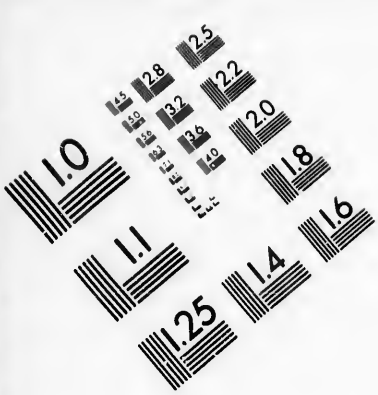
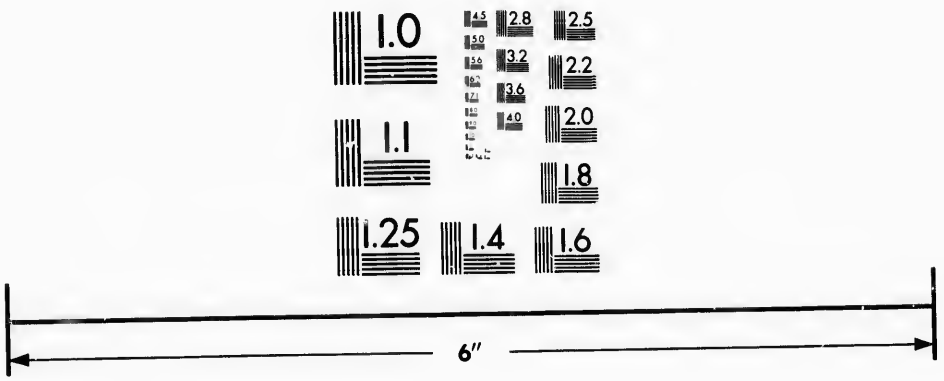
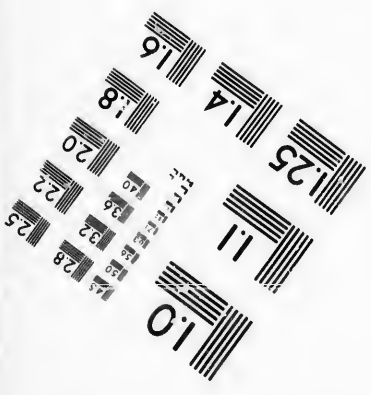
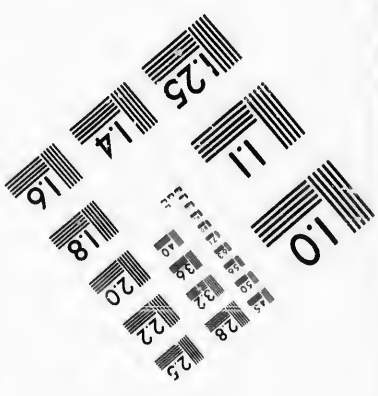


IMAGE EVALUATION TEST TARGET (MT-3)







Photographic Sciences Corporation

23 WEST MAIN STREET
WEBSTER, N.Y. 14580
(716) 872-4503

Technical and Bibliographic Notes/Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- [x] Coloured covers/ Couverture de couleur
- [ ] Covers damaged/ Couverture endommagée
- [ ] Covers restored and/or laminated/ Couverture restaurée et/ou pelliculée
- [ ] Cover title missing/ Le titre de couverture manque
- [ ] Coloured maps/ Cartes géographiques en couleur
- [ ] Coloured ink (i.e. other than blue or black)/ Encre de couleur (i.e. autre que bleue ou noire)
- [ ] Coloured plates and/or illustrations/ Planches et/ou illustrations en couleur
- [ ] Bound with other material/ Relié avec d'autres documents
- [ ] Tight binding may cause shadows or distortion along interior margin/ La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- [ ] Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/ Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- [ ] Coloured pages/ Pages de couleur
- [ ] Pages damaged/ Pages endommagées
- [ ] Pages restored and/or laminated/ Pages restaurées et/ou pelliculées
- [x] Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- [ ] Pages detached/ Pages détachées
- [x] Showthrough/ Transparence
- [ ] Quality of print varies/ Qualité inégale de l'impression
- [ ] Includes supplementary material/ Comprend du matériel supplémentaire
- [ ] Only edition available/ Seule édition disponible
- [ ] Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image/ Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.

- [x] Additional comments:/ Commentaires supplémentaires: Pagination is as follows : 206b - 218b p.

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
						✓					

(*From the Report of Progress of the Geological Survey of Canada*, 1878-79.)

NOTES ON CRUSTACEA

COLLECTED BY DR. G. M. DAWSON

AT

VANCOUVER AND THE QUEEN CHARLOTTE ISLANDS.

By S. I. SMITH.

(*From the Report of Progress of the Geological Survey of Canada*, 1878-79.)

NOTES ON CRUSTACEA

COLLECTED BY DR. G. M. DAWSON

AT

VANCOUVER AND THE QUEEN CHARLOTTE ISLANDS.

By S. I. SMITH.

APPENDIX D.

NOTES ON CRUSTACEA

COLLECTED BY DR. G. M. DAWSON

AT

VANCOUVER AND THE QUEEN CHARLOTTE ISLANDS.

By S. I. SMITH.

BRACHYURA.

Heterograpsus nudus Stimpson.

Pseudograpsus nudus Dana, Proceedings Acad. Nat. Sci., Philadelphia, 1851. p. 249 (3); United States Exploring Expedition, Crust., p. 335, pl. 20, fig. 7, 1852.—Stimpson, Journal Boston Soc. Nat. Hist., vi., p. 469 (29), 1857.

Cyclograpsus marmoratus White, List of Crust. British Museum, p. 41, 1847 (no description).

Heterograpsus marmoratus Milne-Edwards, Annales Sci. Nat., III., xx., p. 193 (159), 1853.

Heterograpsus nudus Stimpson, Proceedings Acad. Nat. Sci., Philadelphia, 1858, p. 104 (50).

A fine male specimen from near Victoria, Vancouver Island. Sitka is given by White as the locality for one of the specimens in the British Museum. It is abundant upon the Oregon and California coast.

Fabia subquadrata Dana.

Two specimens from the Queen Charlotte Islands, shore; and one from "Houston Stewart Channel, Q.C.I., June, 1878, inhabiting cavity of large mussel."

Cancer magister Dana.

Cancer irroratus Randall, Jour. Acad. Nat. Sci., Philadelphia, viii., p. 116, 1839 (not of Say).

Cancer magister Dana, United States Exploring Expedition, Crust., p. 151 pl. 7, fig. 1, 1852.—Stimpson, Jour. Boston Soc. Nat. Hist., vi., p. 458 (18), 1857.

Metacarcinus magister A. Milne-Edwards, Annales Sci. Nat., IV., xviii., p. 33, 1863; op. cit., V., i., p. 67, 1864; Nouvelle Archives Mus. Hist. Nat., Paris, i., p. 201, pl. 19, fig. 1, 1865.

A large carapax from the Queen Charlotte Islands.

Cancer productus Randall.

Randall, Jour. Acad. Nat. Sci., Philadelphia, viii., p 116, 1839.—Dana, United States Exploring Expedition, Crust., p. 156, pl. 7, fig. 3.—Stimpson, Jour. Bost. Soc. Nat. Hist., vi., p. 461 (21), 1857.

Cancer perlatus Stimpson, Proceedings California Acad. Nat. Sci., i., p. 88, 1856.

Virago Sound, 15 to 8 fath.; mouth of Cumshewa Harbour, 20 fath.; and shallow dredging; all from the Queen Charlotte Islands.

Cancer antennarius Stimpson.

Stimpson, Proceedings California Acad. Sci., i., p. 88, 1856; Jour. Bos. Soc. Nat. Hist., vi., p. 442 (22), pl. 18, 1857.

? *Platycarcinus recurvidens* Bate, in J. K. Lord, Naturalist in Vancouver Island, ii., p. 269, 1866.

Small alcoholic specimens from Virago Sound, 15 to 8 fath., and 20 fath., mouth of Cumshewa Harbour, Q.C.I. A dry carapax from the same group of islands (no special locality given) is 83 mm. long and 133 broad.

Trichocarcinus Oregonensis Miers.

Tricocera Oregonensis Dana, United States Exploring Expedition, Crust., p. 299, pl. 18, fig. 5, 1852.

Trichocarcinus Oregonensis Miers, Proceedings Zool. Soc. London, 1879, p. 34 (*Tricocera* De Haan, 1833, preoccupied).

A young specimen from Vancouver Island, and the carapax and chelipeds of a larger specimen from the Queen Charlotte Islands. These specimens agree with Dana's description and figure, except that the teeth of the postero-lateral margin are more indistinct than shown in his figure, some of them being nearly or quite obsolete. In all the larger specimens which I have examined, the dorsal surface of the carapax is rougher and the areolets more protuberant than in small specimens, and in very small specimens the carapax is nearly smooth and regularly convex.

A small specimen, dredged by Mr. J. Richardson in the Gulf of Georgia in 1875, and referred to by Mr. Whiteaves as *Trichocera Oregonensis?* on my authority (*Canadian Naturalist*, Vol. viii., No. 8, 1878), appears to represent a distinct species. I have seen another and much larger specimen of the same form from Washington Territory, collected by J. G. Swan (Smithsonian Institution). In this species the antero-lateral margin of the carapax is strongly upturned,

and its teeth are broad and in contact at their bases. The frontal and hepatic regions and the anterior part of the branchial are smooth and flat or concave, but there are three very high, wart-like prominences on the gastric region, of which the two anterior are larger and mark the protogastric lobes, while the smaller is in the median line and behind them; there are similar, but posteriorly less distinctly circumscribed protuberences on the posterior part of the branchial region; and the tops of all the protuberances are ornamented with smooth mammillary granules, which are large anteriorly but gradually loose the mammillary character in the rough and granular posterior regions of the carapax, which differ much from the anterior and middle regions, which are very smooth, except on the flattened summits of the gastric protuberances just described.

Telmessus serratus White.

White, Annals Mag. Nat. Hist., xvii., p. 497, 1846; Voyage of Samarang, Crust., p. 14, pl. 3, 1848.—Dana, United States Exploring Expedition, p. 303, pl. 18, fig. 8, 1852.

There are three specimens of *Telmessus* from the Queen Charlotte Islands: two small males, in alcohol, from shallow dredging, and a dry and broken female much larger than the males. The female agrees very well with White's figure and is about the same size as White's specimen, though of the opposite sex. The larger of the two males agrees with Dana's figure and description, except that the median teeth of the front are not quite as acute and prominent, projecting only very little beyond the lateral. The tooth forming the lateral angle of the carapax is much more prominent than in the female. The smaller male differs from the larger in having the antero-lateral margins of the carapax nearly parallel, and the tooth forming the lateral angle relatively even much more prominent than in the larger male. These differences are shown in the following measurements of the carapaces of the three specimens:—

	♂	♂	♀
Length, including frontal spines.....	6·6 mm	20·3	66·5
Breadth in front of lateral teeth.....	5·7	19·4	66·0
Breadth, including lateral teeth.....	8·9	25·3	82·2

The differences are apparently due to the age of the specimens, and I think there can be little doubt that White's specimen and Dana's were of the same species. Whether the *T. cheiragonus* described by Tilesius and by Brandt, and *T. acutidens* Miers (ex Stimpson), are also of the same species, I am uncertain. The synonymy in this genus is still in great confusion, and the relations of the different forms can be made out satisfactorily only by careful examination of a large series of specimens.

Oregonia gracilis Dana.

Oregonia gracilis Dana, United States Exploring Expedition, Crust., p. 106, pl. 3, fig. 2, 1852 (♂).

Oregonia hirta Dana, ibid., p. 107, pl. 3, fig. 3, 1852 (♀).

? *Oregonia longimana* Bate, Proceedings Zoological Society London, 1864, p. 663, 1865; in J. K. Lord, Naturalist in Vancouver Island, ii., p. 267, 1866.

Virago Sound, Q.C.I., 15 to 8 fath., also Vancouver Island.

The series of specimens is sufficient to show that the two forms described by Dana are sexual and belong to one species, the *gracilis* being based on the adult male and the *hirta* on the two forms of the female. In the characters of the rostral spines and the rest of the carapax, all the larger males before me agree with the description and figures of *gracilis*, while in the same characters the females agree with *hirta*, and the smaller males are more or less intermediate between the two forms. But among the females themselves there are two forms: all the adult and fertile specimens having the abdomen very broad and nearly orbicular, while in other specimens (most of them small, but some of them as large as the smaller of those with orbicular abdomens) the abdomen is much narrower and elliptical, as shown in Dana's fig. 3 b. The smaller of these latter females are, perhaps, merely immature individuals, but the larger are apparently truly dimorphic, sterile females, such as are found in many genera of Brachyura, and [illegible], as in most similar cases, the larger of the sterile individuals show [illegible] erable approach to the male in the form of the carapax, etc.

In the largest male before me the merus of the chelipeds reaches very nearly or quite to the tips of the rostrum, and, in this respect agrees with Bate's *O. longimana*, though the chelipeds are not quite twice as long as the carapax, if the rostrum is, as it is usually, included in the length. Bate makes no allusion to the size of his specimen, and describes it so imperfectly that it is not easy to determine its affinities with certainty.*

* It may be well to remark here that there had apparently been an admixture of specimens from some region or regions far south of Vancouver Island, in the collection which served as the basis of Bate's chapter on "Vancouver Island Crabs" in the work above referred to, and that this fact also adds to the difficulty of determining the species there described. Bate himself remarked upon the mingling of northern and southern forms in the collection, but he does not seem to have suspected any mistake in regard to the localities from which the specimens came. I am aware that many tropical and subtropical marine species extend far north along the Pacific American coast, but it is scarcely conceivable that such an assemblage of species as Bate's list indicates should exist in any one faunal region. The list contains not only tropical Pacific American species but also Central and South Pacific, and even tropical Atlantic species. Some of the incongruities may, however, be due to wrong identifications, as in the case of the *Clibanarius* about to be mentioned; but, making all reasonably supposable allowance for mistakes of this kind, there is still sufficient evidence of a mixture of specimens from different faunæ, to throw doubt upon the authenticity of the supposed habitats of many of the new species in Mr. Lord's collection. The existence in the region of Vancouver Island of any of the following species (all of which are enumerated among the Decapoda in Bate's list) is, at least, very doubtful:—*Eriphia gonagra*, "*Panopeus*" *crenatus*, *Xantho dispar*, *Oeppode Urvillii*, *Grapsus lividus*, *Hemigrapsus* "*edentatus*," *Gelasimus annulipes*, *Porcellana Edwardsii*, *Eupagurus pertatus*,

Pugettia gracilis Dana.

Queen Charlotte Islands, shore; and shallow dredging, Port Simpson to north end of Vancouver Island.

Scyra acutifrons Dana.

Two males from near Victoria, Vancouver Island. Another male specimen agreeing well with these was collected at the same locality by Mr. R. Middleton in 1875, and is referred to by Mr. Whiteaves, on my authority, as "Scyra, sp. nndt." (*Canadian Naturalist*, Vol. viii., No. 8, 1878.) All these specimens are much larger than the ones described by Dana, and differ much from his description and figures. The specimen collected by Mr. Middleton differed so much that I at first supposed it must represent a new species, but the specimens collected by Dr. Dawson show a nearer approach to Dana's figures, and I now think there is little doubt that Dana's description and figures were based on females and young males, and that the specimens before me are the fully adult males of the same species.

In the specimens before me, the lamelliform rostrum is very much expanded laterally, so that it is as wide, or even considerably wider than, the width of the front between the præocular spines, and the lobes are much less divergent anteriorly than shown in Dana's figure. The protuberance upon each branchial region is elongated and excessively developed, and posteriorly it projects so much as to overhang the lateral margin of the carapax. The anterior cardiac protuberance is tubercular and obtuse and fully as high as the branchial protuberances, but separated from them and from the large gastric protuberance by a broad and deep depression; the posterior cardiac protuberance is small, but conical and conspicuous. The whole gastric region is protuberant, and separated from the branchial region, on each side, by a deep and narrow cervical groove. The posterior gastric elevation is large and obtusely tubercular, while the anterior is small and conical. The chelipeds are proportionably much larger every way than in Dana's specimens, and the lamelliform crest on the propodus is much broader. The differences in the chelipeds, and partially also those in the carapax, are shown by the following measurements of the specimens collected by Dr. Dawson:—

"*Cenobites*" *Diogenes*. *Clibanarius lineatus* (Milne-Edwards) is also given, but there is now plain evidence of a mistake in the identification, for Miers (Proceedings Zoological Society, London, 1877, p. 658, pl. 66, fig. 4) has described and figured a species, as *Clibanarius Lordi*, said to have been collected at the same locality as Bate's *C. lineatus*, and presented to the British Museum by Mr. Lord, and Miers states that the specimen was labelled *Clibanarius lineatus*, but that it is certainly not the species described under that name by Milne-Edwards and figured by Dana.

Length of carapax, including rostrum.....	36·8 mm	39·0
Greatest breadth between margins.....	24·7	26·8
" " " branchial protuberances	27·3	29·5
Length of rostrum from base of præocular spine..	9·0	10·3
Greatest breadth of rostrum.....	7·7	9·0
Length of merus in chelipeds.....	32·0	28·5
Length of propodus.....	31·0	37·0
Length of dactylus.....	15·0	16·5
Breadth of dactylus.....	10·5	12·5

ANOMURA.

Hapalogaster inermis Stimpson.

Stimpson, Annals Lyceum Nat. Hist. New York, vii., p. 243 (115), 1860.

I refer to this species, with some doubt, a single female from the shores of the Queen Charlotte Islands. The chelipeds are not described by Stimpson, but in the specimen before me they are very unequal, the right being twice as stout as the left, very much less setose, and the excavated fingers are entirely without horny tips.

Eupagurus granosimanus Stimpson.

Stimpson, Annals Lyceum Nat. Hist. New York, vii., p. 90 (44), 1859.

Several dry specimens, most of them very small, from near Victoria, V.I. I think it not improbable that this species will prove to be synonymous with *E. Middendorffii* Brandt. Brandt's species was described and figured from a specimen considerably larger than the specimens examined by Stimpson or those before me, and it very likely is only the fully adult form of Stimpson's species.

Eupagurus tenuimanus Stimpson (ex Dana).

One specimen from shallow dredgings, Port Simpson to the north end of Vancouver Island. The propodus of the larger cheliped is fully as broad as in Dana's specimens, but the inner edge is less sharply dentate and the outer edge less strongly curved. There is no doubt of its identity with Dana's species, however.

There are several small specimens of *Eupagurus* from 15 to 8 fath., Virago Sound, 20 fath., mouth of Cumshewa Harbour, and from Houston Stewart Channel, Q.C.I., which are distinct from either of the above species, but they appear to be immature and are not easily determined.

Paguristes turgidus Stimpson.

Eupagurus turgidus Stimpson, Proceedings Boston Soc. Nat. Hist., vi., p. 86, 1857.

Clibanarius turgidus Stimpson, Journal Boston Soc. Nat. Hist., vi., p. 484 (44), pl. 21, fig. 1, 1857.

Paguristes turgidus Stimpson, Proceedings Acad. Nat. Sci., Philadelphia, 1858, p. 236 (71), 1859; Annals Lyceum Nat. Hist., New York, vii., p. 86 (40), 1859

Not in Dr. Dawson's collection, but a large male was dredged in the Gulf of Georgia by Mr. J. Richardson in 1875.

MACRURA.

Gebia Pugettensis Dana.

A male 85 mm. long, shore, Queen Charlotte Islands.

Crangon vulgaris J. C. Fabricius ex Linné.

Crangon nigricauda Stimpson.

Crangon nigromaculata Lockington.

Crangon Alaskensis Lockington.

A single dry and broken specimen from Vancouver Island.

Nectocrangon lar Brandt (ex Owen).

Two males and three females from Vancouver Island.

The specimens are all dry and in rather bad condition for a careful comparison, but they all differ considerably from any Atlantic specimens which I have seen. In the specimens from Vancouver, the rostrum and the spines of the dorsal carina of the carapax are longer and more slender than in specimens from off Nova Scotia and from the Gulf of St. Lawrence. In the Vancouver specimens, the dorsal carina on the third, fourth and fifth segments of the abdomen is broad and rounded, or flattened, and scarcely reaches the posterior edges of the segments, and the two carinæ upon the sixth segment are rounded and fade out in the same way before reaching the posterior extremity of the segment; while in the Atlantic specimens referred to, the carina upon the third, fourth and fifth segments is acute, and on the fifth segment projects from the posterior margin in a more or less conspicuous triangular tooth, and the carinæ on the sixth segment are acute and continue to or a little over the posterior extremity of the segment. These differences may possibly indicate distinct geographical species.

Paracrangon echinatus Dana.

Vancouver Island.

Hippolyte Gaimardii Milne-Edwards.

Hippolyte Gaimardii Milne-Edwards, Hist. nat. des Crust., ii., p. 378, 1837.

Hippolyte pandaliformis Bell, History of British Stalk-eyed Crustacea, p. 294. [1850?]

Hippolyte Belcheri Bell, in Belcher, Last of the Arctic Voyages in Search of Sir John Franklin, vol. ii., p. 402, pl. 34, fig. 1, 1855.

A single dry female specimen from Vancouver Island appears unquestionably of this species. It is about 33mm. long; the carapax, including the rostrum, 13·8mm.; the rostrum, 7·3. The dorsal carina is armed with six teeth, of which three are on the rostrum, and there are three teeth in the lower edge of the rostrum.

Hippolyte spinus White.

Cancer spinus Sowerby, British Miscellany, p. 47, pl. 23, 1805.

Alpheus spinus Leach, "Edinburgh Encyclopedia, vii., p. 431, 1813-14," (Miers), American edit., vii., p. 271; Transactions Linnean Soc. London, xi., p. 347, 1815.

Hippolyte Sowerbœi Leach, Malacostraca Podophthalmata Britanniæ, pl. 39, 1817.

Hippolyte spinus White, List Crust. British Museum, p. 76, 1847.—Bell, History of British Crustacea, p. 284 [1847?].

Hippolyte spina Stimpson, Proceedings Acad. Nat. Sci. Philadelphia, xii., p. 34 (103), 1860; Annals Lyceum Nat. Hist. New York, x., p. 126, 1871.

There are seven dry specimens from Vancouver Island, and two in alcohol from shallow dredging, Queen Charlotte Islands, which agree well with Atlantic specimens of this species.

Hippolyte Phippsii Kröyer.

Hippolyte Phippsii Kröyer, Naturhistorisk Tidsskritt, iii., p. 575, 1841 (♂).

Hippolyte turgida Kröyer, ibid., p. 575, 1841 (♀).

Hippolyte vibrans Stimpson, Annals Lyceum Nat. Hist. New York, x., p. 125, 1871 (♂, *var*).

Hippolyte Ochotensis Brandt, Middendorff's Sibirische Reise, ii., p. 120, pl. 5, fig. 17, 1849 (♀).

A female from 15 to 8 fath., Virago Sound, Q.C.I. Length, 32mm.; length of carapax, including rostrum, 11·6; rostrum, 5·2. The dorsal carina of the carapax and rostrum is armed with eleven teeth, of which the three posterior are the larger, situated near the middle of the carapax and separated considerably from the one next in front, which is just over the base of the rostrum; the remaining teeth are successively nearer to each other toward the tip, which is itself tridentate. There are in addition four teeth on the oblique anterior part of the inferior edge of the rostrum. The dentition of the carapax and rostrum is thus seen to approach pretty closely to Brandt's *H. Ochotensis*, and yet the specimen appears to be unquestionably specifically identical with the well-known Atlantic species, so that I have little doubt that Brandt's species is only a variety of the female of *H. Phippsii*.

Hippolyte brevirostris Dana.

Dana, United States Exploring Expedition, Crust., p. 566, pl. 36, fig. 5, 1852 (given as *H. curvirostris* on plate).

A dry female specimen about 24$^{mm.}$ long, from Vancouver Island, agrees well with Dana's figure and description.

Hippolyte Grœnlandica Miers.

Astacus Grœnlandicus J. C. Fabricius, Systema Entomologiæ, p. 416, 1775; Entomologia systematica, ii., p. 484, 1793.

Cancer aculeatus O. Fabricius, Fauna Grœnlandica, p. 239, 1780.

Alpheus aculeatus Sabine, in Supplement to Appendix of Parry's (first) Voyage, p. cexxxviii., pl. 2, figs. 5-8, 1824.

Hippolyte aculeata J. C. Ross, in John Ross, Appendix to Narrative of a Second Voyage in Search of the North-west Passage, p. lxxxiii., 1835.

Hippolyte armata Owen, Voyage of the Blossom, p. 88, pl. 27, fig. 2, 1839 (♀).

Hippolyte cornuta Owen, op. cit., p. 89, pl. 28, fig. 2, 1839 (♂).

Hippolyte Grœnlandica Miers, Annals and Magazine Nat. Hist., IV., xx., p. 62 (12), 1877.

A female, 44$^{mm.}$ long, from shallow dredging, Queen Charlotte Islands.

Pandalus Danæ Stimpson.

Stimpson, Proceedings Boston Soc. Nat. Hist., vi., p. 87, 1857; Journal Boston Soc. Nat. Hist., vi., p. 502 (62), pl. 21, figs. 6-7, 1857.

Several small dry specimens from Vancouver Island, and an alcoholic specimen from shallow dredgings, Queen Charlotte Islands. The last specimen is 74$^{mm.}$ long; the carapax including rostrum, 33$^{mm.}$; rostrum, 17·5$^{mm.}$; there are ten teeth in the dorsal crest, half being on the rostrum and half upon the carapax, and in addition there are three at the tip and five beneath the rostrum.

In general appearance, and particularly in the form and dentition of the carapax and rostrum, this species approaches very near to *P. platyceros* Brandt (Middendorff's Sibirische Reise, ii., p. 123, pl. 5, fig. 20, 1851). But, according to Brandt's description, the carapax of the *platyceros* is clothed with short hairs, while in the *Danæ* the carapax and abdomen are smooth and entirely naked.

Pandalus pubescentulus Dana.

An alcoholic specimen from "shallow dredging, Port Simpson to north end of Vancouver Island." The specimen is 49$^{mm.}$ long; the carapax including rostrum, 25; rostrum, 14. There are fourteen teeth in the dorsal crest, five on the carapax and nine on the rostrum; the extremity of the rostrum is unarmed above except at the tip, which is

bidentate; beneath it is armed with eight teeth, which extend to the tip.

Cumacea.

Diastylopsis, gen. nov.

The species for which this genus is proposed is very closely allied to *Diastylis* in the structure of the appendages of the cephaloperæon and in the structure of the pleon, but it differs from *Diastylis*, and, as far as I know, from the heretofore described genera of Cumacea, in the consolidation and great expansion of the tergal and epimeral portions of the third and fourth free segments of the peræon, which forms an arched shield-like plate nearly half as large as the carapax. The basal segments of the second pair of gnathopods (third maxillipeds) are more expanded distally and form a much more complete oral operculum than in *Diastylis*. The cephaloperæon, also, is much more elongated and more compressed laterally than in any described species of *Diastylis*.

Diastylopsis Dawsoni, sp. nov.

Female.—The cephaloperæon is considerably longer than the pleon, compressed laterally so that the breadth is little more than a fourth of the length, and the part made up of the free segments is fully as wide and as high as the carapax. The carapax is more than twice as long as high and smoothly rounded above, though the dorsum is compressed somewhat anteriorly. The eye is obscure or wanting, and the anterior lobes of the carapax extend far in front of the ophthalmic lobe and form a prominent and acute rostrum. There is a deep antennal sinus (much deeper than in the species of *Diastylis*) in the anterior margin below the rostrum and bounded inferiorly by the prominent dentiform antero-lateral angle, back of which the lateral margin is dentated for a short distance. The entire surface of the carapax, as well as the dorsal surface of the free segments of the peræon, is perfectly smooth, naked and highly polished, but there are four nearly equidistant, faintly indicated transverse lines crossing the anterior half of the carapax and evidently marking the areolation so conspicuous in some species of *Diastylis*. The first and second of the five free segments of the peræon are short and nearly or quite covered each side by the third segment, which is itself short above but greatly expanded each side into a large plate a third as long as the carapax; the dorsal part of the fourth segment is greatly elongated, and lies between and above the lateral prolongations of the third segment; and the tergal and epimeral portions of these two segments are anchylosed or closely united together, so that the U-shaped suture between them is only

faintly indicated. The fifth segment is small, and nearly covered each side by the lateral expansions of the fourth. There are two slender submedian spines upon the ventral side of the fifth segment, and there is a similar single median spine on the first segment of the pleon.

The antennulæ are short, the peduncle reaching scarcely beyond the rostrum; the first segment is stout and about as long as the second and third together, the second is short and stout, and the third, or ultimate, about half the diameter of the second but longer than it; the major flagellum is slender and about half as long as the peduncle; the minor flagellum is little longer than the first segment of the major, and is apparently triarticulate. The rudimentary antenna is scarcely longer than the first segment of the antennula, but has the penultimate segment elongated to about four times its diameter, while all the other segments are very short.

The first gnathopods (second maxillipeds) are nearly as in *Diastylis*, but are very long and slender, and the basal segments are but little stouter than the terminal. The second gnathopods reach a little beyond the tip of the rostrum: the basal segment in each reaches to the antero-lateral angle of the carapax and is very much expanded distally, so that the two together completely close the space between the lateral margins of the carapax; the inner angle of the distal end projects in a very prominent and acute tooth, and the inner edge is margined with short plumose setæ, but the outer surface is smooth and naked like the carapax; the ischium is very short and fully twice as broad as long; the merus is about twice as long as the ischium, not more than half as broad, and bears on the middle of its outer margin a very long plumose seta; the three distal segments are very slender, subequal in length, and each is considerably longer than the merus. The tip of the flagellum of the exognath reaches slightly beyond the middle of the basis of the endopod itself.

The first peræopods are slender and scarcely as long as the second gnathopods, the tip of the carpus not quite reaching the distal end of the basis of the gnathopod; the ischium is scarcely longer than broad, the merus twice as long as the ischium, and the three distal segments subequal in length and each a little longer than the merus. The tip of the flagellum of the exopod does not reach the extremity of the basis of the endopod. The second peræopods reach but little beyond the middle of the basis of the first pair, and the exopod is about as long as the endopod. The sternum of the third free segment of the peræon is broad and greatly elongated to correspond with the lateral portions of the segment, so that the two anterior pairs of peræopods are separated by a considerable space from the succeeding pairs. The

third, fourth and fifth pairs of peræopods are short and as in the species of *Diastylis*, except that the coxal segments of the third pair are very broad, about four times as broad as high, and closely fitted to the corresponding segment of the peræon.

The pleon is cylindrical and slender throughout, very much narrower than the cephaloperæon, and the segments increase slightly and regularly from the first to the sixth. The telson is shorter than the sixth segment, swollen for the proximal half its length, then suddenly narrowed into a slender terminal portion which is armed either side with about five or six very slender spiniform setæ, and at the tip with two styliform setæ nearly half as long as the telson itself. The pedunceles of the uropods are slender, not quite twice as long as the telson and armed along the distal half of the inner margin with approximately ten very long setæ. The inner ramus is narrow, about half as long as the peduncle, composed of three segments, armed along the inner edge with approximately twelve slender spines, at the tip with a larger spine, and along the outer edge with a few setæ. The outer ramus is a little longer than the inner, slender, and armed along the outer edge and at the tip with setiform spinules. The telson and uropods are more or less imperfect in all the specimens examined, and do not admit of very exact description.

All the *males* examined are immature and of about the same size as the females. They differ from the females, as in the species of *Diastylis*, in having rudimentary exopods on the third and fourth peræopods and in having rudimentary appendages upon the first and second segments of the pleon. The specimens examined show scarcely any differences in the telson and uropods, but these differences would probably be developed in more mature individuals.

A female gives the following measurements:—

Length from rostrum to tip of telson	12·2mm.
Length of cephaloperæon along dorsum	6·7
Length of carapax along dorsum	4·2
Greatest height of carapax	2·0
Greatest breadth of carapax	1·8
Length of 3rd and 4th free segments of peræon along dorsum	1·8
Length of pleon to tip of telson	5·6

The few specimens of this very interesting and pretty species were all from 111 fath., Dixon Entrance, Q.C.I. It is interesting to notice that it was associated with *Synidotea nodulosa*, a species before known only from the Atlantic.

Isopoda.

Lygia dilatata Stimpson.

One specimen from near Victoria, V.I.

Synidotea nodulosa Harger.

Idothea nodulosa Krøyer, Naturhist. Tidssk., II., ii., p. 100, 1846; in Gaimard, Voyage en Scandinavie, pl. 26, fig. 2, 1849.

Synidotea nodulosa Harger, Amer. Jour. Sci., III., xv., p. 374, 1878; Proceedings United States National Museum, 1879, p. 160, 1879.

Two specimens from 111 fath., Dixon Entrance, Q.C.I. It has been found in the Atlantic from George's Banks and Nova Scotia to Greenland, but has not been recorded heretofore from the Pacific. The specimens were determined by Mr. Harger.

Sphæroma sp.

A small species from Dolomite Narrows, Q.C.I. It is apparently quite distinct from *S. Oregonensis* Dana and from *S. amplicauda* Stimpson, the only species, as far as I know, described from the north-west coast of America.

Tanais? sp.

There are two dry specimens of a small Tanaid from 15 to 18 fath., Virago Sound, Q.C.I.

Cirripedia.

Tetraclita porosa Darwin.

Near Victoria, V.I.

Lepas anatifera Linné.

Near Victoria, V.I.