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XL.—The Crustacea of Ireland. Order Decapoda

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non angustius; segmentum 1^{um} maximum: pedes flavi, simplices, subreuales: alæ limpidæ, mediocres; squamulæ picæ; nervi fulvi; nervus subcostalis alæ basi emissus nervulum in discum rejiciens et spatio brevi ante costæ medium in stigma subfurcatum decedens: nervus quoque spurius alæ basi emissus in discum excurrans et nervo subcostali nervuloque triangulum fingens. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

Romilius (n. g. *) Zotale, Fem. *Ater, antennæ nigræ basi fulvæ, pedes fulvi, alæ limpidæ.*

Corpus longum, angustum, sublineare, atrum, vix convexum, obscurum, pilis canis pubescens, subtilissime et confertissime punctatum: caput transversum, breve, subrotundum, thorace vix latius; vertex latus; frons convexa, non impressa: oculi parvi, non extantes: antennæ nigræ, graciles, subclavatæ, prope os insertæ, thorace non breviores; articulus 1^{us} longus, subfusiformis, fulvus; 2^{us} longicyathiformis; 3^{us} et 4^{us} longi, lineares; 5^{us} et sequentes ad 10^{um} breves, approximati, clavam fingentes longifusiformem: thorax longiovatus: prothorax brevissimus, postice excavatus: mesothoracis scutum magnum, trisulcatum, longitudine vix latius; sulci laterales postice approximati; scutellum parvum, semicirculum fingens: metathorax mediocris, obconicus: petiolus brevissimus: abdomen longifusiforme, subtus convexum, apice acuminatum, thorace multo longius; segmentum 1^{um} breve; 2^{um} et 3^{um} magna; 4^{um} et 5^{um} paullo breviora; 6^{um} adhuc brevius: pedes fulvi, longi, graciles, simplices, subreuales; tarsis articulus 1^{us} longus, 2^{us} multo brevior, 3^{us} adhuc brevior, 4^{us} 3^o brevior, 5^{us} 4^o paullo longior: alæ mediocres, limpidæ, abdominis apicem dum quietem agunt non attingentes; squamulæ fulvæ; nervi fulvi; nervus subcostalis alæ basi emissus ad costæ medium eam attingens et fere ad alæ apicem percurrans; nervus 2^{us} quoque alæ basi emissus in discum excurrans ibique furcatus, furca antica nervo subcostali triangulum fingens, furca postica ad alæ marginem posticum decedens; nervus cubitalis rectus, sat longus, nervo subcostali ubi costam attingit emissus, stigmatate terminatus minuto. (Corp. long. lin. $1\frac{1}{4}$; alar. lin. $2\frac{1}{4}$.)

[To be continued.]

XL.—The Crustacea of Ireland. Order Decapoda. By Wm. THOMPSON, Esq., Vice-Pres. Nat. Hist. Society of Belfast.

CRUSTACEA. Order DECAPODA.

DECAPODA BRACHYURI.

Macropodia phalangium, Leach, Mal. pl. 23. f. 6; Desmar. p. 155. pl. 23. f. 3.

Stenorhyncus phalangium, Edw. Crust. tome i. p. 279.

Cancer phalangium, Penn. Brit. Zool. vol. iv. p. 11. pl. 9. f. 3, edition 1812:

This species has already been recorded by Templeton as "not uncommon on the Irish coast," and by Mr. J. V. Thompson as "very abundant in the deep water of the harbour of Cove." Ent. Mag. vol. iii. p. 371.

It has occurred very commonly to my scientific friends and myself when dredging in the loughs of Strangford and Belfast; and to Mr.

- *Scelio Duris* (Monogr. Chalcid., ii. 61.) also belongs to this genus.

R. Ball at the South Islands of Arran*, as well as at Youghal and Dublin. The motions of this crab are slow, though its light body borne on such long legs would be popularly believed to indicate considerable powers of locomotion. The editor of the octavo edition of Pennant's 'British Zoology' (1812) remarks, that this crab "invests itself occasionally in leaves of *fuci* to ensnare its prey;" and Dr. Leach states that "it has been observed by Dr. Macculloch to be sometimes covered by fragments of a species of the Linnæan genus *Fucus*, which are attached to its body and legs." The first statement seems to me fanciful. The presence of fragments of *fuci*, &c. I should rather attribute to the spinous body, and the bristly arms and legs of great length intercepting adventitious substances, which in floating through the water come in contact with them, and (as Mr. R. Ball reminds me) are further retained there by a viscid slime covering the animal. Many marine productions, however, both of a vegetable and animal nature, have their birth, and grow to beauty on the shell of this as well as other species of our native Crustacea—corallines, sponges, zoophytes, algæ, &c. may thus be found. *Balani* occasionally cover the entire upper surface of the body of the crab.

Aug. 22, 1840.—On opening a thornback (*Raia clavata*), about 20 inches in length, caught in Belfast bay, I found its stomach entirely filled with *Macropodia phalangium*.

Acheus Cranchii, Leach, Mal. pl. 22 c; Edw. Crust. t. i. p. 281.

In the collection of Crustacea formed by Mr. J. V. Thompson, and now in the possession of the Royal College of Surgeons, Dublin, is a native specimen of this crab, which we may presume was obtained on the southern coast.

Inachus Dorsettensis, Leach, Mal. pl. 22. f. 1—6; Desm. p. 52. pl. 24. f. 1.

I. scorpio, Edw. Crust. t. i. p. 288.

Cancer Dorsettensis, Penn. vol. iv. p. 12. pl. 10. f. 1.

This species is stated by Mr. J. V. Thompson to be common in the harbour of Cove. Ent. Mag. vol. iii. p. 371. It is pretty commonly brought up from deep water in the dredge in the loughs of Strangford and Belfast, but in much smaller quantity than *Macropodia phalangium*. Under similar circumstances it has been procured by us on the western coast. Mr. R. Ball finds it in Dublin bay. All the examples of this crab which I have taken were invested with sponge, which generally covers over the body, arms, and legs; algæ and zoophytes likewise spring from it. In this extraneous matter some of the smaller crustacea find shelter, and, together with the other objects, render the capture of the *Inachus Dorsettensis* interesting far beyond the acquisition of itself.

Capt. Beechey, R.N. of H.M.S. Lucifer, brought up a specimen of this *Inachus* alive in the dredge from a depth of about 140 fathoms off the Mull of Galloway. See 'Annals' for Sept. last, p. 21.

- On different parts of the western coast it was dredged by us in 1840.

Inachus leptochirus, Leach, Mal. pl. 22 v; Edw. Crust. t. i. p. 289.

In the 7th vol. of the 'Annals,' I noticed an example of this species having been dredged in Clifden bay, Connemara, during a natural-history tour made to that quarter by Mr. R. Ball, Mr. E. Forbes, Mr. Hyndman, and myself; and that about the same time a specimen was procured by Mr. R. Patterson in Belfast bay. Subsequently, I have seen specimens from the latter locality in the Ordnance collection.

Inachus dorynchus, Leach, Mal. pl. 22. f. 7. & 8; Edw. Crust. t. i. p. 288.

Among a number of Crustacea dredged in Belfast bay in the summer of 1838 by my friend Dr. J. L. Drummond, and kindly sent to me, was an example of this species. Specimens from the same locality are in the Ordnance collection.

Pisa tetraodon, Leach, Mal. pl. 20; Edw. Crust. t. i. p. 305; Desm. pl. 22. f. 1.

In the collection of Mr. R. Ball are two examples of this species which were obtained at Roundstone, Connemara.

In August 1841, I found several of the *P. tetraodon* thrown ashore at Compton, Isle of Wight.

Hyas aranea, Leach, Mal. pl. 21 a; Edw. Crust. t. i. p. 312.

Cancer aranea, Penn. vol. iv. p. 11. pl. 9. f. 1.*

Mr. Templeton has noticed this species as taken at Carrickfergus; and native specimens are in Mr. J. V. Thompson's collection. It has been obtained at Youghal and Dublin by Mr. R. Ball. We take it by dredging in the loughs of Strangford and Belfast, where too it is commonly thrown ashore. In the estuary at little more than half a mile from Belfast, a number of large specimens of this crab were captured in the month of October 1839, on the hooks attached to hand-lines, much to the surprise of the fishermen, who had never met with them so near the town before, or in brackish water. The lug-worm (*Lumbricus marinus*) was the bait attacked in this instance by the crabs. *Hyas aranea* was taken in the dredge at Bundoran, on the western coast, by our party in July 1840, and very small living specimens were found under stones between tide-marks at Lahinch, on the coast of Clare. In Mr. Hyndman's cabinet are two crabs of this species with oysters attached to their backs. The oyster (*Ostrea edulis*) on the larger crab is 3 inches in length, and five or six years old, and is covered with many large *Balani*. The "shell" or carapace of the crab is but $2\frac{1}{4}$ inches in length, and hence it must, Atlas-like, have borne a world of weight upon its shoulders. The presence of this oyster affords interesting evidence that the *Hyas* lived several years after attaining its full growth. Both crabs and oysters, though dead, were brought to Mr. Hyndman in a fresh state. The hairs on the body and legs of specimens in my collection are longer in the small than in the large individuals. On the north-east

• This bad figure is not referred to by Leach.

coast of Ireland the *H. aranea* is very much preyed on by the cod-fish.

In January 1840, I saw specimens of this crab of very large size on the coast near Edinburgh: the carapace of one which I measured was 3 inches in length, and the extent from the extremities of the first pair of legs, 11 inches.

Hyas coarctata, Leach, Mal. pl. 21 v; Edw. Crust. t. i. p. 312.

This species is set down as Irish in Mr. J. V. Thompson's catalogue, his specimens being most probably from the southern coast. In Mr. Ball's collection are examples from Youghal, and some dredged by him in Dalkey Sound near Dublin. In the loughs of Belfast and Strangford we take it very commonly with the dredge. I have seen an example from the Giant's Causeway—thus from the north to the south of Ireland the species prevails.

Dr. J. L. Drummond has found numbers of these crabs in the stomachs of cod-fish brought to Belfast market. The largest example I have seen was found in the mouth of a haddock taken at Killylough, county Down. Its carapace is 2 inches 2 lines in length; each arm from base to point of claw 3 inches $7\frac{1}{2}$ lines. The body, legs and arms of my specimens of *H. coarctata* are very much invested with zoophytes, sponges, and algæ.

Examples of this crab have been sent me from Portpatrick by Capt. Fayrer, R.N.; and I have myself obtained it on the opposite or eastern coast, at Newhaven near Edinburgh. Captain Beechey, R.N., brought up four examples of this species alive in the dredge from a depth of about 140 fathoms off the Mull of Galloway. See p. 21 of the present volume.

Maia squinado, Latr. Leach, Mal. pl. 18; Edw. Crust. t. i. p. 327; Desm. pl. 21.

Cancer spinosus, Penn.

Inhabits the southern coast. Native specimens of this crab are in Mr. J. V. Thompson's collection. Mr. R. Ball informs me that it is taken not unfrequently with lobsters about Youghal, where it is called horrid-crab; it is not brought to market, but is sometimes eaten by the fishermen—the carapace of a specimen from that locality in this gentleman's collection is 7 inches in length, and others are little inferior to it.

One of these crabs was brought to me at Ventnor, Isle of Wight, where it was taken in a crab-pot at the same time with a *Galathea strigosa*.

Eurynome aspera, Leach, Mal. pl. 17; Edw. Crust. t. i. p. 351; Desm. pl. 20. f. 2.

Cancer asper, Penn. vol. iv. p. 13. pl. 10. f. 3.

Marked as Irish in Mr. J. V. Thompson's collection. It is rather a rare species, and an inhabitant of deep water. In Strangford lough a single specimen was taken in the dredge by Mr. Hyndman and myself in Oct. 1834, and on a subsequent occasion we obtained several individuals in the same locality. It has been dredged in Bel-

fast bay by Dr. J. L. Drummond. Mr. R. Ball once found this species cast ashore on the Dublin coast after a great storm; and in his collection are fine specimens from Roundstone, on the western coast.

Capt. Beechey, R.N., brought up a crab of this species alive in the dredge from a depth of 50 fathoms off the Mull of Galloway. See p. 21 of the present volume.

Xantho floridus, Leach, Mal. pl. 11; Edw. Crust. t. i. p. 394; Desm. pl. 8. f. 2.

Seems to be a local species. It is recorded as Irish in Mr. J. V. Thompson's catalogue. In the Ordnance collection are specimens from three localities on the Antrim coast—Carnlough, Larne and Carrickfergus; and in Mr. R. Ball's cabinet there is an example from Dublin bay. In July 1840, this species was found commonly by Mr. E. Forbes and myself under stones between tide-marks at Lahinch, county Clare:—the entire claws of these specimens (all under half adult size) are of a pale brown colour, but very different in shade from any part of the body of the animal: in Leach's 'Malacostraca' the claws are described and figured as black, but a variety stated to be rare is said to have "the tops of the claws of the same colour with the other parts of the animal."

Xantho rivulosus, Risso. Edw. Crust. t. i. p. 394.

A fine example of a crab so named, and which is an addition to the British fauna, is in the Ordnance collection—it was taken at Portrush, county of Antrim, in July 1839. Capt. Portlock informs me that having been at once identified as the *X. rivulosus*, more specimens were assiduously sought for in the locality, but in vain. I fully agree with him in considering it the *X. rivulosus* as described by M. Edwards. It seems to me a well-marked species. It is said to inhabit the Mediterranean and the western coast of France.

Cancer pagurus, Leach, Mal. pl. 10; Penn. vol. iv. p. 7. pl. 3; Desm. p. 103. pl. 8. f. 1.

Platycarcinus [*Latr.*] *pagurus*, Edw. Crust. t. i. p. 413.

This, the common edible crab, is taken on all quarters of the Irish coast, and is held in good estimation for the table. It is the only species brought on sale to Belfast market. In January 1836, a specimen weighing 9½ lbs. was taken in Strangford lough, and in Aug. 1841, one of 9 lbs. was obtained in Belfast bay: these were of extraordinary magnitude for the north of Ireland to produce, although not larger than what are commonly to be seen in the London market. M. Edwards mentions this species as sometimes exceeding 5 lbs. in weight on the coast of France, t. i. p. 414. The ordinary method of taking these crabs on the coast of Ireland is the same as that resorted to in England—"wicker-baskets in the form of a wire mousetrap." But Mr. Hyndman has seen them sought after and captured at Donaghadee by persons thrusting a piece of iron hooked at the end into the crevices of rocks, the ordinary retreat of the crabs at low-water: a similar practice, according to Mr. Ball, is pursued in the south. In spring and summer they are considered to be

in season at Belfast and Dublin*—between Christmas and Easter is the period mentioned by Leach. As this is not a littoral species it may be worth remarking, that several very small individuals (their carapace an inch in breadth) were found by Mr. E. Forbes and myself in the month of July, frequenting the shore at Lahinch between tide-marks.

Pilumnus hirtellus, Leach, Mal. pl. 12; Edw. Crust. t. i. p. 417; Desm. p. 111. pl. 2. f. 1.

Cancer hirtellus, Penn. vol. iv. p. 9. pl. 6. f. 1.

This appears to be a widely distributed species, occurring in small numbers where found. It is enumerated among the native Crustacea in Mr. J. V. Thompson's catalogue; and in the first vol. of the Ordnance Survey is noticed as obtained at Carnlough, county of Antrim. In the course of a day's dredging in the loughs of Strangford and Belfast, one or two individuals of this species have generally been procured by us. Mr. R. Ball has taken it on the Dublin coast by dredging, and has likewise found it inhabiting the beach between tide-marks at Portmarnock—by Mr. E. Forbes and myself it was similarly found at Lahinch. Specimens from Youghal are in Mr. Ball's collection, and from Courtmasherry harbour—also in the county of Cork in Mr. G. J. Allman's. The figures of this species given by Leach and Pennant are good and characteristic: Desmarest's figure (Consid. Crust. pl. 11. f. 1.) is not so.

Pirimela denticulata, Leach, Mal. pl. 3; Edw. Crust. t. i. p. 424; Desm. p. 106. pl. 9. f. 1.

Of this small and handsomely sculptured crab I have seen but two Irish examples. The first was found amongst a number of species of various kinds collected on the coast of Antrim and Down by Dr. J. L. Drummond, and kindly submitted to my investigation. The other was obtained alive by Mr. E. Forbes and myself between tide-marks at Lahinch on the coast of Clare.

In August 1841, I found three specimens washed ashore at Compton, Isle of Wight.

Carcinus mænas, Leach, Mal. pl. 5; Edw. Crust. t. i. p. 434.

Cancer mænas, Penn. vol. iv. p. 6. pl. 2. f. 1.

This species is common around the coast of Ireland, and is popularly known by the name of *parten* in the north, the *crab*, par excellence, being the *Cancer pagurus*†. On gravelly, sandy, and muddy

* Rutty, writing seventy years ago, remarks—"The greatest quantity of crabs and lobsters supplying Dublin comes from the Isle of Man; but the best are those from Lambay, Howth and Skerries; for the former by longer carriage and agitation fret and waste themselves, and thereby become much worse food. They are also brought from the Saltee Islands, about 80 miles from Dublin, by the fishermen of Bullock, Dunleary and Howth."—Nat. Hist. Dublin, vol. i. p. 374.

† This species being distinguished as *the* crab, I should hope with Mr. T. Bell (Zool. Trans.) that it were considered the type of the genus *Cancer*.

shores I have remarked this species to be about equally common. Mr. R. Ball states that it inhabits holes in the hard mud, but whether made by itself he cannot say. The *Gonoplar bispinosa* is said by Mr. Cranch "to live in excavations formed in the hardened mud, and that their habitations, at the extremities of which they live, are open at each end." Leach, Mal. Pod. Brit. In the ordinary rejectamenta of the tide it occurs much more frequently than any other species, and generally in a young state. The carapace of the largest example in my collection, from Belfast bay, is $3\frac{1}{4}$ inches in breadth and $2\frac{1}{2}$ in length. Pennant and Leach state that this crab is sent in quantities to London, where it is eaten by the poor; and M. Edwards observes that it is used in like manner in Paris. In other large towns also I have remarked it on sale, but in Belfast, the *Cancer pagurus*, as has been already remarked, is the only species of crab used as an article of food. The *Carcinus manas* is much in request by juvenile anglers and fishermen for bait. I have seen it so used by persons fishing for flounders (*Platessa flesus*) in the river Bann, near Portstewart: by Dr. J. L. Drummond I am informed that its liver is the chief bait used by boys at Larne in fishing for the young of the *Merlangus carbonarius*, called there *pickock*: Mr. R. Ball states that when these crabs are about to change their shells or have recently done so, they are sought for under the sea-weeds at low-tide by the fishermen at Youghal, chiefly as bait for flat-fish, and are superior to anything that can be used—in this soft state they are here called *pil-crabs* (qu. peeled-crabs). At the quays of Youghal, these crabs are caught in great numbers simply with fish-entrails tied to a string. They prove such an annoyance to boys fishing at Belfast quay by consuming their bait, that all of them caught in the act are instantly trampled to death, and hence may have arisen the proverb of "crab's allowance." Mr. Ball was once witness to the body of a person drowned when bathing at Youghal, being taken out of the water an hour and a half after his disappearance, when several of these crabs were engaged eating the eyes of the corpse.

M. Edwards remarks that the name of "Crâbes enragés" is applied to this species on the coast of Normandy; and it is sufficiently appropriate, for when arrested in their rapid progress over the beach, and well (as remarked by that author) they can run, they instantly throw up their claws in anger to attack the intruder, and if not guarded against, will give him *feeling* evidence of their displeasure. M. Edwards too observes, that they have been kept alive for a long time out of the water, but he would perhaps hardly be prepared to expect that they are so tenacious of life, as shown in the following instance, communicated by Mr. R. Patterson:—"I remember above twenty years ago spending one of my school vacations at Holywood, Belfast bay, and on one occasion was so annoyed by the common crabs (*C. manas*) eating the bait from my fishing hook, that at length I took a number of the crabs and by way of retaliation buried them alive in the garden. Some time after, but how long I cannot now remember, I was tempted to dig them up to

see what kind of a state they were then in, when to my surprise they were not only living, but able to move about as actively as ever. Wishing to verify the remembrance of this boyish prank, I took some of the crabs in the summer of 1837, threw a piece of sea-weed on them and buried them to the depth of twelve or fourteen inches, the soil above them being closely beaten down. When leaving the country seventeen days afterwards I found them living, and one individual was so brisk that he caught the spade in his claws. I have had no opportunity of ascertaining what is the limit of the time they would live under such circumstances."

When at the Isle of Wight in the summer of 1841, I remarked this to be the most common crab on all parts of the coast. At Ventnor it was flung from the crab-pots as useless.

I don't know whether the *C. manas* be found in the Adriatic Sea, but a crab which I saw under one of the bridges at Venice seemed to be this species. I remarked several crab-pots set at the sea or eastern entrance of one of the canals here where the bottom is oozy.

Portunus variegatus, Leach, Mal. pl. 4 ; Desm. pl. 4. f. 2.

Platyonichus latipes, Edw. Crust. t. i. p. 436.

Cancer latipes, Penn. vol. iv. p. 5. pl. 1. f. 4.

Is occasionally found thrown ashore on extensive sandy beaches. I have seen examples from Macgilligan and Portrush on the northern, and Portmarneck on the eastern coast. Leach mentions this as "the most common species of the Malacostracous animals that inhabit our coasts," and that "it is found thrown on all the sandy shores of Great Britain in great abundance, especially during storms." On the Irish coast it is quite a local species. In the course of dredging in the open sea off Down, in the loughs of Strangford and Belfast a single example only of this species has occurred either to my friends or to myself. In dredging on the Connaught coast, and about Dublin bay on the opposite side of the island I never saw this species brought up—some of the localities dredged over were sandy and off extensive beaches of the same nature. After severe storms chiefly, we find it cast ashore upon the sand. *Corystes cassivelaunus* is much more generally distributed on the sandy coasts of Ireland than *Portunus variegatus*.

Portunus puber, Leach, Mal. pl. 6 ; Edw. Crust. t. i. p. 441 ; Desm. p. 93. pl. 5. f. 1.

Cancer velutinus, Penn. vol. iv. p. 8. pl. 4. f. 1.

Of this species, the velvet crab of British authors—noticed by Templeton and J. V. Thompson as Irish—I have seen examples from all quarters of the coast. Dr. J. L. Drummond informs me that it is taken commonly at Bangor (co. Down) by boys, who find it lurking under large stones in rocky pools at low water. Between tide-marks we found it common at Labinch. Mr. R. Ball states that at Youghal, where the species grows to a large size, and is known by the name of Kerry Witch, it is caught along with *Carcinus manas* with fish-guts used as bait.

Portunus depurator, Leach, Mal. pl. 9. f. 1 & 2.

P. plicatus, Edw. Crust. t. i. p. 442.

Cancer depurator, var.* Penn. vol. iv. p. 6. pl. 4. f. 2.

From Templeton noting this crab merely as "found on the sands at Dunfanaghy, co. Donegal, July 13, 1815," and from the specimen named *P. depurator* in Mr. J. V. Thompson's collection (now in the College of Surgeons, Dublin,) being in reality *P. lividus*, it might be supposed that the species is not common. We have however dredged it in Strangford lough, in the open sea off Down, and on the Connaught coast. During some weeks spent at Bangor, near the entrance of Belfast bay, in the autumn of 1835, I found this to be the most common species of crab thrown by the waves upon the beach—*Carc. mænas* being the common one found *alive* between tide-marks. Mr. R. Ball mentions that the *P. depurator* is local, but abundant where it does occur about Youghal.

Leach describes this species—"P. testa subcomplanata lineis elevatis et transversis abbreviatis e granulis compositis," and Pennant attributes to it (his "*Cancer depurator*, var.") a tuberculated surface. What is just quoted from Leach applies admirably to all my specimens, small and large—his figure shows the appearance tolerably well. This author remarks, that it "is by far the most common species [of *Portunus*] that inhabits the British coast†."

Portunus lividus, Leach, Mal. pl. 9. f. 3 & 4.

P. holsatus, Edw. Crust. t. i. p. 443.

Is not common. Templeton mentions it as found by him "on the shore at Dunfanaghy." We have dredged it on more than one occasion in Belfast bay, and have obtained it on the beach at Carnlough, county of Antrim. In Mr. R. Ball's collection are several specimens which were dredged in Dublin bay. Leach mentions his having seen but two examples of this species.

Portunus corrugatus, Leach, Mal. pl. 7. f. 1 & 2; Edw. Crust. t. i. p. 443.

The only specimens of this species which I have seen are some fine examples from Larne and Carrickfergus in the Ordnance collection, and a single specimen obtained on the Dublin coast by Mr. R. Ball. Mr. J. V. Thompson notices *P. corrugatus* as inhabiting the harbour of Cove, but those so named in his collection are the wrinkled variety of *P. depurator*.

* M. Edwards refers to Pennant's other figure of *C. depurator* with doubt, as identical with *P. marmoreus*, Leach.

† *Portunus marmoreus*, Leach, Mal. pl. 8; Edw. Crust. t. i. p. 442.

Mr. J. V. Thompson observes that, "several species of *Portunus* inhabit the harbour of Cove, as *depurator*, *arcuatus*, *corrugatus* and *marmoratus*, of which the last is perhaps the most common." Ent. Mag. vol. iii. p. 278. On examining the specimens from Cork in that gentleman's collection, labelled as *P. marmoratus*, I find that they are the *P. pusillus* of Leach. Of *P. marmoreus* I have not yet seen any Irish examples.

Portunus pusillus, Leach, Mal. pl. 9. f. 5—8; Edw. Crust. t. i. p. 444.

Generally inhabits deep water. It is ordinarily taken by us when dredging in the loughs of Strangford and Belfast; at the Killeries in Connemara it has similarly occurred as well as in Dublin bay. In the south too, it has been taken by Mr. J. V. Thompson in the harbour of Cove—see note on *P. marmorcus*, p. 282. I have several times found it in the stomachs of fishes, in one instance in a *Trigla Gurnardus*, taken in the open sea off Down.

At Compton, in the Isle of Wight, I procured several of this species thrown by the waves upon the beach.

Portunus arcuatus, Leach, Mal. pl. 7. f. 5 & 6.

P. Rondeletii, Edw. Crust. t. i. p. 444.

Has been taken occasionally by us when dredging in deep water in the loughs of Strangford and Belfast; and has been found cast ashore at Portmarnock by Mr. R. Ball. It was procured by our party in the summer of 1840 when dredging in Killery and Roundstone bays on the western coast. Specimens are in Mr. J. V. Thompson's collection, and it may be presumed, from Cork. All the examples of this species which have occurred to myself were taken in the dredge excepting on one occasion (Oct. 1) at Killinchy, on the shore of Strangford lough, when looking to the refuse in a number of small boats which had been employed the night before in herring fishing, I found in every one of them several of these crabs which had been brought up in the nets, and not one of any other species.

Leach remarks that "*P. arcuatus* differs from *P. emarginatus* only in the form of the anterior part of the shell, and may be no more than a variety of that species." M. Edwards considers them the same. All the specimens preserved (about thirty) from the different localities mentioned,—and there is about an equal number of both sexes ranging from a very small size up to that of Leach's figure of *P. emarginatus*,—have the anterior part of the shell corresponding to that of *P. arcuatus*, or in other words, arched:—"fronte arcuato integro" is Leach's description of it.

Pinnotheres pisum, Leach, Mal. pl. 14. f. 1—3, female; Desm. p. 118. pl. 11. f. 3.

P. varians, Leach, Mal. pl. 14. f. 9—11, male.

P. Latreillii, Leach, Mal. pl. 14. f. 7 & 8, young female*.

P. pisum, Edw. Crust. t. ii. p. 31.

Cancer pisum, Penn. vol. iv. p. 3. pl. 1. f. 1, female.

C. minutus, Penn. vol. iv. p. 5. pl. 1. f. 2, male.

Templeton has noticed this species as "dredged up in Belfast

* These synonyms are brought together agreeably to the views of M. Edwards, who further observes that *P. Cranchii*, Leach, seems not specifically different from *P. pisum*, and that *P. Montagui*, Leach, is perhaps a variety of the same. With M. Edwards I agree in the opinion that *P. Cranchii* is not distinct from *P. pisum*; but *P. Montagui* as described and figured by Leach rather seems to me a different species. About twenty male speci-

lough." It is commonly found in *Modiolus vulgaris* on the Irish coast, where it is of much more frequent occurrence than in the locality in which Dr. Leach endeavoured to ascertain the number found in a certain quantity of mussels. In the article Crustaceology (Edin. Ency.) it is remarked that—"in one hundred of *Mytilus modiolus*, Dr. Leach found three of this species." On opening eighteen specimens of the *Modiolus vulgaris* of various size—the produce of dredging off Bangor (co. Down) in October 1835—I found fourteen individuals of *P. pisum*, all females: in one shell only two of the crabs occurred. I have subsequently opened quantities of these *Modioli* with similar results as to the number of the *Pinnotheres*, but in all other instances more crabs were obtained from a like number of shells in consequence of more of the *Modioli* producing two of them.

The smallest *Pinnotheres* I have seen was found by Mr. Hyndman in a living *Cardium exiguum* dredged by us in Strangford lough in Oct. 1834. It is a male: the carapace is under a line in length; the entire breadth of the crab from the extremities of the outstretched legs is 3 lines*. The *Cardium* is under 3 lines in length, and barely exceeds that admeasurement in breadth, so that the crab when in the position just mentioned must have on both sides touched the walls of its chosen prison. The *Pinnotheres* likewise inhabits the *Cardium edule*. Before me is one of these crabs, of which the carapace is 2 lines in breadth, obtained by Mr. Hyndman in a full-grown *C. edule* from Strangford lough; but from the Sligo coast, where this shell attains an extraordinary large size, a crab with a carapace 4 lines in breadth, and with outstretched legs 7 lines across, was once kindly brought to me by Lord Enniskillen. Mr. R. Ball informs me that on two occasions he obtained a great number of the *Pinnotheres*, and which were all males, from the *Cardium edule* taken at Youghal †—about nine out of every ten cockles contained a crab. On opening oysters from Tenby, in Wales, he has likewise procured the *Pinnotheres*. This crab, like the *Pagurus*, occupies different species of shells according to its size, and at every age generally selects such as with outstretched legs it would fill from side to side—this of

mens before me as I write, have all the anterior part of the shell produced as in *P. Latreillii* and *P. varians* of Leach (pl. 14.), and consequently unlike the two-lobed anterior part of *P. Montagu*i and *P. veterum* of the same author. All of my specimens but one have the large hands of *P. varians*—the exception has them no larger than in *P. Latreillii*: surely this species, as represented by Leach, is a male—M. Edwards notes it as a young female.

* In the 'Entomological Magazine,' vol. iii., the *Zoea* of this *Pinnotheres* is described and figured by Mr. J. V. Thompson.

† With respect to another part of the coast of Cork, Mr. J. V. Thompson observes—"Let any person take a sweep with a dredge on any bank of old mussels, *modioli* or *pinna*, where the *Pinnotheres* have been before observed, and almost every shell will be found to contain one full-grown female, some two, and others three, independent of young ones and males, which occasionally occur in common with the females. * * * As the fishermen at Cove often have recourse to those shell-fish for bait, I have had a pint and upwards of the pea-crab brought to me out of the mussels obtained in a few hauls of the dredge."—Ent. Mag. vol. iii. p. 86.

course will not apply to the allied species *P. pinna*. On one occasion I found a female *Pinnotheres*, of adult size, alive in a *Modiolus vulgaris* six days after it had been taken from the sea—the shell-fish died on the fourth day.

“*Pinnotheres pinna*.”

In the collection of Mr. J. V. Thompson there is a specimen so named and marked as Irish. It is imperfect, but appears to be the *P. veterum* of Leach, made synonymous by this author with *P. pinna*. Writing on *Pinnotheres* in the ‘Entomological Magazine’ (vol. iii. p. 89) Mr. J. V. Thompson remarks—“On this part [Cork] of the Irish coast but two species have been hitherto observed, viz. *P. pisum* and *P. pinna*, the latter being found in *Pinna* and *Modioli*.”

Gonoplax angulata, Edw. Crust. t. ii. p. 61.

G. bispinosa, Leach, Mal. pl. 13.

Mr. J. V. Thompson’s collection contains an Irish specimen of this crab, marked “rare.” Mr. R. Ball has found the species in the stomachs of cod-fish, purchased in the markets of Youghal and Dublin, and commonly in those brought to the former place—four of these crabs is the greatest number he has obtained from the stomach of a single fish. In the Ordnance collection is a fine example of *G. angulata*, labelled as procured at “Bangor [co. Down], January 1839.”

On examination of several specimens of *Gonoplax* preserved by Mr. Ball, I cannot—judging from Leach’s figure of the one and Desmarest’s of the other—see any grounds for considering *G. angulata* and *G. rhomboidalis* as distinct species. My specimens accord better with the latter, but may at the same time be considered intermediate: instead of the second spine on each side is the little knob or protuberance characteristic of *G. rhomboidalis*. From the descriptions of the two species there appears to be little more of difference than the relative length of spine—and this certainly is most trivial—on each side of the carapace.

Ebalia Bryerii, Leach, Mal. pl. 25. f. 12; Edw. Crust. t. ii. p. 129.

The first native example of this species which came under my observation was obtained in the autumn of 1838 by Mr. Hyndman, when dredging in deep water in Belfast bay. In the Ordnance collection are two specimens similarly obtained from the same locality in the following year.

Capt. Beechey, R.N., brought up two examples of this species alive in the dredge from 50 fathoms water off the Mull of Galloway. See p. 21 of the present vol.

Ebalia Cranchii, Leach, Mal. pl. 25. f. 7—11; Edw. Crust. t. ii. p. 129.

A single specimen was dredged from deep water in Roundstone bay, Connemara, by our party in July 1840. Mr. R. Ball subsequently found several on the beach at Portmarnock after a storm.

Captain Portlock informs me that this species was taken by deep dredging in Belfast bay in the course of the Ordnance Survey.

Ebalia Pennantii, Leach, Mal. pl. 25. f. 1—6; Edw. Crust. t. ii. p. 129; Desm. pl. 7. f. 1.

Cancer tuberosus, Penn. vol. iv. p. 12. pl. 10. f. 2.

Although this species must be considered rare, it is less so than the two already noticed—*E. Bryerii* and *E. Cranchii*. A specimen (from Cork ?) is in Mr. J. V. Thompson's collection. In Sept. 1836, one was dredged up from deep water in Belfast bay by Mr. Hyndman, and, subsequently, another was similarly obtained there by Dr. Drummond. Several were procured in the same locality by the collectors attached to the Ordnance Survey, who likewise dredged a specimen in Larne lough. To Mr. G. J. Allman I am indebted for one which he found in Dublin bay.

Three examples of the *E. Pennantii* were brought up alive in the dredge from a depth of 50 fathoms off the Mull of Galloway by Capt. Beechey, R.N. See p. 21 of the present vol.

Atelecyclus heterodon, Leach, Mal. pl. 2; Edw. Crust. t. ii. p. 143. *A. septemdentatus*, Desm. p. 8. pl. 4. f. 1.

Mr. Templeton notices a crab of this species as found by him "in the stomach of a cod-fish Jan. 17, 1817." In Mr. J. V. Thompson's collection is an Irish specimen probably from Cork. In Jan. 1839, I obtained a perfect adult male from the stomach of a brill (*Pleuronectes rhombus*) taken at Ardglass, county Down; it somewhat exceeds in size that figured by Leach, which again is larger than Montagu represents the species; the hairs are not confined to the arms and legs, the carapace being likewise covered with them. The circumstance of this species being found in the stomachs of the cod and brill would indicate—were we not otherwise informed—its being an inhabitant of deep water. In the Ordnance collection are examples of this crab from Moville (co. Donegal), Portrush, near the Giant's Causeway, and Carrickfergus. Mr. R. Ball has twice obtained it on the Dublin coast: on one occasion many specimens were found by him on the beach at Portmarnock after a great storm. Montagu remarks that several of the *A. heterodon* which he procured were all males, and Dr. Leach mentions females as extremely rare. The several Irish examples I looked to with reference to their sex, were likewise males. It may be remarked, that in this species the females might, from the very narrow form of the abdomen, be without due attention regarded as males.

In the month of September 1835, I obtained several small living specimens of *Atelecyclus* (carapace about 2 lines in length) in rock-pools accessible at low-water at Bangor, county Down. They differ a little in the contour of the shell (which is not so round) and in the form of the teeth between the orbits from the adult *A. heterodon*, but on account of their diminutive size, and in the absence of specimens of all ages for comparison, it would I conceive be rash to consider them otherwise than this species.

Corystes cassivelaunus, Leach, Mal. pl. 1.

C. dentatus, *Edw. Crust.* t. ii. p. 148; *Desm.* p. 86. pl. 3. f. 2.

Cancer cassivelaunus, *Penn.* vol. iv. p. 9. pl. 7.

"Found on the shore at Cushendall bay," Templeton. Marked as "Irish" in Mr. J. V. Thompson's collection. This species is commonly found after storms on the sandy shores of the north and east of Ireland. In the month of August 1836, a number of very small specimens were dredged from a sandy bottom in the open sea off Dundrum, co. Down, by Mr. Hyndman and myself. The smaller the individuals of this species, the antennæ are the longer in proportion to the size of the body: some of these with the shell or carapace 3 lines in length have the antennæ 6 lines long—on this account the young present a very singular and grotesque appearance: none of those taken on this occasion had the carapace more than 6 lines in length. In the stomach of a smooth dog-fish (*Mustelus levis*) captured in Belfast bay, I found a perfect adult specimen of this crab.

Dr. J. L. Drummond informs me that he has frequently taken this species at Bangor at neap-tides, when he detected it by the antennæ (which were always in contact with each other) being protruded above the surface of the sand for nearly their whole length. Mr. R. Ball, who has found these crabs in abundance at Youghal and Dublin, has seen them shake themselves down in the sand so as to conceal all but the antennæ as described. He is of opinion that the antennæ are not thus protruded for any special object, but simply that the animal feels itself sufficiently concealed when the body is covered.

[To be continued.]

XLI.—*A Catalogue of Sicilian Plants; with some remarks on the Geography, Geology, and Vegetation of Sicily.* By JOHN HOGG, Esq., M.A., F.L.S., F.C.P.S., &c.

IN this Catalogue, in addition to those plants which I observed myself during the few weeks I remained in Sicily, many others, that I could learn from good authority to be indigenous, or naturalized in the island, will be found. I have followed the arrangement and the genera adopted by Persoon in his 'Synopsis Plantarum' (edit. 1805-7), as that is by far the most convenient and portable manual for a traveller, and have also referred to the works of other authors for the descriptions of such species as are new, and are not given in Persoon's two volumes.

The orders which contain the most numerous species are, *Ranunculaceæ*, *Cruciferae*, *Caryophylleæ*, *Leguminosæ*, *Umbelliferae*, *Compositæ*, *Labiatae* and *Gramineæ*.

There are twenty-five plants whose specific name, *Siculus*, is taken from the island; viz. one for each of the following genera, *Valeriana*, *Poa*, *Festuca*, *Scabiosa*, *Convolvulus*, *Athamanta*, *Sium*, *Linum*, *Allium*, *Erica*, *Saponaria*, *Dianthus*, *Si-*