1. p 349.

Very rare. One is said to have been seen near Falmouth, and another was caught in the Parish of St. Levan, in January 1846.

The resident birds of this family are popularly called by the general name of Heckamall; and suffer a kind of persecution from being supposed

to injure the buds of fruit trees as they search for insects in the blossom. It is certain however that they never interfere with the blossom, except where hurtful insects are present; and that therefore their labours are a benefit, with very little harm.

Waxwing. Ampelis Garrulus. Bewick's Br. B. vol 1. p 104. Lewyn's man. p 125. Yarrell's Br. B. vol 1. p 356.
A rare winter visiter. One was killed at Restormel, near Lestwithiel, in January 1829, and another near Helstone in 1835. One was obtained near Falmouth in the winter of 1849. A large abundance of those birds were spread over England in the year 1850. in the month of January; & many of them came into Cornwall. A pair of those birds, both males, in the Museum of the Royal Institution at Truro, were shot, nearly together, in the neighbourhood of that Town.

Pied Wagtail. Motacilla Yarrellii. Gould, Birds of Europe, and Loudon's Mag. Nat. Hist for 1837. p 459. Yarrell's Br. B. Vol 1. p 362.
Common, without changing its Quarters; but the young of the year assemble near our cliffs in the Autumn, in greater numbers probably ~~could~~ than could be obtained from the nests of the neighbourhood.

White Wagtail. M. alba. Yarrell's Br. B. Sup. 1st. p 22.
Only of late distinguished from the Pied wagtail; but now found to be not uncommon in Cornwall, and sometimes even abundant. It is a migrant, appearing in Spring and Autumn, at least along the whole of our South Coast.

Grey Wagtail. M. Boarula. Bewick's Br. B. Vol 1. p 233. Lewyn's Man. p 115. Yarrell's Br. B. Vol 1. p 370.
Chiefly a winter visitor; but some having remained to breed, those which are seen in Summer have of late years increased considerably.

Grey headed Wagtail. M. Neglecta. Lewyn's Man. p 116. Yarrell's Br. B. Vol 1. p 375. M. Rayii - Yarrell. p 376; but there seems an inconsistency in calling one species Ray's wagtail in the Latin language, and another species by the same name in English. It has been confounded with M. Boarula, until Mr. Gould distinguished them. This bird is less common than the former.

Yellow Wagtail. M. flava Bewick's Br. B. Vol. I. p 234. Jenyns Man. p 115. Ray's Wagtail. Yarrell's Br. B. Vol. I. p 380.
It appears as a migrant in small Companies, about the middle of April; and fishermen observe them at sea in their flight across the Channel. From parties of 6 or 8 they seperate into pairs on reaching land; and soon leave the coast to seek their Summer haunts. In Autumn they take the same Course in their return.

The Birds of this family are popularly and indiscriminately called Dishwashers

Pipits and Larks

Tree Pipit - Tree Lark. Cornish Fauna. 1st E. p14. Anthus Arboreus, Jenyns' Man. p. 118. Yarrell's Br. B. Vol. p 384. Bewick's Br. B. Vol. p 223.

A summer visiter; common in the east of the County, rare in the west. Rodd - in Report Nat. Hist Soc. Penzance for 1850.

Titlark. A. Pratensis - Meadow Pipit. Jenyns' Man. p 117. Yarrell's Br. B. Vol. p 389. Bewick's Br. B. Vol. p 225.

common; but changing its quarters in winter, & much subdued by cold.

Shore Lark. A. Petrosus. Jenyns' Man. p 118. Yarrell's Br. B. Vol. p 394. Rock Pipit, A. Aquaticus. Rodd. Report &c p 410.

Common on the Sea beach & in harbours. It is seen by fishermen, cross-ing the Channel from France in small flocks; & in the severe winter of 1855 all these birds forsook the east parts of the County: not appear-ing again for a long time.

Richard's Pipit. A. Ricardi. Jenyns' Man. p 117. Yarrell's Br. B. Vol. p 398. Bewick's Br. B. Vol. p 219.

An irregular visiter, and in Cornwall, chiefly if not solely, in the western part. Four were killed at one shot near Penzance, and it was observed that they were not at all shy.

Sky Lark. Alauda Arvensis - Jenyns' Man. p 127. Bewick's Br. B. Vol. p 216. Yarrell's Br. B. Vol. p 409.

That noble Songster of which Poets & lovers of Nature have sung and said so much. Abundant and of increased numbers in winter; when multitudes are driven before the snow from the eastern Counties into the west. "Since farmers have made a practice of mixing poisonous substances with their seed corn, to guard it from mushroom blights, the native flights of Larks have much decreased in number.

Wood Lark. A arborea. Bewick's Br. B. Vol 1. p 227. Yarrell's Br. B. Vol 1. p 417.
Most common in winter, and changing its haunts with the Season.
Mr. Rodd says it is not common in the west of the County.

Shortlood Lark. A. Brachydactyla. Yarrell's Br. B. Vol 1. p 420.
A single Specimen of this rare Species has caught in Scilly; as was announced by Mr. Rodd, in the Zoologist for 1854.

Crested Lark. A. Cristata. Yarrell's Br. B. Vol 1. Sup. 1st p 26.
This is another of those rare Species, of which only one or two Specimens have been caught in the Kingdom; and we owe the knowledge of it as a Cornish bird, to the industry and discrimination of Mr Rodd; who reported the occurrence of two Specimens between Marazion and Penzance.

Buntings.

Snow Bunting. Emberiza nivalis. Bewick's Br. B. Vol 1. p 184. 184. Jenyns' Man. p 129. Yarrell's Br. B. Vol 1. p 425.
This Bird, a native of northern regions, visits us not uncommonly in winters, even such as cannot be termed severe; and they have been known to remain so late as the middle of March. Mr. Yarrell says, they are the young birds that thus proceed so far south; & none have been seen in their perfectly white plumage.

Bunting. E. Miliaria. Bewick's Br. B. Vol 1. p 171. Jenyns' Man. p 130. Yarrell's Br. B. Vol 1. p 433. Bull Lark.
common at all Seasons.

Blackheaded Bunting. E. Schaeniclus. Bewick's Br. B. Vol 1. p 179. Jennings' Man. p 130. Yarrell's Br. B. Vol 1. p 438. Reed Bunting.
Local.

Yellow Hammer. E. Citrinella. Bewick's Br. B. Vol 1. p 176. Jenyns' Man. p 131. Yarrell's Br. B. Vol 1. p 443. Gladdie.
One of our commonest birds.

Cirl Bunting. Cirl. E. Cirlus. Yarrell's Jenyns' Br. B. Vol 1. p 448. Jenyns Man. p 131
Common but variable in its local attachments.

Ortolan. E. Chlorocephala. The greenheaded Bunting of Bewick, Br. B. Vol 1. p 173. E. Hortulana. Jenyns' Man. p. 132. Yarrell's Br. B. Vol 1. p 455.
Rare as a British Bird, a specimen is reported as taken in Cornwall, in the Report of the Nat. Hist. S. of Penzance for 1851.

Finches.

Chaffinch. Fringilla Coelebs. Bewick's Br. B. Vol 1. p 191. Jenyns' Man. p 133. Yarrell's Br. B. Vol 1. p 460. Copperfinch.
Common at all seasons.

Mountain Finch. F. Montifringilla. Bewick's Br. B. Vol 1. p 193. Jenyns' Man. p 134, Yarrell's Br. B. Vol 1. p 465.
A winter visiter, and scarcely rare. A large number were seen in the plantations at Polvellyn near Looe, feeding on beach mast, early in the Winter of 1852. The weather had not been cold, but they appear to have been driven westward by the great floods which had covered some of the Northern Counties. They were also abundant about the farm yards in the West of Cornwall, in the Winter of 1854-5.

Goldfinch. F. Carduelis. Bewick's Br. B. Vol 1. p 195. Jenyns' Man. p 137. Yarrell's Br. B. Vol 1. p 490.
They change their quarters in Winter, and do not permanently return to their accustomed haunts until April.

Siskin. F. Spinus. Bewick's Br. B. Vol 1. p 197. Jenyns' Man. p 137. Yarrell's Br. B. Vol 1. p 496.
A Winter visiter, and not common. A young bird of the Year was brought alive to me, October 31. 1855.

Linnet. F. Linota, Bewick's Br. B. Vol 1. p 205. & F. Cannabina, p 201. Jenyns' Man. p 139. Yarrell's Br. B. Vol 1. p 502.
Common.

Lesser Redpole. F. Linaria. Bewick's Br. B. Vol 1. p 203. Jenyns' Man. p 138. Linota Linaria. Yarrell's Br. B. Vol 1. p 514.
Rare. Mr Cocks has seen it near Falmouth; and Mr Rodd also mentions it as occurring in Cornwall.

Mountain Linnet. F. montana. F. montium. Bewick's Br. B. vol 1. p 207. Jenyns' Man. p 140. Linota M. Yarrell's Br. B. vol 1. p 521. Mr. Rodd mentions one specimen as having been caught near Penzance; and this seems the only evidence on which it can be classed among the birds of Cornwall. It is a native of more northern Mountain regions.

Greenfinch. F. Chloris. Jenyns' Man. p 136. Yarrell's Br. B. vol 1. p 479. Loxia Ch. Bewick's Br. B. vol 1. p 164.
Common.

Hawfinch. F. Coccothraustes. Jenyns' Man. p 136. Yarrell's Br. B. vol 1. p 483. Loxia C. Bewick's Br. B. vol 1. p 162.
A winter visiter, and not common.

Sparrows.

House Sparrow. Fringilla Domestica. Bewick's Br. B. Vol. 1. p 187. Lewyns' Man. p 134. Yarrell's Br. B. Vol 1. p 474.
Common.

Tree Sparrow. F. montana. Bewick's Br. B. Vol 1. p 190. Lewyns' Man. p 135. Yarrell's Br. B. Vol 1. p 469.
Only one or two Specimens have been seen; of which one is reported as having occurred near Falmouth. Cocks, in Report of R. C. Polyt. Society for 1849.

Grosbeaks & Crossbills.

Bullfinch. Loxia Pyrrhula. Bewick's Br. B. Vol 1. p 168. Jenyns' Man. p 140. Yarrell's Br. B. Vol 2. p 1. Hoop, Golden hoop. Rarely seen in Summer – perhaps from its retired habits; but early in the Spring, when the buds of the Gooseberry bush begin to move, they come to the gardens in Considerable numbers, and commit great havock on the buds of this fruit; with which they fill their crops to distension.

Cross Bill. L. curvirostra. Bewick's Br. B. Vol 1. p 157. Jenyns' Man. p 141. Yarrell's Br. B. Vol 2. p 15.
A casual visiter, appearing in small companies, after long intervals of time. Carew speaks of such a visit in the reign of Elizabeth; when the birds attracted notice by feeding on the Kernel of the Apple. Some other of their visits have since been noticed. An individual kept in a Cage made of deal, tore the wood to pieces; appearing to be attracted by the smell of the turpentine. It had a faint song; and many of the actions of a Parrot.

White winged Crossbill. L. Leucoptera. Jenyns' Man. p 143. L. Falcirostra. Yarrell's Br. B. Vol 2. p 38 & 2d Sup. p 16.
Mr Rodd records the occurrence of a Specimen which was shot at Larig- gan, & which is preserved in his own collection.

Starlings.

Starling. Sturnus vulgaris. Bewick's Br. B. Vol 1. p 111. Jenyns' man. p 143. Yarrell's Br. B. Vol 2. p 44. Stare.

A regular winter visiter, and sometimes in very large flocks; but it seems remarkable that, while its summer haunts are no further distant than the eastern Counties of England, none should remain to breed in Cornwall: except as is reported, a few in the north east, near Tintagel. They even depart much earlier in the Spring, than the migratory birds which go to the north parts of Europe. Starlings sometimes fly across the Channel; and a young bird flew on board a fishing boat, at 3 or 4 leagues from land, towards the end of October, (1846); probably in coming to our shores. Heaps of rotten sea weed are a favourite resort, in search of the larvae of insects which abound in it.

Rose coloured Starling. Rose coloured Pastor. Turdus Roseus. Bewick's Br. B. Vol 1. p 116. Jenyns' Man. p 144. Yarrell's Br. B. Vol 2. p 51.

Of this rare bird, four specimens have been reported by Mr. Rodd, as taken in the Land's end District, in August, 1856.

Crows.

Cornish Chough. Corvus Graculus. Bewick's Br. B. vol 1. p 96. Jenyns' Man. p 144. Yarrell's Br. B. vol 2. p 56.
Not now abundant; nor, except locally, even common; a circumstance principally owing to the persecution it has suffered from Sportsmen and Naturalists.

Raven. Corvus Corax. Bewick's Br. B. vol 1. p 85. Jenyns' Man. p 145. Yarrell's Br. B. vol 2. p 63.
Common: always in pairs. For the most part it builds in cliffs; and always in places very difficult of approach. They watch the tide as it ebbs, in search of what it leaves.

Crow. C. Corone. Bewick's Br. B. vol 1. p 87. Jenyns' Man. p. 145. Yarrell's Br. B. vol 2. p 79. Town Crow. Carrion Crow.
Common: always in pairs. It is destructive to young poultry, and exhibits considerable boldness in attacking them. It also plunders the nests of Gulls and other large sea birds; piercing the eggs and carrying them off on its bill. It has also been known to devour the young birds of the Ringdove through from the nest.

Hooded Crow. C. Cornix. Bewick's Br. B. vol 1. p 89. Jenyns' Man. p 146. Yarrell's Br. B. vol 2. p 83.
In winter; and scarcely common. Mr. Rodd says, it was formerly abundant on Marazion green; whence it derived one of its Synonyms, of Market Jew Crow.

Rook. C. Frugilegus. Bewick's Br. B. vol. 1. p 91. Jenyns' Man. p 146. Yarrell's Br. B. vol 2. p 91.
Well known as common in Rookeries, close to Gothic and noble Mansions; where they keep together in large numbers. Their manners here are highly curious, and show marks of a social connection between themselves; yet without refusing

to admit Jack Daws and Starlings among them. Many farmers believe them to be mischievous to the new planted potatoes and newly sown corn; but their general usefulness to farmers, in devouring the maggots of destructive insects and slugs is beyond question. It is the only bird of this family, that, in Britain, is used as food; and the first young birds which have left the nest are usually shot for this purpose.

Jack Daw. C. monedula. Bewick's Br. B. Vol 1. p 94. Lewyns' Man. p. 147. Yarrell's Br. B. Vol 2. p. 102. Chow. Chauf. Common, gregarious. Besides Church Towers, a favourite resort is in steep and craggy cliffs. They are fond of resorting to a Rookery; and as it appears that many of them do not form nests in the season, these Batchelor birds are noticed to fly to a neighbouring Rookery every evening, there to pass the night. They plunder a Mow of corn, by drawing out the straws, and flying off with the ear.

Magpie. C. Pica. Bewick's Br. B. Vol 1. p 98. Lewyns' Man. p 147. Yarrell's Br. B. Vol 2. p 107. Maggot. Maggoty Pie: a name used by Shakespear, and of which Magpie seems an abbreviation

Common. Its nest, however conspicuous in winter is hidden with much art while concealment is important. The very act of building is carried on with great secrecy, although always in the neighbourhood of a human dwelling. It is thought mischievous; and in common with the Raven and Crow, it is especially so to newly dropped lambs; the eyes of which are sometimes plucked out by those birds, even before the birth is perfected. There is much superstition attached to the appearance of these birds, as there is also to the Croak of the Raven.

Jay. C. Glandarius. Bewick's Br. B. Vol 1. p 100. Yarrell's Br. B. vol 2. p 116. Garrulus G. Jenyns' Man. p 148.

Common in solitary woody places; and very shy.

Nutcracker. C. Caryocatactes. Bewick's Br. B. Vol 1. p 103. Nucifraga C. Jenyns' Man. p 149. Yarrell's Br. B. Vol 2. p 122.

Montagu reports it to have been shot in Cornwall.

Woodpeckers.

Green Woodpecker. Picus Viridis. Bewick's Br. B. Vol. 1. p 140. Jenyns' Man. p 149. Yarrell's Br. B. Vol 2. p 132.
Common in places where large and old trees abound: having its nest in the stock of a tree, with the entrance small for the size of the bird.

Great Spotted Woodpecker. P. Major. Jenyns' Man. p 150. Yarrell's Br. B. Vol 2. p 143. Bewick's Br. B. Vol 1. p 142.
Scarce.

Lesser Spotted Woodpecker. Barred Woodpecker. P. Minor. Bewick's Br. B. Vol 1. p 144. Jenyns' Man. p 151. Yarrell's Br. B. Vol 2. p 147.
Only a few specimens have been noticed in Cornwall.

Wry Neck. Yunx Torquilla. Bewick's Br. B. Vol 1. p 134. Jenyns' Man. p 152. Yarrell's Br. B. Vol 2. p 151.
Not common; but more perhaps from its retired habits than its absolute scarcity.

Creeper. Certhia Familiaris. Bewick's Br. B. Vol 1. p 152. Jenyns' Man. p 153. Yarrell's Br. B. Vol 2. p 158.
Not uncommon in places where large trees are found.

Wren. Troglodytes Vulgaris. Jenyns' Man. p 153. Yarrell's Br. B. Vol 2. p 162. Bewick's Br. B. Vol 1. p 272.
Common. It appears to have been the subject of some superstitious observance among the ancient Britons; which may have been the origin of the regard still paid to it.

Hoopoe. Upupa Epops. Bewick's Br. B. Vol 1. p 148. Jenyns' Man. p 153. Yarrell's Br. B. Vol 2. p. 167.
So many Specimens have been met with, as to justify the belief

that they perform a regular migration to or through the County, in Spring and Autumn; but keeping themselves very retired for the little time they remain with us. Two were shot at one time, after they had appeared to have paired.

Nuthatch. Sitta Europaea. Bewick's Br. B. Vol 1. p 146. Lewyns' Man. p 154. Yarrell's Br. B. Vol 2. p 174.

Local, but not uncommon in woods where large trees are found.

Cuckows -

Cuckow. Cuculus Canorus. Bewick's Br. B. Vol 1. p 129. Jenyns' Man. p 154. Yarrell's Br. B. Vol 2. p 179.
Common in its Season. The earliest date at which its well known voice has been noticed, was the 19th of April; and latest date of its first utterance was the 11th of May; but it has been seen more than a week before its note was heard. Unlike most others of the migratory birds that come to us, it has never been seen on its passage over the Sea; but on the 13th of July (1854) early in the morning, a bird of the year, fullfledged, was found dead on the water, half a mile from land. A bird of the year was shot, August 29th (1857.) A little before they leave us, Cuckows are found, in Companies of 5 or 6 - in Coves, at least on the eastern Coast of the County.

American Cuckow. C. Cinereous. Coccyzus Americanus. Jenyns' Man. p 155. Yarrell's Br. B. Vol 2. p 189. Carolina Cuckow.
Of this rare bird the first specimen known in England was found in Cornwall. It was discovered dead, near Stratton, and came into the hands of the Reverend John King; by whom it was presented to Sir Joseph Banks — then the great Patron of Natural History in England; and from him it passed into the possession of Mr. Bullocke. Lyson's Canvas.

Merops

Roller. Coracias Garrula. Bewick's Br. B. Vol 1. p 106.
Jenyns' Man. p 156. Yarrell's Br. B. Vol 2. p 195.
Rare. A few specimens have been taken in Cornwall; and all in the western parts.

Bee Eater. Merops Apiaster. Bewick's Br. B. Vol 1. p 150. Jenyns' Man. p 156. Yarrell's Br. B. Vol 2. p 200.
Drew, in his History of Cornwall, records the occurrence of four specimens of this rare bird in the Parish of Madron, in 1807; and a flock of twelve were seen near Helston in the year 1828; and eleven of them were killed.

Kingfisher.

Kingfisher. Alcedo Ispida. Bewicks' Br. B. vol 2. p 129.
Jenyns' Man. p 157. Yarrell's Br. B. vol 2. p 206.
Common, but scattered, along the Course of rivers; not rare also by the Sea; where it has been known to have a nest: or rather, it has laid its eggs in a deep hole by the sea cliff, without any structure of a Nest.

Swallows.

Swallow. Hirundo Rustica. Bewick's Br. B. Vol 1. p 299. Jenyns' Man. p 157. Yarrell's Br. B. Vol 2. p 213.

A well known Summer visiter; which begins to arrive early in April; and some are seen to be still drawing near the land, often alighting on the fishing boats, so late as the first week in May. In their disappearance they lessen gradually; but have usually left us by the middle of October: although some are seen so late as November, and a few have been observed even in the week of Christmas. They often have their nests in Barns and outhouses; and there are Caverns on the Coast, which bear the name of Swallow Cove, because these birds regularly occupy them as breeding places.

It is remarkable that while many of the small short winged birds in the Spring, fly across the Channel in safety, the Swallows not unfrequently show undoubted signs of great fatigue: and sometimes even fall dead without being able to reach the shore. Such was the case in March (the 23rd) 1849: a date unusually early for their arrival; but at which a few were noticed, both at Sea by fishermen, and near Lookeard. Such a state of fatigue as these birds sometimes display, is a proof of a very lengthened flight, in circumstances which did not admit of rest; and as Swallows have been traced in their flight, in Autumn, all the way to Madeira, there is reason to conclude, that the birds so worn out at the time of their arrival, must have come over all this distance of watery way.

Martin. H. urbica. Bewick's Br. B. Vol 1. p 303. Jenyns Man. p. 158. Yarrell's Br. B. Vol 2. p 222.

A common Summer visiter; but it has been noticed that for several

years the number of Martins has been gradually diminishing. They come to us a little later than the Swallow, and usually are all gone by the middle of October. Commonly however small flocks appear, and remain for a day or two, two or three weeks after our resident birds have left us; and some are thus seen, even in the Month of December. Sometimes also, after they have gone, severe and opposing winds have driven them back in a very exhausted condition. In this state, when the weather has been cold, they have been known to seek shelter for the night in holes of a wall originally formed to sustain scaffolding.
Their well known nests are built of clay, moistened into mortar and carried on the upper portion of the bill. The work is commonly carried on in the forenoon, to allow time for sufficient drying; but it has been observed that, in the neighbourhood of the Sea beach, they have omitted the work in the early part of the day, in waiting for the tide to ebb, that the moistened clay might be obtained with much less labour.

Sand Martin. H. Riparia. Bewick's Br. B. Vol 1. p 305. Selby's Man. p 158. Yarrell's Br. B. Vol 2. p 228.
In Summer, local; there being but few places, on the sandy banks of Rivers, fitted for their residence: most common in the west of the County.

Rufous Swallow. H. Rufula.
In the year 1853 Mr Rodd communicated to the Zoologist (p 3753) the following Note. — A circumstance was mentioned to me, which may be regarded as interesting and worth a place in the Zoologist, as coming from a Naturalist whose general accuracy may be depended upon implicitly. Mr Vingoe, of this Place (Penzance) whose name has before frequently appeared in your pages, introduced the subject by remarking that he had a strong suspicion that he had discovered in the later months of the past Summer, the Rufous Swallow. His attention was for some time directed to an individual amongst several others, that exhibited a uniform Copper colour over the whole of the under parts. At the time he had not seen a figure of the bird in Gould's work, but having

occasion afterwards to refer to one of the numbers, he accidentally saw the figure of the Rufous Swallow, and at once recognizes it as the new bird he had seen. At a subsequent period I may have to refer to this subject again, and it will then be probably when the bird is captured, and the authority of Mr. Vigor supported by the fact. Edward Hearle Rodd.
Penzance - November 27. 1852.

Swift. H. apus. Bewick's Br. B. vol 1. p 306. Cypselus apus - Jenyns' Man. p 169. Yarrell's Br. B. vol 2. p 233.
Common in Summer; its first appearance noted so early as May 1st - to the 21st the whole Colony frequenting one neighbourhood usually arriving together. The latest seen - from July 28th to August 16th & for the most part the whole Colony disappears together. The nests are in holes, and they can enter a very narrow crevice.

Alpine Swift. Cypselus Alpinus. Jenyns' Man. p 169. Yarrell's Br. B. vol 2. p 239.
In the first Edition of the Cornish Fauna the occurrence of this bird in Cornwall, was mentioned on the authority of an Observer, but with some degree of doubt - the Specimen having been only seen on the wing. But it is now more certainly reckoned among Cornish birds on the authority of one which on board a vessel, about the middle of June, 1842, at about 40 miles West of the Land's end; when it was so fatigued as to be easily caught; as reported by Mr. Clement Jackson of Eastdown; by whom it was prepared for the Museum of the Royal Institution.

Night Jar - Goatsuckers. Caprimulgus Europeus.
Bewick's Br. B. vol. 1. p 312. Jenyns' Man. p 160. Yarrell's Br. B. vol 2. p 242.
Night Crow. In boggy places in Summer. It had arrived April 28th 1830, and one was shot, as if in departure, November 27. 1831.
It is active chiefly in the dusk of the evening, observing the times of the Owl

Pigeons

Wood Dove. Columba Palumbus. Bewick's Br. B. vol 1. p 317. Jenyns' Man. p 161. Yarrell's Br. B. vol 2. p 249.
Common where trees abound — and especially for trees.

Stock Dove. C. Anas. Jenyns' Man. p 161. Yarrell's Br. B. vol 2. p 254.
Not common. Mr Rodd says, two Specimens were obtained in Scilly; and large flocks have been seen at Marther.

Rock Dove. Jenyns' Man. p 162. Yarrell's Br. B. vol 2. p 259.
This species in a wild state frequents the Caverns of cliffs in the neighbourhood of Looe and Polperro; and probably in many other places in the County. It is the parent of the Common Pigeon of the Farmyard; and many of those which live and breed in the Sea cliffs are such as have escaped from the domestic Condition, to join their untamed neighbours. A Dovecot was formerly re-garded as a valuable possession, which none but the Owners of a Manor were allowed to keep; & the dung accumulated with-in the hollow building was not the least of the value attached to the privelege. The Name of this particular species, among the Cornish Britons was Culver; and a Culverhouse was thought of sufficient importance to be specially named in a Conveyance of land. Thomas Martyn of Looe makes a feofment to John Pennarth and Thomas Heuchyn, of Messuages in Looe and Shuta; and a Dovehouse in Shuta in fee, in the eleventh Year of Richard 2nd. The lands yielding yearly 6 shillings & 8 pence.
In the Report of the R. C. Polytechnic Society for the Year 1854 -

Mr Cocks has given a Summary of the Varieties of this Species to be found in Cornwall.

Turtle Dove. C. Turtur. Bewick's Br. B. vol 1. p 322. Jenyns' Man. p 162. Yarrell's Br. B. vol 2. p 267.
A summer visiter, not uncommon; but being of solitary habits it is not often seen.

Poultry

Pheasant. Phasianus Colchicus. Bewick's Br. B. Vol 1. p. 331. Jenyns' Man. p 166. Yarrell's Br. B. Vol 2. p 279.

Common in preserves; and, says Ray, in his History of Quadrupeds, the Phasianus was known to the ancient Britons; being protected by the laws they made for regulating hunting. Yet the race must have been imported; and that too, from the eastern shores of the Black Sea. It was at first brought into Europe by Jason, on his return from his expedition to Colchis; and if this assertion be correct, it is probable we owe to the Greeks its conveyance to Britain.

Turkey. Meleagris Gallopavo. Bewick's Br. B. Vol 1. p 325. Jenyns' Man. p 164.

Imported originally from America, and now a common inhabitant of our farmyards.

Pea Cock. Pavo cristatus. Bewick's Br. B. Vol 1. p 328. Jenyns' Man. p 164.

Imported from the east, and now common about the houses of Gentlemen. Its tyranny over other sorts of Poultry prevents its being welcome or profitable among farmers or cottagers.

Guinea Fowl. Numida Meleagris. Bewick's Br. B. Vol 1. p 322. Jenyns' Man. p 168. Local name, Gallini.

Imported from Africa at a remote date, and common in farm yards.

Domestic Fowl. Bewick's Br. B. Vol 1. p 316. Jenyns' Man. p 165.

Probably not originally a native of Britain, but certainly known here in the most ancient times. The art also of forming the Male into a Capon was practised, either by the Britons or Saxons; although

now practically unknown to those who rear Poultry for sale. The word Hestha in Domesday Book means a Capon or young Cock, and is often mentioned as a high rent or fine payable to the Lord of the Land; as the word Capon still is in the Rentrolls of Manors, although in all Cases commuted into the fine of a shilling: a high price when we consider the time when this practise of commutation began. It is not a little remarkable that this common bird, so well known from the most ancient times, has never obtained a particular name in the English, nor perhaps in any European lan-guage. The Male and female are with us pre-eminently the Cock and Hen, but nothing more; and taken together they are Fowls: to which, in order to avoid obscurity we add the epithet — the Barn door fowl: — but neither of these words can be regarded as anything more than descriptive designations, pointing to a time when no other kind of poultry was known or valued. In the ancient language of Cornwall the word Mabier is used for the young Cock of the Year; and is still so employed in the West of the County.

Gallinaceous Birds.

Blackgrouse. Tetrao Tetrix. Bewick's Br. B. vol 1. p 348. Jenyns' Man. p 169. Yarrell's Br. B. vol 2. p 304.
This bird is rare; but it sometimes wanders into the County from Dartmoor, and the more Northern and eastern counties of England.

Partridge. Perdix Cinerea. Jenyns' Man. p 172. Yarrell's Br. B. vol 2 p 333. Bewick's Br. B. vol 1. p 358.
Common.

Redlegged Partridge. P. Rufa. P. Rubra. Jenyns' Man. p 172. Yarrell's Br. B. vol 2. p 343. Bewick's Br. B. vol 1. p 355.
about the middle of September, 1842. a specimen of this bird was shot in the Parish of Lanreath, and was sent to Mr. C. Jackson, of East Looe, to be preserved.

Quail. P. Coturnix. Jenyns' Man. p 174. Yarrell's Br. B. vol 2. p 355. Bewick's Br. B. vol 1. p 361.
Scarcely rare in the east part of Cornwall; although seeming to be so, from its retired habits. It is scarcer in the west. Its habits are migratory, but sometimes it remains through the winter.

Great Bustard. Otis Tarda. Bewick's Br. B. vol 1. p 364. Jenyns' Man. p 175. Yarrell's Br. B. vol 2. p 362.
a female was killed on Goonhilly Downs, between Helstone and the Lizherd, in February, 1843; and passed into the beautiful collection of birds in the possession of Mr Rodd at Penzance.

Little Bustard. O. Tetrax. Bewick's Br. B. vol 1. p 368. Jenyns' Man. p 175. Yarrell's Br. B. vol 2. p 371.
Rare. One specimen was killed on Berry Down, in the Parish of Lanreath, and another near Trelowarren. In the month of December 1853, when the weather was cold, 7 or 8 were killed near the Land's end: & it was supposed that they had flown over from Spain.

Plovers

Great Plover. Œdicnemus crepitans. Jenyns' Man. p 177. Yarrell's Br. B. vol 2. p 380. Bewick's Br. B. vol 1. p 371.
Mr Rodd says – it is occasionally observed in the Land's end District in the winter months, and one or more examples captured every year; although it is referred to by Authors as a Summer Visiter.
Mr Cocks also reports it as seen near Falmouth, and one was shot at Morval, near Looe, on the last day of December, 1830.

Golden Plover. Charadrius Pluvialis. Bewick's Br. B. vol 1. p 376. Jenyns' Man. p 177. Bewick's Yarrell's Br. B. vol 2. p 385.
Whistling Plover. It changes its quarters from the high grounds in Summer, to nearer the Coast in winter.

Dottrel. C. Morinellus. Bewick's Br. B. vol 1. p 378. Jenyns' Man. p 178. Yarrell's Br. B. vol 2. p 392.
Not common; but Mr Hare of Leskeard has found it to breed on the Down near Dozmerry Pool.

Ringed Plover. C. Hiaticula. Jenyns' Man. p 179. Yarrell's Br. B. vol 2. p 401.
common in solitary places along our Shores.

Grey Plover. Vanellus Griseus. Jenyns' Man. p 181. Squatarola Cinerea. Yarrell's Br. B. vol 2. p 413. Bewick's Br. B. vol 2. p 87.
In Cold winters not uncommon.

Lapwing. Peewit. Vanellus Cristatus. Jenyns' Man. p 182. Yarrell's Br. B. vol 2. p 417. Bewick's Br. B. vol 2. p 83.
Horneywink.
It breeds on the highlands towards the middle of the County, and draws near the Coast in winter: keeping still in lofty

situations. There are stations which are called Horney-
-winks, from being favourite resorts of these birds.

Turnstone. Strepsilas Interpres. Jenyns' man. p 182. Yar-
-rell's Br. B. Vol 2. p 422. Bewick's Br. B. vol 2. p 116 & 118.
Not uncommon. Mr. Rodd says, it is observed in the Spring and
Autumn migrations, and at these times it is common on our
(western) flat beaches.

Sanderling. Calidris arenaria. Jenyns' man. p 427. Yar-
-rell's Br. B. Vol 2. p 427. Bewick's Br. B. Vol. 1. p 385.
More commonly found in the west of the County than eastward,
but not abundant.

Oyster Catcher - Sea Pie. Hæmatopus Ostralegus. Bewick's
Br. B. Vol 2. p 121. Jenyns' man. p 184. Yarrell's Br. B. Vol 2. p 432.
Mr. Rodd says - not uncommon on the western Coast of Cornwall,
- and it breeds in the Scilly Islands. More rare eastward.

Kentish Plover. Charadrius Cantianus. Bewick's Br.
B. Vol 1. p 382. Jenyns' Man. p 180. Yarrell's Br. B. Vol 2. p 405.
This Bird has been but lately recognized as distinct from the
Ringed Plover. It seems to be more rare than that bird; but
the occurrence of a Cornish Specimen was reported to the Nat.
Hist. Society of Penzance at their Meeting in 1852.

Herons.

Crane. Grus Cinerea. Jenyns' Man. p 185. Yarrell's Br. B. vol 2. p 437. Ardea Grus, Bewick's Br. B. Vol 2. p 2.
Admitted into the Cornish List with a doubt; but one or two specimens are said to have been recognised as taken in the County.

Heron. Ardea Cinerea. Bewick's Br. B. Vol 2. p 8. Jenyns' Man. p 186. Yarrell's Br. B. vol 2. p 444.
A common, but solitary bird on all our larger rivers. At some seasons also they take to the Seabeach.
As Mr Yarrell has enumerated the situations of such Heronries as had come to his knowledge, there may be added — one, of large size, which had existed for at least 50 years, near Penquite, on the River Fowey; and another, which was formed with four nests, on the Treyant Estate, on the East branch of the Looe river, in 1847. The trees were cut down in a year or two; but this only caused a removal of the nests; and they are still there, in increased numbers, in 1856. Mr. Rodd mentions another on the Lamorran river, near Truro.

Purple Heron. A. Purpurea. Bewick's Br. B. Vol 2. p 15. Jenyns' Man. p 186. Yarrell's Br. B. Vol 2. p 450.
A casual Visiter. Several have been taken at different times in the County. Bewick's figure was chiefly taken from a specimen taken near the Coast of Cornwall.

Squacco Heron. A. Comata. A. Ralloides. Bewick's Br. B. Vol 2. p 25. Jenyns' Man. p 189. Yarrell's Br. B. Vol 2. p 466.
Several Cornish Specimens are recorded; and Mr. Rodd says, generally in immature plumage: sometimes with the dorsal and occipital plumes partially developed.

Little Egret. A Garzetta. Bewicks Br. B. Vol 2. p 18. Jenyns' Man. p 187. Yarrell's Br. B. Vol 2. p 458.
Rare. Any doubts which may be supposed to have existed

with regard to this bird as a Cornish Species, are removed by the Report of One which was taken near Grampound, in May 1848.

Little Bittern. A. Minuta. Bewick's Br. B. Vol 2. p 278 & 29. Jenyns' Man. p 189. Yarrell's Br. B. Vol 2. p 469.
Rare. Mr Rodd records an Example killed near the Lizzard.

Bittern. A. Stellaris. Bewick's Br. B. Vol 2. p 24. Jenyns' Man. p 190. Yarrell's Br. B. Vol 2. p 475.
Not uncommon in winter, and sometimes even abundant. An unusual number were near Penzance in the Cold winter of 1854-5. In one instance a Red wing (Turdus Iliacus) — and in another a Rail, (Gallinula Crex) was found in the Stomach of a Bittern.

Night Heron. A. Nycticorax. Bewick's Br. B. Vol 2. p 13. Jenyns' Man. p 191. Yarrell's Br. B. Vol 2. p 485.
Several Specimens have been obtained of late years, in the West of the County; and for the knowledge of them, their sex and varieties we are indebted to Mr. Rodd.

White Stork. A Ciconia. Ciconia alba. Bewick's Br. B. Vol 2. p 5. Jenyns' Man. p 192. Yarrell's Br. B. Vol 2. p 489.
A rare Visiter. In the Report of the Nat. Hist. Society of Penzance, an Example is mentioned, as having been killed at Sennen, near the Land's end, in May 1848.

Black Stork. Ciconia Nigra. Jenyns' Brit. Man. p 193. Yarrell's Br. B. Vol 2. p 493.
Of this rare British bird two Cornish Specimens are recorded. One of these was killed on the borders of the Tamar, and passed into the hands of Mr. Drew, a bird preserver of Plymouth. It appears to be the same that is now in the possession of Mr. Rodd at Penzance.

Spoonbill. Platalea Leucorodia. Bewick's Br. B. Vol 2. p 31. Jenyns' Man. p 193. Yarrell's Br. B. Vol 2. p 499.

In the third week of October, 1843, nineteen of these birds were seen on the north Coast of the County, near New Quay; and four of them were killed. In the previous year one was shot on the Goonhilly Downs; and one also was killed in the early part of October 1845.

Glossy Ibis. Ibis Falcinellus. Tantalus F. Bewick's Br. B. vol 2. p 35. Jenyns' Man. p 194. Yarrell's Br. B. vol 2. p 505.
Several specimens have occurred singly in Cornwall; and one in Scilly in 1834.

Curlew. Numenius Arquata. Jenyns' Man. p 195. Yarrell's Br. B. vol 2. p 510. Bewick's Br. B. vol 2. p 38.
Not uncommon, but scarcely abundant: — most so in winter, but a few remain to breed in the high grounds.

Whimbrel. N. Phaeopus. Jenyns' Man. p 195. Yarrell's Br. B. vol 2. p 516. Bewick's Br. B. vol 2. p 40. Half Curlew, and May Bird, from their arriving in migration, in small flocks in May; at which season the fishermen see them crossing the Channel from France.

Spotted Redshank. Totanus Fuscus. Yarrell's Br. B. vol 2. p 520. Jenyns' Man. p 196. Bewick's Br. B. vol 2. p 73.
Mr. Rodd has met with it occasionally near the Land's end, in the winter months; & one was killed in the first week in September.

Common Redshank. T. Calidris. Yarrell's Br. B. vol 2. p 524. Jenyns' Man. p 196. Bewick's Br. B. Vol 2. p 75.
Not uncommon in Autumn and winter.

Green Sandpiper. T. Ochropus. Jenyns' Man. p 197. Yarrell's Br. B. Vol 2. p 528. Bewick's Br. B. Vol 2. p 89.
Mr. Rodd says, several specimens have been obtained from the Land's end district towards the Autumn; and Mr. Cocks reports one shot near Falmouth in August.

Wood Sandpiper. T. Glareola. Tringa G. Bewick's Br. B. vol 2. p 99. Jenyns' Man. p 198. Yarrell's Br. B. Vol 2. p 534.
Mr. Rodd says, it is not uncommon in the west in the Autumn, and

sometimes in the Spring. Mr Yarrell quotes from him an instance of the killing of seven of these birds, in the Land's end Marshes, on one day: all of them being birds of the Year.

Common Sandpiper. T. Hypoleucos. Tringa H. Bewick's Br. B. Vol 2. p 101. Jenyns' Man. p 199. Yarrell's Br. B. vol 2. p 539.

Common in Summer.

Green Shank. T. Glottis. Jenyns' Man. p 200. Yarrell's Br. B. vol 2. p 549. Bewick's Br. B. vol 2. p 71 & 68.

In Winter, not uncommon.

Avocet. Recurvirostra avosetta. Bewick's Br. B. vol 2. p 124. Jenyns' Man. p 201. Yarrell's Br. B. vol 2. p 555.

This bird is rare; but it has been seen near the Swanpool at Falmouth, and the Specimen in the Museum of the Royal Institution at Truro, was shot at Hatplace. Mr Rodd mentions one as being seen obtained from the Land's end; and Mr Cocks mentions two as killed also near Falmouth, in 1849.

Stilt Plover. Charadrius Himantopus. Himantopus melanop-terus. Bewick's Br. B. vol 1. p 374. Jenyns' Man. p 201. Yarrell's Br. B. vol 2. p 559.

The Capture of a Specimen of this rare and remarkable bird is recorded by the learned Mr Moyle, as having taken place in the beginning of the 18th Century; and one was killed, and another seen at the Swanpool near Falmouth, in the Year 1844; on the Authority of Mr Tresidder, of Hat town.

Blacktailed Godwit. Scolopax Lapponica. L. Limosa. Limosa melanura. Bewick's Br. B. vol 2. p 66 & 70. Jenyns' Man. p 203. Yarrell's Br. B. vol 2. p 563.

Rare. It has been noticed near the Land's end, and obtained near Falmouth: at the latter place by Mr Cocks in the middle of December.

Bartailed Godwit. Sc. ægocephala. L. rufa. Bewick's Br. B. vol 2. p 61 & 64. Jenyns' Man. p 202. Yarrell's Br. B. vol 2. p 569.

Not rare, especially in the West. In the beginning of May, 1836, nume-

rous flocks, containing many hundreds of those birds, were seen by fishermen at about three leagues from land on our eastern coast, coming from the west and flying up the channel, as if pursuing a migration to the Eastward. One of them, which from fatigue rested on a boat, was taken and brought on shore alive; when it was observed to be far advanced in assuming the Summer's plumage.

Ruff. Tringa Pugnax. Bewick's Br. B. vol 2. p 79. Denys' Man. p 207. Yarrell's Br. B. vol 2. p 573.

Not common; but sometimes seen near the Land's end. It has also been taken near Truro in March.

Woodcock. Scolopax Rusticola. Bewick's Br. B. vol 2. p 45. Denys Man. p 284. Yarrell's Br. B. vol 2. p 583.

A common and well known winter Visiter; but in some instances they have been known to remain and breed with us. Dr. Borlase records the circumstance of a nest having been found; and gives a figure of the embrio bird that was extracted from the egg. A young one also, that was unable to fly, was found on the public road near Bodmin; and was brought to Mr. Clement Jackson to be preserved. It has been known that the parent birds carry the yet unfledged young ones from the nest to a neighbouring marsh, for the purpose of seeking food; and it appears probable that in this instance, the young one had fallen from the parents embrace in such a passage. The accident of being wounded, and thus rendered incapable of distant flight, may in some instances explain the fact of the woodcocks' remaining with us through the Summer; — but not in all. The earliest known immigrant was killed on the 24th of September; but the usual time of beginning to drop in, is in the first ten days of October. It has been often remarked that they arrive in the Scilly Islands before they are seen in Cornwall. Mr. Lobley says that "during the prevalence of strong gales in a direction varying from East to North, they are generally found here before they are discovered in England, and are first seen about the Eastern Islands and the neighbouring cliffs. On their arrival at Scilly they are mostly in an exhausted state, and

fly low. View of Scilly. p 81. It has been rendered probable that those wood-cocks of the west of Cornwall have their Summer retreats in the Pyrenean Mountains; where it seems certain these birds breed, and which they quit in winter. The Ponds and moist grounds near Sennen, close to the Land's end, are favourite resorts of those & other birds of this Class. On one Occasion hundreds of wood cocks were found dead, and floating, near the Lands end, in the year 1848.

Great Snipe. Solitary Snipe. Sc. Major. Bewick's Br. B. Vol 2. p 51. Jenyns' Man. p 205. Yarrell's Br. B. Vol 2. p 597.
Not common; but several notices occur, of the Capture of this bird, both in the east and west of the County.

Common Snipe. Sc. Gallinago. Bewick's Br. B. Vol 2. p 55. Jenyns' Man. p 205. Yatrell's Br. B. Vol 2. p 603.-
Common in winter; and some usually remain in the moors to breed. Mr. Rodd in his List of British & Cornish Birds, printed in the Report of the Nat. Soc. of Penzance for 1850, speaks of a brown variety of the Snipe, with the dorsal stripes narrower, that is sometimes met with; but since the date of this publication a suspicion appears to been excited in the mind of that Gentleman — and no one better qualified to form an opinion on the subject — that the bird is something more than a mere Variety: and in fact that it is a species not before recognized. In the Zoologist for 1865. p 9704. Mr. Rodd says: For some years past I have occasionally met with a Snipe in this neighbourhood, which I strongly suspect to be distinct from the common Snipe, and not hitherto described. I think the first I observed was in 1834. It was sent to me by a gentleman who devoted himself at that time to Snipeshooting, and who thought, from its superior size and its general dark tone of colour, that it was a different bird from the common Snipe. Some little time afterwards I submitted my bird to Mr. Yarrell, and that gentleman informed me he had consulted some Scientific Ornithologists, and he believed, as well as themselves, that the bird was referrible to the common Species, and

that the greater depth of colouring might be attributed to summer plumage. I omitted to tell him when the bird was killed (about Christmas) but if I had done so he would not have suggested this Cause for the variation of the plumage. Some five or six examples have since come to my notice, and I may remark that the size of the new bird is longer and more bulky than the common Snipe. The whole of the tints of the upper plumage, both as to rufous and buff markings, are darker, and the longitudinal dorsal stripes are much narrower and appear altogether more obscure than in the Scolopax Gallinago. There is also more rufous about the neck and shoulders, and the under parts are more darkly clouded, with the flanks much more streaked, and the belly less silvery white. Mr Vingoe has been looking out for Specimens during this hard winter, and succeeded in shooting one, which he says, rose without any note, and without any companions. All the Specimens that I have seen correspond with each other: they all appear larger than the Common Snipe, but like that bird, have fourteen tail feathers. — With the great probability that this bird will at last be proved to be a distinct Species, there can be no hesitation in naming it, from its discoverer S. Roddi.

Jack Snipe. Sc. Gallinula. Bewick's Br. B. Vol 2. p 59. Jenyns' Man. p 206. Yarrell's Br. B. Vol 2. p 611.
Common; but less abundant than the common Snipe, and never remaining to breed with us.

Pigmy Curlew. Curlew Tringa. Tringa Subarquata. Jenyns' Man. p 208. Yarrell's Br. B. Vol 2. p 625. Bewick's Br. B. Vol 2. p 42.
Common in favourable situations, in the months of Autumn.

Knot. T. Islandica - Cinerea - Canutus. Bewick's Br. B. Vol. 2. p 96 & 97. Jenyns' Man. p 213. Yarrell's Br. B. Vol 2. p 630.
A winter visiter, but not in considerable numbers.

Buff breasted Sandpiper. T. Rufescens. Jenyns' Man. p 214. Yarrell's Br. B. Vol 2. p 634.
Of this beautiful and rare bird a single Specimen has been obtained in Cornwall. It was shot on the sands between Penzance and Marazion,

On the 3rd of September, 1846, and the Specimen is preserved in the collection of Mr. Rodd.

Little Stint. T. Pusilla — minuta. Bewick's Br. B. Vol 2. p 115. Jenyns' Man. p 212. Yarrell's Br. B. Vol 2. p 643.
Not uncommon in favourable situations. My late friend Mr C. Jackson had several times shot this Species at the Swanpool singly, and once he saw a flock of ten or twelve there.

Temminck's Stint. T. Temminckii. T. Pusilla of Fleming — Jenyns' Man. p 211. Yarrell's Br. B. Vol 2. p 647: who says, p 650. the American Stint. T. Pusilla of Linneus and Wilson is perfectly distinct from either of our (above named) British Species: Since this was written however, and before the death of this excellent Naturalist Historian, he had to record on the authority of Mr. Rodd, and from his own examination of the Specimen, the occurrence of the true T. Pusilla of Linneus, or American Stint, as having been obtained in Cornwall. It was shot near Penzance in October, 1854. Temminck's Stint appears to be scarcely uncommon, although for the most part only found in the west of the County.

Schinz's Sandpiper. T. Schinzii. Yarrell's Br. B. Vol 2. p 651. The knowledge of the occurrence of this rare Bird in Cornwall, is due to Mr Rodd, to whom we are indebted for the discovery of so many Species otherwise unknown in the County. It is a native of America and the Specimen was killed in Scilly in 1855. Two others had been obtained near Hayl in October 1846: one of which is in the possession of the same Gentleman.

Pectoral Sandpiper. T. Pectoralis. Jenyns' Man. p 210. Yarrell's Br. B. Vol 2. p 654.
This also is a Native of America; but two Specimens were seen, and one was killed, in Annet, one of the Scilly Islands, by D. W. Mitchell Esq: then living at Penzance, but since that time the active Secretary of the Zoological Society in London.

Dunlin. T. Alpina - Cinclus - variabilis. Bewick's Br. B. Vol 2. p 110 & 112. Jenyns' Man. p 209. Yarrell's Br. B. Vol 2. p 658. Purr: the young represented at Vol 3. p 19.

Mr. Rodd says, it is generally distributed on all our flat beaches throughout the Year, but more especially in the Winter months: observed occasionally in the Summer, on Bodmin Moor, near Trevorha Marsh.

Purple Sandpiper. T. Maritima. Jenyns' Man. p 211. Yarrell's Br. B. Vol 2. p 665. The Knot of Bewick's Br. B. Vol 2. p 92. & Selsinger 1. p 94.

Not uncommon, frequenting rocks jutting into the sea, and hence properly distinguished with the name Maritima.

Phalaropes.

Grey Phalarope. Phalaropus Lobatus. Jenyns' Man. p 215. Yarrell's Br. B. vol 3. p 43.

An occasional visiter; and when it comes, often in large numbers: - most frequently in Autumn, in stormy weather. A specimen in my own possession was taken with the hand, alive, close to my own door; but it takes much to buffet it into such an exhausted condition. It is exceedingly light and active on the wing; and when several boys were engaged in throwing stones on a Company of them, which were hovering over the edge of the tide, watching for what the waves would throw to the surface, they seemed not at all alarmed at the danger, and slipped aside from the flying stones with the utmost ease, as if not noticing them. A slight flip of the wings moves it hither and thither, and with the head sunk between the shoulders, to offer the least possible space to the wind, it faces the gale without flinching, by bending the elbow and carpus in its efforts. When floating on the waves the body is turned entirely round in an instant, without the appearance of an effort.

Red Necked Phalarope. P. Hyperboreus. Bewick's Br. B. vol 2. p 157. Jenyns' Man. p 214. Yarrell's Br. B. Vol 3. p 48.

Rare. A specimen was obtained at Falmouth by Mr. Cocks, and reported to the R. C. Polytechnic S. in 1849; and one also, which was caught at Falmouth in September 1843, was exhibited at a meeting of the same Society in that year.

Rails -

Land Rail. Crex Pratensis - Gallinula Crex. Bewick's Br. B. vol 2. p 138. Jenyns' Man. p 217. Yarrell's Br. B. vol 3. p 6. Corn Crake. In summer chiefly; but it is known to have continued through the winter. One was shot December 24. after the occurrence of frost and snow; and another, February 5th. It appears to vary in its local attachment.

Spotted Rail. C. Porzana - G. P. — Bewick's Br. B. vol 2. p 140. Jenyns' Man. p. 218. Yarrell's Br. B. vol 3. p 11.
Not common: mostly in winter.

Little Crake. Little Gallinule. C. Pusilla - G. Fulgambeii - Bewick's Br. B. vol 2. p 142 & 144. Jenyns' Man. p 219. Yarrell's Br. B. vol 3. p 15.
Very rare.

Baillon's Crake. C. Baillonii. Jenyns' Man p 219. Yarrell's Br. B. vol 3. p 20.
Mr Rodd mentions one specimen of this very rare bird, as obtained from the basin of Penzance Pier, and preserved in his own collection.

Water Rail. Rallus Aquaticus. Bewick's Br. B. vol 2. p 134. Jenyns' Man. p 217. Yarrell's Br. B. vol 3. p 24. Bilcock.
Not uncommon; but in the east of the County at least, and near the coast, only seen in winter. A specimen was obtained, that fell into the Sea in endeavouring to cross the Channel, in the middle of June.

Moorhen. Gallinula Chloropus. Bewick's Br. B. vol 2. p 145. Jenyns' Man. p 220. Yarrell's Br. B. vol 3. p 28. Waterhen.
Common in sedgy places, & on the banks of ponds & rivers.

Coot. Fulica atra. Bewick's Br. B. vol 2. p 149. Jenyns' Man. p 221. Yarrell's Br. B. vol 3. p 36.
In the east of the County, near the Sea, it is seen only in the winter; and its change of quarters according to the season is made by night. It has been known to alight on a tree; which could scarcely be imagined from the structure of the feet.

Geese -

Grey legged Goose. Anas anser. Anser ferus. Jenyns' Mdn. p 222. Yarrell's Br. B. vol 3. p 53.

Some doubt exists, with regard to the occurrence of this Species in Cornwall; but its name is retained in our Fauna for reasons stated by Mr. Yarrell and Mr. Rodd. The former Gentleman says - Under the tebrm wild Goose, four or five species are frequently included, and the Grey legged Goose has not always been so well defined or represented as to exhibit the true specific characters that destin-guish it from the Bean Goose and White fronted Goose, with which the grey legged Goose is the most frequently confounded. The present species is considered to be the origin from which our valuable do-mestic race is derived; and to show the aptitude of the wild bird to this purpose, I may mention, that the Zoological Society of London, possessing a pinioned Grey legged Gander, which had never associ-ated with either Bean Goose or White fronted Goose, though both were kept on the same water with him, a domestic goose selected in the London Market, from the circumstance of her exhibiting in her plumage the marks which belong to, and distinguish the true Grey legged Species, was brought and put down to him. The pair were confined together by themselves for a few days - became im-mediately very good friends, and a sitting of eight eggs was the consequence.

Mr. Rodd, referring to this bird in its wild State observes, that no recorded instance exists of its having occurred in Cornwall; but the appearance of it, as well as of many other northern birds, in Southern latitudes, depends so much upon the severity of our winters - and we may add, upon the attention paid by sports-men to the Subject - that their occurrence at suitable periods ought not to be looked upon as improbable.

But as the Grey legged wild Goose is acknowledged to be the parent

of the domestic breed; which if introduced at all, has formed a portion of domestic economy from the earliest times – it is, if on this account only, entitled to a place in our List of Provincial Birds. There are few farms without their Geese; but a large proportion of those which are brought to market, are reared by Cotagers in the Moor Districts, and especially in the neighbourhood of Bodmin and St. Lawrence. From the nature of the country it is there accomplished with ease, and at slight expence; and presently after harvest, the farmers who practise the fattening them for the larger markets, collect them from those inland Cottagers at a lower price than, taking the risk into account, they would be able to raise them for. The same Goose has been known to live to a very great age: equalling almost the ordinary life of man.

Bean Goose. A. segetum. Anser S. Bewick's Br. B. vol 2. – Jenyns' Man. p 222. Yarrell's Br. B. vol 3. p 59.
The most frequently seen of our wild Geese; but not common except in cold winters.

White fronted Goose. A. albifrons. Bewick's Br. B. vol 2. p 311. Jenyns' Man. p 223. Yarrell's Br. B. vol 3. p 68.
Only seen in winter; when it is scarcely rare. In the cold winter of 1829 they appeared in large flocks: keeping chiefly in fields of turnips.

Bernickle Goose. A. Bernicla – Erythropus – Leucopsis.. Bewick's Br. B. vol 2. p 319. Jenyns' Man. p 224. Yarrell's Br. B. vol 3. p 72.
Scarcely common; but Mr. Rodd says, it is sometimes obtained from the Land's end Marshes; & it has been observed in Mount's bay.

Brent Goose. A. Brenta – torquatus. It has also been termed A. Bernicla. Bewick's Br. B. vol 2. p 317. Jenyns' Man. p 224. Yarrell's Br. B. vol 3. p 75.
a visiter only or chiefly in cold winters; preferring the Sea to the land.

Redbreasted Goose. A. Ruficollis. Bewick's Br. B. vol 2. p 297. Jenyns' Man. p 225. Yarrell's Br. B. vol 3. p 80.
It is believed that the mention of this Species as a Cornish bird in the first Edition of the Cornish Fauna, was on the Authority of Mr. Clement Jackson; who was well acquainted with what belonged to the birds of Cornwall. It is at least exceedingly rare.

Egyptian Goose. A. Egyptiaca. Bewick's Br. B. vol 2. p 315. Jenyns' Man. p 225. Yarrell's Br. B. vol 3. p 83.
It is doubted whether this Species has ever been taken in a wild State in Cornwall, or even in Britain. But they are reported to be kept in a tame condition, free, in the Island of Tresco in Scilly; which may explain the fact:- that three were shot in the west of the County in the winter of 1841-2, and one near Helstone in November 1849. Mr. Yarrell appears to have entertained no doubt that this bird had occurred, and even in considerable numbers, in the north of England.

Spurwinged Goose. A. Gambensis. Bewick's Br. B. vol. 2. p 313. Jenyns' Man. p 87. Yarrell's Br. B. vol 3. p 87.
Mr. Yarrell gives at large the history of the Capture, and following adventures, of the only Specimen which was ever taken in Britain; and which was killed at St. Germans in June, 1821.

Canada Goose. A. Canadensis. Bewick's Br. B. vol 2. p 293. Jenyns' Man. p 227. Yarrell's Br. B. vol 3. p 91.
A Specimen is recorded as having been obtained in Scilly, on the Authority of North's account of those Islands. p 156; as also of Mr. Rodd in Mr. Yarrell's History: altho' the mention of it is omitted in the Paper on the Subject, in the Report of the Nat. Hist. Society of Penzance for 1850.

Wild Swan. Hooper. A. Cygnus. C. ferus - musicus - Bewick's Br. B. vol. p 281. Jenyns' Man. p 227. Yarrell's Br. B. vol 3. p 97.
It visits us in small flocks, in very cold winters; observing much

watchfulness in its motions, and keeping chiefly in harbours and along the Coast. An instance is remembered, when a small flock descended on the Pond at the Priory in Bodmin; when one of them attacked so furiously the tame Swans which were kept there, that a Spectator was able to lay hold of and secure it. But it did not long survive its Captivity.

Bewick's Swan. Cygnus Bewickii. Bewick's Br. B. Vol 2. p 290. Jenyns' Man. p 228. Yarrell's Br. B. Vol 3. p 104.
In the first Edition of the Cornish Fauna it was intimated that this Species, then only beginning to be distinguished from the Hooper, would probably found to visit the County occasionally, as well as the other. Since that time but few Swans of any Sort have been seen in Cornwall, and consequently the opportunities for observation have been slight. But Mr Cocks, in a Communication to the R. C. Polytechnic Society, 1849 - has rendered it probable that a Specimen shot at Falmouth was of this Species.

Tame Swan. Mute Swan. Anas Olor - Cygnus O. Bewick's Br. B. Vol 2. p 286. Jenyns' Man. p 228. Yarrell's Br. B. Vol 3. p 115.
This Noble Bird is only known with us in a domesticated State; and in the few places where it is kept, it is valued for its stately appearance only, & not for any profit. It is remarkable, that there does not appear to be any record of a wild individual of the Species having been obtained in Britain.

Swan Goose. C. Guineënsis. Bewick's Br. B. Vol 2. - Jenyns' Man. p 226.
This Species is inserted among Cornish Birds for the same reason as it is classed among British by Bewick and Mr Jenyns. It has not been taken in a free condition; but it is kept tame by a few gentlemen because of its handsome appearance.

Shield Duck. Anas Tadorna. Tadorna Vulpanser. Bewick's Br. B. Vol 2. p 357. Jenyns' Man. p 229. Yarrell's Br. B. Vol 3. p 141.
A visiter in Severe Winters: more frequent in the West of the County. Mr

Rodd has obtained it from the Ponds at the Land's end, and Mr. Cocks at Falmouth.

Muscovy Duck. Cairina Moschata. Jenyns' Man. p 230. Domestic; but not much regarded, although so much larger than the Common Duck.

Shoveler. Anas Clypeata. Jenyns' Man. p 230. Yarrell's Br. B. vol 3. p 147.

Seen only in very cold Winters.

Gadwall. A. Strepera. Bewick's Br. B. vol 2. p 364. Jenyns' Man. p 231. Yarrell's Br. B. vol 3. p 154.

One of the rarest of the Ducks that is known to have visited us.

Pintail. A. Acuta. Bewick's Br. B. vol 2. p 372. Jenyns' Man. p. 232. Yarrell's Br. B. vol 3. p 158.

This also is a rare Species; but a male and female were reported to the R. C. Polytechnic Society, as having occurred at Falmouth 1852.

Wild Duck. A. Boschas. Bewick's Br. B. vol 2. p 342. Jenyns' Man. p 233. Yarrell's Br. B. vol 3. p 169.

This is the parent of the domestic race of Ducks; which are as abundant in Cornwall as elsewhere. In the wild Condition they visit us only in Winter. A white wild Mallard was killed in the Scilly Islands, and presented to the Museum of the Nat. Hist. Society of Penzance by Mr. Rodd. A tame Duck has been known to assume the plumage of the Mallard; as the hen of the domestic fowl, and of the Pheasant, have also been known to do.

Garganey. A. Querquedula. Bewick's Br. B. vol 2. p 390. Jenyns' Man. p 234. Yarrell's Br. B. vol 3. p 181.

Rare. It has been seen at the Swanpool near Falmouth, in March and April; and Mr. Rodd says, that several were once seen in Summer near Penzance, in very beautiful plumage.

Teal. A. Crecca. Bewick's Br. B. vol 2. p 392. Jenyns' Man. p 235. Yarrell's Br. B. vol 3. p 185.

a Winter Visiter; sometimes in considerable numbers.

Wigeon. A. Penelope. Bewick's Br. B. vol 2. p 366. Jenyns' Man. p 236. Yarrell's Br. B. vol 3. p 190.

Common in Winter.

Eider Duck. A. mollissima. Bewick's Br. B. vol 2. p 322. Jenyns' Man. p 237. Yarrell's Br. B. vol 3. p 201.

A single Specimen is all that is known of the occurrence of this species in Cornwall: a female having been shot on the Looe River at Christmas, 1839; and it was preserved by Mr. Jackson.

Velvet Scoter. A. Fusca. Oidemia fusca. Bewick's Br. B. vol 2. p 337. Jenyns' Man. p 239. Yarrell's Br. B. vol 3. p 215.

This is more especially a Sea bird; keeping along the Coast in winter; when however it is not common.

Black Scoter. A. nigra. O. nigra. Bewick's Br. B. vol 2. p 389. Jenyns' Man. p 239. Yarrell's Br. B. vol 3. p 220.

Not uncommon along the Coast in winter; and a Specimen was taken in Falmouth harbour on the 2nd of August; which confirms Mr. Yarrell's remark, that they are sometimes seen in Summer.

Red crested Pochard. Fuligula Rufina. Jenyns' Man. p 240. Yarrell Br. B. vol 3. p 229.

A rare species, and only of late noticed as British. Mr. Cocks reports a single individual which was killed at the Swanpool near Falmouth in February 1845. Report of R. C. Polytechnic Society for 1849. It chiefly frequents the Sea.

Pochard. F. Ferina – a. F. – Bewick's Br. B. vol 2. p 369. Jenyns' Man. p 241. Yarrell's Br. B. vol 3. p 233.

Locally common in Winter. Mr. Rodd finds it near the Land's end, and Mr. Cocks at Falmouth.

Scaup Duck. F. Marila. a. m. Bewick's Br. B. vol 2. p 355. Jenyns' Man. p 243. Yarrell's Br. B. vol 3. p 241.

Rarely obtained: a Winter Visiter.

Tufted Duck. F. Cristata. a. Fuligula. Bewick's Br. B. vol. 2. p 386. Jenyns' Man. p 244. Yarrell's Br. B. vol 3. p 251.

a winter visiter, of no uncommon occurrence; but most frequently in the West.

Long tailed Duck. Anas glacialis. Bewick's Br. B. vol 2. p 375. Jenyns' Man. p 247. Yarrell's Br. B. vol 3. p 255.
A winter visiter; and so rare in Cornwall that a single Specimen is only is recorded. It was killed near Penzance by Mr. Mitchell in April 1840; and is preserved (a female) in Mr. Rodd's Collection in that town.

Harlequin Duck. A. Histrionica. Bewick's Br. B. vol 2. p 388. Jenyns' Man. p 246. Yarrell's Br. B. vol 3. p 262.
Of this rare and beautiful species a Specimen was shot in the Hamoaze, in the winter of 1830; and on this account has a title to be classed with Cornish birds. But Mr. Cocks also records the capture of other Specimens.

Golden Eye. A. Clangula. Bewick's Br. B. vol 2. p 381 & 385. Jenyns' Man. p 285. Yarrell's Br. B. vol 3. p 267.
Its visits are only in very cold winters.

Smew. Mergus albellus. Bewick's Br. B. vol 2. p 276 & 278. Jenyns' Man. p 258. Yarrell's Br. B. vol. 3. p 277.
Of rare occurrence; but a few have been recorded. Mr Rodd mentions one, that was taken at the Ponds at Pendarves, and another in immature plumage near Penzance. Mr. Cocks notices three which in different years were obtained or seen within the harbour at Falmouth; and a fourth was found there in September 1853.

Goosanders.

Redbreasted Goosander. Mergus Serrator. Jenyns' Man. p 249. Yarrell's Br. B. vol 3. p 287. Bewick's Br. B. vol 2.

Goosander. M. Merganser. Bewick's Br. B. vol 2. p 266 & 269. Jenyns' Man. p 248. Yarrell's Br. B. vol 3. p 292.

These Species of Goosanders, or as Mr. Yarrell calls them, Mergansers, are only seen in Cornwall in the severest winters; but at such times they may chance to be abundant. With the Dundiver — M. Castor of Linneus, which is the female of M. Merganser, they were taken in the cold Seasons of 1829—30 and 1837—8; and again in 1845—6 & 8. They were also killed at Falmouth in the winter of 1853—4.

Grebes.

Great Crested Grebe. Podiceps Cristatus. Bewick's Br. B. vol 2. p 161 & 163. Jenyns' man. p 251. Yarrell's Br. B. vol 3. p 297.
A winter Visiter; and Mr Rodd observes, not uncommon on Marshes in the Land's end district. He adds, that it is rarely met with in the western Counties in its tufted plumage:- the deficiency of which led Bewick to make a seperate Species of what he calls the Tippet Grebe.

Rednecked Grebe. P. Rubricollis. Bewick's Br. B. vol 2. p 169. Jenyns' man. p 252. Yarrell's Br. B. vol 3. p 304.
Scarce in the east of the County; but Mr. Rodd says, that in the west it is as often seen as the Great Crested Grebe, and under the like circumstances.

Sclavonian Grebe - Eared Grebe. Horned Grebe. P. Cornutus. Bewick's Br. B. vol 2. p 167. Jenyns' Man. p 252. Yarrell's Br. B. vol. 3. p 308?
Not common.

Eared Grebe. P. Auritus. Bewick's Br. B. vol 2. p 165. Jenyns' Man. p 253. Yarrell's Br. B. vol 3. p 313.
From the plumage of the head in its most perfect condition, the two of the Grebes already mentioned - the first and third, might be termed Crested or Horned, and the two last might also be named from the plumage of the ears; and therefore something more than attention to those parts will be required to determine the Species when they occur. Perfect Specimens are rare; but that preserved in the Museum of the Royal Institution at Truro, which was obtained at Falmouth, is in the compleat summer plumage. Mr. Rodd says, that immature Specimens are not uncommon near Penzance.

Dab Chick. P. Minor. Bewick's Br. B. vol 2. p 171 & 172. Jenyns' Man. p 254. Yarrell's Br. B. vol 3. p 316.
The name of Dabchick is specially appropriated to this, the least

and most common of the Grebes; but it may be regarded as the designation of the whole family; all of which are in the strictest sense waterbirds, and dive with a quickness that is surprizing at the first flash of a Gun. It is remarkable that when wounded, and they have dived to escape their enemy, they often will not again come to the surface; but remain to die in concealment.

Divers.

Great Northern Diver. Colymbus Glacialis. Bewick's Br. B. vol 2. p 196. Jenyns' Man. p 255. Yarrell's Br. B. vol 3. p 320.

In its adult summer plumage this, the stoutest of the Divers is exceedingly beautiful and not uncommon. One of the most splendid of these, had the remarkable fate of being caught by the hand while asleep, several miles from land, in the beginning of May; and it lived for a considerable time in Captivity; being suffered to enjoy its exercise on an inland pool. In the Winter, in its immature or winter state, when it has been called the Immer, it is common, and even abundant. In January 1853, multitudes of them were seen along the coast, having been driven thither by continued stormy weather. They fed much on Crabs; which they obtained by diving.

Black throated Diver. Colymbus Arcticus. Bewick's Br. B. vol 2. p 329. Jenyns' Man. p 256. Yarrell's Br. B. vol 3. p 328.

Much scarcer than the last named species. Mr. Cocks mentions one that was shot in Falmouth harbour, in January 1846; and Mr. Rodd also notices their occurrence.

Red throated Diver. C. Septentrionalis & Stellatus. Bewicks Br. B. vol 2. p 199-201-202. Jenyns' Man. p 257. Yarrell's Br. B. vol 3. p 335.

Not uncommon, but most frequent in the west, in Autumn & winter; and one was shot on the last day of march, 1849.

Common Guillemot. Uria Troile. Bewick's Br. B. vol 2. p 188 & 190. Jenyns' Man. p 258. Yarrell's Br. B. vol 3. p 343. Foolish Guillemot. common round the Coast; and said to breed in the Scilly Isles. The distinction between this and the Ringed or Bridled Guillemot, U. Lacrymans - Yarrell's Br. B. vol 3. p 351. is exceedingly doubtful; but in any case both are found in Cornwall.

Black Guillemot. U. Grylle. Bewick's Br. B. Vol 2. p 192 & 194. Jenyns' Man. p 258. Yarrell's Br. B. Vol 3. p 355.
Not common; but in its Winter clothing it has been taken in Cornwall.

Rotche. Alca Alle - Uria A - Mergulus melanoleucos. Bewick's Br. B. Vol 2. p 185. Jenyns' Man. p 259. Yarrell's Br. B. Vol 3. p 358.
Scarce, but not rare, as a Winter visiter. It has been taken at Looe in October.

Puffin. A. Arctica. Fratercula A. Bewick's Br. B. Vol 2. p 181. Jenyns' Man. p 260. Yarrell's Br. B. Vol 3. p 362.
Not unfrequent, and even common in the West of the County. They breed in the Scilly Islands; and so abundant were they there formerly, that the Islands were held of King Henry 6th at the yearly rent, according to Woodley, of 50 Puffins, or 6 shillings and 8pence; but Mr. North says the rent was 300 Puffins. Mr. Patterson says, they were paid to the Constable of Launceston Castle. Report R. & Ty. P. for Cornwall. 1st Rep. p 86.

Razor Bill. Uria Torda & Pica. Bewick's Br. B. Vol 2. p 176 & 179. Jenyns' Man. p 260. Yarrell's Br. B. Vol 3. p 366.
Common in Summer and Winter. They breed in Scilly; and my late friend Mr. Clement Jackson found them, with the Guillemots and Gulls, breeding at the Lizard. In its early Stage this bird is called Willock by our fishermen: a name which is appropriated by Naturalists generally to the common Guillemot. And in truth fishermen commonly make but little distinction between the smaller birds of this family: applying the name of Murr also to them without much distinction. The name of Murr is derived from the sound uttered by the parent when encouraging its single Young in its first efforts at swimming.

Cormorants.

Cormorant. Phalacrocorax Carbo.-Pelecanus C. Bewick's Br. B. Vol 2. p 397 & 403. Jenyns' Man. p 262. Yarrell's Br. B. Vol 3. p 373.
Common. It is pre-eminently the Loon of our fishermen; and they distinguish it by the mark, that it carries a Watch on its thigh; but this name is also sometimes applied to any one of the larger diving birds.

Shag. Ph. Graculus - P. Cristatus. Bewick's Br. B. Vol 2. p 405. Jenyns' Man. p 262. Yarrell's Br. B. Vol 3. p 378.
A beautiful specimen of the Shag with a Crest - the Crest transverse on the forehead was exhibited at a meeting of the R.C. Polytechnic Society in 1853; and was one of six so ornamented, that were killed in Falmouth Harbour in February of that Year.
The Shag is one of our commonest Seabirds, and rarely goes far from land; although instances occur in which it seems probable they have flown across the Channel. They form their homes, as the Cormorant does also, in some secluded craggy spot, where they are little liable to be disturbed; and quitting it in the morning, to seek some distant place which offers a favourable opportunity for fishing; they fly back to their haunt early or later in the afternoon according to the success they have met with: and always in a straightforward direction, almost level with the surface of the Sea. They bring their food to the surface to swallow it, but even there the swallowing is not always easily accomplished. If the prey be a Crab, a peck at the legs causes them to drop off in succession: each one to be swallowed in succession, with the body at last also. A Conger, or Eel of large size is more difficult to deal with; for even if swallowed, he is sometimes able to wriggle himself up, and struggle to escape. By repeated blows of the bill the vertebral bones (of the spine, become disjointed, and the power of struggling destroyed;

immediately after which it is consigned to its permanent resting place. A Flounder is rolled up into a cylinder for the purpose of being swallowed; and if of large size, the jointed bones of the spine are paralyzed or fractured in the same manner as those of the Eel; so that when the prey is large a considerable time may be employed before it is finally disposed of; and the researches of the Anatomist have discovered a wonderful structure in the bones of the head and neck by which the extraordinary exertions thus required in the ordinary habits of existence are anticipated and provided for.

especially of the Cormorant

Gannet. Sula Bassanus. Pelecanus B. Bewick's Br. B. Vol 2. p408. Jenyns' Man. p 263. Yarrell's Br. B. Vol 3. p 381.

This Bird is not known to breed in any of the Cornish Islands; but it goes no further off than Lundy Island for that purpose. Individuals in various stages of its plumage are seen on our Coasts in almost all the months of the Year; but the adult Birds are most abundant in Autumn and Winter; at which Seasons their being seen to fall on Pilchards serves to show the presence of those fish, and to guide the fishermen in the direction they are pursuing. The Gannet takes its prey in a different manner from any other of our Waterbirds; for traversing the air in all directions with a heavy and irregular flight, when it discovers any fish swimming not far below the surface — or as the fishermen termit the reem of the water — it rises to such a height as experience has shown to be best for carrying it by a plunge to the required depth; and then partially closing its wings it drops perpendicularly head foremost on the prey: and rarely without success; the time between the plunge and emersion being often so much as fifteen seconds. When Pilchards are collected into a narrow space, the number and eagerness of the Gannets are often such, that it is surprizing they do not fall on and kill each other. Their clamour indeed at such times proves them to be on their guard; but it is also probable that every one in falling has its eye on the fish

it intends to seize; and the well poised wings direct it unerring-
-ly to its prey: for the form and setting on of the Gannet's wings are
well fitted to enable it to assume the perpendicular attitude prepa-
-ratory to its fall,— which is effected with ease, rapidity and precision.
The violence of the descent, however, is not always unattended with
danger; and on one occasion where the prey was the common grey
Gurnard, one of the strong and sharp rays of the first back fin
was driven into the eye, and there broken off; in the anguish of
which the bird was compelled to fly to the land— where it was taken
with the hand. On another occasion a Gannet fell on, and
grappled with a Conger of the weight of 25 pounds; and so equal
was the Contest, that the bird, not being willing to quit its attack
on so enticing a prey, alighted on the water the better to secure
its hold. In this position both the bird and fish were laid hold of
by men who had witnessed the occurrence, and drew near to them
in a boat. The Gannet, as being the least valuable of the two, was
afterwards set at liberty.

Terns.

Sandwich Tern. Sterna Cantiaca — S. Boysii Bewick's Br. B. Vol 2. p 211. Jenyns' Man. p 265. Yarrell's Br. B. Vol 3. p 389.
According to Mr North and Mr Rodd, a few of this Species have nests in the Scilly Islands. Further east in the County it is more rare; but one was shot at Looe in March.

Roseate Tern. St. Dougallii. Bewick's Br. B. Vol 2. p 214. Jenyns' Man. p 265. Yarrell's Br. B. Vol 3. p 393.
Mr. Rodd says, it is abundant in Summer, in the Scilly Islands; and breeds on Annet, one of the smaller Islands, and other places near it. It has not been seen, or at least recognized, on the more eastern Shores.

Common Tern. St. Hirundo. Bewick's Br. B. Vol 2. p 207. Jenyns' Man. p 266. Yarrell's Br. B. Vol 3. p 396.
This Species is called Miret by our fishermen; and from it the name is extended to all the Species. It is not so abundant as was formerly thought: the others of this genus having been confounded with it, but it was observed on some occasions in considerable numbers in September, and sometimes also in Spring.

Arctic Tern. St. Arctica. Jenyns' Man. p 267. Yarrell's Br. B. Vol 3. p 399.
This also is one of the Terns that frequent the Scilly Islands for the purpose of breeding. It is also seen along our eastern Coasts; and on one occasion, in the month of May 1842, such numbers were spread along the borders of the west Counties of England, as if all the Terns in the world had assembled on our Shores. They were diffused, from the Bristol Channel along various parts of Wales, & the Channel; and they even extended to the inland towns of those Districts. Of six that were shot at one time at Looe, five were males.

Whiskered Tern. St. Leucoparcia. Yarrell's Br. B. Vol 3. p 404.
Of this rare Bird one Specimen, not yet come to maturity, was obtained in the month of September, 1851. at Scilly.

Gulebilled Tern. St. Anglica. Bewick's Br. B. Vol 2. p 219. Jenyns' Man. p 269. Yarrell's Br. B. Vol 3. p 407.
This Species is more common in America than in England; and one Specimen only is recorded as Cornish; having been killed in Scilly, in May, 1852.

Lesser Tern. St. minuta. Bewick's Br. B. Vol 2. p 209. Jenyns' Man. p 267. Yarrell's Br. B. Vol 3. p 410.
Mr. Rodd says, that several examples of this small Species have been obtained close by the town of Penzance; but that it has not been observed at Scilly in the Summer. Consequently it does not breed in the Islands; nor does it appear to spread itself along the eastern Coast; since my late friend Mr. Jackson, who was a close observer of the birds of the County, had no record of it.

Black Tern. St. nigra — St. Fissipes — St. Navia. Bewick's Br. B. Vol 2. p 217. Jenyns' Man. p 268. Yarrell's Br. B. Vol 3. p 413.
Not uncommon in Autumn, thinly distributed along our Coasts. One was killed on a Moor at Deep Hatches, near Lookeard, in September: which place is more than 10 miles from the Sea. But, says Mr. Rodd, it is rarely seen in Cornwall, in its full black plumage.

Gulls.

Sabine's Gull. Larus Sabinei Jenyns' Man. p 270. Yarrell's Br. B. Vol 3. p 421.

A rare bird; but in a few instances it has been obtained in im-
-mature plumage, without that blackness of the head and neck re-
-presented in Mr. Yarrell's figure. Besides other marks, it may be distinguished from other small gulls by its forked tail; which shows its affinity to the Terns.

Little Gull. L. minutus. Bewick's Br. B. Vol 2. p 246. Jenyns Man. p 271. Yarrell's Br. B. Vol 3. p 426.

Rare; and the very few specimens which have been recognized in Cornwall, have been generally, although not invariably, in immature plumage. It is the smallest of all the Gulls; and espe-
-cially distinguished from Sabine's Gull, by the evenness of the tail.

Blackheaded Gull. L. Ridibundus. Bewick's Br. B. Vol 2. p 242. & 245. Jenyns' Man. p 272. Yarrell's Br. B. Vol 3. p 433.

A visiter in the later months of Autumn, and through the winter; at which time it is without the blackness on the head; although according to Mr. Rodd it sometimes remains with us so late in the Spring, as to be seen in this its summer clothing. It seems to prefer harbours or rivers to the open sea. It may be distin-
-guished from the Kittiwake, which it somewhat resembles, by a rim of light colour anterior to the darker border of the wings: eas-
-ily seen when it is flying. The habits of this bird are lively and unsuspicious.

Kittiwake. L. Tridactylus. L. Rissa. Bewick's Br. B. Vol 2. p 238. & the young, either of this or the last Species, mistaken by him for the little Gull. p 240. Jenyns' Man. p 274. Yarrell's Br. B. Vol 3. p 444.

Common; but for the most part if not solely, in Autumn & Winter.

Ivory Gull. L. Eburneus. Bewick's Br. B. vol 2. p 234. Jenyns' Man. p 276. Yarrell's Br. B. vol 3. p 449.

The only individual obtained in Cornwall was shot at Penzance in February, 1847; and is recorded by Mr Rodd.

Laughing Gull. L. Atricilla. Jenyns' Man. p 273. Yarrell's Br. B. vol 3. p 439.

A rare Species; of which one was killed in October 1853, at Falmouth, where it was exhibited at the meeting of the R. C. Polytechnic Society. It is one of the sort that bears a black head in Summer.

Grey Gull. L. Canus. Bewick's Br. B. vol 2. p 236. Jenyns' Man. p 270. Yarrell's Br. B. vol 3. p 452.

Common through the year: the nest in craggy rocks in solitary places.

Iceland Gull. L. Icelandicus. Jenyns' Man. p. 279. Yarrell's Br. B. Vol 3. p 456.

Very rare. A specimen was obtained at Hayl in 1840; and another in Scilly, in May 1852.

Lesser Blackblacked Gull. L. argentatus. Bewick's Br. B. vol 2. p 229. Jenyns' Man. p 277. Yarrell's Br. B. vol 3. p 463.

One of our common Gulls.

Herring Gull. L. Fuscus - L. argentatus of several Authors. Bewick's Br. B. vol 2. p 229. Jenyns' Man. p 276. Yarrell's Br. B. vol. 3. p 468.

Another of the common Gulls of our Coasts at all Seasons. In the winter and Spring, when stormy weather prevents these birds from obtaining their usual food from the sea, they resort to fields, where the plough is turning up worms from the Soil; or to heaps of decaying Sea weed that have been carried thither for manure: sometimes assembling in such numbers as to make the ground at a distance appear white. When pressed with hunger they will

even pursue and devour small birds. At sea, when the fry of fish are near the surface they will often alight to feed on them more at their ease; but usually they take up their floating food by dipping at it with their bills; and frequently the attempts are made without success. They will devour almost any thing of an animal nature; and are not unfrequently caught with a baited hook, for the purpose of obtaining their feathers.

Great Black backed Gull. L. marinus. Bewick's Br. B. Vol 2. p 223. Jenyns' Man. p 278. Yarrell's Br. B. Vol 3. p 471.

Provincial Name, Strip. Its habits cause it to be scarce rather than rare; for it is less social than our other resident Gulls; so that it not only does not mix with the others, but not much even with its own kind; so that in pairs they fix their station at some good distance from each other, and will rarely suffer other birds to intrude upon them.

Glaucous Gull. L. glaucus. Bewick's Br. B. Vol 2. p 231. & 233. Jenyns' Man. p 279. Yarrell's Br. B. Vol 3. p 475.

Not common, and consequently but little known.

Hunting Gulls.

Skua. Lestris Cataractes. Bewick's Br. B. Vol 2. p 247. Jenyns' Man. p 280. Yarrell's Br. B. Vol 3. p 481.
Not uncommon in Autumn at a few miles or leagues from land; but it never draws near to the shore. I have obtained it from fishermen; whose baited hooks it is ready to seize, as they are thrown from the boat. It is a furious and powerful bird; and has been known to make a meal of the Storny Petrel.

Pomarine Skua. L. Pomarinus. Jenyns' Man. p 281. Yarrell's Br. B. Vol 3. p 485?
More rare than the last named bird; but occurring at the same season.

Richardson's Skua. L. Richardsonii - L. Parasiticus - L. Crepidatus. Bewick's Br. B. Vol 2. p 250. Jenyns' Man. p 282. Yarrell's Br. B. Vol 3. p 489.
In Autumn chiefly; but not often observed in perfect plumage, with the tail feathers of their full length. It bears, among fishermen, the name of Tom Lorry; and has passed into a proverb for its habit of chacing the Gulls, and, as they say, compelling them to drop their excrement for it to devour. This provincial name is also extended to all the hunting and plundering birds of this genus that come on our Coasts.

Buffon's Skua. L. Parasiticus. Jenyns' Man. p 283. Yarrell's Br. B. Vol 3. p 494.
Scarcely rare in their season; and sometimes in small companies, usually in perfect plumage.
All the birds of this family are thinly scattered, when they appear with us; and most frequently appear in boisterous weather; perhaps because they are then driven before the blast, to seek the shelter of the land.

Petrels

Fulmar Petrel. Procellaria glacialis. Bewick's Br. B. vol. 2. p 256. Jenyns' Man. p 284. Yarrell's Br. B. vol 3. p 497.
Very rare. Mr Rodd mentions one specimen taken alive at the Lizard's end, and another in Mount's Bay.

Greater Shearwater. P. Puffinus - Puffinus Cinereus - P. Major. Jenyns' Man. p 284 & 285. Yarrell's Br. B. vol 3. p 502.
Scarcely uncommon; but better known in the west of the County. Mr Rodd says, it is well known in the Scilly Islands, where it is called Hackbolt. It has been known to seize the fisherman's bait. Mr Mitchell's account of this bird, as given in Mr Yarrell's History of it, is here extracted, as being particulary appropriate to a Cornish Fauna. "In November, 1839 a man brought me a Puffinus major alive, which he said he had found asleep in his boat when he went off to unmoor her, preparatory to a fishing expedition. I suppose this happened about three in the afternoon, and the bird had probably taken up his quarters at daylight. There were great numbers of this species off Mount's Bay at that time, and I soon after had two more brought to me, which had been taken by hooks. One of them is light coloured — the dark coloured bird — is the only example in that state which I have met with during my residence in Cornwall. The adult bird appears pretty regularly every Autumn, though not always in equal numbers. — Mr Clement Jackson told me — that they appear some Autumns off Looe and Polperro in thousands." On the other hand we must add, that they may not appear for several successive seasons. The figures represented in Mr Yarrell's History are from Cornish Specimens, supplied by Mr Mitchell.

Manx Shearwater. P. anglorum - Bewick's Br. B. Vol 2. p258. Jenyns' Man. p285. Yarrell's Br. B. Vol 3. p508.
Popularly called Skidden: although this name would also be applied to the last mentioned Species by fishermen. It is a common expression for any swift moving creature to say it runs like a Skidden. It is sometimes abundant late in Autumn; watching for the fishermen's baits, which they seize with eagerness. It breeds in Scilly.

Wilson's Petrel. P. Wilsoni - Jenyns' Man. p 286. Yarrell's Br. B. Vol 3. p 516.
This bird has been rarely recognized in England; but perhaps may occur more frequently than is supposed; for it is only of late that any of the smaller Petrels have been distinguished from the common little Stormy Petrel. Only one Specimen of Wilson's Petrel has been noticed in Cornwall; and this was found dead not far from Polperro. Its portrait is found in Mr. Yarrell's History of British birds, and the Specimen itself was presented to the Museum of the Royal Institution at Truro. Mr. Gould saw abundance of these Petrels "immediately off the Lands end."

Fork tailed Petrel. P. Leachii - Bewick's Br. B. Vol 2. p 261. Jenyns' Man. p 286. Yarrell's Br. B. Vol 3. p 520.
Occasionally seen in blustering weather, with rain. One Specimen was exceedingly beautiful, with a hoary grey sprinkling over the wings; one also flew into a Blacksmith's Shop at Seaton, near Looe, in an evening with dusky weather; being probably attracted by the light of the fire.

Storm Petrel. P. Pelagica - Bewick's Br. B. Vol 2. p 263. Jenyns' Man. p 285. Yarrell's Br. B. Vol 3. p 524.
At times, especially in the Autumn, in windy and drizzling weather, these birds sometimes appear in large numbers on our Coast, and even in our harbours. They are active at a late hour in the evening, & show much quickness on the wing; but they appear to go before a tempest rather than to stem it. They are often, and easily, caught by the fisher boys, with their hand nets. It breeds in the Scilly Islands.

Reptiles.

Turtles.

Trunk Turtle. Testudo Coriacea, Linneus. Sphargis C. Jenyns' Man. p 290. Bell's British Reptiles. p 11.

Borlase, in his Nat. Hist. of Cornwall, mentions the taking of two specimens of the Trunk or Leathery Turtle, entangled in Mackarel nets, on the Coasts of the County; and they were of the enormous size, one of them of seven hundred pounds, & the other of eight hundred. It is highly probable that the example referred to in the following Extract from the Falmouth Packet Newspaper, of August 1839, belonged to the same species; although from its not having been caught, there must remain some degree of doubt. —

"Penzance. On Saturday last at about 7 o'Clock in the evening, as the Trinity buoy Yacht was coming into the (mounts) Bay from the Wolf rock, something was observed about 2 miles from Pemberth Cove, floating on the water, which appeared to be a boat, bottom up. They bore away towards it, and discovered it to be an immense Turtle. They manned their boat and pursued it more than an hour, during which it dived and rose to the surface several times. They were within a boats length of it twice, but it eluded all their attempts to take it. They report it as the largest they ever saw." It seems certain that there have been other instances in which some sort of Turtle has been seen on our Coasts; but in only one has it been taken in the West of England, so as to make us certain of the Species. Mr. William

Wilcox in the 4th Vol. of the new Series of Loudon's Mag. of Nat. Hist. for March 1840. records the taking near the mouth of the river Torin Devonshire, of a living individual of the Testudo Caretta or

. It was found on the beach in the month of January,

and weighed about 200 pounds: its length being, along the curve, a-

-bout 4 feet 5 inches.

Lizards.

Sand Lizard. Lacerta agilis. Ray's Synopsis of Quadrupeds & Serpents. p 264 - Bell's Reptiles p 17. Jenyns Man. p 292. Borlase's Nat. Hist. of Cornwall Pl 28. f 35.?

As defined by Mr. Bell this appears to be a scarce species in Cornwall; but it seems to be the species to which the local name of Long Cripple particularly is applied.

Common Lizard. L. agilis of some English Authors. L. vivipara. Lacerta vivipara - Ray's Syn. p 264. Jenyns' Man. p 292. Bell's Reptiles. p 32. Obs.

A common species.

Serpents.

Slow worm. Anguis fragilis. Lin. Ray's Synopsis. p 289.
Jenyns' Man. p 294. Bell's Reptiles p 39.
It is called Long Cripple through mistake, by Borlase, Nat. Hist. of Cornwall, Pl 28. f 24. Common, and much preyed on by Cats. The skin is too slight to be cast off in a continuous whole, as in the Snake & Adder.

Snake. Natrix Torquata. Ray's Syn. p 334. Coluber Natrix, Lin.
— Jenyns' Man. p 296. Bell's Reptiles p 47.
The largest I have been credibly informed of in Cornwall, in one or two instances, have measured an inch or two more than 6 feet. It is a common Species.

Adder. Viper. Coluber Berus, Lin. Vipera, Ray's Synopsis p 285. Jenyns' Man. p 297. Bell's Reptiles. p 58. Borlase's Nat. Hist. Cornwall Pl 28. f 33. What has been called the Black Viper is no more than a variety of the common Species; and the same is generally believed of what has been called the Red Viper. The latter also appears to be what Borlase has termed the tail pointed Slow worm - p 28. But a more strange variety, or more properly monstrosity has been sometimes seen. Rzyosch, in his Theatrum omnium Animalium - Tab. - has given a figure of an adder with two heads; and in the month of October 1851. a similar one came under my own observation. It had been taken in the Parish of St. Martins, and had lived in Captivity for several weeks: and it is not a little extraordinary that another, exactly similar had been found in the same place a year before. The Creature was about half the full size; the heads were well formed, one slightly larger than the other, each capable of distinct motion; and the union was close behind the neck, the body being single. The tongue of each head was moved independantly, & the heads were sometimes stretched out in a different direction, as if

influenced by a different will. Like the generality of its race it did not eat in Captivety; and no opportunity was afforded of examining it after death.

It has been often affirmed by ordinary observers whose occupations have led to places where adders resort, that the female, which is known to produce her young already hatched, is accustomed, when danger is threatened, to receive them for safety into her mouth or stomach; as has been asserted also of the common Lizard another reptile that produces its young alive; but the fact has been generally doubted or denied by most scientific Naturalists. The circumstance is such as cannot be subjected to experiment; but there have been persons who had no intention to deceive, and who were competent Observers, who have without hesitation asserted, that, strange as it is, the act has been executed under their close Observation. A gentleman who was well qualified by his knowledge of Natural History, to judge of the interest attached to the enquiry, informed me, that he was a witness to the fact, of the entrance of the young ones into the mother's mouth; and when the latter was killed, a cord was fastened round her neck until an opportunity offered for examination; when on cutting her open, the young were found in her stomach. The following Quotation from a respectable periodical publication called the Leisure Hour, for June 1856, bears witness to the same fact: "A young man on whose veracity I can perfectly rely, informed me, that two or three weeks ago he met with a female viper and her young ones, who, immediately on their being alarmed entered their mother's mouth; whence he drew them to the number of six or eight, after he had killed the reptile. This occurred at Shedfield in Fareham, Hants; and the young man informs me that he has heard from in the same neighbourhood that they have noticed the same remarkable fact; which may now be considered indisputable". With regard to the remarkable process of exuviation, or throwing off of the skin, the Observation of Mr Bell concerning the Snake p 52-

will also apply to the Adder. It is not confined to the Spring and Autumn, as was formerly thought, but may occur at any time in the Summer. The Creature first entangles its head and neck in some tough but slender grass, of thickness just enough to hold the scales. It then wriggles itself in a variety of ways, and as the covering seperates creeps out at its own mouth without any bursting of the Covering, even of the eyes.

Woodley says, that neither Adder nor Toad is to be found in the Scilly Islands.

Frogs.

Frog. Rana Temporaria. Lin. — Jenyns' Man. p 300. Bell's Reptiles. p 84. Local name, Wilky.

There is much variety in the colour, and even form, of the frog, according to situation: the colour sometimes being a bright or pale yellow, and occasionally a deep black: with or without local marks; although when the latter occur they are in all cases of the same destribution. The time and mode of the developement of the Young in Cornwall have been particularly described in the tenth Report of the R. C. Polytechnic Society, for the Year 1842; the season at which the deposit of the Spawn and developement of the tadpole take place in the County being much earlier than in the eastern parts of the Kingdom: a circumstance which, beyond doubt is owing to the general mild temperature of our winters. Mr. Bell seems to point out the middle or end of March as the usual time in places within his knowledge; but with us it has not unfrequently happened in a favourable Spot, before the close of December, and except in very severe winters it is constantly accomplished within the first ten days of January. The coming in of cold weather a little before this date will cause it to be delayed; but a frog has been seen walking over a pool covered with ice, with the Spawn resting below, without permanent harm to either of them; although it is known that the developement of the Young is arrested by the ice. If it happen, however, that the cold becomes so severe as to cause the thermometer to sink to about 25°. — as may happen in one of our winters out of ten, and the tadpoles had already begun to show active signs of life, the influence will probably be fatal to all the Spawn di-

-rectly exposed to it: as was the Case in 1853.

Common as this Creature is, and useful also, there are some of its habits which are little known or understood.— Thus it cannot be the cold of Winter that caused it to fall into a State of torpidity; for we find that it awakes to activity at a colder temperature than that it was exposed to when it fell asleep; and although the presence of frost may cause it to delay the shedding of its spawn, the Animal is only rendered quiet, but not torpid. Frogs are also accustomed to assemblings in large Companies, and to migrations; for which no Cause is visible; as well as to sudden disappearances, of which we cannot find any ex-planation. On the 4th of April a multitude were perceived to have become active and noisy in two situations distant from each other; and in one of them, a clear pool crowded with pond weed and Cress, and through which ran a lively stream, the frogs were constantly pushing their heads above the water, tumbling and crawling over each other in an active manner. They continued thus for two days; but on the fourth day they had all so entirely disappeared, that not one could be found by any search; and no Spawn, or other mark was left behind them.

Toad. Rana Bufo, Lin. Bufo Vulgaris - Jenyns' Man. p 301. Bell's Reptiles. p 105. Ray's Syn. 2. p 252.

Common. The Spawn is deposited further on in the Spring, than is the Case with the frog; and the place chosen is usually a small running stream, rather than stagnant water. Instead of clumps of round globules, they are discharged in a string of considerable length; in which the embryotic portion lies in a double line.

The toad is not found in the Scilly Islands.

Natterjack. Bufo Calamita. Jenyns' Man. p 302. Bell's Rep-
-tiles p 116.

Locally common, at least in the season of shedding its Spawn;
which is early in March; and for which it chooses shallow pools
in rocks on the very border of the Sea: insomuch that the Rock Goby
is sometimes found in the same pool with the Spawn of this Toad;
and in boisterous weather the waves may be expected to break
into it. and yet salt water appears to be hurtful to the young
tadpoles; for some that were exposed to Seawater in a very dilu-
-ted state, presently died. The strings of Spawn are not readily
distinguished from those of the common toad; but the former appears
to be of greater length; and in one instance it was scarcely less
than a hundred feet in length; the Animal having passed between
the stems of some tufts of herbage, to assist it in their extrica-
-tion. The young are developed quickly; and, as the parents
have done before, disappear so suddenly and compleatly, as not
to be traced to their retreat: although in some situations this
cannot be far distant.

Newts.

Warty Newt. Triton Cristatus. Bell's Reptiles 119. T. Palustris
— Lacerta P. Salamandra aquatica. Ray's Syn. p 273. Jenyns'
Man. p 303.
Local.

Smooth Newt. Lipotriton punctatus. Bell's Reptiles. p 132.
Lacerta aquatica Lin. Triton P. — T. Punctatus - Jenyns' Man. p 304
Ebbet.
Common in every small stream that has a little mud at the bot-
-tom, in which it may conceal itself, and where it lies in inactive
security through the greater portion of the year.

Fishes –

Sharks.

Of all fishes the Sharks approach nearest in Natural Order to Reptiles: a fact of which Linneus has shown his opinion by placing them next in his arrangement, under the name of Swimming Amphibians, as Reptiles were called by him Amphibians of the land.

Smaller Spotted Dogfish. Squalus Canicula, Lin. Scyllium Canicula. Yarrell's British Fishes. Vol 2. Jenyns' Man. p 496.
Local name Rough (pronounced rouse) Hound; and in the west, morgie; a Cornish word, meaning Sea Dog.
This, and the two following, keep near the bottom; and are the only ones of our native Sharks, that do not hatch their young within their bodies. The Roughhound excludes them in pairs, usually in the fall of the year, although they have been seen in April. They are of an oblong shape, of a pale ~~brown~~ yellow colour, with tendrils at the corners two or three feet in length; by which they become moored to clumps of Gorgonia or other Corals, against which the fish rubs itself in order to deposit them; and round the stems of which the influence of the salt water causes them to contract and become entangled. There is a small slit at the side of the Case, the use of which seems uncertain. That it cannot permit the entrance of a drop of water is evident on inspection; and if a drop of sea water be admitted, its ill effect is instantly visible. The Cases are shed with some intervals between them; so that some are found shut up in a clump of Sertularia (flexible Corals), with the tendrils of others bound round them; and some are empty from the escape of the young, while others

are yet unhatched; although it sometimes happens that the latter have young Sertularia and other marine existences growing on them. I am informed that soup is made of the Morgie in the Scilly Islands and the west of Cornwall.

The Catalogue of the British fishes preserved in the British Museum sums up all the various names, scientific and otherwise, by which this very common fish has been known to naturalists; but most of the confusion that has existed regarding it has arisen from the supposition, by Naturalists whose studies have been for the most part carried on in Museums, that the descriptive epithet Smaller, was designed to be applied to the size of the spots with which the body is covered, and not to the fish in its full growth.

Large Spotted Dogfish. Sc. Catulus. Yarrell's Br. B. Vol 2. but Mr. Yarrell's figure, as well in his second Edition as in the first, is a very imperfect representation. Squalus C. & stellaris, Lin. Pennt. Man. p 496. Br. Museum Cat. p 124.

Local Names, Nurse hound, and in the west as in Scotland, Bounce.

This also is a ground Shark, abundantly caught by fishermen; but it keeps in deeper water in winter, and consequently is then less frequently taken. It breeds late in autumn, when the fish is less common; so that it is rare to find the purses within the body. But they are shed in the same manner as by the Rough Hound; and when fresh from the sea are beautifully marked. The motion of these ground sharks is slow and irregular, with little appearance of intelligence. When caught with a line, like the generality of Sharks, they shut their eyes; and so twist their bodies round any Object, that the roughness of their skin would inflict considerable injury if not carefully guarded against. The skin of this and the smaller species, is sometimes employed for polishing wood.

Eyed Dogfish. Sc. melanostomum. Yarrele's Br. F. Vol 2.
Pristiurus M. Blackmouthed Shark. Br. Museum Cat. p 124.

This fish is sufficiently distinguished by its prominent snout and a peculiar arming which runs along the upper border of the tail, to authorize its being placed in a different Genus from the two former; and it appears also from Mr Yarrell (B. F. 2nd Ed) that although like them, each young one is deposited at the bottom of the Sea in a seperate Case, yet that these Cases are without tendrils: so that they approach more nearly to the habit of the Raytribe in this respect.

This fish is rare. Mr Yarrell acknowledges to have taken the figure which is in his British Fishes, from a Cornish Drawing; and since then another Specimen has fallen into my hands; of a little less than 2 feet in length, and much paler colour. The markings however which gave it the name of the Eyed Dogfish, were easily distinguished. Mr Cocks has also obtained this fish at Falmouth.

Spiny Shark. Echinorhinus Spinosus. Yarrell's Br. F. Supplement. p 56.

Mr Yarrell gives two figures of this rare fish; but it is only to the second of them that reference can be made, as resembling such as have been taken in Cornwall. Dr Bowse of Penzance is the first Observer who had seen it on our Coast, and he communicated the circumstance to Mr Yarrell: too late however, to obtain for the fish a place in the work on the Subject then in the Course of publication.

This is very bulky in proportion to its length, and grows to a large size. The last example of it that has been taken in the County, and which was taken in a Trawl belonging to the port of Falmouth, measured in length 8 feet 6 inches; of which the tail was one foot 8 inches: the depth in a straight line 2 feet. The snout blunt; eye round, prominent: no temporal orifice observed; the body covered all over, from the eye to the tail, with sharp spines: except

on the surface below a line extending from the eyes to the pec-
-torals, & the belly. The breathing holes (branchiæ) - five in number
are short, close together, and below the root of the pectoral fins. The
pectorals are short, placed high, and are narrower at their setting
on than nearer their end, closing abruptly. Dorsal fins nearer the
tail, and close together: the first smallest, placed over the ven-
-trals; the hinder edges irregular; no anal fin. The tail ascends;
the fin part narrow, waved, widest at the middle: the lower lobe
rounded and obsolete. On the back the colour very dark; lighter
with blue tints along the upper sides & tail; yellow, with reddish
tints on the belly: the fins edged with reddish flesh colour

A coloured drawing of this specimen of nearly the natural size
was exhibited at a meeting of the R. C. Polytechnic Society, by Mr.
Cocks; and it is since deposited in the Museum of the Nat. Hist. Society
of Penzance. It is probable that the usual haunts of this fish
are near the bottom, in deep water; but an example of full growth
would scarcely be caught in any situation with a common fishing
line; for although the specimen mentioned by Dr. Boase was at first
not more difficult to draw up than a conger, yet we find that as it
came near the surface and became alarmed at its danger, it resis-
-ted capture with much violence. In a male specimen obtained by
Charles Fox, Esquire, there were remains of Crustacean animals in the
stomach.

White Shark. Squalus Carcharias. There is not with-
-in my reach any representation of this fish, that can be referred
to as being even moderately correct. That which is given by Mr.
Yarrell - B. F. Vol 2. p 377 - is not at all like the fish usually
known as the White Shark of the West Indies; and Cuvier
also pronounced the figure in Bloch's plate, No 19 - which is
copied by Mr. Yarrell at p 378 - to belong to a different species.
associating those facts with the description copied by Jenyns,
Manual, p 497, from Blainville's French Fauna, which in

some particulars differs from what I have seen of a Cornish Specimen, and also from the dissected portions of an example from the west Indies, and the conclusion follows, that more than or two species have been confounded together.
I have examined only one Specimen; which was taken with a line by a fisherman of Polperro, and was of small size: being short of 5 feet in length. It has been more frequently met with in Mount's Bay, or west of the Lizard; where one that was about 20 feet in length, was recognized by a gentleman who had seen this fish in the west Indies. Its visits to our coasts however are only casual, and no instance is known, of its having exercised its usual ferocious habits.

Thrasher. Carcharias Vulpes - Squalus V. Yarrell's Br. F. Vol 2. p 379: the figure from a Cornish Specimen. Jenyns' Man. p 498.

This fish, which has also been called the Sea fox, from the length of its tail, which exceeds even the length of the body, rather than from any remarkable cunning it can be supposed to possess, is scarcely uncommon in the Summer, & is therefore known to our fishermen, from its habit of beating the water with that long and flexible organ; but it is not usually ferocious, and is not therefore often caught. One which I have known taken, and which furnished a description to Mr Yarrell, was caught in a Net set for Salmon; and the small size of its mouth, with the feeble arming of the jaws, afforded proof how little able it was to free itself from an entanglement, from which most of the common Sharks frequenting our coasts would have found no difficulty of delivering themselves. It seems fitted to grapple only with prey of the smaller size.

Blue Shark. Squalus Glaucus. Carcharias Glaucus.
Yarrell's Br. F. Vol 2. p 381. Jenyns' Man. p 499.

I have long supposed that there may be more than a single species of Blue Sharks on our Coast: the distinction between them not being to be ascribed to age, sex, or merely accidental variety. If this supposition be correct — the truth of which will be best shown by dissection, — the one is distinguished from the other by a larger, & more prominent eye, a more slender pectoral fin, and especially by the shape of the tail, which is much more slender than in the other; and the line of direction of which scarcely rises above that of the hinder part of the back. The last mentioned is rather less abundant than the other; but both of them become common in the month of June, or early in July. After this they abound in large numbers; are exceedingly destructive to the Seine and Drift nets, from which they, by a single bite, cut out the fish entangled or meshed, and the net with it, with as much ease and greater rapidity than it could be accomplished with shears; and so passing along a whole string of nets as they are employed in fishing, they inflict a degree of injury which requires long labour of the fishermen to amend. They will also remain near a boat engaged in the hook and line fishery, and watch the lines as they are drawn up, to seize the the fish on the hook; and are found to snap the lines asunder with no other apparent object than the disposition to meddle with every thing near them. At such times they occasionally find themselves foiled in their intention of biting the cord asunder, by its becoming entangled in their teeth; and as their mode of dividing any substance is by some amount of revolving motion, when this has not succeeded in dividing the cord, they continue to turn the body round, until they

entwined themselves in so many of its folds, as to tire the patience of the fishermen to remove.

Blue sharks of small size are sometimes caught; but it does not appear that the young are produced in our neighbourhood. In one instance only have I known a female with enlarged eggs. These were about an inch in diameter, and the parent fish was taken on the first day of June; which is much earlier than they usually appear in our seas. Ninety three of these fishes were taken on shore from fishing boats, in Mount's Bay, at one time

Porbeagle. Lamna Cornubica. Squalus C. Jenyns' Man. p 500. Yarrell's Br. F. Vol 2. p 384.

Common in Summer and Autumn, in the pursuit of pilchards. It is as ravenous as other Sharks, but from the shape of its teeth not so destructive. An individual of no large size, when caught with a line, and about to be lifted into the boat, bit at the fisherman's woollen shirt, and cut a piece out of it.

Beaumaris Shark. Lamna Monensis - Sq. M. Yarrell's Br. F. Vol 2. p 387. Jenyns' Man. p 501.

This Species appears to me to differ much from the Porbeagle, of which most Naturalists consider it a variety. Mr Yarrell in his second Edition has come over to the same Opinion, from an examination of four examples that had come under his own inspection. This, it must be allowed, is good Authority; and it would settle the Question if it were certain that the fishes examined were true Specimens of the Beaumaris Shark; which they cannot have been, if two Specimens of this fish in the British Museum belong to the same Species. Compared with the Porbeagle these have the first dorsal fin wider and more rounded; the pectorals larger and rounder; the second dorsal also larger; the snout flatter beneath; the teeth, as far as I could observe them, less formidable;

Habits of the Diaden Spider

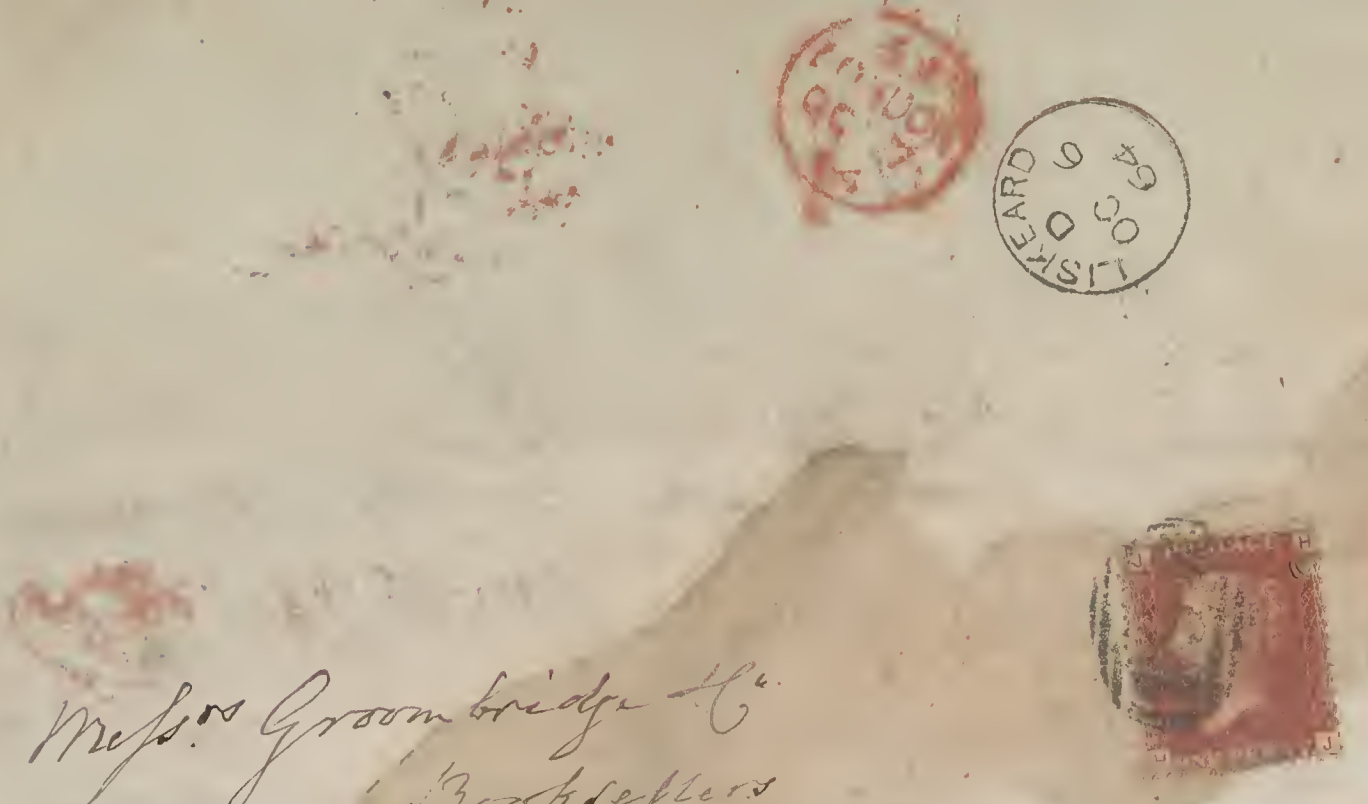
(Aranea Diadema, Linnæus.)

by Jonathan Couch F.L.S.

Several years since, in a work entitled Illustrations of Instinct I attempted to trace upwards the development of animal and mental endowments, from Creatures that are endowed with simple irritability — through stages of intermediate sensibility — to those higher classes which are chiefly influenced by instinct, but possess also a portion of reason, which however is subordinate to the more powerful animal impulse; — and from thence upward to Man, whose instincts are indeed strong, but in whom reason so presides that the former faculty is — or may be — subordinate to the latter. But in the instances which were related, of habits and actions which that had been observed in a variety of creatures as illustrative of these principles I forbore to bring forward any which I had noticed from the insect world — because, in the first place, they had not been sufficiently observed, — and also because I felt disposed to pay some deference to the opinion then, and perhaps now held as an axiom in Philosophy, that in the generality of insects the general usual course of life, and especially in the structures erected by them for the convenience of preserving food, as among bees — and rearing their young, they always work by a uniform plan: from which under no circumstance can they be made to depart. Subsequent observation, however, has led me to doubt the accuracy of these supposed truths; but in the course of the present Summer these doubts have given place to certainty: especially as regards a species of Spider to which my attention was first directed by its having selected the porch of entrance to my house as the sphere of its operations; and which therefore I continued to watch for many successive days, — at the same time making notes of what was observed: and to this have since been added further remarks which have been suggested from a study of a few others of the same species of larger growth and under other circumstances.

It has been said that whilst a modified structure of the brain is the principal matter in the manifestation of characteristic

faculties, a certain quantity of bulk also is required for affording a groundwork on which the existence of these faculties must be built: and to this principle has been ascribed the fact that in many of the lower animals not endued with what may be termed considerable mental powers as displayed even in the manifestation of instinct there is still so large a bulk of brain as is little if at all inferior to that of creatures of far higher intelligence. But if this be so what shall we say of a creature from which our history is derived, the whole body of which when we first knew it was smaller than the head of the pin with which a lady would fasten the clothes on the body of her infant baby: or a little girl will employ in dressing her little doll. Yet the considerate skill of this diminutive being in the business by which he procures his food is great, and his industry is equal to his skill; while his perseverance is not the least of these good qualities: and of all these the observations of every day afforded abundant proof. The chosen residence of my little friend was in the outward corner of a wooden partition porch at the entrance of my house, and to a retired part of this it was accustomed to retire for rest, safety, and to escape unpleasant observation. But the net was spread in a more exposed part at the opening; for this spider delight in the open air and the primary operation was to cause the thread to adhere to the cross piece or lintel above, after which it was carried below and drawn straight so as to form the lower side of a triangle with the woodwork of the porch, and thereby limiting for the most part the extent of the subsequent operations. It is only at the extremities of this line that the thread at first is made to adhere; and then it is that these begin a series of lines or cords which are made to pass from the corner or angle of the porch to the distant thread, at regular diverging distances; and about the middle of these, or inclined a little toward one side — the nearest border of the triangle, a separate thread is brought up to the more retired recess where the little creature finds his home. It is evident that this latter is to be a cord of alarm, by the vibration of which every motion of the intended victim is to be known without stirring from his place: and so well



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is this contrived that even when apparently at rest and perhaps asleep, with the head sunk and the body only appearing, with the legs extended forward, one of the hind legs retains its hold of the line by one of the joints. After forming this the next proceeding is to draw lines from one of the diverging threads to another, beginning at the outermost, at regular closing distances; so that at last we have a net spread out in a triangular form, with cords at first running from the corner of the woodwork, which cords are crossed by short lines which pass from one to another: being of course shorter as they come near the place of retreat, and also much closer together. This however is only the beginning of the plan which their little artist has laid down for himself; nor is the calculation of future continuance less evident than in some of the most elaborate works of man. One great principle is, to secure a high degree of elasticity, without which much of the labour would be in vain. A line therefore is carried downward from the thread a little at the lower angle of the original triangle was glued to the wood; and it is again fastened to the same upright wood several inches below: the evident intention being that it should form a side rope for the cross lines of the web, so that while they are kept straight by it the strain may possess such an amount of elasticity as could not be provided if these cross lines were fixed on the solid wood. A next proceeding was, to extend a cord from the upper woodwork obliquely down to this newly made perpendicular line, so as to constitute a larger triangle than the first, and so on for several lines in succession at, for the size of the workman, a considerable distance from each other; and the accuracy displayed in maintaining the proper distance was surprizing, as being equal below as it was above, although this little creature had to travel over several lengths of its own body in order to fix the cord in its proper place. And yet it never failed to observe the proper measurement, although the distance was regularly diverging, and not exactly equal. At last there came a line longer than all the others, the upper end of which was attached to the wood, and the lower end to the perpendicular line a little short of its lowest insertion; and now began another series of the work; when the lines which formed the diverging series from the original corner of the wood were carried out regularly to the outermost border, by which a considerable degree of stability was given to the latter, and the whole net that was completed. But the meshes still continued larger than was intended; and now began the labour of filling up the vacant spaces. The commencement, this was where they were largest, which was at the border; and in doing this he passed down along each cord, and from thence out on the centrally diverging line to the required distance: - at which point the cord was glued

and so on in succession for each vacancy until the meshes were filled in something like order from the innermost to the outer. I notice in one instance, where the angle formed by the wood was much larger a different order was pursued, and instead of the angle itself becoming the apparent centre in which the diverging lines were made to concentrate, this last point was formed not far from the middle of the web, as it was also the most distant from any solid support, as from other instances the most usual practise: and in accomplishing this a long single Cord was carried from this, at first imaginary, centre to the wood, and there the artist lay hid — watching for prey. This central line, unconnected with any other but where the smallest meshes were, had the double benefit of limiting vibration by strengthening the net, and also of conveying intelligence — whether of danger or a prize. It was observed that in the course of a day, and perhaps of less than half that time, the threads of the web had become covered with dust, which rendered them conspicuous and less glutinous; but in this case the web presently disappeared, and as this was usually late in the evening I was not soon able to discover by what agency this was effected; and indeed the chief part, if not all the work was carried on in the twilight or after dark. But during the day I was never able to discover any flies entangled in the web, although it is probable that some very small creatures were caught: and perhaps there were moths rather than diurnal insects, since the season of activity of this Spider is chiefly by night. But that food of some kind had been provided appeared from the fact that after a week this little Creature had grown to about twice its former size. — The only time in which I observed this individual at work in open day was when its web had been injured or destroyed by violence. But when the Cords were only inconvenienced by dust, which in the month of June was blown about in considerable abundance, the web so soiled was suffered to continue until night; at which time, about ten o'Clock, the Spider proceeded to gather up its net from all its fastenings, and to convey the mass, within its legs to the spare side of the porch, where it was deposited, and the little workman proceeded to form another. At first, from the obscurity of the light it could not be seen in what way this soiled net had been

removed; and the supposition had even been hazarded, that it had been all devoured: but when a light was directed towards him to ascertain the truth, with the aid of a large magnifyer, the little fellow ran off to his hiding place. His method of disposing of these materials was afterwards discovered, but not without the exercise of much patience and attention. But before the whole of the soiled materials had been removed, some new cords were laid for the formation of another web; the arrangement not being exactly on the model of the former, for the lines especially were longer; and it was remarked that when the diverging cords were laid out very long they were strengthened additionally at their extremities with additional moorings at the sides. The quantity of material employed in forming a new net appears to be nearly as much as would constitute the bulk of its body, and yet he has continued to renew it in twenty four hours for three or four days; but at last, after two interruptions it was noticed that at ten o'Clock at night he had not resumed his work; and on the following morning, although the new web was complete its dimensions were less, and the central narrow meshes were more towards the side. The arrangement therefore was altered, but from the slackness of the work and the lessened activity in forming it it was judged that the materials within the body had become exhausted; and thus this little industrious being was compelled to rest until Nature should provide for it a new supply. But another misfortune, and to both of us, soon followed, in the work of one to whom the existence of a Spiders web appeared a reproach; and on a day of cleaning, in my absence, the whole was swept away: although I have the gratification to believe, my little acquaintance no further suffered than in experiencing a change of residence.

It was my fortune, however, to find that another of the same species and size was at work in broad daylight, and that too with a variation in the manner of proceeding which displayed a different turn of mind from the former, and in a new degree a power to overcome difficulties. When first discovered there existed a small portion of an old soiled web; and he began with one that was carried to a larger extent; but he did not disdain to join the new and beautiful fabric to this border piece of perhaps some former workman: a scheme that I have seen put forth in other instances by Spiders of the largest growth. On this oc-

-casion a brisk wind was blowing, and the artist found it difficult
to hold on to his thread from its shaking in the wind. The piece of old web
in particular shook much. To render the work firmer, therefore, he
hasted up and down the longest and most exposed of his own lines five
times, and at each journey he joined to the former a new cord, which
from its glutinous nature closely united with it and rendered it thick
-er, and of course stronger. This accomplished his next proceeding
was to travel up one of his very fine adjoining lines and to gnaw the cup
to himself a portion of the old soiled cord and cast it free. Returning
thence to the remainder of the old, he gathers up a much larger portion
and casts it to the winds. It is too dry to adhere to the new thread, a
portion of which it touches as the wind acts on it; and in then going on then
to form the diverging threads this individual carries each one fully
out to the outer long and strengthened line which we may term the Cable;
and then he begins the cross cords, with the outward portion first — which
seems the rule with all these little schemers: and what is intended to be
the centre is marked by the diverging threads on all sides coming to a
point: which ever has a reference to the place of concealment and rest.
It may have been in consequence of the troublesome wind at that time
prevailing, that several of the encircling threads which form the meshes
were placed in an angular direction in regard to others, and not in
regularly recurring parallel lines. When a strong and harsh East
wind was blowing, although the web was soiled and torn it was
left to itself, and the adult Spider remained in its retreat, with its head
low, and the first legs stretched forward; but although appearing to be
insensible or asleep his left hind leg held fast by the warning thread that
still continued stretched out. An east wind appears to be hateful to
these little Creatures, and a bright light distasteful; but what they com-
-monly feed on is not easily ascertained. I will only add further, that
in gardens the outer threads of the web are sometimes carried to such
distances as to show, that they must have been shot forth, and carried
on the air; after which the progress of the structure must have called forth
even a higher degree of skill and patience than that is mentioned
above. — How can these Spiders parallels design
Euclid or De Moivre, without rule or line?
Fate this was the routine of instinct what is it that presides over
embroidery or taught to build St Pauls?

Strange Stories in Natural History

When Aulus Gellius was on his journey from Greece to Rome, he found on the Bookstalls in Brundisium some bundles of Greek books, which he purchased eagerly; for tho' the Authors were celebrated, it seems these Volumes were new to him. Disposed as he was, to give credit to what such Men wrote, and especially on the Subject of Natural History, on which the ancients in general were as credulous as they were ignorant, he yet calls some of the Narrations of Aristeas, Isigonius, Ctesias, Onesicritus, Polystephanus and Hegesias, unheard of and incredible. In making Extracts from these Books, which bore marks of having been much read, it does not appear that he selected those things which were the most absurd, but only that which he supposed to require further enquiry: it that even wise and learned Men thought them deserving of respect, appears from the fact, that some of them are copied into the great work of Pliny. One of these sober Narrations is, that in the far North, beside the people whose ordinary diet is Man's flesh there is a Nation who have only one eye, placed in the middle of the forhead, in the manner the Poets describe the Cyclops; and beside those, who'd are named Arimaspians, there are people who have the direction of their feet backward instead of forward, and run with remarkable velocity. In the remotest part of the Country of Albania there are born Men who are hoary headed in early youth, and are able to see better by night than by day. It is also known that the Sauromatæ which live a greatway beyond the Borysthenes are accustomed to take food only once in three days. In Africa there is a Family or Clan

that have the faculty of bewitching by means of their voice & tongue; and that if they eagerly praise beautiful trees, pleasant land, handsome children, fine horses, and the best Cattle of the farm, they die away soon, without any other cause. The eye is also said to have the same destructive influence; and some men in Illyria produce these effects by only looking in an angry manner; & it is remarkable that these individuals, whether Men or Women, who possess this faculty, have a double pupil in each eye. There are in India Men with the heads of dogs, and that bark, and their food is procured by hunting wild Animals & taking birds. In the extreme parts of the East there is a one legged Race, who move by hopping, and who are exceedingly swift. There are some also, that have no necks, & have their eyes in their shoulders.

But it is still more extraordinary what is told of a Nation in the further part of India, with shaggy bodies, from feathers springing out over them, after the manner of birds; and living without food, but supported by the scent of flowers snuff'd up their nostrils. They may have had other Authority on this subject, when he says of this people that the Nation of the Astomi were, as their name implies, destitute of a mouth; that their bodies were shaggy with a cottony substance formed from leaves; their life being sustained with the scent which they draw up their nostrils. They never eat or drink; but are fed by the smell of a variety of roots, flowers and fruits, which they carry with them when they travel. They faint under the impression of a powerful smell. Gellius goes on to extract a Notice of the Pygmies, who lived near the last named race; & the tallest of whom do not exceed thirty inches.

It is easy to explain a portion of these Accounts by reference to the higher order of Quadrumana, the Pongo & Ouran Outang, seen only perhaps by a wandering Traveller, in the wild condition; & a further error has probably sprung from the frequent circumstance, of ascribing that to a Nation, which has occurred only in a monstrous birth, or deformed individual. But a portion must be given up, as incapable of reasonable explanation; and it deserves mention only, as an evidence of the Condition

of Natural Science, at the time when it ~~did~~ was not rejected in the current Literature. In what are term'd the middle Ages, in our own Country, the existence of these Nations was implicitly credited by Men of the best education. The name of Maundevil has past'd into a proverb, for no other reason than that he believ'd that, which it would have been at that time judg'd the height of presumption to have doubted. He was certainly an honest Man; and if, in his extensive travels for thirty Years, his enquiries were often directed to the actual discovery of these strange races: — with probably such evident signs of simple credulity as tempted those of whom he ask'd, to amuse him with tales of their own invention, he is always careful to distinguish what he had seen, from which he had only heard.

Androclus and the Lion.

The following Narrative is extracted by Aulus Gellius, from the lost Writings of Appion.

In the great Circus at Rome Contests with wild and ferocious Animals are provided for the amusement of the people; and it is usual to bring thither the most fierce, the largest, or those of strangest forms, or wildest habits. The Lion is a Creature well suited to such an exhibition, and there was one, that far exceeded all the others. His bulk & force, his loud and terrible roar, his muscular frame and flowing mane attracted the eyes and attention of all Spectators. There was brought forward to fight with these Animals, among many others a Dacian Servant of a Man of Consular Rank; his name was Androclus, & when he saw the Lion at a good distance, he stood still, with marks of surprize; then presently walking slowly and quietly towards him, he approached the Man as if he were an old acquaintance; and moving his tail in a gentle manner, like a Dog when he fawns on his Master, the Animal prest himself against the body of the Man, licking his legs and hands with his tongue, while the Man remained almost dead with fear. But Androclus recovered from his terror, as the Animal continued his caresses, and was able to observe with more attention the Lion; and then might be seen the joy that arose from the mutual recognition of the Lion and Man. At this wonderful sight the People set up a shout, and Androclus was brought before the Emperor, who demanded the reason why this very fierce Lion had spared his life. Androclus in reply narrated the following wonderful Story. He said, that when his Master was Proconsul in Africa, from the constant severity and stripes which he received from him, he was compelled to fly into the desert, where he preferred the chance of dying from hunger, to the misery of a cruel home.

I may remark here, as subsequent to what I have written concerning Apion a page or two further on:— that while Pliny relates some striking Stories of the clemency of the wild Beast, he takes no notice of that which would have been most of all to his purpose: viz— Story of Androcles & the Lion: tho' according to Apion, it happen'd at Rome & was well known to the City. was this because he did not believe it? or did it happen afterwards? or never hear of it. I suspect the former: for he gives the Story of the Dolphin, which is given also by Apion.

To escape the burning heat of the Sun he took refuge in the shady recesses of a Cavern; and shortly afterwards a Lion entered the place, having one weak & bloody foot, the agony of which caused it to utter such bitter groans as to excite pity. He was greatly terrified; but the Animal advancing into what seem'd to have been its usual habitation, and discovering him where he was conceal'd, approach'd him in a mild and subdued manner, and lifting up its foot, seem'd to ask his assistance. He extracted a stout thorn from the sole of the foot, press'd out a quantity of matter, and then dried and cleans'd the wound. The Animal felt reliev'd by what was done, and placing its foot in his hand, lay down, and sunk to rest. From that time, for three Years, he liv'd in the same Cave with the Lion, & ate of the same food; for thither, for his sustenance the Creature brought the choice pieces of the animals it took, which he cook'd by the heat of the Sun. When at last his wild life became irksome, he left the Cave while the Lion was absent, and shortly after was captur'd by some Soldiers, who conducted him from Africa to his Master at Rome; who procur'd his condemnation, to be deliver'd to the Beasts. But, said he, I understand that the Lion also was captur'd, soon after I had left it, to my great safety and advantage. Apion says, that this Narrative was given by Androclus, and that the full particulars were written on a Tablet, which he carried about with him; and that at the request of the people he received his pardon, & the Lion was deliver'd to him. Afterwards, he adds, we saw Androclus leading about this Lion by a slight string, from one Tavern to another; where the Man collected gifts of Money, and the Lion was cover'd with flowers: the common exclamation being: Here is a Lion that entertains a Man, and a Man the Physician of a Lion.

As founded on the authority of the same Author I here give the History of the Boy and the Dolphin.

That Dolphins are amorous & affectionate ancient and modern instances declare. Numerous instances of this are on record: — but the particular instance of attachment is deriv'd from

the writings of the learned Egyptian Apion; who has narrated the love of a Dolphin for a Boy; with their amusements, exercises & excursions: all of which he declares to be only a part of what himself had witnessed. "I saw, says he, near Dicearchia a Dolphin that had great affection for a Boy, & was struck powerfully with this feeling at the sound of his voice. For the Fish would swim near, and take the Lad on his back, when he would approach him by ~~degrees~~ and folding back the spines of his fins that he might not hurt him, he would carry him to the distance of two hundred Stadia astride on his back. Rome therefore, and all Italy was roused out, to see this affectionate fish." It is not a little remarkable, that Pliny has, almost precisely, the same story of which however, he places the scene on Lucrine lake. He also fixes the time, as being when Augustus was Emperor, & it would appear, some time before the death of this Prince; for the Roman Naturalist gives the narrative on the authority of published Accounts by Maecenas and Flavius Alfius; & we know that the first of these two last named Gentlemen died before the Emperor. Pliny says he should have been ashamed to give this Story, unless it had been so well supported; & yet not a little doubt is thrown on it, by the number of such exceedingly similar Relations; for Theophrastus reports it to have happened at Pantacrus in Cilicia; & there are some expressions in each account which would insinuate that the whole was built on one Story & not on many. Pliny says that the Dolphin was attracted by being called Simo, a name which, tho' having no apparent meaning, was supposed to be exceedingly agreeable to the Dolphin. The Boy was accustomed to gratify it with bits of bread; & he particularly notices the care taken by the Creature, to retract or fold up its spines lest it should hurt; tho' we now know that the Dolphin has no spines to fold up. That something extraordinary must have occurred, we may safely believe, on the Authority of Maecenas & common report; but the Ancients were bad observers of matters of Nature, and saw with eyes already moulded by preconceived notions. It is the minute particulars that must have been moulded by popular

report; and even in our day we know how little that is to be trusted. The
λόγος δ' αὐ ἐδόν of Apion seems to claim some Credit: but even here
a further examination will bring his authority somewhat low. Gellius'
character of him does not speak much in his favour. He was also called
Histonicus, & was well acquainted with Literature, & wrote of all
the "wonders that were seen or heard of" in his native Country Egypt: that
native Country of wonders. "Sed in hoc quo audivisse vel legisse sese
dicit, fortasse a vitio studioque ostentationis fit loguacior; est enim
sane quam in prodicandis doctrinis suis vendidator". He was
fond of wonderful stories, therefore; & having swallowed those of Egypt
without hesitation, & obtained some fame and much profit by so doing,
it was a pleasure to him, to boast, on his return from Italy, of the wonderful
things he had seen in his Travels. The History of his Embassy, and of
the manner in which he raised accusations against the Jews before the
Emperor, are proofs how far he could go to serve a purpose; & the Answer
of Josephus against him displays his little care for accuracy of Relation. He gives the following Philosophical reason why the ancient
Greeks & Romans wore a ring on the next to the little finger of the left
hand: That on dissection of the human body, which was commonly
practised in Egypt, it is found that a very fine Nerve passes from this
finger directly to the heart: by which means this finger had connection
with the principal seat of life, & thus deserved to be especially honoured.
The little use of dissection in other places saved him from being contra-
dicted in those days; but in ours wd cause a doubt of his credit in many
other particulars. Apion has not distinguish'd what he saw from what
he heard, and was prepar'd to believe anything that seem'd wonderful
from his previous habits of learning in Egypt. The story is too much
alike, not to give suspicion that it is substantially the same; altho' Pliny's
narration refers to the Reign of Augustus, & that of Apion to the time
of Caligula.

Even the Story of the Lion is exposed to a similar suspicion with
that of the Dolphin; for tho' in some of the material circumstances it
corresponds with the Character of the Beast, yet in others it is improbable

and contradictory. It is not improbable that a Lion, described as more than usually powerful and ferocious, might be submissive to his friend; but the Creature is represented to have lost these portions of its Nature towards all the World beside: so that it was led by a slight Boy along the populous & noisy Streets of Rome, without fear or fury: a thing seen by Apion, but in itself all but impossible.

Pliny in his Dedication, says that Tiberius Cæsar was accustomed to call his Apion, the Cymbal of the world; which he would change to imaginem publicæ famæ — the Drum of public fame; because he promised to confer immortality on any one whom he should write about. Pliny must have been the same Apion; but how could he have been known to Tiberius? But if so, the Description of Mago and Pliny must have been the same as is understood by Apion Ululus Grillius.

This being known to Tiberius was probably at the time when the latter had retired to the Island of Rhodes — He seems to have fulfilled a conspicuous office in the world's eye or ear, during his left time, & would probably have been much mortified to have known that at last this being remembered would have been owing to his being mentioned by his opponents. Josephus (Book 2.) against Apion doubts whether he ought to take the Trouble of confuting him, on account of the emptiness of some things, & the scurrility he employed. He speaks ill of his principles, & represents him as a mountebank & liar. This history of the occasion for constituting a Sabbath among the Jews — of which he might easily have been informed, if such had been his object — is enough to fix his Credit forever as a forger of falsehood. It is scarcely likely that he had ever heard the story he relates; & his ignorance is clear, in confounding the Hebrew word Sabath, with the Egyptian word Sabo, a Bubo — When addressing Caligula against the Jews, he knew how to excite the anger of the Emperor, by representing that people's refusal to worship him as a God, as an instance of disaffection against his person & government; in which, of course, he would be applauded by the Patricians of the Court. But even here, himself must have known the falsehood of the representation he was making.

See further on-Apion

The Remora.

Ruysch expresses himself much at a loss to ascertain anything certain regarding the Remora, from what the Ancients have written. He supposes the Names Echeneis, Remilgo & Mancrater to apply to the same fish. Some of them suppose it a little Rockfish, with several fins in the place of feet; and Rutilianus takes it for a Shellfish, (Murex) wider than that employd in dying; and Smooth, which by adhering to the Ship, delayd its course, when passing with a fair wind, from Sercander, with a Present, to castrate the Noble Youths. Rebius represents it as a fish of a foot in length, & five inches thick. Imperatus of Naples is the first of the more modern Naturalists who seems to have had any precise knowledge of the fish which we now understand by the name of Remora, and he represents it to be its usual habit thus to delay Ships on their voyage; but the expressions - Capite supino acetabula habet similitudine cerrorum sive acetabulorum Polypi, quibus naves magnasque ac cetaceos pisces apprehendens pertinaciter haret: shows this fish to have been the common Sea Lamprey. The fish spoken of by Aldrovandus & Gesner, by the name of Remora is clearly a Cyclopterus; & probably the Cornish Sucker, if not the C. Lipareis. Rondeletius believes the Echeneis of Oppian to be the Sea Lamprey; in which he is supported by Belon. Pliny's language regarding the Echeneis, which the Romans called Remora, shows that it was a fish he did not know; & what he says can apply only to the Cyclopterus; & Rutilianus, whom he quotes, must be supposed equally ignorant; since he makes it a Shellfish - I should suppose it a Balanus; Rondeletius says, Conchæ Venereæ. Oppian's Account - p. 16 - clearly refers to the Sea Lamprey.

In Dodsley's Annual Register for 1778 is an Account of the Saklara, or Remora of the Ancients, from the Abbe Forter's Travels. The first refers to Pliny's Story, on the Authority of others, of the Ship in which Anthony sailed by the means of this fish being held fast, while other Ships of the Fleet sailed onward; and then quotes Pliny as affirming of his own knowledge. That

a ship with the Emperor Caligula on board, and 400 rowers was stop'd by one of these fishes, while the remainder of the Fleet went swiftly on. Pliny's affirmation in this case will teach us what importance to set on the alledg'd testimony of Macanas & others, relative to the story of the Dolphin. His words are, "teneut it nostra memoria" — & then he goes on to say, that Caligula, (Caligula) was very angry (Cæc indignante) at the Ship's standing still; & to appease him the Men ran round the Vessel, and pointed out to him the fish that had caus'd the delay. Pliny's story therefore, was in the first place deriv'd from some on board, or their friends, Natives of credulous & superstitious as Caligula himself: who is well known to have believ'd some as strange stories, even as this: and these deriv'd their authority from the Sailors, who having suffer'd themselves to permit the Ship to fall astern, found out this undeniable cause for the delay, to save themselves from punishment. The Abbe gives an instance of the continuance of the same superstition in our own days. His Steersman order'd the Men to come & kill the fish; which he call'd Pakkara; and in reply to his enquiries, inform'd the Abbe, that it's habit is to dege the rudder with its teeth, retarding the Vessel so sensibly that he knew it in a moment, even without seeing it. He than spoke of the Pakkara as a common fish, in shape resembling a Conger, but in length not exceeding a foot & half. We need not wonder at the credulity of such Men as Caligula, or even Pliny, when we recollect, that it was receiv'd as an accredited fact, of which it savours of unwarranted Scepticism to doubt. In the same manner the Semicircularity of the Dolphin (Delphinus) tail never suffer'd to be doubted: the only question ever allowed to be discuss'd would be, whether what at any time occurr'd was an authentic instance of this established fact. The doctrine of occult Causes lay at the bottom of these and numerous other absurdities: since there was then no reasoning to be allowed against first principles; & it is well known that the Ancients did not think it necessary closely to scrutinize the minute accuracy of any facts in Natural History.

Chronology. from Lardneri "Credibility."

It will be useful to have a Chronology of events, for the settlement of one or two Questions:

Augustus reigned from the death of Julius Cæsar 57 years 1 some months. & from the Battle of Actium - 44 years - he died Aug 19. AD 14.

Tiberius began his reign Aug 19. AD. 14.

Caius Caligula March 16. AD 37.

Claudius Jan 24. AD 41.

Nero died June 9. A 68.

Galba - Otho & Vitellius - from June 9. AD 68 to Dec 21. AD 69.

Vespasian began his reign July 1. AD 69.

Titus	June 24. A. 79.	
Domitian	Sept 13.	81.
Nerva	Sept 18	98.
Trajan	Jan 27.	98.
Adrian	Aug. 10.	117.
Antonius Pius	July 10.	138
Marcus Antonius	March 7	161.

Macenas died in the 54th year of the Age of Augustus. Christ was born in the 60th year, & as Augustus was 76 years old at his death, our Lord was then aged 16 years. Tiberius reigned 23 years, & died aged 78.

This Critical paragraph is derived from Fergusons History of the Roman Republic; & is sufficiently precise for the purpose.

Thito, the advocate of the Jews, was unable to deny the fact of the refusal;
& all his explanations were rejected with clamour; but he subsequently
had an opportunity of defence & vindication; which however, he would
not expend on Apion — who perhaps was dead or distant; — but on
the memory of the Emperor himself. Eusebius informs us that
in the Reign of Claudius he recited before the whole Senate, his work
on the antiquity of Jews; to which he humorously prefixed the title "On
the Nineteen"; and this discourse was so much admired as to be deemed
worthy of a place in the Libraries.

The Celebrity of the Man as a Poet & Orator gave occasion
to a forgery, in the 3d Century — of a Dialogue between the Apostle Peter
& Simon, the Magician, mentioned by Eusebius — & referred to
by Lardner (Gospel History — Vol 4).

Philosophy of Magic, Prodigies & apparent Miracles -

From the French of Eudebe Salverte - with Notes by D. Anthony Good Thompson

reviewed in the Athenaeum -

The Author discovered, what I have long believed, that the degree of knowledge among the very Ancient, was much greater than is now generally believed, but it was veiled from the people, & confined to the Temples. I will add, that generally it was not studied for the sake of the Philosophy, or simple or useful knowledge - but for the sake of Divinity. Magic was not a proscribed Study, among them: but a highly admired knowledge: & hence those were greatly in repute when he appeared a greater Magician than the Egyptian Magicians - even in their own Opinion: & in the same proportion, his God rose above the Egyptian Gods: - the only way in which, then, the elevation of Jehovah could have been established. Had he deprived them of power to work, it would not in their estimation have been as great, as by suffering them to work on, & then exceeding their utmost efforts. The miserable Magic of subsequent time bore the same proportion to the ancient, as modern Empericism, or quackery, bears to scientific Medicine: but as the lower Magic alone survived (& the destruction of the higher (the practice of the latter being only traditionary it appears to us only as a System of Juggling & imposition) (the difference between the false prophets & the true resulted in this: that the latter simply spoke from God, who came at his own pleasure: the former sought by fumigation, drinks, & artificial excitement, which wrought both on the imagination & the nervous System. Sacred Water - chemical inhalations - spirituous vapours &c &c - were all employed.) The hieroglyphic language was of great use for this concealment, in writing & speaking: over & above its influence in giving respect, from communicating knowledge in an unknown way. It was thought to be of great power to know the Exact Names of the Gods - See Arabian Jeffries - & this prospect of power to him who was supposed to possess this knowledge. The power of letters is shown by the belief of the Hindoos, that each letter is under the governance of an Angel (the Cabbala is built on this: but itself not ancient, & by the Jews only collected in the middle Ages - See the Jewish Rabbi --- the sacred name Jehovah, in Tradition - to work Miracles. If it is a proof of the high

antiquity of the Hebrew Alphabet & reading - that the letters themselves, & not mere sounds - form the roots of the words, in their declensions & mutations.)
This opinion may be the origin of the Gibberish of modern conjurations: the letters, words, or sounds being taken according to their original powers, seperately: & not according to their grammatical meaning. See Cato's charms.
The superstitions attached to the Cat and Goat are remains of ancient Egyptian Sorcery. The Jews in the middle ages were accused of these: Virgil styles Sorcery. & the modern belief of the Cat. The discovering secrets of futurity by over looking the muddy waters of the inundating Nile & observing the forms into which it ran on the bottom of the Cup (in allusion to by Joseph in the Book of Genesis:) & it now continued with Coffee grounds. I have seen such a perfect figure of a Man thus produced, with all his features, dress - Latitudes - as could not be believed the effect of chance - It looked like as bad Drawing & beyond doubt the result of a particular action of the hand only.) Mechanical Contrivances are proved to have been used in the temple of Ceres at Eleusis; & certainly in all the Mysteries. The visible appearance of a Spectral Image, resembling a dead person, was often practised, on principles now well known - by a Mirror: - it may be done by an Ordinary Lanthorn & Phantasmagoria. Enemies were said to be known by Magic, which is easily known to be true of the Selene tribe, even the most ferocious, will fawn on any one carrying poisonous secrets. Many of the drugs employed had a fatally fatal effect on the persons who were subjected to them: (the Victims spoken of by St. Peter to represent Deities, in the sacred Groves in India, are made to eat those meats; & they always die soon after: as if absorbed into the Deities. Those who visited the Cave of Trophonius were ever after affected with constitutional gloom: apparently the effect of some Drugs, which were given them to drink, under the name of the Waters of Mnemosyne - It appears that Numa knew the Art of procuring lightning from the Sky to his Sacrifices - his Successor being was killed in an unsuccessful attempt to imitate him. (The story of Medea is the relation of an abandoned scientific woman acting among an ignorant & credulous people.)

Theatrum universale animalium

Henrici Ruysch 2d Vol.

The sounds utter'd by animals are thus expressed in Latin: (but he quotes no Authority.) Equus hinnit: Taurus mugit: Asellus rudit: Aries blatirat: Bos balat: Sus grunnit: Verres quiritat: Canis Dragor glocitat: Ether aureus nunit: Aper frendet: Leo rugit: Tigris raucat: Panthera cavrit: Pardus felit: Lupus ululat: Barrus barrit: Canis latrat: Vulpecula ganuit: Catulus glaucitat: Lupus vagit: Mus mintrat: Mustela dentrit: Sorex districat: Rana coaxat.

The Ass - for food: add to what Pliny says: that Galen speaks of the young Ass as food; it was also used in Spain, & in the Siege of Verona in the Year 1516, when there was a great deficiency of provisions, it was considered to be a great dainty. Xenophon says that asses near the Euphrates are so swift as easily to excel a horse in speed. In England first, from the Crusades.
The Mule is preeminently the product of the horse & Ass: tho' the word is applicable to any hybrid animal. The product of an asinine father is smaller than the opposite. (See Genesis for the first Rules)

Elephants teeth. A Venetian Merchant purchased one for 36 pieces of gold. It was 14 cubits long (10½ feet) & 3 feet in thickness: & so heavy that he could not lift it from the ground.
Pliny says the Elephant possesses four Stomachs; but Aristotle says the appearance arises from the sinuosities of the intestine. In Ceylon are found the largest & most sensible in understanding

There are various accounts of the Unicorn or Monoceros: which in the estimation of the Ancients was distinct from the Rhinoceros-

& their account of the horn seperates it also from the Narwahl: with which however it was subsequently confounded. It is singular that with his universal research Ruysch makes no reference, on this subject to Olaus Wormius. Strabo speaks of it as resembling a Horse, with a horn in the midst of the forehead: to which Pliny adds the tail of a Boar, & gape of a Lion. Marco Paulo speaks of it as seen by him in the possession of Kublai Chan of Tartary: but he evidently describes a Species of Rhinoceros: tho' not the ordinary sort. It is ever represented as very rare, & keeping in the most solitary parts of Africa. Every Unicorn existence, as described by the Ancients becomes the less probable; & it is certain that the horns formerly shown in various parts of Europe, as belonging to it, were those of the Narwal. In the days when the most rare & valuable were supposed to possess the highest medical virtues, this, which was supposed to be an antidote against poison, was judged to be of unestimable value. Some German Merchants demanded 90,000 Crowns for a single horn: & a Pope of that day having erected a Repository at Rome, presented to it a piece of such a horn, which he bought at the cost of 12000 pieces of gold; & this was prescribed by the Chief Physician Augustinus Reichus, in doses of from 20 to 10 grains, with great effect. Ruysch seems to quote Pliny, (but his references are erroneous) that the Priest of the Earth, when about to prophesy, drank Bull's blood, before he descended to the Cave.

Urus — Ur is said to be an ancient German word signifying 'wild'. (Horn's history see London Magazine

The Name of Bubalus was so confusedly in the Days of Pliny for several Species. It is not the Buffalus.

Martial says that at Tollentia near the Alps the Sheep have the hair of a Dog. L 14. Eleg. 167.
Rupicapra is the Dorcas of Dioscorides.
Capra Plinii Capreolus noster est.
Stag - Wellam Duke of Bavaria had a pair of horns with 21 antlers: Albertus saw one with 11 - from which I judge the 21 to apply to the both horns. Compare Oppian for the Stag -
Rhinoceros - Dio says it was first seen in a Triumph at Rome; but Pliny says by Pompey.
Lepus, quasi levipes - Cuniculus, est fossorius - from cave -
Glis - gliscere est pinguescere crescere - Sciurus, a Skia, umbra &
Felis Homen a φηλάω, impostor, fallax, quod astute seemium sit Animal
Catus, Cattus, quasi Cautus.
Tortoise shell was costly at Rome, & was imitated with horn
Stand by "medicines". Syrup of Tortoise was anciently used as a corroborant, in Phthysis Leucacathon, at Bononia
Testudo Marina, Plenio est, Unus Maximus: which it is not
It was a question of Aristotle, why the smell of all animals is disagreable, except only that of a Panther? & this fact after his excited much visionary disquisition. The reason why it hid itself with great care, was supposed to arise from its consciousness of this, as drawing attention to itself.
Pliny's Chamois seems uncertain; but the name is Gallic.
Hyæna - on the subject of its supposed change of sex Ovid says,

— & quæ sit fœmina mergo
Posse marem, nunc esse marem mirebar Hyænam.

So that, tho' Aristotle had previously set it right, the ordinary imposition still continued: so hard is it to establish truth - It is no wonder if under such circumstances so much superstition & error became associated with the name. No less than three Animals have been taken for the Hyæna: the proper Animal, the Civet & the Beaver -

very different Creatures indeed, but agreeing in the obscurity of the distinction of their Sex.

Cuttle. One was shown to Lucullus, the head of which was as large as a Dolium hogshead - capable of holding 16 Amphoræ; the barbs hardly to be encompass'd with both arms, in length 30 feet. The Cups like basins. Reliquiæ asservatæ, miraculo pisces pendere D. C. C. 700 In the feast at the marriage of Sphicrates with the Daughter of Cotys King of the Thracians, 100 Cuttles were at the table (Athenæus) - This refers to the ancient Polypus - or Octopodia - It was well pounded before it was cook'd: See Oppian for some of its habits.

Sepia Officinalis - for the flour of its Ink - La Marcgiliers &c -

Loligo Major - Idem - bad as food.

Sepia Marcinus - from the figure - seems to me to be a Doris - not Aplysia.

Aldrin's Animal may be the latter, Pliny's the former.

Locusta - seems the Mediterranean Crawfish -

He does not refer to Pliny for Astacus - Marcinus. There seems some doubt about the species Leo, & Elephantus

Cancer Eques, from its Swiftness - but no figure - & so swift is it, that Bellonius says, a man cannot overtake it. It seems rather to fly than run. It lives on land thro' the heat of the day, & returns to the water at night: consequently a land Crab.

Pliny seems to have confounded the Crabs inhabiting bivalve shells - (Pinnotheres) with the real Hermit Crabs - inhabiting turbinated Shells.

Shells.

Pliny speaks of two kinds of Nautilus - Argonauta Argo & N. Pompilius.

The Tyrian purple shell, a Murex - but which? Truncatus

The colouring fluid in a pale vein on the neck, in small quantity.

Testaceous includes most or all turbinated shells of which trochi (from a Vagina Sp.) are a part. Cochleæ are bivalves

The Echinometra of Pliny is represented as an Echinus - with a small cup & very long spines.

English oysters were preferred by the Romans - Juvenal Sat. 4.

Muscles are ferrd by Plin, Mytoos, Mytis, Mytiscus & Musculus.
The Mytili are the River Muscles - the Gapers - Mya - Unio -
Perna is a Kind of Pinna - Lepas, see Patella -
Conchæ are Cypræa - or Olivæ -
Ostreæ are our Muscles - Pulmo Marinus of Matthiolus is a
Rhizostoma; but S. R. of Plin seems certainly, Bombyx, & so much of Spongia.
Spongia Marina
Fibræ are Ascidæ - & some of the more obscure Halichondriæ -
as the H. Suberacea - Ventriculus Marinus is the Zoophyte of a
soft mollusous texture & sometimes Ascidia -
Cucumis Marinus is an Holothuria -

On the Insects of Aves, the Author supposes the Loricæ Aristo-
-demus to be the same mentiond by Plin under the name of Aristonectes.
Rzaczynski records immense flights of Butterflies on the 15th August
1562 - so abundant as to obscure the sight of the running Moon;
& consequently we may suppose, near the Water; & in 1104 they
were in such a Cloud as to hide the light of the Sun - in
1543 they devourd every Tree, Vine, & destroyd the grass
with their burning dung. In Germany in 1543 they sprinkled
the herbage, roofs of Houses, & human clothing, with the drops
of their dung, like blood. This in England on one occasion, re
-corded by Pennius (who was he - a Naturalist - Physician,
or Historian?) is supposd to have brought the plague.
Locusts - They have sometimes desolated Italy: & in the year 874
they devastated Gaul. This flock falling into the British Channel
& thence thrown on the shore, was supposd to have been the cause of a
great pestilence that followd.
Serpents - Valerius Maximus gives the Account of the enor
-mous Serpent that in the Punic wars, resisted the Roman Army
under Regulus, at the River Bagrada in Africa (now Negrada)
& was found to be 120 feet long. Its skin & jaws were preserved at

Rome so late as the Numantian war.

Cerastes - Belonius says it has two horns, like grains of barley, over its eyes. He found it abundant in the Desert of Sinai.

The bite of the Asp is so fine, as to escape the sight.

Aconitia seu Jaculus: the Dart Snake: called, by one Author at least, the flying Serpent: by the Lemnians Sagittarius. One seen by Belonius 10 ad 3 feet long, of the thickness of the finger. Ambrosius describes it as three feet in length, & the size of a walking stick. It is found in Lybia & Egypt. It often skulks in bushes, & is capable of springing over the distance of 20 cubits: having curled itself up into a circle for purpose, to the spring.

The Snake of Aesculapius is a harmless & familiar Species, & generally is tolerated where it is known: but it will bite in resentment of injury. It was formerly fed in the Roman houses: & is now sometimes found in both in Italy.

The Serpent spoken of by Pliny L 29. C 4 is described by Virgil - Georgics L 3 [illegible] - then in Italy

Boa - one killed in the reign of the Emperor Claudius, contained in it a young child. It has been called Anguis Caprimulgus - from sucking the Goats teat. - It must not be confounded with the African or Asiatic Species. It seems questionable whether the Hydrus Marinus be not the Viperina Murena of this. Pliny L 9. C 27.

The Dragon is spoken of by many ancient Authors, & so described that the reader could not fail to believe the existence of such an animal: not easily reconciled to anything now known — & even by them described as rare, & only known in very distant regions. It is clear that Marco Paulo applied the name to the Crocodile: & such an Animal only can answer to some of the accounts of more Ancient Authors: as Elian. The idea of a winged Serpent was often represented, in the middle ages, by the skin of a Skate, distorted & contorted form: by which means the Species of such a monstrous existence was spread among the vulgar, & rendered permanent. The only thing of the kind now known, is the little flying Creature found in Candia.

The Basilisk was a wingless Dragon, & took its name from bearing the figure of a Crown on its head. The Egyptians believed it produced from the egg of the Ibis, & some more modern — from a Cocks egg: & such was the vulgar opinion. (Incredible as this appears, I think it capable of probable explanation. It is now known tho' not formerly, that the hen will assume the plumage of a Cock: & that the exciting Cause of this is a change in the structure & texture of the Ovary. The same change is known to have happened in other Gallinaceous Birds, & even in a Duck. I believe it is the same Cause, that operates in producing a beard on the Chin of some women. The final results barrenness; but previous to this, an egg unnatural in size or contents may be produced; & such a one is figured by Aldrovandus, & copied by Ruysch — Table x of Serpents — Such an egg resembles the egg of a Serpent; & the latter might easily be mistaken for the former. The egg of a Snake may often be found in or on Dung heaps, over which fowls roost: & one who had seen an egg from such a transformed fowl, or even only heard of it, might watch the hatching of a Snakes egg, & see the Serpent from it, all the while believing it to be a Cock's egg. Hens sometimes lay soft eggs, & when they do so, as wanting the firmness natural to an egg, it escapes them often on the perch, without the consciousness of laying. Such an egg would fall on the Dung heap, as I have known to happen; & often so, might easily be mistaken for a Snake's egg. But it will not produce a fowl. The probability is, that it would in ages of ignorance be mistaken for a Snakes egg, & the latter producing a Serpent would lead to the belief that the former might have done so too. Ruysch thinks, with some probability — that the Cobra da Capella is one of the Creatures that has been termed Basilisk, or the Royal Serpent. Yet imagination must have been strong, to compare its attitude, when erect, to the appearance of a Cock-

This Basilisk or Cockatrice is several times spoken of in the sacred Scriptures: & it is either made the same with, or a near relation to, the fiery flying Serpent, by Isaiah. This Prophet (Ch. 59-5) clearly alludes to the Mistake as likely to be committed, of either eating the Serpents eggs in mistake for that of a fowl; or of putting them to be hatched under a hen, & getting a brood of Snakes instead of Chicken.

From my Volume of Leland's Itinerary.

Augury 17
The Cross 94-114.
Fountains & Rivers 133
Extraordinaries 135-
Fascia in Coni XV
Light on a Spear 38-
Prodigies 97-VI-VIII
Greatage 98-VIII- But the Cricket is clearly an error: the old Woman certainly not having a Child at 80 years. I have known an old woman make a similar Lapsus linguae -
Athelred Basileus Albionis 51 (prima) & 52-
Urns inverted 51
An old Clergyman 142
Griffin - qu. a Cherub? 154.
Damation & St. Michaels Mount 54

From British & Foreign Medical Review Jan-1844

Resemblance in Progeny 372.

Plinq - dissimilarity of Issue 375.

Ancon breed of Sheep - to illustrate the Nature of Generation 377.

Hibernation - not sleep - too much cold ingestion & Alternation

still more do 524.

Mosaic work.

a Paper read before the Society of Arts - by Sir Digby Wyatt - Feb 23. 1846.

(Athenaeum 1203. 1847.

The first existence of this practice - in Persia, recorded 10th Esther. 10.-

It is again referred to in the New Testament, under the Name of the "Pavement."

The famous Palestrina Mosaic was brought to Rome by Sylla, 80 years before Christ, & deposited in the Temple of Fortune at Praeneste - the Names on it were in Greek - for a further account consult the Athenaeum for 1847. but Montfaucon has some curious engravings, of strange Animals, with Greek Characters, supposing what appears to me the Egyptian Names of

Lotus of the Ancients - There is far from agreement among Naturalists with regard to this plant - but Mr. Murray suppose it to be Nitraria Tridentata of Desfontaines, brought from the Desert of Sahara near Tunis. It is called Damonch by the Arabs who are aware of the deleterious qualities of its Berries - Canals of that Soil

Mrs Harding informs me of a Lady she knew, the Son of whose Eyes were of different Colours. one eye brown the other Black - Two Daughters of Bishop Jocelyn were so much alike, that when able to walk about, their Mother was compelled to bind different Colours round their Arms, to distinguish them

The Quarterly Review on Latin Inscriptions.

orellius' work -

The Inscriptions on the Tombs of the Scipios:

"It was well known from a passage in Cicero and another in Livy, that the Sepulchre of the Scipios stood beyond the Porta Capena of Rome; & Livy describes it as being in his time surmounted by three Statues; two of the Scipios, and Hercules, as was believed, of Pictor Ennius. But it was not till AD 1780 that some labourers at work in a vineyard, discovered a clue which led to further excavations; & thus the tombs, after having lain undisturbed for upwards of 2000 years, were unfortunately brought to light. The original inscriptions have been removed to the Vatican: the following is from "Roma antica" by Nibby; — and the following must belong to that Scipio spoken of by Pliny, tho' our Author (Pliny) has misapplied it. (?)

Honc oino. ploirume. cosentiont R.
Duonoro. optumo. fuise. viro.
Luciom. Scipione. filios. Barbati
Consol. Censor. Aidilis. Hic. fuit. A. ----
Hec. cepit. corsica. Aleriaque. urbe.
Dedet. tempestatebus. aide. mereto.

Thus interpreted,

Hunc unum plurimi consentiunt Romae
Bonorum optimum fuisse virum
Lucium Scipionem, filius Barbati.
Consul Censor Aedilis Hic fuit: atque (or apud vos - orad cos.
Hic cepit Corsicam, Aleriamque urbem.
Dedit Tempestatibus aedem merito.

This Inscription was dug up in 1616 - (it is given by Rent-jamon) - but was rejected as spurious until the others were discovered.

The greatest of the Scipios, Africanus - was not buried in the Paternal Tomb - but on the shore at Liternum. Livy speaks with uncertainty regarding it: the Inscription is supposed to have been: Ingrata Patria, ne ossa quidem habes - & the place where he lay is judged to have been where

a Modern Tower still retains the name of "Patera".

The envy of the Gods is often spoken of in ancient Authors: & in the same spirit is the following portion of an Inscription:

Dii inigui qui aemulam
Iuam vapuerunt.

The Bard - Seer - Physician & Spearmaker (Odyssey 17. v 383-384.) are public functionaries in ancient Greece.

The Styled Ink bottle are evident on the oldest Monuments of Egypt.

It is said, in the d. Revues N.° 156. June 1846. that Iranin English - Iranun in German. Menes of the Indians - Menes of the Egyptians. - Minos & Minyas of the Greeks. - is connected with a root signifying to think & thank - denoting the mind - Sanscrit, Man, to think.

The Chevalier Bunsen says: the Romans did not recognize & reverence humanity in any Nation but their own and became a town for knowledge and truth on their own accentuations & phrases without meaning to them. They recognized no one of them as other than a degraded one! — and they did not even confer a benefit except for their own advantage. Their calculating self love made them essentially beneficial rulers: but they had no esteem for their subjects: (and it is my belief that the motive of Plutarch for writing his lives in Parallels, was to show, covertly, that Greeks as great in all respects as any Romans had ever been, had lived in Greece.) Germanicus is judged to have been an exception to this Roman constitution of mind: & probably there were others of lower rank, but they were exceptions.

Arch - the earliest examples are to be found in the Cloaca at Rome: an edifice of the age of the Kings - if not anterior. It is also found in the nearly contemporary Tomb at Sakkarah in Egypt: & about 600 ys at Nineveh

Σφίγξ signifies "the Strangler" - ἔρπων - the Watcher - κύων the holder - δάκων the seizer

Uraeus - Basilisk or Asp - is a Snake which always appears as a Symbol of Royalty - It is remarkable however, that altho' the Uraeus was emphatically the Royal Snake (ὄφις ὁ ἐπὶ τῇ βασιλικῇ βασίλειος) the βασίλειον or diadem of the Egyptian Kings, was properly a group of feathers wrought in gold, adorned with a disc - & the Snake was considered as an appendage. For more concerning the Basilisk

consult the Scripture - the Pentateuch - Gedner - &c -

The Island Ebusus near Sicily drove away Serpents; its earth
did the same if carried elsewhere Book of Pliny 3. 6 5 -
The Case of Ireland - no Serpents -

Homer -
unmeasured Hellespont Iliad Vol 2. 307.
Tombstone - & Tomb Statue Iliad 02. p 136 - Figures on - Odyss. 02. 211. & 212 -
Weakness & misery of Man - Iliad 02. p 136 - & Vol -
Slaughter of a Bull - Iliad 02. p 138 -
Giving the hand in token of Friendship Iliad 02. p 811 -
Sceptre - Iliad Vol. 37 -
Sneezing - Odyss. Vol. 1. 96. in sub 02 -
Negro or Ethiopian Herald - Odyss. 01. 124 -
Charming a wound Odyss. 01 - 132 -
Gates of Heaven Odyss - 01. p 135 -
Thunder - a Sign Odyss - 01 - 168 -
The other world is Horrible ; Odyss. 01. 217 -