

made here his whole scientific career. He returned indeed to his native land in the year 1842, and took possession of a handsome estate bequeathed by his uncle, where he indulged his fondness for horticulture; but his only botanical publication in these later years was made at Philadelphia, and elaborated during a visit to this country in 1852. His writings are intimately connected with the history of North American Botany, and his personal biography is very interesting. A full account of these is given by Mr. Durand, in an excellent address delivered to the Philadelphia Academy of Natural Sciences, and in an article by Mr. Meehan in his *Gardener's Monthly* for January, 1860. A critical estimate of Mr. Nuttall's contributions to science must be deferred to another occasion. He died at his residence, Nutgrove, near Preston, Lancashire, on the 10th of September last, aged 75 years.

A. G.

ZOOLOGICAL NOTICES.—

1. *A trip to Beaufort, N. Carolina*; by WM. STIMPSON, M.D.—The vicinity of Cape Hatteras, the most projecting point of our coast south of New York, has a peculiar interest for the student of zoology. This cape, which divides the Areniferous region* into two nearly equal parts, the Virginian and Carolinian provinces, is remarkable for the exhibition of a fauna more tropical in character than that of either of these provinces, as will be shown below. This is an evident result of its proximity to the Gulf Stream, the warm waters of which are even said to be deflected directly upon the Cape after violent southeast gales.

Beaufort, N. C., which lies several miles WSW from the Cape, in latitude 35° N. is the only convenient point of departure for explorations in the waters of the vicinity. Some account of the zoological richness of this locality was kindly communicated to me by Capt. J. D. Kurtz, U.S.A., and influenced by a desire of completing a catalogue of the shells of our Atlantic shores, and particularly of procuring and examining a species of *Lingula* said to be found on the southern coast, I undertook its exploration in the month of March last, in company with my friend Mr. Theodore Gill. The harbor of Beaufort is situated at one of the southern outlets of Pamlico Sound, where it joins Bogue Sound. It is shallow and much obstructed by extensive shoals. Centre-board boats only can be used, except in the deeper channels, which are mostly narrow. The bottom is generally sandy, but that of the deep channels is shelly, and that of the shallower channels often muddy. Outside the harbor and off the coast, the depth never exceeds eight fathoms within a few miles of the land, with a variable bottom, sometimes "sticky" or clayey. These bottoms were all pretty thoroughly raked with the dredges. The beaches were also examined for those bivalve shells which perforate the sand to a

* The eastern coast of the United States may be conveniently divided into three regions, viz.—the Rupiferous, Areniferous, and Coralliferous, named from the character of the shores. The Rupiferous or rocky region extends from our northern limit to Cape Cod, or Long Island. The Areniferous or sandy region,—in which there are no rocks whatever and scarce even a pebble except where human agency has been at work—reaches from Long Island to North Florida. The Coralliferous region is characterised by the presence of reef-coral, and includes the peninsular of Florida. Each of these regions has its peculiar fauna, the distinctness of which, enhanced by the two great causes of difference of latitude and diversity of ground, is too well known to require further comment here.

depth beyond the reach of the dredge and are only exposed by the eroding action of the breakers during heavy storms. In following these beaches we observed a decided increase of the tropical character in the shells as we proceeded eastward toward the Cape.

In order to show the character of the fauna and the results of our explorations I have given below a catalogue of the Mollusca and higher Crustacea which occurred during our short stay, which seems to be the most concise and satisfactory method. A few prefatory remarks of a general character will not be out of place. Geologists will be interested to notice the occurrence of several species hitherto known only as Tertiary fossils, such as species of *Axinaea*, *Lucina*, *Astarte*, *Amphidesma*, *Tellidora*, *Myalina*, *Panopaea*, *Entalis*, and *Columbella*. These were found either alive or in such condition as showed them to be recent shells, which would doubtless have been found alive upon further search. The occurrence of *Myalina subovatu* is interesting, although our specimens of this species, as of *Amphimesmu constricta*, are not certainly recent, being only single valves. Of the beautiful *Tellidora lunulata* we obtained several living examples, some attaining a length of nearly two inches. Among the shells of a tropical character several species will be noticed which have not hitherto been found north of the West Indies, and do not exist upon the South Carolina coast. The large *Cassis* to which we have applied the name *C. cameo* is identical with the common cameo-shell of the Bahamas, which usually figures in collections under the name of *C. madagascarensis*. Of this we obtained several fine specimens on the beaches, none living however.

In the following catalogues all species of which the identifications is at all doubtful are indicated by the mark of interrogation.

Mollusca.

<i>Cynthia vittata.</i>	<i>Pinna squamosissima.</i>	<i>Mercenaria violacea.</i>
<i>Molgula</i> sp.	" <i>carolinensis.</i>	" <i>Mortoni.</i>
<i>Ascidia</i> sp.	<i>Avicula atlantica.</i>	" <i>notata.</i>
<i>Lingula pyramidata.</i>	<i>Modiolaria lateralis.</i>	<i>Trigona</i> sp.
<i>Anomia ephippium.</i>	<i>Modiola plicatula.</i>	<i>Venus rugosa</i> †
<i>Ostrea virginiana.</i>	" <i>americana.</i>	<i>Chione cancellata.</i>
" <i>equestris.</i>	" <i>tulipa</i> †	" <i>pygmaea</i> †
<i>Plicatula depressa.</i>	<i>Mytilus edulis.</i>	<i>Callista gigantea.</i>
" sp.	" <i>cubitus.</i>	" <i>maculata.</i>
<i>Lima scabra</i> †	<i>Chama arcinella.</i>	<i>Dosinia discus.</i>
" sp.	" <i>macrophylla.</i>	<i>Lucinopsis</i> sp.
<i>Pecten dislocatus.</i>	<i>Cardium magnum.</i>	" n. sp.
" <i>concentricus.</i>	" <i>isocardia.</i>	<i>Petricola pholadiformis.</i>
" <i>nodosus.</i>	" <i>muricatum.</i>	<i>Raëta canaliculata.</i>
<i>Axinaea charlestonensis.</i>	<i>Liocardium serratum.</i>	" <i>lineata.</i>
" sp.	" <i>Mortoni.</i>	<i>Maetra oblonga.</i>
<i>Arca Holmesii.</i>	<i>Lucina crenulata.</i>	" <i>similis.</i>
" <i>americana.</i>	" <i>cribraria</i> †	" <i>lateralis.</i>
" <i>caelata.</i>	" <i>edentula.</i>	<i>Donax variabilis.</i>
" <i>lierosa.</i>	" <i>strigilla.</i>	<i>Cumingia tellinoides.</i>
" <i>nova</i> †	<i>Felania</i> sp.	<i>Semele orbiculata.</i>
" <i>ponderosa.</i>	<i>Diplodonta</i> † <i>punctata.</i>	" <i>reticulata</i> †
" <i>incongrua.</i>	<i>Lepton lepidum.</i>	<i>Amphidesma constricta.</i>
<i>Nucula proxima.</i>	<i>Astarte lunulata.</i>	<i>Abra aequalis.</i>
<i>Yoldia limatula.</i>	" <i>undulata</i> †	<i>Tellina alternata.</i>
<i>Leda acuta.</i>	<i>Cardita tridentata.</i>	" <i>fausta</i> †

Tellina polita.
 " *tenera.*
 " *versicolor* ?
 " *tenta.*
 " *iris.*
 " *constricta.*
 " *sp.*
 " *n. sp.*
Strigilla carnaria.
 " *flexuosa.*
Tellidora lunulata.
Solen ensis ?
 " *viridis.*
Siliquaria gibba.
 " *bidens.*
Solenomya velum.
Mya arenaria.
Corbula contracta.
Myalina subovata, Con.
Panopæa americana.
Saxicava distorta.
Gastrochæna sp.
Lyonsia hyalina.
 " *sp.*
Pandora trilineata.
Pholas costata.
 " *truncata.*
Pholadidea cuneiformis.
Teredo sp.
Polycera sp.
Actinodoris ? *sp.*
Utriculus canaliculatus.
Bulla solitaria.
Tornatella puncto-striata.

Chiton apiculatus.
Entalis pliocena.
Dentalium sp.
Crepidula unguiformis.
 " *fornicata.*
 " *convexa.*
Clypidella pustula.
Fissurella alternata.
Zizyphinus sp.
Turbo crenulatus.
Littorina irrorata.
Scalaria Humphreysii.
 " *turbinata.*
 " *lineata.*
 " *novangliæ* ?
 " *multistriata.*
Solarium granulatum.
Vermetus radícula.
Cerithium sp.
Bittium nigrum ?
 " *Greenii.*
 " *sp.*
Triforis nigrocinctus.
Odostomia seminuda.
 " *impressa.*
Turbonilla interrupta.
 " *sp.*
 " *sp.*
Obeliscus crenulatus.
Eulima olencea.
Catinus perspectivus.
Natica pusilla.
Neverita duplicata.
Volva uniplicata.

Pleurotoma cerina.
Mangelia rubella.
 " *filiformis, Holmes.*
Olivæ litterata.
Olivella mutica.
Columbella nvara.
 " *ornata.*
 " *lunata.*
 " *n. sp.*
Dolium galea.
Semicassis granulosa.
Cassis cameo, Stm.
Purpura floridana.
Murex spinicostatus.
Nassa obsoleta.
 " *trivittata.*
 " *vibex.*
 " *ambigua* ?
Cerithiopsis terebralis.
 " ? *n. sp.*
Acus dislocatus.
 " *concavus.*
Busycon pyrum.
 " *canaliculatum.*
 " *carica.*
 " *perversum.*
Cancellaria reticulata.
Fasciolaria gigantea.
 " *tulipa.*
 " *distans.*
Ranella caudata.
Strombus alatus.

Crustacea Decapoda.

Libinia canaliculata.
Pelia mutica.
Leptopodia calcarata.
Cryptopodia granulata.
Cancer irroratus.
Menippe mercenaria.
Panopeus Herbstii.
Pilumnus neuleatus.
Platyonichus ocellatus.
Lupa hastata.
 " *Gibbesii.*
 " *spinimana.*
Gelasimus pugilator.

Ocypoda arenaria.
Pinnotheres ostreum.
 " *maculatus.*
Pinnixa cylindrica.
 " *sayana.*
 " *chaetoptera.*
Persephona punctata.
Lithadia cariosa.
Hepatus decorus.
Calappa marmorata.
Porcellana ocellata.
 " *sociata.*
Euceramus prælongus.

Hippa talpoida.
Lepidops scutellata.
Eupagurus pollicaris.
 " *longicarpus.*
 " *annulipes.*
Callinassa major.
Crangon septemspinosus.
Alpheus intermedius.
Virbius pleuracanthus.
Palaemonopsis carolinus.
Penæus brasiliensis.
 " *constrictus.*

In the collection made at Beaufort and now deposited in the Smithsonian Institution a considerable number of new genera and species occur. We add descriptions of two of the most interesting.

LINGULA PYRAMIDATA. Shell greenish-white, elongated-ovate, convex, regularly tapering from the middle to the summit with an outline very slightly convex; also a little tapering toward the extremity, which is less than two-thirds as wide as the middle, and subtruncate with broadly rounded corners. Surface smooth and glossy; lines of increment inconspicuous, but sufficiently distinct near the margins; two or three of them however at irregular intervals sometimes projecting more strongly, indi-

cating epochs in the growth of the shell. Marginal setæ of the mantle well developed, those on either side at the extremity longer than the rest, equalling in length one-third the width of the shell. There are two black spots on the margin of the mantle at the extremity. Peduncle in life three times as long as the shell, thick, (one-third width of the shell,) at its point of attachment, but rapidly tapering and becoming very slender and hyaline, with an opaque axis or central cord; extremity glutinous and covered with adhering sand. Length of the animal 3.5; length of shell, 0.92; width of shell at the middle 0.35; at extremity, 0.21; half way between middle and summit, 0.26 inch.

This animal was found imbedded in the weedy sand at low water mark, on the occasion of one of the extraordinarily low tides which occur at the equinox. It lives in a perpendicular position with its peduncle deeply penetrating the sand, and its shell scarcely projecting above the surface at its extremity. When drawn out and placed in a vessel of seawater it showed its uneasiness by snake-like gyrations of the peduncle, which, far from being a simple stem for attachment, is a powerful muscular organ, filling the function of the foot of the Lamellibranchiata. Mr. Peale informs me that this part in the *Lingula anatina* forms a favorite article of food among the Fiji Islanders. Our *Lingula* appears to be not uncommon near Beaufort, as several specimens were found during a single retreat of the tide. It is interesting as being the first species* of this most ancient genus described from the Atlantic ocean. The other recent species, ten in number, are all inhabitants of the Pacific.

EUCERAMUS, nov. gen. fam. *Porcellanidae*. Body subcylindrical. Carapax elongate-subrectangular, twice as long as broad; sides parallel. Front prominent, tridentate. Eyes minute, longitudinal, projecting a little beyond the orbits which are very incomplete, consisting only of the concave superior margin. Antennulæ placed immediately beneath the eyes; peduncle anteriorly bidentate. Antennæ large; mobile part nearly as long as the carapax and arising from the inner or superior side of the small coxal joint, thus being in contact with the eye at base. The outer maxillipeds are of the form usual in *Porcellana*, but the sternal piece to which they are attached is very large, nearly as long as broad, triangular in front, and truncate behind. Chelipeds small, subcylindrical, much shorter than the carapax; hands weak. Ambulatory feet subcylindrical; dactyli curved, setose, nearly as long as penult joint. Abdomen narrow, particularly in the males; appendages as in *Porcellana*.

This aberrant type should be referred to the *Porcellanidea*, notwithstanding its greatly elongated form, which would lead one to refer it at first sight to the *Hippidae* or *Raninidea*.

EUCERAMUS PRÆLONGUS. Carapax regularly curved like a segment of a cylinder, above glabrous, and minutely striated transversely; striæ curved forward at the sides. Inter-orbital front one-third the width of the carapax, tridentate, teeth slender, pointed, median longest. Hands externally scabrous, or small-tuberculose and setose; fingers as long as the palm and not gaping. Ambulatory feet of the second and third pairs as long as the chelipeds; those of the first pair smaller. Length about three-fourths of an inch. Dredged on shelly ground in 4 to 8 fathoms.

* We understand that there is a specimen of *Lingula* from the coast of South Carolina in possession of Prof. Agassiz. Not having access to this specimen, we are unable to say whether it be identical with ours or not.