

After some further discussion, DR. J. R. KINAHAN read a paper—
ON XANTHO RIVULOSA AND OTHER DECAPODOUS CRUSTACEA OCCURRING AT
VALENTIA ISLAND, CO. KERRY.

IN recording this, the second notice of the occurrence of *Xantho rivulosa* on the Irish shores, I mean to take the same opportunity to submit to your Society such notes with regard to some of the more remarkable Crustacea which occur at Valentia Island, as a hurried visit to that locality last summer, under unfavourable circumstances, afforded me, combining with them remarks on the distribution of the species around Ireland generally, as far as the scanty materials at my command will enable me to do. These, though imperfect, I am led to lay before you, chiefly by the great lack of information on this subject which I find pervades all our Natural Histories, even those very lately published.

It is a matter much to be deplored, that naturalists generally do not oftener avail themselves of opportunities of compiling comparative tables of the productions of the various districts they may examine; but, instead thereof, sinking the naturalist in the mere collector, rush rather after a multitude of specimens or species than a limited number of general facts. I do not wish to undervalue the collector's labours, but rather to prompt every collector to become a naturalist also, and by carefully noting the special peculiarities of each district which he examines, to enable himself and others thereby to arrive not only at particular conclusions as regards that locality, but also at general ones as regards the Fauna of the entire country, and its bearings on the Fauna of the whole world. That the importance of this matter is not overrated must be apparent to any one who takes the trouble to examine even the best arranged books of modern days, with regard to the distribution of our marine animals, and (with, perhaps, the exception of the Molluscs) the deficiency of authentic information will be apparent on even a superficial examination, this deficiency in a great measure arising from observers having sought and noted the rarest, or what they considered the rarest species, only.

The principal data on which the following remarks as to distribution are founded are as follow:—For the north of Ireland generally, the specimens in what is commonly known as the Ordnance Survey collection, or Down Survey collection,—a collection made by the officers of the Ordnance Survey of Ireland, under the direction of Captain, now Colonel Portlock, during the years 1839, &c., in the counties of Donegal, Antrim, Down, and Londonderry, and which is at present in the Museum of Irish Industry. Where this is referred to, the letters O. C. are placed after the locality.

For the east coast, my own experience of Dublin Bay, assisted, in a very few instances, by the collections of Dr. Ball and other kind friends.

For the south, my own experience in Youghal and Ardmore, and also J. V. Thompson's collection of Crustacea, now in the Royal Dublin Society's Museum; and also the Catalogue prepared by the Cork Cu-

vierian Society in 1849. These two latter are referred to as J. V. T. and C. C. S. My own notes are, in every case, unmarked, the locality being given without any initial.

For the west, in addition to my own notes made at Valentia Island, in 1856, and at Kilkee, Galway, &c., in 1852, I have also made use of a catalogue, supplied me some years since through the kindness of Dr. Farran, of the principal species captured by W. M'Calla in Birterbie and Roundstone Bays, marked by the initials W. M'C.

Correcting and adding to all these various sources from Bell's British Crustacea, and William Thompson's Notes on the subject, as given posthumously to the world in the fourth volume of the "Natural History of Ireland." This last has been noticed as W. T.

The list by no means purports to be a complete distributional one; a task so comprehensive must be left for the future; but is merely intended to notice such species as either came directly under my own observation while living, or of which specimens, concerning whose authenticity there could be no doubt, were seen by me.

So much has lately, that is to say, within the last few years, been said and printed concerning the superior capabilities of the west of Ireland as a field for research, that naturalists have been insensibly led to look on it as the El Dorado of Irish Natural History, where "monster nuggets," in the shape of new species, and rare animals and plants, are tossed up by every tide and breeze; the usual answer of the old hands and authorities to the anxious inquirer seeking information regarding the *locale* of some rare species "Common in the west," helping to foster this opinion, so that every naturalist could not but feel impatient for an opportunity to examine into and revel amidst such treasures. Any one who has felt the pleasure of breaking ground in a comparatively new and seemingly rich field can quite appreciate the feelings with which I gladly accepted an invitation to spend a few weeks at Valentia Island, which, embayed as it is in an inlet of the Co. Kerry, ought to furnish the carcinologist with every species which frequents the coast.

Among the many species marked as Irish, on the authority of the occurrence of a single specimen, none, with, perhaps, the exception of *Polybius Henslowii*, possess more interest than the subject of this notice, *Xantho rivulosa*, one of the types of a genus which, essentially subtropical, reaches its northern limit on the British shores, itself an undoubted member of that Fauna whose scattered members, in characters not to be mistaken, attest the probability, nay, almost the certainty, of the truth of one of the most brilliant theories ever propounded,—that of the lamented Edward Forbes,—surmising the union and intermingling, at some period of the world's history, of the Fauna of the west of Ireland and Mediterranean districts; add to this the fact of its having been detected hitherto in Ireland only at the extreme north, and that, when then discovered, now fifteen years back, a second specimen was sought in vain; that during this long interval it has remained undetected, escaping the careful research of even W. M'Calla (at least, it neither appears among his lists, nor can I find specimens of it in the

many collections supplied by him), and, therefore, evidently either very rare or very local.

Taking these latter facts into consideration, it appeared to me, when starting for Valentia Island, with the determination of seeking this species, that it was rather a wild-goose chase, and the chances of success but small; and my experience at Valentia Island would lead me to believe that either the species is everywhere scarce, or else, what is just as probable, that it, in its habits, differs much from those of *Xantho florida*, and that its scarcity in collections depends on the blundering of the collectors. Although I assiduously sought for it, but one specimen rewarded my labours,—that now before you,—sufficient, however, to prove the existence of the species on the coast, and to stimulate a further search at some future time.

The general aspect of the shores of Valentia Island needs little description: every form of beach, slob, shingle, sand, and rocks, and rock pools occur, and a rapid and strong current sets in round the island, so that there is no lack of fitting localities for every kind of Crustacea. My researches were confined to the littoral zones chiefly, and hence this list includes but few of the *Macroura* and *Anomoura*.

LIST OF SPECIES.

Hyas araneus, common, and a littoral species here. In Ireland it has occurred all round the coast, as follows:—Carrickfergus (W. T.), Dublin, Youghal, Valentia, Clew Bay (W. T.).

Hyas coarctatus, apparently rare. I saw but one specimen. This may arise, however, from its being a frequenter of deeper water than the last; such, at least, I find to be its habits in Dublin. This species has been selected by Dana as a type of his Caledonian group, and yet it is recorded as occurring on the shores of La Manches. In Ireland it has occurred at Giant's Causeway (O. C.), Belfast (W. T.), Dublin, Cork (J. V. T.), Valentia Island, Galway Bay, 1857. In Dublin Bay it is much commoner than the last, being less local, but preferring deeper water.

Maia squinado, common, and deep sea, or, at least, laminarian; taken in the lobster-pots; undoubtedly a southern species. Forbes makes it one of his South British types. Information with regard to the limits of its distribution is much wanted. It is recorded from Wexford (W. T.), Cork (J. V. T.), and the west coast, as far north as Roundstone Bay (W. M. C.).

Xantho florida, very common under stones between tide-marks. Two distinctly marked varieties occur, the one having the wrists quite smooth, the other with the wrists picked out into irregular, confluent, slightly raised ridges. This is probably only a variety of the smooth-wristed form, as intermediate forms are common. There is great variety in colour among the specimens, some being colourless, similar to the specimen recorded in Thompson from Lahinch, and which, through the kindness of Dr. Robert Ball, I have had an opportunity of examining.

The species appears to be southern and western in its distribution.

It has been recorded in the Dublin lists on the authority of Dr. Ball. I find the observations of this gentleman with regard to our Dublin species so correct,—in fact, in every instance but this having verified his observations by specimens obtained by myself,—that, although a careful search for this species in Dublin, on my own part, has been hitherto unsuccessful, I yet feel great hesitation in contradicting the statement. The fact of there being but a single specimen in his collection, so marked, leaves room, however, for the surmise that there may have been some mistake. In Ireland it has been recorded in Antrim (O. C.), Dublin Bay? (R. B.), *vide ante*, Hook Head (R. B.), Cork? (C. C. S.), Valentia Island, Tory Island (W. T.) The specimen thus marked in J. V. Thompson's collection is *X. tuberculata*.*

The fact of the species having occurred on the north-east coast does not militate against its being regarded as southern. Several other seemingly southern, or, more probably, western species, are found to occur along the eastern coast of the north of Ireland. In England, as far as I find it recorded, the distribution of this species is southern.

Xantho rivulosa.—Along with the last, a single specimen was found under the stones near Renaune Point: it is a female, and half grown, and exhibited the following distinctive characters, as contrasted with *Xantho florida*, captured at the same place:—Front produced, directed forwards, lamellar, *beaded along its margin*; pterygostomial regions *granulated* (in *X. florida*, punctated); dentition of lateral edge. D. slightly marked, yet distinct, E. N. T. S.; (in *X. florida* D. nearly completely obsolete); superior surface of carapace much flattened, posterior pairs of legs *hairy upon superior edges*. The character of the double groove on the movable finger is by no means a constant distinction, as it is found in some young specimens of *X. florida*.

This is undoubtedly a southern species. The only Irish specimen heretofore known, and which I am, through the kindness of G. V. Du Noyer, Esq., enabled to figure from the original sketch made in 1839, and which is itself here exhibited through the kindness of the authorities of the Museum of Irish Industry, was obtained at Portrush, 1839 (O. C.), Hook Head (R. B.), † Valentia Island, 1856, Galway (Prof. Melville).

* *Xantho tuberculata*.—Among the collection of Crustacea purchased from J. V. Thompson by the Royal College of Surgeons, Ireland, and by them presented to the Royal Dublin Society, there is a mutilated specimen—marked in the Catalogue No. 23, “I. *Xantho floridus*, imperfect”—which is either this or some closely allied species. The absence of the hindlegs prevent a positive opinion as to the species; but in the produced front and coarsely tuberculated hands, &c., it appears identical with Bell's figure. I have noticed it here, as it appears to have escaped W. Thompson's observation; and it were exceedingly desirable if the occurrence of this south-British type on the Irish shores could be confirmed. It is singular that there is no specimen of *Xantho florida* at all in the collection. I have been at pains to identify this specimen as the actual specimen described in the Catalogue as above, and find there cannot be any doubt as to its identity.

† *X. rivulosa*.—Since the above paper was read, Dr. Robert Ball kindly afforded me an opportunity of examining the fine collection of Irish Xanthos in the University Museum, Trinity College, and among a number collected at Hook Head, county

Cancer pagurus.—Here, as all round Ireland, occurs abundantly, and appears to be universal—in fact, no district is without it.

Carcinus mænas.—Also abundant, varying much in colour, especially the young specimens which at Valentia Island are generally of dark olives and grays. I did not meet any of the light-coloured varieties which are common in the Dublin rock-pools. The amount of arcuation of the front varies much in some of my specimens. This species appears as widely distributed as the last.

Portunus puber.—Very abundant, littoral and laminarian. The Valentia specimens are much more convex than Dublin coast specimens, which are, many of them, nearly quite flat. The young of this species, as well as those of the next two, might be easily confounded with those of *Carcinus mænas*, the only difference at first sight being a *sparsæ pubescence*. The young specimens of this species are, many of them, most beautiful in their colours: patches of rose-pink adorning the branchial region, and a stripe of the same colour running down the median line. The frontal teeth in young specimens appear as pearly granulations only.

Distribution.—Bangor, Co. Down (O.C.), Dublin, Youghal, Valentia, Lahinch, Tory Island (W.T.).

Portunus corrugatus.—Rare; small specimens occur in pools left in the sands and among *Zostera marina* at Ringlass Point. It appears to be generally distributed around Ireland, though there is no certain record of its having been found on the south coast. It is omitted in the Cork Cuvierian Society's list. J. V. Thompson's specimens, marked *P. corrugatus*, are incorrectly named; as it occurs in the Mediterranean it may be a southern species, attaining its extreme limit in Dublin Bay, but, more probably, further research will establish it around Ireland. At present, the following comprises the districts in which it has been found:—Larne (O.C.), Dublin Bay (R.B.), and also my own collecting, Valentia Island, and the west coast generally, to Birterbie Bay (W.M.C.).

*Portunus arcuatus**.—Specimens occurred in the same locality as the last; this species is a most interesting example of representative form, copying closely the outline of *Portunus integrifrons* of the Indian

of Wexford, by Doran, some years since, I had the pleasure of detecting a small specimen of this species—thus confirming its southern range. Although this collection includes some dozen specimens, which I carefully examined, I could not find another example of this species. These specimens, Dr. Ball informed me at the time, had never been critically examined before.

* *Portunus carcinoides* (Mihi).—Along with the above species three specimens of a *Portunus* occurred, which, though neighbouring to *P. corrugatus*, seem to belong to some other species. I have, therefore, ventured to describe it provisionally, under the name of *P. carcinoides* (from its resemblance to *Carcinus mænas*), as follows:—

Carapace smooth, without raised ridges, regions marked out by rounded prominences only, sparsely hirsute. Front *three-lobed*, middle lobe largest, *edges of lobes entire*. Antero-lateral margin of carapace five-toothed. First pair of legs equal, surface nearly smooth, hirsute; two flattened, triangular teeth at anterior superior angles of wrist; hand with two well-marked carinæ on the upper sides, *the inner terminating*

Ocean, and even the habitat,—which appears to be erroneously given in Bell as deep water,—at least in Valentia Island, I find *P. arcuatus* tolerably abundant under weed-covered stones, between tide-marks, precisely as *Portunus integrifrons* occurred to me in Port Philip Bay, Australia. The young specimens of this species are, probably, often passed over as *Carcinus maenas*, from which it is often difficult to separate them. It is, most probably, a southern species, that is to say, one of Forbes's Atlantic types.

In Ireland it has been recorded as occurring as follows:—Strangford Lough (O. C.), Portmarnock, Co. Dublin (R. B.), Dublin Bay, 1852, Cork (J. V. T.), Valentia Island, Killeries (W. T.).

Portunus depurator occurs, but not common. This species has been erroneously supposed to be rare in Ireland, probably from its being generally an inhabitant of tolerably deep water: it is neither rare nor yet local, as the following list shows:—

Belfast (O. C.), Portmarnock, Dublin, Bray, Youghal (R. B.), Valentia, Dingle, (W. Andrews, Esq.), Roundstone (W. M'C.), Galway.

Portunus holsatus did not occur to me; specimens of it were shown me, and specimens from Dingle Bay, collected by Wm. Andrews, Esq., are before you. This species is undoubtedly more northerly in its tendency than the preceding; in Dublin Bay (where it is far the commonest species) a wrinkled variety, hardly to be distinguished from *P. depurator*, occurs especially in Dalkey Sound; it frequents sandy bottoms more than that species.

Distribution:—Belfast (W. T.), Dublin, Cork (J. V. T.), Dingle (W. A.), Roundstone (W. M'C.), Galway, 1857.

Portunus pusillus occurs rare; a generally diffused species; but seemingly rarest on the western shores. In Dublin Bay it occurs commonly in the extreme laminarian zones, as at Dalkey Sound, where, nearly in every haul of the dredge, specimens may be captured.

Co. Down (O. C.), Dublin, Cork (J. V. T.), Valentia, Roundstone (W. M'C.), Killeries (W. T.)

The only other *Portunus* taken in Ireland (*P. marmoreus*) was, as you have been already informed to-night, first captured by W. M'Calla, in Roundstone Bay.* Into its history there is no necessity to go further,

in a very minute, obtuse tubercle. Upper edges of second, third, and fourth pair of legs very sparsely hirsute; fourth joint broadly keeled above; fifth and sixth acutely keeled; sixth joint slender, styliform; terminal joint of posterior pair of legs narrowly lanceolate, with a raised central line, hairy on the edges.

The specimens obtained were all young. I have, therefore, preferred inserting the species in a note; but it is probable it has been passed over as either *P. arcuatus* or *P. corrugatus*. It might also be easily mistaken for young of *C. maenas*. It occurred in the rock-pools and also under stones on Ringlass Point.

* The following are M'Calla's own words recording this discovery:—

“PORTUNUS MARMOREUS.

“A short time previous to leaving Connemara, I had the pleasure of finding a single individual of this species. This is the first instance of its occurrence as Irish. Habitat: a sandy beach, at extreme low water; locality, Island of Innislacken.”—*Saunders's News-Letter*, Jan. 9, 1845.

as it has already formed the subject of an interesting paper from its re-discoverer there, Dr. Farran. I will just state, that in Britain generally it has been recorded as having been found at Edinburgh, by Dr. Howden, there may be some mistake here, as *P. holsatus* does not occur in his list at all, and it is also included in a list of Moray Firth Crustacea, but *P. holsatus* is also omitted here, and all along the south coast of England; it has not occurred as yet on the south coast of Ireland; but I am sure, if sought, it will be found there too. It is a Mediterranean species, and very distinct from both *P. holsatus* and *P. depurator*. Galway, 1857.

Gonoplax angulatus.—A single specimen was shown me, obtained on the shore, near the quay, living, after a heavy gale. I sought it myself in vain.

This species is a most puzzling one in its distribution, and undoubtedly local where it does occur. It has occurred on the coast of Dublin, as specimens, in the possession of Dr. C. Farran and Dr. R. Ball, prove.

Distribution:—Bangor, Co. Down (O. C.), Dublin (R. B. and C. F.), Cork (J. V. T. and R. B.), Valentia Island, Roundstone (Prof. Melville).

It is possibly a southern species, following that peculiar line of distribution to which I have already alluded; that is to say, south, west, and north of Ireland, and, for a limited distance, down the north-east coast. However, further research may prove it be an inhabitant of the entire eastern coast. It is a Mediterranean species.

Pagurus streblonyx.—General in its distribution round Ireland, occurring north, south, east, and west.

Porcellana platycheles.—Exceedingly common under stones, the specimens varying much in colour.

Distribution:—Carrickfergus (W. T.), Portmarnock, Co. Dublin, Valentia Island, Kilkee, Tory Island (W. T.). A very local species on the eastern coast, though just as large as the northern specimens.

Porcellana longicornis.—Common in the deep rock-pools, among *Corallina officinalis*.

Distribution:—Strangford (O. C.), Dublin, Ardmore, Youghal, Valentia, Lahinch, &c. A very common and very generally distributed species.

Galathea squamifera.—Rare among the deep rock-pools of rather large size; one specimen only obtained; it appears to be generally distributed around Ireland. About Dublin, though small specimens are common in the lobster-pots and the dredge in the laminarian and coralline zones, adult specimens are seldom captured. It has occurred as follows:—Portrush (O. C.), Dublin, Youghal (R. B.), Valentia Island, Birterbie Bay (W. M'C.).

Palinurus vulgaris.—In lobster-pots. This is essentially a western species, but obeys the same law of distribution as *Portunus arcuatus*, *Xantho florida*, &c. It has occurred at Magilligan (O. C.), Youghal (R. B.), Valentia, and west coast generally. I can find no record of its having occurred on the eastern coast. Though fishermen have told me of its occurrence in Dublin Bay, I never succeeded in getting specimens of it.

Homarus vulgaris.—All around the coast. Calls for no particular remark.

Palæmon serratus.—Common on the zostera-covered banks, very large in size. The distribution of this genus is rather confused. A *Palæmon* under this name has been recorded as follows:—Portrush (O. C.), Dublin ?? (W. T.), Youghal (R. B.), Valentia Island, Dingle (W. Andrews), South Isles of Arran (R. B.), Galway.

The fact most worthy of notice suggested by this list is the occurrence of species, undoubtedly southern or western in their tendencies, on the eastern coast. The most remarkable of these are *Xantho florida*, *Portunus corrugatus*, *P. arcuatus*; all common on the west, and either rare or local on the east, at least in Dublin Bay, where I have examined hundreds of localities similar to those in which these species occur plentifully on the west, and have only found one or two specimens. It would appear as though the tide of migration of these species northwards sent off a small stream southwards round the north-east coast of Ireland, which, probably, did not much extend beyond Dublin Bay, as these western species are much more numerous to the north of Howth than to the south of it. They will, probably, south of this point, if occurring at all, be found to be inhabitants of the deeper zones, while, as will be seen by reference to the lists above, on the western coast they occur as littoral species.

In the above list I have purposely abstained from mentioning many of the true western species, inhabitants mostly of the deeper water—such as *Achæus cranchii*, taken by Professor Melville, of Galway College; *Pisa tetradon*, by M'Calla, at Roundstone; *Thia polita*, by M'Calla, at Roundstone; and also in Galway Bay by Professor Melville, who at the time was ignorant of its previous occurrence on the British coasts, &c.; because this is not by any means intended for a perfect comparative list, but merely as a contribution to such a list. Had I drawn on the experience of others, the number of species could have been much augmented; but, for the reasons stated above, it appeared preferable to record my own observations only. In conclusion, I may observe, that of the most important species mentioned, specimens have been placed by myself and others in your Society's Museum, where they may be seen.

Mr. James R. Dombain wished to notice the occurrence of the rose ouzel (*Pastor roseus*) at the Ball's-bridge Nursery, in the neighbourhood of this city, in the month of July last. He had much pleasure in presenting the specimen (which was the only one seen) to the collection of the Society. It is a bird of very rare occurrence in this country.

Mr. W. Andrews, Hon. Secretary, read a communication from the Right Hon. John Wynne, of Hazlewood, county of Sligo, recording the interesting discovery of the true maiden-hair (*Adiantum Capillus-Veneris*), in the valley of Glencar, county of Leitrim. This fern (one of extreme rarity in Ireland, records of its occurrence being hitherto confined to Tralee, Isles of Arran, Urrisbeg, and Co. Clare) was growing at a

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