

APPENDIX. No. IV.

A general Notice of the Animals taken by Mr. JOHN CRANCH, during the Expedition to explore the Source of the River Zaire.

MAMMALIA.

Calitrix sabaa (Audebert, *iv. ii. f. 4.*) one of the various species of *monkeys* that are generally denominated *green*, was found in great plenty at Tall Trees.

Three very young *lions* (probably of the Senegal sort) were brought to Mr. Cranch by the natives, who called them *boulaces*. They were kept alive three days and fed on soaked bread, which doubtless caused their death.

BIRDS.

Aquila melanactos,* (*Savignys Oiseaux d'Egypt. pl. ii. f. 2.*)

Ierax musicus, Singing hawk, (*Le Vail. Ois. d'Afr. i. pl. 27.*)

Circus —, (*L'Acoli, Le Vail.*)

Elanus melanopterus, (*Sav. Ois. d'Eg. pl. ii. f. 2.*) In great plenty.

Milvus ætotius, (*Sav. Ois. d'Eg. pl. iv. f. 1.*)

Polophilus —, (*Sav. Ois. d'Eg. pl. iv. f. 1.*)

Corvus scapularis, (*Le Vail. Ois. d'Af. ii. pl. 53.*)

Coracias afra, African roller.

Passer, (*Savig. Ois. d'Eg. pl. v. f. 7.*)

Hirundo Savignii, (*Sav. Ois. d'Eg. pl. iv. f. 4.*)

Hirundo Smithii. (New species.) Black colour glossed with steel-blue, whitish beneath the tail, and wing-quills black; the former with a white band, the upper part of the head chestnut, the outermost tail feathers very long. A single specimen was killed off Chisalla island.

Alauda, (*Le Vail. Ois. d'Afr. pl. 196.*)

Sylvia, (*Savig. Ois. d'Eg. pl. v. f. 3.*)

Sylvia, (*Le Vail. Ois. d'Afr. 121.*)

Certhia cincta, (*Ois. Dor. ii. pl. 10.*)

* *Plin. lib. x. cap. 3. sec. 3. et seq.*

Certhia chalybea, (*Ois. Dor. ii. pl. 13 et 14.*)

Merops erythropterus, (*Pl. énl. 318.*)

Upupa Epops, Common Hoopoe, not varying in the slightest degree from that of Europe.

Alcedo maxima var.? With the breast ferruginous, the belly varied with black and white, the throat white. In other respects it agrees exactly with the common varieties from Senegal.

Alcedo Senegalensis, (*Pl. énl. 594.*)

Alcedo —, (*Pl. énl. 556*) probably a variety of *Senegalensis*, or the other sex.

Alcedo rudis, (*Pl. énl. 62.*)

Buceros —, (*Le Vail. Ois. d'Afr. pl. 233.*)

Perdix Cranchii, (new species.) Cinereous-brown beneath, whitish, freckled with dark-brown; the spots on the belly elongate and inclining to ferruginous; throat naked.

Columba —, (*Savig. Ois. d'Eg. pl. 5. f. 9*) common.

Vanellus —, (*Savig. Ois. d'Eg. pl. 6. f. 3.*)

Scopus umbretta, Tufted Umbel; not uncommon.

Ardea —, (*Savig. Ois. d'Eg. pl. 8. f. 1.*)

Ardea Senegalensis, (*Pl. énl. 315.*)

Parra Africana, (*Lath. Syn. tab. 87.*)

Recurvirostra ——— Very much destroyed, but from the parts remaining, not to be distinguished from our European species, *R. Avosetta*, the common Avoset.

Phalacrocorax —, (*Savig. Ois. d'Eg. pl. 8. f. 2.*)

Plotus Congensis, (new species.) Black; head and neck brownish chestnut; back and wing coverts streaked with white. One only was killed.

Anas —, (*Savig. Ois. d'Eg. pl. 10. f. 1.*)

Sterna senex, (new species.) Cinereous-black, top of the head gray, belly with a very faint and obsolete tint of chestnut.

Rhynchops niger, (*Pl. énl. 357.*)

REPTILES.

Trionyx Egyptiacus, (*Geoff. St. Hill. Rept. d'Eg. pl. 1.*) The head only of this extraordinary animal was sent home, in spirits.

Coluber Palmarum, (new species.) Reddish; beneath whitish, the scales of the

sides and back very long-ovate and carinated. Found in palm trees at Embomma.

Coluber Smythii, (new species.) Brown-gray beneath whitish, the sides, especially anteriorly, with triangular whitish spots, bordered with sooty-black; the scales of the sides and back hexagonal, rather narrower at their extremities. This species was found in great plenty near Embomma on the ground. The back is very faintly marked with some transverse narrow whitish bands, spotted with black.

FISHES.

About eighty species of this class were taken during the voyage; but as I have not yet studied the marine fishes, I can say but little about them. Two species of a genus (which appears to be new) allied to *Leptocephalus* were taken off the African coast. Their head is smaller and more pointed than that of *Leptocephalus*; their bodies are even more compressed, but are marked in the same manner by transverse zigzag lines, and their teeth are similar. Rudiments only of the dorsal and anal fins exist towards the extremity of their bodies, and no pectoral fins can be discovered.

In the river itself three new species were discovered, namely:

Sp. 1. Silurus Congensis. With the upper nostrils the angles of the mouth and each side of the chin furnished with a filament, the first ray of the dorsal and pectoral fins serrated towards the point, which is unconnected with the second ray; the second ray very much elongated and attenuated, the laciniae of the tale acute.

Obs. The first ray of the dorsal fin is only serrated towards its point, the unconnected apex itself being destitute of teeth. The first ray of the pectoral fins, is serrated above the unattached part, and the teeth are continued downwards to near its middle. It is akin to *Silurus mystus* (*Geoff. Poiss. de Nilc.*) but may very easily be distinguished from it by the characters of the pectoral fins, and by the presence of the filaments on the chin. The filaments of the chin and nostrils are nearly of equal length; those of the angles of the mouth are very long.

Sp. 2. Pimclodus Cranchii. Chin on each side nostrils and angles of the mouth furnished with a filament, pectoral fins with the first ray shorter than the second, very strong and sulcated; behind very strongly serrated, anterior

dorsal fin, with the first ray thick striated without teeth, caudal fin with lanceolate laciniae.

OBS. The front of the head is obtuse and rounded; the upper part is irregularly sulcated, and the vertex is striated: the striae being disposed in rays; the mouth is large; the filaments of the nostrils are very short, and those of the angles of the mouth are a third longer than those of the chin. The hinder dorsal fin is short and not very fleshy.

Sp. 3. *Oxyrhynchus deliciosus*. The scales concentrically sculptured, the dorsal ones rounded; those of the sides and belly very broad, the teeth linear acuminate behind and before.

OBS. This animal is doubtless referable to the genus *Oxyrhynchus* of Athenæus.* It differs from its congener *Momyrus anguilloides* (Goff. Poiss. de Nil. pl. VII.) in the form of its scales, (which in that species are of the same size and form on all parts of the body) and in the shape of the dorsal fin, which in *O. deliciosus* is more acute in its hinder upper edge. This fish is very common in the river, and its flesh is of a most exquisite flavour.

CEPHALOPODA.†

Of this class one new genus, and six new species were discovered; four of which are figured in the annexed plate.

Genus I. OCYTHOË. Sp. 1. *Ocythoë Cranchii*, of which a description is given in Appendix, No. III.

Genus II. CRANCHIA.‡ Body oval, sack-shaped: fins approximating, their extremities free: neck with a frenum behind, connecting it with the sack, and with two other frena connecting it with the sack before.

Sp. 1. *Cranchia scabra*. Sack rough, with hard rough tubercles.

Sp. 2. *Cranchia maculata*. Sack smooth, beautifully mottled with distant ovate spots.

* *Deipnos*, lib. iii. 116; viii. 356; vii. 312.

† For a synopsis of the genera of this class see Zoological Miscellany, vol. iii.

‡ The localities of the two species sent home were unfortunately lost.

Genus III. *LOLIGO*. The characters presented by three new species, are very different from those observed in the *Loligines* of the European seas. The distal suckers of the larger or supplementary arms, are produced into hooked processes, and in two of them all the suckers of the shorter arms are formed in the same manner.*

Sp. 1. Loligo Banksii. Shorter arms with globose simple suckers, the fins forming, by their union, a rhomboidal figure.

Obs. The colour of this, when alive, is pale flesh. The body is yellowish behind, sprinkled irregularly with blackish spots tinted with purple. The external aspect of the arms is freckled with purplish. The under parts of the fins without spots. One specimen was taken in the Gulph of Guinea.

Sp. 2. Loligo leptura. Shorter arms with hooks on their suckers, longer arms with free hooks on the distal suckers, tail abrupt and slender.

Obs. The body and external aspects of the arms are smooth, with a few tubercles arranged into longitudinal lines. Two were taken in 1, 8, 0 N. lat. 7, 26, 30 E. long.

Sp. 3. Loligo Smithii. Shorter arms with hooks on their suckers, larger arms with the hooks of the distal suckers furnished anteriorly with a membrane, tail gradually attenuated.

Obs. Body and arms externally tuberculated; the tubercles purple with white lips, and arranged into longitudinal lines.

PTEROPODA.†

Of this division of the molluscous tribe of animals, two species of Peron's genus *Cicodora* were taken in south lat. 2, 14, 0 E. long. 9, 55, 15, and S.

* In the museum of the College of Surgeons is preserved part of the arm of a large and unknown animal of this class, in which the suckers are all furnished with distinct strong and free hooks.

† Of the genus *FIROLA* (whose situation has not yet been satisfactorily ascertained, but which, with Cuvier, I am disposed to consider as more nearly allied to the *GASTROPODA*, than to any other class) a new species was found in S. lat. 3, 15, 0, E. long. 9, 38, 0, viz. *Firola arcuata*. Dorsal fin simple, vermiform appendage none, tail arched above, without any vermiform appendage. Two other species were sketched by Lieut. Hawkey, but were not received.

lat. 2, 41, 0, E. long. 9, 16, 0, both having a spinous process on each side of their shell, near its opening. One species is beautifully sulcated transversely, and the other but slightly so.

Hyalæa tridentata (vulgarly called the chariot *Anomia*) was also taken in abundance in the Gulph of Guinea.

GASTEROPODA.

Janthina fragilis was the only species of this class that was brought home; all the rest, as well as the collection of the species of the following class,

ACEPHALA,

were lost.

CIRRIPEDES.

Nine new species of *Barnacles* were discovered, all of which are very interesting; since they augment especially the genus *Cineras*, of which but two species only were known, and also two divisions of Hill's genus *Pentalasmis*, of which likewise very few have been described.

Sp. 1. Cineras Chelonophilus. Body lanceolate, peduncle abrupt, upper scales small and acuminate behind, the hinder scale straight and linear.

OBS. The purplish stripes of this species are very faint, and the scales beneath the legs are covered by a thin membrane, which renders them very opaque. The space between the superior and posterior scales is very great. A large quantity occurred adhering to the legs, neck, and shell of some turtles that were taken in 36, 15, 0 N. lat. 16, 32, 0 W. long. See page 9.

Sp. 2. Cineras Cranchii. Body obliquely truncated above; the peduncle rather abrupt, upper scales linear with obtuse extremities, hinder scale with a subgibbose apex.

OBS. The vittæ are three on each side, very strong; the two anterior ones are often interrupted.

Sp. 3. Cineras Olfersii. Body above acuminate, upper scales with both extremities (especially the hinder one) acuminate, hinder scale at its middle subgeniculated. Found on *Fucus natans* (*Linn.*)

PENTALASMIS.*

Divisions of the genus.

* *Hinder scale simply arcuated. Lateral scales smooth.*

** *Hinder scale simply arcuated. Lateral scales costated.*

*** *Hinder scale abruptly bent below the middle.*

Sp. 1. Pentalasmis () Cheloniæ.* Superior scales broad, rounded at their points, hinder scale convex. Found on turtles in N. lat. 36, 15, 0 W. long. 16, 32, 0. Page 9.

Sp. 2. Pentalasmis () Hillii.* Superior scales narrow, anteriorly obliquely-truncated; (hence as if produced behind), hinder scale carinated below.

*Sp. 3. Pentalasmis (**)* *Spirulæ.* Rather convex, upper scales with their points anteriorly produced.

β With the ribs spined. Found in great abundance adhering to the floating shells of SPIRULÆ. (to which in several specimens part of the animal still adhered) 22, 0, 0 N. lat. 19, 17, 0 W. long.

*Sp. 4. Pentalasmis (**)* *dilatata.* Larger scales anteriorly dilated, hinder scale with granulated striæ (often behind with two or four teeth.) 0, 14, 0, N. lat. 6, 18, 52, E. long. adhering to *Janthina fragilis.*

*Sp. 5. Pentalasmis (***) Donovanii.* Hinder scale, with a longitudinal elevated little line; angle rectangular; bend obtuse with a transverse elevated little line. Taken in 0, 38, 0 S. lat. 7, 50, 0 E. long.

*Sp. 6. Pentalasmis (***) Spirulicola.* Hinder scale narrow carinated from the apex to the angle; angle rectangular, geniculated, prominent. Found on shells of *Spirula*, 22, 0, 0 N. lat. 19, 17, 0 W. long.

CRUSTACEA.

Portunus, (a new species,) without spines on the front aspect of its arms, was taken in the Gulph of Guinea.

Iupa; of this genus three new species were discovered, all of which belong to that section in which the hinder lateral spine of the shell is very much elongated.

Machærus; a new genus allied to *Gonoplax*, but differing in having short

* The peduncle of those of the first division is very long, or moderately so; of the two other divisions extremely short.

peduncles to its eyes, which are inserted into the same part of the shell as in that genus.

Pilumnus, (a new species.) Gulph of Guinea.

Grapsus minutus, and a new species. Gulph of Guinea.

Dorippe. Species not determined.

Sp. 1. Megalopa Cranchii* (new species) with a broad, entire, porrected rostrum, having its point terminating in one spine, and each side armed with a tooth, hinder coxæ armed with a straight spine. Gulph of Guinea. This species belongs to the same division of the genus with those of our seas.

Sp. 2. Megalopa maculata. (new species) Shell smooth, and spotted with black, rostrum narrow and abruptly deflexed.

Sp. 3. Megalopa sculpta. (new species) Shell sculptured (like that of *Cancer floridus Herbst*) and very hairy, rostrum narrow and abruptly deflexed.

Obs. These two species were likewise taken in the Gulph of Guinea; they form a new division of the genus characterised by the deflexed rostra.

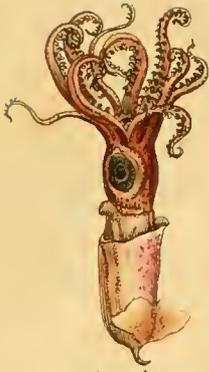
Scyllarus. Of this genus, a common species was taken during the voyage, and having been preserved in spirits, allowed me to ascertain by dissection, that its nervous system is in all respects similar to that of the other macrourous crustacea. Its lamelliform broad antennæ send their nerves to the same ganglion. The optic nerves are more curved in their course.

Of the large group of macrura comprehending the shrimps and prawns there are eleven new species, and seven new genera.

A new genus allied to *Nebalia*.

Zoëa. The type of this genus was discovered in the Atlantic by Bosc, who believed it to hold an intermediate situation between the crustacea with pedunculated, and those with sessile eyes. By Latreille it was referred to the *Entomastrea*. In N. lat. 1, 36, 0 E. long. 8, 46, 37, Mr. Cranch took a new species of this interesting genus, by which I have been enabled to verify the opinion published in the Supplement to the Encyclopædia Britannica, (vol. i. p. 423) where I have referred it to the crustacea with pedunculated eyes.

* The last segment of the abdomen on each side is furnished with two moveable plates, which I formerly overlooked.



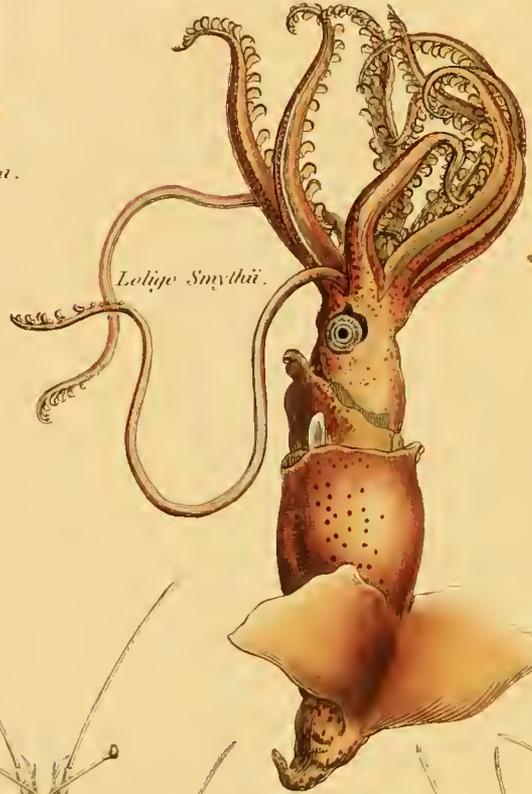
Loligo leptura.



Cranchia scabra.



Loligo Banksii.



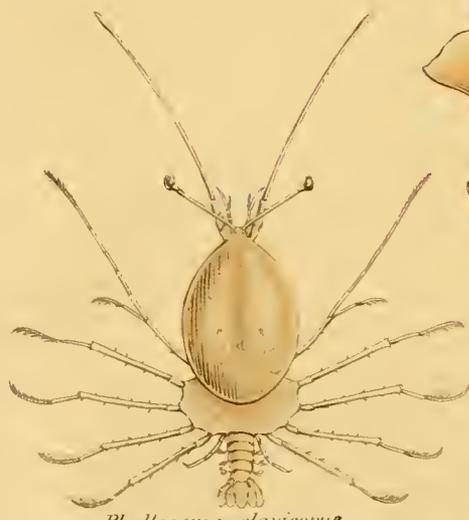
Loligo Smythii.



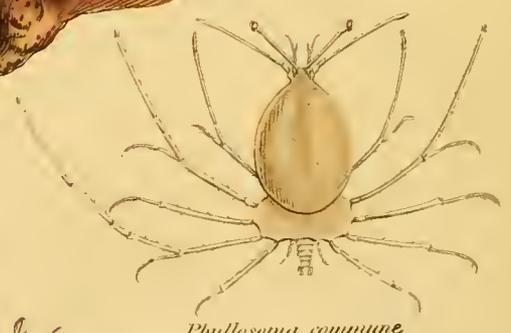
Front of Phyllosoma brevicorne



Front of Phyllosoma laticorne



Phyllosoma clavicornis



Phyllosoma commune



Smerdis armata.



Alima hyalina.



Smerdis vulgaris.



Zoëa clavata.

Zoëa clavata. The eyes of this species, like that of its congener, are large, with very short peduncles. The shell is somewhat triangular; the front being terminated by a long spiniform rostrum.* The middle of the back and the sides are armed with a long clavate spine.

Obs. It differs from Bosc's *Zoëa pelagica* in having clubbed instead of acute spines. Its situation is certainly in the same group with *Nebalia*.

Two new genera of the same natural family with *Squilla*, have established the situation of that genus. They have in common with it sixteen locomotive legs: the anterior pair is elongate and slender; the second pair much elongated and raptorious; the three following pairs are short, with their last joint compressed, and terminated by a moveable claw; the three hinder pairs are short, and remote from the rest, the last joint but one being furnished with a moveable appendice at its base.† Mouth with two mandibles and four maxillæ. Upper antennæ with three articulated setæ. Under antennæ with an elongate lamella at their base. Abdomen with two moveable foliaceous appendages arising from a common peduncle, attached to each side of the belly: the peduncle of those of the last joint is produced into a spine; the exterior lamella composed of two joints. The second pair of legs of the following new genera, *Smerdis* and *Alima*, have none of those denticulations which afford so striking a character in those of *Squilla*.

Gen. I. SMERDIS. Sides of the shell approximate beneath. Mouth anterior.

Sp. 1. *Smerdis vulgaris*. Shell with a very short spine on the hinder part of its back.

This animal was found in great plenty every day from the latter end of April to the beginning of June.

Sp. 2. *Smerdis armata*. Shell with a very long spine on the hinder part of its back. A few specimens of this species were taken between the latter end of

* Which is broken in the only tolerable specimen that was sent home.

† All the legs of these genera, as well as of *Squilla*, have each a foliaceous appendage at their base, which are certainly the organs of respiration. In *Squilla*, the outer foliaceous appendages beneath the abdomen, have filamentous processes, which the French naturalists have considered to be the respiratory organs. The two new genera want these filaments, but have those appendages (common to all the malacostraca with pedunculated eyes) at the bases of their legs.

April and twentieth of May, and were not seen afterwards, although the preceeding sort were still abundant.

Gen. II. ALIMA. Thorax elongate with the sides not approximating. Mouth placed towards the hinder part of the thorax.

Sp. 1. Alima hyalina. Occurred abundantly at Porto Praya, and in 7, 37, 0 N. lat. 17, 34, 15 W. long.

PHYLLOSOMA,* the most curious genus of crustacea that has yet been discovered, and of which there are at least four very distinct species, occurred in the greatest profusion from the 10th April to the 30th May. The shell of this genus is membranaceous and as thin as a leaf; the part containing the mouth, and from whence the legs arise, is drawn backwards and projects beyond the hinder part of the shell. The front of the shell bears the eyes and antennæ: the eyes have the first joint of their peduncles very much elongated; the second joint is short, and the eyes themselves are abruptly larger than their peduncles. The superior antennæ are (as in all the other malacostraca with pedunculated eyes) bifid. The inferior antennæ are variable in their projection, and form, affording characters which, for the present, I shall only venture to use for the purpose of specific distinctions. The abdomen has the usual appendages beneath, and those of the last joint are converted into swimming or rather steering lamellæ. The mouth, when first viewed, appears to be trilobate; this arises from a clypeus similar to that covering the mouth of *Squilla*, and the prominence of the exterior sides of the mandibles, which are much curved and dilated towards their middle; their points are bifid, and one lacinia is unidentate within. Two pairs of maxillæ are very distinctly to be seen; the outer ones are terminated by three spines. I have not had time to ascertain the modification of the interior ones, nor to ascertain the existence and insertion of the palpi. The front pair of legs is extremely short and dilated at its base, with all the joints (the first excepted?) confluent. The second pair is short; the third joint at its base has a flagrum which is articulated towards its point; the last joint is terminated by long spines and a claw with unequal spines. The five following pairs of legs are very long, and the hinder ones gradually

* The third, fourth, fifth, sixth, and seventh pairs of legs, in the numerous specimens sent home, were for the most part broken off at their third joint, the flagrum only remaining. See the plate.

increase in length : at the base of the second joint, each is furnished with a bipartite flagrum, the second division of which is articulated and ciliated : the third pair is terminated by a simple ciliated joint ; the three next pair by claws, which in some of the species are ciliated with spines, and meet little spines on the interior side of the apex of the joints to which they are attached : the last pair is abruptly shorter than the preceding legs, and varies in the number of its joints, from two to five. The organs, termed ears by the French naturalists, are very large and prominent. I have not examined the nervous system.

1. *Phyllosoma brevicorne*. Inferior antennæ shorter than the superior ones, with the second division slightly dilated externally ; the two last divisions setaceous ; hinder pair of legs two-jointed ; the second joint simple.
2. *Phyllosoma laticorne*. Inferior antennæ a little longer than the superior ones, the second joint very much dilated externally, and produced at its external apex, the last division lanceolate, hinder pair of legs five-jointed, the last joint with a simple slightly curved claw.

Two specimens only were taken, and their locality was not set down.

3. *Phyllosoma commune*. Inferior antennæ filiform rather more than twice the length of the superior ones, hinder pair of legs four-jointed ; the last joint terminated by a straight simple claw.

Taken at Porto Praya and during the voyage until 2, 58, 0 S. lat. 9, 21, 22 E. long. in the greatest profusion.

4. *Phyllosoma clavicorne*. Inferior antennæ filiform, half as long again as the thorax, with the extremity of the last division clavate, hinder pair of legs four-jointed ; the last joint terminated by a simple and very slightly curved claw. Occasionally taken with the preceding species.

From the above very general observations, it will be very evident to entomologists, that *Phyllosoma* constitutes a family of crustacea macroura, to which no other discovered genus can be referred.

Amongst the sessile-eyed crustacea, with compressed bodies, there are four new species which constitute the types of as many genera, and of those with depressed bodies, there are ; of

SPHEROMA, a new species.

CYMOTHOA, a new species.

And a new species of an unnamed genus, intermediate betwixt the genera *Æga* and *Eurydice*.



ENTOMOSTRACA.

Two new species of the genus *Caligus* of Müller were found on fishes.

MYRIAPODA.

IULUS, two species, one of which is new.

SCOLOPENDRA, one nondescript species.

INSECTA.

Thirty-six species only reached England in a tolerable state, the rest were entirely destroyed by insects and damp. Amongst them is a new genus of the family *Scarabæidea*, and probably there are five or six new species, which I have not yet found time to examine.

ANNELEIDES.

A new species of *Nereis* was taken in a bit of floating wood O, 21, 0 N. lat. 5, 49, 37 E. long. together with a genus not known to me.

ENTOZOA.

One species of this parasitical class, was taken out of the intestinal canal of an albicore.

ACALEPHÆ.

PORPITA. Disc cartilaginous, round, composed of rays. Stomach central and round. Mouth slightly prominent and capable of very great distention. Whole underside covered by tentacula, those of the middle terminated by suckers, those next the margin larger (and simple or at least terminated by indistinct suckers.*)

Of this genus, to which the above characters are now given, a new species, was found in S, 12, 0 N. lat. 18, 13, 7 W. long. viz, *Porpita granulata*. The rays of the upper part of the disc granulated by pairs. The stomach of one specimen was filled with the debris of a fish.

* In specimens of very soft animals preserved in spirits of wine, where the organs are much contracted, it is generally impossible to ascertain all the characters of each part. Naturalists should therefore take every opportunity to describe them whilst alive, since all are not gifted with the extraordinary powers of a Savigny.

VELELLA. To this genus likewise some additional characters may be added.

The disc is oval and cartilaginous, having an oblique crest on its upper side. The disc itself is composed of two thin oval plates joined together by several concentric septa. The whole of the cartilaginous part is covered by a dense membrane, and its inferior surface is covered by tentacula, which surround its stomach; those towards the centre are terminated by suckers, those towards the margin are longest, and appear to be simple. The stomach is oblong, and the mouth very prominent. The membrane in passing from the upper part of the disc, to the lower, is produced beyond its margin, and the produced part is consequently composed of two membranes, which are united towards the margin of the disc.*

1. *Velella scaphidea*. Crest set on the disc from left to right; its apex abruptly produced.

Velella scaphidea. Peron et Le Seur. Atlas, pl. xxx.

2. *Velella pyramidalis*. Crest set on the disc from right to left; its apex gradually produced, pyramidal.

Taken in plenty in 26, 34, 0 N. lat. 18, 28, 0 W. long.

From the MS. observations made by Mr. Cranch, it is evident that a box containing specimens of marine animals, preserved in spirits, and a very large portion of the birds, have been lost. I have before remarked, that of the birds received, those enumerated, were the only specimens in a state fit for examination; the greater part being totally destroyed by insects.

* This produced membrane is to be observed in all the species, and therefore cannot be taken as a specific character, as has been done by Lamarek, for our European species.