
s

## THE

## TRANEACTIONS

## THE LINNEAN SOCIETY OF LONDON.



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 college.
(Mates AXXVI.-NL.)
Jimall lith Jum: 1-! ! -

## Intronctoms.

T'IIE Decapod and Stomatoport (Eruntarea refered to in this prexer, though fumished bey several distinct collections, are all from Ludian locatities, and it has therefore hem foum most conrenient to incorporatr the results of their examination in a single report. A latge proportion of the species are contained in two eollections, both of eonsiderable size, the first lomed by my limend Itr. Wigar Thurston, Superintendent of tha Madrac Gowemment Muscum, chiotly from tations in the Gulf of Mamar, the second by medf, from varoms localities in the Xadras Presidener. Buth collections wrer to wome extent examined and the seredes identitiod in budia, prior to my retum to bueland on leame in 1991, and I fully anticipated that a short period of work all the British Marman
 proved much longer than I had catculated, a large portion of it being taken with the cemmination of some of the commonest and longest known forms, which are ertainty mot so well known as they ought to ber and I may add that my later studios have bon-
 satislactorily acemplisher in lndia.

White rogetged in this work, Dr. (iinther and Mr. Pocock, of the British Mbsum. kindly paced in my hands for examination aserios of matian Crustacea deposited in the National Collection, inchuding a latere number of specimens prosented by the kata




 me to mexe, to some extent, the ehatacters of the ladian seeres belouging th the latter



 ln addition to these I haw examined two small collections from Ciydon. Whe dirst consisting of between difty and sixty seecies, which were sont me for idmatheation SECOAD SERIEA.-ZOOHOGL, VOL. V.
 of littoral forms, presented to the British Musom by Mr. II. Nevill.

From all these soures I hame berm able to identily two humdred and wighty-nine
 regarded as the tere of new esmera. The number of new sueces is promp smaller than might be expected in a colloction the size of that reported on, but 1 mas state that want of time has compelled me tor sel aside a considerable mumber, wher not pet
 cosic, and Alphels, I haw athempted to mame only the better known forms; for, till someone with areces to trpes provides ws with a rerision of these aronps, the determination of many of the species must remain unertain, if not impossible. The material at my disposal has enabled me to reduce sermal previonsly comstituted apecirs to the rank of syonyms, and work of this kind is prehaps quite as impurtant as adding to the list of known forms. Space and other considerations have forerd me to make my remarks conceming proviously known species as brief as possible and I hate onty attempted to record the puhlications in which these are originally or most fully deseribed, or where their syonymy is discussed ; while, in regard to distribution, I have merely indicated the chied localities in which they have been previonsly fomm, and in the case of the less perfectly known species have added the anthorities for these.

The limited knowledge we possess in recerad to most groups of the Invertohnate fana of India has more than once been commonted on, and is noteworlyy comsidering the length of time that the country has been inhabited by Europeans; indeed, as mogards Crustacea, up to a comparatively reent date, there was less definitr knowledge of the Indian lama than of the fama of many other Asiatic and Anstabasian cometries. The older witers are often extremely vage in the localization of the ir species. lant there cam be little doubt that at lape proportion of the Crustacea recorded under weh weneral




 appear to have paid any attention to this group, but eollections, both comparatively small, were made by Gemoral Hardwioke and Colomel Sykes, and the dirat of thene obllections is frequently refermed toly White in his Live of the Crustacea in the Britioh Wusemm. In more meent bimes the late Sir Waltor Eliot, of the Madras ('ivil Sorver. fommed a collection on the Coromandel coast which passed into the hamb oll the late Mr: Spener
 The work of Prolessor Wool-M:asm, Suprintendent of the Indian Masemm, Calleatia, is well known; during the last 1 wenty yaters he has published valuahbe papers, more especially on the Tephusidar, and during the past fear a hepory on the deepsea Crustacea from the Bay of Bempal, taken byh.M.s. 'Investigater,' in which a umber of new forms ate deseribed.

In 1857 the Austrian hrigate 'Notata, on a seientitic vogage round the world, touched
at Mandas. Ceylon, and tho Nimbans, and Prot. Camil Ineller, in his Romem on the Grmstacer of the Expedition. emmmerates orer ome bmumed specie of becapods and Stomatopods taken in these localitios. Recently the Crustarea roblected ley the henthers





 not merely on accomb of it dmane with the list collection of any extent mand in the Bay of bengal, one which matually comprised a considmahbe poporion of mow specers, but also on account of the eareful manner in which the aththom has redesenibed
 describers.

All natmalists who have worked at this group have folt the impersihitity, in many
 diagnowe by means of which most of the eommoner and more widely distributed form hate been handed down to us in the works of IHost and Fabricins. Mine-Edwards aplears to have interpreted the speres of lastecentury witers, withent an actual exami-

 and partly done, to mexamine the earlier types, when were desmibed in a momer that ampler material and increased knowledge hawe shown to be quitr inadequate. In most ares where the original specimens are suthecontly well persered to rendur their
 probable adrisahle to adopt the miemal hesignation, thoum whether a lonerestablinhed and miversally-adoped name should he displaced hey the diecorery of some formotem spercmen seems to me rery guestionable.
 botalitios, some acount of which, alome with the chiof leatomes in their Crmataram fitme, $\}$ have ventured to draw un, weh information beine nsually samty in sestematio works, where rey often the writer has not been at the same time the colleretor of the sperimens on which lerereport.
'The hamour of Madres, which may be taken as typical of the entire Coromambel coast, does not at first sight appall to offer much promise to the carcinoloyiv, but mome watended olservation will shew that it is far richere in becios thatn coutd hase been expected from the natme of the bocality. On this roant tha seat break at amme distancer from the shom in an almont constant surl', and the wares finally roll in on at

 with. rmming abont towards the water's eder in countlow mombers. chiclly the
morning and evening, wheri the sun's rays are less powerful, and on the slightest sign of alarm they at onee sork their burrows. One species of this genus ( $O$. cordimemet) is, howerer, a strictly temestrial crab, and oecurs at some distance from the sea, often living among the matted batuches of a thailing comsolvalus, which is frequenty also the shelter of a sandizard (Mabmia Bibronii, (iray), and it may be seen even further inland, imhabiting the samdy soil of casuarina plantations. Hiding in the sand at low water, the curious anomurous forms Hipher asiatice and Albumen symmister are found, the former in particular being very abmodant. On the stonework of the hamour, and in those few localities where rocks appar, species of Gropsus and Plogusion are seen elinging tenaciously to the surface by mans of their shamp dactyli, which enable them ellectually to withstand the foree of the breakers among which ther live. Outside the surf-\%one is a belt of shallow water, with the bottom composed chietly of broken shells and sand, in which the Crustacean fama is undoubtedly rich. I have obtained considerably over ont humdred specios from it, and there are ecrtainly may more yet to be discovered. N11 my gleaniugs from this belt come from the heaps of material thrown up on the beach by fishermen, who practise fishing by means of very long nets, taken out through the surf in eatamarans, and afterwards drawn in on the shore. Here are fomd species of Doclea, Eyerin, Neptmans, Goniosomu, Hatule, Calapm, Philyra, Dorippe, Diogenes, Themus, and Squillw, along with representatives of other genera in smaller numbers. Indeed, it is scarecty possible to examine the shore-heaps without findings the following species:-Docler luybrill, Goniosoma verriegotum, Matuta victrix, Philyra scubriuscula, Dorippe fucchino, Diogenes custos, and Siqilla nepa, which are certainly those fomd in greatest abmondee. Grey and sombre henes prevail anong these speeirs, which, donbtless, aflectally protect them on a more or less sambinted bottom, while the comparative absence of fiagile forms-the fossorial ones exceptedand the relative abmdance of swimming pecies, $e . y$. Portunids, Jetele, and the emions hermit-erab, spiropayurns speriger, indicate an exposed and twholent hatsitat. In the Madras fish bazains numerons species ol Pemens, Palamon, Promtires, Septums, de. are exposed for sale, for amongs the lowe orders of the commmity size is apparently the sole critcrion of edibility as regats Crustace. The two edible species par exeflence among Europeans are the lange swimming erah (Scylle serotele) and the prawn (Pemens monodon), athough stme of the specimens sold moder the latter designation belong to the gemis Patromon, and come from freh water. The so-ealled "river" Coomm, the water of which is batekish only towinds its temporary outlet, and arrywhere mueh contaminated by town sewater, atfords shelter to species of Jellemon, Pemerts, and other Maerum. On its banks are seen the burrows of a large species of Sesorme (S. telochond), and the (rab) itself may limquently be oberved near the openings of wans, while the
 ponds, and eren the wells, are inhabited ly species of P'elremon, T'elphnses. imd C'eridina, the most conspienous being the lieshnater patan Paldemon curcimes, which attains a considerable saze, and the frehwater emb. Telphase Lexchementti. The burrows of Toblhuse may be seen ahost everywhere exept in the most arid sithations. Though the Ladras coast is, by its physical comblitions, pecmitirly manited for dredging,

I have taken by this method, in the sheltered water of Matras hamour, semal speci is which I have not met with elsewhere.
Stretehing along the Coromandel const, for a very considerable distance both noth and south of Tadras, is a system of shallow backwaters or lagoons ramning parallel to the sea-line. though often sparated from the sea itsolf ly an interval of a mile or more, and joined by means of canals into a continuous waterway. In certain places the backwater widens out to form lare lake-ike expanses, one of which, the so-called Pulicat Lake, is thirty-serm miles in length. For the greater part of the year this system is practically shat off from the sea, but duing the miny season the intervenius stmdy bur, at intrrats, is either artificially cut, or forced by the surplus atecumblation of water, the result heing that the sea is allowed to enter and a certain admixture takes place. Porposises and sharks tint their way in at this time, while seasmakes (Hydrophider) are often extremely plentiful, and indeed may be found thronghout the year. The fama is extremely rich, more especially in free-swimming organisms, and is decilempy manine in chanacter, thomgh the watre, as already stated, is mone or less fresh. I have taken with the tow-met large mumbers of schizopods, Letifer, and other marime forms, in plates where the water wats freely used for drinkiner purposes by my hoatmen. At night the surface often teems with brilliantly phosphorescent orenaisms, which on examination prove to be mainly the smaller Crustacea. One of the best hontinggroumts on the backwater is the village of Emore, about nime miles to the north of Mathas, which formerly, before the hill rages became so readily accessible by rail, was a farourite resort. Here is a ronsiderable expanse of water, bounded on the landward side by low, flat, gras-grown plains, intersected by canals and creeks. In the lake, is it may be termed, Soylle sermen is very abundant, and large mumbrs are sent to the Madras market, while species of Peneus, and the swimming Grapoid erab, F"rum, liltercta, are no less chamacteristic. The samely or madty shores, close to the water's edge, are everywhere piered be the narow eylimdrical holes of two specios of Gelmsimus ( $G$. ammlipes and $G$. trimguturis). The emous habit pecouliar to the males, of waving the larger chaw as if beckoning, which has eamed for them the tithe of "calling" rabs," is by no means general in the two above-mentioned species; at least I ham observed it on companatively fer oceasions. What the whect of this morement is I am mable to say, but whem I noticed it a large mumbre of individuls were simultanconsly engaged in the ate ; the raw which is so momonsly dereloped on one side of the body in the male sex is, in all probabilify, used as a hole-horing organ. Locally the Gelasimi are known as "Hobli crabs," doulthess from the resmblaner of their heckoning movement to the mamer in which the mation washeman swine the
 commonest backwater Decapods is the hermiterab, Clibrnation prederensix, lately desmibed from the Mergui Arehipelato, the young of which are foum in weal manbers near the waters edge, and ahmost inariably inhabiting the shell of Cerithiid. Two other hermits, both species of C'arnhite ( $C$. rotgose and ('. compressat), ahon fireguently oceur, but they freely lave the water, and are often to be med with wanderine some

where it probably burows in the sof bottom, and thus differs strikingly in habit lions its marine congencrs. Four terrestrial species are characteristic of the mashy grassgrown flats which skint the backater, all of them belongine to the group Catometopa of the Brachyura. The most abmedant of these are Sesurmu quatrutu, sero ruming in and out of its burrows at all times, and the larger Cordisome cornifea, which lives in colonies, and is apparenty roy eommon, though the animal itssll is rarely seen, ats it emerges from its liding-platers only by might. The latter species is oecasiomally met with at some distance from the water, and its modergound dwellings, unlike those of most land-creds, do not pass vertically downwards for the first part of their comse; they also lack the neat and finished appeanace of the extemal opening, seen in the burrows
 distinctus, are less frequent ; the former is ly no means meommon at Emore, while the latter is more sparingly met with, and $I$ am mable to state whether it, like the others, seeks protection from its anmios by hiding underground. The backwater fama is one that will amply repar investigatiom, and in Crustacea much has still to be done before the eommoner speces are eren aproximately known.

No collectingeround in the Indian Scas cam show a grater profusion of animal life than the Gulf of Manata, botwen hadia and C'eylon, famons for its pearl fisheries. At rarions times many internting zondonical discormies have burn recorded from this area, and within recent gears valahte collections in most ol the furertebate groups have been formed by Mr. Thnuston, of the Madmas Museun. Jhe Crustacea which he has entrusted to me for examination were collected chietly at hameswarmm
 Silayaturai Par, and Chemal Par), inchding many of the most interesting speries relerred to in this paper. In the smmmer of 18.) I spent about three weeks in the lime ol these localitics, and for the opportunity which 1 thus enjoyed of collecting there 1 an largely indehted to my friend the Setupathi, the Rajah of Rammad, who not only phaced at my disposal his bungalow at the villawe of l'amban, but also provided me with boats and efficient mative divers. The island of hameswam, famed for its vencredne templethe resort of large numbers of Hindu pilerims-lorms the dirst link in the chain of islauds and sandbanks which, known as Adem's bridge, stretches from the maiuland to Ceylon. To the natmalist it presents special interest fom the fact that a frimging corad reef appears at intervals along the coast, and the marine fiana is consequently both rich and varied, while a few miles to the sonth there is a series of smaller hout more completely rect-bound islands. As a rule, even outside the rept, there is complete ahsence of the swell or surf so ehameteristice of the Coromandel coast, and during cither monsoon one side of the island at least is sheltered and the sea smooth. Ramarably shallow water is met with on atl sides, and within a mile or so of the shore the depth probably nowhere exceds tive or six fathoms; on the outer portion of the rede, where the living coral is most abmdant, there is usually not more than firom ten to filtem feat of water. The tidal zone varies considerably, both in character and cotent. Within the reef it forms a helt, perhaps ateraging lifty yads or so in width, exposed at low water, and then bounded by the still submerged groniug coral, while elsewhere it ronsists of a
flat expanse of saud or mud. which ferefuently extemb ewark for some comblembite distance. In the tidal belt block of dand and water-worn ental ire strewed about, and in phace these enclose artiticial rubl pools. in which Crustueal, Molluers, spomges, Holothmians, de. are very ahmalant. The Crustarea most eommonly met with at low

 denleters, and Govothetyles !lluber. Ol these it mey be mentioned that ther Pilumens is rematkably shagish and apathetio: the Thelemile is extremely actire, whik the

 on all sites. which is found to porend prom operics of Apleens, very common $i$ the

 fear. for the morement is rery ferely induled in when the animal is hathed. Sear high-water mark, in phaces wher stight pools are left he the the, a mimute homit-crab (Diogenes, sp.), scarcely a fuarter of im ineh in lempth, is very common, and hote and there on the stmdy shore colonies of e'mobiln rumow have established themowhes, in company with the ubipuitous Opyods. In a tidal backwater, which forms shatlow lagoons at intervals romed the island, the burowing Gelesimus ranmelipes is seen in grat mmbers, and, on sand- or mul-hanks, Scopinered mydiroides, a species of similan habits.

The great wealth of animal life on the wel is very apparent, for on a callu dily, with no bee\%e to rufle the surface, and what merely a few fort of clear water intereming, the erowing eoral ean low realily examined from a boat, when it is acen whe brathed
 comal samb. Under lavomahbe condition ohjects even of moderato size can lo readity disermed, the most conspicnots lwing Letinite, Astrids, Echini, hare Mohnecs, wheh as
 collecting is by mems of diving ; padined divers have no dillealts in loosmane large blorks of romat, and in briming then th the surface, whence they are drawn into the boat. In this way large mombers of crustaceans are takm, cithor hioline in fhe eroveres or dinging to the comal luanches. The genera most numerowty whrewned are:-

 to it hore. Very interesting and vaited are the mod $n$ ly which most of dhere are


 attarhed to the canapace or legs. the remention of which is, in somw mas, fadititated

 by the short hairs on the upper surface. The well-known habit posseroed by many Dromids, of seekins protection nuder an corrloping sponge or ascidian. Which is
deeply hollowed out by the body of the crab, is exempliticd in most of the reef-dwelling species, and the camals of larger fixed Sponges afford a shelter to species of Polyonyr; Alpheus, and Gebiopsis. The larger species of Alpheus, and Gomoductylus glaber, are often found emsconced in short tumels, bored through the coral probably by Lithodomi or other molluses, and when captured the Stomatopod has the habit of alternately flexing and extending its tail with considerable rapidity and forer. Certain representatives of widely separate timilies, e.g. Gethro scrupost and Ebalio fillax, have the carapace very irregularly elerated or eren pitted, so that they bear all undoubted resemblance to pieces of croded coral, and, as they move but slowly, this adaptation to their environment must often aid in their protection. But specially interesting in many of the species are the colon-mankings, which probably, in most cases, are protective in their nature; and it may be added that an examination of dry or spirit specimens qives one but a meagre idea of the vivid tints which chanacterize many of the reef-dwellers during life. The colours which oceur most frequently are puple, brown, and red, cither uniformly diffused over the surface of the crab, or restricted so as to form spots or bands. A modification of the latter type is seen in such diverse forms as Zebridth Jdemsii, Cyrloxanthus lineatus, Eipatgertes sobra, and Getrollece elegans, in which there is an arrangement of dark, radiating, or sulparallel lines, on the carapace and legs. A hint as to the possible use of these hands was atlorded by a small semitransparent Lamellibranch (Aviculd zebre, Reere), with hack radiating lines on its shell, which is met with adhering by its lyssus to a hydroid (Agleophenia areas, Kirchempaner)*; in this case the lines so exactly simulate the short lateral ramuli of the hydroid that the shell is with difficulty recognized, even by a practised eye. ln all probability the abornmentioned crustaceans live on the stems of Gorgonie, Ilydroids, or similar organisms. The Cancroid gencra are more often hrightly coloured than are those of other groups, and they include the species which are found in greatest numbers on the reef. It may be stated genmally that the inactive forms are those most commonly disguised. either by the presence of foreign objects or by colour adaptations, while their more active neighbours, such as the Portmidar and many Macruat, are, as a rule, of more sombre hue, hut are more frequently aned with shap spines, probably for detensise purposes, while those which seek safety in tumels or burrews are often pate in colour, with their onter shell of thin texture. Before leaving this suloject 1 may refer to a structural feature which is rery noticeable in may species, more especially among the Cyclometopa, viz. the strong spoon-like exearation of the clats, which powiby emables these crabs to obtain a firmer hold of, and brak off, the smaller coral brathes when in searel of food.

On the subject of arographical distribution there is little to be satid, apart from the notes which apper in the body of this paper. The Indian Crustacem famat is apparently very similar to that of a great portion of the lodo-Pacitic area, and it is doubthe whether there is a single genus contined to or specially elanacteristic of India. The distribution

[^0]of a large number of the mane species-whide from time to time an diveorerd in widely separate localities-is apmontly to a great extont dotermined by the dis-
 subdivide the large central or coratred region of the Indo-ladeite atea scem of domblin value, and we can searcely seck for matural sublivisions till we pars into the fompriate and colder waters, morth and south of the coral megion. Neme two thisk of the totat number of species recorded in this pater am known to oreme in the sean of the dabay Archipelago ; about one third occur at Xamitise on the neighoming istands; the same
 of the Paeific (New Caldelonia, Fijis, Samoa, Sandwich [s., (E.). Nearly one fom the of the number oceur at Japan; while ons tilth are found in the Red seat the same prot
 those on the nortly coast. Not less than twenty-seren of ome pectes werew whe the
 their range into the Atlantic area. The same amount of attention hav not been path by collectors to each of these regions, whe having been more sperially fitromed: hut. in spite of this, there can be no doubt ,f the sreat aftinity bretween the Ludian and Malayan Cronstacean famas.




 Peninsula*; while further west, in Beloochistam and Porsia, the allind T. flurimtilis
 genus Paratelphse has a somewhat smilar range, extembine fiom the Malay Vechipelage along the Malay Peninstal imo Burmah and Northern India, but no berebe have get been recorded from south fadia or Ceylon. Very little is as get kmow of the Indian species of P'alemon, but there ean be mo donbt that they are rex
 oceme in Lpper India and in the Malay Arehipelago ; it. howerer, memans to be sere whether it does not atso oecerr in hamah and the Malay Pominstat. The marked presalence of freshwater prawns in the streams of suntheastern haia and the Mallay Arehipelago, with the apparently complete absence of chaytivh from the same rewinh,


 C. Wigckit, described by Hickson fom Coldoes, and which itsolf is perhaps mot ditimed
 range for a fresh-water species

[^1]Lu conchasion I would express my indehtedness to those gentlemen who haw assisted me during the preparation of this paper＇．To Dr．Gitutherand Mr．Poonck．of the British Museum，my thanks are specially due for their having granted me ready aceses to the collections under thar charge and facilitating my work in rations wars，to the latter especially for having spent much time on my behalf and for kindly wodertaking to supervise the figuring of the new specisshaning my absence in ludia．Lam indebted to Professor Aphomse Mihne－Edwads，of L＇aris，for kindly examining and naming some specimens 1 sent him，which were werable either to speries deseribed hey himself or to species of which the typer are presered in the Paris Natural history Muscum． To Mr．E．Tharstom my thanks ate also due for assistaner rendered in many ways．

List of Species，with the lowetikies at which they ware luken．

## DECAPODA．

Bramiora．
Acheens hucerlosus，Btm．－（iulf of Martalsam．
－＿uffinis，Micrs．－（iull of Martaban．
Oncinopus arum，De Mam．－Muttuwartu liar ；（inlf of Martabau．
Huenie Prutens，D．11am．－Tuticorin；Rancowaram．
simoedrimus simpler（1）ana）．－Tuticorin．
Meneflius monoreros（Latr．）．－Thticorin：Silasatmai Par：Muttuwartu Par；hamswaman；Gulf of Martaban．
Doclen hulbivin（Faln．．－CCylon；Madras．




－romerers，Miers．－（iulf of Martabam．
—— Ifigendorfi，1）Man．－Thticorin；（＇henal Par：liameswarm．
－Beockii，De Man．－Gull of Martabm．

－Copmiumpri，Haswell．－Mutthwath Par：（inht of Martaban．
Natrier hirtu（A．Mihnc－Edw．）．－Tuticorin．
——lumius，Poronck．－－（inlf of Mataban．



－Tharin（Habst）．－Thticorin；Muthmartu l＇ar；hameswaram．
——muscorenire，Kossmanm．－（inlf of Martalaan．
－murymuitifrer，w．－y．－Gulf of Martaham．


－coulrarius（II ©rbst）．－Thticmin．







Zebrith Athumsii, Whate.-Thtionmin.
Paraltmolus serspimasus, Diers.-Thatomin.

—_floritus (limpho).-Tntienrin: ('eslon; Ramewaran.

_- dilututus, DC Datan.-Culou.
Corruilius maculates: Limu.-Cerlon.
Carpiluthes tristris, 1) anat.-Muttuwartu l'ar
——ma!gritutus, A. Mihne-Edw.-Therorin: Raneswamm.
——rmans (Miluc-Edtr.)-Ceylom.
———rimfimunus (White).-('eylon.

——Rutyersiä (stm. .-C'eydon.

——smigrmesa (Heller).—Whtthwartul'at: Kamevwaram.
—— jis:se, n. sp.-Tuticurilı.

—_rolculosu (Dihne-Ddu.).-Thetieorin: Mutuwartu Par.








Zиニ゙!














Menipue Remuhii (Vabr.a.-Tuticorin; Cevlon: Ramewwaram; Madras.
Ozius tuberculosns, Mihnc- Binw.-Crylon.
Epixunthus fromblis Milne-Eilw.)-Ceylon; Nicolnar.
—_deulutus (White).——icobars.
Ictummens wrifer (D) Haan).-Mnttuwartu Pirl ; (inlf of Martaban.
——erruroses, n. ep.-'Puticorin: Muttuwartn P'ile.
Pilmmus resperlilio (liabre).-Thtiromin; Ceyhn ; Runeswaram.
—— Inhyrinthirts, Mier--lhameswaran.

——refopumratu (Hertst).-Tutioorin; Ceylon.
——meulotu (Macleay).—Ceylon.
—_ areoluta, Jana.-Ceyton.
Tetraliu glubrrimu (llerbst).-Tuticorin; Muttuwartn Par; Rameswaram.
Eriphue lerimume, Latr.-Cnticorin; Cevton; Rancewaram.
Neptumes pelayiens (Limn.).-Sind; Bombay; Malabur ; Tuticorin; Ceylon; Madra- Sre; Mkyab.
__yladiutor (Fabr.).-Ceyton; Rameswaram; Madras; Gulf of Martalan.
——sungumolentus (Ilcolst).—Sind; Bombay ; Cevon; Rameswaram; Madras.
——aryeutalus, White.—Gulf of Martaban.
——hustutoides (Fabre).-Matras; Gulf of Martaban.
——Amersumi, De Man.—Gull of Martaban.
——tuberculusus, A. Mihnc-Edr. Gulf of Martaban.
——ametns, A. Mihnc-Ldw.—Ramewaram.
——Mëcholli, A. Mihnc-Edn.- Muttuwartu Par.
Niphonectes lomgispinosns (Dana). -Gulf of Martaban.
Acheluns: yr'muluths (Mihne-Edw.).-(inlf of Martal)an.

——orbiruluris, Kichters.—Gulf of Martaban.

Thulnmitu fn!!mm (Herbst).-Thticorin; Rameswanam; Madras.
——Admeld (llerbst). - Ramenwatam; (inll of Martaban.

—— sime, Milne-Edu.-Tuticoriu.
———inteyrn, Dana.-Tuticorin; Ranneswaran! (inlt of Martaban.

- sprlobula, Miers.-TMticorin.

——uffine (1)ana).——ath:as.


—_ anmulutmm (Fabro).-Thaticorin: Rameswaram; Nadras.
——Hellerii, A. Mihu-Edw.—Tuticonin; C'ylon: Liameswaram.

-__riculah (Dana).--Thtirorin; Ccylon.
——ormethn, A. Milnc-Edw.-Madras.
——ruric!utum (Fabr.).-Kuradni ; Bombay ; Madra:s.




Lissuruerimes luecis, Miers.-Tntucorin; (inaff ul Martaban.
Kramssiv nilikt, Stm.-Tutiourin: Matran.
Heterophur vitiolus, Miers.-Madras; (inll ut Martabin.
Sculopidin spungeipes, Stm.-Gulf of Wartaban.

Telphmsm imilirn, Latr.-Nilgiri hill.
——luyluris, Wool-Mason.-Nepal.

—— Leschenaulli, Mihuc-Eilw.-('eylom; Manh:s; (ianjam.
— 'u!fosm, King-ley--Cevion.
——rmollis, Kingsley-C'erlon; Matra,
——Parirkiama. n. spo.-Jubbalpore.
——furialilis, Latr.-Quettiz.

Paraldphasa simensis, Hihne-Edn. Burmah.

—— Du!f!ut, Wood-Mason.—Bummah.

Orypoden rerotophholum (Pallas).-Tution'in; Raneswaram; Madras, \&e.


—_midimanm, Latr.-Tuticorinı: Mandras.



——_pertimifes, (iluévin.-Simd.

- Lutreillei (Denm.).-Ceylon lowil).




——marulaths (C'aterby).-Thuticorin.















Culappa lophos (Herbst)- - Ceylom; Madras; (inal of Martaban.
——philargius (Limu.) -Ceyton; Gulf of Martahan.
Matuta victrix, Fabr.—Sind: Tuticorin; Cerlom ; Madras: Ganjam: Akyab
——lunaris (Herhat).—Madsas; (iangam.
——Miersii, Henderson.-Thticomin; Ceglon; Madras.
Leucosia crunioleris (Limn.).-Crylon; Muttuwaitu Par; Rameswaram; Madras; Gulf of Martaban.

- Whimeei, Micrs.-Gull of Martabm.

Pseudophilyre Melitu, De Man.-Dhttnwartu lar ; (inlf of Martaban.
——pusillu, n. sp.—(iulf of Martal):un.
Philyra scabriusculu (Fabr.).-Tuticomin; Ramewaram: Madras, \&c.
——everrueose, n. sp.-Madras.

- Allumsii, Bell--Silavaturaj Par; Ramewamam : Ginll of Martaban.
—_platycheire, De Ilaan, -Silavanuai Par.
——globusa (Fabr.).-Thaticorin: Rameswaram: Madras, \&c.
——polite, n. sp.-Madras.
Myra fuyne (Fabr.)-Ceylon; Rameswaram: (inlf of Martabau.
- australis, Haswell.-Giulf of Martaban.

Ebalia Pfffferi, De Mant-Muttuwartu Par.
-follme, n. sp-Muttuwartu Par; Gulf of Mantaban.
Arceniu seplemspimusu (Eabr.).-Madras; Goll of Martaban.

- underimspinoss, De IIam.-Giali of Martabau.

Nursia plicutn (Herbst).-Rameswaratn; Gulf of Martahan.
——abbreviutn, Bell.-Silavaturai lar: Ramennamn Gull of Martaban.
Dorippe dursipms (Limu.) - Ceylon; Silavatuai l'ar; Rameswaram; Madras
——facrhimo (Hermat). -Tuticorin: Rameswamam; Madras, \&e.
astutu, Fabr.-Madrats.
Cymopolia Iakesii, White.- (inlf of Martaban.
Anomura.
Dromidia midentıtu (Rüpp.).-Tuticoriu; Ceylon.

- unstruliensis, Haswell.-Silavaturai P'ar.

Cruptodromin pemtagonulis, Hilg.—Muthwartu P'ar: Silanatumai Par.
Dromia Rump ${ }^{\prime}$ ii, Fials.-Ceylon.
Psendodromin inteyrifroms, 11cnderson.--Tuticorin.
Conchuectes artificiosms (Fabr.).-Madran.
Reminoides srreatifroms, in sp.-Cheral Par.
Hiphe usiutica, Mihne-Edw.-Rameswaram; Madras, se.

——Thrstmi, n. y.-Cheval Par.
('enobitu rugusu, Miluc-Edu.-Tuticorin: Silavatuai Par; Ramenwaram, \&c.
—_compuresse, Milnc-Edw.-Madras, \&e.
Dioyenes Dingroms (Ilerbst)-Tuticorin; Ramenaram: Madras, \&c.
__meremiensis, De Man.-Muttuwartn Par ; Madras.
——miles (Herbas).-Silavaturai Par: Rameswamm: Madras.

——uffinis．n．sp．－．－Madras．
－rielurens，n．sp．－Matras．





—— Iteswia．Viers．－Marlas：（inll of Martaban．
－．．．．deformis．Miluc－Edw．－Tuticorin；liam－watam．

——sefifir，Milne－Edw．－Tntiemin ：Matran：（inff ol Martaban．


——strignters（lladsti．—＇Tuticonin．




C＇ut（1）














## if1はどに．










Alpheus Hippothö̈, De Man.-Rameswaram
—— frontalis, Say.-Tuticorin.
——levis, Randall.-Tuticorin; Ramewaram.

- Neptemus, Dana.-Kurachi ; Rameswaram.

Dorodotes lericarime, Bate.-Gull of Martaban.
Angasia Stimpsomie, ni. sp.-Gulf of Martaban.
Rhynchocinetes rugylosins, stm.-Tuticorin.
Pontonia tridacse, Dana.-Tuticoriit; Rameswazm
Leander lomigrostris (Say).-Kumarhi; Smoderlmuds: Gulf of Martaban; Mergui.
——tenuipes, 11. sp-Bombay ; Madras; Gull of Martahan.

- modestus, Iteller.-Madras.

Palcemou curcinus (Falr.).-Bombay; Ganjanı; Caleutta; Sunderbund- Tavoy: Bumah.
——dispur, v. Mart.--Calcutta.
__ scabriculus, Heller.-River Indu-
——Dayenus, u.sp.-Orissa ; Jubbulpore; Calcutta; Beerbhoom; Delhi; Roorke ; Loodiana; Hurdwar.
Debroo; River Jumna; Lahore.
-altifrous, ו. sp.-Dellii ; River hmma; hahore.
Nika processu, Bate-Gulf of Martabau.
Egeon orientulis, n, sp.-Ginlf of Martaban.
Pencus momotom, Faly.-Bombay; Madras, de.; (ianjam.
——indicus, Milne-Edw.-Kurachi ; Madras; (;anam; Calcutta; Akyat,
affuis, Milue-Edw.-Kurachi; Bombay; Canara; Madras.
——senptilis, Heller.-Kumachi ; Malabar ; Madras; Sunderbunds; (inlf of Martab:m
Dolsomi, Miers.-Madras.
velufinus, 1)ana.-Gulf of Martab:an.
bremirurnis, Milnc-Edw.-Kinachi ; Calcutta.
cenuliculutur, Olir.-(iulf of Martalan.
compressipes, n. sp.-Gulf of Martaban.
Solenocera renswitormis (Miluc-Edw.).-Madras ; (inlf of Martaban.
Acetes indicts, Nihnc-Edw.-Gulf of Martahan.

## STONATOPODA.

Lysiosquillu meculuta (Fabr.).-Thticorin: Madras.
Squilla nep ${ }^{\prime \prime}$, Latr.-Tuticorin: Ccylou; Mahar.
—uffimis, Berthold,-Rameswaram; Madras; Sunderbunds.
——srorpio, Latr.-Madras.
——raplaidea, Falm.-Madras; Sumderbunds.
Pseudosyuilla ciliut t (Falr.).-Madran.
Gonoductylus chiruyra (Fabr:).-Ceylon ; Andamann.
——ylaber, Brooks.-Tuticorin; Ceylou; Silavaturai Par; Rameswaram.
——Demumii, n. sp.-Rameswaram.
Protosquillu trispinose (Dana).-Ceylou; Ramcswaram; Gulf of Martaban.

## Order DECAPODA.

Sulorder BR. ICIIYCRA.

Gemis Achers, Leach.

1. Achets lacertosus, Stimpson.
 (1884).
( = A. Inericter, Hawwll

Gull ol Martaban. two females with ora, and a male (Ouldes).
These specimens are not in a very erod state of preservation, but there can be little doult that they belong to this sperios.

Distribution. E. © N. Australia.
2. Achersaffinis, Mime.

Gulf of Martaban, a femald (Oules).
This species is distinguthed from the last chiefly by the presence of a prominent bibobed tubercle on the cardiace area, and hy its tuberentated ocular perlunclos.

Distribution. E., N.. and W. Lustralia, Malay Mrehipelagon.

> Genus Oxemorers, De Hath.
3. Oxchopes maved, De Ibam.


Muttuwartu Parr, a femalde with ora, and a malde carrying a Senentime (Thenston). Gulf of Martaban, several specimens (thers).

All the deseribed species of this gemus are refered ly Miers to 0 . aromere, and lie hat showathat there is considerable batation in the length and robustumes of the low
 much mere attenuated in themale tham in the female.


> (Bnhuc Itran, De Hathe
f. Hevila Photeve, De ham.



Tuticorin. several specimens, overgrown with sponges and polyzoa (Thurston). Common on the reef at Rameswaram (J. R. II.).

Distrilmtion. Japan, China, Malay Arehipelago, N. \& N.E. Australia.

## Gemus Smocalicinus, Miers.

5. Shiocahcinus simplex (Dama).

Huenia simplex, Dana, Crust. IT.S. Exphor. Exped. vol. i. p. 133, pl. vi. fig. 3, \& (1852.
H. orecierostrett, Dana, l. e. p. 131, pl. vi. fig. I, \& (1852).

Tuticorin, a male and a female (Thurston).
The male is of small size and has the rostrum mueh more elongated than is represented in Dana's figure, with the eprex somewhat trigonal. In the female the rostrum has been broken off, and, as noted by Miers, thw anterior pair of lateral lobes on the earapace are larger than figmed by Dana, and their apices are subtruucated. In this species, as in the last, there is great sexual dimorphism.

Distribution. Saudwich Is. (Iana, Miers).

> Geuus Mevethirs, Mihne-Edwards.
6. Menétilius monocerion (Latreille).
M. monoceres (Latr.), A. Miluc-Edwards, Nons. Mreh. Mus. Hist. Nat. t. viii. p. W5: (187a), ubi symon.

Rameswaram, 'Tuticorin. Muttuwartu Par, Silavaturai Par (Thurston) ; Gulf of Martaban (Outes). Very common on the reef at hameswam, and usually orerorown with sponges and hydroids (J. R. II.).

No less than eleven so-called species have been referred by A. Minne-Edwards to this very valiahle and widely distributed form.

Distribetion. From the Red Sea and East Coast of Afriea to Japan, New Caledonia, and the Fiji ls.

## Genus Docrea, Leach.

7. Doclea hybridi (Fabr.).
D. lighridu (Fabre), De Mam. Mergni ('ruat. p. 9 (1887).
$1=:$ D. Indmidroitn, Bleeker).
Ceylon (Ithy) Vory eommon at Madras, and elsewhere on the Coromandel coast (.J. R. II.).

Distribution. Malay Arehiperago, Mergui.
?. Docher morichat (Falr.).
D. muricrata (Fabr.), Mihne-Edwards, Mist. Nat. Cmist. t. i. p. 395 (18:31).

Gulf ol Martalan (Oulfs). Madras, not uncommon (J. $R$. If.).
The spines on the carapare of this species are strongly developed, more mpecially in
young individuals; the fouth lateral pine is nearly twice the length of the third. The carapace and legs are densely pulnserent.

A male of average siz (from Mathas) wives the following measurements : - "anapace



Distrimution. South Indiat, Singapme.

## Genus stenocionors, Latreille.

9. Stenoclonops cerwhcorate (Herbot).

Tuticorin, fome females (one with wa). three males (Thurston).
The carapace, rostral spines, ambulatory leg's, and in males also the abdominal sexmentcary mumerous tufts of strong curved hairs (each hair is about 3 mm . long) which help to form an attachment for the numerous sponges, hydroids, ascidians, de., with which the specimens are beset. In the male the rostral spines are scareely more marked than in the fimale, but the posterior prolongation of the carapace is narower and more upturned, and the chelipedes are stronger, with a wider hiatus between the fingers.

The lasest male han the canapace (not including rostral spines) $1: 2$ nm lons and $2!!$ mom. broad, the rostral spines 2.5 mm. lome. The largest lemale is somewhat lager.

Instritution. Mauritins (Milne-Ehlemedes).

Gemos Egetala, Latreille.
10. Egeria arachundes (lumpli.).
E. "romboides (Rumph.), Mirrs, 'Alert' ('rust. p. 191 (18st. ( $=$ E. indice, Latach, E. Herlostii, Miluc-Edwards.
Madras, common (.J. R. II.) ; Gulf ol Martabin (Oates).
There is great variation in the relative size and andeness of the spine or tubredn on the eampace of this suecies. In all the suecmens a smatl spine is present at the distat

 tubercles oh the middle line of the canapace are prohonged into bather prominent pine as well as the last branchaiat theneretr.
 the necond ambulatory kerg 95 mm . 1 min.


> Gemue Hsistexts, White.



Silavaturai Par, a female with ova (Thurston).
In this specimen the carapace is yellowish in colour, mottled with red on the gastric area and at the sides of the cardiac arca. The carapace, which is overgrown with sponges and ascidians, measures 35 mm . in length and 20 mm . in breadth ; the rostral spines are 11 mm . long, and measured between their apices 55 mm .

Distribution. Mergui, Malay Mrehipelago.

## 12. Hyastenus converus, Miers.

H. concexus, Miers, 'Alert' Crust. p. 196, pl. xsiii. fig. B (1884).

Gulf of Martaban, a female with ova (1)etes).
I refer this with some doubt to the present species. It agrees in having the gastrie area of the carapace smooth and very convex, the cardiac area also smooth and but slightly less convex. But the rostral spines are somewhat less divergent, and a small epibrauchial spine is present, while according to Miers there is none. In other respects it agrees with the deseription, and it is apparently identical with dried specimens from Penang, in the British Museum, labolled by Miers "Myastcnus convexus, Micrs, var." The cirrapace measures 13 mm . long (not including the rostral spines), and the rostral spines 6 mm . long. Distribution. N.E. Australia (Miers); Penang (Brit. Mus.).

## 13. Hyastents ILllgendorfi, De Man.

H. Hilgendorfi, De Mam, Mergui Crust. p. 1t, pl. i. figs. 3, \& (1887).

Rameswaram, 'Tutieorin, Cheval Par (Thurston). Not uncommon on the reef at Rameswaram (.I. T. II.).

Allied to Il. Pleione (Herbst), from which it may be distiuguished by the absence of median spines from the dorsal surface of the carapace, and the presence of only two tubereles on the anterior gastric region. The rostral spines are moth longer in adult males tham in females and young males. Most of the specimens are orergrown with hydroids and sponges.

The largest specimen (an adult male) has the carapace 34 mm . in total length (including rostral spines), and the rostral spines measured from the level of the anterior orbital margin 15 mm. long.

Distribution. Mergni (Jr Man).
14. Arastents Brockif, De Man.
H. Brockii, De Man, Brock's ('rust. p. Sed, tat. vii. fig. 1 (1888).

Guif of Marlaban (Outes).
In a single male specimen which I refer to this species (carapace bi) mm. long, 6 mm . broad, length of rostrum 10 mm .) the cardiac area of the carapace is more derated than is represented in De Man's ligure. [t is ehiefly ehnmeterized by its roy long and slender rostral spines, which are longer aren than the cemapace.

Distrilution. Amboina.

## Gemus Comoninomes, Maswell.


(\%orimes "ruleutus, Milne-Dtharts, Mint. Niat. Crust.t. i. p. 316; (1831).
 (1881).

Gull of Xartaban, 1 wo males (Ontos).
'The var. amalew is distinguished, arembling to Miers, only by the form of the postocular spine; but he has apmarently overluoked De Maan's figure of Meja (Chorimus) watenta, M.-Edw. (C'ust. dapon. Lalb. xiii. lis. -2), in which the postocular sphe is represented of the same fomm as in this raricty. Diers mentions the existence of spines at the distal end of the meropodites of the ambulatory legs, which ame alst mpesentad in De ILam's figure, so perhaps the so-citled vatr. "fombles is readly the typical form.
'lhe carapace of the larerer sperimon is 20 mm . long and 1.1 mm . broad, the rostral spines 1 l mam. long.

Diskiolntion. Jitpan, N. Iustralia.

## 16. C'mbunfoides Coppicigeri, Maswrll.




'These arree completely with dried speimens in the british Musem mamed by Miess, except that the cardiac spines are satredy united basally. They are probably not fubl-




Gomus Nixis, Mihno-Edw:uds.
17. Nixid hmit. ( L. Mihe-Edmand )


 p. 19 (1545).

Thimorin, a female With ovia (Thusistom).
This sperimen has more humbrous tuboreles on the canapace than arr repmesented in






Distiobution. East Mrica, Lmirantr I-., Mndiman Is., lhilippines.
18. Naxia tatres, Poceck.
N. tourus, Pocock, Amm. Mag. Nat. Hist. ser. 6, vol. v. p. 7 t (1890).

Gulf of Martabm, two males (Outes).
I have compared these with the type-specimen and can find no diflerence execpt that in the latter the rostral spines are much longer, being more than half the length of the carapace, whereas in the only Martaban specimen which is perfect as regard the spines they are less than half the length of the carapace. This difference camot be regarded as one of any importance. The aceessory rostral spinules are placed nearer the apices of the rostral spines than in the type, but this is perhaps only what might be expected in a variety with the rostrum shortened.

In the larger specimen the carapace (omitting rostral spines) is 15 mm . long; the type is similarly 20 mm . long.

Distribution. China Sea (locock).

Gemus sichizophiss, White.
19. Schizophets aspera (Milnc-Edw.).
S. aspera (M.-Edw.), A. Mihnc-Edwads, Nomv. Arch. Mus. Hist. Nat. t. viii. p. .8:3, pi. x. fig. I (187:2), ubi syn"

Tuticorin (Thirston); Ceylon (Haty, Secill) ; Rameswaram and Madras (J. R. H.).
Strongly marked sexual differences are noticeable in this revy common and variabid species. In the female the carapace is more uniformly gramulated, the lateral spines of the carapace are shorter, and the accessory rostral spinules are rudimentary.

Distribution. From the Red sca and East Africa, to Japan, New Calcdomia, and the Navigator Is.

## Gemus lloplopurys, n .

Carapace subovate, with the regions moderately defined, the surface spinose. Rostrum composed of two short, ilattened, acute, and slighty divergent spines. A wedl-deroloped preocular or supraocular spine, and a closed fissure on the uper orbital margin. Orbit moderately circumscribed, only dedieiont below near the postorbital angle. Basal antemal joint rather narow, its distal external angle prolenged into a dathened acute spine, which is distinctly seen when the arapace is viewed from above; the two suceed. ing joints of the pedmele slemder. Extemal maxillipedes with the isehium longitudinally sulcate in the middle line externally ; the onter distal angle of the merns prodneed into a rounded projecting lole, and the inner angle slighty emarginate fin the earpus; the exognath tapers rather abruptly from about its middle fo the narrow distal end. Chelipedes and ambulatory legs mather short, and spinose; the chelipedes not entarged in the male, with the fingers exeavate at the tips and a slight basal hiatu- between the two. All the segments of the mate abdomen distinct.

Possibly some of the above chatacters, e. \% the spiny nature of the eatrapace and limbs,
may bo specific and not generie. In some respeets this geme is intermediate betwem the:
 of assigning a place in either of thewe emps to some forms. The genera to which it appearsmost closely related are Sellizophiss, White, and Microphys, Milne-Edw. In the first of these the rostral spines cary uromdary lateral spinules, there is no distinct supraobital spine the upper ordital marwin shows two fissures, and the merus of the extemal maxillipedes is not produced extemally and distally. In the second, to which it is perhaps more nearly related, the hanal antennal joint is considerably hoader, with a loner torminal spine the rostral opimes are longer, the orbits more emplete below, and the chelipedes are enlaged in the male, with acute fingers. It also bears con-
 the Mithacine, but in this the orbits ate well-defined, the basal antemall joint head and with two extemal spimes, and the mown of the external maxillipedes in not specially produced at its distal external anmle.

## 

Gull ul' Martahan, a male (Ortes).
The seathie region of the earapace is prominent, with two rows of spines arranged in (urved lines, the anterior row (convex anteriory) consisting of seren spines-three small spines on each side of a central slighty lanew one, the posterior row (convex posteriony) of there spines, the middle one of which is larer than any other on the gastric area and is somewhat broadly compressed laterally. Tho cardiac area with two pines, sightly less
 and olbtuse spines on the genital area. The hanchial area with the see spenes-an anterior one near the branchingastrie wrowe which is the latgest of all the spines on the carapace, a mall posturior one placed in a line which passes between the cardiac and genital spines, and alace lateral one which is distinctly bilncate, on the side margin of the carapace. There is a single short spine on the hepaticerea a sheght distance behind the extermal orhital angle, and a spine on the carapate intermal to and smaller than the supraocular pine. (iromp of short curved hairs secar on the frontal, giastric, and banchial regions, but otherwise the surfaer is perfectly smonth between the spiues.

Thue ehelipedes present a fow spines on the uper surfice of the merus, riperdially townels its distal end ; the carpus has ahout half a dozen short obtuse pines on its upper

 elsewhere it smooth and glabroms : he fingersame finely wothed, with a more prominemt
 The ambulatory legs are spinose superiorly, the spines beine most prominent ath the distal emes of the meri and on the carpi ; the dactyli with a few minute texth on the pmomal




Very fine red lines are visible on the carapace, usually arranged in pairs, ruming up some of the spines and on the supracular spine and rostrum; they are also seen crossing transwersely the uper surface of the chelipedes and ambulatory legs.

The carapace is $9 \cdot 3 \mathrm{~mm}$. long, $7 \cdot 3 \mathrm{~mm}$. broad, chelipede 10 mm . long, first ambulatory leg $12 \mathrm{~mm} .$, second ambulatory $\operatorname{leg} 11 \mathrm{~mm}$.

I have named the speeies after Mr. E. W. Oates, who diseovered it and a number of other interesting forms referred to in this paper.

## Genus Micippa, Leach.

21. Micippa Philira (Herbst).
M. Philyra (Herbst), Miers, Amm. Mag. Nat, IFint. ser. 5, vol. xv. p. 6 (1885).
( $=$ M. platipes, Riipp., M. Licarineta, Ad. \& Wh.. M. hirtipes, Dana, M. spatulifroms, A. Milne-Edw.).
Rameswaram and Thticorin (Thurston). Not uncommon on the reef at Rameswaram (J. R. H.).

Distributiou. Red Sea, Cape of Good Hope, and Mauritius, to New Caledonia and Fiji
22. Micippa Thalea (Mcrbst).
M. Thelia (Herbst), Miers, Amm. Mag. Nat. Hist. ser. ij, vol. xy. p. 10 (188j).
(= M. incrmis, Намw., M. pusillu, Bianconii).
Tuticorin and Muttuwartu Par (Therston) ; Rameswaram (J. R. II.).
Like the other species of the gems. nearly always orergrown with sponges.
Distribution. Red Sea and Natal eoast to New Caledonia.
23. Micippa maschrenica, Kossmann.
M. Philyra, var. mascarenica, Kossmann, Malacostraca in Zool. Ergebn. Reise Rothen Meeres, p. it pl. iii. fig. : : (1877).
M. mascarenirf, Miers, Ann. Mag. Nat. Hist. ser. 5, vol. xv. p. 7 (188:).
( $=$ M. superciliosa, Hanw., Paromicipha usprimanus, Miers).
Gulf of Martaban, three females, mer with ora and one hearing a Serentime (Oates). Distribution. Red Sea, Mauritius, Singapore, N. Australia.
24. Micippa maligaritifeli, h. sp. (Pl. XXXVI. figs. 5-7.)

Gulf of Martaban. a male and two females with ora (Outes).
The earapace is but little convex, with the hepatie regions decply excarate, and the surface everywhere strongly grambated, though fewer gramules are present in the hollows. Two short blunt spines ocent on the margin of the posterior hranchial areat, and athird less marked is placed internal to these and on the surface of this region. The cardiac area is somewhat circumseribed, and behind it, neanly at the posterior margin of the earapace, there is a small strongly granulated devation, with a similar but slighter elevation on each side. 'The anterior half of the lateral margin has a few irregular spines, the largest placed opposite the posterior part of the hepatic depression. The fromt is rertically deflexed, with the surface ermanated and the apex retroflexed, terminating in two $^{\text {a }}$ obtusely rounded equal lobes separated by a median noteh, and on the water margin of
each lohe is a short enred spine dioned formards (an imagimary line joining then two spines matks the junction of the ropleal rostrum with the horizontal apex. The antrum
 marem of the carapace ane there pretectly hemipherical smonth tubereles exatly
 finely ermolated line sepantes the median from the latmal peat on wath side. The basal antemal joint has two or theer short ppines in front of the orbit, and the semet peduncular joint is not specially dilated; the hagellum carres a few shom haiss.
 the merns, the whole of the carpus, and the imer surface of the hamd and fingers on the imner surface of the hand the gramule bereme subspinulow, while the outer surface of the hand and fingers is smooth. The opposing edees of the fingers an finely crenulated, and there is a slight basal hiatus lutamen them; the finser-tips are dark in colour. The ambulatory legs are very hairy, with the metal joints enlarged and hattened distalty, and as slight lobe occurs on the porterion distal margin of these jaints.

The male carapace is 1.5 mm . long and 12 mm . broad, the ehelipedos $\mathbf{2} 0 \mathrm{~mm}$. longe and the secome ambulatory lea 17 mm . lone: the carapace of the larger femald is only 9 mm . long.

This small specien is distingmished by it, there pearl-hac thbereles, the form of the front and of the ambulatory legs, de. M. chatipint, Hawedt, has a similaty deflexed rostrma, but it terminates in foum rombed lobes, and there are other points of difficnee
(iemu 'Tromenachats, Miers.

 fig. 1 15:

Rameswam, Taticorin. and Tuttumatn l'an (Tharston). Common on the ref at Ranmewaran ( J. li. II.).

The erneral colone of this specie i- whwish, with red motling on the wathe and
 -pots and lines are found on the chediperter

Distribution. From ther Rew seal whe lateifice.

> (acmu-Lambial . Lach.




 cheliperde 10: mm. lom-
 secone semies.-zoolotr. rol. 1.
27. Limbrus contrabils (Herbst).
 Brachyma, p.94 (1886).

$$
(=L . \text { spinimamus, Desmarest }) \text {. }
$$

'Tuticoriu, am adult male (Thurstoin).
The earapace of this specimen is :3h mm. long, 36 mm . broad, and the ehelipedes 98 mm . long.

Distritution. Mamritius, Malay Archipelago.
28. Lambeles affivis, A. Mihne-Edw.
L. uffinis, A. Milne-Edwards, Nouw. Arch. Mus. Mist. Nat. t. viii. p. DG1, ph. xiv. fig. I (I872).
'Tuticorin (Thurston) ; Rameswaram (J. R. II.) ; Gulf of Martaban (Oetes); Ceylon (Necill).

The chelipedes are stouter and proportionately shorter in the female than in the male, and in the latter the ambulatory legs are also more slender. The carapace of a male is 15 mm . long and $18: 5 \mathrm{~mm}$. hroad. It is a common and widele-distributed species, and, as suggested by Miers, may perhape prove identical with the longer known L. pelugicus, Rüppell.

Distrilution. Zanzibar, Seychelles, Singapore, Cochin China, Philippines. N. Australia, New Caledonia.
29. Limbied hongispintes, Miers.
L. Ionyisyinus, Micrs, Imm. Mag. Nat. Hist. ser. 5, vol. iv. p. 18 (1879).
( $=$ L. spinifer, Haswell).
Tuticorin, an adult male (Thurston).
This species may be recornized by the median row of large spines on its carapace, and by the presence of large rounded granulated tubereles on the under surface of the chelipedes. The ambulatory legs are strongly compressed.

Distribution. Shanghai, Malay Arelipelago, N. and N.E. Australia.
30. Limmats Mondswonthi, Miers.
L. Holtsuorthi, Miers, Amm. Mag. Nat. Hist. ser. 5, vol. iv. p. 19), pl. v. fig. :; (1sia).

Tuticorin, a male (Thurstou).
The specimens deseribed by Hiers were all females. The male lats more slender chelipedes and the inequalities of the carapace are more marked; there is also a row of minute tubereles passing forwards on each side from the gastric spine fowards the orbital margin, which is not represented in Mirrs's figure. The earapaer is $]$ : mon. long and 1.6 mm . broad, the chelipedes 3 ( mm . lomg.

Distribulion. Ceylon (Miers).
31. Lambiejs scileptus, A. Mihne-Edw.
 fig. 3 (187: $)$.

Gulf of Martabm, four specimens (Oules).
 this small species there is a well-manked hannel on cach ptrergostomial areal handion 10 the banchial opening. The L. pismiles, hams .t White, is a closely alliod epecis, amb the two are perthap not distinct.
 Mus.).
32. Lambres hoplowotes, Ldams \& White.

Muthwartu Par, a male (Thustom).
The single specimen belongs to the sar. phemifrow of Mier (Amb. Mag. Nat. Hint ser. .t, vol. ir. p. $\because 4$, pl. r. dig. 7) fombed on specimens collected by I Doldsworth in Ceylon. The carapare is 12 mm . Ioner, and $17: 5 \mathrm{~mm}$. in breadth including the latemal epibranchial spines.

Distrihution. Ceryon, Malay Mrehipelteno. N゙.E. Australia, Now Caledonia.

## Gemus Chiproponds, Milne-Edwards.

33. Chypropodin forinicita (Fahr.).

Gull of Martaban (Outes). A single very yomg specmen apparently referable to this species.

(iemmi Jimmin, Leach.
34. Ethlid scrupos (Linn.).

Cevton (Ialy).
Dishimention. Mamitins, Malay Mrehipelamo, strait of Gaspar.
(iemu Zasbims, White.
35. Zebrida Abamshe, White
 pl. vii. lig. I (18.18).

Tutierorin, two lemalcs (one with ora) and at male (Thurstoa).


 in the former the propotus of the right whelipede is mone strongly dereloped than wher of


 its longer and more achter spines, and in pertaple merely a local variety.

36. Pahithalola mexnmasts, Miers.
P. secspinosus, Miers, 'Alert 'Crust. p. 261, ph. xuvii. fig. B (1881).

Tuticorin, a male specimen (Thurstom).
Three spines are present on each antero-lateral margin of the carapace, the first (preocular) and second ontuse, the third at the antero-lateral angle subacute and directed forwards. The terminal joint of the antemal peduncle is greatly flattencd and its margin


Distribution. 'Torres Strait (Miers).

## Group Ciclonetopa.

## Genus Ayergatis, De Haan.

37. Atehgatis integerihaus (Lamarck).
A. integerrimus (Lam.), A. Milne-Edwards, Nomv. Areh. Mus. Hist. Nat. t. i. 1. $\because 3.5$ (1865).
( $=$ A. suldilirisus, Adams \& White).
Tuticorin, a serics (Thurston); Ceylou (ILaly, Necill); liantewaram, not unconmon at low water under blocks of dead coral (J. $R . H$.).

The carapace of a 'Tuticorin specimen measures 68 mm . in lengtio and 104 mm . in breadth.

Distribution. From E. Africa to China and Japan.
3. Atelgatis flolimes (Rmmph.).
A. floritus (Rumph.), A. Mfilnc-Edwards, Nouv. Areh. Mus. Hist. Niat. t. i. p. : 13 (1sfi.s).

Rameswaran and Tuticorin (Thurston); Ceylon (Hely, Tecill); Rameswaram, common on the reel and at low water (.J. IR. II.).

The carapace of a specimen from hamestraram measures 11 mm . in length and 58 mm . in breadth.

Distribution. From the Lied Sea and E. Ifrica to Japan, N. Lustraliz, New Caledonia, and Tahiti.
39. Atehgatis hevigates, A. Milne-Edn.

Tuticorin, an adult lemale (Thurston).
In this species the eatapace is very convex both from side to side and from hefore backwards. The antero-lateral merrin terminates simply at its posterion end and is not contimed into a transverse ridge; four closed and indistinct marginal fissures can be made ont, thee of them situated mather close together on the postrion half of the margin. The hand is not carimated superionly and the finger-ipe are exeatated; the ambulatory legs are strongly carinated. It is regarded by Kossmam as andoty of $A$. roselns ( Tüppell), but in the latter species, as described by A. Dilnc-Edwards, and in specimens
from the Red Sea, in the British Musemm, which 1 have examined, the carapace and chelipedes are corered with numerom small depressions or pits, giving them a rumose apparmee, and this chanater is waming in the present species; otherwise the two are nearly related.

Distribution. Malabar (A. Milme-Edecteds).
40. Ltergatis dilatates, De Maim.

Ceylon (Italy).
I refer smo young specimens doubthalty to this species. Muller has had similar doubt in reard to specimens from Trincomali.

Distribution. China (De Inam); New Caledonia (A. ILilne-Ediatrds).
Gemin Cairllius, Leach.
11. Cimplefos maculates (Limi.).

Ceylon (IInly, Vecill).
Distribution. From Mamitius to the Malay Archipelago, New Caledonia, and the Pacific.

Gemus Ciapllodes, Danal.
12. Calipiludes tristris, 1)ina.
C. thistris, Dana, Crust. I.S. Explor. Exped. wh. i. p. 193, pl. ix. tig. ( (185:2).

Muttuwartu Par, a male (Thurston).
Distribution. P'mmotu Archipelaso (Dume) ; N. and N.E. Australia (Miers); "Eastern sats" (brit. Jlus.).
4.3. Cabpledes magabltatus, A. Mihe-Vide.

Rameswaman, two males; Thticorin, two yomg males (Therston).
 the vivid colow shown in the former. The pearly erambations show a tendeney to line:n aramement on the hands. I wide hiatus exists between the fingers, and their margins are toothed. The imer border of the carpus carries two strong grambated and


Distributiou. Nou Caledonia (.1. Milme-Eiluctrds).
41. Griplomes vevosts (Mihe-Bdw.)




Cryon (llaly).
Distribution. From Mamitius tu dapan. New Caldedoni:l, and N. . Lustralia.
45. Carpilobes cinctimaney (White).

Carpilius cinctimums, White, Append. Jukes's Voy. 'Fly', p. 336 , pl. ii. fig. 3 (18ti)
Liomera cinctimma, A. Milnc-Edwards, Nonr. Arch. Mus. Hist. Nat. t. ix. p. 1̈fi, pl. v. fig. 4 (18:3)
Carpilodes cinctimemes, Miers, Amm. Mag. Nat. Hist. ser. 5, rol. v. p. 234 (1880).
$(=$ : Limmerce lata, Dana).
Ceylon (Haly, Nerill).
The general ground-colour ol this speeies is bright red. 'The fingers are black, and a black band cucireles the hand, though in young individuals it is somotimes absent. The daetyli of the ambulatory legs hare a white band encireling their middle portion, while the narron apical part is hack.

Distribution. From Mauritius and the Sicychelles, to the Pacific and west coast of North America.

## Genus Lionera, Dana.

46. Liomera perceata (Mihne-Edw.).

Nantho penctatns, Milnc-Edwards, Mist. Nat. Crust. t. i. p. 390 (1834) ; A. Mihnc-Eilwards, Nour. Arch. Mus. Ilist. Nat. t. i.. p. 199, pl. vii. fig. (i) (1883).

Liomere fumetatn, Micre, 'Alcrt' Crist. p. 3 s. (1881).
( = L. mucinluta, Haswell).

Tuticorin, an adult male; Muftuwartu Par, a young male (Thuston); Ceylon (Nevill).

The carapate of the larger specimen is 15 mm . long and 30 mm . hroad. The red spots on the carnpace soon fade in spirit. There is a characteristic light-coloured band at the base of the mobste finger of each chelipede.

Distributiou. Madagascar, Sevelıelles, Imirante Is., Red Sea, Malay Archipelago, N. Australia, New Caledonia.
47. Lioneri Rodgersif (Stimpson).

Liomeru Rodyresii, Miers, Amı. Mag. Nat. Ilist. ser. 5, vol. v. p. 231, pl. xiii. fig. 3 (1880) ; De Man, Brock's Crust. p. D: P\% (1888).

Ceylon (IIrly).
Distribution. Malay Arehipelago.

## Genus Lophactea, A. Milne-Edwards.

48. Lopilactea grinthosa (Tiüppell).
 ( = Cancer Cimbetus, Milne-Edw.).
Rimeswaram, a malr:; Tutieorin, three males and three femates (Thurston). Not uncommon on the reef at Rameswaram (J. Ii. II.).

In most of these there is an ill-defined granula ridge on the upper surfaee of the hand, and in one frmale it is sharp and prominent; this ridge is one of the ehiel distinguishing features of the closely-allied $L$. cristula, A. Mihne-Edw. In the same femate the gramu-
lations are more pronounced on the carapace, and they vecur even ou the mangatric tobe and towards the lateral and posterim margins of the carapace, wherea in the other specimens they are deficient in these localitios. In a third speries, L. Eydoucii, A. MilneEdw., the only difference of importane is that the eastric region is less di-tinetty lobulated, and the lobes separated merely ly shallow groores. $I 1$ is perhaps possible that all there are varieties of a single ramble species. The laryest specmen, a matre, has the carapace 35 mm . long and 19 man. hroad.

Dismidntiom. From the Red sea and R: Africa to the Pacifie.
19. Lophaveres sembrinosa (Meller).

 Brock's Crust. p. P16, taf. viii. fig. 1 (1858).

Tutturartu Par, two males and a femade with ova (Thuston); Rameswam (J. R. II.).
These agree well with a specimen in the British Muscum from Suakim, though in the Indian specimens the cerest on the upper margin of the hand is more strongly marked. The antero-lateral margin of the carapace somewhat resmbles that of a Lophosor!mus. The carapace is gramulated anteriorly and wowards the sides, smooth posteriorly ; lout De Man has recently pointed out that the entire surfaer may be granulated. 'The earpus and propedus of the chelte are granular externally, with the gramules aranged in lines, and a large tooth is present on the immer surfice of the immobile finger. The ambulatory legs are carinated, but not gramulated, and have ciliated margins. The largest specimen, a femate with ora, is 9 mm. long and 1:; mm. lroad.

Dislithution. Red Sea, Amirante Is., Malay Arehipelago.

Tuticorin, a male (Thereston).
 that the eranules are somewhat fewer in momber, and towads the siden of the canalace they tomit to beeme -pimulose; a smoth thascerse area also exints near the porterion margin. Tlar lateral margins are scanedy so produced as is usmal in the wroms, and the piniform erambles extend on to them: hare wide open dissures are met with, two dose together amteriorly, and the posterion whe men the linder demination the antero-





 the lingers are black, compresod, and riderd externally, with a well-marked internal bobe on the immobile finger. The ambulatory lan hate the cenpal and propotal joint ather



The male abdomen has merely a few granules on the first two segments; but the sternal region of the thorax is grambaterl.

The whole upper surface of the carapace, and outer surface of the chelipedes and legs, carry long yellowish green hairs, which are specially elongated on the margins of the legs.

The carapace is 17.5 mm . long and 2.5 mm . broad; the distance between the outer orbital angles 1 kmm . lower margin of hand and immobile finger $1 \mathrm{k} . \mathrm{mm}$., height of hand $7 \cdot 7 \mathrm{~mm}$., length of dactylus. 8 mm .

This species is distinguished by the form of the lateral margin of its carapace, and especially $l_{\text {g }}$ the wide fissmes, but also by the peculiar lains with which it is clothed.

## Gemus Actea, De Haan.

51. Actea granclata (Aud.).


$$
(=A . \text { pura, Stimpson }) .
$$

Tuticorin, three specimens, one carring a Sacculime; Cheral Pir (Thuston); reef at Ramcswaram (.. R. H.).

I have examincd the type of $A$. carchorius, White, in the British Museum, and agree with Miers that it is probably only a varicty of $A$. gremulatr.

Distribution. From the Red Sea and Last Africa to China and Mustratia,

## 52. Actel calculos (Milne-Edw.).

A. calculosu (Milnc-Edw.), A. Miluc-Elwards, Nom, Arch. Mus. Hist. Nat. t. i. p. 2z(i, pl. swiii fig. 3 (1805).

Tuticorin, thirten specimens, includiner four females with ora; Muttuwartu Par (Thurston).

This species is allied to A. gramblute, but is smaller; the carapace is flatter and less contracted posteriorly, with the granules on its surface smoother ; the posterior margin is gramulated and there is a smootl transverse groove immediately in liont of it, which is not seen in $A$. gramuletir. In the present species also, the tubereles on the hand are more rounded, the abdominal and sternal regions are smooth or only litinty granulated, and the whole aspect is more glabroms.

The largest specimen (a male) has the carapace $11 \% 3 \mathrm{~mm}$. long and 155 mm . broad, while the smallest female with ora is only 8.5 mm . long and 1.2 mm . broad.

Distribution. Mustralia (A. Milac-Eduards).
53. Actea nomulosa (White).
A. nodulosu (White), Adams \& Whitr, 'Samatang' Crust. p. 39, tab. viii. fig. 1 (1818) ; Miers, 'Challenger' Brachemza, p. 190 (IS86).

Tuticorin. there females (one with ova) and two males (Therstou).
The types in the British Musemm are obriously young and only about half the size of the largest Thticorin examples. but there can be no donbt, I think, as to the identity of the latter. The canalace is only moderately convex, with the anterior regions well-



 in front of it a second row．which，bonerer．is interrupted in the midde．Tlue chelipedm and ambulatory legs are tubrenlate whmally，and the latter are hringer with haim The digits are black and hoth are whatated proximally ；the black colour occasimally extends back for some distaner on hoth liwe imer and outm surface of the hand．＇Thes sterual rerion is aramulated．
 long and 17 mm ．hroatl．
 carapace slighty hooder in propertion to it lensth，and the tuburede on it surface bot
 as a villiety．

Distribution．Mamitins（IVhite）；Hmmuln（Jiers）．



Muthuwartu P＇ur．a lemale（Thuston）．
This specimen diflers from the typial form in haviner the tubrofor of the calapace

 appeataner，ats if the filing had bern pertomed from behind forwards．The eater are aho prosent．though of smaller size on the posterion part of the canapace，wherem in the typioal form this part in ahmor smonh．Fin the variety the ambatatery lens and
 the tubereles of thr earpus and propedus of the chelipedes are more conical，and time tuberelen persent on the exestalk amb immediately below the suborbitat marem are









$$
(=1 . \text { pilus, stimporn). }
$$

Thutenin；Cheral l＇ar（Thuston）．
 justioe be phaced in the semus Acherotes．


Distribution. From the Red Sea, seychelles, and Mauritins, to China and the Fijis. It bas also been recorded from the Mediterranean, the Camaries, Madeira, and the S. Itlantic.
56. Actea Reppellit (Kramss).
A. Rumpellii (Krauss), Miers, Amı. May. Nitt. Mist. ser. E, vol. v. p. :3:32 (Is80), whe synon.

Tuticorin, many specimens (Thuston). Common on the reef at Rameswaram (J. R. Z.).
The amome of pubescence varies ereatly in different individuals. Niter examination of the type of Egle ruyter, Adams it White, I have come to the same eonchasion as Hitgendorf and Micrs, viz that it is merely a rariety of the present species. A. hirsutissima, Rïpp., is also closely allied and perhaps not distinet.

Distrilmtion. Natal, Zamzibar, Mamitins, Malay Arehipelago, N. and I.E. Australia.

Genus lheoceles, Heller.
57. Hipocelles rugostis, n. sp. (Pl. NXIVI. figs. 9-11.)

Tuticorin, two females (Thurstom).
This species is closely allied to H. /rimmlutus (De Haan). which has bonn well described and figured by hoth De Haan and L. Mine-Edwards, so that only the characters wherem it differs from the latter need be pointed out. The arcolation of the earapace is revy like that of $I I$. gremulutus, but the grambes are much smatler. The ponterior half of the lateral margin of the carapace is inpoghar and three-toothed, the most anterior tooth being well-dedined, and manking the hiader limit of the pteryontomian catrity ; wherens
 cavity has the upper and howe marwins straght, and gradually eonserwing to a rather brod truncated hinder mod, which in fully half the width of the antorion and ; while in
 narrow and pointed (ore Pl. XXXY, fies. 10) : in ond new youren the cavity also approathes nearer to thr orbit.

In both species the chelipeotes ator somewhat similar in seneral appearance. In II. regows the earpur is more stromply tabeatate, and ther oramales on the onter surface of the hand are arraned in retientating lines, while the upper earfee is convex and
 gramules on the outer unfore of the hom are artang in moro of los parathel fines along the joint, and the upper surfare is fattened or almost coneare. with a median and two lateral grambated lines on this ara. The ambutatory lear are alon more strongly tuberentated in the new peces.

The gastrie and branchial regions of the earapace are reddish (in -pirit pecimens), while the carpal joints of the chelipedes, and the legs, show traters of the sume colour.

All the comparisons hare been made with a single dried sperimen of $/ /$. granutatus (locality unknown) in the collection of the British Musemm.

In the larger specimen the carapace is $12 \cdot 3 \mathrm{~mm}$. long and 15.5 mm . howe ; the front is 5.3 mm . broad.

## 



Ceylom, five specimen- ( Xreill)

(x十mur M1.b.E1s, Dana.
















> Gomu- Elxaxtuls, Dana





> (icmus Zatinar. Milne-Eduands.
(il. Zowsuls Exels (Limn.).


 J'acilic.

> (iemus Pombrlamstis. Gromtareker.

 Mutturimtu l’ar (Thurston) ; Miadian (I. R. II.).

The carapace of a specimen from Madras is 23 mm . long and 29 mm . hroad. Distribution. Indian Ocean (Iterbst, IVhite); Malay Arehipelagen (Adems s. White).

Gmus Hilimede, De Haan.
63. Halimede Thurstont, in. sp. (Pl. MXXVI. figs. 13, 14.)

Tuticorin, a male (Thurston).
This species is closely allied to $I l$. fromifer, De Laam, from lapan, but is, I think, distinet, though possibly it may afterwards be shown to be a variety ol that species, which in general form it much ressmbles. The carapace is corered with short tufts of hair, which spring from the different olevations, and these last are much less marked than in De Haan's species; they consist simply of minute clustered ermoles on the gastric, cardiac, and branchial regions. The short antero-lateral margin has two strongly marked teeth, one at the posterion limit of the margin, the other between this and the orbit; opposite the latter tooth there is a strongly-marked Hattened tubrele on the hepatic region, and betwen the tooth and the orbit a third small antero-lateral tooth. External to the postorbital angle is a llattened lobe, and the lower orbital margin is similarly flattened. The frontal lobes are strongly produed, with a deep intervening median fissure ; each lohe is regularly convex anteriorly and the margin is finely erenulated. The inferior and internal ambe of the orbit is produced, and along with a considerable portion of the lower orbital wall can be distinctly seen from above. The basal antemal joint is joined to the subfrontal process, but does not extend into the inner orbital hiatus as in Matmede Coppingeri, Diers (so this latter species is, as sumised by Diers, probably referable to another emos). The merus of the external maxillipedes is faintly emaremate at its distal end, the outer distal angle is slightly produced, and there is a distinct noteh for the earpus.

The chelipedes are similar to those of De Ilaan's species, but the carpus and hand are much less stromgly tubereulate, the tubercles being almost obsolete on the outer and lower smpace of the hand, white thom on the uper surfice are resularly flattened. The ambulatory legs and male abdomen memble those of De Haan's species.

The most important difference betwern the two speeies is seen in the frontal lobes, which in that just deseribed have a convex crenulated marem, while in II. freegifer they are concave and entire; in the now species also, the carapace and outer surface of the hand are much less tuberculated. The Mohens modosts, A. Milne-Edwards, from New Caledonia, bears a wemeral resemblance to our species, but the antero-lateral margin of the earapace has four tereth, the front is lese produced, and the bobes are not rounded; it is perhaps comperneric with the present species.

The earapace is 9 mm . lone and 10 mm . loroad.

## Gemus Cycloxantuls, A. Milnc-Edwards.

## 64. Cygloxantiue haneates, A. Mihe-Edw.

 Mus. Hist. Nat. t. ix. p. 209 , pl. vi. fig. 5 (18:3).

Tuticorin, a male (Thiniston).
The colow is at first very rivil, but the limes on the earapace soon iade in spirit. The carapace is $11 \% \mathrm{~mm}$. long and 15.5 mm . hroad. Nihne-Edwardestepe-specimen was slightly larger.

Instrihntion. New Calodonia, Lifa, Torres Nitmit, Arafura Sea.

## Gemis Loplozazamis, I. Milne-Edwards.

(5.5. Lophozoziats Dodone (ILerbst).


Tuticorin, a series; Mutturartu l'ar (Thusstom); Rameswaram (.J. I. II.).
 they are identical with this species, an mon than one writer had aheady suspected.

Distrombon. East Africa, Mamitins, Malay Mrhipelago, Now Calodonia.
gis. Lophozozymus chintatte, A. Miho-Edw.

Thttuwartu Par, three specimens (Thuston).
These are probably young, the larest measuring only 10.5 mm . in length and 22 mm . in bradth. Immersion in spirit has eomphetely removed all trace of the virid colour shown in Mine-Edwards's figwe.


## Gemus Cubolownss, Rïppell.



Tuticorin, many specimens; Anttuwatu liar (Therston); Rameswatum, one of the emmonest epecies on the reef (.J. I. II.)

Distrimbiom. From the Rod sea and liant frica to Austratia and the Pacitie.

## Gemus C'mun:omoncos. K. Mihne-Edwards.



Ceyom (IFuly) ; Muttuwartu Par. : mak (Thers/on).
 more hirsute tham is mperented in Wihn-Edwardsis limure the carapace, leess, and chelipedes earring mang reddeh brown hairs: the mader surface is without hairs, and the stermal rexion is limely wrambated. The mate ablomen is rery marow, and the pemultimate semment is slighty widreat ite distal than at ite perimal end.


Gemus Leprobrts. A. Mihe-Edwards.
69. Leptoonus exaratus (Milnc-Edw.).
 mam, Malacostraca in Zool. Ergelm. Reise linthen Meeres, p. 32, taf. ii. (1875).

Tuticorin, many specinens; Silataturai Par (Thurstou); Ceylon (Intly. Nevill); Sind, several speeimens ( $D_{(y)}$ ) ; rely common on the reef at Rimeswarim (J. R. II.).

A very common and very variable species. A mate from Silavaturai has the carapace flatter and less distinctly arcolated than usual ; the colour in spirit light grey, with a large brownish spot on the gastrie area of the carapace, and the distal joints of the ambulatory legs darkly banded. Similar speemens from West Austialia are in the British Museum collection, and this variety is figured by Kossmanu. An old male from Sind ( 225 mm . long and 35 mm . Wrod ) has the postero-lateral surface of the carapace exeavated on fach side for the last pair of legs, while its front and chelipedes are twisted and deformed.

Distribution. From the Red Sca and E. Africa to Japan and the Paceilie.

Gemus Etists. Mine-Edwards.
70. Etistes levimanes, Randall.
 Edwards, Nour. Arch. Mus. Ilist. Nat. t. ix. p. $2: 31$ (1873).

Rameswaran and Tuticorin. many specimens (Thurston); Ceylon (Ituly) ; common on the reef at Rameswaran (J. IV. II.).

Distrilution. From the Red Sea and E. Africa to Japan, the Sandwich Is., and Fijis.

Genus Etinodes, Dana.
71. Etisodes Electita (llerbst).
 ( $=$ E. fromtalis, Dana, E. ruyosw, Lucas, E. seulptilis, IEeller, Chlorodius dentifonns, Stm., (\%horodius summensis, Miers).
Tuticorin (Thurston); Rameswaram, not uneommon (J. R. II.).
Distrilution. Red Sea, Seychelles, Malay Mrehipelago. N. Australia, Samoa, Sandwich Is.

Gemis Piermodius, A. Milne-Edwards.
72. Phymodius ungulatus (Mihe-Edw.).
P. umgulutus (Mihne-Edw.), A. Milne-Edwards, Noun. Areh. Mus. Hist. Nat. t. ix. p. 218 (1873).
( $=$ Chlorodius areolatus, Adams \& White).
Ceylon (IIaly).

1) istribution From India to New Caledonia and the Pacific.
78. Phimomes moxticlionts (Dimal).

Thticorin, lour females and ome math (Thenrshon).
The laterest specimen-a fomalr-is 16 mm. lomg and 2.0 mm, broad.
7) istribntion. From the Indian Ocean to tha Pacitice.



74. Cymo Indreossil (Aud.).


 not uncommon (J. $R . I I$.).

Ther campace has a fow gramben armand transersely on the qastrie rewion and toward the lateral marems. while two mangenous denticles are present towards the centre ol the lateral marein. Ther fromt is denticulated, the two submediam denticles being larerst. The fingers, with the axpotion of their tips, are black as in the variey melenodectyles. De Llath. hat at the ame time the lower and outer surface of
 this vamete.
 Fijis.









 Mrvalioms.



 in. $\because(1833)$.

Ceylon (IIaly).
Distribution. Manritus, Nicohars, Mergui, New Caledonial.

## Gemus Epixantious, Heller.

77. Epixanthus froxtalas (Milue-Edw.).
E. frortalis (Miluc-Edu.), A. Mihne-Edwards, Nouv. Arch. Mus. Mist. Nat. t. is. p. 21. 18 (1873).

Ceylon, an adult male ( Nexill) ; Nicohars, three specimens (Dey).
The Ceylon male is 225 mm . long and 38 mm . broad; a female with ora from the Nicobars is 13 mm . long and 21 mm . broad. The right chelipede is greatly enlarged in the male, and a wide hiatus appears between the fingers; the fiugers of the left chelipede are slender, incurved, and in contact throughont their length.

Distribution. From the Red Sea and E. Africa to Japan and New Caldomia.
78. Epixanthes dempates (White).

Panopeets deutatus (White), Adams \& White, 'Samarang' Crist. p. 41, pl. xi. fig. 1 (1818).
Epicanthus dentatus (White), Miers, Am. Mag. Nat. Hist. ser. 5, vol. v. p. 233 (18s0).

$$
\text { ( }=\text { E. dilutatus, 1) Man, Pamopaens acutidens, Masw.). }
$$

Nicobars, an adult femall ( $D_{\text {( }}(y)$.
The carapace is 27 mm . lons and 1.7 mm . broad, slightly broader proportionately than in either of White's tepes, but this is perhaps a sexual characteristic. The ehelipedes, legs, and marginal parts of the carapace are slightly hirsute, while the hairs appear to have been rubbed off in the types. Proplish reticulating lines are present on the surfite of the carapace.

Distribution. Mergui, Philippines, Java, N. Australia.

## Genns Actumeds, Dana.

79. Actumnus semifer (De Hath).
 (1865) ; Micrs, 'Alert' Crust. p. 205 (18sh).
( = A. tomentosus, Dana).

Mutturartu Par, a youm male (Thaston) : Gull of Martaban, thece young specimens (Oates).

Distribntion. Manitins, Malay Archipelago, Japan, N., N.E., and W. Australia, New Caledonia, New Mehrides, Tahiti, Wijis.
50. Actumes verrucoses, in. sp. (Pl. XXXVI. figs. 15, 16.)

Tuticorin, a series of hoth sexes; Muttuwartu Par (Thurston).
The earapace is very convex, covered with a short brown pubesemer, and provided with a series of remarkable gramulated lobes. The frontal margin is gramulated and four-lobed, the rounded prominent submedian lobes separated ly a marrow median dissure, the outer fobes of small size. The antero-lateral margin has four prominent, subequal, grambated or subsimose lobes, while the postero-lateral margin is smoorh and deeply

 region, behind the front. wo pairs of whith the potarion in muth latere: an the

 two bobutes which are slighty excasated in Hew contre; on the bramehal reesion thren
 one placed external to and botwow the paterion gatrice and ardiae hombes.

The right cheliperle is slightly larere than the left in both sexes ; buth are elothed with a short pubeseence on the outer suffere of the carpur and hand. except wownde the base of the immohite finere. Ther eapor in spatigely tuberentate externatiy. with : sulcus ruming parallel to the atioulation with the ham, and sebarated from the batter bex a tubereulated strip: the outer surfor of the hand is stronely tuberentate, the tuberedre
 ment. The fingers are short. with white amd obtuse tips, and the immohite ome is plawe in at statight line with the lower horder of the hame the dartylus is puberemated superionly on its proximat hall, and at prominent tootl is present on cither fincer Tha ambulatory lows an simply fubseont. The abdomen is smooth and wen-jointed in both wexs. The external maxilliperdes are emonth, with a faimt imporsed line in the middle of the proximal twothirts of the isehiunt. The basal joint of the antemal pedmelde is joined to the subtromal prowes, and the terminal jointe la in the ontatal liaitus.
 the lower margin of the hand and immobile tinger 1s mm.. mobite finger ! 7 mm ., height
 ova) from the same locatity-the lanest is 14 mm . lone and e.t mm. broak, white the

 from the Red sea and Zamziber, hut the latter has the earapace differently foulated and the anterolatraal mawin with onl there projections.

## Gemus Pimionts. Lamd.

81. Phamats vespeltido (Fabr.).








stecont slilifs.-ZOOLOHY. VOL. V.

This specimen, thomg probahly yomm (carapaee \& mm. lons and $\therefore$ mm. hroad), shows the very chatacteristic markins or lines on its dorsal surface, which bear some resemblance to a liace.

Distrilution. N. Australia, Simsupore.
(indis Tredpezia, Latr.
83. Thateza Cymodoce (Hmbst).

( $=$ T' dentifions, Latri, T. hirtipes, dieq. A' Lumes, T. corulea, Meller, T. demtutu, A. Milnc-Edw.).
Rameswaram, Tuticorin, and Muttuwartu Par; many speeimens (Thurston). Very common on the reef at Rameswaram (J. R. H.).

Dishibution. Red sea, Mascarmm, Malay Archipelago, N. Australia, Pacific.

T. rufopmatutu (IIcrbst), De Man, Broek's ('mast. p. 318, Taf. xiii. fis. 1 (1siss).

Tuticorin, a femald with oval (Thurston); Ceylon (Huly).
Distribution. Malay Mreliperamo, Pacilic.
85. Trappad maculath (Macheay).
 De Mam, Brock's Crust. p.:319, Tal', viii. fiw. : (1888).

$$
=\because T \cdot \text { yuntuta, Riuppell). }
$$

Cerlon (Ilrty).
This species is mosely allion to the last, but their distinctive fathers have been recontly pointed ont by Dr. D. Man, in his Report on the Crustacea eolleeted by Dr. Brock in the Malay Wrehipamo. Both species are probably widely distributed, but it is impossible, owing to the confusion that formerly existed, to detrmine which form is pelomed to in connexion with many of the recorded localities.

Distrilutiom. Rod sea, E. Ifrima, Lmimates, Manstius, Rodrisuez.

S6. Tripezil areolith, Dima.
 Crast. p. 312 (188s).

Ceylon (IL+ly).
Mistribution. Malay Lrehipelago, Now ('aledonia, Tahiti.

## Gemus Tetrella, Danal.

57. Tetralia glaberema (1hmbs).
T. glaberima (Herl)st), De Man, Brock's Crist. p. 3: 1 (1888). ( $=$ T. armatu, Dana, T. colrimmu, Heller, : T. heteroductyla, Heller, T. migrolions, Danai).
 specimens ( $J . R . / I$. ).
 fermed to a single vatiable species. Alat of the specimens I have obseread hat the fiont




 extent. In adult measured $\overline{7} \boldsymbol{7}$ mm. Lomes and 7 mm . hroml.


## Gemme Einiman. Latr.

88. Efilimitherminta, Latr.

Rameswaran and Tuticomin, many sporimens (Thmston): Coylon (Hely, Jomell): Ramewanam. common on the reed and amome blocks of dead coral between tidemark(J. I. II.).

All the specimens I hatre examined behome the thpie:al form. none showinn ant trace of stmulation or tuberenhation on the outer surface of the burger chelat, in in the varict! Smethei of Mackeay. A female with ora from Rameswamm is motwortly on


 N. Australia, Pacilic.

> Gemus Nempise De Hetiln.
89. Neptives peblafers (Limn.).

 common on the N. ludian coast (J. R. M.).

90. Neptixis glamators (Fabr.).

Ramewaman (Thuston); Gulf of Martalman (Ontes); Ceylon (Ilaly). ('ommon it Madras (J. li. II.).
 lateral spinc:

Distribution. From ludia to dipan and N. Anstmaia.
91. Neptunes shigutionentes (Herbst).
N. senguinolentus (Herlost), A. Miluc-Eilw:urds, Nouv. Arch. Mus. Hist. Nat. t. a. p. 319 (1861).

Rameswarm (Thuston) ; Ceylon (ILely); Siud, Bombay, Malras (Day). Very common on the S. Indian coast ( $J . R_{\text {. }} . I_{\text {. }}$ ).

Dislribution. Mascuremes, Malay Mrchipelago, Japan, Australia, Sandwich Islands.
92. Neptunes aligentatis, White.
 (1861) ; Miers, ' Challenger' Branlyura, p. 1/t (1886).

Golf of Martaban, four pecimens (Outes).
The largest specimen (a femald. with ora) measures 15 mm . long and 27 mm . broad, including the lateral spines. This species is characterized by the presence of a silvery metallic lustre on the ridges of the chelipedes, on the tramserse ridges of the abdomen, and elsewhre, still visible both in the above recorded spirit specimens and in White's dried types. It is rery elosely allied to N. gladiator, of which speeies Miers regarded it as constituting a variety, but I am inclined to consider the two as distinct. It is a smaller species than $N$.gladiator; the ridse on the outer surface of the land is much more prominent, as also are the ridges on the second and third abdominal segments; while a black spot is present towards the aprex of the swimming dactylus as in $N$. herstatoides, but which is not seen in $N$. gtertiator. 'There are also differences in the form of the abdomen -more partieularly of the lemal, - in the two speeies. The median liontal spines are scarcely less developed than in some young specimens of $N$. gladiotor, and there is a rudimentary tonth on the supmorbital margin, as in yomg $V$. glatiator, but in older individuals of the latter this becomes a prominent spine.

Distribution. Bomen (Thite) ; Colobes Sea (Diers).
93. Nepminus hastatomes (forlor.).

Gulf of Martahan, a suries inchuling two with Succuline (Ootes). Common at Madras (J. R. II.).

A lemale is 20 mm . Jong and $: 3 \mathrm{~mm}$. hroad, not including the lateral -pines. In this species the posterior aneses of the carapace are acute and terminate in spinules- the chameter on which Prof. A. Mihne-Ehwards has fommed his subsemme Rellome. The lateral spines are longer than in $N$. gludintor ; the posterior gastric granulated elevations are more pronounced, so as to beome almost tuhereular' and the distal half of the swimming dactylus is dark in colour.

Distribution. From hodia to lapan and N. Australia.
9. Neprunce Lxdersoni, De Man.
N. Audersomi, De Man, Mergui ('rust, p. © (), ph. iv. figs. 3, 1. (1887).

Gulf of Martaban, ten sperimens (Outrs).
1 refer these with some doubt to $N$. Amersoni, as 1 have not hat all opportmity of
comparine them with De Min's type: hat ther agree om the whole with his duecription and figures. In all the specimens the distance between the extornal orbital angles is
 stress in distinguishing the spereies firom $N$. hastatuides. The arme of the ehelipedes are
 The chatacters of the firmt are not statod in the orginal description, as the single type specimen was ingured in hlis resped ; in the Martaban examples the two median frontal terth ine ohtuse and of smatl size, locing lise prominent than the lateral tooth, whems in N. refgesms, A. Jilne-Edw.. with which Dr Dan also compares his speeise, there is but
 extermal orbital angle and the lome latwal spine, and these teeth, werepally the anterion ones, are nsually shorter and more ohtuse than represented in Do Nan's figure. The postero-lateral angles of the darapaed trmanate in a somewhat obtum dooth, whereas De Man deseribes it as a spimule. I hare sume donht whether the specimens are not referable to a stunted variety of $N$. herstetuites, for, on examining a lange series of the latter, I find rariation in the dieretion of the haracters assiened to N. Andersoni ; the Chatactoristic black spot is, lowerer, abont from the swimming dactylns.

Ther largest specimen-a lemake with ora-has the catapace omly 9 mm . $\mathrm{long}_{\mathrm{g}}$ and $11 . \mathrm{mm}$. broad, not including the lateral spines.

Distriturtion. Mergui (De Man).
95. Neprifiss tubehctlosts, A. Mihn-Edw.


(inll of Martahan, four specimens (Otelss).
De Man, when deseribing N. Bormia, stated that it might possibly prove to be identical with $N$. Imbropeltosus, and the abore yeecmens cortainly tend to confirm this opinion. There am be no dombt, I thank, that they are identical with tho species so well deseribed amd fienord ly De Man. It the same time the median frontal projections are slimhty larer tham shown in his tisure, and they propert as far forwards as the contiguons pair,
 fombla, and sixth are smatler than the whers, am armgement which in indirated in the figurs of looth writers. In the latere yeremen the hamd is atmost an deseribed by







 presener of a dopyrid.

Distribution. Sandwich Is. (.1. Milme-Eduords): Arn Is. (Miers): Imboina (De MIan).
96. Neptuyts amatus, A. Mihor-Edw.

Rameswaram, five specimens (J. li. II.).
The types of this species are preserved in the British Musemm. The surface of the earapace is fincly grambated, and the lateral spines are strongly dereloped, thongh somewhat shorter in my specimens than in the types. The onter surface of the carpus and propotus of the chelipedes carries a series of finely gramulated ridges, with the intervening surface smooth; two fainter ridges are seen on the imer surface of the propodas. The fingers, with the exeeption of their tips, are dark in colour, and there is a welldefined black spot on the imer surfaer of the palm near the insertion of the datylns ; the first tooth of the dactylus, as in so me other Portunids, is enormonsly developed.

The carapace of the largest specimen is 17 mm . long and 30 J mm. broad, not ineluding the lateral spines, which are each abont 5 mm . long. A. Nihne-Edwards gives the length as 13 mm , and the breadt has 50 mm ., but reference to the types and to his figure shows that there is some mistake. probably in the lensth moted.

Distribution. West Austalia (.1. Milme-Edeneds).
97. Neptunus Sieboldi, A. Milne-Edw.

Muttuwartu Piar, a male (Thurston).
This species may be recounzed by its fome similar, sulobthes frontal projections, the short lateral spines of the carapace, the marmed himder margin of the merus of the chelipedes, and the strongly ridged hand, the ridges being seen even on the imer surface. In the Muttuwartu specimen, the median notch or fissure of the front is deeper and narrower than the one on either side, whereas in A. Mihe-Edwards's figure they are equally deep and narrow.

The earapace is 12 mm . long and 1 m mm. broad.
Distribution. Mamitins (A. Milne-Ehturds, Miers).

## Genus Xiphonectes, A. Miluc-Edw.

98. Xiphonectes longispinoses (1)aha).
X. Ionyispimosus (Dana), Miers, 'Chatlenger' Brachyura, p. 183 (1886), whi synom. ( $=$ X. Leptocheiles, A. Milnc-Edw.; Amphitrite rigilens, Dan:) .
Gulf of Martaban, a male and a female (Oates).
The genus founded for the reception of this variable species comes rery near to Neptunes, and perhaps the two should be mited. The larger specimen (female) is 6.7 mm . long and 9.5 mm . broad.

Distribution. From the Neyehelles to the Pacitic (New Caldedonia, Tongatabr, ©e.).
99. Achadocs ghavilatus (Mime-Edい.).

Gulf of Mataban, six pecemens (1) 1 (fos).
 somewhat smaller. The sume silvery sheren is seen as in Veptne"s wigentretns, though much less strongly matied in the preant preies.

Distribution. From the Red sea and B. Lifica to Japan and the Pacilie (Now Caladonia, S:mhlwich ls., Fiji Is.).



Gulf of Martaban, spen specimens (oulds). Common at Madras (J. /i. II.).
This specios maty beromized at bure ly its remarkable chelipetes, the merus of which is lone and vere hroad. while the mome distal joints, and eqpecially the fingers, are extremely slouler; the fingers also ane aroute and slightly upturned. Veptumes gracilimanms, stimpson, is probahly identical with 1 . Whitei; the description of the former agrese with that of the present species, and the posterior lateral spine is distinctly loneper tham those in liont of it, especially in yomer individuals, which orives the speries almost the appeazaner of a Neptumes. Indect, it how- that Trptum, and Acheloms can searcely be separatem, though it is perthas embuient to retain the latere tem for those forms in which the latrial spines are greatly reduced.

The laners suecimen (a female) is $1!1 \mathrm{~mm}$. loner and 30 mm . broad, not including the lateral pinces; the mepus of the left elacliperde is 175 mm . long and $S$ mm. broat ; the


101. L(Im:Lot's onBICULARAs, Richtors.
 That. wi. fise 11, 1.5 (1sso).

Ginll ol Mataban, two males (otales).
Ther eampace is narow, smonth, and depmesed, with the mine antero-lateral terth
 marem is atmont straight and without ally romearity. The from is vix-toothed, amd the modian tredt minnte. The merns of the rhelipedes is ralarged, angulated externally, and with two quines on the postrome mane in.
 between the extemal ophital ammes is $\bar{i} \cdot(\mathrm{~m}$ mon.

Distribution. Seveloelles (Richters).

Gembs Soylla, De Haan.
102. Scylli serbata (Forskial).
S. serreta (Forsk.), A. Milne-Wdwards, Nour. Arch. Mus. Ifist. Nat. t. x. p. 319 (186i1).

Caleutta ( $D(\neq y)$ ) Ceylon (ILty). Lbundant in the S. Indian backwaters (J. R. II.).
This is the ehief edible erab of Eudia.
Distribution. From the Red Sca, E. and S. Africa, to Japan, the Eiji Is., and New Zealand.

## Genus Thalamita, Latreille.

103. 'Thalamita priana (Herbst).
T. pryma (Herbst), De Man, Mergui (rmet. p. i5, pl. iv. figs. $\overline{5}, 6$ (1887).

Rameswaram and Tuticorin (Thurston). Rameswaram, common between tide-marks; Madras (J. R. II.).

These belong to the typical form of the species as characterized by De Man. The carapace is smooth, with the exception of the first transverse line, placed behind the orbital margin, which usually carries a fringe of hairs; the natatory legs are also provided with a short marginal fringe. The ridge on the basal joint of the antemal peduncle has two or more spimules, the first of which is well-dereloped, acute, and usually with traces of a compound origin.

A male from liameswaram has the carapace 44 mm . long and fi2 mm. broad, the right hand 52 mm . long. A female from Tuticorin is 32 mm . long and 1.5 mm . broad, the right hand 32 mm . long.

Distribution. Indian Ocean, Meroui, Malay Arehipelago, Japau, Australia, Nen Caledonia.

## 101. Thalamita Amete (Herbst).

T. Admete (Herbst), A. Milnc-Edward, Nous. Arch. Mus. Hist. Nat. t. A. p. 35 F ( 1 N 61 ) .

Rameswaran (Thurston, J. IT. II.); Gulf of Martaban (Octes).
The earapace is only slighty pubeseent, and the chelipedes are devoid of gramules. The outer surface of the hand is glabrons, and ouly earries faint raised lines, the usual spines being present on the upper surlace.

A female with ova is 10 mm . long and 15 mm . broad.
Distribution. From the Red sea and Natal to Onsima Is., the Fijis, and the Sandwich Islands.
105. 'Thalamita Satignyt, A. Mihne-Edw.
T. Sarigmyi, A. Milnc-Edwards, Nour. Arch. Mus. Hist. Nat. t. x. p. 357 (186i1).

Tuticorin, many specimens (Thurstou); Rameswaram (J. IR. II.).
This species only differs from $T$. Admete in having the carapace more strongly gramlated, as well as the chelipedes, the hand being provided with several longitudinal gramulated lines on its outer surlace, and granules are seattered over the intervening


 int anspios of specimums.
 the samu size; hut some femals with wat ar of much smaller size a diparit! which has been moted bey Do Man.



10G. Thammet mand. Milne-Edu.

( $=$ T. armuturs, D) Ilaanj.
Tutiontin, two femates with ora (Thustom).
I relier these sperimens with some hesitation to $T$. sime, and porsibly they belong to a distinct and madeseribed suecies. The first three anterolateral tweth ar very broad
 the tapioal T' simu a fiwurd by De Hatan. these tecth are more prominent and achte. with wider intervongs tissmes. The Gataber is fincly granulated and the devated lines rallore poorly marked; the fiont is meularly arenate, with the median moted searemy weresented. The outer surface of the hand is almost smooth. [n T. Cheptali. Aud.. Which is recorded ly Miers from Coylon ( Alert' Crust. p. 2:31), and in which the anterolatemal teethare also ohtuer, the lat thoth, unlike what is seen in our seedmens. and in the typical form, is slightly smallen then the preceding twoth.

Tha larer specimen is 10 mm . lone and 14.5 mm . broad.
 Zealimul.
107. 'Thal.mita integha, Danal.



Tutiontin (Thustom) : Rameswanan, not uncommon (.I. R. IL.) ; (iulf of Mantaban (Ot/lex).
 the apieres themselves are white.

 Camarioss.


'Tuticorin. a mald (Therston).

This species is distmgnished ly its six-lohed front and ly its rery minute fonth antero-lateral spine. The eholipeden are crossed by strixose lines, which are specially noticeable on the upper and distal surface of the merus, the moder surface of the propodus, and which are even ane wh the inner surface of the latter joint; similar pubescont lines are also mot with rumins longitudinally on the ambulatory leas. The sternal region, antmiorly and at the sides, is seen with a lens to be very fuely gramulated. In Miess figur the last antero-lateral spine is more prominent than in my specimen, the fingers are lomere in relation to the palm. and of the two spines on the upper margin of the palm the pasprior one is much lareer than the anterior, while in the 'Tuticorin example it is only shighty larger. These diflemences are, however, probably not of much importan".

The carapace is 8 mm. long aml $10:$ inm. broad.
Distribution. Tongatabn, is fathoms (IMiers).

Gemas (ionionomi, A. Milue-Edwards.
109. Goniosomit checterbus (Fabr.).
G. crucifertum (Fabr.), De Mian, Mergui ('rust. p. 79, pl. v. fig. 1 (188i).

Tuticorin (Thenston) ; Ceylon (ILuly) ; Akyab (Day) ; Madras. not uncommon (J. R. II.).

Distritution. Indian Ocean, Malay Irchipelago, China, Japan, E. Ausiralia.
110. (ioniosona hafine (Dana).
G. affine (1)ana), De Mam, Mergil Crust. p. so, ph. v. fig. :2 (1887).

Madras, three adult males and one female (J. R. II.).
The carapace of a male is $3: 3 \mathrm{~mm}$. long and 47 mm . broad, not inchndins; the lateral spines.

Distribution. Singraporr (Itane) ; Mergui (De Men ).
111. Gosionomid vatapol (lherlst).
G. netator (Herbst), De M:an, Brock: ('mant. p. 3:34, Tat. siii. fig. j (1888).
$=($ harrybrtis !!remulutus, De Haan $)$.
Rameswaram, ther males (Thuston); Ceylon (Ituly); Madras (. / R. II.).
A Rameswaram specimen in is mm. long and 87 mm . broad ; the right hand measured along its lower border 76 mm .

Distribution. Natal, Mascarrner, Matay Mrehipelago, Chiba, Japan.
112. Gonionomi hecifetitil (Fabr.).
G. Inciferum (Pabr.), De Mam, Mergni Crunt. p. 8:3, footnote (188i).

$$
(=\text { (i. quudrimarntulum, A. Milne-Edw.). }
$$

Ceylon (IIaly).
Distribution. Malabar; Jara (A. Milne-Edtousds).
113. (ioxmocoma nixutation (Falme).
 $=$ (i. mitutule. Itallew.







 speries as at present romstituterl.

Dishimetiou. From Madagacend to the Malay Archipelaten.











 adult both the anterolateral and the format terth are wey acute.
 45 1161 . lane.



C…) lon (llily).
 Eiltaromes).
116. (iontosoma oramatal: (1):ata).





This species does not appear to be common ; in fact Prof. A. Mihne-Edwards had not met with specimens when he wrote his Revision of the Portmide. It is distinguished by the rudmentary sate of the seeond lateral spine of the carapace, which is rery minute, and appears as if morely a portion of the first spine; the remaining anterolateral spines are practieally subequal. The median and sulmedian frontal tecth are obtusely rounded and subequal, white the two outermost teeth on each side are more or less triangular. The merus of the chelipedes carries two or three spime on its anterior margin, while the posterior margin is unarmed; the carpus has a large spine on its upper surface, and three pinule on the outer surface; the hand has three finelygramuated ridges on its outer surface. two spines on the upper margin, and two on the outer surface, one of the latter phaced at the articulation with the earpus. The fingers are slightly ridged extermally. The pemultimate joint of the swimming-less is spinulose along its posterior margin, and it prominent spine is placed on the posterior margin near the distal end of the merus.

The largest speeimen, a female without egos. is 11 mm . long and 17 mm . broad, while a seond female, carcine "か, is considerably smaller.

117. Goniosona orvatum, A. Mihe-Edw.

$=$ Thullumitu trencotu, De Haam).
Madras, not uncommon (.J. R. II.).
The earapace of a male is 21 mm . lomg and 30 mm . broad, the rioht chelipede 5.5 mm . long; a female with ova is 1.5 mm . long and $2 \underline{2} \mathrm{~mm}$. broad. Specimens in the British Musemm are considerably larger.

Distribution. Malay Mrehipelaqo; Japan.

11s. (Goniosoma valimgatum (Fabr.).
G. rarieyatum (Fabr.), Mico, 'Alert ' ('rust. p. 23: (I884).

Mantas, very common (J. li. II.) ; Bombay (Deny) ; Kumachi (Broit. Mins.).
In this species, and in the form which I term var. collienosse, the frontal teeth are more or less obtusely rounded in the adult, the last lateral spime of the carapace is about twice the length of the precedines spines, the hands are somewhat swollen, and the carapace is pabescent. De Hatm seme to have regarded the two foms as belonging to distinct species; on the other hand, A. Milne-Edwards probably mited both in his G. cullimussen. In what I regard as thr typieal form, the median frontal projections are very obtusely romeded, the suffare of the carapace is dinely puactate when the hairs are remoted, and the timswer didge are only moderately developed. there being nome on the hranchial area, and they aro only faintly seen on the eardian area. The merus of the chelipedes has usually two pines on its anterior margin, and there are also two spines on the upper surface of the hatud ; the ridges on the outer surfine of the inand are smooth, while on the imere surface they are alnost wholete; the mater surline of the

























 sperics.




 -pereimems (ortes).




 "sample it is scarecty larser than thme in lionn af it.

The largest specimen is a lemale with a Bopyod in its right branchial chamber: it measures 77 mm . in lenght and 20 mm . in bradth, inchatiog the latwal spines.
G. rostrotum is also closply alliced to G. rariefutmon, of which it may possibly prove to be a rariety. 'The only important difference lies in the character of the front, and I have observed specimens of the latter pecies in which the median propetions were more prominent than the otlows.

Distribution. Mouth of the Gamen (A. Miluc-Eturnors).

Gemm Lepocyches Aikms di White.
120. Lupoctobes inequalis (Walker).

Gulf of Martalan, a mate aud a female (tutes).
The carapace is amed with mine lateral spines, of which the fouth, sixth, and eighth are momentary, expecially the cighth, which is rery minute, and the second is smaller thion the third. L. rotumthtos, Alams d White, has five laterial teeth, with a single minnte one alternating in ath interspace, hat the carapace is more comvex, proportionately narower, and with a more prominent front. I am nable to sar how
 feetly chanacterizerl.

I think there ean be littla dondit that the above specimens ate relerable to Wialkere species; at the same time, it ought to be placed in the genns Lepocyches. on accome of its general fom, its peouliar front, and the basal antemal forint freely moralbe in the orbital hiatus.

The larger specimen, at female, is $1 \because \mathrm{~mm}$. long and 15 mm . wide.


Gemes Limocarenves, Adams of White.
121. Lisocabcines polibiomes, Jdimis it White.
L. polybioides, Adams \& White, 'Samarang' Crust. p. Hi, pl. ni. fig. . (181s).

Gulf of Martaban, a female (Outes).
This species is distinguisled from L. lacis, Nices by its flatter carapace, more prominent front, the lateral teeth, which gradually diminish in size on passing back wards, and a line runs in from the last lateral tooth on to the surface of the hanchial resion.

The carapace is $7 \cdot 2 \mathrm{~mm}$. longed 7 mm . broad.
Distribution. Borneo (Adams \& IVhite): Ceylon (Miers): Port Jackson (ILrsetell).

## 199. Lissocarcinue latis, Micts.

L. Lecis, Miers, 'Challenger' Brachyua, p. 205, pi. wii. fig. 3 ( $185(6)$.

Tuticorin, a female with ova (Thurston); Gulf of Martaban, a single youne specimen (Oates).

In this species the fiont is lnoad and not specially prominent. The first and difth
 The ham in without－pines．



Genu－Ki：いいい，1）：ma．

 1がい1。

The front is guthelobed，with the modim viehtly smaller than the water lobes，and the marein of all finely crombated and hamed with long brown hairs．A modian and wo lateral fissures om wach side of the fromt are present．Which，though obohete， extend wome distance batek on the calapaer，and the mon axternal arises from the upper obhatal mangin．The earapace is minuely grambated anteriorly and towards the sides．The latemal mogin is eremuated，with a slight tooth about one thime of the distance betck，and immediately in front al this the margin is sighty indented．The hands are dimely grambated extomally，amd lomg hame are preant on the begs and on the meral joints of the chelipedes．

The＇Tutionin seremen is $1: 37 \mathrm{~mm}$ ．lonin and 1.5 mm ．broad．
 fathom－（Nimpsom）；Tomes Strait－Mires）．
（ifoll）CATOMETOPA．



 ＂ith oria（．．R．II．）．



Distitmtion．Corem Staits．Lo tathomb Mioses）．
（iemus Siculophat，sitimpson．


Gidf of Martaban，an addult femate（hatos）．

 eramulated and punctate，with an acute yimule at the posterior limit of the shaply
defined anterokteral margin. The hands are ghalnous extemally and sparingly punctate ; curcel spinules are present on the margins of the ambulatery legs.

The carapace is 11 mm . long and 1.51 mm . lroad; the third ambulatory leg is 33 mm . long.

The gemus Mypophllotions, Richters (in Jenz and Richters' 'Beitraw zur Krustaceenfama ron Madasascar`), is, as pointed out her Miers, smonymou-with Scolopidie, and the $I I$. lencochions, Richters, apparently difters but little from Stimpson's species.

Distribution. Hong Kong. if fathoms (stimpson).

## Gemus Cardisona, Latr.

126. Camdisona carnifex (Imerbst).
(. carnifer (Herbst), De Man, Max Weber's Crust. p. 285 (1891).
( = C. Crrillei, Mihe-Edw.).

Tuticorin (Thurstom) ; Ceylon (Itoly). A very common species loum burowing near the margins of the S . Indian backwaters (J. R. H.).

Distribution. From E. Ifrica to the Pacific (Samoa, Fijis. Sandwich Is., © © e.).

Genus Telphisa, Lats.
127. Telpifusa inhica, Latis.
T. indicu (Latr.), Miluc-Edwards, ('runt. in Jaequemont's 'Vogage dams l'hude, p. i, pl. ii. tig. I (1844) ; A. Miluc-Edwark, Nour. Arch. Mus. Hist. Nat. t. r. p. 181 (1869).
T. cunimaris, Westwood, Trans. Ent. Sor. vol. i. p. 183, ph. six. fig. I (183(i).

Very common in hill-streams at Kotagini and elsewhere on the Nilgiri Lills, at an elevation of about 6000 feet ( $J$. I. IU.).

I sent a specimen to Prof. A. Mine-Edwards, who kindly informed me that it was referable to $T$. indice, the types of wheh are preserved in the Paris Natural History Musemm; it is also identieal with $T$. cumeularis, examples of which from Dukhan, Westem Ghats, are in the collection of the British Museum.

The postfrontal ridge is strongly marked and continuons, being well marked aven behind the inner canthus of the eye, and only interrupted by the mesogastric furrow ; the eervical groove is also well defined. The earpal spine of the chelipedes is acme. The ischial line on the outer surface of the external maxillipedes is absent or faintly defined, and not prolonged to each and of the joint. The pemultinate segment of the male abolomen has the lateral margins straight. The colour is a dark, almost black brown, paler in the young.

The carapace of a female is 35 mm . long and 50 mm . loroad : of a male, 34 mm . long and 405 mm . broad.

Distribution. India: Western Glats (Poona, d゙e.); South-east Berar? Chota Nagbur ; Ranigunj; Parisnath Itill, at an eleration of 3000 feet; Morar (Wood- M/asom).
124. Telphysa legtbris. Wood- Masm.


 (Dr. J. Mr"ll!!).



 bhent. The ischial the om tho onter curfar of the oxtemal maxiliperdon is well markel.





The Nepal specimen has the catapere emmentat more consex than indicated ins

 swimmerres under the abdomen.





The eanapace is searely depresed. The portirontal ridge is well definel townde the sides, hat the epigastric portions are wrimkel, and alnast defiedent behimd the immer







 are mandathy large and ballow.



 speriss, and the horny spinules with which they are armed are much hes pominont. The pembtimate segment of the mate athomen las the laterat mangins comeare, an in

 seodow serais.-Zoology, vol. r.
following differences can br made ont :-The carapace is lese fint, and the brontal marein more concave; the epibrambial and external orbital terth are much barere and mone prominent, with the margin eomereting them less oblique; the pouthontal ridge is separated by a wider interval from the orbital margin, the orbits are larger and more open, the carpal spine of the chelipedes is acute and more promineut, and the general colour is apparntly not so dark as in T. lugubes. The carapace is also prop ertinnately longer when eompared with the breadth, as shown by the following table, in wheh individuals of both species, of the same sex, and as nomly equal in wize as the series would premit, are rompared :-


The targest specimen, a mate, is 89.5 mm . long, and the greatest breadth of the carapace ${ }^{5} 2 \mathrm{nmm}$; the distance betwern the epibranchial tecth is mom., and between the external orbital anglo 29 mm.; breadth of front 12 mm .
T. Masoniane is perhaps a representative on the plains of T'. imlice, an T. Tugubris may be on the hills. I have associated it with the name of Prol. Wood- Vasen of Caleatta.

## 130. 'Tlephlisa Lemchexileti (Miboc-Edw.).

 fig. :3 (18c:

Ganjan (Iny): Madras, common in wells and ponds, also met with hurowing in ricefields and in all the latreer compounds (J. M. II.) ; Ceylon (Bril. MIns.).

The canapace and limbsare usually mottled with minute dark lurown spots. Lu adult make from Madras has the carapace $25: 5 \mathrm{~mm}$. $\operatorname{long}$, and $: 37 \mathrm{~mm}$. in areaterst breadth.
 Mauritius and Tahiti.
131. Telphesa Ruguxa, Kingster.
T. ruyusu, Kingsley, Proce Acald. Nat. Sci. Phitad. p. $3 \tilde{\sim}$ (1880).

P'matoya, Ceylon (L. E. Green); Ceyton mountain streams, a serics (ILoldsoorth).
As the specimens collected by IIoldsworth were referred without hwitation by Miers to this species, I rentme to supprment the very brief original description by the following account:-The carapare is sulmuadiate and depressed. The posthromat ridere, though intermpted, is well-defined, and the edge crenulated; the median portion bomoding the epigastric lobes is paced well in front of, and quite separate from the latema portions, which are sinuous and curve slightly forwards to pass into the well-marked pribumehial









 latod.












Distribution. Cerlon (Kimusten).



















Mason's deseription and tigures. The adult males, however, have a rery wide gape between the fingers of the larger chelipede, as in T. difformis, Miinn-Edw. and as the batter -pecies appears to la elosely alliod to T. leeces in other respects, perhaps the two are not distinct. The wide gape of the fingers is not specially referred to by Wood-Mason, and it is prohably confined to old males; it is not seen in sither of the speeimens which 1 refer to T' cmodis.

Distribntion. Ceylon (Kimystry).

1:3: 'Tebphusd Pocockinid, 11. sp. (Pl. XXXVII. tigs. J-s.)
Jubbulpore, three males and three females ( $I$ aty).
The carapace is smontly and slighty convex anteriorly, with the hamehial regions somewhat expanded laterally. Commencing at the mesogastrie burow, whieh is fairly well marked, and bifurcated posteriorly, the postfrontal ridge curves out wards and slightly backwards, hot stops abruptly a short distanee from the side of the carapace: in other words, it does not pass into the epibmanchal tooth; throughout its comrse it is sharply defined and nowhere interrupted, thongh near the middle line it is slightly wrinkled. It approaches mather nearer than usual to the orbital margin, and the surface of the carapace between the external onbital angle and the onter end of the ridge is considerably excavated. I shallow groore, not always seen in young individuals, puses from this excaration between the end of the ridge and the free margin of the carapace. 'The eervical groove is well maked at the posterior limit of the gastric area, but shallow and faint elsewhere, and scarcely reaches the postfrontal ridge, which it does not indent; it is better marked in romg individuals. The epibranchial tooth is very rudimentary, in fact indicated merely by the posterior limit of a slight notch, and placel a little in advance of the level of the post liontal ridge, $i$. $e$. quite elose to the exterual obital angle, whel is itself but little prominent. The antero-lateral margin, behind the epibramehal tooth and hounding the anterior branchial area, is regularly curved and obsoletely dentate; behind the posterior limit of this margin are the usial slight tramserse riveres extending to the eoncure posterolateral margin. A few very slight rugosities or lines are seen on the anterior branchial regiom, behind the outer limit of the postirontal ridge. On the pastric reqion adjoining the ecrvical groove an anterior and posterior punctum are seen on each side. The frontal margin is almost straight and is seareely cremulated. The orbits are remarkably large and subtriangulate in outline, the apex of the rianglo being placed at the external or hital angle. The epistome is compatively deep, and the lower marginges rise to a broad ohtuse tooth. The ischial line of the extermal maxillipedes is faint, and scarcely extends thronghout the length of the joint; it is plated nearer the imer margin.

The chelipedes are mequal in size, and very similar to those of ' $T$ '. indien; the carpal spine is short lont acute. the outer surface of the hand sparingly punctate and the puncta are arranged in lines on the onter surtace of the fingers. The ambulatory legs are also similar to those of 7 '. indica. The meropodites have the anterior marein fincly cremulated, and a few short homy spinules are met with, on the posterior margin of the propodi. The terminal segments of the nale abdomen are wider than those of $T$ : indice, and the lateral margins of the penultimate segment are almost straight.



 and the emiguons part of the emapoe is deply hollown out. In T. celebensis, be
 'pibmanchial toath, there is a serome small tooth plaed betwem the epibanchial me and the external orbital ancrle.

 epinanchial teeth 345 mm ; the front in 12 Z mom. in bealth.

I hate mamed the species atter Mr. R. I. Poenck, of the British Musemm statio.

## 1:3. 'Ielpiexa flatidthes, Latr.


Qumta, a veries in the Britivh Mamem, collected by W. T. Blanford, and another orise from the same lucality prexmed ly the secretary of state for India. . Environs of Calcuta " (Coll. Schlegimtereit). The later lorality is probably "moneous, and the sperimen prehaps came from the Himatayan.
 mens carefully with a large serics in the Brish . Whsem from varions localitise on both
 importanere. There are specimonsin the Roitish Xusem from Sistan, Persia.
 EMCrords)

18:). 'Telphlat Atriventand. Wood-Masom.

 tomene secimens (Coll. Sollaginteroit).

 grambations are seareely represented ont the epigstric and pothenstric bobes of the
 bhink, lo mo doubt, howerer, of their identit!.





 this print.
 nendii, A. Milne-Edw. (Siam), are in the colleetion of the British Musemm, and they
were regarded by Niers as scarcely distinct from $T$.fturiwilis. In the present limited state of our knowledge a towlat romstitutes a species in this difficult gemus, I think they must be held toberdistinct. T. denticulater is distinguished, from both T. flucimblies and I' Atkinsomiand. by its poonty marked postrontal ridge and the smatl size of the epibranchial tooth. Th. Lorumentio is eren more closely allicd. but is distinguished from both by the seater consexity of the hanchial regions. Which are spamgly granulated; the protogastric and epigantric lobes are not gramulated as in T. Lthensonionu; the postrontal ridere resembles that of $T$. Athinsoniand. Wut towards the epibranchial tooth it becomes interrupted as in 'I', flutufilis.

Distribution. North Iudia: Darjeeling; Thancote Itills, Nepal; Kirasi IIlls (HoodMason) ; Ceylon (Brit. Mus.)

Gemus Pafintelphesa, Mihe-Edwards.
136. Paleatelphesa shefsis, Mime-Ede.

Bumaht, an adult male (Itey).
Distritution. China (Milur-Ederirts): Siam (Tou Mturtens): Mouhmein, Bmmahs (Woor-7T世**,
137. Paratelphesa spisterehe, Wood-Masom.

Calcutti, Roorke, North-TVest Provinces, Sind, Ganjam (I)ey).
Aceording to Wood-Mason this species is very common in the Calentta tanks. The British DLusemm has a series from Bengal.

Distribution. North Indial (II ood-Musom). It is not known to ocenr further sonth tham Ganjan.
138. Pabatelphtsed Disina, Wood-Mason.
P. Dayem, Wood-Mavon, doum. As. Soc. Bengal, wol. xl. p. 192, pl. si. (18:7.

Tounghoo, Bumah; ten specimens (Ortes).
This species is characterized ly the grat convexity of its carapace, and the wellmarked postfrontal ridge, with the epigastric portions almost nodose. The four (pibranchial teeth (not counting the extemal ortital angle) very gradually diminish in size on passing backwards. and the greatest dimimution is seen in the most posterior one.

The largest speeimen, a femals, is 30 mm . long, and 41 mm . Iroad.
Distribution. Burmah: Prome and Mandalay (Wood-3Lesom).
189. Paratelpilesa Mahteasi, Wood-Mason.
P. Murtensi, Wood-Mason, Amm. Mag. Nat. Mist. ser. 4, vol. xvii. p. 121 (1876).

Roorkee, two males; North-West Provinces, three males, two females (tay).

 long and 97 mm . broad.
 Mwsw).



Rameswamm and Thticonin (Thenstom). Common on the South Fadiau emat (J. I. II.).
 rery finely striated below.

Thist, ifation. From the Red Sia. E. Lfric: and Natal, wapan and the Pateilie (Samon, Fijis, Sandwich Is., (te.), also the roats of Australia.
14. ()cypond marocerid, Milne-Edw.

Rabmewaram, many specimens; Tutionin, two males (Thersfor); Montras, not uncommon (.J. I. II.).
 the finecretips of both chelipedes, but eapecially of the smaller one, dilated and Hattened. The miter surface of both hands is also mone finely gramlated. The rolom is a reddish
 mark, but is mach less eommon than the mext undies.





The ardatating ridere is narow and mberentate in both sexes. The dachyli whe the amblatory lens are broad and lattemed in adults. This is the commones secers of


 homed.




Tuticorin (Therston), Common at Madras (J. R. II.).
This is a smaller species than the foregoing, and distinguished at once by the absence of a stridulating ridge from the ehelipedes in both sexes. It is a terrestrial erab and lives in burrows at some distance from the sea.

Distribution. From Manritins and the Seyehelles to China, Australia, and the Pacifie (New Caledonia, New Mebrides, Fijis, (Le.).

## Gemus Gelasmiss, Latreille.

144. Gelasinés anntlipes. Latr:
G. cummipes (Latr.), De Man, Merqui Crust., p. 118, pl. viii. figs. J-7 (18si), uli symon. ( $=$ G. perplexas: Milnc-Edw.; (i. pulcheflins, Stm.).

Rameswaram and Tuticorin (Thurston). Abundant on the margins of the South Indian backwaters, burowing in sand or mud (J. R. II.).

A emious sexual difference has been pointed out by De Man, viz. the infra-orbital ridge is simple and finely crombated in the male, whereas in the female the crenulations are larger, and in addition there is an acessory row of acote granules parallel to the ridge, lut placed within the orbital carity.

An adult male from Rameswaram has the earapace 12 mm . long and 21 mm . broad at the level of the external orlital angles; the hand of the larger chela 35 mm . long.

Distribution. Prom E. Africa to the Pacific (Tahiti and the Eijis).
145. Gelasines thiangltaris. A. Mibe-Edw.
G. trienguleris (A. Milne-Elw.), De Man, Mergui Crust. p. 119, pl. viii. fig. S' S - 11 (188: ). ( $=$ G. perplexus, Heller).

Madras and Ennore (J. If. II.).
This species is found living with $G$. ammelipes at the above localties. and the two are almost equally common. Gi. triungularis is, however, a slightly smaller speeies, and its colour-markings are dilicrent, but 1 omitted to note these in living specimens. The carapace is narrower posteriorly in the present species, and the larger hand has only two granulated ridges on the inner sufiace, while there are three in G. cumulipes. The immolile finger of the larger chela is acute at its distal end, whereas in 6 . ammulipes it is sulitruncated, or amost bidentate, owing to the presence of an alecessory tooth near the apex. In the two species there is considerable variation, and varieties of both are common in which the inner margin of both fingers is without any prominent teeth. The females of $G$. trianguleris lack the accessory orlital row of gramules met with in the females of the other species.

Distribution. New Caledonia (A. Milme-Edwords); Mergui (De Man); Cerlon and Miultas (ILeller).

Gemms Macropminames, Latr.
146. Macropithalmes deptesses, Riippedt.



Rameswaram, three specimens (.J. II. $/$. $)$.
The carapace is finely granulated, with the exeeption of the eentral part of the gastrie area, and in young specimens if is only grannated towards the sides. The carpus and hand are smooth and glabous externally, without spines and with merely a row of gramules on the upper margin of the hamd internally ; the mobile finger has an obture crembated lobe on its inner marein near the base. The ambulatory legw are pubesent. with a single tooth near the anterior distal end of the merus.

I have little doubt that my specimens are pelemale to Guerin's species and at the same time ther seem to be identical with M. depressus, as chameterized bey De Man. though in the figure of the latter writer the palm is shorter in proportion to the length of the fingers than in the Rameswatam examples. This differenee is. howerer, unimportant. I male specimen is 11 mm . long and 17 mm . Wide.

Distrilution. Red Seal Räppell, T) Jtun); Bombay, Pondicherry (Guerin); North Australia (ILusuell).
147. Machophthalays pectivipes, Guíin.
 sir. 3, Zoul. t. xwiii. p. 15. (18.5: ).

Sind, fire specimens ( 1 ( $1, y$ ).
This later species is characterized by its sping-bordered ambulatory leas. and the presence of lane seattered tuherentar granum on the carapace.
 orbital amoles.

Distribution. Bombar (Cimérin, Brit. Mus.) ; lmang (Brit. Mus.).

 (18:3).

 Ceylon, the Philippines. Malacea, and Now Caldonia, hat it has not yet lwom fomm
 prempation, and there conld be no donht ans 10 it isentity with the epecine fiemed ly
 perlapes symonymons with the present specio.

Distribution. Living in the smas of Now ('aledomia (.1. Jitne-Edecerds). second series.-ZZologr, roh. V.

## Gemus Scoprafera, De Haan.

149. Scopinerid momitzondes (Mihne-Edw.).

Doto myftiroides, Milnc-Edwards, Alun. Sci. Nat. sćr. 3, Zool. t. xviii. p. 152, pl. ir. fig. 21 (1852).
Rameswaram and Tuticorin (Therstow). Common at Rameswaram, burrowing in sand and mud; Ennore (J. II. II.).

De Man, on what are apparently good gromeds, unites 1)otilla, Stm. ( = Doto, De ILaan, nom. pracoce.), and Scopimert, De Haan, selecting the former mame for the genus; but Scopimera is preferable as it is the older name, and Dolilld has more recently been used to designate a genus of Mollusea.

In a very large series of this species 1 have as yet only met with males. There is still moch to be learned about the genus, especially as to the nature of the curions 'tympana' on the sterna and on the meral joints of the ambulatory legs.

Distribution. Malabar (Milue-Edectrds); Strait of Gaspar (Stimpson): Java (Brit. Jhus.) ; Singapore (Walleer); Seychelles (Miers).

## Genus Mictimis, Latr.

150. Mrotiris longicarpes, Latr.
M. Iongicmpus (Latre.), De Mam, Brock's Crust. p. 3.58 (1888).
( = M. brevidactylus, Stm.).

Akyab, sereral specimens (Dey).
Distribution. Malay Archipelago, China, Australia and Tasmania, New Caledonia.

## Genus Metopograpsus, Minc-Edw.

151. Metopograpsus messone (Forsk.).
M. messor (Forsk.), De Man, Mergni Crust. p. 14t, pl. ix. fig. 11 (1858) ; id. Brock's Crust. p. Bol, taf. xr. fig. ( G (1858).
( = Pachyyr(qusws cethiopicus, IIilg.).

Tuticorin (Thuston). Very common at Rancswaram between tide-marks; common at Madras (.J. R. M.).

Distribution. From the Red sea, E. Africa, and Natal to the Pacifie (Samoa, Fijis, Sandwich Is., \&r.).

Genus Grapsus, Lam.
159. Grapsus strigosus (1Iembst).

Rameswaram and 'Tuticorin (Thurston). Abmont on thr harbour walls at Madras, and elsewhere on the Coromandel coast ( $J . R . I I$.).

Distribulion. From the Red Sea and E. Africa to the Pacifice as far as the eoast of Chili.
153. Grupses maculates (Catesby).

Tuticonin (Thinston).
Distritution. Atlantic Ragion (From Florida to the Cape of Good Mope). Throumbut the Indo-Pacific Region.

Gomus Phacish, Latr.
15\% Plagevid malacelata, Lam.

( $=I^{\prime}$. dequessi, Latho, bee Fabre).
Mithass, common, associated with Cisetisus strighoses (J. R. II.).
 Pacitic as far as the Sandwich Is and the W. cont of Central America.
(ienta Lemborntes. Miers.
155. Lemolopits plavisomes (1Lembet).

 (J. R. II.).

Dishthetion. Athantic Region (Florida, Wins Indies, Madeira, de.) ; Indo-lacifie Rewion, lrom the Mascarenes to Korea, hlu coasts of California, Chili, and Now Zamamd.
Genus Vinaci, Mihe-Edw.



 the backwater at Enuore (J. II. II.).

If there is no mistake in comection with the locality Sittoms, this sperems werne about one humderd mikes inland in the Sithome hiver, Burmah; it has previotsly bern pecorded from fresh water by Miers amd others.

Dishibution. Mamitims, Bay of Bensal, Malay Apehipelago, China, dapan, Nun ('alodmia, Juatialia, New Zeadand.

## Gemis Maraplax. Milne-Edr.

157. Mexaplax mistinctes, Mame- हdw.
 Mam, Murgui ('rust. p. 1ise, pit. x. fige. i-9 (18sis).

Enuore (J. II. II.).

This species is not meommon in the above locality, found ruming about in grass, and living in company with Melasestrma Rousseanaii. The spinules on the meropodites of the ambulatory legs vary in number in different specimens, and sometimes even on the two sides of the same specimen. In the Emore examples the ambulatory less are without hairs, whereas in those from Merewi examined by De Man they were hairy on the terminal joints.

The largest specimen las the carapace 11 mm . long and 1.5 mm. wide.
Distribution. Bombay (Milne-Edwards) ; Mergui (De Item).

## Gemus Sesarina, Say.

158. Sesindia tetrigoni (Fabre).
S. tetrayonm (Fabr.), A. Mihne-Edwards, Nouv. Arch. Mus. Hist. Nat. t. ix. 1. 30.t, pl. wvi. fig. 4 (1873).

Madras, very common on the lanks of the Coomm ; Emorw (J. If. II.).
The earapace is densely pubeseent, especially in front, and the hairs are arranged in tults; a single tooth is placed behind the antero-lateral angle. The upper marsin of the hand carries a narrow longitudinal ridge which is finely striated tremstersely, and the outer surface of the same joint is finely gramulated, with a short ill-detined line of gramules abont the middle of the surface; the dactylus is armed above with ten or eleven hornytipped tubereles.

An adnlt male has the earapace 36 mm . long and 40 mm . wide, the right hand and immobile finger 10 mm . long and 21 mm . in leight.

Distribetion. From the licd Sea, E. Africa, and Natal to China and the Pacitic (New Caledonit, Fijis, \&c.).

15!). Seshbad (quadrath (Falr.).
S. quatratum (Falm.), Micres, Phil. Trans. Roy. Soc. vol. clsviii. p. 190) (1879). ( $=$ s. affinis, De Itatan; S'. unguluta, Milne-Edw. ; S. uspert, Ineller).
Tuticorin (Thewton). Viry common at Madras and Emore (J. li. II.).
The Thticorin examples berone to the typieal form ; the earapace of a mate is 17.5 mm . long and 21 mm . widr, and there are eleven tubercles on the upere matrin of the immotsite finger. The Dithas and Emore examples belonse to the variety aspert of Heller, and the largest make that I have met witlo is only 1.58 mm . lomg and 195 mm . wide. On examining a large series of atult mates I find from thintern to eighteen tubereles on the immobile tinger; as arule cach tuberele is oval and semmetrical, but in whe or two specinums they arm ach slightly curved. S. Jhelissu, De Minn, founded on a single sperimen from Aterent, with the tubereles horsesthe shaped, mety therefore be only a variety of $s^{\prime}$. qumbleth. 'Tuits of hair are sometimes present on the prost frontal lobers.

Distribution. From E. Africa and Natal to Japan and the P'acifie (New Caledonia, Fijis).
(ienus Shamathar, Dama.
 fiщ. 17.)
 (186is).

Cochin, several specimens, collected by my fomer pupil A. G. Paul.
I at first folt disposed to refer these specimens to S. meneterterm (A. Mihne-Edw.), but Prol. A. Mihne-Edwards, to whom 1 sent an example, informed me that it did not belonge to that epecies, but was rather referable to s. indicem (A. Milnc-Edw.). Ther difier from the description and figures of the latter sereion in having the carapace strongly punctate and the inner sumfee of the hand with a well-matried tuberendar riden (chatacters which A. Aihe-Edwards assigned to S. phenctutum) : the ningers in the male have a much wider
 relatively broader, than reperented in Mihe-blwathes tigure. On the other hand, I hafe compared them with specimens in the British Museum from the helu-Milatan seas, refererd hy Miers to s. pencletem. and 1 find the following differences:-Ln Miers specimens the fingers in the make hate a much natrower gape, and there is a distant ridere or earina on the outer surfice of the immbile finger, ruming panallel to and mear the toothed edse, which is entirely absent from the Cochin specimens. In our specimens the immonite finger is more compressed, and there is a very prominent tooth on its imme marenin near the hase, white there are also prominent teeth near the apiers of both fingers at the posterior limit of the horny phate which is seen on eatch digit.

Neither S. punctutum nor the typieal form of S. indicum are yet known to ocene in India.

The carapate of a mate is $91 \because 3 \mathrm{~mm}$. lone and $2(6 \mathrm{~mm}$. hroad, the from is $11: 3 \mathrm{~mm}$.
 height ; the dactylus 145 mom. long.


## Gemus Mercsisuam, Mihe-Edwards.

161. Memasesamat Rotsxemuxif, Mihe-Edu.
 1. 15世, pl. \. fig. 1 (145 1).

Emmere, not meommon (. . /i. /t.).








162. Xenopiftialaus pinnotheroldes, White.
N. pimotheroilles, White, Amn. Mag. Nat. Hist. vol. xviii. p. 1is, pl. ii. tig. ? (1846); Adaus and White, 'Samarang' Crust. p. 63, pl. xii. fig. 3 (1818).

Rameswatam, four males, one female (Thurston).
The carapace of the largest male is 6 mm . long and 9 mm . broad.
Distritution. Philippines (IVhte); Mong Kong (Stimpson).
163. Sexopitilalmets obscuitus, n. sp. (Pl. XXXVI. figs. 1s, 19.)

Gulf of Martalman, a female (Outes).
The carapace is moderately conrex, ghabrous, and somewhat uneren, with a decided anterior declivity. The gistro-branchial grooves are rather deep, and faint sulci pass forwards from them; two slight epigastric swellings are present. The lateral margins are ill-defined anteriorly, while behind they are not represented by any distinct margin. The antero-lateral margin is a very slightly marked ridge, and below it on the petergostomial area two similar and almost parallel ridges are seen. The mid-branchial region is slighty better defined be the lateral margin, but the ridge here is not continuous with the antero-lateral ridge, and posteriorly it curves on to the surface of the earapace to form a prominent wrinkle, which extends to the posterior limit of the gastro-branchial groove. The eyes are placed somewhat obliquely, and are distinctly visible in the orbital fissures. The front whon viewed from above appears obtusely bilobed, but when riewed from before it is seen to have the sides parallel and the free end trumeated, with a median and two lateral slight projections.

In the single specimen-a fromale-the chelipedes are very minute and slender, being eren shorter than the last pair of legs: superior and inferior marginal ciliated lines are seen on the hand. The ambulatory legs are faintly pubeseent towards their apices, and the meropodites of the first three pairs are armed on the anterior and posterior margins with short envel spimes, which are best marked on the postorior margins. The abdominal semments are glabrous externally.

The carapace is 65 mm . long and 7 mm . wide; the first leg is 10 mm . long, the sceond $\operatorname{leg} 14 \mathrm{~mm}$., the third leg 17 mm ., the chelipede 7 mm ., and the last leg 10 mm .

I have compared the specimen with the types of $I^{\prime}$. pinnotheroites. In White's species the front is obtnsely romded and withont distal projections, the orbital fissmres are deeper and pass straight, not ohlifuely, back on the carapace ; thore is a gramar line on the postero-lateral mangin of the carapace, and a second line on the post-brachial region ; lastly, there is only a single obseure ridge on the perygostomial area.

Gemus Elameve, Milnc-Edw.
164. Eianeafe enguifohais, De Ham.
E. unguiformis, De Ilam, ('rust. Japon. p. \%̌, tab. xxiv. fig. 1 (1850).

Gulf of Martahan, an adult male (Outes).
Distribution. Jaן:
165. Elamexe thexchta, A. Milme-Whw.
E. trumeth, A. Milne-Edwards, Nour, Mrh. Ma. Mit. Nat. t. ix. p. 3:3; 14:3).

Silatatuai l'ar; five females with ora, one male (Theistom).
The above specimens seem to lo wereable to this species, with the short dweription of whieh they entirely agree. The front is romud and entire, with an interion remtical prolongation which partially spparates the antemmber. The carapace is bounded by a slightly taisod marginal line. The meral and wapal joints of the ambulatory lege wach teminate in an anterior distal spine. The last ablominal segment in the femath hats it free margin broully emarginate.


> Group, Ongramata.
> Gemus Condes, Fabr.
166. Cabaple hepatica (Limn.).


Rameswaram and Tuticorin (Thershon); Cerlon (Itely, Necill); Gulf of Martaban (Oules).

In yomm individuals the postern-latemal how of the carapace are not nearly so strongly dereloped is in abults, but the maryins are more strongly dentate.
 Natal to Chima, the Sandwich Is., and Now haaland.


 (Oules).

There is a momarkable diferener betworn the eres in this spereses and in the last ; in






In young individuals the anterion half of the carapae is provided with smonth romaded tubereles which are not som in the adulh. There is considerable variation in the size of the ermulated teeth on the posterion marem.and in very young specinems they are represented ber shder achte slighty curvel pimes.

Dishibution. Indian Ocean, Malay Archipelago, Japan.
169. Calappa pillargies (Limn.).
C. philargirs (Limn.), De Haan, Crust. Japon. p. II, tal), vix. fig. 1 (Ision).
( $=$ ('. cristuta, Fabr.).

Distribution. Indian Ocean, Malar Mrehipelago, China, Japan.

## Genus Matuta, Fabr.

170. Mututa victrix, Fabr.
M. rictrir (Fabre), Miers, Trams, Limn. Soc. ser. 2, Zool. vol. i. p. 243. pl. xxsix, fige, 1-8 (18:if).

Tuticorin (Thurstom); Cerlom (Intly, Serill); Sind, Ganjam, Akyab (Dty). Verev eommon at Madras ( $J . / R$. $H$.) .

Tistribution. From the Red Sea, E. Africa, and Natal to Tapan. Australia, and the Pacific (New Ildoriles, Fijis, \&c.).
171. MLituta lunaris (Herbst).
 M. Iunaris, Miers.

Ganjam ( Dry ) ; Madras, not uncommon (J. R. II.).
Distribution. Indian and Piaific Oceans; Cheloo (Miers).
17~. Matuth Mersif, Henderson.
17. Miersii, Henderson, Madras domm. Liter. \& Seience, session 188(i-8i, p. 66, ph. i. figs. I-4 (1887).

Tuticorin (Thurston); Ceylon (Itely, Nerill); Madras, not meommon (J. II. II.).
This species may be recognized by its colow markings and by the eharacters of the ridge on the onter surface of the hand, which in both sexes is composed of fire short finely granulated teeth, all more or less blunt, except the second, which is subacute; the surface below the ridge is also fincly granulated.

Since deseribing the specios, I have had the adrantage of exmining a large series of this genus in the British Musemm, and I am still of opinion that J. Jiersii is a good species. Its nearest ally is M. picta. Hess (Miers), but in this the thont is rounded or only very slightly emarginate, whereas in MF. Wiersie it is alway distinctly hilobed. In M. piela there is a well-marked tuberele on the lateral margin of the earapace behind the lateral spine, which is not sen in our species. The markings are somewhat similar in the two, but in $M$. piche there is a greater tendeney towards linear arrangement, and the spots are dark brown or almost blaek in colour ; while in M. Jiersii the macule consist of minute reddish or rust-coloured spots, which remain distinct and donot run into lines; inded, they show a mated tendeney to group themselves aromed arcular or oval areas of the carapace in which there are no spots. One snch oral or pear-shaped area is constantly present betwen the two anterior tabereles situated on the gastric area, and in frest specimens it is always lighter in colour than the rest of the campace. Lastly, M. picla reaches a consideralle size, whereas M. Miersii is one of the smaller species of
the semus. - Sacentinn frequently oremis on the ablumem. and I hase not motion this


 size is comsimmaly les.

Jistribution. South India and Crym.

Genus Letcosta. Fabr.
173. Lemomil chasiolaris (Limm).

 (Outes) : Madras (J. IR. IF.).

Histribution. Indian seas, Malay Mrehipelawo. China.
171. Latcosbl Whatmees, Miers.



Gulf of Alatablan, two mates (outes).
 placed immediately oree the base of the chelipede ( not mentioned by Miere thoush shomen
 excarated sumporty and tridentate, with the modian tooth very minute. The anterion


 tonards its inner and its outer marenin. The mate ablomen is constricted between the
 and on the former a distal median rider.

Ther calapare is 10.0 mm . lons and 10 mm . hrond.


Gemme Patmombabi, Miers.


 females with ora and two malles (thetes).

 still visible in the abore wamples, 1 add the followine brid aceount as a suphememt th the original deseription :-The front is dark hown, and a large incerularly cirentar brown

SECON゙リ $\triangle E I I E S$-ZOOLOGY, VOL. $\because$
ring is seen on the anterior part of each branchial region, the two being comnected posteriorly by a line which passes hack in the mictlle of the carapace as far as the hinder margin; the hepatie region has a bownish border. The merns, carpus, and propotus of the chelipedes hare each a proximal brown band, and the lingers are crossed by a similar band near their bases; the amblatory legs show bands of pale brown.

A female is 14.5 mm . long and 133 mm . wide; the right chelipede 24 mm . long.
Lencosie orbiculnis, Bell, ought, I think, to be placed in the gemus Philyre; it has the epistome much more prominent than the front, a character which distinguishes it at once from the present species. Pseudophilyre Perrgi, Miers, is distinguished from I'. Melite by having a ridge on the frontal part of the carapaee, passing back from the median frontal tooth. Lemosien pubesens, Miers, is, I think, correctly placed in the weans Lencoset, as it has a distinct thoracic simus; De Man suspects its identite with his Psectlophilyra Hoedlii. There is some confusion in regard to the genus Pemelophilyre, which undoubtedly comes rery near to Philyra and the two can seareely be separated; at the same time Psendophilyra may conreniently be retained for those species with the gencral faris's of Leucosin, hat with no thoratic sinus.

Dishibution. Mergui (De Mren).
176. Pseddopimlifit pesthat, n. sp. (Pl. XXXVII. figs. 13-1\%.)

Gulf of Martalam, fire females with ora, two males (Oules).
This species-one of the smallest of known Lencoside-has the carapace smooth, and excavated antero-laterally, with a rery slight hepatic swelling. The front is staight, execpt for the presence of a small obtuse median tooth, from which a faint carina rums batk in the middle line of the anterior third of the earapace; the internal orbital angle is but little prominent. A fincly gramulated marginal tine is seen bondering the carapace laterally and posteriorly. The epistome is very short and is corered by the front. The exognath of the extermal maxillipedes has its outer margin rery slighty curved.

The chelipedes are moderately long in the male, but much shorter in the female. The merns is provided with small romded tubereles on its proximal two thirds, which are arranged in rows and hest sren on the inner surlace ; the earpus and propodus are smooth with the exepption of a series of minute gramules on the imer surface of the hand. $A$ small articular tubercle is seen on both the inner and outer margins of the propolus at the carpal articulation.

The fingers are faintly sulcate cxtermally, and separated by a slight basal hiatus in both sexes, which occupies slightly more than half the interval; they are leebly toothed in the male, but without teeth in the female. The ambulatory legs are smonth. The male abromen gradually tapers to the apex and is smooth extemally, with the lateral marems of the basal seegments slighty wary or irregular in outline; the female ablomen is smooth and very convex.

The front is dark hrown in colom, and a short distance behind on the surface of the earapace, but sepatated by an uncoloured band, is aniregular semilunar mationeach homehial region, with the convexity of the curve outwards, and a lew small spots are seen towards the middle of the cartpace. Some transverse markings ocenr on the ehelipedes at the
middle and distal end of the merus, and about the middle of the hath. The lag are mencoloured.

The largest male is 6 mm . long and in mon. hoad, with the eholipede 10 mm . lonc: the lareses femate is 58 mm . long and 5 mm , herod, the chelipede 8.5 mm . loms.

The species is distinguisher at once by its amell size, and there can be no doubt that the Martabane examples are adult. The nearest ally appears to be P. Meidentute. Dieme from dapan, in which, however, in addition to the ditterence in size, the median frontal projection is much more prominent, and the enapace is punctulated.

## Gemus P'mbithe Leach.

## 177. Phembid scabricscula (Fibr.).


 on the $s$. Indian coast enemerally (.J. $/ i$. / / . $)$.

There is comsderable rariation as regards the amome of tubereulation on the carapres: very commonly there is a smooth rounded area on the cardiate rerion, and amonth longitudinal area on each branchial rewion. On the post-gastric resion the tubereles may be abont, but they are usually present in this locality, and some of them may be latger than those met with elsewhere. In youns -peeimens the fingers are armed with more prominent teeth towards the apiees tham in aduts, and are also slighty setose.

Distribution. E. Africa, Indiam Seas, Malay Arehipelago.

Madras, an adult male (J. IR. $M$.).
This perciers is so elosely allied to $I^{\prime}$. serobtuinsenter that only the points of differener between the two need be pointed ont. Tha earabace is more comex, with derpur
 mifomly covered with smooth, rommed tubureles, one of which in the centre of the post-gantrie area is larger than the others. The tubureles on the anterion half of the Carabace are smather than those on the pooterior half. The external orbital angle is scarcely mpresented, while in $P$. sethrinsenten it in prominent, and the front is matrow between the eyes in our species. The small home lobe seen on the hepatie area in $P$.



 of the radomath, and its outer matwin is drongly embex, ditinctly indmang the lateral mangin of the carapace ; in the longer kown sueces the exwnath is decided! less comsex.



small tubereles along the margins of the sterual segments. The basal abdominal segment is narower and more $\perp$-shaped in the new species. The colour is brownish, whereas in $P$. scetbriuscula it is usually grey.

The cararace is 87 mm . long and 10 mm . broad, the merus of the chelipedes 7.5 mm . long by 3 mm . in width, the propodus 7 mm . long and 2.8 mm . wide.

I have examined several handred specimens of $P$. scubrinsontw from different localities, inchuding Madras where the new species was taken, and hare nerer seen a specimen approaching the form just deseribed; 1 may add that 1 have nerer seen a specimen of $P$ scabriusculu, variable as that species is in regard to tuberenkation, with the anterior half of the carapace wiformly covered with tubercles or granules.

## 17!). Pimbita Adamsif, Bell.

P. Atlemsii, Bell, Trans, Limu. Soc. vol. xxi. p. 301, tab. xxxiii. fig. I (1555).

Rameswaran and Silavaturai Par, several specimens (Thurston); (iulf of Martaban, a female (Octes).

I have compared these with the type in the British Musemm. The grooves separating the branchial from the eardiac and intestinal regions of the carapace are deeper than usual, and the regions which they define are in consequence apparently swollen. The carapace in its posterior two thirds, especially on the more elevated parts, and towards the lateral and posterior margins, is covered with small rounded granules. The whole front, as in most species of the genus (but not as in P. scoluriusculn and $P$. cerrucosth), projects in adrance of the eyes, and is scarcely shorter than the epistome; the median frontal projection is distinctly visible when the carapace is virwed from above. The external maxillipedes are much less dilated than in $P$. sectorinscutw, and the exognath is gramulated. 'The granutes on the merus of the chelipedes are more numerous, but not so large as in $I^{\prime}$. sectbrinscute; both the imer and outer surfaces of the hand are granulated, and ther is a distinct line of grantes towards the upure limit of the imner surface. In the adult mate there are two distinct gramules on the wper surface of the palm, opposite the hase of the immobile finger.

|  | Adult $\delta$ millim. | Alult of (withora). milim. |
| :---: | :---: | :---: |
| Lemeth of carapace | 9 | - |
| Breauth | 10 | $\because$ |
| Lengeth of right cheliperke | $\therefore 3$ | 11 |

Distribution. Borneo (Brit. Ifus.).
180. Phelyed flatichemid, De Haan.

Silaraturai Pars, there males and three females with ora (Thurstow).
 fringe of hairs, both shown in De Ham's digure and mentioned in his dexeription, by means of which the species is easily recognized.

Mistribulion. Japan (De Ifrun); ILong Kons. (Stimpson); Philiprime (Beh); Mrrgui ( 1 M, Jrin) .

1s1. Palliti fabobost (Fahe.).

Rammanam and Tuticorin (Thers/on). Common at Madms and on the South Imdian const grommall! (.J. IR II.).

Disldiluthon. Indian Seas.

Madals, a suries, not uncommon (.J. IR. IF.).







The hame ame carpus of the cheliperlon are -month, whereas in $P^{\prime}$. globoser they ane










 is mery amhty houder than long.






 hamdwritime.



 live abown gromad.

## Genus Myri, Leach.

183. MyRa flgax (Falbr.).
M. fuga, (Fabre), Bell, Trams. Limi. Soc. vol. xxi, p. P9( (185.i).

Rameswaram (Therston, J. R. II.) ; Ceylon (Uuly) ; Gulf of Martaban (Outes).
In most of the specimens I have examined there is a distinct median row of grambes on the carapace.

Distribution. Mascarenes, Malay Archipelago, China, Japan.
184. Myra australis, Maswell.
M. unstrulis, Haswell, Catal. Anstral. Crust. p. 122 (188:') ; Miers, 'Challenger' Brachyura, 1. 315 (1886).

Gulf of Martiban, four males (Oates).
These agree on the whole with the description, and with specimens in the British Museum from Australia. The granules on the carapace we most strongly marked along the median line, so as to give rise to a semicarinated appearance; as noted by Haswell, the intestinal region is capped be a cluster of gramules, one of which is more prominent than the rest. I do not think it can be the young of $\mathcal{I N}_{\text {. }}$. memillaris, Bell, as snggested by Miers, for the hepatie regions are quite ditferent in the two forms.

Dishibution. N. Australia (Huswell, Miers). Singaljore (IValker).

## Genus Ebilla, Leach.

1S5. Ebalia Pfefferi, De Mam.
E. Pfefferi, De Man, Brock's Crust. p. 390, taf. xrii. fig. 4 (1888).

Muttuwartu Par, a lemale with ora (Thurston).
The surface is everywhere finely gromulated, and the carapace rises immediately behind the front to form a convex swelling, the smaller elerations on which are less distinct in my specimen than indicated in De Man's figure, or seen in a specimen from Mauritins in the British Mnseum. The fingers are slightly shothe than the palm. The abdomen is eovered externally with smooth romded granules. This species comes very near and is perlaps not distinct from Lbalia (Alucia) speciose, Dima, from the Sandwieh Islands.

The carapace is 11 mm . kmg and 12 mm . wide.
Dishribution. Amboina (De Jten); Mauritins (Brit. Alus.).
186. Ebilit Fhlaix, n. sp. (Pl. NXXYIll. figs. 1-6.)

Muttuwartu P'ur, a female (Thenrston); Gulf of Martaban, a malle (thetes).
The carapace is very consex, with the hepatie areas deeply exceatrated, and the surface everywhere covered with eireular flat-topped polished tuberehes of varying size, which are closely crowded in most phaces, but in the hepatic hollows are few and small. On either side of the canapace, bounding the hepatie hollow, is a monded gramated swelling ; the remainder of the lateral mangin is simply rounded, and withont teeth or
projections of any kind. On the most clasted part of the campace, i. $e$. the posterasiric
 directly in front of the two posterior, which are wightly smaller. On the eardiar anea there is a single median swelling, whieh is smaller than those in frent of it. On the intestinal region are two slyhty makm median elorations, and a smilar slight eleration is serm on eitlaer side of the shom posterion margin of the caraprece. The fromt is narow, and there is a deep concavity betwen the two rather prominent imer orbital angles. Tha whote under surface of the bedye inchuding the abdomen and extmond maxillipernes, is corered with flattened tuburelos.

In the male the chelipedes are moderately lone; ther have bern lost in the femalo specimen. The arm is subeylindrieal, and corered on all sides with flattened tubereles; the carpus and hand are finely grambated. The fingers are about one and a hatf timm the lensth of the palm (measured along the lower margin) ; they are compreseed and carry tincly granulated earina on both swfaces. The ambulatory loess at first sight appear smouth in both sexes, but cxamination with a lons shows that they are minutely grambated. The mate abdomm gradually tapos to its apex, and has a prominent recured gramular tooth on the penultimate semment; in the same position on the femald abdomen there is a rounded swelling.

The Muthwatu example has the cantrace 14 mm . long and 19 mm . wide. The Nartaban example is 10 mm . long amb 10.2 mm . wide; the right chelipede is 1 tmm . longe, and the hand A mm.

The dat-toped tubereles which chamenorize this species probable wive it a protectire


 lonere and more stomer than is natal in the gemme; in this resper they bear a slight mesmblanes to those of Aecmier.

> Gomms hicasu, ,ameh.

## 187. Abcanch siptemapinota (Fibr.).

If,his. seqtems,

(inlf uf Martahan (Outes) ; Madras (.J. M. M.).
One of the Matatam epecimens belones to what is at least a distinct radide, but an
 of the typical form at the same stabe of erowth in having a welldetined suble on the campace, sparating the lomelial rewions from each side of the intestinal, camdian, amb
 regions. The front is natrower and more prominent than in the tepal form. The
 White the chelipedes and hers are mope tember than menah, experially the finsers. The mate adolomen tapers grantatly to ite and. There are specimens of this variety in the

British Musemm from China ; it is perhaps a distinet species, but at any rate may be termed provisionally A. sephemspinost, van: grucilis.

Distribution. Indian Scas, Malay Archipeligo, China.
188. Arcanta undectmprivos, De Ilam.
 p. $5-8$ (1881).

$$
\text { ( }=\text { A. grumulosu, Miers). }
$$

Gulf of Martaban (Octes).
The single specimen, a male, 9 mm . long and 95 mm . wide, is identical with specimens in the British Musemm from Moreton Bay, Australia.

Mistritution. Japan (7e Inwen) ; Moreton Bay; Seychelles (Miers).

## Cicmus Nursia, Leach.

189. Nutesia plicata (Incmat).

Gulf of Martaban, an alult female overgrown with Ilombenipore Sencertii, Aud. (Outes) ; Tameswaram (.J. R. II.).

Distribution. Indian Oeean, Małay Arehipelago, China, Iustralia (:).
190. Nuresta abbreviats, Bell.
N. ubloreriuta, Bell, Trians. Limm. Soc. vol. axi. p. 30s, tab. xxxiv. lis. if (180.0).

Silavaturai Par (Thurston); Rameswarm (J. R. II.) ; Gulf of Martaban (Otes).
The campace is slighty namower and the chelipedes longer in the mate; the ridges on the carapate are also more elerated in this sex. The largest male is 9.5 mm. loug and 10 mm . wide.
1)istribution. Indian Ocean (Bell) ; Moreton Bay, Australia (Jficrs).

Gemus Doripre, Fabr.
191. Dorippe dorsiples (Limu.).
D. dorsipes (Lim.), Mliers, 'Alert' Crust. p. 257 (1881), ubi synou.
( = D. quedrillens, Fabre).

Rameswaram and Silaraturai Par (Thurston); Cerlon (ILety); Madras, not uncommon (J. R. II.).

This species reaches a lamer size than $D$. facchino. 'The upper surface of the earapace is ronglaned; the eyr-stalks are rather long. I have never met with an individual protected hy a shell.

Distritution. Red sca, E. Africa, Indian Occau, Malay Arehipelago, China, Japan, Anstralia.
192. Dorifpe eacchivo (Herbat).


$$
(=1) \text {. vimu, Milnc-EAn.) }
$$

 S. Imdian const gencrally (.J. R. $/ 7$. )

The mpere surface of the carapare is unally -mooth, and individual are oftom mon
 Actinial is attarhed. The ere-stalk and shent. I Lepmes frequently Pound attached w the legs, and measiomally a Buthomes on the moler vurace of the abdomen.

Disbitmeliou. From Indial to China amd bapam.
193. Dontrpa moted, Falm.

Madras, sermal specimens (J. IR. /I.).
The carapace is harow and remarkahly fatemed, with the rewions well mapped mat. The lews are lome and slander, and the rieht elmelizede in the make has the hand swollem.

|  | finult $\delta$. millim. | Adult $\begin{gathered}\text { f (with ova). }\end{gathered}$ millint. |
| :---: | :---: | :---: |
| Lemoth of catapace | 11 | 1:3 |
| Brealth , | 1:3 | 1! |
| Lenuth of secont ambulatory lix. | 34 | 10 |




191. Cmopolis Iftest White.



I have compated these end found then identical with Whiters tye in the britivh




$$
\begin{aligned}
& \text { submedm .NOMIIRR. }
\end{aligned}
$$







The fargest specimen, at female, is covered by a sponge; its carapace is 195 mm . long and 19 mm . in brealth.

Distribution. Red sea (hïpell); Mozambique (Ititgentoif); Morgui (De Men).
196. Dromhma atothabrasis (Haswell).
D. anstreliensis (Hawell), De Man, Brock's Crust. p. 396, Taf. arii. tig. (6 (1888).

Silavaturai Par, three matus (Thurston).
These ecrtanly belon to the speeies as figured and deseribed by De Man. One specimen is covered by a ponget the largest is only 9 mm . long.

Distribntion. E. Anstrelian (IUsuell); Amboina (De ILun).

Gebus Criptodronifa, Stimpson.
197. Cryptodromin pertagonalis, Milgendorf.
C. pentayonalis, Hilwendorf, Monatsb. Ak. Wissensch. Berlin, p. Sll, Taf. ii. figs. 1, 2 (18:8).

Muttuwartu Par, four specimens (one covered by a sponge); Silavaturai Par, two specimens (Thurston).

I refer these with some uncertainty to this species, as the antero-lateral margin of the carapace is scarcely $:-$ long as represented by IIilgendorf; otherwise they agree well with it, and are identical with speeimens from Mauritins named $C$. pentegonalis in the British Museum. The Silavaturai examples have a rudimentary tooth or almost an indentation on the laterat margin of the carapace, between the antero-lateral angle and the tooth which marks the cervial groore. A trace of this may also be seen in the Muttuwartu examples, but it is not represented by IVilgendorf. A more prominent tooth is secm in the same position in C'. tomentoste, Heller ( $=$ C. comuliculctr, Stm., fide De Man), and as the latter suecies otherwise resembles $C$. pentugonutis promaps the two are not distinct.

Distritution. Iho, E. Africa (Ifilyemtorf); Mauritius (Brit. Mus.).

Gehus Dromia, Fabr.
19s. Dromin Litapili, Eabr.
D. Rumphii (Fabr.), De 1lian, ('rust. Japon. p. 10f, tab. xxsii. (1850).

Ceyton (IIcly).
Distribution. Red sam, E. Atrica, Mamitius, Malay Archipelago, Japan.

## Gimus Paeddonrovia, Stimpson.

199. Pabloobromid integrifleass, Menderson. (Pl. XXXVIII. figs. 7-9.)
$P$. integrifirons, Mendersom, 'Challenger' $\operatorname{Inomura,~p.~16,~footnote~(1888).~}$
Tuticorin, two femates with ora (Thursfon).
The carapace is smooth and polished, rery sparingly pubesent, and regularly couvex, both from side to side and from end to end. The surface is a little uneven, and the branchio-cardiac and cervical grooves arr well marked, the latter indenting the lateral
margin of the campaer behind its mildus. The firms is entire and subacate, without
 chamedred or hollowed out, but emtinmon with that of the catapuere. The enturg-





 lower orhital margin is formod simply the antemal peduncle. The potrum whan

 rery close 10 it.



 at the outer dival end of the catrous. 'low dumented las pair of lay have the eapmat

 spimules. 'Ther ablominal segments in the fermate are smooth, with a browd rounded


 saddlo-shaljed tubercle.

Tha later secimen is withont whlipedre amd has the carajure $1!9 \mathrm{~mm}$. Ions, and 1.5 mm. broad immediately in fromt of the exveral growe the distance between the


 1) mant. lons.


 whereas in stimpon's species as is anal in the wroup, the postrum in tridentate.

Gentes Coschaserns. simpon.
200. Conchachets Amtiflchose (Pabr.).




Mardias, not uncommon (.J. Ii. II.).

The whole surface of the body and limbs is corered with a short dense pubescence. The carapace is flattened, and smooth under the pubescence, except towards the lateral margins where a few granules oceur ; the whole under surface is finely gramulated. The amount of gramulation on the palm of the chelipedes varies in different individuals ; the graunles are polished and are sometimes arranged in lines. The fingers and the graunles on the palm are crimson, a character mentioned by Haswell. The sternal sulci of the female end in tubereles opposite the bases of the first pair of ambulatory legs. In Herbst's figure the lateral teeth of the carapace are exaggerated in size.

In the British Musemm there are specimens from Moreton Bay, Australia, labelled Conchocetes ronchifere, Haswell, which are not specifieally distinct from those deseribed above, and my examples also agree eompletely with Haswell's description and figure; so his species must therefore, I think, be united with C. artificiosus.

The largest male is $2: 3 \mathrm{~mm}$. long and 24 imm . broad ; the right chelipede is 35 mm . long.
Distribution. China (Stimpson); N.E. Australia (IInstcell, Brit. Jhus); Singapore (Walker).

## Group Ravinidea.

Genus Raninoldes, Milne-Edw.
201. Raninolues serbatiflions, n. sp. (Pl. XXXVITI. figs. 10-12.)

Cheval Par, a female (Thurstou).
The carapace is minutely granulated in front, especially along a line connecting the two lateral spines of the carapace and in the space between this line and the frontal margin. Fainter srannations are also seen towards the sides of the carapace, but they disappear entirely about hall-way back; the remainder of the upper surface is smooth and glabrous. The median trontal projection is broad and its apex oltnse, hat searcely rounded, whike the margins are armed with small spinose teeth; the rest of the frontal margin or uper orbital marsin is tinely serrated and presents two subequal fissures, the lobe between which is datwn out into a short spine or tooth. The outer fissure is bounded extermally by the prominent antero-lateral spine. On the upper surface of the rostrum and in the middle line a slight carina rums from the apex as far back as the gramulated transverse line comecting the two lateral spines. A single lateral spine oceus on each side of the carapace, a short distance behind the antero-lateral spine, and it is slightly smaller than the latter. The basal joint of the antemal peduncle, which forms the lower houndary of the orbit, is finely spinulose.

The chelipedes have the ischimm marmed and the merns dilated externally at its base; the carpus is finely grambated above, and has a short spine at the distal end of the uper and inner margins. The hand is fincly gramated, and the lower marnin carres there spines, of which the first or proximal is small and the other wo larger and subequal; on the upper surface are two fine suhparallel ridges, separated by a narow interal. The fingers are slender, curved, and compressed ; the immohild one with fivedenticles on its imer margin. The external maxillipedes have the merus laintly gramular, and the ischium is about one thired of its length longer than the merus, and ahost smooth.

The pterygostomial regions are fantly entantated. The ternal region reamble that of R. presombtus, but is narower between tha seomed pair of legs.

The total kenetlo of the bedy, with the abomen extended, is 30 mm .; the carapace is 14 min. kong and 7.3 mm . wide.
 'Penguin' On Lotothmia Bank, N.W. Lustralia, at aldepth of :39 fathoms. It also is a female, but considerably larger than the Cerfon exampe, haring a total length of 31 mm ,
 Henderson, from Amboina, but the two are reatily distimgushed. In fi. personetes, the carapace is scarcely grmulated erom in formt, the rostrum is antire, and there is no pine on tooth between the fissures ; on the chelipedes there is a spine at the inferior distat end of the ischium, two spines on the upper diatal end of the earpus, and one on the propodus over the base of the mobite finser ; the immobite finger also is much broader than in the new speries. R. lereis, Latr., is amuch harer speries, with rery deep frontaliseures. and the latemal spine larger than the antero-lateral, besides of her points of diference.

## (iromp Hipplies. <br> Gemus llipra, Fabre.

OO2. Hiples astaptca, Milue-Edw.

Ramombatum (Thurston). Ahmedant at Madras and on the S. Indian coast gencrally, burowing in sum at low water (J. IR. II.).
mistribution. Indian seas, Ceylon, Malay Mrehiperlago.

> (imme Ibrivel, Fabs.

20:3. Ahal Nea mimiteta (Limio).

Lameswaman (Therstom). Common on the s. Indian coas in samd at low water; less common at Madras than Hipe"e asielioen (.I. li. II.).

Distribution. Mascamenes, Indian sicas, Maday Mrehipulago.

Cheral liar, five specimens (Thess/om).
 making it which are sern in the other spece of the eremus. The surtace is dieht? pmbexcent between the frontal mangin and lan most anterior line on the eatapace. The median fromal spine is acute, and dow not wated at lar as the apiees of the submedian spines whith bound the central comantity in which the median pine is placed. On either side of the central concavity are right or nime spimules ; the first or sulmedian is of moderate size, the second to filth inclusive are smatl, the sisth to eighth are larger
even than the first, and the ninth is small or even absent. The sccond, third, and fourth spinules are rudimentary or even absent in some specimens. The antero-lateral or subhepatic spine is prominent (much more so than in $A$. microps). The eye-peduncles are narow and elongated, the length exceeding twiee the breadth at the base; the breadth is slightly greater at the middle than at the base, the outer margin is comvex, and the apex is pointed. The cormsil is minute and not placed on any special tobe.

The chelipedes and legs resemble those of the other species of the wenus. Theouter surtace of the hand has comparaively few short pubescent ridges or lines. the longest being one which rums obliquely acrose nearly two thirds of the outer surface and ends on the immobile tinger. The telson is orate in outline, with the outer margin rewularly arcuate and the apex subobtuse; the upper surface is non-pubescent, and has thre faint carinæ eonfined to its middle portion, i.e not running from end to end.

The largest specimen, a male, is $11: 5$ mm. long when the abdomen is extended, and the carapace is 75 mm . in lreadth at the front.

This species is most nearly allied to $A$. microps, Miers (Soolon Sca and Celebes Sea), in which species, howerer, the ere-pedumeles are shorter and broader, with the cornea on a small constricted lobe; the telson is not regularly arcuate externally, and its uper surface is pubeseent. A.speciosu, Dana. from the Sandwieh Islands, has the eye-peduncles slender. but their outer margins concare. The eye-stalks of our species resemble most those of d. Gibbesiz, Stm., a rery distinct species from the south-east coast of the United States.

1 have pleasme in maming this interesting species alter my friond Mr. Thurston, of the Madras Museum, by whom it was discovered.

## Group Paguridea.

Gemus Covobita, Latr.

## 205. Cenobita rugosa, Milne-Edw.

C. rmfosa (Milue-Edw.), Heuderson, 'Challenger' Anomma, p. 51 (1888), ubi symm.

Rameswaram, Tuticorin, ind Silavaturai Par (Thurston). Common on the S. Iudian coast (J. IR. II.).

Distribution. From the Red Sca, E. Africa, and Natal to Japan, Australia, and the Pacific.
206. Canobita compressa, Milno-Edw.
C. compressa (Milnc-Elw.), Ortmam, Zoolog. Jahrbücher, Bd. (6, Ahtli. f. Syst, p. 318, Thaf. xii. fig. 33 (1892), ubi synom.

$$
\text { ( }=\text { C. . riolascens, IIeller). }
$$

Not uncommon in the back waters along the Madras coast (J. R. II.).
Distribution. E. Alrica (Hilyeutorf; Ho(fiman); Ceylon (Ortmamu); Nicobars (ILeller) ; Mergui (De Mum) ; Malay Archipelago (Miers, De Mun); Japan (De Houiz).

Gemur Diogenes, Dama.


 and showing the probable interprotation of exth, or the name whel the peres now bears.

Limmans, lia
Syst. Nat. tom. i. pars 2.
Fabricits, 1~ォ. $\qquad$ Syst. Ent.
Pabricius, $178 \%$
Mantissat hasert. $t$ om. i.

Herlat, 12:91
Naturger. Krabben u. Krebse, Bd. ii. Helt 1 .

|  | (iencer miles | D. wiles (11mbet). |
| :---: | :---: | :---: |
| Fabricius, 1:! ! ; Ent. Sint. tom. ii. |  | Surcie unterosmizable. |
|  |  |  |
|  | P'ryır'Ms miles | 1). miles (1Herbst). |
|  |  | (Both the ahove areropiod tion the ' Mantinas Insectorman.) |
| $\begin{aligned} & \text { Fabmime, Ia!s } \\ & \text { suppl. But. Sy, } \end{aligned}$ | Peeyurios Dingrues | Species mareugnizalste. |
|  |  |  |
|  | Prefuros miles | Probably D. Diagromes Herht). |
|  | Pugurus rustos | Probably D. restos (Vabr.), Mihur-bdw. |
|  | Prefurics /liup/raths | D. miles 11 erbet). |

The firs writer to defmitely ehanactrize:my of the speces is Iterbs, and on Tat. xaii. of his work he gives elear and umistakalole fisures of two of the eommoner forms, which
 (Herbst). Theshort diagnoses of Fabricius, publiched four rears carlior in the dantissat Insectormm, were probably intendal to chatacterize the ame species, and in the ease of




[^2]miles is now termed Paympus diophanus, and what is probably the C'meer Diogenes of Herbst is termed Pagurus miles. A new species, Pagurus custos, appears in this work for the first time, and there can be little dount that it represents the rery common Indian species which Milne-Edwards and others identified from Fabricius's short diagnosis. De Man, in his Report on the Mergui Crustacea, has relemed to the Pugures miles of Fabricius the species which I follow Milne-Edwards in regarding as $P$. custos, Fabr.; this determination was based on an examination of the type of the limmer, which is unfortunately in a fragmentary state and some of the most important parts are missing, lout I imagine there has been some mistake in connexion with the labelling of the speeimen, for it does not agree with Lalbicius's later diagnosis ol $P$. miles. An examination of types is not likely to be of much service in this case, for it appears almost certain that Fabricius deseribed two distinct species under the name of $P$. miles.

The species described by Milue-Edwards in the 'Histoire Naturelle des Crustacés' as $P$. miles, $P$. custos, and $P$. thaphenns are, in my opinion, identical with those so named by Fabricins in the 'Supplementum Entomologiee Systematicar.' and, as I have pointed out, Herbst's earlier nimes must be adopted in the case of two of these.

## 207. Diogenen Diogexes (1Lerbst).

Cancer Diogenes, Herbst, Naturges. Krabben u. Krebse, Bd. ii. Heft 1, 1. 17, Taf. xxii. fig. 5 (1791).
Pugurns miles, Fabriciu, Suppi. Ent. Sỵt. p. 412 (1798) ; Milnc-Edwark, Hint. Nat. Crust. t. ii. p. 23.5 (1830).

Diogenes miles. Dana, Crunt. U.s. Explor. Exped. pt. i. p. 439, pl. xsvii. fig.. 9 (145:) ; nee D. miles, De Man.

Rameswaram and Tuticorin (Thurston). Common at Madmas and on the S. Iudian coast gencrally (J. $R$. Il.).

The ophthalmic process is narrow and elongate, exceeding the ophthatmic scales by almost half its leugth, and the distal half is armed with well-dereloped lateral spinules. The eye-stalks are slender and faintly curved, slightly exceeding the penultimate joint of the antennal peduncle; the outer border of the ophthalmic seales is straight for the greater part of its course, and armed with minute spinules which increase in size towards the apex of each scale. The intemal peluncle is elongated; the antemalacicle is bifurcate and minutely spinose, with the outer process considerably longer than the inner, and extending almost to the distal end of the penultimate pedumeular joint; the flagellum is rather long and sparingly pubeseent. The antennular peduncle is elongated, exceedines the antennal peduncle by almost half the length of its terminal joint.

The hand of the left chelipede is armed externally and on its upper and lower margins with strong, blunt, pointed spines, which are, however, deficient on an oblique area extending from the carpo-propodal articulation to the base of the immobile finger ; the dactylus is armed with two rows of similar spines-one on the upper borter and the other on the outer surface. The ambulatory legs are strongly pubescent, more especially their dactyl, and the anterior surface of the three terminal joints is armed with short hormtipped spiunles, whieh are armaged in three rows on the propodus.

The total length of the body in a full-grown adult is about 60 mm .
Distribution. Indian sias (Eabricius, Milne-Eduards, L.E.); Madhas and Nicobars

 perhaps referable to some other lioyenes*.


Muttuwartu Par, an adult male (Thurs/on); not uneommon at Mardras (J. R. IF.).
This sumedes has been so fully deseribed by be Wan that only the more important
 need be pointed ont. The ophthatmic presese is namow and slender, but not twiee the length of the ophthalmie seales; it ents in a pointed pine and is sparingly provided with lateral spimes, which ajpear to arise form the doreal surfue. The eye-stalks, antemal and amtemman jedunches, are romparitim? shmen than those of $I$. Biogenes. The ophthalmie seales are somewhat harrow, with the marginal pimules bather frominent
 the distal end of the pemultimate pedmentar joint, while the inner proerss searedy extends so far' ; beth processes are sparingly spime on the inmer marein. The antemular pedumele weede that of the antema only he about one-fourth of its lat joint

The cheliperdes and ambulatory leas are eovered with short hairs on sete, which in mont phares radiate from tuberedes. The hand wif the left chelipede is short and hroad, and the outrr surfare is corered with subacute wotigerons tubercles, which are somewhat defieient on the immobite fingers. The upper marein of the whole ehelipedre is distinetty spinose. The anterior margin of the amblatary legs is also spinose the spine beding most stronsty deredoged on the carpi ; the dateti are shorter and less stronely enered than those of $l$ ). Diogenes, with the postorion surface hollowed ont from side th side, and the spimules of the anterior marein atmost disolate.

 a tembener to matorerated spimulation.

 bettur $10 /$. Miogrmes.

Jistribution. Mergia (De Iran).
20\%. Diogexes mides (JCerbst).

 t. ii. .1. :3:30 (1430).

This yoeries lives invariably in shells with a narow aperture, and its mathor pernli-



SECUND SERRES-ZUOLOGY, VUL. V.
body is remarkably flattened, and the hand of the left chelipede is bent almost at a right angle to the rest of the limb; the left carpus is produced into a strong blunt lobe on the inner margin. The ophthathic process is narrow and exceeds the ophthalmic scates by nearly half its lengeth; the distal two thirds are laterally spimulose. The ophthalmic seales are very slightly arcuate externally, and spinnlose, the largest spinule being situated at the apex. The antemmar peduncles are short, the eres reaching ahost to the middle of the last pedunenlar joint The antemal aciele reaches the distal end of the penultimate peducular joint; it is very slighty produced internalle, but not bifurcate, and the imer margin is spimnose. The eves slightly exced the end of the antennal aciele on each side. The antennal flageilum is short and fringed with long hairs.

The hand of the left chelipede is almost smooth externally, lat granulated on the upper and lower margins; the upper margin of the mobile finger is serrate. The ambulatory dactyli are faintly serrate along the anterior margin and are very long, being exactly twice the length of the propodi when both are measured along the anterior margin.

It attains a somewhat smaller size than the last species.
Distrilution. Tndian Seas (Herlst, Fubricius, Miers); Ceylon (Miers).

## 10. Diogenes cestos (Fabr.).

Pagners custos, Fabricins, Suppl. Ent. Syst. p. 41 ? (1798) ; Milnc-Edwards, Ifist. Nat. Crust. t. ii. p. 236 (1837) ; nee Diogenes custos, Dana.

Diogenes miles, De Man, Mcrgui Crust. p. 239, pl. xv. figs. 7-9 (1888).
Rameswaran (Thurston). Abundant on the S. Indian coast; at Madras it is the commonest species of the gemus ( $J . R . I I$. ).

The ophthalmic proces is namow and elongated, exceding the ophthamic scales be half its length, and the distal flree-fouths are armed with lateral spinules which increase in size towards the apex. The ere-stalks seareely exceed the pemultimate joint of the antennal peduncle; the ophthatmic scales are subtriangular, with the outer border spinulose and the largest spimble situated at the apex. The antennal aciele is spinulose and bifurcated, the imer process scarecly reaching the middle of the penultimate pedmeular joint, while the outer frocess extends quite to the end of this joint; the antennal flasellum is morlerately long and fringed with long hairs. The antemmular peduncle scurcely exceeds the antennal prodmele.

The hand of the left chelipede is granulated externally, the oprames being often less strongly marked in adults on a rireular area at the lowe proximat suftee. The lower margin of the hand is somewhat flattened proximally, and watafly this part is strongly gramulated, while the upper margin is dentate; the daetylus is grambated externally, but dentate abore, and both fingers are provided with bundles of setar on their imer mageins. The left merus is broad, and the antero-external margin (at the carpal articulat tion) is armed with a sow of short spimules; the left carpus is convex externally and strongly gramuated. The ambulatory legs are pubeseont, more especially the dir dactyp; the anterior surface of the meri and earpi is armed with slort stout spines; the propodi are gramuated extermally, and their anterior mangin, as well as that of the dactyli, is armed with short sulspinose tubercles.

The total lengeth of an adult is alout 5.5 mm .
There is comsiderable variation in this species as rematd the amount of grambation on the larger chela; indeed, I hare met with a fen yecemens in which the gramben are
 prominent in some individuals tham in ofthe, hat are newer absent; the finm of the hand also varies slighty. I met with a specimen in whelh the left chela had the chataders
 a reversion to the primitive state of egual and smimer chelipedes. De Man has recently deseribed an allied species 1 . intermolios, fionn Cebebes (Max Weber's Cust, p. :3.2),

 peduncular joint, and bey the witnules on the outer surface of the larere chela beine les mumerous. but shap and subspinifom.





Madras, dight apecmens; not rommon (./. li. Il.).


 but the terminal mes well dereloged amed in line with the spinules of the scales. The erestalks, antemal and antennalar pedumbles, are retatively shorter and atomter than in








 lamath。










Madras examples. The D. custos of Stimpson, Hess, and Orimam, from New South Wales and Queenslaud, is also probably referable to the present species.

Distribution. New South Wiales (Dana, Menderson); Madras (J. R. M.).

## 212. Diogenes violacecs, n. sp. (Pl. MXXIX. figs. 3, 4.)

Madras, common; many specimens (J. $\quad$ R. II.).
The ophthalmic process is elongated, excceding the ophthalmic seales be nearly half its length, with the distal two thirds laterally spinulose, and the terminal spinules rather long. The outer margin of the ophthalmic scales is straight and spimulose, the distal spinule being larger than the others. The antennal acicle is short, with a very slightly prodnced inner process, and the outer process seareely reaches the commencement of the last peduncular joint. The ere-stalks slightly exceed the pemultimate joint of the antemal peduncle. The antenmular peduncles are short, and do not extend berond the antennal peduncles. The antemal flagelhm is short, with comparatively few long fringing hairs.

The loft chelipede has the eapus, hand, and fingers elongated, and the outer surface of all uniformly and finely gramlated; a faint dentate line is seen on the upper margin of the carpus, hand, and mobile finger, and the lower and outer surface of the carpus is subsulcate. The lower margin of the immobile finger is placed in the same straight line as the lower margin of the hand. On the onter surface of the hand, at the earpal articulation, starting from the proximal and lower angle, is an obligue suberistiform elevation. The fingers are slightly incurved, their apices are acute, and a few small tufts of hair are secn on the opposing edges. The ambalatory legs have the anterior margin of the carpi and proporl faintly dentate and pubeseent; the dactyli are slender.

Length of body 26 mm ., of left chelipede 28 mm ., capus 7 mm., propodus 12 mm . long and 6 mm . in height, dactylus 75 mm . long, and the second ambulatory leg 25 mm . long.

The colour in fresh specimens is riolet. This species difiers firm D. custos in size, colonr, and the form of the left ehelipede. It is distinguished from all the smaller species of the gemm by its spimulose ophthalmie process.
213. Diogexes phanmints, n. sp. (l’l. MXATX. figs. 3, 6.)

Rameswaram, one specimen ( $J . / R . / I$.) ; Madras, not common, four specimens (J. T. II.).

The ophthalmic process is narrow and lanceolate, taperins, towards the apex, and only exceding the ophthalmic sealses by about one third of its hongh; it is sparingly armed with minute lateral spimules, of which a subapical pair are most prominent. The ophthalmie seales have the lateral margin straight and spimulowe, the spimules slightly increasing in size towards the apex. The antemal acicle is short, mot reaching the end of the penultimate peduncular joint; it is slighty produced intronally, but seareely bifurcate, and the spinuluse imer margin appears regulaty concare 'The eyc-stalks
reach the middle of the last antemal perluncular joint, and the antennal peduncles are about efral in longth to the antemmular pedmuche.

The left chelipede has the morns more distinctly trigonal than usmal, the upper border being mither thin and compressed, and armod with achete teeth. the most distal of whidh is most mominent. The cirpus hats a longitudinal row of pointed tubereles on its ouder surface, from four to seven in number, and of which one near the distal ond is mot. prominent: betwen this row and the dentate immer maxin, on which ther are ahout thirteen teeth, is a comparatively smooth and almost suleate surface; ther manimber of the onter smefare is slighty tulecreulate, and on the anteroextenal margin bounding the eapo-propodal articulation are thro wellemarked spinose tubereles. The leti
 externally with small ghabons emmules, which are most crowded aloner the lower margin; the outer surface is lattemed, more (opectially on the lower half, and the
 (arpal articulation, and on which the srambes are ahot subspinose. The npremarein of the hamd ame molile finger is fimely dentate. The ambulatory leas are companatiody smootl, the most prominent pimane bines sem on the carpi, and especially towards




A female is 30 mm . long, the left cheliguld (when camot be lally straghtemed) in
 long; second ambulatory leg as mm. long, its propodus 7 mon., and its ditctylus ] 0.5 F 1 ml .
 thatemed hamd of the left chela, and the amature of the entur.

## 으․ Diomates whats, Hellor.


Tuticorin (Theston); Rameswamm, botwem tide-marks; Madras and Emone, not [1010mmon (.T. li. If.).








 margin of the hand. The ambutatory bega are mouth.

The largest speeimen I have examined is only 20 mm . in length; Meller's tepe was 22 mmi. long.

The specimen from singrpore, figured by Waker as perhaps a varicty of D. acteres, is not, I think, referable to this species.

Distribution. Bay of Beugal-Nicobars (Meller); Mergui (De ILen).

## 215. Diogenes costatus, in. sp. (Pl. MXXIX. figs. 7, 8.)

Rameswaram, one specimen; Tuticorin, one specimen (Thmiston); Madras, not common, twelve specimens (J. R. IF.).

The ophthatmic process is rery narow and entire, not reaching the apices of the ophthalmie seales. The ophthalmic seales are subtrimgulate, with merely two or three spimes towards the apex. Whe antennal aciele is straight, searecly reaching the distal end of the penultimate peduncular joint, with no trace of bifuration, and with from six to eight well-marked spimbes on the imer margin. The eye-stalks searcely reach the middle of the last antemal pedunenlar joint. The antemular peduncles are longer than the antemal peduncles ly nearly half the length of their last (antemnular) joint. The antero-lateral margin of the carapace is armed with about seren spinules.

The left ehelipede has the merus dentate along its inferior margin. The carpus is grambated externally, and the upper margin carries about twelve short teeth, of which the distal one is larger than any of the others; the antero-cxternal margin, bounding the carpo-propodal articulation, carries abont six small teeth, and a few are also seen on the lower distal marein. The hand is almost smooth extermally, but has a prominent, though short, oblique grambated ridge, commencing at the froximal inferior angle and passing for some distane parallel to the earpal artientation; the upper margin is provided with subspiniform grambles, and a few more slightly marked granules are seen on the lower margin, which is faintly concare, i.e. the immobite finger is not in the samestraight line, but is somewhat deflexed. The mper mary of the mobile finger is fincly ercnated. The ambulatory legs are almost smooth, with the anterior margins pubesent and very finintly toothed.

Lengeth of body 18 mm ., of left chelipede 20 mm , of carpus 5.5 mm ; the propodus is 8.8 mm . long and 18 mm . in hejght, the dactylus 5.8 mm . long, and the second ambulatory lesg 21 mm . long".

This species is distingnislied by the ridge on the proximal onter surface of the hand. It is separated from $D$. womens, which has a faint longitndinal ridge, hy the very diflerent form of the left chelipede, and by other chanacters. A trace of the hand ridge is also seen in the Atlantic 1). curime (Custa), but although this species agrees in some respects with ours, the form of the left chelipede, the amature of the carpus, and the proportions of this joint are quite different in the two species. D. granatuthe, Miors (from West Australia), jutging from the type, which is dried and not in rery gool order, is an allied species, but in it the ophthatmie seales are entire, the antoro-tateral margin of the canapace is manmed, the eaphes is less strongly toothed, and has no antero-external spinules, while the hamd is uniformly gramulated externally, and hats only a very slight carina.
216. Dingenes rectimines, Miers.

Madras, common; a large series (. $/ . / i . I I$.).
The ophthahic process is narmw and antire, not exeeding the ophthatmic seate ; the latter are rombed, and with few marerimal pinalm. The antemalaciele is mavided, with the imer margin spinulose. 'The lower mamin of the lelt hand is straight and spinose; the outce surface of this joint is hatemed and slightly pubeseent, with a fiow spimules chiefly aranged along an ohlifu lime now the uper margin, which is itself dentate; the fingers are very shont, and the lower border of the immobile one is in a straight line with the lower hordm of the hamd.

The arerage longth is about 2.5 mm .
Distiblation. Prince of Wales Chamml, N. Autralia; 7 fathoms (Jiers).

## Genus Pagents, Pabricins.

217. Pagerirs pexotelates, Olivice.



Thticorin (Thneton) ; common on the resit at Rameswanam (J. R. II.).
This common species reaches a comsideralk size. The efe-stalks, eren in spirit specinems, are of a rery deep red colome, and the cornte are delined by a white line.

The Comer megistow tigured hey ILerbet is mondotedy a representation of the present species, but the drankhtsman hats suphind it with an altogether fanciful abdomen.

Distibution. From the Red sea and Li. Africa to China, Australia, and the Patilice.











 that of $I$ '. II ©sion
 cerstalk- 10 man. long.

219. Paguris deformis, Mihe-Edw.
P. deformis, Miluc-Edwards, Am. Sci. Nat. sér. 2, Zool. t. vi. p. 2I: , ph. viii. fig. 4 (I836) ; id. Hist. Nait. Crust. t. ii. p. $2: 8!$ (1835).

Tuticorin (Thurstou); Rameswaram (J. R. Z.).
Distribution. From E. Africa to the Pacifie (Onsima, Fijis, Tahiti ©e.).

## 220. Pagurus valates, Tleller.

 (1s6: ) ; De Man, Brook's Crust. p. 136 (18s8).
( = ? Cancer pectunculatus, Ilerbst).

Thticorin, a male in the shell of a Bulla; Muttuwartu Par, a mate in the shell of a Fusus (Thurston).

In both cases the shells carry sererat cxamples of an Actinit. Ls noted by Miers and De Man, this species is distinguished from $P$. deformis mainty by the absence of a carina from the immolite finere of the larger chelipede, and hy having the pernutimate joint of the thirel hoft lewn munded and not ridged on its outer surface. Both speeinems present a white hand on a reddish background, encircling the evestalks, and in one the larger chelipede is mottled with violet. P. dectmotus, ITenderson, from the Adminalty Is., is a closely allied species, but distingushed by ilm mongated form of the larger hand, the outer surface of which is uniformly and fincly enramated, without tubereles. Herbst's figure of Comeer pectunculutus is not recognizable.

Listribution. Redkea (Ifeller, De ILem); E. Africa (IIt,gcmlorf); Malay Mrehipetago (Miers, De Mom) ; Australia (Thile).
221. Paguteds settret, Milne-Edw.
P. setifer, Milne-Edwarls, Hist. Nat. Crust. t. ii. p. 29.5 (18:30); De llaan, Crust. Jafon. p. 209 1850) ; nom $P$. setifer, Hilgentorf, nee De Man, nee Ortmam.
P. scemptipes, Stimpon, Proce Acad. Nat. Sci. Philad. Dec. 1858, p. 916; Ortmam, Zool. Jahrb. Bd. vi. Abth. f. Syt. p. 29: (1892).

Tuticorin (Thurston) ; Gulf of Martaban (Outes) ; Madras. hot uncommon (.J. R. II.).
Duch confusion is apment in regard to this widely distributed and probably common species. [ sent a hadras specimen to Prof. A. Milne-Edwards, who kindly informed me that it was referable to $P$. selifer, Milne-Edw., and that in his opimion $P$. sentplipes, Stm., is the same species. I had formerly referred my specimens to $P$. perimenteles, Hilgendorf, with the description and figures of which they elosely agree, exeept that in Hilgendorf's tigure the left hand is somewhat shorter in proportion to its breadth than is usual in hatian examples. The seupture of the two terminal joints of the second left ambulatory leg is very chamacteristic.

Distübution. E. Africa (Ifitgendorf) ; Japan (De Inuen, Stimpsou, Ortmenn); Anstralia (Milne-Ellecters, Brit. Jher.) ; "Isle of Pines" (Brit. Mus.).





 and similar on the two sides.



 ambmatory lees are nsually dissimilar on the two sides. and the species are oil much
 are subegnal, and the lirst, on titst and semomel abdominal segments, arry ormital
 inhabits cavities in loose stomes. has the ophthabmie seoment exposed, and provided with


Tuticorin and Muttumartu Par (Thms:stom).








 mferom! $\quad$ ith very lome haiss.










 are similar lo those of a I'ayumers.

The largest speeimen, a female with ova, is about 20 mm . long; the chelipedes eamot be fully straightened, but measured from below the left is $5: 3 \mathrm{~mm}$. long, and the right $\overline{\mathrm{mmm}}$. ; the first ambulatory leg is 11 mm . long.

Of about thirty specimens the majority are females carreing egss, and many are considerably smaller than the above. Mr. Thurston informed me that the species lived in minnte cavities in coral.

## Genus Anicultes, Dana.

## 223. Anicules aniculuts (Fabr.).

Pagurns aniculus (Falor.), Mihne-Edwards, Hist. Nat. Crust. t. ii. p. :2:30 (1837).
Aniculus typirms, Dana, ('rust. U.S. Explor. Exped. pt. i. p. 4ifl, pl. xxin. fig. I (1859).
Tuticorin and Muttuwartu Par (Thurston).
In addition to the transserse strigose lines on the chelipedes and ambulatory legs, many long manimal hairs are present, especially on the upper margin of the hands and on the ambulatory dactyli. The eye-stalks are slightly constricted towards the middle. The ophthalmic scales are somewhat approximate, and each ends in a single acute spinule. The rostral projection is separated by a distinct transverse groore from the rest of the earapace, and, as pointed out by Dana, the median areolet of the anterior portion of the carapace is distinctly defined, and fusiform in shape. Long hairs are present at the sides of the carapace, on the antennal and antemmular peduncles, and even on the eye-stalks.

Distribution. From E. Ifrica to Japan, Lustralia, and the Piecific (Wake Is., Paumotu Is., Simon, Fijis, New Zealand, (Ec.).
224. Anictoles sthigates (Iferbst).

Cuncer strigutus, Herbst, Naturges. Krablen u. Krebse, Bd. iii. Heft 4, p. 25, tal). Lxi. fig. 3 (1801).
Payurus striyatus, Hilgendorf, Monatsb. Akad. Wisw. Berlin, p. Se: ' Waf. ii. fig. 8 (1878) : Ortmam, Zool. Jahrl). Bd. vi. Aloth. f. Syst. 1. 285 (1892).

Tutierrin, two specimens (Thu'ston).
This species evidently lives in shells with a narrow aperture-probably in Cones-and its body has, in consequence, undergone areat flattening. It is distinguished from A. typicus by the absence of long hairs from the chelipedes and leys, its front is obtuse, the apex of the ophthamic scales is bidentate, and the general form and colour are different. The colour when fresh is very brilliant, the ground tint a deep red becoming orange in spinit, with the legs and chelipedes encireled by hlue lines which soon fade and disappar. LIerbst's figure gives a fair idea of the form, and colour in a iaded specimen.

This species, along with three others belonging to different genera of P'aguride, one of which has already been referred to in this paper, illustrates a remarkable modification in the body-form of these hermit-crabs, brought about by a habit which has become constant, of the species selecting a shell with a narrow elongated mouth or aperture.








## 




Madrais: nont untommon (.J. Ri, II. ).

 4. mon. lons.



## 



[he Man proposes to mate this perem will the preceding, but in ms opinion they ate












## 




[^3]This species is rery emmon in the backwaters along the Wadras coast; I do not know whether or not it ako lives in the sea. Young specimens are found in great numbers inhabliting the shells of a common brackish-water Cerithiid. The largest example I have seen is about 10 mm . long.

Distribution. Merqui (De Mem).

## 2og. Chabavilites Aherntida, De Man.

C. Aretherse, De Man, Mugui Crist. p. 25:2 (1888).

Muttuwartu P'ar (Thurston); Rameswamam; Madras, living among large stoues in the harbour (J. IR II.).

The following chatacteristic colouring is observable:-The cephalothome is grey, the eyc-stalks, antemnal peduncles, chelipedes, and ambulatore legs deep brick-red, without bands; the chelipedes and ambulatory legs are tipped with black, and several minute black spinules are seen on the under margin of the propodi of the second and thind legs. The largest seecimen is 3. mm. loug. One example has the right eye-stalk only half the length of the left, probably in process of repair.

Distritution. Mererui (Ime Mon).

Genus Catapagurus, d. Milne-Edwards.

229. Cataphothus ensifer, in. sp. (Pl. XXXVIII. figs. 16-19.)

Gulf of Martalian; three females mith ora, and two males in shells of Nisser, sp., and Nuticte, jus. (Outes).

The carapace is ghabrous, with merely a few hairs towards the margins; the frontal projections are olitusely rounded. The eye-stalks are moderately lous and stont, being little shorter than the antemal peduncles. The ophthalmic seales are narow, but well developed, and with the imner edge slightly eonvex. The antemal acicle is short and almost straight, not raching the distal end of the penultimate peduncular joint; the flagellum is more than twiee the length of the body. The antemnular peduncle exceeds the antennal peduncle ly neary the tro distal perduneular joints.

The chelipedes are longer than usual, the right being eomsiderally stonter but not much longer than the left, with the surface rery faintly gramulatel, but the granules subspimbes on the carpus. The hands are glabrous above, merely a few granules being seen with a lens. The right earpus is nearly equal in longth to the right patm, and the fingers are about hall this length; the left earpus is much shorter than the left palm, and on this side the fingers are about equal in lenoth to the palm. The ambulatory legs are ahmost smooth, with merely a few slight hairs on the anterior margin of the broad flattened meri; the proporli and dactyli, which are about equal in length, are elongated and llattened, without fringing hairs. Each dactelus bears a strong resemblance to a curved sword-blade (hence the specitic name), and is shghty broader than the propodus, measuring both at the broadest point. The male copulatory organ (protruded ras feferens or ductus cjaculatorius) is very long and slender; com-
mencing at the base of the fifth rimht lew, it curven completely orer the abdomen ats far as the lave of the fifth left leer.
 female is abont the same size.
 water off the was comst of the Thited stater, but in distinguished at once from the Smerican lomm by its nom-ciliated ambubtory (or prothps swimuing) dactyla and propodi, and by its longer and more slonder mate organ. The only previousty known Endo-Pacifie species is C. "mestratis, Hambasom, from the Aratura sea and Fiji, in whoh the eforljuedes ane shorter :med quite dillerently armed, with the ambulatory lens not sperially hattemed.

## 



(iulf of Martalan (Oates); Wathas, not uncmmon (.J. R. II.).
Mishuilution. Malay Mrehipelato, China, Japam, Torres stmit, Adminalty Is.

Gemun Etphrictes, Bramdt.

Wutuwath Par, a single specimen 1:3 mm. lomen (Thm,ston).
 Kirdenpature, to which seremal examples of Aricute seboel, Rome, are attached, and "hich ham at similar eolomaion, what the Dollase and Crustacem probathy bive


 ble follow ine deseription and also the fimurs an taken.







 are rallow.




antenmular peduncles exceed those of the antenne by nearly hall the length of their terminal joint.

The right or larger chelipede gradually increases in width, as fir as the base of the mobile finger, where it is midest; the fingers open transversely. The merns has a mather prominent inferior projection. The uper surface of the carpus and propodus is somewhat thattened, and amed with not very numerous spinose gramules, which are most prominent on the anterion margin of the earpus, bordering the articulation with the hand, and along an area near the middle of the hand surface. The outer margin of the hand is thin and finely serrated, while internally there is a deep or vertical finely granulated surface. The tingers are considerably shorter than the palm and somewhat deffexed, with the mobite one strongly carinated along its inner margin, which is also linely sermated. There are no prominent tecth on the opposing margins of the fingers. The left chelipede is slender, and smooth but for the presence of a tew hairs; its carpus is longer than the hand and fingers taken together. The ambulatory legs are smooth and very sparingly pubescent; the second pair are mequally developed, that of the right side being longer and proportionately broader than the left, and the two terminal joints are faintly suleate longitudinally, an arrangement which is not sern om the left side. On both sides the dactyli are longer than the propodi.

The Australion example, a female, is about 21 mm . long'; the right chelipede (which camot be fully extended) is 15 mm . long, the left chelipede 1 f mm., the second left ambulatory leg $0^{0} 0 \mathrm{~mm}$., and the second right ambulatory leg 9 mom.

## Croup Galatieidea.

Gemb: Petrolisthes, Stimpson.
232. Petrolisthes dentatts (Milmo-Edw.).

Porcellanu dentatu (Milne-Edw.), De Man, Mergui Crust. p. 216; (1588).

$$
(=P \text {. bellis. Heller; P. Huswelli, Miers). }
$$

Toticorin and Mutturartu Par (Thurstom); Rameswaram, eommon under coral blocks between tide-marks ( $J . \mu . / \lambda$. ).

I have compared my specimens with examples from Mergui examined by De Man and with the types of Petrolisthess Ilasuelli, and find that all belong to the same species. Aceording to Ortmann, P'orerllemu dentata of De Man is not the P. denterta of MiheEdwards, but is synonymous with $P$. speciosa, Dana; he seems to hare overlooked the fict, however, that the Mergui specimens were examined by Prof. A. Milne-Edwards and pronounced identical with $P$. dentata, Mine-Edw. The carpus of the chelipedes is usually about twice as long as broad, though sometimes shorter. There is considerable rariation in regard to the mumber and form of the denticles on the anterior and posterior margins of the carpus ; as a rute, there are three on the hind marenin. The lohe on the inner margin of the merns is alwats obtuse.
 (Milue-Ehectels) : Malay Mrehipelago (De Jutu); N. and N.E. Australia (Miers).

23: Pethohethes Bo-ch (Amdonin).

 (J. IR. II.).

This suecies is allied to the lat, hat distingoished by the very ditierent seupthere, especially of the chelipedes. The eapral dentichos are hable to considerable rabiation. The lohe at the imer distal end of the merne is arote, and on the thper distal marem of the same joint one or occasionatly 1 wo spinulan ate met with.






Mry secimens are identical with the type of $P$. "unnlipes, and at the same time are
 the latmal fontal margins are simply emondand and not spinulose. Behind dow onter orlital mute are two or thee spines the first phated on the marein amd the others on the banchial surface, while abont the midde of the hamehial marein are from two to
 in the latter the fromtal mareins are spimbore. I hare. howerer, sem examples of the present spece in which the nopmal ermatations have berome ahost spinuluse what this identity may ret be established by furlher researed; in the meanwhile the two are perhap beot kept apart.



Firmus hispumatis, stimpong.

Mathas, a malle (.J. R. IF.).









 and matked by some of the derated ban athedy rebered to. The ese are thath.

The antennal peduncle is elongated, the penultimate joint being longest; the flagellums is loug and naked.

The chelipedes are long and subequal, the right being but slightly larger. The merns is short and massive, grambated above, and with a small projecting lobe on the inner distal end of the upper surface; on the right side there is a sharp moderately loug spine on the middle of the lower anterior surface. The carpus is about twiec the length of the merus, with the upper surface uneven but scarcely grambated, the anterior margin moderately sharp and crenulated but without teeth, and the posterior margin rounded. The hand is slightly granulated abore, the gramules being more numerous on the smatler chela; the lower and outer surfaces, including both fingers, are densely pubeseent. The fingers are strongly curved at their apices, and even when closed there is a considerable intervening hiatus; a single tooth is present on the immotile finger slightly beyond the middle; the mobile finger has a small basal tooth and is cremulated along the immer margin, its upper surface is rounded and gramuated chicfly in the smaller chela. The ambulatory lees are long and slender, with the joints simply pubeseent; the dactyli are entire, slender, and straight, about two thirds the length of the propodi, densely hairy above, and with a sulcus on the anterior surface.

The earapace is 6.5 mm . long and 9.5 mm . broad, the right chelipede $2: 3 \mathrm{~mm}$. long, the first ambulatory leg 14.5 mm . long.

This little-known gemus beas some resemblance to Polyonyr, from which it is distinguished by the form of the front, the smaller eyes, the longer antennal peduncle, longer legs, and especially by the form of the amblatory dactyli. The only previously known species, $R$. ciliutus, Stm., from China and Japan, has the carapace fiatter and narower, with the regions well detined ; the postero-lateral margin of the carapace carties two or three spines, and the eapors of the chelipedes has a median row of tubereles on its outer surface.

## Cienus Pachicheles, Stimpson.

## 236. Pachycheles tomentosus, n. sp1. (Pl. NXNLA. tigs. 16-1s.)

Kimachi four males, and five lemales all bearing ova (Bril. Mus.).
The carapace is Hattened, glabrons, and depressed anteriorly, with the regions not defined, the protogastric lobules slightly prominent, and the surface slightly umeven towards the sides of the anterior branchial regions, which are rased above the level of the lateral margin. A lew faint lines or wrinkles cross the posterior rounded latemal margin in passing to the under surlace, and the remainder of the lateral border is detined by a somewhat shapp entire convex edge; opposite the penultimate joint of the autemal peduncle is a shallow depression or noteh in the margin. The front is depressed, obscurely tridentate, and most prominent in the middle, with it. upper smface densely tomentose. The upper orbitat margin is obtusely rounded, and the eyes are of moderate size.

The chelipedes are unequal, and either may be the larger ; ther ane gramlated and densely tomentose aloove, the hairs being armong in short tults. The morus has a dentiendated lobe on its inner and superior distal margin. The carpus is slightly convex and densely
hairy above, with three longitudinal rowe of white joblished thareces ou the promal
 three dentionlated lobes or tecth, the firt fwo of which are subequal and the distal one smaller, hat in some eases the denticulations nermally present on the edeme of the primary derth and absent, and the first tonth mat bodombe, makine tour in all. Tha



 quandated and erlathous below, with a pomded tonth near the base on the imme manem: the fingers show a wide hiatus when closed, and the tip of the mobile one is bont moderneatla the tip of the other. The smaller cheliperde is similar to the one just described, i.e. the haserp, aseept that the mamins of the hamd and fingers are more strongly denticulate. The ambulatory legs are short and fringed with hatis, the moder surface of the propedne presents two pimules at its dietal and, and the dactyli hate thom minute hany spmates on the posterion marein of the ir proximal half.

The carapace of a female is $11: 3 \mathrm{~mm}$. What and $1: 3 \mathrm{~mm}$. broad, the left or larere capus
 the first ambulatory leg 15 mm . long.

 is very hemy chancterized and acores in some respects, hot its carpus is deseribed an haring the abterin marnin "peetimated with right small equal spinitorm teeth," and wo mention is made of hairs on the chalipedes, while the carpus is much broarler than lones. In $I^{\prime}$. Stecensio, stm., the chelpedes are not deseribed as hairy, and the hand of tha smaller chela is longitudinally bisuleate.

## Gemus Poncemaneba, White.

237. Porchalaselah thaba, White.
 (18.1:)

Rameswatam (Thurston).
1 haw examined White's type of $P$. Ariolm, ats well as original sperimens of $P^{\prime}$. pictu.

 ones, and its apex is romaded, while the tirst or most provimal of the folm pimules on the ambulafory dactyli is rery small; in stimpeons operios the median fomtal tooh is
 two spectes may get be united, but all present maty be kep sepanate.
 derson).

## Genus Pohionix, Stimpson.

235. Polyonti obesulus, Miers.
P. obesulus (White), Miers, 'Alert'Crust. p. 2ra, pl. xxix. fig. D (1884).

Rameswaram and Tuticorin (Thurston). Common at Rameswaram, both free and in sponges (J. R. II.).

I have compared my specimens with the types in the British Mnseum. The median frontal projection is obtusely rounded and but little prominent. The ambulatory dactyli are triunguiculate, the middle elaw being slightly stouter and larger than the distal one, whereas the proximal one is much smaller. Sexnal dimorphism is seen in regurd to the chelipedes and the width of the carapace. In both sexes the right chelipede (which is usually the smaller of the two) has the hand more or less carinated inferiorly, and the carina often minutely dentate; the fingers are in contact thronghout, or almost so, in males, the opposing margins being finely dentate and withont any prominent tooth. In females and young males the left chelipede, which is as a rule slighty the larger, is similar to the right, whereas in adult males it is more strongly dereloped; the fingers have a wide gape, and are not in contact even at the apices when closed; while a prominent tooth is present on the inner margin of the lower finger. The male probably holds the elichiperle of the female during eopulation.

In $P$. biunguiculutus (Dana) the median frontal projection is prominent and acute, while the ambulatory dactyli are bimguiculate, the first or proximal claw, present in $P$. ovesulus, being seareely visible and represented merely by a minate seta. On the chelipedes the lobe of the inner margin of the merus is more prominent, and the carpus is usually longer than in Miers's species. In some speeimens the outer surface of the hand is grannated. There are examples in the British Tusemm of Dana's species from the Gulf of Suez, the Secchelles, and the Amirantes. De Man has suggested that $P$. obesulus is identical with $P$. biunguirulutus, and that the I'. biunguiculatus deseribed by Miers is a distinct species; but I cannot agree with this surgestion.

The following measurements are taken from Rameswaram specimens:-


The colour is a pate red, turning white in spirit. One indiridual-a male-carries a Sacoulina.

Distrilution. Maljicosima Is. (T'Hite); N. Australia (Miers, Menderson); Amboina (De MLan); Singapore (IValier).
239. Pohfonse tebehctlosés, De Man.

Cheval Par (Thurston) ; Rameswaram, common (J. li. II.).
I doubtrully refer to the above species a larew more of specimens with the following chataders:- The median frontal projeetion in subacute when viewed from before. The chelipedsare tuberenlate on the upere surfare of the eappos and hand ; the mems is produced internally into a finely-toothed lobe: the imere marein of the carpus has a feew subacute terdh, whild the onter margin of the ham in ramated and findy somated. The amblatory dadeli are fom-clawnd, the two proximal spindes being ber minute. while the trminal claw is longer and slighty stonter than the pemultimate ome The ambulatory legs are fringed anteriody with hats. This specins is certainly distinct from $P$. ofosulus or $P$. bimbuicutetus, and, as De Man reprements his species with the carpus smooth above and with rey few tubuetrs preant on the hand, our specinens may abo be distanct from $I^{\prime}$. Anberentoses. The ambulatury dactili of the lant speceme are not described Jy Dr Man. I hate notied in one on two specmens of $I$ '. wersmins a slight tendency towards tubereulation on the hamd, chiolly in small individuals; but our species may be distinguished from this varity by the ereater tuberentation and the diflerent andmatory dactyli. De Man had only a simgle small specimen, and it may have belonged to this anter of $I$. obesulus, in which case a new name will be necersury for the form which is here briedly chataterized.

A make is $7: 3 \mathrm{~mm}$. long and 8 mm . broad.
Distributiont Amboina (If INen).

Gemes Gimathen, Fabricins.
210 . (iadithey efbians, White.


There apmears to be considerable variation in the coloration and in the form of the rostrum: permapis $G$. gradedostris, Stme, and (i. deplemifons, Haswell, are merely ranieties of this succics.










pair of gastric spinules, lut otherwise closely agrees with the Muttuwartu examples. It seems probable that $G$. australiensis is identical with Dama's species, so I retier my speeimens to the latter.

Distribution. Sandwich Is. (Dena) ? ; E. Australia (Stimpson, Hasuell, Miers); Amirantes (Miers) ; Amboina (De IHall) ; Maritios (Richters); Aratura Sea (Hendersou).

Genus Munida, Leach.
2 2. Munida spinuliferia, Miers.
M. spinulifera, Miers,'Alert' Crust. p. Wia, pl. xxxi. fig. B (1ssh).

Mutmwartu Par, a female with ova (Thurston); Gulf of Martaban, a male (Octes).
The mate is $1: 3$ mon. long and the female somewhat smaller; in both specimens the abdominal sements are without dorsal spimules.

Distribution. Arafura sea (Miers); Amboina (Henderson).

## Suborder MACRURA.

## Group Thalassinidea.

Genis Gebiopsis, A. Mihne-Edw.
243. Gebiopsis Darminit, Miers.
G. Darremii, Micrs, 'Alert' Crust. p. 281, pl. xxxii. fig. A (1881).

Rameswaman, Tutienin, and Cheval Par (Therston). Common at Raneswaram, nsually living in sponges (J. IR. U.).

I have compared my necimens with (1) a single type-specimen of De Man's species in the British Musem, (2) the types of Miers's species, and in my opinion the two speeies are identical. The antemal and antemmar peduncles are alike in both, and are incorrectly figuce by Miers. I tmal, however, on cxamining a mmber of specimens, that there is some rariation in the length of the penultimate antemal pedmenar segment. The row of minate spinules (or tubereles) on the meropodites of the cheliperdes, mentioned by De Mam, aecmrs also in Miers's species. The two spines deseribed by De Man as present on the carpporlites are liable to variation; sometimes the lower one is rudimentary or (eren absent (it is rmdimentary in 1) Man's sjecimen in the British Jusemm), while the upper one is oftom similarly reduced. The lant pair of hegs are wrongly figured by Miers; bis specimens abre periectly with De Atans-i. e the last legs are chelate, and the capus is but sightly longer than the propodns.

The only differences 1 can find an-(n) in size be Jians sperimens are much barger tham Miers's, but this is aridently of little importanee, fire one of the Rameswam males is 36 mm . lomg, while a fomale with fogs from the same locality is only 23 mm . long ; (b) in Diers's apecimen. the inferion spine of the cerpopodite is almont or represented by a mere rudiment, and the npper one is greatly reduced, but, as previously noted, these
rharacters vary. De Man has more recently deactibed a variety amboinensis in which the lower capral spine is wantine.

Distribution. N. Australia (JDers); Amboina (Ife Men); simgapore (IVther); Mcrerui (le Man).

## (iroup) Astacidea.

Gemus 'limexts, Leach.


Common at Madras and on the sumh matian coant erenerally (J. R. M.).
The there teeth in the middensal line of the earapace are prominent and subacute in yomer indiviluals, hont and ill-delined in athlts.

Distribution. Madagascar, Seychelles, Indian Seas. Malay Arehipelago, China, WV. Australia.

Gemus Panclifes, Giay.




Ceylon (Inly).
Distribution. From E. Lfrica to dapm. N. Sutmalia, and the Pacific (Smon).





 Ansimblia, and the Pacific (Figis, Now Hmbider, Tahiti).








 (Brit. Mus.) ; Mohecas (Herifol).

## Group Caridea.

Gemus Caridina, Milne-Edwards.
248. Carmdina Wackil (Micksom).
C. Tryckii (Itickson), De Man, Max Weber's Crust. p. 386, Taf. xxiv. fig. 29 (1891).

Madras, common in wells and in ponds with elear fresh water ( $J . / i$. II.).
I can find no difference, except in size, between Madras specimens and Hickson's trpes in the British Muscum, the Indian examples being considerably larger, and reaching a length of about 35 mm ., including the rostrum; they also completely agree with De Man's excellent description and tigures. I first observed the species in a swimmingbath at Northwick, Madras, the residence of my friend the Rev. Dr. Miller. As De Man has pointed out, it is very closely related to C. miloticu, Roux ( $=$ C. Iongirostris, MilneEdw.) from N. and E. Africa, and perhaps the two species are not distinct.

A Curdina from Roorkee, in the Day collection, is represented by a single damaged specimen which cannot be satisfactorily identified.

Distribution. Celebes, in fresh water at an altitude of 2000 ft. (Hickson); Celebes, Saleyer, and Flores, in fresh and hrackish water (De MLen).

## Genus Alpieds, Fabricins.

219. Alphet's malbifices, Fabr. (Pl. XL. figs. 1-3.)
A. malabaricms, Fabr. Suppl. Ent. Syst. p. 105 (1798) ; non A. malabaricus, De Itaan, nee Ifilgendorf, nec Ortmann.

Common in the backwater at Pulicat, and apparently burrowing in a muldy bottom (J. IR. II.).

The ocular hoods are prominent, but simply rounded, and placed closer together than nsual. The rostrum is acute, reaching the level of the basal antemular scales, and not extending back on the carapace behind the posterior limit of the eyes, though elearly distinct from the latter. The antemal and antemmar pedmeles are subequal in length. The antemular scales do not weach the end of the proximal pedunculat joint by about one fourth the length of the latter, and the second peduncular joint is fully trice the length of the distal one. The antennal scales are about equal in length to both the antennal and antemnar peduncles, and the onter distal spine is nimute.

The larger chelipede, which may be either the right or the left, is shender proximatly, but has a massive hand. The merus has a slight tooth ou its upper distal surface, and a well-marked spine on the imner distal margin. The hand is moderately compressed, with a distinct sulcus crossing the upper margin belind the insertion of the mobile finger, and a second sulcus immediately underneath on the lower manwin; both the upper and lower margins behind the sulei are well rounded. On both the inner and the outer surfaces of the hand a wide shallow furrow with ill-defined margins passes back from the upper sulcus; the outer of these furrows passes somewhat obliquely towards the proximal inferior angle of the jeint, while the inner, which is seareely so
large, passes close to the upper margin. On the imene surface of the hand a shathow furrow connets the two marginal sulciand extord acros the long axis of the joint. The dactylus is strongly curved and warinated dorelly, with the apex euring beyond that of the lower immobite finger. No ridges are prenent on the larger hand. The smaller ehelipede is very long, slender, and unamed; the fingers are slightly incured and very long, being about thee and a hilf time the longth of the hand in adulte, and in close appesition-i. $e$. they are paralled and with scareely any hiatus at the base when elosed. The mohile finger has a distinet basal tomb, and long hairs chothe the imme
 long and subequal, the thiod and fouth shont and suberusal, and the tifth slishtly longer than wither the third or the fourth. The ambubatory lems are shender and unamed. The apex of the telson is oftusely rounded, with the terminal lateral spimules rery minute.

An adnlt mate is 30 mm . long, the larger chelipede ${ }^{2} 7 \mathrm{~mm}$. long, the hand 11 mm . long, and the finters 7 mm ; the smather chedipend is $2!$ mm. long, the hand 4 mm . and the fingers $1: 5 \mathrm{~mm}$. In the femalde the ehelipedm are slightly smaller.

This species, origimally collected ley Dithorfl in somth Thdia, has apparently been lost sight of fon menty a hundred years. I think there can be little doubt that the speciejust describel is identical with that of Fabriofus; it comphetely agrees with his short
 does not conform to the original leseription in one important respeet-it exhihits a wide gape or hiatus between the fingers of the smaller chel:, which Fabricius expresty states

 designation may be conreniently remimed for it provided that the earlier deseribed A. dispus, hamball, should not prove to beymmomous, as some whiters have supped.

 allied, and has hoth the hand sulei preant, hut it has a wide gape between the fingers of the smather chela, and the dactylu is apmemtly without at tooth; it has atso a distime tonth on the "pper margin near the base of the larger dactylus, which is not seen in our
 ridged atemally; the inferion marginal whens is abent, and there is a wide wat betwem the lineres of the smaller chela.

Distributione Fouth ludial (Fiblericimes).





 the Fijisis, 'Lahiti, de.

251．Alpinets Itiprothoeis，De Man．

Rameswarim，six specimens（J．R．M．）．
This species is allied to $A$ ．beluerdsii，which it resembles in size，the pounded ocmlar hoods，and the semeral form of the chele，but is distinguished be its stouter ambulatory legs，those of the second and third pairs with the meral joints houn and flattened，and armed with a distal spine on the lower margin；the rostrmen is more stromply matred than in A．Futurdsii，and in some cases extends back on the candace，thought faimtly， almost to the middle．

Distribution．Mergui ；Pulo Edam and Amboina（1）Thnu）．

252．Alpheve froxtalis，Say．
 pl．hiii．fig．？（1sis）．

Tuticorin（Then＇slon）．
Distribution．Anstralia（Alime－Eduerds）；Tahiti（Iteller）；Loo Choo Is．；Simon； South Sea（Oitmum）．

253．Alpileus hevis，Randall．
A．heris（lamb．），Ortmam，Zool．Jahrb．Bd．v．Abth．f．Syst．p．18：（18！日l），whisymon．
Rameswaram and Tufieorin（Thurstom）．Not uncommon on the reef at Rameswaram （．J．R．II．）．

Ifistibution．From the Red Sea and E．Africa to Japan，sydnery and the Pacific （Tonga，Eijis，Tahiti，Sandwich 1s．，©e．）．

254．Alpmets Nepturts，Dana．
A．Neptumes，Dama，Cmins．U．S．Explor．Exped．pt．i．p． 553 ，pl．xusv．fig． 5 （1859）．
Kurachi（Brit．Mus．）．Common on the reef at Rameswaram（J．R．II．）．
Both Miers and Do Man regard this as merely a varicty of 2 ．mimor，Say，which is common on the east coast of the United States．

Distribution．From the Red Sea to China，Japan，Port Jackson，and the west const of Central America．

## Genus Donodotes，Bate．

255．Doromotes mbicarina，Bate．
D．Iecicarina，Batte，＇Challenger＇Maerura，p．680，pl．cxii．fig． 5 （1885）．
Gulf of Martabm（Oules）．
The single specimen is a fomale with ova，measuring 51 mm ．in length，including the rostrum，which is 11 mmn ．long．

Distrilution．Aralura sea， 28 fathoms（Bate）．

## Gemos Jighsid. Biate.

Anqusin, Bate, Proc. Zool. Soc. p. 198 (18(i,i).

I propose to subtitute this generic name for the oldw Tozemo. Stimpson, which. in its correctly spelt lom Toxemm. had bem perionsly applied by Watker to a gemus of Ifymenoptera. Stimpson gives the derivation of his mame, so that the spelline has perhaps been due to a printer's error which he has allowed to pass.

Gulf of Martalma, two specimens (thetes).
The body is eompressed laterally, with the rostem about equal in leneth to the abdomen, omitting the telson. The rostrum is tishtly upturned, with an obtuse or rombled dossal carina, bounded on cither side ley a sight wroove, but thin or laminar, and fincly serated. bolow ; seen liom the side it is derpost immediately in front of the eyes, from which paint it gradualty tapers the thes. Ther earapace is provided with an acute anterotatrobld spine. The eves oecopy orbits, which are formed partiy the rostrim, and patly by the antemal pedunctes. The antemulare peduncles are not half the length of the antemal seales, and their flasha, which otherwise agree with stimpson's deseription of those in A. lanceotela. reach ompy to about the midthe of the seale; the basal pedancular semment has an extomal tatemed arote process. Thar antenmal peduncle has an achte spine on the moder surinere of its basal foint, abont equal in sizn
 the rostrum, afthomen ineompleto in both eperimens. 'The antemal seale is rey long and natrow, being almost hall the lonsth of the rontrme

The abdominal sogments are whasely carimated, and dhe thiod, fourth, and tifth are each prolomed pooterionle into a dorsal both. 'The telson is rery loner, marow, and acminate, slightly exereding the list appendases and with there pairs of lateral spinmes.
 being therejointed.

The lareer secimen, a female with ora, is imperfed but the smather grives the following measmements:-length of boly. meanmed from the ere to the tip of the telsm,
 telson 93 mm . lonis.
 Kong. lat stimpsom, in his shom dereription of the lather, stater that the rontrum is








the east coast of the United States. The Tozeuma serratum of A. Mihe-Edwards, from the West Indies, is probably, as Bate has remarked, referable to some other gemus, for in it the carpus of the second legs is multiarticulate.

## Genus Rhychecnetes, Minc-Edwards.

## 257. Rhinchocinetes ritgulosus, Stimpson.

R. ruyulosus, Stimpson, Proc. Acad. Nat. Sci. Philad. Jan. 1860, p. 36.

Tuticorin, fom specimens (Thurston).
The body is marked dorsally by fine transverse or sommwhat coneentric impressed stria. The rostral formula in thre specimens is $\frac{3+2+2}{9}$, and in the fonrth $\frac{3+2}{y}+\frac{2}{2}$, the first three lipper teeth being situated on the carapace; whereas aceording to stimpson the rostrum is tridentate above near the apex, and has twelve tecth below. These differences may be due to local variation, or possibly the Tuticorin examples are referable to a distinct and new species, hut I do not reuture to separate them. I few spinules are present on the meral joints of the last three pairs of lege, and the first pair have a spine at the uper distal end of both the merus and the carpus, while the latter joint is carinated superionly along its entire lengtl. Ther apex of the telson is acuminate, and carries two pairs of subterninal spinules, of which the inner pair exceed the terminal portion of the telson, and are albout three times the length of the outer pair.

Distribution. P'ort Jackison (Stimpson).
Gemms Poxtonia, Latreille.
258. Pontonta tribacnale, Dana.

( = Conchodytes tridacmue, Peters).
Tuticorin (Thurstom); Rameswimm, in the mantle-chamber of a latron Pinnu (J. II. II.).

Distubution. Red Sea (Ifitgendorf); E. Africa (Peters, IFitgendorf); N. and N.E. Australia (Jims); Samon (Dome, Orlmum) ; Fijis (.Jiers).

Gemus Lempere, Desmarest.
This gemus was founded by E. Desmarest in 18 th (Amm. Soc. Ent. de France, sír. J t. vii. p. 91), but poorly characterized, most stress being beid on the wibbosity of the abdomen; indeed, the characters fumished by this writer might apply to either the fieshwater or the marine forms. He, howerer, figures as the type an undounted marine form, L. erratious, Desm. ( $=$ L. mutator, Milne-Edw. ide Spenre Bate). Stimpson, in 1890, was the first to separate Lecenter and Palcmon, and to jropery characterize them, placing the manine species in Letuder and the flaviatile species in Patamom, an arrangement which has been follured by most subsequent witers. Spence Bate, in his Report on the 'Challenger' Dacruan, partially reverses this arrangement and refers the marine species to Paldmon, partly because he regarded Desmarest's diaguosis as valueless, and because Leach, Milne-Edwards, Bell, and others had termed the common

European marine species Palemon, while he places the fieshwater forms in the gemus Bithymis, fomded by Plilippi in 1hobo. I memence to Palmicius's writings shows that he, without namine any special type, deseribel the freeluwater forms tirst, and his name Palcmon ousht therefore to be taken for these ; this is the plan adopted by Dr. Ormamn, who has reemely prepared a useftul and much neded vevision of the gernus. Ontmann
 from Chili and Peru, in which the hepatie opioe is absont, and the chelipedes ate mequal and greatly enlarged.
259. Leander hovghomthes (Say).

Pelemon lompirostris (Say), Milne-Edwamls, Ilint. Nat. (irnst. t. ii. p. :391 (18:3) .
Kurachi, four specimens (Drit. Jhes.) ; Sunhumme, four specimens; Mergui. Our specimen (Doy) ; Gulf of Martaban, three specimens (Outes).

The rostrum, which is upturned distally, exeocts the antemal seales be half or more of its length; the basal crest ends oppowite the artientation between the last two joints of the intemular peduncle. The first lower matral tooth is placed under the most distal tooth of the basad crest. The shmest of the three athemmar hagella execeds the antemal scales ber more than half its lensth. On the carapaer the antemal or aper spine is minute, while the branchiostegal or lowre our is wall developed. The spine on the outer margin of the antemal seate is placed at some distance from the apex, the distance equalling nearly one thitd of the total loweth of the outer marerin.

The first pair of lees reach to or slinhtly exeed the antemal seales. The second lews have the iselium and merus eylindrical and submpabl, the cappus slighty shorter and dorsally diated; the propodus is shorter than the eapos, and considerably swollen in the adult of both sexes, with its outer surfice suleate, and the sulcus boumded lig two ridges, an armarement which is best wem on the distal two thids of the hand terminating "pposite the base of the mobild finser. The fingers are very long and slender. beins abont half its lometh lomger than the palm: they have shap eutingedeges, hut no tereth,
 lomger than the first pair. The last fom abmminal wemments are dorsally more or beos carinated. The tetson is dorsally smooth amd romded, with the very slember and achte apex placed opposite the spine on the outer margin of the exopodite of the sixth paib of abdominall appendages ; the two minute subteminal spimules are greatly exemed in length ley the: alex of the telson.



The following are the rostral formule in -pecimens from the ditlerent beatitios:-



Mergui. $\quad{ }_{8}+1$

The L. longirostris, var. japomicus, of Ortmann, which is distinguished by the form of its telson and rostrum, is, I think, a distinct species, while the var. carinalus, of the same author, from China, founded on the carination of the abdominal segments which is seen in Mihne-Edwarde's species, may or may not be distinct. D) Man (Notes Leyden Musemm, vol. iii. p. 147. 1887) describes the hanchiostegal spine as smaller that the antemal spine in the Chinese examples which he refered to L. longirostris, but this is probably an error of deseription.

Distribution. Sunderbunds (Mitne-Ldwards); China (De Dten, Orlmamu).

## 260. Leanier tenuipes, n. sp. (Pl. XL. figs. 11, 15.)

Bombay, two imperfect specimens (Iuy); Gulf of Martabun, tive specimens (Outes) ; Madras, ten specimens ( $J . Z, I I$.).

The rostrum is slender, and exceeds the antemal scales by abont half its length, with the distal two thirds styliform and upturned; the basal erest scarcely reaches the end of the proximal antennal pedmocular joint. The first lower rostral tooth is mimute, and placed under or in front of the distal tooth of the basal crest; both the upper and lower distal teeth are placed at some distance from the apex of the rostrum. 'The shortest of the three antennular flagella does not reach the end of the antemal scales. The spine on the antennal seale is placed much nearer the apex than in $L$. longirostris. The antemal spine is minute, but the branchiostenal one is well developed.

The first pair of legs are slightly longer than the antemnal scales. The second legs have the merus more than twice the length of the ischimm, and the former joint is proximally compressed, with an ill-defined sulcus on the upper surface, but its distal half is narrow and less compressed ; the carpus is about equal in length to the ischiom, while the palm, which is slightly dilated and smooth, is a little longer than the carpus. The fingers are nearly twice the longth of the palm, bat otherwise similar to those of L. Comgirostris. The remaining feet are extremely lons and slender, more espercially due to a lengthening of their terminal joints, which are more slender than eren the antemal and antenular flagella; they increase in length on passing back, the last pair being longest. It is impossible to give accurate measurements of these legs, as in most cases they appar to be imperfect. This extramdinary lengthening is not confined to the leas, but is seen also in the antemal and antemmar hagella, which are eertamy more than fwice the length of the isody. The last three abdominal seements are strongly eompressed laterally, and narrowed above but not carinated. The telson is smooth and romeded dorsally, exeept for the presence of a shallow sulcus towards the apex ; the apex is blent, and not prowhed to the bow of the spine on the exopodites of the last appendares, with the subterminal pail of spinules considerably longer than the fre cond of the telson.

The colour noted in fresh specimens is wrey with the thonate wisera presenting an orange late under the canalace, and the attached or fertitized ora in the fematw yellowish green.

A Madras speemen, measured like the last species, is the fum. Jong, the rostrmm
 last leg in this example is broken at the tip, it still measures lig mm. in length.

The rostral formule are as follows :-
Martaban.-Three specimens $\begin{gathered}5+1 \\ +\end{gathered}$, two specimens ${ }^{5}+1$
Madras.-Tive specimens ${ }_{4}^{6+1}$, two specimens ${ }^{i+1}$, one pereimen $\frac{5+1}{3}$, one specimen ${ }^{4}+1$.
This species in some respects, as in the form of the rostrmm, the comprond abdominal segments, the small antennal spine, and the form of the hand and fineres, is allied to L. Iomgirostris, but may be distinguished at omen ly its ereatly elongated and exerssively slender Jows, the form of the second lews, them, antmand seales, \&e. I at first felt inclined to atablish a new gemus for its reception, but on further consideration I think it better to rexard it as an abormant species of Leduler, for all its more important structural features are such as vary considerably among. the different known species of this gemus.
261. Leanimen momestus, Heller.
L. modestus, Heller, 'Novara' Crust. p. 111, Taf. , fig. G (150.5).

Maldras, six specimens (J. R. II.).
The apieal third or more of the rostrom is odontulous and mpturned, while the proximal part caries eight or nine small toth: thee tecth are found on the lower margin, the most distal of which in all my suemens is plaerd in adrance of the most distal יpper tooth, while in Hellers figme the two are represented as placed opposite cach other.

Dishribution. Shanghai (Heller).

## Genus Pilemos *, Pabricius.

## 2(i2. Palamon cabciads (Fabr.).





Ther colour is chamateristie, the chelipedes. catapace, and abdomen beine marked with purghe, ats indicated in the figum of Itmind.

The pammation of a latere series from dimeront localities las left me in conviderabla






[^4]they are normal in other respects, I am forced to regard them as belonging to a variety in which the apical growth of the rostrum has been arrested.

I refer to the $P$. Lemorrei, of Milne-Edwards, described from Bengal, certain specimens from Ganjam, in which the rostrum exceeds the antennal seales by about half its length, and is upturned distally, with six or more teeth below, and the upper teeth most marked proximally, in whel the telson is narrow and acute, with the subterminal spinules at some distance from the apex. These were taken with typical examples of P. carcimus, and I regard them as being merely the young of this species. De Man and Ortmann regard $P$. Lemerrei as identical with a species fond in brazil; but it seems to me improbahle that, in a freshwater genus apparently so plastic as Palemon, the same species should oceur in such widely separate localities.

Dishribution. India, Burmah, Siam, Malay Peninsula, and the Malay Arehipelago (Sumatra, Java, Borneo, Plilippines, Celebes, New Guinea).
263. Pademon dispal, von Martens.
P. dispar (r. Mart.), Ortmann, Zool. Jahrl). Bd. v. Abth. f. Syst. p. 718 (1891), ubi symon. ; De Man, Max Weber's Crust. f. 42t, Tal'. xxvi. fig. 31 (1891).

Calcutti, sereral specimens (Day).
I refer these with some hesitation to this species. The rostrum is almost straight, reaching the end of the antemal peduncles, and in some specimens even the end of the antemal seales, with from nine to thirteen teeth abore, and fom or more, rarely five, below, the first two mper teeth separated by a wider interval than the others, and the third phaced above the orbital margin. The carapace is wighty scabrons. The chelipedes are very long, slender, and unequal, with the surface scabrous; the earpus exceeds the palm by half its length, and the fingers are about half the length of the palm. Both fingers in the male hare a row of tubercles on the imer margin, white in the femate there is simply a sharp edge. The telson is rather boad towards the apex, but pointed, with the imner subterminal spinules more thin twice the length of the outer ones, or of the apical spine of the telson; the temminal setce are slighty longer than the inner spinules. The largest specimen is $7: 3 \mathrm{~mm}$. long, not inchading the rostrum, and the larger chelipede 145 mm . long.

Distribution. Rámion, Mauritius, Rodriguez, Maiay Archipelago (Adonara, Timor, Flores, Saleyer, Celebes, Amboina), Samoa.
264. Pabemon scabrictudes, Heller.
P. scubriculus, Heller,' Novara' Crust. p. 117, Taf. x. fig. ! (18(i.) ; Ortmam, Zool. Jahrl). Bd. v. Abth. f. Syst. p. 710 (1891) ; De Man, Max Weber's Crust. p. 46:, Taf. xsii. fig. 11 (1891).

Kotri, on the River Lndus, several specimens (Brit. Mus.).
The rostrum is deep, and seareely reaches the end of the antennal seales; the teeth are more erect than usual, and in number ${ }^{11-1.5} 2$, the fourth or filth uper tooth placed above the orbital margin. The earapace is scabriculate anteriorly and on the branchial areas, but punctate behind. The chelipedes in the male are about equal in length to the body,
pubescent and slightly scabriculate, with the carpus abont cqual to the palm; the fingers are longer than the palan, and sighty comed in the male, with their oppoed
 In the female the ehelipedes are lese chongated, and the fine ers may be shighty shorem tham the palm. The telson is trmeated, but obtuely pointed at the apex, with the inmer spinules and the ectar rery long.

A mate is 12 mm . long, not including the rotium. the right chelipede i.5 mm., and the lelt chelipeode $3: 3$ mm.

Distribution. Ceylon (Heller) : Saleyer and Cempes (Ite Mem).

 kee, Jumdwar, Lootiana, River Jumma, Lahore (Don).

The rostrum is mally almost straiolit, and extence to the and of the antemal seales. with the formula :- $:$; on the upper maren the six proximal teeth are equidistant, and separated hy a wider interval from two or mone parely three, smather subapical teeth, whieh are phaced close together. White the seend, oceasionally the thid, proximal tooth is puted abowe the orbital mawin; on the lower marwin the teoth are equidistant, and slightly deremse in size towards the apex. The free end of the antemal seale is rounded, and searedy angulated intermally. Sher eampace is smontle, with the hepatic spine mither small, and a faint sulens whell commoners bolow the level of the latere cetembleme almost to the middle of the side wall of the carapace.

The tirst lex exceed the antemal seater hy the loneth of their fineres. The second bess are of ergal size, and rather shoth being horter than the borly, but moderately









 of the outo spmas. The fertized
 ment orempince in the eperess.





[^5]Punjab is 38 mm . long. The second legs give the following measurements in the best preserved examples:-

|  | Roorkee $\delta$. mm. | $\begin{gathered} \text { Roorke of } \\ \mathrm{mm} \text {. } \end{gathered}$ | Lahore $\delta$. mm. |
| :---: | :---: | :---: | :---: |
| Length of merus | 7.8 | $7 \cdot 1$ | $8 \cdot 3$ |
| carpus | 8 | 8 | 9 |
| ,, $\mathrm{p}^{\text {nalm }}$ | 8 | 78 | 9 |
| ,, fingers | $5 \cdot 3$ | 56 | 6.7 |

This species, which is apparently very common in North India, exhibits considerable variation in the lengtle, form, and toothing of the rostrm. In some specimens the rostrum is eonsiderathy shorter than the antennal seales, white in others it exceeds these by nearly one third of its length, and is somewhat upturmed distally ; the most direrse forms oecur, howrer, in the same localities, and are connected hy tramsitional forms. The upper rostrat treth wary in mumber from tive to tom, aceording to the bersth of the rostrom, hut in nearly all cases two are subterminal, and the distance between these and the proximal terth depends upon the lensth of the rostrmm, i.e it is greatest in the long-rostrm firms ; the lower teeth are mach more eonstant, their momber being from five to seven.
P. Itemeners belongs to that small seetion of Ortmann's group Eupulemon in which the carpus and merns are subergual, or the cinpus only slighty longer, and it is distinguished from the other specios hy the chatacters of its rostrum, secomblegs, and especially by the
 dans l'Tnke, Crust. p. \& , pl. iii. 1844, from Nagpore, hats the rostrmm devated proximally, with a single subapical tooth, the ehelipedes bonger than the body, the mohile finger with a volpety covering of harir, and it is a moeh larger species, attaining a length of 155 mm .
266. Palemon altifrons, n. sp. (Pl. NL. figs. 1-6.)

Delhi, three specimens; River Jumua, six specimens; Lahore, six specimens (Jay) .

The rontrum reaches the end of the antemal pedmeles, and is rertieally deep, with the teeth, | $!-10$ |
| :--- |
| $-: ~$ | . The uper teeth are subequal and more erect than usual, with their interspaces ciliated, and the fourth tooth, oceasionally the thitd, placed above the orlifal margin ; the three, or more rarely two, lower tecth are subequal in size. The "pper margin of the rostrum is convex, but the apex is placed in the same horizontal line as the surface of the caraprace; the apex forms an achte and slightly upturned tooth. The free end of the antemalal seale is romded intermally. The campace is slighty scabriculate anteriorly, and the hepatic spine is rather small.

The first legs have the middle of the palm opposite the end of the antennal scale.

[^6]The second lege are subequal, on stightly mempal. in the ahblt male: ther are about eqnal



 smooth abow and below. with two or there -mall twoth on the immer wheme wit the

 developed on the imner surlace of the land and immohile finger. The ambutater lene
 the telson is rather brod and obtusely pembed ; the -uhtrminal pinule are hort, the inner pair heme only sightly lonser than the onter pard white the tominal setar are very long.

 50 mm . lons, :ment the second legs 4.0 mm . lome.

In adult fomates the fingers are not teothed internally, and the entire inure were are thin; in romer individuals the cheliperden are almost smooth, and in one sperimen thar tingers are cren slighty longer than the patm. The carapaed is much more seatriculate in some examples tham in others.
 longer than the patm, and there are other impertant ditioreners. It comes neatert th
 with which it arres in havine the carpmes sheter than the merus, but in banas species the rostrum is not nearty so deep, and hit usually four teeth below, while the
 Shamotha, has a similar rostral formula, ame alos a short carpus, but its rostrum is longer and not so depp, with the upper marem staisht. One species berones to that smat section of E'mphemon in which the carpun is shater than the merus; it is chanaterized by the form of it rostrm, particulaty the ereat depthand acute apex. P. lanceifora. Dana, from the Philippines and Certom, has a sombwhat simitar rostrum. but the eapor in this speries is much longer than the mern.

> (imm Xiki. Rinn).
2067. Nifi placesci, Bate.





 31 mm . lont.


Genus Egeon, Risso.

26s. Egeon oriextalis, n. sp. (Pl. XL. figs. 16, 17.)
Gulf of Martaban, a female (Oates).
The rostrum is shorter than the eyes, and excavated dorsally, with the apex obtuse and minutely bidentate; a small tooth is placed on either side of the middle of the rostrum. The carapace has a median and three lateral rows of teeth on each side, rumning the entire length from end to end. The median row is composed of five equal tecth, the first placed at a short distance from the rostrum. The submedian row is eomposed of seven subequal teeth, the most anterior of which is placed in front ot the first of the median row. The lateral row is also composed of seren teeth, but they mrarlually diminish in size on passing backwards, and the most anterior is placed on the same level as the first footh of the median row. The lateral marginal row is composed of seven teeth, the first placed immediately behind the large antero-lateral spine of the carapace, and well developed; the second is smaller, and the rest are minnte, becoming almost imperceptible behind. - I prominent spine oceurs on the anterior margin of the carapace, extemal to the eye, but it is only about half the size of the antro-lateral spine.

The first legs are rather stout; the second pair slender and chelate, scareely reaching the middle of the proporlus of the first pair ; the third pair very slender, and slightly longer than the first pair ; the last two pairs rather stout. 'The antennal seale is short and broad, ouly slightly longer than the antenular peduncle, with a dense fringe of long hairs on its inner margin. The terminal segment of the antennular peduncle extends to the middle of the last joint of the antennal pedtucle. The external maxillipedes are slightly Iomger than the first legs. The abdominal serments have a series of submedian and lateral dorsal keels; on the first segment a submedian pair, and a lateral pair on either side; on the next three segments a single median keel, with a single lateral one on either side; and on the fiftlo and sixth segrents a submedian pair, with a single lateral keel on cach side. The submedian keels on the third and fonrth segments are more pronounced than any of the others. The telson is acuminate, and fatintly chamelled dorsally.

The single specimen is 275 mm . long, measured between the apices of the rostrum and telson.

The Burmese species bears a general resemblance to $A$. catuphractus (Oliv.), from the Meditermacan, but the latter has the tecth of the carapace both more prominent and more numerons, while there is a concavity on each hefatic region, in addition to other differences. There can be no donbt, however, that the two species are congeneric.

## Group Peneidea.

## Gemus Peneus, Fabricius.

I have included all the species of Pencus refered to in this paper, provisionally at least, in a siugle genus, though, so far as 1 know, only $P^{\prime}$. monodon and $P$. indicus belongs
to that renmes, an restricted by Prol. S. J. Smith; most of the eperion are probably

 large collection both of shallow-water amd dempowiter forms, is much meded, fon at
 have worked independently of the rewulte previnus! arrived at by smith. 'Tow much
 instance, the momber of epipodites. in drawine up semeride characters.
269. Pexets mosodos, Fabr.

( = I'. semivishontins. De Itath .

Bombay Madras, Gamam. many specmens (lony): bery common on the south Indian coast and the ehiof edible spercies (.J. R. II.).

The rostrmm is about equal to the antemal pedunclen though sometimes lonser, and is continued as a sulcate ridge almost to the hind marein of the campace; the wath-
 equal in laneth to the pedmele. I short lompitudinal bidge necurs on the eamaper betow the hepatic epine, and paralled to the fire margin. The basal joint of the firs legs is liypinose, that of the second leg minpinose. The lourth, tifth, and sisth abdominall wements are carinated. The berebs reaches a lengeth of ahout a foot.


Distritution. From the Red sea and ki. Arica to dipan. Australia. and the Pacifie (Fijis).
-270. Pexets wideus. Mihne-Edw

 Madan (J. IR. M.).
 exampes it is usually considembly longer than the antemmar pedumedos, whena in





[^7]apparently vary in length, but are usually longer than the perfuncles. There is no hepatic ridge on the carapace. The species peaches a length of alout cight inches.

Instribution. Indian seas, Malay Archipelago.

## 271. Peneets affints. Mihe-Edw.

P. uffinis (Milne-Edw.), Bate, Amm. Mag. Nat. Ilist. ser. j, vol. viii. p. 1i9, pl. xii. fig. (5 (1881).
(=? ' ' , monoreros, Fabr.).

Kurachi (Brit. Ifus.) : Bombay, Canara, Madras, many pecimens (loy); common at Madras (.J. R. II.).

The rostrum is straisht, on only slightly simuons, reaching the mol of the intemmur prthucles, and continued back as a laint ridse almost to the hind margin of the carapace ; the tooth-formula is $\frac{\Delta-11}{10}$, the first tooth placed above the hepatic spine, and the second shightly behind the orbit. The antemmatar flagella are meth shorter than the pelmele. The first three gairs of legs are unispinose at the base. The fourth, fifth, and sixth aldominal seements are carmated. I small sulens is sem at the side of the base of the rostrum, termed by Stimpson the gastro-frontal sulcus. The tifth pair of jegs in the male have a short projecting process bounding a noteh near the proximal end of the ischimm, but this is either faintly marked or absent in yomig males. Prohably this species will prove to be synonymous with the older $P$. momocroos, Fabre. It is much smaller than either of the foregoing species.

Distributiow. Indian Seas, Malay Archipelago.

I'. sumptilis (Heller), De Man, Mergui Chest. p. ast (1888).

$$
\left(=I^{\prime}\right. \text {. Hurlurickii, Miers). }
$$

Kumehi (Brit. Mirs.) ; Mababar, Sumberbmds, many -pecimens (Doy) ; Gulf of Martaban, sereral specimens (Outes); Madras (.J. R. II.).

The rostrom is upturned and styliform distally, rarying comsiderably in lengith, but usually a thited or more of it, length longer than the antommber peduncles, and continmed back as a more or less suleate ridge ahmost to the hind marem of the carapace; the tooth-formulat is $\frac{10-10}{1 "}$, and the first two teeth are placed as in the kast species. The antenmular Hagella vany cousidemably in kongth, but are usually longer than the peduneles. The first and second lews are unispinose at the base. All the abrominal segments may be carinated, but the first three indistinctly so, and sometimes not at all. This species beam some resemblanee to $P$. effinis, but is distinguished at onee from the tatter by the presmee of three crack-like marks or fissures in the interument, one (which maty be albent) on the edge of the plemon of the lirst abdominal segment, the second on the branchiostegite behind the middle of the earapace, and the thind on the carapace, commencing above the antemal spine and ruming patallel to the rostral ridge, as far as a point beyond the middle of the campace. In the adult mate the meropodite of the fourth pair of legs is slightly dilated, but the fifth pair are not notehed.

Comsiderahle variation is seen in the leneth of the tehem, and in some -pecimens the
 whole series is seamely marked. or erm altugether abant.

Distrilutione Indian Scas, Malay Archipelateo.
273. Pexate Dobsoni, Miers.

Madras: at fomale specimen, probably from fresh water (./. R. II.).

 second, and the fometh above the mbital margin. 'Fhe antemmar flageda are atmot
 The filth par of lows are rudimentary in the fematre, beme repreanted merely by basal protubermee on cath side (white in make they am mamal, according to Niers). The
 The total lang of the Diadras sperimen is $10: 8$ men.

Distimetion. Mangalore, Western hadial (yimes.


(Gall of Martaban, a series (thetes).
The matrman is straight, or rises slightly fom the base to the apex, and seareely reaches the and of the antemular pedmelrs, white posteriorly it does not extend behind
 and the tist mper towth separated be at wide intwal fom the second. The amtmmular



 The lamest Martaban example is (i.) mon. lome.




 distinet.

[^8]275. Penfets brevicorids, Milue-Edw.
P. brevicornis, Miluc-Edwarls, Hist. Nat. C'mst. t. ii. p. 417 (1837).
P. ariostris, Dana, Crust. U.S. Explor. Exped. pt. i. p. 603, pl. xl. fig. 3 (1852).

Kurachi, two specimens (Brit. Mus.) ; Calcutta, one specimem (Hey).
The rostrmm is short, only slightly execeding the eyes, with the dental formula "; the distal half is styliform and unamed, while the proximal half is slightly elerated abore the level of the apical portion; the two proximal tecth are separated by a wider interval than any of the others. The antenuular flagella are about equal in length to the peduncle. The hepatie spine is minute. The first three pairs of legs are umispinose at the base, while the fifth legs in the male are slender, with a proximal noteh and ridge. The fourth, fifth, ant sixth abtominal segments are carinated.

The specimens apprar to belong to Dana's species, with which they elosely agree, and they are probably also relemble to Milne-Edwards's P. Zrericomis. P. Lysienasse, De Man, from Mergui, is an allied species, but distinguished by its much shorter rostrum, which is also more elevated; the petasma has a different form, and the filth leg in the male is not only notched, but provided with a hooked process.

Distritution. Tndian Seas (Mituc-Eductrds) ; Manitius (Richters); Singapore (Itma); Borneo (lliers).
276. Penmun canalictlatus, Olivier.

P'. canalicntutus (Oliv.), Bate, 'Challenger' Macrura, p. 2h.;, pl. xxai., pl. xxxii. fiy. I, pl. wxvii. fig. 2 (1888).

Gulf of Martaban, a single specimen (Outes).
The rostrum is slightly curved, and with the dental formulat $\frac{{ }_{2}}{\frac{2}{1}}$ (in the species generally it is $\frac{9-12}{1-}$ ); posteriorly it is continued to the hind margin of the carapace as a deeply sulcate ridge, on either side of whieh is a well-marked lateral sulens. The first and second pairs of legs are unispinose at the base. The telson is unarmed, or provided with very minute lateral spinules. $P$. caromote, Risso, from the Mediterrancan, and $P$. brasitiensis, Latr., from Lastern America, are closely allicd.

Distribution. From the Red Sea and E. Africa to dapan, Mustralia, and the Pacifie (Tahiti, Fijis).
277. Peneus compleserpes, n. sp. (Pl. XL. figs. 21, 20.)

Gulf of Martabin, a female (Oates).
The rostrum is short and straight, only slightly execeding the eyes, and continued as a faint ridge almost to the hinder margin of the carapace, with the dental formula ${ }_{6}^{8}$; the first tooth is placed some distance behind the level of the hepatic spine, almost half-way back on the carripace, and separated by a wide interval from the second, the third tooth nearly above the orhit ; the upper teeth are contimed to the apex, and the lower margin is ciliated. The eyes are rather small, with slender pedhucles. The antennal seales are
elonsated and narow ; the hagella are wating in the -ing - peremen. The antemmber

 marked on the (:ar:apace.


 second and thim dmbate pairs have the fingow lome and sember, almost twied the lometh


 three ablominal swments are carinated, and there are thace of a carina on the thime serment. Tha tehon and last appendages are rather shont, the former with a batoral basal noteln on cach side, but the mareins othwwiw entire, and withont pimules, the apex not spercially narrowed.

The heanchial formak wion below requin enotirmation, as taken fron a single apecimen in which the gill readily became detached. There wat be no doub, howerar,
 a single ationhanch; the presence of a plenomanch on wement VII is unnsual.

 and of the antromal seales $7: \% \mathrm{~mm}$.



 -pecies. It dees not belong to the restricted emons Promens, and is perhaps typieal of a

 ahsent, while it is present in our yeres.

## Gemis Solfnoceria, Lacas.

278. Solenochri chiscicomis (Minc-Edw.).

Pencus crassirmoms, Milnc-Elwards, Hist. Nat. Crust. t. ii. p. 4]s (1837).
Gulf of Martahan, a single specimen (Oates); Madras, a single specimen (J. K. II.).
The rostral formula is ${ }_{10}^{10}$, the first tooth situated on the erastric area at some distance from the others, the lower margin ciliated. The antennular hagella are longer than the carapace ; the broad outer flagellnm longitudinally grooved or concave along its inner surface, and enveloping the slender internal thagellum. The third pair of legs have the carpus clongated, with the proximal half swollen, and the distal half narrow and cylindrical.

Spence Bate, in his 'Challenger' Report, refers this species to his genus Philonicus, but in the latter the antennular flagella, though long, are otherwise normal.

Distribution. Shores of India (Milne-Edewerls); Waltair. Madras Presidency (Sir W'alter Elliot, fide Spence Bute).

## Genus Acetes, Milnc-Edwards.

279. Acetes numcus, Milnc-Edw.

Acetes meticus (Milne-ENW.), Bate, 'Challenger' Macrura, pl. Ixxv. Hig. 1 (1888).
Gulf ol Martaban, two specimens (Oates).
The larger specimen is 26 mm. long. In this aberrant genus the last two pairs of thoracic appendages are absent.

Distribution. Mouth of the Ganges (Milue-Eduards) ; India (Sir IV. Elliot, fide Spenee Bate) ; Singapore (Drmo, IV olker).

## Order STOMATOPODA.

Gemus Lysiosquilla, Dana.
280. Lysiosquihla maculata (Fabr.).
L. maculatu (Fabre), Miers, Aun. Mag. Nat. Hist. ser. 5, vol. v. p. 5, pl. i. figs. 1, 2 (1880).

Madras (Bril. Mus., J. K. II.) ; Tuticorin (Thurstou).
Distribution. Red Sea, Rodriguez, Indian Seas, Malay Arehipelago, Japan, and the Pacific (Samoa, Tijis, Sandwich Is., \&c.).

Genus Squilla, Fabricius.
281. Squilla nepa, Latr.
S. nepa (Latr.), Miers, Am, Mag. Nat. Hist. ser. 5, vol. v. p. 解, pl. ii. fig. 13 (1880).

Madras (lirit. Mus.) : Ceylon (ILaly) ; Tuticorin (Thurstom). Very common at Madras (J. R. II.).

* Mr. Pocock has kindly fumished me with a list of the Indian Stomatoproda in the collection of the British Museum, and I hate incorporated their localities with my own notes.

This is the commomest Stomatopori on the south Indian roast. My larest yeerimen is 1.17 mm . long.

Destribntion. From India to Chima, Japan. Anstalia, and the Pacitic enememelly an far as New Zealand and the coast of Chili.
282. Squilla afmas. Berthold.
 (1817).
 (1865).

Madras; sundermunds (Brit. Mus.) ; Rammenaman (.J. R. II.).
This species is closely allied to S. mepe, with which it has probably often been confused, and the two are not separated by Miers in his herision of the squillide: the distinguishing chanacters, though shght, appear howerer to be constant. The two species are separated he Dr. II. J. Hansen, who hat recontly examined the stomatopenta in the British Maseum.

In S. reffinis the wes are much larger than in $S^{\prime}$. we $]^{\prime \prime \prime}$, with their corneal portion greatly dilated and oblique; the free theracie and abdominat serments are more strondy carinated dorsally ; and very constantly the median line or suleated carimat of the canabor widens anteriorly to anclose a very short oval space, situated behind the frontal pate.
 long, and extends almost half-way batck leetwen the fromal plate and the transmes line which intormpte the median carinat.

 refor to the present species.

## 


Mallas, not uncommon (J. /i. //.).
The eolom-mankings are characteristie. Fourahoot conflume dark pots arrearameat transwersly on the domal surface of the wemd aldeminal semment, a latge yot is sern on the peximal joint of the exoperdite of the tominal abominal apperdades, and the


Distritution. From India to China and Antralia.



 length.


## Grimes Pseddosquilha, Dana.

## 285. Psevdosquilat ciliata (Fabr.).

P. ciliata (Fabr.), Micers, Am. Mag. Nat. IIst. ser. 5, vol. . p. 30, ph. iii. figs. i, 8 (3880).

India (Brit. Jhes.) ; Madras (J. R. H.).
Distribution. From the Red Sea to Australia and the Pacitic (Fijis, Samiwieh Is., EXe.). It has also been recorded from the West Indies by Von Martens and Brooks.

## Gemms Goxomactylus, Latreille.

286. Gonodactyluts chiragra (Fabr.).
G. chirayra (Fabr.), Miers, Amm. Mag. Nat. Hist. ser. 5, vol. v. p. 10 (1sso).

Iudia; Andamans; Galle, Ceylon (Brit. Mus.).
Distribution. From the Red Sea and East Africa to Australia, and the Pacific. It is also recorded from the Mediterranean, the West Indies, and the eoast of Florida.
287. Gonodactyles glaber, Brooks.
G. ylabrous, Brooks, 'Chatlenger' 'Stomatopoda, p. 62, pl. siv. fig. 5, pl. xr. figs. T, 9 (1886(i).

Ceylon (Brit. Mus.) ; Tuticorin, Rameswarm, and Silavaturai Par, many specimens (Thurstou); very common between tide-marks and on the reef at hameswaram (J. R. $I$.).
$G$. gleber is closely allied to $G$. graphures, Miers, but the differences appear comstant in a laree series; I have not met with the latter species, nor does the British Musemm possess Indian suecimens.

In $G$. $n$ onplurns: the lirst tive ablominal segments have a distinet dorsal impressed line or serome ("suture" of Brooks), which, eommencings near the mid-torsal line of each somite, passes to the lateral surface, and takes a rombed anterior eurre so as to resemble a fish-hook; on the lourth and fifth segments the two lateral eroores almost med in the middle line. Two smaller grooves are also present on the pleara of the same sergments, one arising from the convex bend of the hook, the other rising from the anterior margin of the plenron, and taking a comred eomes. In Ge.glaber the dorsal surface of the ablominal serments is perfectly smonth, and merely faint grooves are seen on the plemat. In $G$. groplumens there is a short median carina on the sixth abdominal segment, placed between the submedian lonsitudinal elerations; whereas in G. glubre this carina is usually absent, or at most but faintly indicated. Aceording to Brooks the projections on the sixth abdominal segenent and telson are more sharply defined amd less swollen in fi, glaber ; but this chameter appars to be of donbtind vatue, for in the type-specimen of $G$. gropheress (originally mamed by White in MS.) the elevations are sharply detined, and even natrower than in my examples of $G$. glaber.

My series includes specimens from 15 mm . in length up to a length of 6 t mm .
Distribution. Samboangan (Brooks) ; Aden; Massowah; Dastern Scas; Soolon Sea; Sir C. Mardy's Island, N. Lustralía (Brit. Mus.).
288. Gonodactyles Demanif, 11. sp. (Pl. XL. fiss. 29 , ••1.)

Gonoducty/us, n. sp.? De Mam, Brock's ('rust. p. n̄il, T:ati: wii.", fig. I Isss).
Rameswaram; four females, two malo (.J. li. $I$.).
I have pleasure in naming this speries after Dr. I. G. Dr. Man, who, in his Report on the Crustacea collected by Dr. Brock in the Malay Archipelawo deseribes and figuren a single specimen from Pulo Edam, pointins wut that it is probably new, but without giving it a name. It is closely allied to (i. chiow,fre, lut the differenees sem to mu other than varictal, and are not due to the pecimens beine young, for the following comparison has been made with example of G. chirdere of similio size, and from various localities, in the British Musemm collertion.

In $G$. chiretgra the median of the there howse on elerations on the dorsal surface of the telson is always narrow and longitudimally wal, with its distal end frequently cmbraed by a horse-shoe-shaped or semicircular eleration, but without spinules. In $G$. Demanii the central elevation is much brouder, and inderd subglobular; when riewed in protile it is also seen to rise much higher above the lerel of the telson than in the other species. A series of from tive to seren -pimules is phaced at the distal end of this eleration, usually arranged in a somewhat semicireular form, but there is no trace of the semicireular elevation seen in $G$. chirrther, unlos the spinuldearing region represents it. The marow lateral bosses, which are wot sulliciontly defined in De Man's figure, carry one or two spinules at their distal emb, ame two or threr spinules also oeeur at the base of each of the two submedian tremmal pine of the telsom. None ol these spinules oceur in G. chiregref, and in thin species the four imer longitndinal and spinuletipped elerations on the sixth abdominal verment we subedual in size, or at most the median pair are only rery slightly laww, wheras in all my yecimens of $G$. Jementiz the median pair are distinctly latere. The lataral procese of the frontal phate are more

 hinder portion of the earapace, on the secome fire thomade semment, and on the first, flairl, fourth, and fifth abdominal seements; this ma! be a juvenile chatacter, lat in
 manked nor so regulaty dismibuted.

 De Man's speemen, a female, was 17 mm . lome.

Divtritution. Pulo Edam (I) $1 /(1, n)$.

## 




 New Zaadand (Helles); Fijis (honot).

## EXPLANATION OF THE PLATES

## Plate XXXVI.

Fig. 1. Hoplopher!s Oatesii, gen. et x]. i1. $\times 3$.
2. Witto, ecphalie region from below.
3. Ditto, chelipede.

1. Ditto, abdomen.

万. Micipua marym•itifera, sp. 11. × ミ.
(i. Ditto, deflexed region of carapace viewed from the tront
7. Ditto, ambulatory leg.
8. Lophurtreafissa, sp. 11. $\times$ ㅇ.
su. Ditto, chelipede.
9. H!pocrelns rinyosus, sp. 11. $\times$.
10. Ditto, chelipede. $\times 3$.
11. 1)itto, pterygostomial cavity.
12. Mymorohws aramhatus, de Haan, pterygostomial cavity.
13. Ilwhimede Thm:stomi, sp. n. $\times$ 2.
14. Ditto, chelipede.
15. Actmmms rervicossms, sp. 11. $\times$. .

1( j . Ditto, chelipede.
1\%. Surmutinm indicum, var. malaboricum, n., chelipede
18. Venophthalmens obscurus, sp. n. $\times$ :.
19. Ditto, cophatic region from before.

## Phate XXXVII.

Fig. 1. Telphusa Mesomiama, sp. n., nat. size.
2. Ditto, cephalic region from before.
3. Ditto, external maxillipede.
4. Ditto, abdomen of male.
5. Telphtusa Pocockiame, sp. n., nat. size.
6. Ditte, (ephalic region lrom before.
7. Ditto, external maxillipede.
8. Ditto, abdomen of male.
9. Kranssia nitida, Stm., front of earapace.

11. Ditto, eephalic region from below.

1:. Ditto, abdomen of male.
13. Pseutophlilyru pusilln, sp. 11. $\times 4$.
11. Ditto, cephatie region from below.
15. Ditto, abdomen of male.

## PBAT SXXVIII





$\therefore$ ．lloto，abdomern of matu．
（i．l）itto，cheliperde．


！）．Jittos，eephalice region froma helow．

II．Dittor，ceplatis rexion from lrolow．
1 $\because$ Ditto，raclipradr．

11．Ditto，＂heliperds．
lis．llitto，telshli．

17．lijto，small rhelipedr．
1S．Ditto．Eatrere（doliperde


## 1＇」TE オオ入【．


$\because$ Ditto，laree claclipede．$x$ ？

1．Witto，latge chalipeder．$\times$ ：

6．Ditto，large chelipede．x $\therefore$ ．

$\therefore$ Ditto，large alapliperls．$\therefore$ ：

10．Witto，large alaliperde．
11．Witto，small＂helipsode．

13．Dittu，front liom atome．
11．Ditto，latge chathedr
1． 5 Jitto，matl alolipede．


1s．Ditto，laree－hedipede



$\because \because . \quad$ litto，ambulatury lán．

## Plate XL.

Fig. 1 Alpheres mulubericus (Fabr.), liront from above.
Z. Ditto, large chelipede.
:3. Ditto, small chelipede.

1. Pahemon allifrons, sp. n., anterior portion of carapace.
2. Ditto, chelipete.
(i. Ditto, iןeex of telson.

7-10. I'hlemon Dat!m"s, sp. n., anterior portion of camaper in four cxamples.
11. Ditto, chelipede.

1:. Ditto, fingers, showing grooved surface.
13. Ditto, apex of telson.
11. Lpembler temipes, sp. n., nat. size.
15. Ditto, apes of telson.
16. Efyom orientalis, sp. n., dorsal view. $\times$ :
17. Ditto, side view ol cephahothorax.
18. Angasia stimpsomï, sp. n. $\times 1 \frac{1}{2}$.
19. Ditto, dorsal view of ecphalothorax.
20. Ditto, telson.

2]. Pemens rompressipes, sp. 11. $\times 1 \frac{1}{2}$.
29. Ditto, tclson.
:3. Gomodurtylus Demanii, sp. n., dorsal view. $\times 3$.
: t. Ditto, sixtlo abdominal segment and telson from above.





$\square$
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-
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-
-





[^0]:    * I am indehted to Mr. Edsar smith and Mr. Kirhpatrick. of the Britist: Macem, tor the mentitation of the molluse and hydroid respectivel.

[^1]:    

[^2]:    
     the two - parise if Demer ars are described.
    
    
    
    

[^3]:    
    

[^4]:    
    
    
    
     Archipeligo.

[^5]:    

[^6]:    * This species has, so lat as I am anare, not been referred to since. Milhe-biwards pablinhed his description, nor is if included hy "romann in his revision of the genus. In the charatetres of its rostrum it bears considerable resemblance to $l^{\prime}$. Wiberi, the Man, from Celebes.

[^7]:    
    
     Werd-Mtasn to the gemus.

[^8]:    
     reference to lierures.

