

cracks are more extended in length, but less open. The shell is about the twelfth of an inch thick; and now appears more like lignite than any more recent vegetable matter. Of course nothing of the kernel, or true seed, remained. In its place there are some particles of black vegetable matter intermixed with some powdery marl—all which do not near fill the present cavity.

Though my labors in excavating marl of different kinds during many years, and my much more extended personal examinations elsewhere, have given me opportunities rarely enjoyed by others for seeing and gathering fossil specimens from their localities, I make no claim to the character of a scientific investigator of this subject. Therefore, I do not know whether (as I infer it is) this nut is an extinct species—or whether the like has been found before.

This marl, bordering the Pamunkey river, has peculiar characteristics, and also has rare value as a manure. The fossil remains are generally much decayed. Among the kinds most common, are shells of *Ostræa sellæformis* and *Cardita planicosta*, either of which sufficiently identifies the marl with the eocene. Some other fossils are either new, or very rare, at least to my observation. Among the most rare is a fragment of a spine of an extinct *Echinus*, which is eight inches long, and more than three quarters of an inch in diameter, where thickest. By comparison of the size with the species of the largest specimens known to me of recent *Echini*, this extinct species must have had a very large body, beset with spines 3 feet long. I have also found smaller fragments of these species in the eocene marls of Coggin's Point, James river, Va., and of the Santee in South Carolina. The *flutings* of the surface of these spines are beautifully regular; so as to seem like delicate artificial carved work.

Lignite is often found in this eocene marl. I have two specimens of impure amber which were found in this kind of marl, though not in my own diggings. One of these was broken from a solid mass which was said by the person who found it to have been nearly a foot in diameter.

Marlbourne, Va., July 4, 1849.

2. *Synopsis Generum Crustaceorum Ordinis "Schizopoda"* J. D. DANA elaboratus, et Descriptiones specierum hujus ordinis quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fœderatæ Duce, auctore lectæ.—(Pars I.)

ORDO II. CRUSTACEA SCHIZOPODA.

Crustacea Macrourorum pullos affiliantia, branchiis sive externis pedes thoracis abdominisve pertinentibus, sive obsoletis; pedibus pluribus birameis palpo valde elongato; maxillipedibus pedes sequentes sæpe assimulantibus.

Tribus I. DIPLOPODA.

Pedes thoracis biramei, palpo natatorio, nulli prehensiles. Carapax cephalothoracem plerumque tegens, segmento cephalico non bene discreto.

Subtribus I. MYSIDACEA.

Corpus elongatum, subcylindricum. Basis pedum thoracicorum brevis.

1. *Pedes thoracis branchigeri.*

Fam. I. EUPHAUSIDÆ.—Antennæ primæ birameæ. [In speciebus scrutatis segmentum abdominis posticum barbâ nudâ ad extremitatem utrinque armatum.]

Genus 1. THYSANOPODA, (*M. Edwards*).—Oculi symmetrici, breves. Pedes thoracis quatuordecim, duobus posticis obsoletis branchiis exceptis. Flagella duo antennarum primarum elongata.

Genus 2. EUPHAUSIA, (*Dana*).—Oculi symmetrici, breves. Pedes thoracis non unguiculati, numero duodecim, quatuor posticis obsoletis branchiis exceptis. Flagella duo antennarum primarum elongata. Segmentum abdominis posticum acuminatum.

Genus 3. CYRTOPIA, (*Dana*).—Oculi paulo oblongi, apicem externum obliquè gibbosi, lenticulis totis in gibbositatem versis. Articulus antennarum primarum primus apicem inferiorem productus. Segmentum abdominis posticum obtusum aut truncatum.

2. *Pedes thoracis abdominisve non branchigeri.*

Fam. II. MYSIDÆ.—Antennæ primæ birameæ, secundæ laminâ basali instructæ. [Pedes thoracis postici nunquam obsoleti?]

1. *Pedum rami ambo thoracicorum extremitatem multiarticulati.*

Genus 1. MYSIS, (*Latreille*).—Pedes thoracis duodecim, maxillipedes numero sex. Antennæ primæ flagellis duobus confectæ. Pedes abdominis parvuli, debiles.

2. *Pedum ramus internus thoracicorum non multiarticulatus, bene unguiculatus. Oculi symmetrici.*

Genus 2. PROMYSIS, (*Dana*).—Pedes thoracis duodecim, maxillipedes sex. Antennæ primæ flagellis duobus laminâque oblongâ confectæ. Pedes abdominis oblongi, natatorii, longitudinem fere æqui. [Segmentum abdominis posticum emarginatum vel bilobatum.]

Genus 3. MYSIDIA, (*Dana*).—Pedes thoracis sexdecim, inter sese similes, toti bene palpigeri. Antennæ primæ flagellis duobus laminâque oblongâ confectæ. Pedes abdominis quarti valde elongati, (an discrimen sexualis tantum). [Segmentum abdominis posticum emarginatum vel bilobatum.]

SYN. Themisto, *Goodsir*. Hoc quoque vocabulum generis Amphipodum auctoritatem prius.

Genus 4. SIRIELLA, (*Dana*).—Pedes thoracis sexdecim, toti bene palpigeri, posteriorum duodecim ramo pediformi apicem setis brevibus mobilibus (instar digitorum) juxta unguem instructo. Antennæ primæ flagellis duobus confectæ, laminâ carentes. Pedes abdominis toti rudimentarii. [Rostrum brevissimum. Segmentum abdominis posticum apicem rotundatum et spinulis ornatum.]

Genus 5. MYTO, (*Kröyer*, Tids. N. R. i. 470).—Pedes thoracis quatuordecim, primi secundi tertii quartique palpigeri, quinti sexti septimi simplices. Appendices caudales segmentoque caudali connati, ideoque cauda latè triangulata, margine postico longo. Flagella antennarum primarum non articulata.

3. *Oculi e latere pedicelli externo obliquè spectantes, lenticulis totis parce obliquè versis.*

Genus 6. LOXOPIS, (*Dana*).—Oculi elongati. Antennæ primæ flagellis duobus confectæ, laminâ carentes. Appendices abdominis rudimentarii. [Segmentum abdominis posticum truncatum, vel obtusum, extremitate spinuloso.]*

* Podopsis, *Thompson*, (Zoological Researches, i, 59, tab. 59, fig. 1.) pullus (forsan mutilatus) incertæ sedis videtur. Oculi longissimi. Antennæ primæ fere obsoletæ; secundæ laminâ instructæ. Pedes duo longissimi, articulo tenui annulato confecti; reliqui breves. Pedes abdominis natatorii.

Sequentes *Furcilia* et *Calyptopes* forsan pulli Decapodum aut quorundam Schizopodum; generibus jam enumeratis hoc discrepant: *Apes* inferior articuli antenna-

Fam. III. SCELETINIDÆ.—Antennæ primæ simplices, elongatæ; secundæ birameæ.

Genus 1. RACHITIA, (*Dana*).—Carapax anticè acuto-tricuspidatus, post frontem non constrictus—Oculi longi obconici. Segmentum abdominis sextum valde elongatum, [segmentis in specie scrutatâ anticis simul sumtis non longioribus, utroque spinam longam dorsalem gerente.] Antennæ primæ flagello longo tenuissimo confectæ.

Genus 2. SCELETINA, (*Dana*).—Carapax anticè acuto-tricuspidatus, paulo post frontem instar colli constrictus, deinde ovatus posticè augustans. Oculi prælongi, obconici. Pedes thoracis elongati duodecim, biramei, ramo pediformi 4-5 articulo, altero (palpo) parce setoso; alii pedes breves quatuor, anteriores. Pedes abdominis rudimentarii. [Segmentum abdominis posticum lineare, truncatum vel emarginatum.]

Hæc animalia Luciferibus paulo affines.

3. *Pedes abdominis appendicibus branchiiformibus instructi.*

Fam. IV. CYNTHIDÆ.—Antennæ primæ birameæ, secundæ laminâ basali instructæ.

Genus CYNTHIA, (*Thompson*).—Pedes thoracis quatuordecim, biramei; maxillipedes quatuor. Oculi breves symmetrici.

Subtribus II. AMPHIONACEA.*

Corpus depressum, carapace foliaceo. Basis pedum thoracicorum elongatus, palpo a corpore remoto.

Fam. I. AMPHIONIDÆ.—Corpus elongatum, abdomine longitudinem mediocri, thorace per carapacem tecto.

Genus AMPHION, (*M. Edwards*.)

Fam. II. PHYLLOSOMIDÆ. Corpus latus et breve, abdomine perbrevis aut rudimentario, thorace per carapacem plerumque non tecto.

Genus PHYLLOSOMA, (*Leach*.)

Tribus II. APLOÖPODA.

Pedes thoracis nec biramei nec prehensiles. Corpus gracile, longum.

Fam. I. LUCIFERIDÆ.—Cephalothorax valde elongatus, segmento cephalico (oculos antennisque pertinente) longè attenuato. Oculi tenuiter valdeque elongati.

Genus LUCIFER.—Antennæ primæ simplices, secundæ laminâ basali instructæ. Pedes thoracis quatuor postici (ct. xiii, xiv,) obsoleti; octo precedenti (ct. ix, x, xi, xii,) elongati, setigeri; deinde duo antici (ct. viii,) instar maxillipedum flexi. Maxillipedes duo (ct. vii); maxillæ quatuor (ct. v, vi); mandibulæ (ct. iv,) duæ non palpigeræ.

Tribus III. STOMATOPODA.

Os mandibulis duobus maxillisque duobus instructum, membris sequentibus pediformibus. Pedes antici (ct. vi) vergiformes, elongati; 8 sequentes chelati; 6 postici aliis remoti, sæpius bifidi.

rum primarum primi longè acutèque productus. Animalia scrutata tota immatura, pedibus plus minus rudimentariis.

Gen. FURCILIA, (*Dana*).—Carapax plus minus rostratus. Oculi aperti. Pedes abdominis bene natatorii. Antennæ primæ furcatæ ramis (immaturis?) subæquis 1-2 articulatæ; segmentum abdominis posticum truncatum, extremitatem sæpius spinulosum. Animalia in mari alto lecta.

Gen. CALYPTOPIS, (*Dana*).—Carapax non rostratus, oculos omnino tegens. Antennæ primæ birameæ, ramis (immaturis?) subæquis 1-2 articulatæ. [Segmentum abdominis posticum truncatum, extremitate sæpius spinuloso.]

* Genus *Cuma* cum affinibus Schizopoda et Macroura affiliat. Forsan Ordo "Cumacea" hic cadit, his dignotus:—Oculi minuti sub carapacem celati: Pedes partim biramei: Appendices caudales prælongi, styloformes et posticè furcati.—*M. Edwards*, Ann. des Sci. Nat., xiii, 292, *Krøyer*, Tidssk. iii, 503 and ib. N. R., ii, 123; *Goodsir*, James. J., xxxiv, 119.

Fam. I. SQUILLIDÆ.—Rostrum carapace per articulationem discretum.

Genus 1. SQUILLA.—Digitus manus maximæ intus spinoso-dentatus. Ramus pedum thoracis sex posticorum minor angustus.

Genus 2. GONODACTYLUS.—Digitus manus maximæ integer. Ramus pedum thoracis sex posticorum minor angustus.

Genus 3. CORONIS.—Ramus pedum thoracis sex posticorum minor lamellatus.

Fam II. ERICHTHIDÆ.—Rostrum carapace non discretum. Branchiæ sæpius rudimentariæ, aut obsoletæ.

Genus 1. SQUILLERICHTHUS.—Erichtho affinis. Digitus manus maximæ intus dentatus.

Genus 2. ERICHTHUS.—Corpus latus. Pars cephalothoracis antica os precedens brevior. Carapax thoracem sæpius omnino tegens. Digitus manus maximæ intus non dentatus.

Genus 3. ALIMA.—Corpus angustus. Pars cephalothoracis antica os precedens longior. Carapax thoracem sæpius non omnino tegens. Digitus manus maximæ intus non dentatus.*

Tribus I. DIPLOPODA.—Subtribus 1. MYSIDACEA.

Familia I. EUPHAUSIDÆ.

Genus *Euphausia*.

1. EUPHAUSIA PELLUCIDA.—Gracilis. Carapax brevissimè rostratus. Segmenta abdominis margines laterales integra, arcuata. Articulus antennarum primarum primus apicem non productus. Lamina antennarum 2ndarum basalis basi paululo longior. Pedes tenuissimi, articulo ultimo brevissimo, palpo fere triplo brevior quam pes. Segmentum caudale lamellis caudalibus paulo longius, barbis subapicalibus salientibus. Branchiæ posticæ subdigitatæ.—Long. 6". Incolorata.

Hab. in mari Pacifico, prope insulas "Kingsmills;" Lecta Ap. 1841.

2. EUPHAUSIA SPLENDENS.—Carapax brevissimè rostratus; segmenta abdominis quatuor margines laterales integra, subæquè obtusa. Articulus antennarum 1marum primus apicem productus. Lamina antennarum 2ndarum basalis basin non superans. Pedes tenuissimi, articulis tribus ultimis longitudine subæquis, setis longis breviter plumosis, palpo plus duplo brevior quam ramus alter. Segmentum caudale lamellis caudalibus longius, barbis subapicalibus salientibus. Branchiæ posticæ ramosæ.—Long. 6".—Paulo rubescens.

Hab. in mari Atlantico, lat. bor. 1°-2°, long. occ. 17°-18°. Lecta diebus 29, 30, Oct. 1838.

EUPHAUSIA GRACILIS.—Carapax brevissimè rostratus. Segmenta abdominis margines laterales subæquè rotundata. Articulus antennarum 1marum primus apicem parce productus et acutus. Lamina antennarum 2ndarum basalis basin multo superans. Pedes tenuissimi, articulis tribus ultimis longitudine subæquis, setis longiusculis, palpo parvulo, quadruplo brevior quam ramus alter. Segmentum caudale lamellis caudalibus non longius. Branchiæ posticæ ramosæ.—Long. 6". Parce rubescens.

Hab. in mari Pacifico, lat. aust. 15½°, long. occ. 148°; lecta die Sept. 1839.

* Longitudo carapacis discrimen Erichthi et Alimæ non semper valet; longitudo partis cephalothoracis os precedentis melius.

EUPHAUSIA SUPERBA.—Carapax brevissimè acutè rostratus. Segmenta abdominis margines laterales arcuata, integra, sexto non longiore. Articululus antennarum 1marum primus apicem productus et obtusus. Lamina antennarum 2ndarum basalis basi vix brevior. Articululus pedum ultimus pertenuis, penultimo multo brevior. Branchiæ posticæ instar rotæ paulo involutæ, ramis subradiatis, arcuiformibus, ramulis seriatis setiformibus. Segmentum caudale laminâ caudali proximâ paululo brevius.—Long. 2". Rubra.

Hab. in mari Antarctica, prope long. orient. 150° et lat. aust. 60°.

3. *Eyes of Sapphirina, Corycæus, etc.*; by J. D. DANA.—In a brief description of these genera in the Proceedings of the Academy of Arts and Sciences of Boston, and in this Journal,* a peculiar kind of eye is mentioned, upon which an additional remark is here added. These eyes are simple, and of extremely large size for the animals. The lens is a prolate spheroid, situated internally within the thorax, far remote from the cornea; the cornea is a broad oblate lens, perfectly pellucid and colorless, and connected with the exterior shell. The diameter of each of the latter in many Corycæi is nearly half the breadth of the thorax, and the two stand in the front like a pair of spectacles, huge for the minute animals so provided. In the same animal the prolate lens may be situated as far back nearly, as the middle of the thorax, so that a long space intervenes between it and the cornea. The oblate form of the spectacle-like cornea, (we have called them in Latin, *conspicilla*,) is fitted to compensate for the too great convexity or prolate ellipticity of the lens, and it serves the same purpose as glasses for a near-sighted person.

The genus *Sapphirina* is closely related to *Corycæus*, and has the same peculiar eyes. The only mention of these *conspicilla*, which has been made by any previous author, is to be found in a memoir in F. J. F. Meyenii Obs. Zoolog. in Itin. circum Terram institutas accedunt Guil. Erichsonii et H. Burmeisteri Descript. et Icones Insectorum a Meyenio in ista Expeditione collectorum; from the 16th vol. Nova Acta Cæs. Leop. Car. Nat. Cur., page 156, pl. 27.—The species (probably a true *Sapphirina*) is called *Carcinium opalinum*. The *conspicilla*, by a mistake of observation (and it is not the only one in the description and much magnified figure), are spoken of as *dimples* (Grubchen). They are not noticed by Thompson who established the genus *Sapphirina*. Similar eyes occur in some of the *Caligus* group, and the writer has established one genus, *Specilligus*, on this ground, which otherwise is identical with *Nogagus*.

A cornea of lenticular form is by no means peculiar to these species of Crustacea; but they have hitherto been observed only in compound eyes, in which case the lens and cornea are minute and not far distant.

4. *Contributions to Conchology, Nos. 1-4: and Monograph of STOMASTOMA, a new genus of new operculated land shells*, by Prof. C. B. ADAMS, of Amherst College.—Although more than three centuries have elapsed since the West India Islands were first revealed to Europe, it may safely be said that few portions of the world can reward the search of the naturalist with so much that is novel and interesting. This is

* See last volume, p. 280; also, Proceedings of the Acad. Nat. Sci., Philadelphia, 1845, ii, 285.