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Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes e classe Reipublicæ Fæderatæ Duce, lexit et descripsit J. D. DANA.

PAGURIDEA.

The Paguridea include two groups, distinguished by peculiarities in the form of the inner antenna, outer maxillipeds, and some other characteristics;—the one *aquatic* in habit, and the other *subterrestrial*. They are as follows:

Fam. I. PAGURIDÆ.—Inner antennæ short, first joint very short. Palpus of maxillipeds with a multiarticulate flagellum. Aquatic or littoral.

Fam. II. CENOBITIDÆ.—Inner antennæ very long, the first joint of the base as long as the eyes or longer, and bent obliquely downward. Palpus of outer maxillipeds without a flagellum. Subterrestrial.

The Paguridæ have hitherto been divided into but two genera; *Pagurus*, with unsymmetrical abdomen, and *Cancellus*, (Edw.) with symmetrical. There are, however, important characteristics, which point to a division into other groups. These have been partly indicated by Milne Edwards, in the subdivisions of the genus *Pagurus*, laid down in his work on Crustacea,* and more distinctly in the *Annales des Sciences Naturelles*, for July, 1848.† In the latter article there are discrepancies in certain instances, between the character of the species and those mentioned for the subdivisions, which we find it difficult to reconcile; such as the placing of *P. tibicen*, and some related species, with his “*Æquimanes*,” when, in fact, the left hand is very much larger than the right, and the *guttatus* and *granulatus* with the “*Senestres*,” although, in the former, the hands are nearly equal, as in many of the “*Æquimanes*,” and in the latter the right hand (as is observed in his “*Crustacés*”) is actually the larger. Yet his sections are, in the main, natural groups, and some of them have more important points of distinction than he has mentioned.

The *Pagurus Bernhardus* is the type of one of these groups. Besides being “*dextres*,” they are peculiar in having *acuminate fingers*, with the tips of those of the larger hand *calcareous*; and although the feet of the 4th pair are subcheliform, like most other Paguridæ, the scabrous area or rasp of the hand is confined nearly to the posterior edge. Moreover, the species belong mainly to colder waters, while the ordinary Paguri abound especially in the tropics. All the Paguri of England (or with but one uncertain exception, recently pointed out,) are of the *Bernhardus* type; those of the Northwest coast of America are the same. We naturally, therefore, distinguish this group as a genus under the name of BERNHARDUS.

Among the remaining Paguri, the larger part have the feet of the 4th pair subcheliform, the penult joint being broad, and the last (or tarsus) forming a finger placed on its anterior margin. Yet, a few have these feet vergiform, the tarsus being terminal; and these species are also peculiar, in having two pairs of slender appendages at the base of the abdomen, on account of which they are called the “*Pagures appendicules*” by Edwards. Besides, they have the flagellum of the outer antennæ more or less hairy, and often long ciliate along the under side, and, also, the inner antennæ have a longer base than usual, the 2d basal joint

* *Crustacés*, ii, 213, and *Annales des Sci. Nat.* [2], vi, 257.

† *Ann. des Sci. Nat.* [3], x, 59.

reaching nearly, or quite, to the extremity of the eyes. These species make a well characterized group, which we name *Paguristes*.

Another small group is singular in having a rostriform appendage to the ophthalmic joint; they are the "Pagures armés" of Edwards, including *P. miles* and *P. custos*, the former the *Cancer Diogenes* of Herbst. Besides this distinction, the fingers of the hands are acuminate, as in the *Bernhardi*, and have calcareous tips, although the species are not right-handed; also, the 2d joint of the outer antennæ is complete on the upper side, and there is no moveable appendage or acicle (a name we give to the so-called palpus, in allusion to its form). With these distinctions, the group is entitled to the rank of a genus, which may be named *Diogenes*.

The remaining species of *Paguri* are similar, in having the fingers of the hands more or less spoon-shaped;—with no rostriform appendage to the ophthalmic segment between the eyes;—the outer antennæ bearing a moveable acicle;—the flagellum of the outer antennæ naked; the 2d joint of the base of the inner antennæ not reaching to extremity of eyes;—the feet of the 4th pair subcheliform with the scabrous area on the hand, lateral and broad.

The great majority of these have the tips of all the fingers corneous. But a few have these tips in the larger hand calcareous, besides being peculiarly smooth and neat in the appearance of the limbs, and naked, or nearly so, with the shell more calcareous than usual. They have the left hand much the larger; yet unlike those species with *corneous* tips to the fingers that are strongly left-handed, the front margin has a small salient point at middle. Of the species with calcareous tips to the fingers, I make the genus *Calcinus*. This genus includes the old species *P. tibicen*, *Gaimardii*, *elegans*, &c.

The remaining species, still the larger part of the whole family, constitute the genus *Pagurus*. The following is a synopsis of the subdivisions proposed.

FAM. I. PAGURIDÆ.

Antennæ internæ mediocres, articulo primo brevissimo. Maxillipedis palpus externi flagello multiarticulato instructus. Species aquaticæ vel littorales.

Subfam. I. PAGURINÆ.—Abdomen asymmetricum.

I. Pedes 4ti subcheliformes. Abdomen ad basin duobus paribus appendicium infra non instructum. Antennarum externarum flagellum nudum vel nudiusculum.

1. *Annulum ophthalmicum non rostriferum. Antennæ internæ aciculo mobili instructæ.*

Gen. 1. *BERNHARDUS*, D.—Pedes antici depressi; digiti acuminati; manus dextra major, apicibus digitorum calcarea. Macula scabra manus 4tæ submarginalis, linearis.

Gen. 2. *PAGURUS*, *Fabr.*—Manus anticæ sive depressæ sive compressæ; digiti plus minusve instar cochlearis excavati, apicibus cornei; manus sinistra sæpius major. Macula scabra manus 4tæ lateralis, lata.

Frons medio sive truncatus sive acutus.

Gen. 2. *CALCINUS*, D.—Manus compressæ, sinistra major, apicibus digitorum calcarea et instar cochlearis optime excavata. Frons medio acutus.

Pedes læves, nudi vel nudiusculi.

2. *Annulum ophthalmicum rostriferum. Antennæ externæ aciculo mobili non instructæ.*

Gen. 4. *DIOGENES, D.*—Manus sinistra major. Digiti acuminati, apicibus calcarei.

II. Pedes 4ti vergiformes, tarso terminali. Abdomen ad basin 4 appendicibus infra instructum. Antennarum flagellum externarum plus minusve pilosum sæpe elongatè ciliatum.

Gen. 5. *PAGURISTES, D.*—Antennæ internæ elongatæ, apice articuli 2di extremitatem oculorum fere attingente.

Subfam. II. *CANCELLINÆ.*—Abdomen symmetricum. Gen. *CANCELLUS, Edw.*

FAM. II. *CENOBITIDÆ.*

Antennæ internæ basi longissimæ, articulo primo oculis sæpe longiore et valde deflexo. Maxillipedis palpus externi flagello non instructus. Species subterrestriales.

Gen. 1. *CENOBITA, Edw.*—Corpus angustum, carapace parce elongato, fronte non rostrato. Abdomen in cochleam retortum, superficie plerumque carnosum.

Gen. 2. *BIRGUS, Leach.*—Corpus latum, carapace parce oblongo, postice latissimo, fronte triangulato. Abdomen directum, inflexum, laminis crustaceis quoad dorsum plerumque tectum.

Specierum Paguridearum adhuc ineditarum Descriptiones.

GENUS *BERNHARDUS.*

BERNHARDUS NOVI-ZEALANDIÆ.—Oculorum pedunculi margine carapacis antico vix breviores, basi antennarum externarum longiores, aciculo hirsuto multo longiores; cornea non obliqua, perbrevis; squama basalis paulo angusta, apice inciso-denticulata. Pedes antichi valde inæqui, fere nudi; carpo versus apicem paulo pubescens, granulato-spinuloso; manu grandi, oblongâ, parce longiore non latiore quam carpus, superficie externâ sex-seriatim tuberculatâ (marginibus inclusis) inter has series fere lævi, digito mobili carinato, crenulato, et superficie uniseriatim tuberculato, etiam tuberculis minoribus instructo. Pedes 4 sequentes marginibus dense hirsuti, vix spinulosi.

Long. 1½—2". *Hab.* in portu "Bay of Islands" Novi-Zelandiæ.

BERNHARDUS TENUIMANUS.—Frons medio subacutus. Carapax nudus. Oculorum pedunculi breves, basi antennarum externarum paulo breviores, aciculo subulato subnudo vix breviores; cornea non obliqua, brevis; squama basalis angusta, acuta. Pedes toti nudi, antichi valde inæqui, granulati, granulis vix seriatis, carpi margine superiore denticulato, manu grandi tenuissimè compressâ, parce oblonga, multo latiore quam carpus, margine superiore tenuiter cristato et denticulato, inferiore tenui; manu minore carpoque angustissimè oblongis. Pedes 4 sequentes lateraliter læves, margine superno subspinulosi.

Long. 1—1¼". *Hab.* in freto "Puget" Oregonensi.

BERNHARDUS ARMATUS.—Carapax subnudus. Oculorum pedunculi margine carapacis antico breviores, sive basi sive aciculo subulato subnudo antennarum externarum multo breviores; cornea obliqua, dimidii pedunculi longitudine; squama basalis subovata, apiculata. Frons marginatus, medio paulo saliens, obtusus. Pedes toti fere nudi (junioribus exceptis pubescentioribus); antici valde inæqui, usque ad digitorum extremitatem tenuiter dense spinosi, spinis partim subseriatis, manu grandi latâ, oblongâ, multo longiore et parce latiore quam carpus; 4 sequentes supra spinulosi, tarsis infra paulo lateraliter uniseriatim spinulosi.

Long. $1\frac{3}{4}$ ". *Hab.* in freto "Puget" Oregonensi.

BERNHARDUS HIRSUTIUSCULUS.—Frons medio subacutus. Carapax brevis, sparsim pubescens, regione antico transverso. Oculorum pedunculi perbreves, basi antennarum externarum multo breviores, aciculo subnudo parce breviores; cornea vix obliqua; squama basalis ovata, non acuta. Pedes antici valde inæqui, angusti, carpo manuque pubescentes et granulato-scabri, margine superiore crassi, non spinulosi nec denticulati; manu oblongâ (duplo longiore quam latitudo) paulo brevior parce latiore quam carpus. Pedes 4 sequentes hirsutiusculi, non spinulosi, tarsis paulo compressis, infra subtiliter spinulosi.

Long. $1\frac{1}{4}$ ". *Hab.* in freto "Puget" Oregonensi.

BERNHARDUS PUBESCENS.—*B. hirsutiusculo* affinis. Frons medio subacutus. Carapax longior, fere nudus, regione antico non transverso. Oculorum pedunculi longi, margine carapacis antico non breviores, basi antennarum externarum parce longiores, aciculo multo longiores; cornea non obliqua; squama basalis subovata, apice rotundata. Pedes antici valde inæqui, angusti, carpo manuque pubescentes, scabriculi, non sparsim granulati, carpo ad marginem superiorem minute spinuloso manu oblongâ (duplo longiore quam latitudo) paulo brevior parce latiore quam carpus. Pedes 4 sequentes pubescentes, non spinulosi.

Long. 1". *Hab.* ? Conchæ quas habitant oris Americæ septentrionalis inveniuntur.

GENUS PAGURUS.

1. *Frons medio truncatus. Squama oculorum basalis lata.*

PAGURUS FABIMANUS.—Frons medio fere rectus. Carapax plerumque nudus regione antico parce transverso. Oculi longiusculi, basi antennarum longiores; squama basalis lata, inverso-triangulata. Pedes antici valde inæqui, manu majore oblongâ, marginibus fere parallelis et subacutis, superiore spinuloso, inferiore crenulato aut subintegro, superficie externâ bene convexâ, tomentosâ, scabriculâ, digito mobili superne fere ad apicem minute spinuloso. Pedes 4 sequentes leviter hirsuti, tarsis prælongis, tarso pedis sinistri tertii subtriquetro, superficie hujus articuli præcedentisque externâ aut planâ aut subconcavâ, tomentosâ, margine superiore non spinuloso.

Long. $1\frac{1}{2}$ ". *Hab.* ad oras insulæ "Mindanao" Indiæ orientalis.

PAGURUS SCABRIMANUS.—*P. fabimano* fermè affinis, formâ carapacis, manus squamæque oculorum basalis similis. Oculi parce breviores, basi antennarum externarum longiores, internarum non longiores. Manus major extus non tomentosa, nudiuscula, scabricula, supra spinulosa, infra denticulata aut crenulata, digito mobili supra vix spinuloso, carpo supra extusque prope apicem spinuloso. Pedes

4 sequentes leviter hirsuti, tarsis prælongis, tarso pedis sinistri 3tii non subtriquetro, superficie externâ nec planâ, nec tomentosâ, margine superiore minute spinuloso.

Long. 1—1¼". *Hab.* ad oras insulæ "Mindanao."

2. *Frons medio subacutus. Squama oculorum basalis sæpius angusta.*

PAGURUS ÆQUABILIS.—*P. lineato* ferme affinis, manibus æquis, hirsutis, breviter spinulosis, formâ frontis oculique simili. Pedes 2di 3tiique parce hirsutiusculi, superficie externâ nudâ, articulis latioribus, fere lævibus, punctulatis, tarsis brevibus; pedibus paris 3tii inæquis, articulo sinistro penultimo extus planiusculo et superne subacuto. Pedes colore non lineati.

Long. ¾". *Hab.* ad insulas "Madeira," et "St. Jago" archipelagi "Cape Verde."

PAGURUS ZEBRA.—*P. æquabili* fronte manibus hirsutis subæquis depressis oculisque similis. Oculi margine carapacis antico non breviores, basin antennarum externarum longitudine æquant, aciculo duplo longiores. Pedes antichi parvi, dextro paulo majore, manu duplo longiore quam latitudo, crasse granulata aut minute tuberculata, hirsuta, carpo non depresso, dextro parce tuberculato. Pedes 2di 3tii leviter hirsuti, colore pauci-lineati, subtiliter sparsim granulati, tarsis brevibus, articulo penultimo pedis sinistri paris 3tii supra non spinuloso.

Long. ¾". *Hab.* ad insulas "Sandwich."

PAGURUS GLOBOSO-MANUS.—*P. æquabili* manibus subæquis, digitis, formâ frontis affinis. Frons medio latius acutus. Oculi margine antico carapacis parce longiores, basi antennarum externarum vix longiores. Pedes antichi breves, manu globulosâ, non duplo longiore quam latitudo, supra infraque minute tuberculato-spinosâ, breviter hirsuta. Pedes sequentes fere nudi, articulo 3tio subtiliter verrucoso, penultimo pedis sinistri paris 3tii extus plano et hirsuto, paris 2di nudo, paucis spinulis minutis armato. Pedes colore non lineati.

Long. 1¼". *Hab.* ad insulas "Viti."

PAGURUS HUMILIS.—*P. æquabili* fronte manibus parvis subæquis affinis. Oculi breviores, crassiusculi, fronte non longiores; squamâ basali triangulata. Pedes primi parvi, manu dextrâ parce majore, pubescente, oblongâ, paulo compressâ, margine superno rotundato. Pedes 4 sequentes crassiusculi, subteretes, sparsim pubescentes, tarso tenui, terete, brevioribus quam articulus penultimus. Pedes colore non lineati.

Long. 1". *Hab.* ad insulas "Viti" et "Tongatabu."

GENUS PAGURISTES.

PAGURISTES LONGIROSTRIS.—Rostrum anguste elongatum, acutum, integrum, carapacis regio antica subcordata, fere nuda. Oculi graciles, margine carapacis antico longiores, vel basi vel aciculo antennarum externarum vel basi internarum multo longiores; squamâ basali medio acuta. Flagellum antennarum externarum nudiusculum. Pedes antichi æqui, manu carpoque depressis, latis, bene areolatis, non scabriculis, manu infra partim villosâ. Pedes 4 sequentes intus areolati supra hirsuti, extus fere læves et nudi.

Long. 1¼". *Hab.* in mari Indiæ orientalis.

PAGURISTES HIRTUS.—Rostrum brevissimum. Carapax plerumque hirtus. Oculi graciles margine carapacis antico non breviores, basi vel aciculo antennarum externarum multo longiores, basi internarum breviores, squamâ basali valde elongatâ, angustâ, margine externo arcuato et tenuiter bene denticulato. Flagellum antennarum externarum infra elongate ciliatum. Pedes 2di 3tii hirti crassiusculi.

Long. 2". *Hab.* in mari Sinensi.

GENUS CENOBITA.

CENOBITA CARNESCENS.—Regio carapacis antica plana, scabricula, lateribus quoque plana. Oculi fronte longiores, plus duplo longiores quam altitudo, valde compressi, squamâ basali triangulatâ, acutâ. Pedes antici inæqui, sinistro majore, superficiem granuloso, carpo paulo brevior quam manus, brachio apicem oblique plano-truncato. Pedes quatuor sequentes fere nudi, parce pubescentes, articulo ultimo scabriculo.

Long. 1¼—1½". *Hab.* in archipelago "Paumotu."

CENOBITA BRUNNEA.—Regio carapacis convexa, nuda. Oculi fronte paulo breviores. Pedes antici validi, paulo inæqui, manu carpoque hirsutis, manu spinulis minutis sparsis scabriculâ, brachio apicem rotundato. Pedes 4 sequentes hirsuti, articulo ultimo subterete, longiore quam penultimus.

Long. 3". *Hab.* ad insulam "Upolu" Samoensem. Abdomen nuce myristico sæpe tectum.

The Committee to which was referred Dr. J. C. Fisher's description of a new species of Cicada, with Mr. Cassin's Notes on the same and on *C. septendecim*, reported in favor of publication in the Proceedings.

On a new species of Cicada.

BY J. C. FISHER, M. D.

In the course of the observations made by the Committee of this Academy, to which was assigned the duty of investigating the habits and history of the seventeen year Locust, *Cicada septendecim*, which appeared during the present year (1851) in the neighborhood of Philadelphia, the attention of its members was directed by Mr. John Cassin to the fact, that two species had been confounded, and that the insect regarded as the smaller variety was in fact a distinct species, a conclusion at which he had arrived during their previous appearance in 1834. It is much smaller, is blacker in color, especially on the lower surface of the abdomen, where also the segments are bordered more narrowly with yellow, and has a note *entirely different* from that of the larger *Cicada septendecim*, Linn. Syst. Nat. i. pt. ii. p. 708, (1767.)

The two species did not associate together, but were found mostly on separate trees, the smaller being the less abundant.

I propose on these grounds to characterize the smaller species as follows :

Cicada Cassinii, nobis. ♂ total length of body 9-10ths of an inch, of the wings 1 2-10ths inches ; ♀ frequently smaller.

Colors and general appearance much like those of *Cicada septendecim*, Linn.,