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29.

THE CRUSTACEA DECAPODA BRACHYURA OF CHILE

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Introduction

Historical Resumé

Our knowledge of the Decapoda Brachyura of Chile is derived from four main sources: the itinerant naturalists, beginning with G. I. MOLINA (MOLINA, 1782) and continuing with A. d'ORBIGNY (MILNE EDWARDS and LUCAS, 1842—1844), E. POEPPIG (POEPPIG, 1835—1836), H. CUMING (BELL, 1835c, 1836), C. GAY (NICOLET, 1849), R. A. PHILIPPI (PHILIPPI, 1894), F. DOFLEIN (DOFLEIN, 1899), F. SILVESTRI (NOBILI, 1902), F. T. DELFIN (PORTER, 1903), L. PLATE (LENZ, 1902), C. SKOTTSBERG (BALSS, 1924), and W. L. SCHMITT (RATHBUN, 1930); the voyages, beginning with the 'Coquille' (GUÉRIN, 1838a) and followed by 'La Favorite' (GUÉRIN, 1838b), 'La Bonite' (EYDOUX and SOULEYET, 1842 or 1843), the 'Astrolabe' and 'ZÉLÉE' (JACQUINOT, 1853), the 'Novara' (HELLER, 1862, 1865), the 'Magenta' (TARGIONI-TOZZETTI, 1872, 1877), the 'Nassau' (CUNNINGHAM, 1871), the 'Alert' (MIERS, 1881), the 'Hassler' (1872, but unreported until RATHBUN, 1918), the 'Challenger' (MIERS, 1886), the 'Caracciolo' and the 'Vettor Pisani' (CANO, 1888, 1889), the 'Albatross' (FAXON, 1895; RATHBUN, 1898b), and the 'Alva' (BOONE, 1938); the expeditions, beginning with the 'U. S. Exploring Expedition' (DANA, 1851, 1852) and followed by the 'U. S. Astronomical Expedition' (GIRARD, 1855), 'Die Deutsche Expeditionen' (PFEFFER, 1890), the 'Mission Scientifique du Cap Horn' (A. MILNE EDWARDS, 1891), 'Die Hamburger Magalhaensischen Sammelreise' (DOFLEIN and BALSS, 1912), the 'Princeton Expedition to South Patagonia' (ORTMANN, 1911), the 'Swedish Southpolar Expedition' (LAGERBERG, 1908), and the 'Espedición a Taitao' (PORTER, 1917a); and the writings of Dr. CARLOS E. PORTER (See Appendix A), who from 1897 to 1941 published many notes in Chilean journals toward a Carcinological Fauna of Chile, and of Dr. MARY J. RATHBUN, who in her "Stalk-eyed Crustacea of Peru" (1910) included records south to Chiloé Island and in her successive monographs on the Crabs of America (1918, 1925, 1930, 1937) incorporated what was then known of the Chilean fauna.

Composition of the Chilean Fauna

The number of Crustacea Decapoda Brachyura known or reported from Chile is 101, a figure roughly equivalent to the combined Decapoda Anomura and Macrura. Of this number at least 27 are doubtfully Chilean, since their occurrence is based on specimens of questionable provenience. Of the remaining 74 species, one is a fresh water form, four are pelagic, and three occur in deep water. [That this number

is not greater may be due either to the paucity of deep dredging or to the polar emergence of mid-latitude, deep-water forms.]

If the 66 remaining littoral species are assigned to the zoogeographic regions proposed by EKMAN (1953, p. 210), with the north end of Chiloé Island (Lat. 42° S) as the dividing line, 37 species may be listed as belonging to the Peruvian-North Chilean region, including four Juan Fernandez Island endemics, while only four may be listed as exclusively antiboreal. If, however, the austral species that extend as far north as Valparaíso, but no farther, be included, the list of antiboreal forms is increased to six, a number more in keeping with the relative importance of this segment to the total fauna. An additional 20 species are common to both regions. Excluded from the above enumeration are three species known from "Chile" but without more precise locality.

The number of species obtained by the Lund University Expedition in Chilean waters was 35, or over one-third of the total brachyuran fauna. Among Hamburg Museum material supplied by Dr. A. PANNING an additional 13 species, including a number from North Chile, were represented. Still others were present among Hancock Expedition collections from Peru or were borrowed from various museums. Although no particular effort was made to examine every species recorded, fewer than 20 of the 101 reported as occurring in Chilean waters have not been seen at one time or another.

Importance of the Lund University Collection

Although it contains few novelties, the collection obtained by the Lund University Chile Expedition of 1948—1949 is one of the most important to have reached Europe from Chilean waters because of the completeness of the accompanying ecological data. When properly evaluated this information will add a vertical component to the distribution of each species by placing it in its appropriate horizon with respect to mean low tide. In this way the plant and animal associates of any desired species may readily be determined. When the work so well begun by Dr. DAHL and Prof. BRATTSTRÖM is carried to completion, there should result a clearer understanding of ecological conditions of the central Chilean littoral than is presently available for any comparable coastline in the Americas.

The generous samples obtained, which in the case of the more abundant intertidal species total from 350 to 450 specimens, make it possible to ascertain normal adult size for populations from widely separated localities. The continuous occupancy of several stations for as long as three months and the revisitation of one locality after a lapse of six months provide for several species data on the seasonal aspects of egg bearing and the appearance of young adults; while the collecting of the same species at localities ranging through nearly 30° of Latitude makes it possible to trace emergence from sublittoral to eulittoral with advance from Equator to Pole.

Zoogeographical Considerations

It is difficult to reconcile the present-day Chilean fauna with that recorded by the early naturalists unless one of the following assumptions is made: (a) that the climate of coastal Chile was warmer during the early middle part of the last century than at present, (b) that collections of the early naturalists were made during periods of invasion from the north of the warm Niño Current, or (c) that at least some of the species attributed to Chile by d'ORBIGNY, GAY, and FONTAINES were collected north of the present limits of Chile. The latter alternative finds support in the writings of PHILIPPI (1894, p. 266), who calls attention to the type locality of *Panopeus crenatus*, given by MILNE EDWARDS and LUCAS (1843) as "Callao, Chili", and to the application by the same authors of the name *Potamia chilensis* to a fresh-water crab found near Lima, Peru. If alternative (c) above can be assumed for specimens reported prior to DANA (1852) having as their provenience "Chile" without precise locality, the task of the zoogeographer in reconciling the present cold-water fauna with an apparent early warmer one is simplified and there is no need to search for the oceanographic and meteorological data required to establish alternatives (a) and (b), which for the territory and period are meager.

If the west coast of South America from Pta. Aguja (Lat. 6° S) to the Strait of Magellan is thought of as the mirror image of the west coast of North America from Pta. Eugenia (Lat. 28° N) to Bering Strait, certain analogies become apparent. The Seno Reloncaví-Golfo de Ancud region in which most of the work of the Lund University Chile Expedition was concentrated compares with Puget Sound; the Canal Chacao has its counterpart in the Strait of San Juan de Fuca; Isla Chiloé in Vancouver Island; and the labyrinth of inland channels, culminating in the remote Seno Almirantazgo, in the inland passageway to Alaska. In each case a cold-water fauna is involved, in that the currents that affect the littoral zone so profoundly are directed from poles toward Equator.

The geographical and hydrological similarities of the two regions find their biological reflection in the number of analogous species inhabiting the two hemispheres. In some cases the relationship is a close one, as in the Cancridae, where *Cancer* is represented by nine species in the north Pacific and four in the south; in the Majidae, where *Taliepus* occurs with two species in the south temperate region and but one in the north; or in the Grapsidae, where *Hemigrapsus* occurs with two species in the north and but one in the south, while with *Cyclograpsus* the reverse situation obtains. In other instances ecological equivalents are present, as with *Oregonia* vs. *Eurypodius*, *Chionoecetes* vs. *Leurocyclus*, *Chorilia* vs. *Libidoclaea*, the first named being the northern hemisphere vicariate in each case.

It is tempting to carry the parallel further by listing the South American forms and their North American counterparts; however, this would imply a detailed knowledge of the Chilean and Peruvian species that is yet to be acquired and documented. It is at this point that the collections of the Lund University Expedition are opportunely come by, for they are almost the first from this area to be accompanied by

adequate locality and habitat data. They have enabled the writer to extend vicariously his systematic and zoogeographical studies begun aboard the *Velero III* and terminated at San Juan Bay, Peru, antipode of Hancock Pacific Expeditions.

In emphasizing the resemblance of the Chilean fauna to that of the temperate north Pacific it is not intended to minimize the even closer tie with the south Atlantic. The former is based upon representative species of the same genera and/or representative genera of the same families, the latter upon common species, of which ten or more may be listed. Expeditions reaching the south Pacific from Europe and eastern North America prior to the opening of the Panama Canal had first to traverse the south Atlantic. Their naturalists, arriving in Chile with experience in Uruguay and Argentina uppermost in mind, were predisposed to compare the new fauna with that of eastern Patagonia. In fact, it is strongly suspected in more than one case that they may have attributed to Chile specimens gathered on these other shores. Add to this the custom, attested by Dr. A. PANNING (*in litt.*), of the early sea captains of giving the terminal port of an ocean voyage as the locality for all specimens collected enroute, and we have the explanation for the Valparaíso label on Atlantic species collected at such way points as Cape Verde Islands, Recife, Rio de Janeiro, and Montevideo. Critical evaluation of the circumstances in each case is necessary if such spurious records are to be eliminated, while constant vigilance on the part of workers reviewing the older material is required if new errors are not to be introduced.

One cannot conclude a consideration of the Chilean brachyuran fauna without mentioning the small but significant element represented also in the Antipodes (Cf. CHILTON and BENNETT, 1929, p. 735). Excluding pelagic species of circum-Subantarctic distribution, three Chilean species are common to New Zealand, and one of these occurs in Australian waters as well. The New Zealandian species of *Cancer* is thought to be a distant offshoot of one of the Chilean species (Cf. A. MILNE EDWARDS, 1865, p. 190), whereas the Juan Fernandez Island species of *Paramithrax* has but recently (BALSS, 1924, p. 336) been held to be distinct from the New Zealand form (see Summary).

Method of Treatment

In preparing the synonymies the writer has been guided by the desire to provide, especially for Chilean workers, the basic references required for systematic studies and to avoid, if possible, the burdening of an essentially Chilean fauna with references to extralimital occurrences of widely ranging species. Accordingly, citations are given to the original description, all primary synonyms, all recombinations, all variant spellings, and all records from Chile and Peru, while omitted are references to Pacific records of Chilean species north of the Gulf of Guayaquil (except for a few extralimital records from Panama) and Atlantic records east of Punta Arenas [Magallanes]. Synonymies of species ranging beyond these limits are marked "Restricted", but the restriction is geographical rather than taxonomic.

In listing the previous records in geographical sequence some difficulty has been encountered. This is occasioned by (1) the occurrence of the same place name in two or more countries: Ancon, Ecuador, and Ancon, Peru; Tumbes, Peru, and Tumbes, Chile; (2) the occurrence of the same place name for different and widely separated geographical features: Seno Otway, Bahía Otway, and Port Otway, all in Chile; (3) the use for the same geographical feature of English and Spanish equivalents that are not always transliterable: Port Otway and Puerto Barroso; Sandy Point and Magallanes (formerly Punta Arenas); and (4) changes in international boundaries transferring a given locality from one country to another; thus, in the literature marine species are attributed to Bolivia, which for many years had a corridor to the Pacific. Currently accepted ranges of Chilean species, when found to be based on such geographical or political vagaries, have been corrected accordingly, but it is by no means certain that all such have been detected. The Millionth Map of Hispanic America and its Index, published by the American Geographical Society (1945), has been the court of last resort in these matters. Localities not found therein are listed last, preceded by the words "*Incertae sedis*".

The field notes provided with Lund University Expedition specimens are brief but explicit and concern themselves with color, tidal level, method of collecting, habit and habitat, relative abundance, epizooites, parasites, hosts of commensal species, and breeding. These are entered in the section on Material examined as penned by their authors except that it has been possible, in the case of associated animals, to insert in most instances the correct names as determined by the specialist reporting on that group. For Hamburg Museum specimens such notes are not available, nor are the localities always as reliable. Collectors were for the most part ships' officers, such as Capt. R. PAESSLER, or guano importers, such as W. von OHLENDORFF, and rarely professional zoologists like Prof. W. MICHAELSEN, late Hamburg Museum curator. Dr. A. PANNING points out that specimens collected at guano stations as widely separated as Lobos de Afuera and Chinchas Islands may have been assembled at Pisco, Peru, or even at Valparaíso by company personnel not overly familiar with these localities, and that some exchange of place names may have occurred. In such cases he proposes that only Peru be given as place of origin. For a list of Hamburg Museum collectors see Appendix C.

The paragraph on Range, following the section on Material examined, includes such additions to range, both geographic and bathymetric, as have resulted from the present study. Distinction is made between normal and exceptional ranges, the latter being designated extralimital. Where limits of range differ from those given in the RATHBUN monographs, a citation to the more recent publication giving the basis for the change will be found in the preceding synonymy.

Specimens are measured in accordance with the directions given by RATHBUN (1925, p. 1), except that in the case of spider crabs with a double rostrum the length is measured along the mid-line as prolonged anteriorly to an imaginary perpendicular joining the tips of the rostral spines.

Since the Lund University Chile Expedition collections contain no specimens of

the families Portunidae and Potamonidae, the preparation of these sections has been largely a compilation from the literature. The large and varied collection of Pinnotheridae, a family neglected up to now because of the small size of its members and their commensal habitat, has yielded perhaps the most significant results and it is upon this group that descriptive work has been concentrated. Two new species of *Pinnixa* are described, as is the male of *Pinnotheres politus* SMITH; the generic status of *Pinnotheres silvestrii* NOBILI is established; and males of all species of Chilean Pinnotheridae, with the exception of an indeterminable species of NICOLET's, are figured. For a complete enumeration of the results of this study see Summary (p. 108).

Acknowledgments

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Among professional colleagues the writer is indebted to Dr. LUCIA ROSSI of the Museo di Zoologia, Torino, for the loan of the holotype of *Pinnotheres silvestrii* NOBILI, to Dr. ISABELLA GORDON of the British Museum (Natural History), London, for the loan of specimens reported on by CUNNINGHAM and by MIERS, to Dr. WOLFGANG ENGLEHARDT of the Zoologische Sammlung des Bayerischen Staates, München, and to Dr. A. PANNING of the Zoologisches Museum, Hamburg, for the loan of specimens collected by the 'Hamburger Magalhaensischen Sammelreise' and reported on by DOFLEIN and BALSS, to Mr. J. FOREST of the Museum d'Histoire Naturelle, Paris, for a sketch of the male abdomen of the ?type of *Pinnixa transversalis* MILNE EDWARDS and LUCAS, to Dr. TORBEN WOLFF of the Copenhagen Museum for sketches of the holotype of *Pinnaxodes meinerti* RATHBUN, to Dr. L. B. HOLTHUIS of the Rijksmuseum van Natuurlijke Historie, Leiden, for information concerning MOLINA's second edition names and advice on systematic procedure, to Dr. ELISABETH DEICHMANN of the Museum of Comparative Zoology, Cambridge, for the loan of material obtained by the 'Hassler' Expedition, to Dr. FRANCISCO RIVEROS-ZUNIGA of the Estación de Biología Marina, Montemar, for supplying a complete list of the publications on Crustacea of the late Dr. CARLOS E. PORTER in Chilean journals (see Appendix A), to Prof. L. R. RICHARDSON of Victoria College, Wellington, for providing comparative material and information on the occurrence of Chilean species in New Zealand, and to Dr. F. A. CHACE, Jr., of the United States National Museum, Washington, for the loan of specimens collected by the 'Albatross' and reported on by RATHBUN, for comparison of Lund University Pinnotheridae with types in the Smithsonian Institution, and for advice and encouragement throughout.

Finally, among immediate associates thanks are due to JANET HAIG, research associate, Allan Hancock Foundation, for much of the bibliographic research and for the examination of specimens collected by the 'Challenger' in the British Museum (Natural History), and to ANKER PETERSEN, RUSSEL CANGIALOSI, GAYLEN C. HANSEN, and GLENNIS SAYERS, staff artists, for the figures that illumine the text.

List of stations at which Decapoda Brachyura were collected by the Lund University Chile Expedition

Cf. BRATTSTRÖM & DAHL: Chile Report No. 1. 1951.

St. M 1. Seno Reloncaví, Puerto Montt, between the harbour and the pier, 41°28′35″ S, 72°57′15″ W; tidal belt, rather exposed; clayey sand and stones; hand sampling; November 1948.

St. M 3. Seno Reloncaví, Canal Tenglo, Isla Tenglo, northern shore, opposite Puerto Montt harbour, 41°29′15″ S, 72°57′50″ W; tidal belt, very sheltered; sand and gravel with mud and small stones; hand sampling; November 29, 1948.

St. M 4. Seno Reloncaví, the bay off Puerto Montt, N of the light-buoy NE of Isla Tenglo, 41°28′54″ S, 72°57′24″ W; depth 13—16 m; coarse, grey sand with pieces of clinker; triangular dredge; November 11, 1948.

St. M 5. Seno Reloncaví, the bay off Puerto Montt, NW of the light-buoy NE of Isla Tenglo, 41°28′54″ S, 72°57′28″ W; depth 10—12 m; coarse sand with pieces of clinker; triangular dredge; November 11, 1948.

St. M 7. Golfo de Quetalmahué, SW of Punta Rangui, 41°50′40″ S, 73°57′10″ W; depth 2—5 m; wooden frames with concrete for oyster cultures; hand sampling; November 17, 1948.

St. M 8. Golfo de Quetalmahué, Isla Pullinque, N of Punta Rangui, 41°50′12″ S, 73°56′57″ W; tidal belt, sheltered; grey mud with a little sand and rocks; hand sampling; November 17, 1948.

St. M 9. Bahía de Ancud, Península Lacui, Punta Ahui, southern shore, 41°49′54″ S, 73°51′46″ W; tidal belt, rather exposed; rocks, boulders, and stones; hand sampling; November 17, 1948.

St. M 10. Bahía de Ancud, Punta El Morro, 41°52′42″ S, 73°50′46″ W; tidal belt, very exposed; stones and rocks with rock pools and holes; hand sampling; November 18, 1948 and March 2, 1949.

St. M 11. Bahía de Ancud, Lechagua, 41°53′03″ S, 73°51′18″ W; tidal belt, very exposed; sand beach with rather fine sand and small stones; hand sampling; November 18, 1948.

St. M 12. Seno Reloncaví, Canal Tenglo, Puerto Montt harbour, 41°29′10″ S, 72°57′47″ W; depth 3 m; wooden board, hanging free in the water; hand sampling; November 20, 1948.

St. M 13. Seno Reloncaví, Canal Tenglo, between Isla Tenglo ("Quinta Hoffman") and Angelmó (ship-yard "Immar"), 41°29′16″ S, 72°58′10″ W; depth 0—6 m, very sheltered; stones, gravel, and sand with mud; brood trawl; November 30, 1948.

St. M 14. Seno Reloncaví, the bay off Puerto Montt, between Isla Tenglo and Punta Pilluco, 41°30′05″ S, 72°56′22″ W; depth 225 m; small stones and boulders in fine sand, some sunken treetrunks; Agassiz trawl; December 1, 1948.

St. M 16. Seno Reloncaví, Piedra Azul, NW of Punta Quillaipe, 41°31′30″ S, 72°48′15″ W; depth 30—55 m; hard, grey, coarse sand and small stones; commercial fish trawl and Agassiz trawl, circular dredge and Van Veen grab; December 2, 4, 10, and 14, 1948, and April 15, 1949.

St. M 17. Golfo de Ancud, Canal Calbuco, E of the church in Calbuco, 41°46′30″ S, 73°06′45″ W; depth 30 m; grey sand and small stones; triangular dredge and Agassiz trawl; December 14, 1948.

St. M 18. Golfo de Ancud, Estero Huito, N of Punta Yahuecha, 41°45′30″ S, 73°07′50″ W; depth 35 m; dead algae; triangular dredge and Agassiz trawl; December 15, 1948.

St. M 19. Golfo de Ancud, Estero Huito, inner part, 41°43′ S, 73°09′40″ W; depth 5—6 m; fine sand, covered with dead algae; triangular dredge and Agassiz trawl; December 15, 1948.

St. M 20. Golfo de Ancud, Estero Huito, central part, 41°43′50″ S, 73°10′15″ W; depth 15 m; very fine sand, mixed with mud; triangular and circular dredges and Agassiz trawl; December 15, 1948.

St. M 21. Golfo de Ancud, Canal Calbuco, between Punta Meimen and Punta Pinto, 41°48′ 50″ S, 73°09′40″ W; depth 25 m; small stones; triangular dredge and Agassiz trawl; December 15, 1948.

St. M 22. Golfo de Ancud, Isla Quenu, Punta Pinto, western side, 41°49′15″ S, 73°10′15″ W; tidal belt, rather exposed; boulders and stones in sand; hand sampling; December 16, 1948, and May 11, 1949.

St. M 23. Golfo de Ancud, Isla Quenu, Punta Pinto, northern side; 41°49′10″ S, 73°10′ W; tidal belt, rather sheltered; boulders and stones in sand; hand sampling; December 16, 1948.

St. M 26. Seno Reloncaví, Canal Tenglo, Isla Tenglo, north-eastern point, 41°29′02″ S, 72°57′27″ W; lowest part of tidal belt, rather sheltered; sand and small stones; hand sampling; December 17 and 18, 1948.

St. M 29. Estero Reloncaví, Bahía Ralún, E of Punta Dirección, 41°24′30″ S, 72°19′45″ W; depth 35—40 m; very fine, clay-like sand; triangular and rectangular dredges and Agassiz trawl; January 4, 1949.

St. M 30. Estero Reloncaví, Bahía Ralún, Banco Petrohué, 41°24′ S, 72°19′20″ W; tidal belt, very sheltered; volcanic ash (dark coarse sand) alternating with fine clay-like sand, old tree-trunks; hand sampling; January 5, 1949.

St. M 31. Estero Reloncaví, Bahía Ralún, the skerry Cayo Nahuelgúapi, western and north-western point, 41°24′30″ S, 72°19′05″ W; tidal belt, very sheltered; rocks; hand sampling; January 5 and April 1, 1949.

St. M 33. Bahía de Ancud, Punta San Antonio, 41°51′33″ S, 73°50′14″ W; tidal belt, extremely exposed; rocks, stones, and sand; hand sampling; January 3, 1949.

St. M 37. Seno Reloncaví, Punta Pilluco, 41°30′06″ S, 72°53′57″ W; tidal belt, rather exposed; boulders in sand, some beds of hard clay; hand sampling; January-April, 1949.

St. M 38. Golfo de Ancud, SW of Isla Quellín, 41°55′ S, 72°58′ W; depth 300 m; fine clay with fragments of polychaete tubes; triangular dredge and Agassiz trawl; January 22, 1949.

St. M 39. Seno Reloncaví, the bay E of the church on Isla Quellín, 41°52′30″ S, 72°53′50″ W; depth 25 m; nature of bottom unknown; dip net; January 22, 1949.

St. M 41. Golfo de Ancud, ESE of Isla Tac, 42°26′40″ S, 72°59′ W; depth 250—300 m; sand and clay with small stones and shells; triangular dredge; January 23, 1949.

St. M 42. Golfo de Ancud, Paso Tenaun, S of Punta Tenaun, 42°20′50″ S, 73°22′ W; depth about 70 m; hard bottom; triangular dredge; January 24, 1949.

St. M 43. Golfo de Ancud, between Quemchi and Isla Caucahué, W of Punta Queler, 42°08′ 20″ S, 73°28′20″ W; depth 30—40 m; coarse sand, small stones, and a few boulders; triangular dredge; January 24, 1949.

St. M 46. Golfo de Ancud, Canal Caicaen, W of Calbuco, 41°46′15″ S, 73°09′ W; depth about 13 m; coarse sand, boulders, and dead algae; circular dredge and Agassiz trawl, Petersen and Van Veen grab; January 24 and 25, 1949.

St. M 47. Seno Reloncaví, Paso Maillén, between Punta Panitao and Punta Puchegui, 41°33′45″ S, 73°02′05″ W; depth about 22 m; coarse sand with *Chaetopterus* tubes, small stones with calcareous algae; triangular dredge; January 25, 1949.

St. M 48. Seno Reloncaví, the bay off Puerto Montt, S of the pier, 41°28′50″ S, 72°56′50″ W; depth 30 m; sand with detritus; Mortensen microfauna collector; February 3, 1949.

St. M 50. Seno Reloncaví, Canal Tenglo, near "Pontón Sirena", 41°29′33″ S, 72°58′38″ W; depth 11 m; sand; triangular dredge; February 16, 1949.

St. M 55. Bahía de Ancud, between Punta San Antonio and Punta Colorada, 41°51′30″ S, 73°49′40″ W; tidal belt, extremely exposed; rocks with rock pools; hand sampling; February 25 and 27, March 7, 1949.

St. M 56. Canal Chacao, Península Laqui, Punta Corona, north-eastern point, 41°47′ S, 73°53′07″ W; tidal belt, extremely exposed; flat rocks with small holes and very shallow rock pools; hand sampling; February 26 and 28, 1949.

St. M 57. Bahía de Ancud, Península Lacui, Punta Ahui, 41°49′51″ S, 73°51′46″ W; tidal belt, very exposed; rocks with rock pools; hand sampling; March 1, 1949.

St. M 59. Seno Reloncaví, Canal Tenglo, Isla Tenglo, western point, 41°30′45″ S, 73°00′13″ W; tidal belt, rather exposed; upper part with beds of hard clay, lower parts with boulders and stones in mud; hand sampling; March 13 and 14, 1949.

St. M 60. Seno Reloncaví, Isla Tenglo, the bay on the south side, 41°30′15″ S, 72°58′50″ W; tidal belt, rather exposed; sand; hand sampling; March 25 and 29, 1949.

St. M 63. Golfo de Ancud, Canal Dalcahué, W of Bajo Pasaje, 42°25′30″ S, 73°39′20″ W; tidal belt, sheltered; stones with algae; hand sampling; February 16, 1949.

St. M 74. Archipiélago de los Chonos, Canal Moraleda, Puerto Lagunas, 45°17′ S, 73°45′ W; depth 5—7 m; stones with algae and Mytilidae; hand sampling, diver; February 22, 1949.

St. M 76. Archipiélago de los Chonos, Canal Moraleda, Puerto Ballena, 44°10′ S, 73°29′30″ W; tidal belt, rather sheltered; boulders, with fresh water running between them; hand sampling; February 24, 1949.

St. M 81. Estero Reloncaví, W of Punta Iglesia, 41°41′05″ S, 72°24′30″ W; depth 200—250 m; mud, mixed with sand; Agassiz trawl; March 30, 1949.

St. M 82. Estero Reloncaví, Bahía Sotomó, 41°38′30″ S, 72°22′47″ W; tidal belt, rather sheltered; rocks; hand sampling; March 31, 1949.

St. M 83. Estero Reloncaví, W of Río Puelo, 41°38′05″ S, 72°20′45″ W; depth about 170 m; very fine mud, mixed with sand; triangular and circular dredges and Agassiz trawl; March 31, 1949.

St. M 84. Estero Reloncaví, Bahía Sotomó, 41°38′34″ S, 72°22′45″ W; depth 50 m; muddy sand with shell fragments; triangular dredge; March 31, 1949.

St. M 87. Estero Reloncaví, Bahía Ralún, between Cayo Nahuelgúapi and Punta Veriles, 41°24′30″ S, 72°19′03″ W; depth 6 m; coarse sand with small stones, shells and terrestrial plant detritus; triangular dredge; April 1, 1949.

St. M 88. Estero Reloncaví, Bahía Ralún, between Cayo Nahuelgúapi and Punta Veriles, 41°24′30″ S, 72°18′58″ W; depth 12 m; coarse sand, treetrunks and leaves from terrestrial plants; circular dredge; April 1, 1949.

St. M 90. Seno Reloncaví, Isla Tenglo, south-western point, 41°31′03″ S, 73°00′02″ W; tidal belt, exposed; boulders and stones on sand; hand sampling; April 12, 1949.

St. M 91. Seno Reloncaví, Ensenada de Guatral, SW of Punta Guatral, 41°43′ S, 73°03′15″ W; tidal belt, rather sheltered; boulders and stones on sand; hand sampling; April 13, 1949.

St. M 92. Golfo de Ancud, Bahía Ilto at Isla Tabon, N of Punta Ilto, 41°53′40″ S, 73°10′16″ W; depth 45 m; sand with dead algae; triangular dredge; May 3, 1949.

St. M 94. Canal Chacao, W of Rocas Amazonas, 41°46′30″ S, 73°45′45″ W; depth 40 m; small stones, triangular and rectangular dredges; May 4, 1949.

St. M 95. Golfo de Quetalmahué, SW of Punta Aucan, 41°51′ S, 73°57′10″ W; depth 6—7 m; muddy sand covered with dead algae, shells; triangular and rectangular dredges; May 4, 1949.

St. M 96. Golfo de Quetalmahué, S of Punta Nagle, 41°51′40″ S, 73°55′50″ W; depth 11 m; mud covered with dead algae, Spongiae and shells; rectangular dredge and Agassiz trawl; May 4, 1949.

St. M 97. Golfo de Quetalmahué, S of Punta Arenas, 41°51′57″ S, 73°54′ W; depth 14 m; muddy sand with algae and Spongiae; Agassiz trawl; May 4, 1949.

St. M 98. Bahía de Ancud, SE of Punta Ahui, 41°50′10″ S, 73°51′20″ W; depth 8 m; small stones with algae; triangular and rectangular dredges; May 5, 1949.

St. M 103. Canal Chacao, N of Punta Soledad, 41°48′50″ S, 73°31′30″ W; depth 40 m; stones and polychaete tubes; triangular dredge; May 5, 1949.

St. M 104. Golfo de Ancud, SE of Punta Tres Cruzes, NE of Punta Piedras, 41°50′30″ S, 73°28′30″ W; depth 50—60 m; stones and clinkers; triangular dredge; May 5, 1949.

St. M 106. Golfo de Ancud, between Punta Abtao and Isla Abtao, S of the church, 41°48′40″ S, 73°21′ W; depth 36 m; coarse sand and shells; triangular dredge; May 5, 1949.

St. M 107. Golfo de Ancud, N of Punta Barranco at Isla Abtao, 41°47′18″ S, 73°20′55″ W; depth 60 m; coarse sand with mud and some dead algae; triangular and circular dredges and Agassiz trawl; May 5 and 6, 1949.

St. M 108. Golfo de Ancud, Canal San Antonio, 41°44′10″ S, 73°15′15″ W; depth 15 m; coarse shell sand and dead algae; triangular dredge; May 6, 1949.

St. M 109. Golfo de Ancud, Canal San Antonio, inner part, between Punta San Antonio and Punta Chuyegua, 41°47′40″ S, 73°15′40″ W; depth 36 m; gravel and small stones with calcareous algae; triangular dredge; May 6, 1949.

St. M 110. Golfo de Ancud, SE of Bajo Corvio, 41°50′45″ S, 73°12′10″ W; depth 24 m; stones with calcareous algae; triangular dredge; May 6, 1949.

St. M 113. Estrecho de Magallanes, Punta Santa María, near Agua Fresca, 53°22′ S, 70°57′ W; tidal belt, exposed (shelter: kelp); sand, gravel, and muddy clay, covered with boulders; hand sampling; May 2, 1949.

St. M 115. Estrecho de Magallanes, near the estuary of Río los Ciervos, S of Punta Arenas, 53°11′ S, 70°55′ W; tidal belt, exposed (shelter: kelp); gravel and clay, mixed with mud and covered with boulders; hand sampling; May 3, 1949.

St. M 116. Seno Almirantazgo, Caleta María, 54°28′ S, 68°59′ W; tidal belt, rather sheltered; boulders; hand sampling; May 7, 1949.

St. M 120. Bahía San Viente, the Ramuntcho bay, SE of Punta Gualpén, 36°44′54″ S, 73° 11′02″ W; tidal belt, exposed; hard rocks and boulders, between the lower boulders coarse sand; hand sampling; June 8, 1949.

St. M 121. Bahía San Vicente, Punta Liles just W of San Vicente, 36°43′36″ S, 73°08′10″ W; tidal belt, rather exposed; rocks with small rock pools, boulders; hand sampling; June 9, 1949.

St. M 122. Golfo de Arauco, Bahía de Lota, small promontories SE of Punta Fuerte Viejo, 37°06′17″ S, 73°09′15″ W; tidal belt, extremely exposed; hard rocks and boulders in coarse sand; hand sampling; June 10, 1949.

St. M 123. Montemar (N of Valparaíso), "Estación de biologia marina", 32°57′24″ S, 71°33′ 25″ W; tidal belt, exposure varying in different parts of the station; rocks with rock pools; hand sampling; September, October, and December 1948, and June 15, 1949.

St. M 124. Bahía Herradura de Guayacán, northern part, SW of the factory "Melon", W of Guayacán, 29°57′55″ S, 71°22′17″ W; tidal belt, rather sheltered; hard rocks; hand sampling; June 21, 1949.

St. M 125. Bahía Herradura de Guayacán, south-western corner, NW of Herradura, 29°58′ 51″ S, 71°22′56″ W; tidal belt, rather sheltered; boulders, stones, and sand; hand sampling; June 22, 1949.

St. M 126. Bahía Herradura de Guayacán, south-western corner, NW of Herradura, 29°58′ 57″ S, 71°22′54″ W; tidal belt, rather sheltered; sand beach with fine grey sand; hand sampling; June 22, 1949.

St. M 127. Península Coquimbo, headland S of Roca Pelícanos, N of Coquimbo ("Fuerte"), 29°55′56″ S, 71°21′08″ W; tidal belt, very exposed; yellow rocks; hand sampling; June 24, 1949.

St. M 128. Bahía de Coquimbo, harbour of Coquimbo, 29°56′23″ S, 71°21′03″ W; depth 0—0.5 m; hull of a motor launch; hand sampling; June 24, 1949.

St. M 129. Puerto Mejillones del Sur, S of Antofagasta, 23°06′30″ S, 70°28′ W; depth 0—0.5 m; hull of a barge; hand sampling; June 30, 1949.

St. M 130. Punta de Lobos, S of Iquique, 21°04′ S, 70°11′30″ W; depth 0—0.5 m; hull of a barge; hand sampling; June 30, 1949.

St. M 131. Iquique, southern part of the town, 20°13′10″ S, 70°10′19″ W; tidal belt, extremely exposed; red rocks with rock pools; hand sampling; July 1, 4, and 6, 1949.

St. M 133. Iquique, the harbour, 20°12′30″ S, 70°10′19″ W; tidal belt, very sheltered; rocks and boulders; hand sampling; July 2, 1949.

St. M 134. Punta Negra, N of Iquique, 20°11′13″ S, 70°19′15″ W; tidal belt, extremely exposed; rocks and sand beach; hand sampling; July 3, 1949.

St. M 135. Cavancha, S of Iquique, 20°14′07″ S, 70°10′05″ W; tidal belt, exposure varying in different parts of the station; rocks with rock pools; hand sampling; July 5, 1949.

St. M 139. Estero Reloncaví, at El Milagro, 41°42′10″ S, 72°39′30″ W; tidal belt, very exposed; steep rocks; hand sampling; July 14, 1949.

St. M 142. Seno Reloncaví, the bay off Puerto Montt, E of Isla Tenglo, 41°30′15″ S, 72°57′ 50″ W; depth about 35 m; coarse sand; triangular dredge; July 14, 1949.

St. M 144. Seno Reloncaví, E of Isla Guar, 41°41′ S, 72°47′ W; depth about 250 m; coarse black sand with clay and fragments of polychaete tubes; triangular dredge; July 15, 1949.

St. M 147. Seno Reloncaví, S of Punta San Pedro at Isla Maillén, 41°35′40″ S, 72°58′15″ W; depth 40—45 m; coarse sand; triangular dredge; July 16, 1949.

St. M 148. Seno Reloncaví, S of Punta San Pedro at Isla Maillén, 41°35′35″ S, 72°58′20″ W; depth 20—25 m; coarse sand; triangular dredge; July 16, 1949.

St. M 150. Seno Reloncaví, W of Punta Pilluco, 41°30′09″ S, 72°54′03″ W; depth about 5 m; coarse sand; circular dredge; July 16, 1949.

St. M 152. Montemar (N of Valparaíso), "Estación de biologia marina", 32°57′24″ S, 71°33′ 25″ W; tidal belt, rather sheltered; small sand beach with rather fine sand; hand sampling; September, October, and December 1948.

St. M 154. Arica, the roadstead, 18°28′30″ S, 70°19′25″ W; depth about 25 m; rather coarse sand with shell fragments, triangular and circular dredges; September 7, 1948.

St. M 155. Tocopilla, off the rubbish dumps, 22°05′ S, 70°13′ W; depth about 9 m; various kinds of refuse; triangular dredge; January 4, 1949.

St. M 156. Tocopilla, off the power plant S of the town, 22°05′ S, 70°13′ W; depth about 13 m; hard bottom; triangular dredge; January 5, 1949.

St. M 158. Tocopilla, at the rubbish dumps, 22°05′ S, 70°13′ W; tidal belt, extremely exposed; rocks and boulders; hand sampling; January 5 and 8, 1949.

St. M 159. Antofagasta, at the cold storage plant, 23°39′ S, 70°25′ W; tidal belt, extremely exposed rocks; hand sampling; January 3, 1949.

St. M 161. San Antonio, 33°34′ S, 71°37′ W; tidal belt, extremely exposed; rocks and boulders; hand sampling; December 29, 1948.

St. M 163. Bahía de Concepción, central part, SE of Isla Quiriquina, 36°40′15″ S, 73°01′48″ W; depth about 20 m; soft bottom; commercial fish trawl; December 10, 1948.

Systematic Account

Tribe Brachyura

Subtribe Dromiacea. Superfamily Thelxiopeidea

Family Thelxiopeidae

Paromola WOOD-MASON, 1891

Paromola rathbuni PORTER

Paromola rathbuni PORTER, 1908, p. 88, pl. 8 (type locality, Mas Afuera Island, Juan Fernandez Islands); 1927, p. 141, pl. 10. RATHBUN, 1910, p. 594; 1937, p. 69, pl. 19, fig. 2.

Previous records:

Chile: Mas Afuera Island, Juan Fernandez Islands CAPT. WALDBUN (PORTER, 1908), Mas-a-Tierra Island, Juan Fernandez Islands C. RUIZ S. (PORTER, 1927).

Material examined: None.

Range: Apparently endemic in the Juan Fernandez Islands.

Remarks: The species is known from but two examples, the 90.5 mm female holotype, which was destroyed in the 1906 earthquake and fire, and the 107 mm male collected subsequently by professor RUIZ, which reposes in the National Museum at Santiago. A related species, *P. faxoni* (SCHMITT), occurs in the North Pacific.

It would be regrettable if Dr. PORTER, while intending to honor the late MARY J. RATHBUN in the naming of this species, through an inadvertent choice of the masculine suffix should have succeeded only in paying homage to her brother, the late RICHARD RATHBUN, instead. Better should we consider that honor to the family was thereby intended; for both sister and brother were scientists of distinction.

Subtribe Oxystomata

Family Leucosiidae

Persephona LEACH, 1817

Persephona orbicularis BELL

Persephona orbicularis BELL, 1855, p. 294, pl. 31, fig. 7 (type locality, Valparaíso, Chile). RATHBUN, 1910, p. 594; 1937, p. 160, pl. 45, figs. 5, 6. BOONE, 1930, p. 56, pl. 11.

Previous records:

Panama: Saboga Anchorage, Perlas Islands 'Ara' (BOONE).
Chile: Valparaíso MILLER (BELL).

Material examined: None.

Range: From Saboga Island, Panama, to Valparaíso, Chile.

Remarks: This species has not been recorded from Chile since the holotype, a 38.1 mm female, was "brought from Valparaiso by Mr. MILLER, Surgeon, R. N." That it may indeed have been collected farther north is suggested by the distribution of the genus, which is largely confined to the American tropics. The BOONE record above places the species well within the Gulf of California to Ecuador range of *P. townsendi* RATHBUN, 1893, which may prove synonymous with it.

Family Calappidae

Mursia LEACH, in DESMAREST, 1823

Mursia gaudichaudi (MILNE EDWARDS)

Restricted synonymy:

Platymera gaudichaudii MILNE EDWARDS, 1837, p. 108 (type locality, shores of Chile). MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 13, figs. 1, 1a—d; 1844, p. 28. WHITE, 1847, p. 45. NICOLET, 1849, p. 172. CUNNINGHAM, 1871, p. 493. CANO, 1889, pp. 94, 99, 250. RATHBUN, 1910, p. 593.

Platymera gaudichaudi, MIERS, 1881, p. 71. ORTMANN, 1892, p. 563. LENZ, 1902, p. 750. PORTER, 1906, p. 132; 1921, p. 422, pl. 38; 1925, p. 318; 1936b, p. 153; 1936c, p. 338.

Platymera californiensis RATHBUN, 1893, p. 253 (type locality, off Point Año Nuevo, California, 70 fathoms).

Mursia gaudichaudii, RATHBUN, 1937, p. 220, pl. 66, figs. 1—3; pl. 67, figs. 1—6. GARTH, 1946, p. 361, pl. 62, figs. 3, 4.

Mursia gaudichaudi, PORTER, 1940a, p. 146; 1940b, p. 312; 1941, p. 459.

Previous records:

Peru: None.

Chile: Shores of Chile (MILNE EDWARDS), do GAUDICHAUD, GAY, and FONTAINES (MILNE EDWARDS and LUCAS), do LORDS of the ADMIRALTY (WHITE), do (NICOLET), "probably Chile" ESCHENAUER (ORTMANN), Iquique and Cavancha L. H. PLATE (LENZ), Antofagasta Prov. J. HERRERA (PORTER, 1940a), Bay of Taltal A. CAPDEVILLE (PORTER, 1925), Caldera 'Vettor Pisani' (CANO), Coquimbo 'Nassau' (CUNNINGHAM), do 'Alert' (MIERS), Los Vilos J. N. THOMAS (PORTER, 1906), Valparaíso Museum Godeffroy (ORTMANN), do Paris Museum (cotype) and Copenhagen Museum (RATHBUN, 1937), Tumbes and Talcahuano L. H. PLATE (LENZ).

Material examined:

Lund University Chile Expedition

St. M 123. 2♂.

Hamburg Museum

Chile: Iquique, 12 fathoms; leg. R. PAESSLER, 1890; K 26311; 1 young.

Range: From Gulf of the Farallones, California, to Talcahuano, Chile, including the Galapagos Islands. 20—218 fms.

Remarks: The largest of the two males from Montemar measured 67 mm in length and 104 mm in width to the base of the 15 mm lateral spines, as compared with respective measurements of 64 mm, 95 mm, and 14 mm recorded by RATHBUN (1918, p. 220) for the holotype of *Platymera californiensis*.

Hepatus LATREILLE, 1802

Hepatus chiliensis MILNE EDWARDS

Hepatus chiliensis MILNE EDWARDS, 1837, p. 117 (type locality, shore of Valparaíso, Chile). KINAHAN, 1857, p. 345. CUNNINGHAM, 1871, p. 493. CANO, 1889, pp. 100, 250. RATHBUN, 1910, pp. 551, 593, pl. 37, fig. 1; 1937, p. 244, pl. 72, figs. 1, 2; pl. 73, figs. 1—5. PORTER, 1921, p. 424, text fig. 36; 1940a, p. 146; 1940b, p. 312; 1941, p. 460.

Hepatus chilensis, MILNE EDWARDS and LUCAS, 1844, p. 28; Atlas, pl. 14, figs. 1, 1a—d. NICOLET, 1849, p. 174. DANA, 1852, p. 395; 1855, Atlas, pl. 25, fig. 3. HELLER, 1865, p. 70. MIERS, 1877, p. 656; 1881, p. 71. ORTMANN, 1892, p. 570. LENZ, 1902, p. 752. PORTER, 1903, p. 150. BÜRGER, 1903, p. 678.

Hepatus angustatus, KINAHAN, 1857, p. 345. CANO, 1889, pp. 100, 250. LENZ, 1902, p. 751. Not *Calappa angustata* FABRICIUS, 1798.

Calappa chilensis, PFEFFER, 1890, p. 546.

Previous records:

Peru: "Peru" A. WRZESNIOWSKY (MIERS, 1877), do W. E. CURTIS (RATHBUN, 1937), Paita W. H. JONES (RATHBUN, 1937), Ancon Gulf [erroneously recorded as Ecuador] (ORTMANN), Callao J. R. KINAHAN (KINAHAN), do 'Vettor Pisani' (CANO), do R. E. COKER (RATHBUN, 1910), do 'Hassler', do SANDER, and do Copenhagen Museum (RATHBUN, 1937), San Lorenzo Island, 2.5 fms R. E. COKER (RATHBUN, 1910), do W. L. SCHMITT (RATHBUN, 1937), San Lorenzo COMTE DE SERRES (RATHBUN, 1937), Chinchas Islands Museum Godeffroy (ORTMANN), Paraca[s] Bay 'Hassler' (RATHBUN, 1937), Independencia Bay R. C. MURPHY (RATHBUN, 1937), Mollendo, 20—23 fms W. H. JONES (RATHBUN, 1937).

Chile: Shores of Chile C. GAY, FONTAINES, and A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do (NICOLET), "Chile" 'Novara' (HELLER), do Paris Museum (ORTMANN), do L. H. PLATE (LENZ), do H. ROLLE (RATHBUN, 1937), Iquique and Cavancha L. H. PLATE (LENZ), Antofagasta Prov. J. HERRERA (PORTER, 1940a), Mejillones W. H. A. PUTNAM (RATHBUN, 1937), Caldera 'Hassler' (RATHBUN, 1937), Coquimbo 'Nassau' (CUNNINGHAM), do 'ALERT' (MIERS, 1881), do O. BÜRGER (BÜRGER), do F. T. DELFIN (PORTER, 1903), Guayacan L. H. PLATE (LENZ), Valparaíso (MILNE EDWARDS), do 'U. S. Exploring Exped'. (DANA), do ACKERMANN and do Museum Godeffroy (ORTMANN), do C. E. PORTER (PORTER, 1921), do HASSLER and do E. REED (RATHBUN, 1937), Juan Fernandez Island 'Hassler' (RATHBUN, 1937).

Material examined:

Lund University Chile Expedition

St. M 126. 1♀. Burrowed. *St. M 154.* 7 young.

Hamburg Museum

Chile: Junín, 15 fathoms; leg. R. PAESSLER, 1895; K 26309, 1 young ♂. Iquique, 12 fathoms; leg. R. PAESSLER, 1890; K 26310, 3 young.

Range: From Paita, Peru [not Ancon, Ecuador], to Valparaíso, Chile, including Juan Fernandez Islands. 2.5 to 23 fms.

Remarks: According to BÜRGER (1903, p. 678), 56 out of 60 specimens collected in the Bay of Coquimbo had an actinian, *Antholoba reticulata* (COUTHOUY) fastened to the carapace, usually not more than one or two to each crab. A corresponding relationship has been observed between *Hepatus lineatus* RATHBUN of the Gulf of California and a purple and white striped anemone of the family Sagartiidae. (Cf. RATHBUN, 1937, p. 246).

The female from Herradura Bay measured 43 mm in length and 60 mm in breadth

of carapace. The largest specimen on record appears to be a 65×94 mm individual, sex unknown, collected by F. T. DELFIN at Coquimbo (PORTER, 1903).

Species erroneously reported from Chile

Hepatus kossmanni NEUMANN, 1878, p. 28.

In attributing this species to Chile (as well as to Callao and Chinchas Islands, Peru) RATHBUN (1910, pp. 593, 613) considered *H. angustatus* of KINAHAN, CANO, and LENZ (not *Calappa angustata* FABRICIUS, 1798) a synonym of *H. kossmanni*. In a later work RATHBUN (1937, p. 239) excluded these references from her synonymy for that species, thereby restricting its southern range to Ecuador, and transferred them to *H. chiliensis* MILNE EDWARDS, which synonymy is followed in this report.

Subtribe Brachygnatha. Superfamily Oxyrhyncha

Family Majidae

Stenorynchus LAMARCK, 1818

Stenorynchus debilis (SMITH)

Restricted synonymy:

Leptopodia sagittaria BELL, 1835c, p. 169; 1836, p. 40. MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 4, figs. 3, 3a—c; 1843, p. 3. NICOLET, 1849, p. 121 (part: the Pacific specimens). A. MILNE EDWARDS, 1878, p. 172 (part: the Pacific specimens). CANO, 1889, pp. 101, 170. Not *L. sagittaria* LEACH, 1815; not *Cancer sagittarius* FABRICIUS, 1793.

Leptopodia debilis SMITH, 1871, p. 87 (type locality, Bay of Realejo, Nicaragua).

Leptopodia sagittaria var. *modesta* A. MILNE EDWARDS, 1878, p. 173 (type locality, Chile).

Stenorynchus debilis, RATHBUN, 1898b, p. 568; 1910, p. 570; 1925, p. 18, pls. 4, 5, text fig. 4. GARTH, 1946, p. 366, pl. 63, fig. 1.

Previous records:

Peru: None.

Chile: "Chili" Paris Museum, (A. MILNE EDWARDS), Valparaíso H. CUMING (BELL, 1835c), do A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do (NICOLET).

Material examined: None from Chile nor from among Lund University Chile Expedition collections. The writer has collected the species in tropical American waters as far south as La Libertad, Ecuador.

Range: From Magdalena Bay, Lower California, Mexico, to Valparaíso, Chile. Galápagos Islands. 0—60 fms.

Remarks: The inclusion of this species in the Chilean fauna should be accepted with reservations pending the duplication of the early records of BELL and of MILNE EDWARDS and LUCAS.

Inachoides MILNE EDWARDS and LUCAS, 1842

Inachoides microrhynchus MILNE EDWARDS and LUCAS

Xiphus margaritifère EYDOUX and SOULEYET, 1842 (or 1843), Atlas, pl. 1, figs. 1—6.

Inachoides microrhynchus MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 4, figs. 2, 2a—m; 1843, p. 5 (type locality, shores of Chile). EYDOUX and SOULEYET, 1844 (or 1845), p. 219. NICOLET,

1849, p. 126 ("*micrornychus*"). MIERS, 1881, p. 65. CANO, 1889, pp. 98, 171. RATHBUN, 1910, pp. 533, 570, pl. 36, fig. 1; 1925, p. 60, pl. 22, figs. 1, 2, text fig. 16.

Inachoides inornatus A. MILNE EDWARDS, 1873, p. 253 (type locality, "les îles Viti"; should be Valparaíso). ORTMANN, 1893a, p. 38. RATHBUN, 1910, p. 570.

Previous records:

Peru: Sechura Bay, 5—6 fathoms R. E. COKER (RATHBUN, 1910), Paracas Bay 'Hassler' (RATHBUN, 1925).

Chile: Shores of Chile A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do (NICOLET), Cobija 'Bonite' (EYDOUX and SOULEYET), Coquimbo 'Alert' (MIERS), Caldera 'Hassler' (RATHBUN, 1925), Valparaíso Museum Godeffroy (ORTMANN), do 'Hassler' (RATHBUN, 1925), Porto Lap. [Puerto Lagunas?], Chonos and Chiloé 'Vettor Pisani' (CANO).

Material examined:

Hamburg Museum

Chile: Junín, shore to 5 fms; leg. R. PAESSLER, December 10, 1904; K 5326 (part), 1♀.
Iquique, 10 m; leg. R. PAESSLER, July 1, 1910; K 480, 1♀ ov.
Taltal, 10 fms; leg. R. PAESSLER, 1889; K 5401, 39♂, 45♀ (27 ov).
Taltal, 15 fms; leg. R. PAESSLER, 1904; K 5316, 3♀ (2 ov).
Taltal, 20 m; leg. R. PAESSLER, July 10, 1910; K 505, 3 young ♀.
"Chile"; leg. R. PAESSLER; K 170, 1♀ ov.

Range: From Sechura Bay, Peru, to Chonos Archipelago, Chile. 5—15 fms.

Remarks: Males in the 1889 series from Taltal measure from 3.1 to 9.5 mm, females from 3.2 to 7.4 mm, and ovigerous females from 4.6 to 7.4 mm. Unfortunately, month and day are not noted for this extensive sample of a breeding population.

ORTMANN (1893a) pointed out the erroneous locality Fiji Islands given for *Inachoides inornatus* by A. MILNE EDWARDS and corrected it to Valparaíso. On the advice of Dr. L. B. HOLTHUIS of the Leiden Museum, the date of 1844 (or 1845), rather than that of 1842 (or 1843), is assigned to the text of EYDOUX and SOULEYET, thereby avoiding the inconsistency of dates noted by RATHBUN (1925, p. 59, footnote).

Eurypodius GUÉRIN, 1825

Eurypodius latreillei GUÉRIN

Restricted synonymy:

Eurypodius latreillii GUÉRIN, 1828, p. 354, pl. 14, figs. 1—11 (type locality, Falkland Islands). BELL, 1835c, p. 169; 1836, p. 40. MILNE EDWARDS, 1836, pl. 34 *bis*, figs. 1, 1a—b. WHITE, 1847, p. 2. DANA, 1852, p. 104; 1855, Atlas, pl. 3, figs. 1a—c. RATHBUN, 1898b, p. 571; 1910, p. 571; 1925, p. 80, pls. 30, 31, 215. DOFLEIN and BALSS, 1912, p. 36. PORTER, 1936b, p. 151; 1936c, p. 337.

Eurypodius cuvieri AUDOUIN in DE HAAN, 1839, pl. H.

Eurypode tuberculeux EYDOUX and SOULEYET, 1842 (or 1843), Atlas, pl. 1, figs. 7—9.

Eurypodius audouinii MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 1, figs. 1—6; 1843, p. 3 (type locality, coast of Chile). NICOLET, 1849, p. 123. DANA, 1852, p. 104. CUNNINGHAM, 1871, p. 491. PORTER, 1902, p. 290.

Eurypodius latreillei, MILNE EDWARDS and LUCAS, 1843, p. 4. TARGIONI-TOZZETTI, 1877, p. 9, pl. 1, figs. 14—20. MIERS, 1881, p. 64; 1886, p. 22, pl. 4, figs. 3, 3a. CANO, 1888, pp. 163, 164; 1889, pp. 98, 171. A. MILNE EDWARDS, 1891, p. 10. ORTMANN, 1893a, p. 38; 1911, p. 660.

RATHBUN, 1894, p. 59. MURRAY, 1895, p. 1140. LENZ, 1902, p. 755. PORTER, 1902, p. 289; 1903, p. 148; 1917a, p. 95. LAGERBERG, 1905, p. 17.

Eurypodius tuberculatus EYDOUX and SOULEYET, 1844 (or 1845), p. 221 (type locality, coasts of Chile and Peru).

Eurypodius latreillia, NICOLET, 1849, p. 123.

Eurypodius septentrionalis DANA, 1851b, p. 270 (type locality, Nassau Bay, Fuegia); 1852, p. 101; 1855, Atlas, pl. 2, figs. 6a—d. CUNNINGHAM, 1871, p. 491.

Eurypodius brevipes DANA, 1851b, p. 270 (type locality, Nassau Bay, Fuegia); 1852, p. 103; 1855, Atlas, pl. 2, figs. 7a—c. CUNNINGHAM, 1871, p. 491.

Eurypodius audouini, TARGIONI-TOZZETTI, 1872a, p. 390; 1877, p. 16, pl. 1, figs. 1—3, 7, 9, 12, 13, 21.

Paramithrax peronii?, TARGIONI-TOZZETTI, 1872a, p. 390; 1872b, p. 461. Not *P. peroni* MILNE EDWARDS, 1834.

Eurypodius danae TARGIONI-TOZZETTI, 1877, p. 15 (type locality, Valparaíso).

Eurypodius quiriquinensis YAÑEZ, 1948, p. 61 (type locality, Isla Quiriquina, Chile); 1951, p. 347.

Previous records:

Peru: "Peru" 'Bonite' (EYDOUX and SOULEYET).

Chile: "Chili" 'Bonite' (EYDOUX and SOULEYET), do A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do (NICOLET), Iquique and Cavancha L. H. PLATE (LENZ), Coquimbo and Herradura F. T. DELFIN (PORTER, 1903), Valparaíso H. CUMING (BELL), do A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do 'Magenta' (TARGIONI-TOZZETTI), do C. E. PORTER (PORTER, 1902), Bahía de Concepción, near Talcahuano (PORTER, 1936a), Isla Quiriquina, Bahía de Concepción E. P. REED (YAÑEZ), Calbuco, 10—15 fms L. H. PLATE (LENZ), Taitao Mus. Nac. Chile Exped. (PORTER, 1917), Punta Tres Montes, Chiloé, and Port Otway [Puerto Barroso] 'Nassau' (CUNNINGHAM), Trinidad Channel, 30 fms, and Puerto Bueno, 4 fms 'Alert' (MIERS, 1881), Puerto Bueno and Puerto Lagunas 'Vettor Pisani' (CANO, 1889), Puerto Bueno 'Caracciolo' (CANO, 1888), Latitude Cove and Mayne Harbor 'Albatross' (RATHBUN, 1898), Smith Channel 'Hamburger Magalhaens. Sammelr.' (DOFLEIN and BALSS), Magellan Strait 'Alert' (MIERS, 1881), do 9, 55, and 70 fms 'Challenger' (MIERS, 1886), do 'Vettor Pisani' (CANO, 1889), do STEINMANN and do PÖHL (ORTMANN), Laredo Bay, 61 and 77.5 fms 'Albatross' (RATHBUN, 1894), Punta Arenas [Magallanes] 'Vettor Pisani' (CANO, 1889), do L. H. PLATE (LENZ), do Hamburger Magalhaens. Sammelr. (DOFLEIN and BALSS), do J. B. HATCHER (ORTMANN, 1911), Port Famine [Paso Famine?] 'Challenger' (MIERS, 1886), Seno Almirantazgo L. H. PLATE (LENZ), Beagle Channel and Port Cook Miss. sci. Cap Horn (A. MILNE EDWARDS).

Material examined:

Lund University Chile Expedition

St. M 17. 1♂, 2♀.

St. M 18. 2♂, 1♀.

St. M 19. 1♂, 3♀ ov. With sponges, *Haliclona topsenti* (THIELE).

St. M 20. 3♀ (1 ov.). With sponges, *Haliclona topsenti* (THIELE) and *H. foraminosa* (THIELE).

St. M 21. 13♂, 10♀ (1 ov). With sponges, *Haliclona foraminosa* (THIELE), *Halichondria* sp., and *Amphilectus fucorum* (ESPER).

St. M 41. 1♂.

St. M 43. 2♂, 3♀. Fairly common.

St. M 46. 2♂, 5♀. With algae.

St. M 47. 1♂, 1♀. With hydroid.

St. M 87. 1♀ ov.

St. M 92. 1♂.

St. M 95. 4♂, 10♀ (2 ov), 2 young. Covered with red algae.

St. M 96. 15♂, 20♀ (13 ov). With sponges, *Haliclona topsenti* (THIELE), *Amphilectus fucorum* (ESPER), *Iophon proximum* (RIDLEY), and *Halichondria* sp.

St. M 97. 6♂, 7♀ ov. With sponges, *Menyllus proximum* (RIDLEY) and *Halichondria* sp., and ascidian *Paramolgula gregaria* (LESSON).

St. M 106. 1♀.
St. M 108. 1♂.
St. M 113. 1♂, 3♀, 1 young. With bryozoan, *Beania magellanica* (BUSK).
St. M 115. 5♂, 6♀, 8 young. Rotten.
St. M 156. 1♀.

Hamburg Museum

Chile: Arica; leg. R. PAESSLER, 1903; K 13884, 1♂.
Tocopilla, 10 fms; leg. R. PAESSLER, March 29, 1903; K 137, 1♀.
Tocopilla, 12 fms; leg. T. SCHMIDT, 1912; K 488, 1♂.
Antofagasta; leg. R. PAESSLER, 1903; K 139, 1♂.
Caleta Coloso; leg. R. PAESSLER, July 20, 1914; K 5275, 1♀ ov.
Coquimbo; leg. R. PAESSLER, March 6, 1903; K 143, 1♂.
Coronel; leg. A. GASSMANN, 1895; K 140, 1♂.
Coronel, 7 fms; leg. R. PAESSLER, 1895; K 141, 1♂.
Coronel; leg. P. BRUNST, 1902; K 136, 1♂.
Coronel; leg. R. PAESSLER, May 13, 1905; K 138, 1♂.
Coronel, 14 m; leg. R. PAESSLER, August 10, 1914; K 5243, 2♂.
West coast of South America; leg. R. PAESSLER, 1893; K 142, 1♂.
West coast of South America; leg. R. PAESSLER, 1895; K 135, 1♂.

Range: From Peru south to Strait of Magellan, thence north to Gulf of San Matias, Argentina [extralimital: Rio de Janeiro, Brazil]. Falkland Islands. Four to 77.5 fathoms.

Remarks: The Lund University series, which numbers 144 specimens from 19 separate localities, contains males from 8.8 to 68 mm, non-ovigerous females from 8.4 to 40 mm, ovigerous females from 17.7 to 53.5 mm, and young as small as 5.6 mm in length. Berried females were encountered in the Estero Reloncaví on April 1, in the Golfo de Quetalmahué on May 4 (where 7 out of 7 collected were in this condition), and in the Golfo de Ancud on December 15. The specimen from Bahía Ralún, between Cayo Naguelguápi and Punta Veriles, in the upper part of the Estero Reloncaví, where conditions most unfavorable for the existence of salt-water forms prevail, was the smallest ovigerous female (17.7 mm) measured, whereas the smallest egg-bearing female from the more normal saline bodies was 21.7 mm in length.

The epizooites referred to above were determined as follows: the sponges by Dr. M. BURTON, the ascidian by Dr. W. G. VAN NAME, and the bryozoan by Mr. I. VIGELAND.

Eurypodius quiriquinensis YAÑEZ is here considered a synonym of *E. audouinii* MILNE EDWARDS and LUCAS, a form of *E. latreillei* that A. MILNE EDWARDS (1891) failed to unite with the parent species, according to LAGERBERG (1905, p. 18), only because of unfamiliarity with it. A historical review of the treatment accorded this highly variable species by authors subsequent to GUÉRIN-MÉNEVILLE will appear in a forthcoming monograph of the Pacific American Majidae.

Eurypodius longirostris MIERS

Eurypodius longirostris MIERS, 1886, p. 23, pl. 5, figs. 1, 1a (type locality, "off coast of Chiloé"; should be northeast of Madre de Diós Island). RATHBUN, 1925, p. 83, pl. 35, figs. 1, 2.
Euripodius longirostris, MURRAY, 1895, p. 1152.

Previous records:

Chile: Tom Bay, east coast of Madre de Diós Island, Wide Channel, Magallanes 'Challenger' (MIERS, as corrected by MURRAY, above).

Material examined: None. At the request of the writer, the unique male and female in the British Museum (Natural History) were reexamined by Dr. ISABELLA GORDON, who furnished notes and sketches from which supplementary description will be provided in the forthcoming monograph referred to earlier in this report.

Range: Known only from the type locality, above, and from a depth of 175 fathoms.

Remarks: The species belongs to the archibenthal fauna and is clearly distinct from the more abundant and widely distributed *E. latreillei* of the Peruvian and Chilean sub-littoral.

Acanthonyx LATREILLE, 1825

Acanthonyx petiveri MILNE EDWARDS

Restricted synonymy:

Cancer muricatus compressum PETIVER, 1712, pl. 20, fig. 8.

Acanthonyx petiverii MILNE EDWARDS, 1834, p. 343 (type locality, Antilles). DANA, 1852, p. 128; 1855, Atlas, pl. 5, figs. 6a—d. MIERS, 1877, p. 654. CANO, 1889, pp. 99, 100, 176. RATHBUN, 1910, pp. 534, 571, pl. 46, fig. 4; 1925, p. 142, pl. 44; pl. 222, figs. 1—6. GARTH, 1946, p. 376, pl. 63, fig. 4.

Acanthonyx emarginatus MILNE EDWARDS and LUCAS, 1843, p. 9 (type locality, near Lima, Peru); Atlas, pl. 5, fig. 2.

Acanthonyx debilis DANA, 1851b, p. 272 (type locality, "ad oras Chilenses"); 1852, p. 127; 1855, Atlas, pl. 5, figs. 5a, 5b.

Peltinia scutiformis DANA, 1851b, p. 273 (type locality, "in Portu 'Rio Janeiro'); 1852, p. 130; 1855, Atlas, pl. 5, figs. 7a—c.

Acanthonyx concamerata KINAHAN, 1857, p. 334, pl. 14, fig. 1 (type locality, North Chinchas Islands, Peru).

Pugettia scutiformis, MIERS, 1886, p. 40, footnote.

Previous records:

Peru: "Peru" A. WRZESNIOWSKY (MIERS, 1877), Sechura Bay, 5—6 fms R. E. COKER (RATHBUN, 1910), near Lima A. D'ORBIGNY (MILNE EDWARDS and LUCAS), Callao 'Vettor Pisani' (CANO), North Chinchas Island, 7—10 fms J. R. KINAHAN (KINAHAN), do, from seaweed R. E. COKER (RATHBUN, 1910), do R. C. MURPHY (RATHBUN, 1925), Paracas Bay 'Hassler' (RATHBUN, 1925).

Chile: Caldera 'Hassler' (RATHBUN, 1925), Valparaíso U. S. Expl. Exped. (DANA, 1851b), do 'Vettor Pisani' (CANO).

Material examined: Lund University Chile Expedition, Paita, Peru; leg. I. VIGELAND, January 15, 1949; 2 young.

Range: From Magdalena Bay, Lower California, Mexico, to Valparaíso, Chile; Galápagos Islands. In the Atlantic from Miami, Florida, to Rio de Janeiro, Brazil. Shallow water to 25 fms.

Remarks: The extreme variability of this species, and particularly of young specimens, has caused it to be described several times as new, and more than once

by the same author, DANA. Of the primary synonyms, *Acanthonyx emarginatus*, *A. debilis*, and *A. concamerata* have Pacific type localities, while *A. petiveri* and *Peltinia scutiformis* were described from the Atlantic. There is no apparent difference between Pacific and Atlantic specimens, although the populations have been separated since late mid-Pliocene at least. These small to medium-sized kelp crabs are restricted to warm water and so do not communicate through the Strait of Magellan. The larger of the two specimens obtained by the Lund University Chile Expedition measured only 3.5 mm in length.

Taliepus A. MILNE EDWARDS, 1878

Taliepus marginatus (BELL)

Epialtus marginatus BELL, 1835c, p. 173 (type locality, "ad oras Brasiliae"; should be Valparaíso); 1836, p. 62, pl. 11, figs. 4, 4i—k, pl. 13. MILNE EDWARDS and LUCAS, 1843, p. 8. HELLER, 1865, p. 5. SMITH, 1869c, p. 33. A. MILNE EDWARDS, 1878, p. 138. MIERS, 1881, p. 66. AURIVILLIUS, 1889, p. 43. ORTMANN, 1893a, p. 42. LENZ, 1902, p. 756. RATHBUN, 1910, pp. 534, 571, pl. 36, fig. 2.

Epialtus (*Antilibinia*) *emarginatus*, MIERS, 1879, p. 650.

Epialtus (*Antilibinia*) *marginatus*, RATHBUN, 1894, p. 69.

Taliepus marginatus, RATHBUN, 1925, p. 164, pls. 52, 53, pl. 220, fig. 2, pl. 221. GARTH, 1946, p. 378.

Previous records:

Peru: "Peru" Uppsala Museum (AURIVILLIUS), Independencia Bay and Mollendo R. E. COKER (RATHBUN, 1910).

Chile: "Chile" 'Novara' (HELLER), do (A. MILNE EDWARDS), do ACKERMANN (ORTMANN), Iquique and Cavancha L. H. PLATE (LENZ), Caldera PUTNAM (RATHBUN, 1925), Guayacán L. H. PLATE (LENZ), Valparaíso H. CUMING (BELL, 1836), do J. D. DANA (RATHBUN, 1894), Talcahuano 'Alert' (MIERS, 1881).

Material examined:

Lund University Chile Expedition

St. M 123. 1♂, 3♀ (2 ov). In the tidal zone.

St. M 131. 1 young [Too small to be assigned with absolute certainty to this species.]

Hamburg Museum

Chile: Pisagua; leg. R. PAESSLER, July 8, 1906; K 181, 1♂, 1♀ mature.
Pisagua; leg. F. C. M. KOPHAMEL, date?; K 182, 1♂, 1♀ mature.
Junín; leg. R. PAESSLER, 1902; K 189, 2♂, 1♀ ov.
Junín, shore; leg. R. PAESSLER, December 10, 1904; K 195, 1♀ young.
Caleta Buena; leg. R. PAESSLER, August 6, 1911; K 206, 1♀.
Iquique, 2 fms; leg. R. PAESSLER, 1902; K 194, 1♂; K 200, 1♂, 1♀ mature.
Tocopilla; leg. R. PAESSLER, 1903; K 191, 1 young.
Tocopilla, shore; leg. R. PAESSLER, 1904; K 187, 1♂.
Tocopilla; ded. A. KÖPKE, 1911; K 176, 1♂.
Caldera, 10 fms; leg. R. PAESSLER, 1892; K 179, 1♂.
Valparaíso, 12 fms; leg. R. PAESSLER, 1903; K 207, 1♂.
"Chile"; leg. R. PAESSLER, 1903; K 189, 1♂, 1♀ mature.

Range: From Independencia Bay, Peru, to Talcahuano, Chile. 0—12 fms. The writer follows A. MILNE EDWARDS (1878, p. 138, footnote), rather than SMITH (1869c, p. 33) in considering Rio de Janeiro (BELL, 1836, p. 62) an error of provenience. BELL's initial reference to a Galápagan habitat is also discounted in view of his subsequent assertion (*Ibid.*, p. 63): "Found by Mr. CUMING with *Ep. dentatus* at Valparaíso."

Remarks: Dimensions of the largest male in the Lund University Chile Expedition series, and of the largest perfect ovigerous female, are given in tabular form for purpose of comparison: An ovigerous female with a damaged rostrum measured 63 mm in length and 52 and 36 mm in width at the branchial and hepatic levels, respectively.

	♂	♀ ov.
Length of carapace	87 mm	60.5 mm
Width at branchial level	67	47
Width at hepatic level	47	31
Length of rostrum	10.4	7.7
Width of rostrum	11.1	8.3
Length of cheliped	96	54
of chela	43	23.8
of dactyl	23.6	13.4
Height of palm	18.7	10.4
Length of first leg	111	70
of second leg	86	56
of third leg	74	48
of fourth leg	66	46

Measurements of Hamburg specimens too large to be forwarded conveniently were provided by Dr. A. PANNING, to whom were sent photographs of *Taliepus marginatus* from Lund University collections for purposes of comparison. The largest male measured 84 mm in length, the largest female 79 mm, and the single ovigerous female 68 mm.

Specimens were collected intertidally, and presumably among kelps. Unfortunately, it is not possible to assign to the ovigerous females a specific date, as *St. M123* was occupied in September and October, 1948, and again in June, 1949.

Prominent features that distinguish *T. marginatus* from the following *T. dentatus* are the narrow rim joining the suppressed marginal teeth, which are three in number, and the stout inferior distal tooth of the propodites of the ambulatory legs.

Taliepus dentatus (MILNE EDWARDS)

?*Cancer xaiva* MOLINA, 1782, p. 206; Spanish translation, 1788, p. 226; French translation, 1789, p. 182; English translation, 1808, pp. 143, 243; English edition, 1809, pp. 170, 286.

Epialtus dentatus MILNE EDWARDS, 1834, p. 345 (type locality, shores of Chile). BELL, 1835c,

p. 173; 1836, p. 62. MILNE EDWARDS and LUCAS, 1843, p. 8. NICOLET, 1849, p. 131. CUNNINGHAM, 1871, p. 491. TARGIONI-TOZZETTI, 1872a, p. 390; 1872b, p. 461; 1877, p. 18, pl. 2, figs. 1—4, 6—9, 11. NEUMANN, 1878, p. 21. MIERS, 1881, p. 66. AURIVILLIUS, 1889, p. 42. CANO, 1889, pp. 98, 99, 100, 176. RATHBUN, 1898b, p. 572; 1910, p. 571. LENZ, 1902, p. 756. PORTER, 1903, p. 148. DOFLEIN and BALSS, 1912, p. 36.

Inachus mitis POEPPIG, 1836, p. 141 (type locality, "Valparaíso, Talcahuano, etc.").

Epialtus (Taliepus) dentatus, A. MILNE EDWARDS, 1878, p. 138.

Epialtus (Antilibinia) dentatus, MIERS, 1879, p. 650. RATHBUN, 1894, p. 69.

Taliepus dentatus, RATHBUN, 1925, p. 165, pls. 54, 55. PORTER, 1925, p. 315, fig. 41; 1936b, p. 151; 1936c, p. 337; 1940a, p. 145; 1940b, p. 311; 1941, p. 458.

Previous records:

Panama: (?) Panama J. M. Dow (RATHBUN, 1894).

Peru: "Peru" (AURIVILLIUS), Callao 'Vettor Pisani' (CANO), do U. S. Expl. Exped. (RATHBUN, 1894).

Chile: "Chile" (MOLINA), do (MILNE EDWARDS), do (NEUMANN), Pisagua F. C. M. KOPHAMEL and Junín R. PAESSLER (DOFLEIN and BALSS), Iquique L. H. PLATE (LENZ), do (PORTER, 1925), Cavancha L. H. PLATE (LENZ), Antofagasta Prov. J. HERRERA (PORTER, 1940a), Cobija Copenhagen Museum (RATHBUN, 1925), Bay of Taltal A. CAPDEVILLE (PORTER, 1925), San Felix Island C. E. PORTER (RATHBUN, 1925), Coquimbo 'Nassau' (CUNNINGHAM), do F. T. DELFIN (PORTER, 1903), Cachuca and Guayacán L. H. PLATE (LENZ), do (PORTER, 1925), Herradura F. T. DELFIN (PORTER, 1903), Valparaíso H. CUMING (BELL, 1835), do (POEPPIG), do 'Magenta' (TARGIONI-TOZZETTI, 1872a), do 'Vettor Pisani' (CANO), do U. S. Expl. Exped. (RATHBUN, 1925), do (PORTER, 1925), Tumbes and Talcahuano L. H. PLATE (LENZ), Talcahuano (POEPPIG), do (PORTER, 1903), do STRASSENBERG (DOFLEIN and BALSS), do 'Hassler' (RATHBUN, 1925), Lota 'Nassau' (CUNNINGHAM), Corral (PORTER, 1903), Ancud 'Nassau' (CUNNINGHAM), Chonos 'Vettor Pisani' (CANO), Port Otway [Puerto Barroso] 'Albatross' (RATHBUN, 1898b), Halt Bay 'Magenta' (TARGIONI-TOZZETTI, 1872a), Trinidad Channel 'Alert' (MIERS), Puerto Bueno 'Magenta' (TARGIONI-TOZZETTI, 1872a).

Material examined:

Lund University Chile Expedition

St. M 8. 1♀.

St. M 10. 1♂, 1♀, 2 young. Brown.

St. M 16. 1♂.

St. M 55. 2♀. Brown.

St. M 56. 4♂, 3♀ (1 post ov), 12 young. Brown.

St. M 57. 2 young.

St. M 98. 1♂, 2♀ ov. Brown.

St. M 120. 4♂, 7♀. Brown.

St. M 121. 13♂, 11♀. Brown.

St. M 122. 1♀.

St. M 123. 1♀ ov. From the sublittoral.

Hamburg Museum

Chile: Pisagua; leg. F. C. M. KOPHAMEL, date?; K 172, 2 young.
Iquique, 12 fms; leg. R. PAESSLER, 1890; K 192, 1♂.
Valparaíso; leg. W. MICHAELSEN, May 30, 1893; K 178, 1♂ young.
Valparaíso; 5—10 fms; leg. R. PAESSLER, ded. 1895, K 198; do leg. SCHÜTT, ded. 1897, K 203; do leg. B. JANSEN, August 24, 1900, K 199; 3♂, 2♀ mature.
Valparaíso; leg. MÖVIUS, date?; K 202, 1♂ large.
Isla Quiriquina, near Talcahuano; leg. R. PAESSLER, July, 1895; K 204, 1♀ mature.
Talcahuano, 5 fms; leg. R. PAESSLER, 1902; K 186, 1♂.
Penco, near Talcahuano; leg. R. PAESSLER, 1904; K 188, 2♂, 1♀.
Coronel; 13—14 m, leg. R. PAESSLER, 1895, K 201; do leg. R. PAESSLER, August, 1914, K 5239; 2♂, 2♀ ov.
Coronel; leg. W. STABEN, 1896; K 196, 1♀.
Chiloé; collector? date?; K 177, 1♂.
South tip of America; leg. R. PAESSLER, date?; K 183, 1 young.

Range: From Callao, Peru, to Puerto Bueno, Chile; San Felix Island. Extralimital: Panama and south tip of America. 0—12 fms. Exceptionally to 30.5 fms.

Remarks: The dimensions of the largest pair, from *St. M 98*, are given in tabular form for purpose of comparison:

	♂	♀ ov.
Length of carapace	108 mm	87 mm
Width at branchial level	93	72
Width at hepatic level	63	50
Length of rostrum	14.5	10.6
Width of rostrum	12.7	10.2
Length of cheliped	188	85
of chela	91	36
of dactyl	52	20
Height of palm	35	13.7
Length of first leg	160	116
of second leg	125	103
of third leg	105	88
of fourth leg	95	83

The largest male in the Hamburg Museum series, the MÖVIUS specimen (K 202), measured 98 mm in length and had very large chelipeds. Mature females measured from 68 to 81 mm, ovigerous females from 69 to 77 mm. As with the preceeding species, measurements of specimens too large to be forwarded for examination were made by Dr. A. PANNING, after first checking the identification against photographs of *T. dentatus* supplied him by the writer.

The size range of the Lund University series, from young of but 5.5 mm to the nature male and ovigerous female measured above, makes it possible to trace the development of any desired character through the various growth stages. Two gastric tufts appear in 11 mm specimens that develop into tubercles in 23—24 mm specimens, only to wear down again in older specimens. A velvet growth is present in a 34 mm specimen; its fate is to be worn off by rubbing against rocks. Although the color, where noted, is brown, large specimens in preservative show punctae ringed with green spots. With the exception of a male and female from *St. M 98*, dredged in 8 m, and a large male from *St. M 16*, dredged in 40—55 m, specimens were collected intertidally. The latter specimen was encrusted with serpulid worms; the former specimens were similarly encrusted with coralline algae.

Leucippa MILNE EDWARDS, 1833

Leucippa pentagona MILNE EDWARDS

Restricted synonymy:

Leucippa pentagona MILNE EDWARDS, 1833, p. 517, pl. 18B, figs. 1, 2 [*pantagona* on plate] (type locality, shores of Chile); 1834, p. 347, pl. 15, figs. 9, 10. MILNE EDWARDS and LUCAS, 1843, p. 9. NICOLET, 1849, p. 132. RATHBUN, 1910, pp. 571, 613; 1925, p. 184, pl. 61, pl. 222, figs. 7—9, text fig. 72. DOFLEIN and BALSS, 1912, p. 36, text fig. 4.

Leucippa ensinadae AUDOUIN, in DE HAAN, 1839, pl. G.
Leucippa ensenadae MILNE EDWARDS and LUCAS, 1843, p. 9 (type locality, "l'ensenade de Ros", Patagonia); Atlas, pl. 5, figs. 3, 3a—b.
Leucippa laevis DANA, 1851b, p. 273; 1852, p. 135; 1855, Atlas, pl. 6, figs. 5a—c (type locality, Rio de Janeiro).
Pugettia australis MIERS, 1881, p. 66 (type locality, mouth of Río de la Plata).
Leucippe ensenadae, ORTMANN, 1893a, p. 41.

Previous records:

Chile: Shores of Chile (MILNE EDWARDS).

Material examined: None from Chile. Through the courtesy of Dr. F. A. CHACE, Jr., of the U. S. National Museum, the writer has been able to examine the single specimen obtained by the 'Albatross' off Magdalena Bay, Lower California, in 51 fms, which with the holotype female in the collections of the Paris Museum, purporting to come from Chile, constitute the only Pacific records for the species.

Range: Magdalena Bay, Lower California, Mexico, and Chile. In the Atlantic from Cape São Roque, Brazil, to San Antonio Bay, Strait of Magellan. 7—52 fms.

Libidoclaea MILNE EDWARDS and LUCAS, 1842

Libidoclaea granaria MILNE EDWARDS and LUCAS

Restricted synonymy:

Libidoclaea granaria MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 3, fig. 1, pl. 4, figs. 1, 1a, 1b; 1843, p. 8 (type locality, environs of Valparaíso). NICOLET, 1849, p. 129. MIERS, 1886, p. 72. RATHBUN, 1910, p. 572; 1925, p. 224, pls. 76—78, pl. 231, figs. 1, 2, 4—6.
Libidoclea coccinea DANA, 1851b, p. 268 (type locality, off eastern Patagonia); 1852, p. 88; 1855, Atlas, pl. 1, figs. 3a—d.
Libinia coccinea, MIERS, 1886, p. 73.
Libinia gracilipes MIERS, 1886, p. 74, pl. 9, figs. 2—2c (type locality, off coast of Chiloé, 45 fms). MURRAY, 1895, p. 1140.
Libidaclea granaria, PORTER, 1936b, p. 152.
Libidoclea granaria, PORTER, 1936c, p. 337.

Previous records:

Chile: Valparaíso A. D'ORBIGNY (MILNE EDWARDS and LUCAS), Bahía de Concepción, near Talcahuano (PORTER, 1936b), off Chiloé, 45 fms 'Challenger' (MIERS), Porto [Puerto] San Pedro, Chiloé 'Hassler' (RATHBUN, 1925).

Material examined:

St. M 16. 2♂, 1♀ ov. *St. M 17.* 1♀.

Range: From Valparaíso, Chile, via the Strait of Magellan to Gulf of San Matias, Argentina. 30—52 fms. (See also Remarks below.)

Remarks: Males in the present series measured 25.7 and 50 mm, females 25.3 and 32.2 mm in length. The latter, an ovigerous specimen, was encountered in the Seno Reloncaví, Chiloé, in December. The range in depth, 30—55 m, shallower than previously reported, tends to support the view that *Libidoclaea granaria* is the shallow water, *L. smithi* the deep water, form.

Libidoclaea smithi (MIERS)

Libinia smithii MIERS, 1886, p. 73, pl. 9, figs. 1—1c (type locality, off Chiloé, 245 fms). RATHBUN, 1898b, p. 574.
Libinia hahni A. MILNE EDWARDS, 1891, p. 5, pl. 1, figs. 1—6 (type localities, Beagle Channel near Loupataya, 198 m, and near Murray Narrows, 280 m). LENZ, 1902, p. 757.
Libidoclaea smithii, RATHBUN, 1925, p. 226, pls. 74, 75; pl. 231, fig. 3.

Previous records:

Chile: Calbuco, 10—15 fms L. H. PLATE (LENZ), off Chonos Archipelago, 1,050 fms, off Port Otway [Puerto Barroso], 61 fms, between Wellington Island and mainland, 194 fms, off Esperanza Island, 122 fms, and Strait of Magellan, 369 fms 'Albatross' (RATHBUN, 1898b), Beagle Channel in sight of Loupataya, 198 m, and near Murray Narrows, 280 m Miss. Sci. Cap Horn (A. MILNE EDWARDS).

Material examined:

Lund University Chile Expedition

St. M 14. 1 young.
St. M 38. 1♀. Rostrum broken at tip.
St. M 81. 1♀ mature.
St. M 107. 1♂ young.
St. M 144. 1 young.

United States National Museum

Chile: Off Port Otway [Puerto Barroso], 61 fms, February 9, 1888, 'Albatross' Sta. 2787, U.S.N.M. No. 21923, 1♂, 1♀.

Range: From Calbuco, Chile, to Strait of Magellan. 61—1,050 fms. [10—15 fms (LENZ)]. Lund University specimens were dredged in depths of 60—300 m.

Remarks: Lund University Chile Expedition specimens are young from 4.4 to 6.7 mm and females of 26 and 34 mm, the latter ovigerous. The anterior and posterior gastric spines are not as long as those of specimens of *Libidoclaea smithi* borrowed from the U. S. National Museum for purposes of comparison. Aside from the LENZ recorded above, which was based on a young female specimen, *L. smithi* is an archibenthal species.

Leurocyclus RATHBUN, 1897

Leurocyclus tuberculosus (MILNE EDWARDS and LUCAS)

Salacia tuberculosa MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 2; 1843, p. 13 (type locality unknown. Chile?). A. MILNE EDWARDS and BOUVIER, 1923, p. 387, pl. 12, fig. 5.
Salacia sp.? BRITO CAPELLO, 1871, p. 263, pl. 3, figs. 3, 3a, 3b.
Leurocyclus tuberculosus, RATHBUN, 1925, p. 230, pl. 232, figs. 6—11, pl. 233.

Previous records:

Chile: "Chili (?)" (MILNE EDWARDS and LUCAS), "Chili" E. VERREAUX (BRITO CAPELLO).

Material examined: None.

Range: Apart from the records above, the species is an Atlantic one, occurring at Rio de Janeiro, Brazil.

Remarks: The inclusion of this species in the Chilean fauna is based upon the record of BRITO CAPELLO, which appears to confirm Chile as the type locality, although MILNE EDWARDS and LUCAS were unable to assign a definite locality to

D'ORBIGNY's specimen. BRITO CAPELLO's figure of a specimen collected by VERREAUX leaves no doubt that the hairy propodi of the last three pairs of legs, said by BOUVIER to distinguish the JOBERT specimens from Rio de Janeiro from the type specimen of MILNE EDWARDS and LUCAS, are present in Chilean as well as Brazilian specimens.

Pisoides MILNE EDWARDS and LUCAS, 1843

Pisoides edwardsi (BELL)

Hyas edwardsii BELL, 1835c, p. 171 (type localities, Valparaíso and Galápagos Islands); 1836, p. 49, pl. 9, fig. 5p—r.

Pisoides tuberculosus MILNE EDWARDS and LUCAS, 1843, p. 11 (type locality, shores of Chile); Atlas, pl. 5, figs. 1, 1a—d. NICOLET, 1849, p. 134. A. MILNE EDWARDS, 1875, p. 75, pl. 16, figs. 5—5b. LENZ, 1902, p. 757. PORTER, 1903, p. 147. RATHBUN, 1910, pp. 572, 616.

Pisoides edwardsii, DANA, 1852, p. 87; 1855, Atlas, pl. 1, figs. 2a, 2b. CANO, 1889, pp. 98, 99, 100, 179. RATHBUN, 1910, pp. 572, 613; 1925, p. 285, pl. 236. GARTH, 1946, p. 380.

Pisoides edwardsi, MIERS, 1881, p. 66. PORTER, 1936c, p. 337.

Pisoides edwarsii, CANO, 1888, pp. 163, 166.

Pisoides edwards, PORTER, 1936b, p. 152.

Previous records:

Panama: "Panama" (A. MILNE EDWARDS, without specimen authentication).

Ecuador: Galápagos Islands H. CUMING (BELL). [Also doubtful].

Peru: San Juan and San Nicolas Bays 'Velero III' (GARTH).

Chile: Coast of Chile A. D'ORBIGNY (MILNE EDWARDS and LUCAS), "Chili" GUÉRIN Collection (RATHBUN, 1925), Iquique L. H. PLATE (LENZ), Coquimbo 'Vettor Pisani' (CANO, 1889), Bay of Guayacán L. H. PLATE (LENZ), Herradura F. T. DELFIN (PORTER, 1903), Valparaíso H. CUMING (BELL), do (NICOLET), Tumbes and Talcahuano L. H. PLATE (LENZ), Bahía de Concepción, near Talcahuano (PORTER, 1936b), Ancud 'Vettor Pisani' (CANO, 1889), Calbuco L. H. PLATE (LENZ), Puerto Lagunas 'Vettor Pisani' (CANO, 1889), Trinidad Channel, 30 fms, and Puerto Rosario, 2—30 fms, Strait of Magellan 'Alert' (MIERS), Strait of Magellan 'Caracciolo' (CANO, 1888).

Material examined:

Lund University Chile Expedition

St. M 21. 1♂, 1♀. With sponges, *Haliclona chilensis* (THIELE).

St. M 42. 1♂. With sponges. Grey-brown with red claws.

St. M 56. 1♀. Sparse; lowest part of the littoral. Red.

St. M 88. 1♂.

St. M 94. 2♂. Grey with red claws.

St. M 96. 1♂. Grey with red claws.

St. M 103. 2♂. Claws brilliant red. Sponges at the carapax.

St. M 110. 1♀. With red claws.

St. M 120. 1♂. With sponges, *Halisarca dujardini* var. *magellanica* TOPSENT.

St. M 121. 1♂, 1♀.

St. M 123. 1♂, 1♀. From the tidal zone.

St. M 129. 1 young.

St. M 158. 1 young, determination uncertain.

Hamburg Museum

Chile: Junín, shore to 5 fms; leg. R. PAESSLER, December 10, 1904; K 26312, 1♂.
Iquique, 8 fms; leg. F. RINGE, date?; K 1499, 1♂, 1♀.
Antofagasta, 10 fms; leg. R. PAESSLER, 1904; K 5320, 1♂, 1♀.
Taltal, shore under stones; leg. R. PAESSLER, 1904; K 5313, 3♂.
Coronel (probably); leg. R. PAESSLER, April 1, 1897; K 5351, 1♂, 5 young.

Range: From San Juan Bay, Peru, to Strait of Magellan. Extralimital: Panama and Galápagos Islands. 0—30 fms. Exceptionally to 38.8 fms (70 m).

Remarks: The present series includes males of from 9.9 to 23.7 mm and females of from 10.0 to 22.0 mm, the latter a post-ovigerous specimen collected in Canal Chacao on February 26—28. Most specimens were sponge-covered; sponge identifications are by Dr. M. BURTON. Other epizooites included hydroids and an ascidian(?). Algae also covered this species, which was encountered intertidally and in depths of 11—70 m.

Paramithrax MILNE EDWARDS, 1834

Paramithrax baeckstroemi BALSS

Paramithrax peroni, LENZ, 1902, p. 756. Not *P. peronii* MILNE EDWARDS, 1834. *Paramithrax peronii*, RATHBUN, 1910, p. 573.

Paramithrax bäckströmi BALSS, 1924, p. 336, text fig. 3 (type locality, Masatierra Island, Juan Fernandez Islands). RATHBUN, 1925, p. 339, pl. 123, text fig. 108.

Previous records:

Chile: Juan Fernandez Island L. H. PLATE (LENZ), do 'Hassler' (RATHBUN, 1925), Masatierra Island K. BÄCKSTRÖM (BALSS).

Material examined: None from among Lund University Chile Expedition collections.

Museum of Comparative Zoology

Chile: Juan Fernandez Island, 'Hassler', 1872, M. C. Z. 2048, 2♂, 1♀.

Range: Confined to the Juan Fernandez Islands.

Remarks: Another link between Chile and the Antipodes is found in the occurrence at Juan Fernandez Island of *Paramithrax baeckstroemi*, which was at first referred to *P. peroni* by LENZ, who however noted differences between New Zealand and Chilean specimens that led to recognition of the latter by BALSS as a full species. Through the courtesy of Professor L. R. RICHARDSON of Victoria College, Wellington, it has been possible to examine a pair of *P. peroni* from New Zealand. The distinctiveness of the Chilean insular species is borne out by an examination of the male first pleopods, which are quite dissimilar in the two species.

Microphrys MILNE EDWARDS, 1851

Microphrys weddelli MILNE EDWARDS

Microphrys weddelli MILNE EDWARDS, 1851, pp. 251, 291, pl. 10, figs. 1, 2 (type locality, coast of Peru). RATHBUN, 1910, p. 574; 1925, p. 496, pl. 271, figs. 2—7.

Microphrys weddellii, A. MILNE EDWARDS, 1873, pl. 14, figs. 1—1c; 1875, p. 60. NOBILI, 1901b, p. 30.

Previous records:

West coast of South America: MÖLLER (RATHBUN, 1925).
Ecuador: Bay of Santa Elena E. FESTA (NOBILI).

Peru: Coast of Peru Paris Museum (MILNE EDWARDS), Paraca[s] Bay 'Hassler' (RATHBUN, 1925).

Chile: Caldera 'Hassler' (RATHBUN, 1925).

Material examined: None from Chile nor from among collections of the Lund University Chile Expedition. The writer has in his custody an extensive series of this species from Ecuador and Peru, to be reported upon subsequently in detail.

Range: From Santa Elena Bay, Ecuador, to Caldera, Chile. Also from Guadaloupe, in the Atlantic (A. MILNE EDWARDS).

Species erroneously reported from Chile

Epialtus bituberculatus MILNE EDWARDS, 1834, p. 345; Atlas, 1837, pl. 15 [not 14], fig. 11.

In erecting the genus *Epialtus*, MILNE EDWARDS attributed its type species, *E. bituberculatus*, to the coast of Chile. However, with the exception of specimens from Southern California (RATHBUN, 1904a, p. 173) later described as *E. hiltoni* (RATHBUN, 1923, p. 72), all subsequent records for the species have been from the Atlantic. GIBBES (1850, p. 173) says of a specimen in his Charleston cabinet: "Brought from Key West by Prof. W. H. HARVEY, and agrees perfectly with MILNE EDWARDS's description and figures of individuals said to come from Chili." The failure of the Lund University Chile Expedition to uncover this species in the course of extensive collecting in the intertidal zone is additional negative evidence for its occurrence in the Pacific. The present recognized range of the species is from Indian River, Florida, to Desterro, Brazil.

Chionoecetes opilio (O. FABRICIUS), 1788, p. 182.

The Chilean record for this otherwise Arctic species and Northern Hemisphere genus is based upon the type locality of *Chionoecetes chilensis* STREETS (1870, p. 106), a synonym of *C. opilio*. (Cf. RATHBUN, 1925, p. 233.)

Libinia spinosa MILNE EDWARDS, 1834, p. 301.

This species, the type locality of which is Brazil, was attributed to the coast of Chile by MILNE EDWARDS and LUCAS (1843, p. 6). NICOLET's awareness of the true situation is indicated by his statement (1849, p. 128): "Rare in the coasts of Chile; inhabits more particularly those of Brazil." The record of LAGERBERG (1905, p. 21) for Tierra del Fuego is unsupported by data for Swedish Southpolar Expedition Station 1, which was 33° 00′ S, 51° 10′ W, or east of Uruguay and north of Río de la Plata. The present occurrence of the species is from Rio de Janeiro to San Matias Bay, Patagonia.

Libinia distincta GUÉRIN, 1857a, p. xii; 1857b, p. xxix (type locality, Cuba).

Libinia subspinosa STREETS, 1870, p. 105 (type locality, "Chile").

In figuring the type of *L. distincta* in the Lisbon Museum, BRITO CAPELLO (1871, p. 263) gave "Chile" as the type locality for GUÉRIN's species. That this should have been Cuba instead was made clear by A. MILNE EDWARDS (1878, p. 129). RATHBUN (1925, p. 318), who treats both *L. distincta* and *L. subspinosa* as synonyms of the Atlantic *L. dubia* MILNE EDWARDS, thought the latter to be "probably one of the same lot of specimens as the type of *L. distincta* GUÉRIN".

Mithrax (*Mithrax*) *belli* GERSTAECKER, 1856, p. 112 [name substituted for *Mithrax ursus* BELL (1835c, p. 171), preoccupied.]

The basis for the Chilean record for this species, attributed by RATHBUN (1925, p. 404) to MIERS [1886], has been traced to young specimens from the BELL collection in the British Museum (WHITE, 1847, p. 7). The species is otherwise a Galápagos Islands endemic.

Mithrax (*Mithraculus*) *nodosus* BELL, 1835c, p. 171.

The statement made for the preceding species applies equally here, the RATHBUN reference being 1925, p. 430. In neither case has the Chile locality been confirmed.

Family Hymenosomidae

Halicarcinus WHITE, 1846

Halicarcinus planatus (FABRICIUS)

Restricted synonymy:

?*Cancer orbiculus* FABRICIUS, 1775, p. 402 (type locality, New Zealand).
Cancer planatus FABRICIUS, 1775, p. 403 (type locality, Tierra del Fuego).
Leucosia planata, FABRICIUS, 1798, p. 350.
Halicarcinus planatus, WHITE, 1846b, p. 178, pl. 2, fig. 1. DANA, 1852, p. 385; 1855, Atlas, pl. 24, figs. 7a, 7b. CUNNINGHAM, 1871, p. 492. TARGIONI-TOZZETTI, 1872a, p. 393; 1872b, p. 465; 1877, p. 176, pl. 10, figs. 4, 4a—f. MIERS, 1881, p. 70. CANO, 1888, pp. 164, 176; 1889, pp. 94, 98, 249. ORTMANN, 1893a, p. 31; 1911, p. 660. RATHBUN, 1898b, p. 609; 1910, p. 570; 1925, p. 563, pl. 202, fig. 5, pl. 283. LENZ, 1902, p. 755. DOFLEIN and BALSS, 1912, p. 35. PORTER, 1917a, p. 95; 1925, p. 316; 1936b, p. 151; 1936c, p. 337.
Liriopea leachii NICOLET, 1849, p. 160 (type locality, seas of Chile); 1854, Atlas, pl. 1, figs. 1, 1a—f.
Liriopea lucasii NICOLET, 1849, p. 161 (type locality, Chile).
?*Halicarcinus pubescens* DANA, 1851a, p. 253 (type locality, eastern Patagonia).
?*Halicarcinus ovatus*, CANO, 1888, pp. 164, 177. Not *H. ovatus* STIMPSON, 1858.
Halicarcinus planatus var. *pubescens*, ORTMANN, 1893a, p. 32.

Previous records:

Chile: "Chile" (NICOLET), Bahía de Taltal A. CAPDEVILLE (PORTER, 1925), Valparaíso Copenhagen Museum (RATHBUN, 1925), Tumbes L. H. PLATE (LENZ), Bay of Talcahuano (PORTER, 1936b), [Puerto] Montt and Calbuco L. H. PLATE (LENZ), Chiloé Island L. MOREIRA (RATHBUN, 1925), Puerto Lagunas 'Vettor Pisani' (CANO, 1889), Taitao Mus. Nac. Chile Exped. (PORTER, 1917a), Port Otway [Puerto Barroso] and Latitude Cove 'Albatross' (RATHBUN, 1898b), Trinidad Channel, 4 fms, and Cockle Cove, 2—32 fms 'Alert' (MIERS), Puerto Bueno, Smith Channel Hamburger Magalhaens. Sammelr. (DOFLEIN and BALSS), Strait of Magellan 'Caracciolo' (CANO, 1888), do STEINMANN, do POHL, and do 'Gazelle' (ORTMANN, 1893a), do, 21 and 29.5 fms 'Albatross' (RATHBUN, 1898b), Mayne Harbor, Port Churruca, and Borja Bay 'Albatross' (RATHBUN, 1898b), Laredo Bay and Sandy Point [Punta Arenas] 'Albatross' (RATHBUN, 1898b), Sandy Point, 12—15 fms 'Nassau' (CUNNINGHAM), do, 9—10 fms 'Alert' (MIERS), do L. H. PLATE (LENZ), do J. B. HATCHER (ORTMANN, 1911), do Hamburger Magalhaens. Sammelr. (DOFLEIN and BALSS), Seno Almirantazgo L. H. PLATE (LENZ), Elizabeth Island, 6 fms 'Alert' (MIERS), Nassau Bay, Fuegia U. S. Expl. Exped. (DANA), "West Patagonia" 'Magenta' (TARGIONI-TOZZETTI, 1872a), "Canali Patagonici" 'Caracciolo' (CANO, 1888). For additional localities in the Strait of Magellan see CUNNINGHAM (1871).

Material examined:

Lund University Chile Expedition

St. M 4. 1 young.
St. M 9. 1♀ ov.
St. M 10. 1♀, 3 young. In rockpools.
St. M 12. 1 young.
St. M 13. 7♀ ov.
St. M 18. 2 young.
St. M 19. 3 young.
St. M 22. 8♀.
St. M 29. 1♀.
St. M 37. 9♀ (1 ov), 21 young.
St. M 39. 1♀ ov.
St. M 47. 1♀ ov.
St. M 50. 1♀ ov, 4 young.
St. M 55. 1 young. In a rockpool.
St. M 56. 2♀ (1 ov).
St. M 57. (Specimen missing.)
St. M 59. 4♀ (1 ov), 11 young.
St. M 63. 1♀ young.
St. M 76. 1 young.
St. M 83. 1 young.
St. M 87. 2♀.
St. M 88. 5♀ (1 ov).
St. M 90. 2 young.
St. M 91. 1♂, 10♀, 5 young. Lower part of tidal belt.
St. M 94. 3♀, 5 young.
St. M 95. 9♀.
St. M 97. 1♀.

St. M 103. 8♀.
St. M 104. 2♀.
St. M 108. 5♀, 6 young.
St. M 113. 1♂.
St. M 115. 5♂, 20♀ (11 ov).
St. M 121. 1♀.
St. M 139. 2 young. Lower part of tidal belt.

Hamburg Museum

Chile: Taltal, 10 fms; leg. R. PAESSLER, 1889; K 26808, 1 young.

Range: From Bahía de Taltal, Chile, through the Strait of Magellan to the Falkland Islands, thence via the Antarctic islands of South Orkney, Prince Edward, Kerguelen, Macquarie, Campbell, and Auckland to New Zealand. To 270 m. (DOFLEIN and BALSS, 1912).

Remarks: This species was collected abundantly and in two distinct size ranges. From Concepción and Chiloé come males of from 4.5 to 5.1 mm, non-ovigerous females of from 3.9 to 6.8 mm, ovigerous females of from 3.5 to 5.8 mm, and young to 2.3 mm or even smaller. From Estrecho de Magallanes come males of from 8.3 to 13.5 mm, non-ovigerous females of from 5.3 to 11.6 mm, ovigerous females of from 7.6 to 10.8 mm, and young of 3.7 mm. Specimens from *St. M 37* were said to be "rather common in the lower part of the littoral, under stones, and in rock pools." Slow of movement, they were "greyish or brown with spots of different colour". Exclusively shore-collected in the Strait of Magellan region, *Halicarcinus planatus* was often shore-collected in the more northerly portion of its range, where it was also dredged in from 0—6 to 50—60 m, and once in 170 m.

From Professor L. R. RICHARDSON (*in litt.*) the writer learns that the common *Halicarcinus* of New Zealand is not *H. planatus*, CHILTON (in CHILTON and BENNETT, 1929) having confused with *planatus* the species characterized as *H. innominata* by RICHARDSON (1949). Only three New Zealand specimens, collected by Dr. RICHARDSON in Cook Strait, are known to him to be the true *planatus*, nor does he know of other specimens of *planatus* in New Zealand museums. A specimen of *H. planatus* from Macquarie Island, S of New Zealand and in the Latitude of Cape Horn, was provided by Dr. RICHARDSON for comparison with Chilean specimens.

Superfamily Brachyrhyncha

Family Euryalidae

Gomeza GRAY, 1831

Gomeza serrata DANA

Gomeza serrata DANA, 1852, p. 305 (type locality, off Patagonia, 50 fms); 1855, Atlas, pl. 18, figs. 7a—c. MIERS, 1881, p. 68. CANO, 1889, pp. 100, 224. LENZ, 1902, p. 754, pl. 23, fig. 6. RATHBUN, 1910, p. 576; 1930, p. 11, pl. 1, figs. 4—6. PORTER, 1918, p. 53, fig. 3; 1936b, p. 152; 1936c, p. 337.

Previous records:

Peru: Callao 'Vettor Pisani' (CANO).

Chile: Pisagua and Iquique (PORTER, 1918), Bay of Talcahuano (PORTER, 1936b), Calbuco L. H. PLATE (LENZ), Coast of Patagonia, 50 fms U. S. Expl. Exped. (DANA), Elizabeth Island, 6 fms, Trinidad Channel, 4 fms, and Puerto Rosario, 2—30 fms 'Alert' (MIERS).

Material examined: None.

Range: From Callao, Peru, to Strait of Magellan, Chile. Patagonia (DANA). 2—50 fms.

Remarks: This is one of a relatively few species of which RATHBUN (1930) had no specimen and was obliged to repeat the figures of DANA (1855), as had PORTER (1918) before her.

Pseudocorystes MILNE EDWARDS, 1837

Pseudocorystes sicarius (POEPPIG)

Corystes sicarius POEPPIG, 1836, p. 139 (type locality, Bay of San Vicente, Chile).

Pseudocorystes armatus MILNE EDWARDS, 1837, p. 151 (type locality, shore of Valparaíso). MILNE EDWARDS and LUCAS, 1844, p. 30; Atlas, pl. 15, figs. 2, 2a—c. NICOLET, 1849, p. 178. CUNNINGHAM, 1871, p. 494. CANO, 1889, pp. 91, 98, 99, 224. ORTMANN, 1893a, p. 28. PORTER, 1898, p. 33. DOFLEIN, 1899, p. 186.

Pseudocorystes sicarius, WHITE, 1847, p. 53. DANA, 1852, p. 304. PHILIPPI, 1894b, p. 374. LENZ, 1902, p. 754. PORTER, 1903, p. 149; 1906, p. 133; 1913b, p. 359, fig. 2; 1918, p. 54, fig. 4; 1936a, p. 252; 1936b, p. 152; 1936c, p. 337; 1940a, p. 145; 1940b, p. 311; 1941, p. 458. RATHBUN, 1910, p. 576; 1930, p. 12, pl. 1, figs. 1—3.

Corystoides armatus, PHILIPPI, 1894a, p. 265.

Previous records:

Peru: Independencia Bay R. C. MURPHY (RATHBUN, 1930), Mollendo H. R. H. PRINCESS THERESE OF BAVARIA (DOFLEIN).

Chile: "Chile" (WHITE), Tocopilla and Antofagasta C. E. PORTER (PORTER, 1913b), Antofagasta J. HERRERA (PORTER, 1940a), Taltal C. E. PORTER (PORTER, 1913b), Coquimbo L. H. PLATE (LENZ), do F. T. DELFIN (PORTER, 1903), Herradura 'Nassau' (CUNNINGHAM), Los Vilos J. N. THOMAS (PORTER, 1906), Quintero[s] C. E. ZILLERUELO (PORTER, 1908), Valparaíso C. GAY (MILNE EDWARDS), do A. D'ORBIGNY and FONTAINES (MILNE EDWARDS and LUCAS), do (NICOLET), do ACKERMANN (ORTMANN), do U. S. Expl. Exped. (DANA), do C. E. PORTER (PORTER, 1913b), do Copenhagen Museum (RATHBUN, 1930), Curaumilla C. E. PORTER (PORTER, 1913b), Tumbes and Talcahuano L. H. PLATE (LENZ), San Vicente E. POEPPIG (POEPPIG), Lota 'Nassau' (CUNNINGHAM), Arauco·R. A. PHILIPPI and Calbuco F. T. DELFIN (PORTER, 1913b), Chiloé, Chonos, and Strait of Magellan 'Vettor Pisani' (CANO).

Material examined:

Lund University Chile Expedition

St. M 4. 2 young. Grey-brown.
St. M 16. 1♂.
St. M 46. 1♀.
St. M 60. 5♂.
St. M 150. 4♂, 1♀. Common.
St. M 152. 1♂. Burrowing.
St. M 155. 1 young.

Hamburg Museum

Chile: Junín, 15 fms; leg. R. PAESSLER, 1895; K 4868, 1♂, 1 young.
Ancud, Chiloé; leg. R. PAESSLER, June 7, 1906; K 4874, 1♂.

Range: From Independencia Bay, Peru, to Strait of Magellan. Lund University specimens were collected intertidally and dredged in depths of from 5 to 40—55 m.

Remarks: The present series includes males of from 27.5 to 60.6 mm, a single, non-ovigerous female of 42.0 mm, and young as small as 4.0 mm in length. The young are remarkably like the adults in appearance.

Family Portunidae

Ovalipes RATHBUN, 1898

Ovalipes punctatus (DE HAAN)

Restricted synonymy:

Corystes (Anisopus) punctata DE HAAN, 1833, p. 13 (type locality, Japan); 1835, p. 44, pl. 2, figs. 1—1d.

Corystes (Anisopus) trimaculata DE HAAN, 1833, p. 13 [*Nomen nudum*].

Platyonichus bipustulatus MILNE EDWARDS, 1834, p. 437; Atlas, 1837, pl. 17, figs. 7—10 (type locality, Indian Ocean). MILNE EDWARDS and LUCAS, 1844, p. 22. NICOLET, 1849, p. 148.

Anisopus trimaculatus, MAC LEAY, 1838, p. 62.

Portunus catharus WHITE, 1843b, p. 264 (type locality, New Zealand).

Platyonychus bipustulatus, WHITE, 1847, p. 24. A. MILNE EDWARDS, 1861, p. 413. MIERS, 1881, p. 68. ORTMANN, 1893a, p. 65. LENZ, 1902, p. 757.

Platyonychus purpureus DANA, 1852, p. 291; 1855, Atlas, pl. 18, figs. 3a, 3b (type locality, Valparaíso). CUNNINGHAM, 1871, p. 492.

Anisopus punctatus, STIMPSON, 1858, p. 39.

Platyonychus africanus A. MILNE EDWARDS, 1861, p. 413, pl. 34, figs. 2, 2a (type locality, Simons Bay, Cape Colony, Africa).

Ovalipes bipustulatus, RATHBUN, 1898b, p. 597; 1910, p. 577. PORTER, 1903, p. 149; 1905, p. 32; 1925, p. 317.

Ovalipes trimaculatus, STEBBING, 1902, p. 13. DOFLEIN and BALSS, 1912, p. 38. BALSS, 1924, p. 336.

Ovalipes punctatus, RATHBUN, 1930, p. 24, pls. 5—8. PORTER, 1936b, p. 152; 1936c, p. 337.

Previous records:

Peru: Independencia Bay R. C. MURPHY (RATHBUN, 1930).

Chile: "Chile" BELL Collection (WHITE, 1847), do F. SILVESTRI (RATHBUN, 1930), Iquique and Cavancha L. H. PLATE (LENZ), Antofagasta Province A. CAPDEVILLE and Caldera C. E. PORTER (PORTER, 1925), Coquimbo 'Nassau' (CUNNINGHAM), Coquimbo and Herradura F. T. DELFIN (PORTER, 1903), Valparaíso PISSIS (MILNE EDWARDS and LUCAS), do (NICOLET), do U. S. Expl. Exped. (DANA), do H. KRØYER (RATHBUN, 1930), Juan Fernandez Islands L. H. PLATE (LENZ), do (PORTER, 1905), Mas Atierra [Juan Fernandez Islands] K. BÄCKSTRÖM (BALSS), Cumberland Bay, Juan Fernandez Islands, 7—10 fms W. L. SCHMITT (RATHBUN, 1930), Cape San Vicente L. H. PLATE (LENZ), Talcahuano C. E. PORTER (PORTER, 1925), Tome and Lota 'Albatross' (RATHBUN, 1898b), Lota W. L. SCHMITT (RATHBUN, 1930), South Chile PÖHL (ORTMANN), Molyneux Sound, Smith Channel SUXDORF (DOFLEIN and BALSS), Trinidad Channel 'Alert' (MIERS). *Incertae sedis*: Luco Bay 'Nassau' (CUNNINGHAM).

Material examined:

Hamburg Museum

Chile: Antofagasta, 18 m; leg. R. PAESSLER, July 27, 1914; K 5244, 2♀.
Caleta Coloso, near Antofagasta; leg. R. PAESSLER, 1904; K 2702, 1♂.
Papudo; leg. R. PAESSLER, date?; K 2612, 2♂.

Range: From Independencia Bay, Peru, to Trinidad Channel, Chile. In the Atlantic from Cabo Santa Maria, Uruguay, to Puerto Madryn, Argentina. Occurs also in South Africa, Japan, China, Australia, and New Zealand. To 10 fms.

Remarks: Hamburg Museum males measure 14.9 and 20.3 mm, females 27.3 and 28.1 mm. The large male from Coloso Cove, near Antofagasta, measures 73 mm in length and 98 mm in breadth, spines included.

Portunus WEBER, 1795

Portunus (*Portunus*) *asper* (A. MILNE EDWARDS)

Neptunus asper A. MILNE EDWARDS, 1861, p. 325, pl. 30, figs. 3, 3a—c (type locality, shore of Chile). Not *N. xantusii* A. MILNE EDWARDS, 1879.

Achelous transversus STIMPSON, 1871, p. 111 (type locality, Manzanillo, Mexico).

Neptunus xantusii, A. MILNE EDWARDS, 1879, p. 213 (part: the Mazatlan specimen), pl. 39, figs. 4, 4a—c. Not *Achelous xantusii* STIMPSON, 1860.

Neptunus transversus, A. MILNE EDWARDS, 1879, p. 220.

Portunus transversus, RATHBUN, 1898b, p. 592.

Portunus (*Portunus*) *transversus*, RATHBUN, 1910, p. 577.

Portunus (*Portunus*) *asper*, RATHBUN, 1930, p. 56, pl. 20, figs. 2, 3, pl. 21, pl. 22, figs. 1, 2.

Portunus (*Portunus*) *acuminatus*, RATHBUN, 1930, p. 56, pl. 19 (part: the Panama Bay specimen). Not *Achelous acuminatus* STIMPSON, 1871.

Previous records:

Panama: "Panama" J. M. DOW (RATHBUN, 1930), Panama Bay, 7 fms 'Albatross' (RATHBUN, 1898b), do, 16 fms 'Albatross' (RATHBUN, 1930), Island at end of breakwater, Panama Bay S. E. MEEK and S. F. HILDEBRAND (RATHBUN, 1930).

Peru: No records.

Chile: Shore of Chile, FONTAINES (A. MILNE EDWARDS, 1861).

Material examined: None from Chile nor from among Lund University Expedition collections.

Range: From Mazatlan, Mexico, to Chile (exact locality unknown). To 16 fms.

Remarks: The last item in the synonymy above should be considered in the light of GARTH (1940, p. 73 ff.), in which the true *acuminatus* of STIMPSON is redescribed and a neotype established. The effect of this action is to give equal and specific rank to *asper* (=*transversus* STIMPSON), *panamensis* STIMPSON, and *acuminatus* STIMPSON, as originally conceived by STIMPSON, rather than to consider them possible forms of a single species, as suggested by RATHBUN (1930, p. 53). In the absence of Chilean material, the question of whether *transversus* STIMPSON, with Manzanillo, Mexico, as its type locality, should be separated from *asper*, the type locality of which is Chile, is held in abeyance.

Callinectes STIMPSON, 1860

Callinectes arcuatus ORDWAY

Restricted synonymy:

Callinectes arcuatus ORDWAY, 1863, p. 578 (type locality, Cape San Lucas). A. MILNE EDWARDS, 1879, p. 228 (a variety of *C. diacanthus*). RATHBUN, 1896, p. 362, pl. 20, pl. 23, fig. 1, pl. 24, fig. 8, pl. 25, fig. 7, pl. 26, fig. 7, pl. 27, fig. 7; 1910, pp. 537, 577, pl. 56; 1930, p. 121, pl. 52.

Callinectes pleuriticus ORDWAY, 1863, p. 578 (type locality, Panama). A. MILNE EDWARDS, 1879, p. 228 (a variety of *C. diacanthus*).

Callinectes dubia KINGSLEY, 1879, p. 156 (type locality, Gulf of Fonseca, Nicaragua).

Callinectes nitidus A. MILNE EDWARDS, 1879, p. 228 (a variety of *C. diacanthus*) (type locality, Tanesco, Guatemala).

Callinectes diacanthus var. *Callinectes nitidus* A. MILNE EDWARDS, 1879, explanation of pl. 41.

Callinectes diacanthus, A. MILNE EDWARDS, 1879, pl. 41. Not *Portunus diacantha* LATREILLE, 1825.

?*Neptunus diacanthus*, CANO, 1889, pp. 99, 100, 102, 211 (part: the Panama, Callao, and Valparaíso specimens).

?*Neptunus* (*Callinectes*) *diacanthus*, ORTMANN, 1893a, p. 77 (part: the South Chile specimen).

?*Callinectes* sp.? PORTER, 1903, p. 149 ("Un trozo de cefalotórax solamente").

Previous records:

Ecuador: Salinas W. L. SCHMITT (RATHBUN, 1930).

Peru: Tumbes R. E. COKER and Paita W. L. SCHMITT (RATHBUN, 1930), Matapalo, near Capon, and Las Vacas, near Capon R. E. COKER (RATHBUN, 1910), Pacasmayo STOLZMAN (RATHBUN, 1930), ? Callao 'Vettor Pisani' (CANO, 1889).

Chile: "Chili" Paris Museum (A. MILNE EDWARDS). ? Coquimbo F. T. DELFIN (PORTER, 1903), ? Valparaíso 'Vettor Pisani' (CANO, 1889), ? South Chile PÖHL (ORTMANN).

Material examined: None from Chile nor from among Lund University Chile Expedition collections.

Range: From Anaheim Slough, California, to ? South Chile.

Remarks: The Chilean occurrence of this species depends upon specimens in the Paris Museum which A. MILNE EDWARDS (1879) considered to resemble completely specimens of *C. nitidus* from Guatemala. Specimens of CANO and PORTER and a specimen in the Strassburg Museum of which ORTMANN (1893a, p. 78, footnote) states "the locality requires confirmation", might with equal justification be assigned to the companion species, *C. toxotes*.

Callinectes toxotes ORDWAY

Restricted synonymy:

Callinectes toxotes ORDWAY, 1863, p. 576 (type locality, Cape San Lucas). A. MILNE EDWARDS, 1879, p. 227 (a variety of *C. diacanthus*). RATHBUN, 1896, p. 363, pl. 21, pl. 24, fig. 9, pl. 25, fig. 9, pl. 26, fig. 9, pl. 27, fig. 8; 1910, pp. 536, 577, pl. 55; 1930, p. 127, pl. 54.

Callinectes robustus A. MILNE EDWARDS, 1879, p. 227 (a variety of *C. diacanthus*) (type locality, Colombia).

Previous records:

Ecuador: Guayaquil J. ORTON, do, Salada, and do, purchased in market W. L. SCHMITT (RATHBUN, 1930), Punta Salinas W. L. SCHMITT (RATHBUN, 1930).

Peru: Mouth of River Tumbes R. E. COKER (RATHBUN, 1910).

Chile: Juan Fernandez Islands W. L. SCHMITT (RATHBUN, 1930).

Material examined: None from Chile nor from among Lund University Chile Expedition collections.

Range: From Cape San Lucas, Lower California, Mexico, to mouth of River Tumbes, Peru. Juan Fernandez Islands, Chile.

Remarks: There is no record of the occurrence of this species on the Chilean mainland, unless the *Callinectes* sp.? of PORTER (1903), consisting of a fragment of carapace only and coming from Coquimbo, should have been assigned to *C. toxotes*, rather than to *C. arcuatus*, as has been done in this paper. (See also Remarks under that species.)

Nectocarcinus A. MILNE EDWARDS, 1860

Nectocarcinus bullatus BALSS

Nectocarcinus bullatus BALSS, 1924, p. 335, text fig. 2 (type locality, Masatierra, Juan Fernandez Islands).

Previous records:

Chile: Masatierra, Juan Fernandez Islands K. BÄCKSTRÖM (Swedish Pacific Exped.) (BALSS).

Material examined: None.

Range: Known only from the type locality above.

Remarks: This species, which was not included in RATHBUN (1930), is apparently endemic in the Juan Fernandez Islands. The genus was erected by A. MILNE EDWARDS to include species otherwise resembling *Portunus* but having only four teeth on each anterolateral margin. Its distribution is East Australia, New Zealand, Tasmania, and Auckland Island. A small species, *Nectocarcinus bullatus* is most closely related to *N. antarcticus* (JACQUINOT). The genus is new to South America.

Euphylax STIMPSON, 1860

Euphylax dowi STIMPSON

Restricted synonymy:

Euphylax dovii STIMPSON, 1860, p. 226, pl. 5 [not 3], figs. 5, 5a (type locality, west coast of Central America). A. MILNE EDWARDS, 1879, p. 204, pl. 38, figs. 2, 2a—d. RATHBUN, 1910, p. 578; 1930, p. 147, pl. 65. GARTH, 1946, p. 423, pl. 72, figs. 1, 2; 1948, p. 36, pl. 5, fig. 2.

Previous records:

Peru: Paita 'Hassler' (RATHBUN, 1930).
Chile: Talcahuano M. C. Z. (RATHBUN, 1930).

Material examined: None from among present collections.

Range: West coast of Mexico? (A. MILNE EDWARDS). Panama to Talcahuano, Chile. Galápagos and Malpelo Island.

Remarks: This species is characteristic of the warm water mass that moves southward out of the Bay of Panama each year from January through April and on rare occasions reaches the latitude of southern Peru. Its occurrence as far south as Talcahuano is therefore remarkable.

The specific name has been emended to conform with recommended usage and in accordance with STIMPSON's statement of intent: 'Found on the western coast of

Central America, by Captain J. M. Dow, of the Steamer "Guatemala", to whom we have dedicated the species.'

Species erroneously reported from Chile

Portunus (*Achelous*) *spinimanus* LATREILLE, 1819, p. 47.

According to RATHBUN (1930, p. 62) the figures given for *Achelous spinimanus* by A. MILNE EDWARDS (1861, p. 341, pl. 32) represent the Atlantic species, which ranges from New Jersey to Brazil, but the locality "Chile" is erroneous.

Portunus pelagicus (LINNAEUS, 1758, p. 626)

The localities Porto Cavite, Chonos, and Chiloé, given by CANO (1889, pp. 90, 99, 212) for *Neptunus pelagicus*, as well as the Chonos locality given by CANO (1889, pp. 90, 98, 212) for *Neptunus armatus*? A. MILNE EDWARDS, 1861 [a questionable synonym of *Neptunus pelagicus*, *fide* ALCOCK (1899, p. 34)], should be considered incorrect for the species, which ranges throughout the Indian Ocean from the Red Sea to Port Jackson (A. MILNE EDWARDS, 1861, p. 320), and is the blue crab of Adelaide markets, according to HALE (1927, p. 149, fig. 150).

Family Potamonidae

Trichodactylus LATREILLE, 1825

Trichodactylus (*Trichodactylus*) *fluviatilis* (LATREILLE)

Restricted synonymy:

Telphusa (?) *quadrata* LATREILLE, 1825a, p. 269 (*nomen nudum*).

Trichodactylus fluviatilis LATREILLE, 1825c, p. 705 (type locality, Brazil). RATHBUN, 1904c, p. 242.

Trichodactylus quadratus, MILNE EDWARDS, 1836, p. 60, pl. 15, fig. 2.

Trichodactylus quadrata, MILNE EDWARDS, 1837, p. 16.

Trichodactylus punctatus EYDOUX and SOULEYET, 1842 (or 1843), Atlas, pl. 3, figs. 1, 2; 1844 (or 1845), p. 237 (type locality, Sandwich Islands; probably Brazil, *fide* RATHBUN, 1906a, p. 39).

Uca cunninghami SPENCE BATE, 1868, p. 447, pl. 21, fig. 3 (type locality, Rio de Janeiro, Brazil).

Trichodactylus cunninghami, A. MILNE EDWARDS, 1869, p. 172.

Trichodactylus (*Trichodactylus*) *fluviatilis*, RATHBUN, 1905, pl. 17 [cited as pl. 15 in 1906a], fig. 11; 1906a, p. 35 (complete synonymy); 1910, p. 580.

Previous records:

Chile: River Maule LIEUT. GILLISS (RATHBUN, 1906a).

Material examined: None.

Range: Fresh waters of Chile, Brazil, and Guiana.

Remarks: *Trichodactylus* (*T.*) *fluviatilis* is the only one of several species of Potamonidae reported from Chile of which the Chilean locality is supported by specimen material of unquestioned provenience. The remainder are treated as species doubtfully or erroneously referred to Chile.

Species doubtfully or erroneously reported from Chile

Potamon (*Geothelphusa*) *chilensis* (HELLER)

The accuracy of the type locality "Chile" for *Thelphusa chilensis* HELLER (1862, p. 520) has been questioned both by ORTMANN (1897, p. 312) and by RATHBUN (1905, p. 217), who states

that HELLER's Chilean locality needs confirmation. In discussing the inclusion in the New Zealand fauna by MIERS (1876) of species not occurring in those waters, CHILTON and BENNETT (1929, p. 732), place the chief onus on HELLER, whose locality records they hold to be unreliable.

Pseudothelphusa chilensis (MILNE EDWARDS and LUCAS)

The basis for including *Potamia chilensis* MILNE EDWARDS and LUCAS (Atlas, 1842, pl. 10, fig. 1; 1844, p. 22) in a fauna of Chile, apart from its specific name, is the statement by NICOLET (1849, p. 150) attributing it to rivers of Chile. That this should have been rivers of Peru is made abundantly clear by PHILIPPI (1894a, p. 266). The type locality is "Vicinity of Lima".

Pseudothelphusa dentata (LATREILLE)

Apart from a specimen entered as "??Chile (Mus. Brit.)" by RATHBUN (1905, p. 300), all records for *Telphusa dentata* LATREILLE (1825b, p. 564) are from the tropical western Atlantic. The type locality is "Martinique and Middle America"; the Chile record is probably an error of provenience.

Family Atelecyclidae

Peltarion JACQUINOT, 1847?

Peltarion spinosulum (WHITE)

Restricted synonymy:

Atelecyclus spinosulus WHITE, 1843a, p. 345 (type locality, Falkland Islands) [cited by WHITE (1847) as "*Corystes spin.*"].

Peltarion magellanicus JACQUINOT, 1847 (or before), Atlas, pl. 8, figs. 1—3; 1853, Text, p. 83 (type locality, Strait of Magellan).

Peltarion spinosulum, WHITE, 1847, p. 52. DOFLEIN and BALSS, 1912, p. 38.

Atelecyclus chilensis, NICOLET, 1849, p. 175. Not *A. chilensis* MILNE EDWARDS, 1837.

Peltarion spinulosum, DANA, 1852, p. 304; 1855, Atlas, pl. 18, figs. 6a, 6b. CUNNINGHAM, 1871, p. 494. MIERS, 1881, p. 68. RATHBUN, 1930, p. 160, pl. 69, figs. 1, 2. PORTER, 1936b, p. 152 [*Pelbarion*]; 1936c, p. 337.

Hypopeltarium spinosulum, MIERS, 1886, p. 211. MURRAY, 1895, p. 1141. ORTMANN, 1911, p. 661.

Hypopeltarion spinulosum, CANO, 1889, pp. 91, 98, 224. ORTMANN, 1893b, p. 421. LENZ, 1902, p. 758.

Hypopeltarium spinulosum, RATHBUN, 1898b, p. 599; 1910, p. 581.

Previous records:

Chile: Valparaíso (NICOLET), do 'Vettor Pisani' (CANO), do ACKERMANN and do Museum Godeffroy (ORTMANN, 1893b), Talcahuano [source?] (PORTER, 1936c), Calbuco L. H. PLATE (LENZ), Chonos and Chiloé 'Vettor Pisani' (CANO), Port Otway [Puerto Barroso], 45 fms 'Challenger' (MURRAY, 1895) [correction for off Chiloé, 45 fms 'Challenger' (MIERS, 1886)], do 61 fms 'Albatross' (RATHBUN, 1898b), Port Grappler 'Albatross' (RATHBUN, 1898b), Smyth Channel Hamburger Magalhaens. Sammelr. (DOFLEIN and BALSS), Otter Bay, Smyth Channel 'Albatross' (RATHBUN, 1930), Cockle Cove and Puerto Bueno, 2—7 fms 'Alert' (MIERS, 1881), Strait of Magellan 'Astrolabe' and 'Zélée' (JACQUINOT), do 'Vettor Pisani' (CANO), Gregory Bay, Port Churruca, and Sandy Point, 17—77.5 fms 'Albatross' (RATHBUN, 1898b), Sandy Point [Punta Arenas] 'Nassau' (CUNNINGHAM), do 9—10 fms 'Alert' (MIERS, 1881), do 2—10 fms L. H. PLATE (LENZ), do J. B. HATCHER (ORTMANN, 1911), do Hamburger Magalhaens. Sammelr. (DOFLEIN and BALSS), do 'Hassler' and do W. L. SCHMITT (RATHBUN,

1930), Laredo Bay and south of Elizabeth Island 'Albatross' (RATHBUN, 1930), Canali Patagonici 'Vettor Pisani' (CANO).

Material examined:

Lund University Chile Expedition

St. M 16. 1♀, 1 young.
St. M 19. 14 young.
St. M 20. 2♂, 1♀.
St. M 23. 1 young.
St. M 29. 1♂, 2♀, 1 young.
St. M 41. 1♀.
St. M 43. 12 young. Common.
St. M 84. 1♀.
St. M 88. 1 young.
St. M 95. 2♀.
St. M 96. 4♂.
St. M 106. 1♂, 3♀.
St. M 107. 1♂, 2♀.
St. M 108. 1♂.
St. M 109. 1♂, 1♀.
St. M 115. 1♀, 1 young.
St. M 148. 2♂.

Hamburg Museum

Chile: Junín; leg. E. ROLIN, 1903; K 4912, 1♂.
Iquique; collector?, date?; K 4913 (Mus. Godeffroy Nr. 3128), 1♂, 1♀ ov.
Corral; leg. R. PAESSLER, February, 1916; K 5270, 1 young.

Range: From Junín and Iquique, Chile (extension northward from Valparaíso), south to Strait of Magellan and Uschuaia, Argentina, thence north to Cape Santa María, Uruguay. Falkland Islands. 0—166.6 fms.

Remarks: The extensive series of the Lund University Chile Expedition, which numbers 59 specimens from 17 localities, contains males of from 10.5 to 52.3 mm, females of from 16.0 to 42.7 mm, and young of from 3.2 to 9.0 mm. The species was collected ashore, dredged usually in depths of from 5—6 to 60 m, and once in 250—300 m. It was especially common at *St. M 43*, east of Chiloé Island. The Hamburg Museum series contains the only ovigerous female, a 30.4 mm specimen to which no date can be assigned. Hamburg Museum specimens extend the range northward from Valparaíso to Iquique and Junín; Lund University specimens extend the vertical range from 77.5 fms to 166.6 fms (300 m).

Acanthocyclus MILNE EDWARDS and LUCAS, 1844

Acanthocyclus gayi MILNE EDWARDS and LUCAS

Acanthocyclus gayi MILNE EDWARDS and LUCAS, 1844, p. 30 (type locality, Valparaíso); Atlas, pl. 15, figs. 1, 1a—f. NICOLET, 1849, p. 176. DANA, 1852, p. 295; 1855, Atlas, pl. 18, figs. 4a—c. MIERS, 1886, p. 209 (part: the Valparaíso specimens). RATHBUN, 1898b, p. 598; 1910, p. 581; 1930, p. 171, pl. 75, pl. 76, fig. 4. LENZ, 1902, p. 753. PORTER, 1903, p. 149; 1936b, p. 152; 1936c, p. 337.
Acanthocyclus villosus STRAHL, 1861, p. 714, 1 pl. (type locality, Chile).
Plagusetes elatus HELLER, 1862, p. 522 [4] (type locality, Chile).
Acanthocyclus gay, CANO, 1889, pp. 91, 98, 99, 100, 223 (part: the Ancon, Callao, Mejillones, and Valparaíso specimens).

Previous records:

Peru: "Peru" M.C.Z. (RATHBUN, 1930), Salaverry W. L. SCHMITT (RATHBUN, 1930), Ancon and Callao 'Vettor Pisani' (CANO), San Lorenzo Island H. E. AMES and Mollendo J. ORTON (RATHBUN, 1930).
Chile: "Chile" Berlin Museum (STRAHL), do Vienna Museum (HELLER), Cavancha L. H. PLATE

(Lenz), Tocopilla W. L. Schmitt (Rathbun, 1930), Mejillones 'Vettor Pisani' (Cano), Antofagasta J. N. Rose and do W. L. Schmitt (Rathbun, 1930), Herradura F. T. Delfin (Porter, 1903), Valparaíso C. Gay, A. d'Orbigny, and Fontaines (Milne Edwards and Lucas) do (Nicolet), do U. S. Expl. Exped. (Dana), do 'Challenger' (Miers), do 'Vettor Pisani' (Cano), do 'Hassler' and do W. L. Schmitt (Rathbun, 1930), Tumbes and Talcahuano L. H. Plate (Lenz), Talcahuano M.C.Z. (Rathbun, 1930), do (Porter, 1903), Lota W. L. Schmitt (Rathbun, 1930).

Material examined:

Lund University Chile Expedition

St. M 57. 1♂. With white claws.

St. M 120. 1♂, 2♀. White claws. Upper part of tidal belt.

St. M 123. 4♂, 13♀ (5 ov), 6 young. From the tidal zone. Under a mussel, *Hormomya granulata* Hanley.

St. M 127. 2♀, (1 ov), 2 young. Lower part of tidal belt. In a rockpool and in holdfasts of a brown alga.

St. M 131. 2 young. Among "*Corallina*", lower part of tidal belt.

St. M 135. 1 young. In upper part of tidal belt.

Hamburg Museum

Chile: Alacrán Island, near Arica; leg. R. Paessler, 1902; K 4903 (part), 1♂.
Caleta Buena; leg. R. Paessler, 1898; K 3687, 3♀ (1 ov), 1 young.
Caleta Buena; leg. R. Paessler, November 17, 1909; K 6870, 4 young; K 1805, 3♂, 7♀ (1 ov).
Iquique, 8 fms; leg. F. Ringe, 1882; K 1500, 1♂; K 1501, 1♀; K 1502, 2♂.
South of Cavancha; leg. R. Paessler, November, 1909; K 1808, 2♂, 1♀ ov.
Antofagasta, shore; leg. R. Paessler, 1904; K 3688, 2♂, 3♀ (1 ov).
Southwest coast of South America; leg. H. Petersen, date?; K 1441, 1 young.

Range: From Salaverry, Peru, to Lota, Chile. Shore to 8 fms.

Remarks: In the Lund University series are males of from 10.8 to 24.0 mm, females of from 7.9 to 19.7 mm, ovigerous females of from 13.5 to 19.7 mm, and young as small as 1.5 mm in length. In the Hamburg Museum series are males of from 7.0 to 18.6 mm, females of from 7.3 to 19.2 mm, and ovigerous females of from 13.0 to 23.2 mm. The Cunningham specimens from Lota, which Rathbun (1930, p. 171) refers with a question mark to this species, have been transferred to *Acanthocyclus albatrossis* on the advice of Miss J. Haig, who examined the 25.6 mm male and the 18.1 and 23.2 mm female specimens in the collection of the British Museum (Natural History). Unfortunately, the color note: "Grey-brown; claws yellow-brown at distal end, other parts pink or yellow-white with spots on the upper side" cannot be applied exclusively to *A. gayi*, since the lot from *St. M 123* contained specimens of *A. hassleri* as well.

Acanthocyclus albatrossis Rathbun

Restricted synonymy:

Acanthocyclus gayi, Strahl, 1861, p. 713, plate, 2 figs. Cunningham, 1871, p. 494. Miers, 1881, p. 69; 1886, p. 209 (part: the Messier Channel specimens). Murray, 1895, pp. 1120, 1166 (part). ?Nobili, 1901, p. 8; 1902, p. 235. Doflein and Balss, 1912, p. 38. Not *A. gayi* Milne Edwards and Lucas, 1844.

Acanthocyclus gay, TARGIONI-TOZZETTI, 1872a, p. 397; 1872b, p. 468; 1877, p. 95, pl. 7, figs. 1, 1a—f. CANO, 1888, pp. 163, 175; 1889, pp. 91, 98, 99, 100, 223 (part: Strait of Magellan and "Canali Patagonici"). Not *A. gayi* MILNE EDWARDS and LUCAS, 1844.

Acanthocyclus albatrossis RATHBUN, 1898b, pp. 598, 599 (type locality, Port Otway [Puerto Barroso], Chile); 1910, p. 581; 1930, p. 172, pl. 76, figs. 2, 3, 5, 6, pl. 77. LENZ, 1902, p. 753. PORTER, 1936b, p. 152; 1936c, p. 337.

Previous records:

Chile: Talcahuano 'Hassler' (RATHBUN, 1898b), do W. L. SCHMITT (RATHBUN, 1930), ? San Vicente F. SILVESTRI (NOBILI, 1901), Corral W. L. SCHMITT (RATHBUN, 1930), Tenylo [Tenglo] near Puerto Montt F. LAU (DOFLEIN and BALSS), San Carlos [=Ancud], Chiloé Island 'Hassler' (RATHBUN, 1898b), Chonos and Chiloé 'Vettor Pisani' (CANO, 1889), Chacabuco, Smith Channel R. PAESSLER (DOFLEIN and BALSS), Port Otway [Puerto Barroso] 'Albatross' (RATHBUN, 1898b), Messier Channel, in fresh water 'Challenger' (MIERS, 1886), Eden Harbor, Smith Channel 'Hassler' (RATHBUN, 1898b), do R. PAESSLER (DOFLEIN and BALSS), Port Grappler, Smith Channel SPEYER, A. GASSMAN (DOFLEIN and BALSS), Puerto Fortuna, Smith Channel F. T. DELFIN (DOFLEIN and BALSS), Latitude Cove 'Albatross' (RATHBUN, 1898b), Puerto Bueno 'Caracciolo' (CANO, 1888), Mayne Harbor 'Hassler' (RATHBUN, 1898b), Isthmus Bay, Strait of Magellan 'Alert' (MIERS, 1881), Canal of Western Patagonia 'Magenta' (TARGIONI-TOZZETTI, 1872a), Canali Patagonici and Strait of Magellan 'Vettor Pisani' (CANO, 1889), Puerto Harris, Dawson Island Exped. Facult. Cien. (RATHBUN, 1930), Almirantazgo, Tierra del Fuego L. H. PLATE (LENZ).

Material examined:

Lund University Chile Expedition

St. M 1. 1♂, 1 young.

St. M 8. 7♂, 4♀ (1 ov), 2 young.

St. M 10. 2♂. Blueish.

St. M 13. 1♂.

St. M 22. 6♂, 10♀ (6 ov).

St. M 23. 1♀.

St. M 33. 1♂, 4♀ (1 ov). Under stones.

St. M 37. 16♂, 14♀ (2 ov), 12 young. Slow. Claws white distally.

St. M 56. 1♀. With white claws.

St. M 59. 2♂, 2♀. With white claws.

St. M 63. 1 young.

St. M 82. 2♀, 1 young. With white claws.

St. M 90. 6♂, 7♀ (3 ov). With white claws.

St. M 91. 2♂, 2♀ (1 ov). With white claws.

St. M 116. 13♂, 5♀. With white claws.

St. M 139. 2♂, 5♀, 4 young. Among Balanida (*Chthamalus cirratus* and *scabrosus*, *Balanus flosculus* and *Elminius kingii*). Lowest part of tidal belt.

Hamburg Museum

Chile: S. Chile; leg. R. PAESSLER, 1893; K 4902, 1♂.

Chacabuco, Smyth Channel; leg. R. PAESSLER, July 18, 1888; K 4895, 3♀ (2 ov). [Note: Chacabuco is on Seno Aisén of Canal Moraleda, not Canal Smyth].

Puerto Fortuna, Smyth Channel; leg. F. T. DELFIN, August, 1892; K 4896, 1♀. [This is the DOFLEIN and BALSS material recorded above.]

Island Harbour, Messier Channel, Smyth Channel; leg. R. PAESSLER, December 12, 1909; K 1814, 2♂, 2♀. [Note: Messier Channel is remote from Smyth Channel].

Range: From Talcahuano, Chile, through the Strait of Magellan to the Falkland Islands.

Remarks: The series of *Acanthocyclus albatrossis* obtained by the Lund University Chile Expedition was collected either at the latitude of the Canal Chacao or in the Strait of Magellan. Such being the case, it is suitable neither for the study of

Material examined:

Lund University Chile Expedition

St. M 123. 6♂, 6♀, 8 young. The adult specimens were usually found under *Hormomya granulata* HANLEY, a mussel.

Hamburg Museum

Chile: Alacrán Island, near Arica; leg. R. PAESSLER, 1902; K 4903, 2♂.
Caleta Buena; leg. R. PAESSLER, November 17, 1909; K 1806, 1♀.
Antofagasta, shore; leg. R. PAESSLER, 1904; K 4894, 2♂, 1 young.
Antofagasta, shore; leg. R. PAESSLER, November 8, 1913; K 6797, 1♂, 1♀.

United States National Museum

Panama: Panama, J. M. Dow, collector, 1♂, 1♀ (U.S.N.M. No. 3265).

Range: From Alacrán Island, near Arica, a northward extension from Cavancha, to San Vicente, Chile. Extralimital: Panama.

Remarks: In the Lund University Chile Expedition series are males measuring from 7.4 to 19.4 mm, females from 7.8 to 12.4 mm, and young as small as 2 mm in length. In the Hamburg Museum series from Antofagasta are males of 20.2 and 22.2 mm, and a female of 13.6 mm length. None of the females are ovigerous. Specimens from Montemar, *St. M 123*, were described as grey-brown, with claws yellow-brown at the distal end, and other parts pink or yellow-white with spots on the upper side. (See also *A. gayi*).

The writer is convinced of the distinctness of this form and of the essential correctness of its differential diagnosis by RATHBUN (1930, p. 171, table). However, with more material at hand, it is apparent that the proportional length to width of carapace is subject to greater variation than the limits there defined. Thus four of 10 males and one of eight females measured have a length to width ratio of less than 1:1.13, and might be considered on this account to be *Acanthocyclus albatrossis* (1:1.08—1:1.13) were it not abundantly clear from other characters that they were indeed *A. hassleri*. The fact that *hassleri* replaces *albatrossis* north of Talcahuano leads to the conjecture that it may be but a geographical subspecies of the latter, a view to which the apparent identity of the male first pleopods lends support.

Corystoides MILNE EDWARDS and LUCAS, 1844

Corystoides chilensis MILNE EDWARDS and LUCAS

Restricted synonymy:

Corystoides chilensis MILNE EDWARDS and LUCAS, 1844, p. 32; Atlas, pl. 16, figs. 1, 1a—e (type locality, shores of Valparaíso). NICOLET, 1849, p. 179. RATHBUN, 1910, p. 576; 1930, p. 174, pl. 78. PORTER, 1918, p. 52; 1936b, p. 152; 1936c, p. 338.

Corystoides abbreviatus A. MILNE EDWARDS, 1880b, p. 20 (type locality, Río de la Plata, below Montevideo).

Previous records:

Chile: Valparaíso FONTAINES (MILNE EDWARDS and LUCAS), do (NICOLET), Curanipe, province of Maule (PORTER, 1918), Talcahuano (PORTER, 1936b).

Material examined: None.

Range: From Valparaíso to Talcahuano, Chile. In the Atlantic off Uruguay.

Remarks: "Of yellowish white color according to GAY, and in some specimens which we have seen (in life) with blotches of bright red." (PORTER, 1918).

Assuming that RATHBUN (1930) was correct in uniting the Atlantic and Pacific species of *Corystoides* under the earlier name *chilensis*, it should be pointed out that she did so in the absence of Chilean specimens, and that Talcahuano, Chile, and Rio de la Plata, Uruguay, are separated by two thousand miles of coastline from which *C. chilensis* is unreported.

Bellia MILNE EDWARDS, 1848

Bellia picta MILNE EDWARDS

Bellia picta MILNE EDWARDS, 1848, p. 192 (type locality, Bay of San Nicolas, Peru). CUNNINGHAM, 1871, p. 494. RATHBUN, 1898b, p. 599; 1910, p. 576; 1930, p. 175, pl. 79. PORTER, 1918, p. 52; 1931, p. 74, text fig. 11; 1936a, p. 252, pl. 17; 1936b, p. 152; 1936c, p. 338; 1940a, p. 145, 1940b, p. 311; 1941, p. 459.

Previous records:

Peru: Independencia Bay, R. C. MURPHY (RATHBUN, 1930), San Nicolas Bay H. A. WEDDELL (MILNE EDWARDS).

Chile: Antofagasta D. ARAYA G. (PORTER, 1918), Antofagasta province J. HERRERA (PORTER, 1940a), Quintero C. E. PORTER (PORTER, 1936c), Talcahuano (PORTER, 1936b), Lota 'Nassau' (CUNNINGHAM), do 'Albatross' (RATHBUN, 1898b).

Material examined:

Hamburg Museum

Chile: Lota, shore; leg. R. PAESSLER, 1888; K 4863, 1♂, 3♀.
West coast of South America: leg. R. PAESSLER, date?; K 4864, 3♂, 1♀.

Range: From Independencia Bay, Peru, to Lota, Chile.

Remarks: The largest male in the Hamburg Museum series measures 52.8×50.0 mm, the largest female 34.6×30.5 mm. These compare favorably with measurements of a large male given by RATHBUN (1930) as 53.3×49 mm, and those of a female given by PORTER (1931) as 29×24 mm.

Species erroneously reported from Chile

Atelecyclus chilensis MILNE EDWARDS, 1837, p. 143.

According to RATHBUN (1930, p. 149, footnote) the localities Chile, North America, and East Indies should be considered erroneous for this species, which was described with *Cancer undecimdentatus* HERBST, the European species, as a possible synonym. To which species of *Atelecyclus* Chilean specimens reported as *A. chilensis* by WHITE (1847, p. 51) and by NICOLET (1849, p. 175, Bay of Valparaíso) should be assigned cannot be determined in the absence of specimens.

Nomen nudum

Atelecyclus dilitatus PHILIPPI, 1849a, p. 264; Chile (RATHBUN, 1930, p. 149).

Family Cancridae

Cancer Linnaeus, 1758

Cancer edwardsi Bell

Cancer edwardsii Bell, 1835a, p. 87 (type locality, near Valparaíso, Chile); 1835b, p. 338, pl. 44, pl. 47, figs. 2, 3. Dana, 1852, p. 153. Kinahan, 1857, p. 336. A. Milne Edwards, 1865, p. 193. Cunningham, 1871, p. 491. Miers, 1881, p. 63. Cano, 1889, pp. 99, 100, 188. Rathbun, 1910, p. 581; 1930, p. 193, pl. 80, pl. 85, fig. 2. Doflein and Balss, 1912, p. 37. Boone, 1938, pp. 201, 234, pls. 90—92.

Platycarcinus edwardsii, Milne Edwards and Lucas, 1844, p. 20. Nicolet, 1849, p. 144.

Cancer edwardsii var. *annulipes* Miers, 1881, p. 63 (type locality, Trinidad Channel, Strait of Magellan).

Cancer edwardsi, Miers, 1881, p. 67. Porter, 1936b, p. 152; 1936c, p. 338.

Cancer edwardsi var. *annulipes*, Miers, 1881, p. 67.

Cancer plebejus var. *annulipes*, Pfeffer, 1890, p. 545. Not *Cancer plejebus* Poeppig, 1836.

Previous records:

Ecuador: Guayaquil Copenhagen Museum (Rathbun, 1930).

Peru: Ancon 'Vettor Pisani' (Cano), Callao J. R. Kinahan (Kinahan), do 'Vettor Pisani' (Cano), do Paris Museum (Rathbun, 1930).

Chile: Valparaíso, 25 fms H. Cuming (Bell), do U. S. Expl. Exped. (Dana), do 'Vettor Pisani' (Cano), do (Nicolet), do Copenhagen Museum (Rathbun, 1930), Talcahuano 'Alert' (Miers), Talcahuano and Lota W. L. Schmitt (Rathbun, 1930), Ancud, Chiloé Island 'Nassau' (Cunningham), Chiloé, 8 fms, and Port [Puerto] Lagunas, 9 fms 'Alva' (Boone), Trinidad Channel 'Alert' (Miers), Strait of Magellan R. Paessler (Doflein and Balss).

W. coast of South America: W. H. Jones (Rathbun, 1930).

Material examined:

St. M 4. 1♂, 3♀. Dark blood-red.
St. M 5. 1♀, 1 carapace. Dark flesh-red.
St. M 7. 2♂, 4♀.
St. M 13. 1♀. Red-violet.
St. M 16. 1♂.
St. M 19. 1♂. Dark violet.
St. M 22. 3♂, 2♀. In the littoral.
St. M 37. 1♂, 2♀, 5 young. Violet.
St. M 46. 1♀.
St. M 50. 1♀.
St. M 91. 1 young. Violet.
St. M 95. 1♀. Violet.
St. M 97. 1♂.
St. M 108. 2♀. Violet.
Seno Reloncaví, or Golfo de Ancud, or near Ancud, 1949. 1♂.

Range: From Guayaquil [market purchase?], Ecuador, to Strait of Magellan. 0—25 fms.

Remarks: Most abundantly represented among *Cancer* species, *C. edwardsi* numbers 36 specimens from 15 stations. In the present series are young from 7.2 mm, young females from 13.8 to 28.6 mm, mature but non-ovigerous females from 31.6 to 92.0 mm, and adult males from 30.4 to a 100.7 × 163.7 mm specimen. Collected infrequently ashore, the species was encountered usually in shallow dredging between 2—5 and 13—16 m, and once in 40—45 m.

Cancer plebejus Poeppig

?*Cancer coronatus* Molina, 1782, p. 207 (type locality, Chile); Spanish translation, 1788, p. 227; French translation, 1789, p. 183; English translation, 1808, pp. 144, 243; English edition, 1809, pp. 170, 286.

Cancer irroratus, BELL, 1835a, p. 87; 1835b, p. 340, pl. 46, pl. 47, figs. 6, 7. HELLER, 1865, p. 6. LENZ, 1902, p. 759. PORTER, 1906, p. 133; 1925, p. 317. Not *C. irroratus* SAY, 1817.

Cancer plebejus POEPPIG, 1836, p. 134 (type locality, Chile). MIERS, 1881, p. 67. ORTMANN, 1893b, p. 425. RATHBUN, 1898b, p. 581; 1910, pp. 539, 581, pl. 38, fig. 1; 1930, p. 198, pl. 81, pl. 82, fig. 1, pl. 85, fig. 3. PORTER, 1936c, p. 338; 1940a, p. 145; 1940b, p. 311; 1941, p. 459.

Platycarcinus irroratus, MILNE EDWARDS and LUCAS, 1844, p. 19. NICOLET, 1849, p. 142 (not all synonymy). Not *Cancer irroratus* SAY, 1817.

Cancer plebeius, WHITE, 1847, p. 20. DANA, 1852, p. 155. KINAHAN, 1857, p. 335. A. MILNE EDWARDS, 1865, p. 188. CANO, 1889, pp. 87, 99, 100, 188.

?*Platycarcinus novae-zelandiae*, JACQUINOT, 1853, p. 54 (part: shores of Talkahueno [Talcahuano], Chile. Not material from New Zealand). Not *Cancer novae-zelandiae* JACQUINOT, 184-.

Cancer plebejius, PORTER, 1936b, p. 152.

Cancer coronatus, BOONE, 1938, pp. 201, 229, pl. 89.

Previous records:

Peru: "Peru" Paris Museum (RATHBUN, 1930), Ancon 'Vettor Pisani' (CANO), Callao J. R. KINAHAN (KINAHAN), do 'Vettor Pisani' (CANO), do R. E. COKER (RATHBUN, 1910).

Chile: "Chile" (POEPPIG), do 'Novara' (HELLER), Iquique and Cavancha L. H. PLATE (LENZ), Antofagasta Prov. J. HERRERA (PORTER, 1940a), Bahía de Taltal A. CAPDEVILLE (PORTER, 1925), Los Vilos J. N. THOMAS (PORTER, 1906), Valparaíso U. S. Expl. Exped. (DANA), do (WHITE), do (NICOLET), do ACKERMANN (ORTMANN), do 'Vettor Pisani' (CANO), do W. H. JONES (RATHBUN, 1930), Talcahuano 'Zélée' or 'Astrolabe' (JACQUINOT), do 'Alert' (MIERS), do W. L. SCHMITT (RATHBUN, 1930), Lota 'Albatross' (RATHBUN, 1898b), Calbuco L. H. PLATE (LENZ), Ascensión Island 'Alva' (BOONE), Port Otway [Puerto Barroso] 'Albatross' (RATHBUN, 1898b), Picton Channel, 6 fms 'Alert' (MIERS), Southern Chile PÖHL (ORTMANN).

South America: H. CUMING (BELL, 1835a).

Material examined:

Lund University Chile Expedition

St. M 4. 1♂. Wine-red with light spots.

St. M 5. 1♀. Violet with light spots.

St. M 13. 2♂, 2♀. Red-violet.

St. M 19. 1♀ ov. Light violet.

St. M 37. 1 young. Violet.

St. M 98. 1♀. Violet.

Hamburg Museum

Chile: Junín, 15 fms; leg. R. PAESSLER, 1895; K 742, 1 young.
Tocopilla; leg. R. PAESSLER, July 5, 1910; K 796, 1 young; K 797, 38 m, 3 young.
Talcahuano, 5 fms; leg. R. PAESSLER, 1895; K 739, 2 young.
Coronel; leg. R. PAESSLER, 1897; K 743, 2 young.
Lota, 7 fms; leg. R. PAESSLER, October 11, 1890; K 738, 2 young.
Lota, 8 fms; leg. W. MICHAELSEN, July 3, 1893; K 735, 1 young.

Range: From Ancon, Peru, to Picton Channel, Chile. 0—15 fms.

Remarks: Among the nine specimens from six Lund University Expedition localities are a male measuring 50.5 mm in length and 82.2 mm in width, two females with measurements of 48.5 × 79.3 and 62.0 × 95.0 mm, respectively, and an ovigerous female of 36.0 × 72.5 mm, the latter taken in the Golfo de Ancud on December 15. Collected but once ashore, this crab was commonly dredged in from 0—6 to 13—16 m. The light spots described by the collectors are in all probability the corona observed by MOLINA. The writer does not follow BOONE (1938), however, in considering this positive confirmation of MOLINA's *coronatus*, for the crown appears on several *Cancer* species, including the very similar *C. porteri*, as well.

Cancer porteri RATHBUN

Cancer longipes BELL, 1835a, p. 87 (type locality, near Valparaíso); 1835b, p. 337, pl. 43, pl. 47, fig. 1. WHITE, 1847, p. 20. KINAHAN, 1857, p. 336. A. MILNE EDWARDS, 1865, p. 199. MIERS, 1886, p. 110. ORTMANN, 1893b, p. 424. FAXON, 1895, p. 16. MURRAY, 1895, p. 1120. LENZ, 1902, p. 760. RATHBUN, 1910, p. 581. Not *C. longipes* LINNAEUS, 1758.

Platycarcinus longipes, MILNE EDWARDS and LUCAS, 1844, p. 20. NICOLET, 1849, p. 144. Not *Cancer longipes* LINNAEUS, 1758.

Cancer porteri RATHBUN, 1930, p. 199, pls. 83, 84, pl. 85, fig. 4.

Previous records:

Panama: S. part of Panama Bay, 210—286 fms 'Albatross' (FAXON).

Peru: "Peru" Paris Museum (RATHBUN, 1930), Callao J. R. KINAHAN (KINAHAN).

Chile: Mejillones 'Albatross' (FAXON), Iquique and Cavancha L. H. PLATE (LENZ), Valparaíso H. CUMING (BELL), do 'Challenger' (MIERS), do (NICOLET), do (WHITE), do (ORTMANN), do W. H. JONES (RATHBUN, 1930).

Locality not given: C. PICKERING, U. S. Expl. Exped. (RATHBUN, 1930).

Material examined:

Lund University Chile Expedition

St. M 123. 1♂. With black claws.

Talcahuano, December 17, 1948, coll. I. VIGELAND. 1♂.

Hamburg Museum

Chile: Junín, 15 fms; leg. R. PAESSLER, 1895; K 26313, 2 young.
Antofagasta, 24 fms; leg. R. PAESSLER, 1895; K 737, 1 young.

Range: From Callao, Peru, to Valparaíso, Chile, 0—24 fms. Bay of Panama, 210—286 fms.

Remarks: Lund University Chile Expedition specimens measure 60.6×92.8 and 62.7×96.7 mm, respectively, and, like previously reported Chilean material, were collected ashore. The occurrence of this species in the Bay of Panama in 210—286 fms, as reported by FAXON (1895), is cited by EKMAN (1953, p. 244) as evidence of migration by submergence from a center of distribution for the genus off the North American west coast along the east central Pacific shelf to South America and the Antipodes.

Cancer polyodon POEPPIG

Cancer dentatus BELL, 1835a, p. 87 (type locality, near Valparaíso); 1835b, p. 339, pl. 45, pl. 47, figs. 4, 5. WHITE, 1847, p. 20. DANA, 1852, p. 155. KINAHAN, 1857, p. 335. A. MILNE EDWARDS, 1865, p. 197. HELLER, 1865, p. 6. CANO, 1888, pp. 163, 166; 1889, pp. 87, 99, 100, 188. ORTMANN, 1893b, p. 427. DOFLEIN, 1899, p. 187. LENZ, 1902, p. 759. BOHN, 1903, p. 401. PORTER, 1903, p. 149; 1917a, p. 96. Not *C. dentatus* HERBST, 1785.

Cancer polyodon POEPPIG, 1836, p. 133 (type locality, Chile). RATHBUN, 1898b, p. 581; 1910, pp. 538, 581, pl. 38, fig. 2; 1930, p. 202, pl. 82, fig. 2, pl. 85, fig. 5, pl. 90. PORTER, 1936b, p. 152; 1936c, p. 338; 1940a, p. 145; 1940b, p. 312; 1941, p. 459.

Platycarcinus dentatus, MILNE EDWARDS and LUCAS, 1844, p. 20. NICOLET, 1849, p. 143. Not *Cancer dentatus* HERBST, 1785.

Previous records:

Ecuador: Guayaquil Copenhagen Museum (RATHBUN, 1930).

Peru: "Peru" WIENER (BOHN), do W. H. JONES and do W. E. CURTIS (RATHBUN, 1930), Pacasmayo J. ORTON (RATHBUN, 1930), Salaverry W. L. SCHMITT (RATHBUN, 1930), Gulf of Ancon REISS (ORTMANN) [not Ancon, Ecuador], Ancon 'Vettor Pisani' (CANO, 1889), do R. E. COKER (RATHBUN, 1910), Callao J. R. KINAHAN (KINAHAN), do 'Caracciolo' (CANO, 1888), do H. R. H. PRINCESS THERESE OF BAVARIA (DOFLEIN), do R. E. COKER (RATHBUN, 1910), San Lorenzo Island R. E. COKER (RATHBUN, 1910), Chinchas Islands J. R. KINAHAN (KINAHAN), Vieja Island R. E. COKER (RATHBUN, 1910).

Chile: "Chile" 'Novara' (HELLER), do (POEPPIG), do F. SILVESTRI (RATHBUN, 1930), Iquique L. H. PLATE (LENZ), do W. H. JONES (RATHBUN, 1930), Cavancha L. H. PLATE (LENZ), Antofagasta PROV. J. HERRERA (PORTER, 1940a), Antofagasta W. L. SCHMITT and do J. N. ROSE (RATHBUN, 1930), Coquimbo F. T. DELFIN (PORTER, 1903), do J. M. GILLISS (RATHBUN, 1930), Valparaíso (NICOLET), do H. CUMING (BELL), do U. S. Expl. Exped. (DANA), do 'Vettor Pisani' (CANO, 1889), do (WHITE), do W. L. SCHMITT (RATHBUN, 1930), Tumbes and Talcahuano L. H. PLATE (LENZ), Talcahuano (PORTER, 1903), do W. L. SCHMITT (RATHBUN, 1930), Coronel (PORTER, 1903), Lota (PORTER, 1903), do 'Albatross' (RATHBUN, 1898b), do W. L. SCHMITT (RATHBUN, 1930), Quetelmahué, Chiloé Island C. S. REED (RATHBUN, 1930), Taitao Mus. Nac. Chile Exped. (PORTER, 1917).

Material examined:

Lund University Chile Expedition

St. M 10. 1♂. From a rock-pool.
St. M 56. 1♂, 1♀. From rock-pool.
St. M 57. 1♂. Lower part of the tidal zone.
St. M 98. 1♂. Red with black claws.
St. M 121. 1 carapace.
St. M 123. 1♂.
St. M 125. 1♂. Middle part of tidal zone.
St. M 126. 2♂.
St. M 129. 2♂, 1♀.
St. M 131. 1♂.
St. M 158. 1♂.

Hamburg Museum

Chile: Arica, 12 fms; leg. R. PAESSLER, 1892; K 2771, 1 young.
Caleta Buena, *ca.* 17 m; leg. R. PAESSLER, December 29, 1907; K 741, 23 young.
Caleta Buena; leg. W. SUXDORF, date?; K 736, 3 young.
Iquique, 12 fms; leg. R. PAESSLER, 1890; K 2756, 2 young.
Iquique, *ca.* 20 m; leg. R. PAESSLER, June 1, 1910; K 1846, 3 young.

Range: From Guayaquil [market purchase?], Ecuador, to the peninsula of Taitao, Chile. 0—12 fms.

Remarks: This species is well represented in Lund University collections, numbering 15 specimens from 11 localities. The largest male measures 101 × 160.6 mm, the largest female 84.5 × 133.9 mm; young range from 11.6 to 26.7 mm. This handsome crab occurs in the middle and lower part of the intertidal zone. The specimen from *St. M 57* was encrusted with "*Spirorbis*" and bryozoans. Taken usually ashore, on two occasions from tide pools, the species was encountered once at a depth of 8 m.

Cancer, species indeterminable

Material examined:

Lund University Chile Expedition

St. M 8. 1 young. *St. M 26.* 20 young. *St. M 127.* 1 young.
St. M 12. 6 young. *St. M 60.* 1 young.

Remarks: These specimens, all under 6 mm in length, cannot be identified to species with certainty because of their small size.

Species erroneously reported from Chile

Cancer oregonensis (DANA), 1852, p. 86.

A specimen from Curaumilla sent him by the late Dr. CARLOS E. PORTER was referred with doubt by BOUVIER (1910, p. 178) to *Trichocarcinus* (*Trichocera*) *oregonensis* DANA, a synonym of *Cancer oregonensis*. The accepted range for the species is from Pribilof Islands, Alaska, to Santa Barbara Island, California.

Nomen nudum

Pirimela chilensis PHILIPPI, 1894, p. 264. Probably a young *Cancer*, *fide* RATHBUN (1930, p. 179).

Family Xanthidae

Gaudichaudia RATHBUN, 1930

Gaudichaudia gaudichaudi (MILNE EDWARDS)

Xantho gaudichaudii MILNE EDWARDS, 1834, p. 396 (type locality, Chile). MILNE EDWARDS and LUCAS, 1843, p. 15; Atlas, pl. 5, fig. 4. NICOLET, 1849, p. 136. CUNNINGHAM, 1871, p. 491. CANO, 1889, pp. 100, 192. RATHBUN, 1898b, p. 568; 1910, pp. 540, 582, pl. 39, fig. 1.

Xantho bifrons ORTMANN, 1893b, p. 450, pl. 17, fig. 7 (type locality, Ancon, Ecuador; later emended to Ancon, Peru).

Xantho gaudichaudi, ORTMANN, 1897, p. 296. LENZ, 1902, p. 760. PORTER, 1905, p. 32, text fig. 1; 1906, p. 133.

Leptodius tridentatus LENZ, 1902, p. 761, pl. 23, figs. 7, 7a (type locality, Juan Fernandez Islands). RATHBUN, 1907, p. 47; 1910, p. 582; 1930, p. 308, pl. 143, figs. 1—4.

Leptodius spinoso-granulatus LENZ, 1902, p. 762, pl. 23, figs. 8, 8a (type locality, Juan Fernandez Islands). RATHBUN, 1910, p. 582.

Leptodius spinosogranulatus, BALSS, 1924, p. 336.

Gaudichaudia gaudichaudii, RATHBUN, 1930, p. 278, pls. 126, 127. PORTER, 1936b, p. 152; 1936c, p. 338.

Previous records:

Peru: Bay of Sechura, W of Matacaballa, 5 fms R. E. COKER (RATHBUN, 1910), Ancon (ORTMANN, 1897; correction for ORTMANN, 1893b), Callao A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do 'Vettor Pisani' (CANO), La Punta R. E. COKER (RATHBUN, 1930).

Chile: "Chili" (MILNE EDWARDS), do (NICOLET), Arica C. E. PORTER (RATHBUN, 1930), Antofagasta W. L. SCHMITT (RATHBUN, 1930), Coquimbo L. H. PLATE (LENZ), Los Vilos J. N. THOMAS (PORTER, 1906), Santiago (?) (RATHBUN, 1930), Juan Fernandez Islands L. H. PLATE (LENZ), Bahía Cumberland, Juan Fernandez Islands F. T. DELFIN (PORTER, 1905), Masatierra, Juan Fernandez Islands K. BÄCKSTRÖM (BALSS), Juan Fernandez Islands: Cumberland Bay, Carbajal Bay, 15—20 fms, and from tufts of seaweed in mouth of *Plagusia*

W. L. SCHMITT (RATHBUN, 1930), Tumbes and Talcahuano L. H. PLATE (LENZ), Puerto Corral C. E. PORTER (RATHBUN, 1907), Ancud, Chiloé 'Nassau' (CUNNINGHAM), Port Otway [Puerto Barroso] 'Albatross' (RATHBUN, 1898b).

Material examined:

Lund University Chile Expedition

St. M 9. 1♂.
St. M 55. 1♀. Red with black claws.
St. M 56. 2♂. 1♀. Red with black claws.
St. M 94. 1♂. Red with black claws.
St. M 103. 1♀.
St. M 123. 3♂. From the sublittoral.
St. M 125. 2♂. In quiet water between boulders, lower part of the littoral. With violet claws.

Hamburg Museum

Peru: Lobos Afuera, [to] Chinchas Islands; leg. W. von OHLENDORFF, 1897; K 1167, 4♂, 6♀.
Lobos Islands; leg. E. MEYER, 1907; K 1175, 1♂.
Chile: Chile; leg. F. T. DELFIN, 1896; K 1174, 1♂.
Arica, 5 fms; leg. R. PAESSLER, 1903; K 14436, 1♀, det. T. ODHNER.
Arica, 1—2 fms; leg. R. PAESSLER, 1903; K 1170, 2♀ ov, 1 young.
Junín, shore; leg. R. PAESSLER, December 10, 1904; K 1172, 5♂, 3♀ ov, 2 young.
Caleta Buena; leg. R. PAESSLER, July 16, 1904; K 1171, 1♀, 1 young.
Iquique; leg. F. BEUMER, May, 1913; K 26806, 1 young ♂.
Antofagasta, rocky shore; leg. R. PAESSLER, 1904; K 1168, 1♂.
Taltal, shore; leg. R. PAESSLER, 1897; K 26803, 1 young ♂.
Taltal, shore, under stones; leg. R. PAESSLER, 1904; K 1169, 1♂.
Taltal; leg. R. PAESSLER, August 11, 1911; K 1809, 3♂.
Valparaíso; collector?, K 1304 (Museum Godeffroy Nr 3087), 1♀.
Juan Fernandez Island; leg. C. BOCK, February, 1923; K 5889 (part), 1♂.

United States National Museum

Chile: Arica, C. E. PORTER, collector, 1♂, 1♀, 1 young (U.S.N.M. No. 45971) [determined by M. J. RATHBUN as *Leptodius tridentatus* LENZ].
Juan Fernandez Island, W. L. SCHMITT, collector, December 8, 1926, 1♂, 1♀, 1 young (U.S. N.M. No. 60752) [determined by M. J. RATHBUN as *Leptodius tridentatus* LENZ].

Range: From Bay of Sechura, Peru [not Ancon, Ecuador], to Port Otway [Puerto Barroso], Chile. Juan Fernandez Islands. 0—22.2 fms (40 m).

Remarks: Represented by 13 specimens from seven Lund University Expedition localities, *Gaudichaudia gaudichaudi* was encountered most frequently in the lower portion of the littoral. In the region of the Canal Chacao, however, it was twice dredged in 40 m. Males range in size from 12.3 mm in length to 30×48 mm in length and breadth, with two specimens in Bouin's fixative not measured. Females range from 12.6 mm in length to 29.5×46.9 mm in length and breadth. A young male of 7.7 mm is also present.

The Hamburg Museum series, which comes from the northern portion of the species range and, together with the Lund University material from the south, constitutes the most extensive series to have been examined by one worker, contains individuals of three distinct types. From Junín and Caleta Buena comes a granulate or spinate type (=*Leptodius spinosogranulatus* LENZ) with which the Juan Fernandez

Island specimen, a 3.8 mm male, agrees closely, and which compares favorably with specimens from both Juan Fernandez Island and north Chile localities determined by MARY J. RATHBUN as *Leptodius tridentatus* LENZ. From Lobos Islands and Taltal comes a roughened type in which the granules coalesce and the rugosities form eroded pits both on the anterior portion of the carapace and on the carpus of the chelipeds. From Antofagasta and Iquique come specimens that are almost smooth. It is therefore apparent that differences of the magnitude separating *L. spinosogranulatus* and *L. tridentatus* of LENZ, which RATHBUN (1930) united under the name of *L. tridentatus*, occur regularly among populations not only of Juan Fernandez Islands, but of the Peruvian and Chilean mainland as well, and that these differences reflect the ecological situation in which the population occurs.

The decision to unite *Leptodius tridentatus* and *Gaudichaudia gaudichaudi* under the name of the latter, which has priority, was made after critical measurements had been taken of specimens from both the northern and southern portion of the range. The fronto-orbital width, which in *Gaudichaudia* should be more than one-third but less than one-half the carapace width (Cf. RATHBUN, 1930, p. 234, key), while in *Leptodius* half or more than one-half the carapace width (*Ibid.*, p. 296), was found not to be constant for each genus, but to vary according to the size of the individual as represented by its length. Thus, of 40 specimens measured, the ratio of fronto-orbital width to carapace width ranged from 63 percent in the smallest to 35 percent in the largest, with only an occasional specimen deviating by so much as one percent from the ratio expected for its length. In the northern part of the range, as shown by the Hamburg Museum series, the length at which a male specimen passes from "*Leptodius*" to "*Gaudichaudia*", *i.e.*, attains a fronto-orbital width of less than 50 percent of its carapace width, is 10.2 mm, for the female, 9.4 mm. In the southern part of the range, as shown by the Lund University series, the length for the male is 12.0 mm, with no female present in the critical 10—11 mm stage. Examination of external maxillipeds and male first pleopods convinced the writer that only one type of each was represented in what had formerly been considered a mixed series, although in males of less than 7 mm length in the north and 8 mm length in the south the characteristically twisted terminal extension of the mature gonopod was lacking. It was therefore concluded that the Chilean *Leptodius* species of LENZ, BALSS, and RATHBUN are in reality the young of *Gaudichaudia*, and that *Leptodius tridentatus* LENZ is therefore a synonym of *Gaudichaudia gaudichaudi* (MILNE EDWARDS).

While the types of *Leptodius tridentatus* and *L. spinosogranulatus* in the Lübeck Museum were not examined, the writer is convinced that in topotypical material from Juan Fernandez Island collected by CHARLES BOCK and by W. L. SCHMITT, as well as north Chile material collected by Capt. PAESSLER and Dr. C. E. PORTER, the latter in each case determined by M. J. RATHBUN as *L. tridentatus*, he was dealing with specimens that in the past would have been assigned unequivocably to one or other of LENZ's species. It was a specimen from Arica collected by Capt. PAESSLER and determined by T. ODHNER as *Gaudichaudia gaudichaudi* in spite of the wide fronto-orbit that revealed the artificiality of the separation that has resulted in

assigning the young to a species of another genus. The very points on which their descriptions fail to agree are negated in RATHBUN's (1930, p. 279) paragraph on variation in *G. gaudichaudi*: "The young have a more deeply areolated carapace, the three dentiform lateral lobes more prominent and more acute, the margin of the frontal lobes concave but not lobulated." This characterization, plus the greater fronto-orbital width, constitutes the only observable difference between MILNE EDWARDS's species and LENZ's.

Males in the Hamburg Museum series measured from 6.2 to 11.7 mm, non-ovigerous females from 6.2 to 9.5 mm, ovigerous females from 8.0 to 13.7 mm, and young from 4.0 to 4.6 mm. In the north the granulation persists in the largest individuals of both sexes, whereas in the south it appears in males to 17 mm, in females to 12.4 mm only.

Platyxanthus A. MILNE EDWARDS, 1863

Platyxanthus orbignyi (MILNE EDWARDS and LUCAS)

Xantho orbignyi MILNE EDWARDS and LUCAS, 1843, p. 14 (type locality, shores of Chile); Atlas, pl. 7, fig. 1, 1a—e. NICOLET, 1849, p. 137. DANA, 1852, p. 171. KINAHAN, 1857, p. 336. LENZ, 1902, p. 761.

Platyxanthus orbignyi, A. MILNE EDWARDS, 1863, p. 280. RATHBUN, 1910, pp. 539, 582, pl. 40, fig. 2; 1930, p. 280, pl. 115, pl. 116, fig. 2.

Platyxanthus d'Orbignyi, CANO, 1889, pp. 100, 193.

Xantho orbigny, PORTER, 1903, p. 148.

Previous records:

Peru: "Peru" W. H. JONES, and do W. E. CURTIS (RATHBUN, 1930), Salaverry, W. L. SCHMITT (RATHBUN, 1930), Callao Reef J. R. KINAHAN (KINAHAN), Callao U. S. Expl. Exped. (DANA), do 'Vettor Pisani' (CANO), do R. E. COKER (RATHBUN, 1910), do Paris Museum (RATHBUN, 1930), San Lorenzo Island W. H. JONES (RATHBUN, 1930), Pisco Bay Paris Museum (RATHBUN, 1930).

Chile: "Chili" A. D'ORBIGNY (MILNE EDWARDS and LUCAS), Iquique L. H. PLATE (LENZ), Tocopilla (PORTER, 1903), Caldera (PORTER, 1903), Coquimbo F. T. DELFIN (PORTER, 1903), vicinity of Valparaíso (NICOLET), San Antonio (PORTER, 1903).

Material examined:

Hamburg Museum

Peru: Ancon; leg. R. PAESSLER, June 26, 1911; K 1225, 1♂, det. T. ODHNER. Mollendo; leg. R. PAESSLER, December 5, 1907; K 1227, 1♂.

Chile: Arica, 12 fms; leg. R. PAESSLER, 1892; K 1226, 2♂, det. T. ODHNER.

Range: From Salaverry, Peru, to San Antonio, Chile. In the littoral.

Remarks: The Mollendo male (K 1227) measures 69×105 mm. The largest specimen on record, apparently, is the 80×100 mm type. [This proportion is not borne out by the figure which, if reduced one half, is of a 66×100 mm specimen.]

Platyxanthus cokeri RATHBUN

Platyxanthus crenulatus, RATHBUN, 1910, pp. 540, 582, and exclusive of pl. 39, fig. 2. Not *P. crenulatus* A. MILNE EDWARDS, 1879.

Platyxanthus cokeri RATHBUN, 1930, p. 283, pls. 120—122 (type locality, near mouth of Rimac River, Peru).

Previous records:

Peru: Southeast of Caleta Colon, Bay of Payta, 7—8 fms R. E. COKER; on the beach near the mouth of the Rimac [River] R. E. COKER; and from the beach at Pisco R. E. COKER (RATHBUN, 1910).

Material examined:

Hamburg Museum

Peru: Pisco, 4 fms; leg. R. PAESSLER, 1897; K 1228, 1♂.
Pisco; leg. R. PAESSLER, 1903; K 1241, 2♂; K 1243, 1♂, 1♀.
Pisco, 3.5 fms; leg. R. PAESSLER, May 13, 1912; K 1240, 2♀.
Chile: Caleta Buena; leg. R. PAESSLER, 1897; K 1242, 2♂, 2♀.

Range: As extended above, from Paita, Peru, to Caleta Buena, Chile. To 8 fms.

Remarks: The Chilean specimens on which are based the extension of range southward from Peru measure as follows: males, 47×72 and 28.8×42.8 mm; females, 53×78 and 29.5×43.8 mm, the latter being ovigerous. The largest specimen in the Hamburg Museum collection is a male from Pisco measuring 56×91 mm.

Paraxanthus MILNE EDWARDS and LUCAS, 1844

Paraxanthus barbiger (POEPPIG)

Gecarcinus barbiger POEPPIG, 1836, p. 138 (type locality, mouths of Andalien River, near Concepción). NICOLET, 1849, p. 153.

Paraxanthus hirtipes MILNE EDWARDS and LUCAS, 1844, p. 19 (type locality, Valparaíso); Atlas, pl. 7 *bis*, figs. 1, 1a—f. NICOLET, 1849, p. 141. MIERS, 1881, p. 67 (part: the Talcahuano specimen). LENZ, 1902, p. 761. PORTER, 1903, p. 149; 1905, p. 32.

Gecarcinus barbatus [for *barbiger*], MILNE EDWARDS, 1853, p. 205 ("probably belongs to genus *Cardisoma*").

Paraxanthus barbiger, RATHBUN, 1910, p. 583; 1930, p. 286, pls. 131, 132, pl. 133, figs. 1, 2. PORTER, 1936b, p. 152; 1936c, p. 338.

Previous records:

Peru: Not Tumbes L. H. PLATE (LENZ), as recorded by RATHBUN (1930). (See under Chile, below).

Chile: "Chile" BELL Collection (WHITE), Coquimbo, 5—15 fms L. H. PLATE (LENZ), do F. T. DELFIN (PORTER, 1903), Guayacán Bay L. H. PLATE (LENZ), Valparaíso A. D'ORBIGNY, FONTAINES, and C. GAY (MILNE EDWARDS and LUCAS), do (NICOLET), do E. REED (RATHBUN, 1930), Juan Fernandez Island L. H. PLATE (LENZ), do, Bahía Cumberland, F. T. DELFIN (PORTER, 1905), Tumbes L. H. PLATE (LENZ), Talcahuano 'Alert' (MIERS), mouths of Andalien River, near Concepción E. POEPPIG (POEPPIG).

Material examined:

Lund University Chile Expedition

St. M 8. 1♂.
St. M 121. 1♀. Lower part of tidal belt. With a rhizocephalan.
St. M 123. 1♂.
St. M 125. 1♂. Burrowed in the sand under stones in the littoral.

Hamburg Museum

Chile: "Chile"; leg. R. PAESSLER, 1886; K 15023.

Range: From Coquimbo, Chile [not Tumbes, Peru], to the mouths of the Andalien River near Concepción, or, as extended by *St. M 8* above, to Isla Pullinque, N of Punta Ranguí, Golfo de Quetelmahué, Chile. Juan Fernandez Island. 0—15 fms.

Remarks: Carapace measurements of the four specimens collected by the Lund University Expedition are as follows: males 43.0×63.4, 45.8×66.5, and 47.0×69.0 mm; female 36.0×50.7 mm. Golden hairs are conspicuous on preserved specimens. Specimens were collected intertidally. The single female had been attacked by a rhizocephalid parasite.

Homalaspis A. MILNE EDWARDS, 1863

Homalaspis plana (MILNE EDWARDS)

Xantho planus MILNE EDWARDS, 1834, p. 397 (type locality, shores of Chile). MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 6, fig. 1; 1843, p. 14. NICOLET, 1849, p. 136. DANA, 1852, p. 171. CUNNINGHAM, 1871, p. 491. TARGIONI-TOZZETTI, 1877, p. 25, pl. 2, figs. 14—20. LENZ, 1902, p. 761. PORTER, 1903, p. 148; 1905, p. 31, pl. 3.

Gecarcinus regius POEPPIG, 1836, p. 136 (type locality, Chile). NICOLET, 1849, p. 153. MILNE EDWARDS, 1853, p. 207 ("Belongs to genus *Uca*").

Homalaspis planus, A. MILNE EDWARDS, 1863, p. 280. CANO, 1889, pp. 88, 98, 99, 193. ORTMANN, 1893b, p. 442.

Cancer, TARGIONI-TOZZETTI, 1872a, p. 390; 1872b, p. 462.

Xantho plana, PHILIPPI, 1894a, p. 265.

Homalaspis plana, RATHBUN, 1898b, p. 586; 1910, p. 582; 1930, p. 288, pls. 128—130. NOBILI, 1901a, p. 8; 1902, p. 235. PORTER, 1925, p. 317; 1936b, p. 152; 1936c, p. 338; 1940a, p. 146; 1940b, p. 312; 1941, p. 459.

Xantho (Homalaspis) planus, PORTER, 1906, p. 133.

Previous records:

Ecuador: Guayaquil Copenhagen Museum (RATHBUN, 1930).

Peru: Callao [source?] (RATHBUN, 1910).

Chile: "Chile" (MILNE EDWARDS), do E. POEPPIG (POEPPIG), do ACKERMANN (ORTMANN), Antofagasta W. L. SCHMITT (RATHBUN, 1930), Bahía de Taltal A. CAPDEVILLE (PORTER, 1925), Caldera (PORTER, 1903), Coquimbo L. H. PLATE (LENZ), Coquimbo and Herradura F. T. DELFIN (PORTER, 1903), Los Vilos J. N. THOMAS (PORTER, 1906), Valparaíso U. S. Expl. Exped. (DANA), do 'Magenta' (TARGIONI-TOZZETTI, 1872a), do (NICOLET), do 'Vettor Pisani' (CANO), do W. H. JONES and do E. REED (RATHBUN, 1930), Juan Fernandez Island [probably] F. T. DELFIN (PORTER, 1905), Tumbes and Talcahuano L. H. PLATE (LENZ), Talcahuano (PORTER, 1903), San Vicente F. SILVESTRI (NOBILI, 1901a), Lota W. L. SCHMITT (RATHBUN, 1930), Corral (PORTER, 1903), Chiloé 'Nassau' (CUNNINGHAM), Quetalmahué, Chiloé C. REED (RATHBUN, 1930), Port Otway [Puerto Barroso] 'Albatross' (RATHBUN, 1898b), Strait of Magellan 'Vettor Pisani' (CANO).

Material examined:

Lund University Chile Expedition

St. M 8. 1♂, 1♀.
St. M 9. 1♀.
St. M 10. 1♂. Red-violet. 1♂. Violet. Rock pool. With bryozoan, *Alcyonidium polyoum* (HASS.)? and *Pedicellina* sp.
St. M 55. 1♂, 2♀. Violet with black claws.
St. M 56. 1♂, 1♀. Red.
St. M 59. 1♂. Blue-red with black claws.
St. M 90. 2♂, 7♀. Violet.
St. M 120. 4♂, 1♀. Red-violet.
St. M 121. 2♂, 3♀.
St. M 123. 4♂, 2♀ (1 ov), plus extra legs.
St. M 125. 4♂, 2♀. Middle part of tidal belt.
St. M 127. 2♂, 1♀. Lower and middle part of tidal belt.
St. M 161. 3♀.

Hamburg Museum

Peru: Pisco; leg. R. PAESSLER, 1897; K 1220, 1♀, det. T. ODHNER.
Chile: "Chile"; leg. R. PAESSLER, 1903; K 1217, 1♀.
Los Vilos, 10 mi N of Valparaíso, 12 m; leg. R. PAESSLER, August 13, 1911; K 1229, 1♂.
Valparaíso; leg. A. PLAGEMANN, date?; K 4579, 1 young ♀, det. T. ODHNER.
Lota, shore; leg. R. PAESSLER, date?; K 1222, 1♀, det. T. ODHNER.
Corral, 7 fms; leg. R. PAESSLER, 1892; K 1218, 1♀, det. T. ODHNER.
West coast of South America; leg. R. PAESSLER, date?; K 1221, 1♂, det. T. ODHNER.

Range: From Guayaquil [market purchase?], Ecuador, to Strait of Magellan. Juan Fernandez Island. Shore to 7 fms.

Remarks: The Lund University Expedition series of 48 specimens from 13 localities contains males of from 14.9 to 61 mm, non-ovigerous females of from 18.4 to 45.6 mm, an ovigerous female of 87 mm, and young (males) of from 9.6 to 11 mm in length. The two largest specimens, a male and an ovigerous female, measure 61×91 and 87×130 mm, respectively. Unfortunately, it is not possible to date this egg-bearing female accurately, since collecting at *St. M 123*, the marine biological station at Montemar, was accomplished between September 17 and October 16 of 1948, and again on June 15 of 1949. All specimens were collected ashore and, where noted, in the lower and middle part of the tidal belt. The bryozoans encrusting the large male from *St. M 10* were identified by Mr. I. VIGELAND.

Cycloxanthops RATHBUN, 1897

Cycloxanthops sexdecimdentatus (MILNE EDWARDS and LUCAS)

Xanthe dentelé EYDOUX and SOULEYET, 1842 (or 1843), Atlas, pl. 2, fig. 1.
Xantho sexdecim dentatus MILNE EDWARDS and LUCAS, 1843, p. 15 (type locality, shores of Chile). EYDOUX and SOULEYET, 1844 (or 1845), p. 228.
Xantho sex-decim dentatus, MILNE EDWARDS and LUCAS, 1843, Atlas, pl. 7, figs. 2, 2a—c.
Xantho sexdecimdentatus, NICOLET, 1849, p. 137.
Paraxanthus sexdecimdentatus, DANA, 1852, p. 172. KINAHAN, 1857, p. 336.
Cycloxanthus sexdecemlineatus [error for *sexdecemdentatus*], A. MILNE EDWARDS, 1879, p. 258.
Cycloxanthus sexdecemdentatus, A. MILNE EDWARDS, 1879, p. 259. DOFLEIN, 1899, p. 187.
Cycloxanthus 16-*dentatus*, CANO, 1889, pp. 100, 101, 195.
Cycloxanthops sexdecimdentatus, RATHBUN, 1910, pp. 541, 583; 1930, p. 290, pl. 133, figs. 5, 6, pl. 134, fig. 2, pl. 135, fig. 1. ?PORTER, 1940a, p. 146; 1940b, p. 312; 1941, p. 459.

Previous records:

Peru: Paita 'Vettor Pisani' (CANO), do W. L. SCHMITT (RATHBUN, 1930), Bay of Sechura, W. of Matacaballa, 5 fms, do, between Bayovar and Matacaballa, 5—6 fms, Lobos de Afuera [Islands], and La Punta R. E. COKER (RATHBUN, 1930), Ancon 'Vettor Pisani' (CANO), "Callao, Peru, or Valparaíso, Chile" U. S. Expl. Exped. (DANA), Callao H. R. H. PRINCESS THERESE OF BAVARIA (DOFLEIN), Callao Reef J. R. KINAHAN (KINAHAN), Callao C. E. PORTER, NE side of San Lorenzo Island, Callao Bay R. E. COKER, off San Lorenzo Island W. L. SCHMITT, and Bay of Chilca R. E. COKER (RATHBUN, 1930), between S. and Middle Chincha Islands, 7—10 fms J. R. KINAHAN (KINAHAN), Chinchas Islands H. DE SAUSSURE (RATHBUN, 1930), Independencia Bay, 1 fm R. E. COKER (RATHBUN, 1930).

Chile: Shores of Chile 'Bonite' (EYDOUX and SOULEYET), do A. D'ORBIGNY (MILNE EDWARDS and LUCAS), Chile, without definite locality (RATHBUN, 1930), ? Province of Antofagasta J. HERRERA (PORTER, 1940), vicinity of Valparaíso (NICOLET).

Material examined:

Hamburg Museum

Peru: Pisco; leg. R. PAESSLER, 1903; K 1254, 1♂.
Lobos Islands; leg. E. MEYER, 1907; K 1252, 3♂, 1♀.
Lobos de Afuera, [to] Chinchas Islands; leg. W. VON OHLENDORFF, 1897; K 1298, 8♂, 7♀, det. T. ODHNER.
West coast of South America: leg. H. REHBERG, 1894; K 1253.

Range: From Paita, Peru, to Valparaíso, Chile. Also reported from María Madre Island, Gulf of California, Mexico. 0—10 fms.

Remarks: Hamburg Museum males measured from 8.8 to 21.6 mm, females from 8.7 to 24.2 mm in length. The von OHLENDORFF specimens are labeled "von einer der Guano-Inseln".

Cycloxanthops bocki, new species

(Figure 1)

Type: Young female, holotype, from Juan Fernandez Island, Chile, February, 1923, C. BOCK, collector, Hamburg Museum K 26805.

Measurements: Female holotype: length of carapace 4.2 mm, width of carapace 5.6 mm, width of front 1.7 mm, of fronto-orbit 3.6 mm, length of cheliped (coxa to merus 2.7; carpus-manus 3.4) 6.1 mm, of major chela 3.25 mm, of major dactyl 1.65 mm, height of major palm 1.4 mm.

Diagnosis: Four anterolateral teeth, excluding exorbital tooth. Front only moderately advanced, lobes arcuate, each most advanced at middle, rather than adjacent to median fissure. Inner superior orbital margin without a denticle; tooth between closed orbital fissures arcuate. Carpus of cheliped granulate but not tuberculate, except for one spinose tubercle at inner angle. Otherwise, much as in *C. vittatus*.

Description: Carapace narrow, flattened, mostly smooth but anteriorly rugose, the rugae arranged in transverse lines, regions faintly indicated. Front one-third carapace width, moderately advanced, the arcuate lobes separated by a short median V, front more advanced toward each side than in the middle. Front separated by a

shallow furrow from inner orbital angles; these angles are rounded and do not bear a denticle on their outer border. Orbital border with two closed fissures rather widely spaced; tooth between them not advanced, arcuate. A sharp denticle on eyestalk at base of cornea. Lateral teeth, excluding exorbital tooth, four in number, little projecting, first three teeth subequal, anterior borders much shorter than posterior, fourth tooth reduced in size, indicated only by an oblique line of hairs extending inward, a similar, parallel line at a postlateral level. Edges of front, orbits, and anterolateral margins granulate and, except for orbits, sparsely hairy. Raised lines of granules with occasional hairs occur on protogastric, hepatic, and branchial regions.

Merus of outer maxilliped rectangular, distally granulate and setose, and shallowly notched at anterointernal angle to receive palpus.

Carpus of cheliped with upper distal surface rough-granulate, a sharp tubercle at inner angle and a groove parallel to outer margin. Chelae elongate, unequal, granulate, the granules of the minor manus arranged in transverse lines, dactyl of major manus exceeding grooved superior margin, fingers channeled, dentate, tips pointed, crossing, pollex slightly deflexed, color continued a little way on palm.

Immature female abdomen with segment 3 widest, edges of segments 4, 5, and 6 slightly convex, segment 7 broadly triangular.

Ambulatory legs decreasing but little in length from first to last, propodus of leg 4 noticeably broadened, inferior margin convex; dactylus of leg 4 shorter and stouter than dactyli of preceding legs. Tips of dactyls curved, nails amber. Legs sparsely clothed with golden hairs.

Remarks: The proposed new species is closely related to *Cycloxanthops vittatus* (STIMPSON), of which a specimen from the Galápagos Islands of like size as the holotype was used for comparison. It differs from all Pacific American species in having fewer than nine lateral teeth, and in this respect approaches the Indo-Pacific members of the genus, which are distributed as follows: *C. lineatus* (A. MILNE EDWARDS, 1867), New Caledonia, Torres Strait, Arafura Sea, Japan, Gulf of Siam, Ceylon, Red Sea, and Zanzibar; *C. godeffroyi* (A. MILNE EDWARDS, 1873), Samoa; *C. punctatus* (HASWELL, 1882), Australia; *C. angustus* RATHBUN (1906b), Hawaii and Amirante, Indian Ocean; *C. quadrilobatus* SAKAI (1939), Japan.

Cycloxanthops sexdecimdentatus of like size and sex show the frontal lobes more advanced, particularly adjacent to the median fissure, the incipient development of at least 7 of the ultimate 9 lateral teeth of the adult, a more deeply incised merus of the third maxilliped, and a well developed inner carpal spine.

I take pleasure in naming this species for CHARLES BOCK, onetime resident of Limache, Chile, whose retirement to Juan Fernandez Island following a successful career as mining engineer, and whose avidity for zoological collecting made its delineation possible.

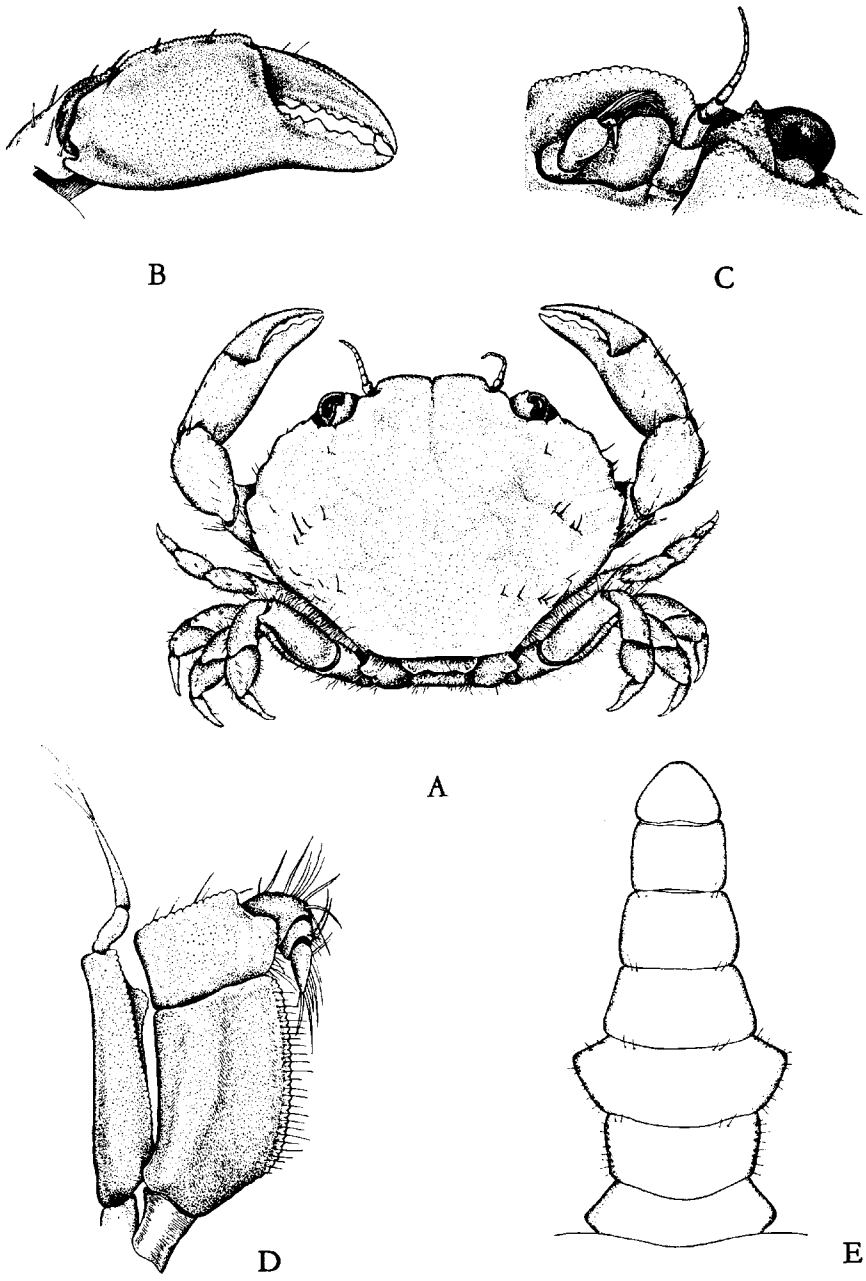

Fig. 1. *Cycloxanthops bocki*, immature female, holotype, Hamburg Museum K 5884 (part). A, dorsal view, ×9; B, right chela, ×14.8; C, left ventral view of front, ×25.0; D, right outer maxilliped, ×29.0; E, abdomen, ×22.5.

Metopocarcinus STIMPSON, 1860

Metopocarcinus truncatus STIMPSON

Metopocarcinus truncatus STIMPSON, 1860, p. 216, pl. 5 [not 3], fig. 4 (type locality, Cape San Lucas). RATHBUN, 1930, p. 318, pl. 148, figs. 1, 2, text fig. 48. HOLTHUIS, 1954, p. 29, pl. 1, fig. 3, text figs. 11 c, d, 12, 13.

Previous records:

Chile: Valparaíso W. L. SCHMITT (RATHBUN, 1930).

Material examined: None from Chile nor from among Lund University Chile Expedition collections.

Range: Cape San Lucas, Lower California, Mexico. Valparaíso, Chile.

Remarks: Since the appearance of the RATHBUN cancroid volume in 1930, CRANE (1947, p. 77) has described a second species of this interesting genus: *Metapocarcinus* [sic] *concavatus*, with Gulf of Fonseca, El Salvador, as its type locality. It is therefore possible that the distribution of *M. truncatus* may be bipolar, with the tropical discontinuity occupied by *M. concavatus*.

Panopeus MILNE EDWARDS, 1834

Panopeus chilensis MILNE EDWARDS and LUCAS

Panopeus chilensis MILNE EDWARDS and LUCAS, 1843, p. 16 (type locality, shores of Chile); 1844, Atlas, pl. 8, figs. 2, 2a—b. NICOLET, 1849, p. 139. BENEDICT and RATHBUN, 1891, p. 379. RATHBUN, 1910, pp. 542, 584, pl. 41, fig. 4; 1930, p. 346, pl. 158, fig. 3, pl. 160, text fig. 54.

Panopeus validus SMITH, 1869a, p. 278 (type locality, Panama and Acajutla, El Salvador).

?*Panopeus bradleyi* SMITH, 1869a, p. 281 (type locality, Panama).

Panopaeus chiliensis, CANO, 1889, pp. 101, 197.

Eupanopeus chilensis, RATHBUN, 1898a, p. 273.

Eupanopeus bradleyi, RATHBUN, 1898a, p. 273.

Previous records:

Ecuador: Puná Vettor Pisani (CANO).

Peru: Oyster beds of Matapalo, near Capon R. E. COKER (RATHBUN, 1910), Paita W. L. SCHMITT (RATHBUN, 1930).

Chile: Shores of Chile A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do (NICOLET).

Material examined: None from Chile nor from among Lund University Chile Expedition collections.

Range: From Sinaloa, Mexico, to Chile.

Remarks: It is well to consider, in the case of any species of D'ORBIGNY's collecting having either the specific name *chilensis* or the habitat Chile, that the northern limits of Chile were not then well defined. As examples PHILIPPI (1894 a, p. 266) cites *Panopeus crenatus* MILNE EDWARDS and LUCAS, the type locality of which is given as "Callao, (Chili)", and *Potamia chilensis* MILNE EDWARDS and LUCAS, which, while found near Lima, was placed because of its name in NICOLET's Chilean

fauna. That a similar situation may obtain in the case of *Panopeus chilensis* may be deduced from the lack of subsequent records from Chile.

Panopeus convexus A. MILNE EDWARDS

Panopeus convexus A. MILNE EDWARDS, 1880a, p. 316, pl. 58, figs. 5, 5a [by error *Pilumnus convexus* on explanation of plate] (type locality, shores of Chile). BENEDICT and RATHBUN, 1891, p. 383. RATHBUN, 1930, p. 352, pl. 158, fig. 2.
Eupanopeus convexus, RATHBUN, 1898a, p. 273.

Previous records:

Chile: "Chili" Paris Museum (A. MILNE EDWARDS).

Material examined: None.

Range: Known only from the type locality above.

Remarks: This species is considered by RATHBUN (1930) to be very close to the Atlantic *Panopeus occidentalis* SAUSSURE, which ranges from South Carolina to the state of Santa Catharina, Brazil, and may be identical with it.

Eurypanopeus A. MILNE EDWARDS, 1880

Eurypanopeus crenatus (MILNE EDWARDS and LUCAS)

?*Xantho crenatus* MILNE EDWARDS, 1834, p. 396 (type locality, shores of Peru). CANO, 1889, pp. 101, 191.
Panopeus crenatus MILNE EDWARDS and LUCAS, 1843, p. 16 (type locality, vicinity of Callao [Chili]); 1844, Atlas, pl. 8, figs. 1, 1a. WHITE, 1847, p. 18. DANA, 1852, p. 181. KINAHAN, 1857, p. 336. BENEDICT and RATHBUN, 1891, p. 377, pl. 21, fig. 4, pl. 24, fig. 17. LENZ, 1902, p. 763. PORTER, 1903, p. 148.
Eurypanopeus crenatus, A. MILNE EDWARDS, 1880a, p. 318, pl. 60, figs. 4, 4a, 4b. CANO, 1889, pp. 101, 197. RATHBUN, 1910, p. 584; 1930, p. 418, pl. 174, figs. 1—3. PORTER, 1936b, p. 152; 1936c, p. 338.
Eurypanopeus peruvianus A. MILNE EDWARDS, 1880a, p. 318, pl. 60, figs. 3, 3a, 3b (type locality, shores of Peru).

Previous records:

Ecuador: Puna 'Vettor Pisani' (CANO).
Peru: Shores of Peru (MILNE EDWARDS), do (A. MILNE EDWARDS), Payta 'Vettor Pisani' (CANO), Callao A. D'ORBIGNY (MILNE EDWARDS and LUCAS), do U. S. Expl. Exped. (DANA), do J. R. KINAHAN (KINAHAN), do F. H. BRADLEY (BENEDICT and RATHBUN), do M.C.Z. and do B.M. (N.H.) (RATHBUN, 1930), off San Lorenzo Island, Callao Bay W. L. SCHMITT (RATHBUN, 1930), Paracas Bay 'Hassler' (RATHBUN, 1930).
Chile: "Chile" (WHITE), Caldera (PORTER, 1903), do 'Hassler' (RATHBUN, 1930), Coquimbo L. H. PLATE (LENZ), do F. T. DELFIN (PORTER, 1903), Valparaíso U. S. Expl. Exped. (RATHBUN, 1930), do M.C.Z. (RATHBUN, 1930), Juan Fernandez Island 'Hassler' (RATHBUN, 1930), Tumbes and Talcahuano L. H. PLATE (LENZ), Talcahuano 'Hassler' (RATHBUN, 1930), Port Gallant, Strait of Magellan 'Hassler' (RATHBUN, 1930).

Material examined:

Lund University Chile Expedition

St. M 7. 7♂, 12♀ (9 ov).
St. M 8. 1♂.
St. M 95. 9♂, 8♀, 1 young, questionably referable to the above. Common.

Hamburg Museum

Peru: Callao, on mole; leg. R. PAESSLER, date?; K 1368, 1♂.
Chile: Iquique, 12 fms; leg. R. PAESSLER, 1890; K 2755, 32 young.
Antofagasta, 24 fms; leg. R. PAESSLER, 1895; K 737 (part), 1 young ♂.
Coronel; leg. R. PAESSLER, December 30, 1915; K 5265, 1♂.

Range: From Puna, Ecuador, to Strait of Magellan. Juan Fernandez Island. To 24 fms (above).

Remarks: The 38 specimens collected by the Lund University Chile Expedition are all from the Golfo de Quetelmahué, Chiloé. Included are males of from 8.7 to 26.8 mm, non-ovigerous females of from 10.4 to 21.4 mm, ovigerous females of from 11.0 to 21.0 mm in length, and a single young, not measured. An interesting commentary on the breeding habits of the species is provided by two lots from adjacent stations, *St. M 7* and *St. M 95*. Of 12 females collected at the former station on November 17, nine were ovigerous, while of eight collected at the latter station on May 4, none were in berry. The species was collected ashore and in 2—5 and 6—7 m in the shallow bay, where it is said to be "noxious on oysters" [*Ostrea chilensis* PHILIPPI]. The claws are black.

Heteractaea LOCKINGTON, 1876

Heteractaea lunata (MILNE EDWARDS and LUCAS)

Restricted synonymy:

Pilumnus lunatus MILNE EDWARDS and LUCAS, 1844, p. 20 (type locality, Valparaíso); Atlas, pl. 9, figs. 2, 2a—d. NICOLET, 1849, p. 145.
Heteractaea pilosus LOCKINGTON, 1877a, p. 97 (type localities, San José Island, Amortiguado Bay, and Port Escondido, Gulf of California).
Heteractaea lunata, KINGSLEY, 1880a, p. 396. RATHBUN, 1910, p. 585; 1930, p. 532, pl. 212, figs. 1—4, pl. 214.

Previous records:

Chile: Valparaíso A. D'ORBIGNY (MILNE EDWARDS and LUCAS).

Material examined: None from Chile nor from among Lund University Chile Expedition collections.

Range: From Puerto Escondido, Gulf of California, Mexico, to Santa Elena Bay, Ecuador (NOBILI, 1901b). Extralimital: San Diego, California, and Valparaíso, Chile.

Remarks: So far as is known, *Heteractaea lunata* has not been taken again in Chile since its type was obtained at Valparaíso by d'ORBIGNY. It is otherwise a Panamic species often found with *Pocillopora* coral.

Pilumnoides Milne Edwards and Lucas, 1844

Pilumnoides perlatus (Poeppig)

Hepatus perlatus Poeppig, 1836, p. 135, pl. 4, fig. 2 (type locality, Bay of San Vincente [Vicente], near Talcahuano).

Pilumnoides perlatus, Milne Edwards and Lucas, 1844, p. 21; Atlas, pl. 9, figs. 1, 1a—c. Nicolet, 1849, p. 146. Dana, 1852, p. 241. Kinahan, 1857, p. 338. Cunningham, 1871, p. 491. A. Milne Edwards, 1880a, p. 304, pl. 54, figs. 6, 6a. Cano, 1889, pp. 89, 99, 100, 208. Rathbun, 1898b, p. 586; 1907, p. 49, pl. 2, figs. 1, 2; 1910, pp. 544, 585, pl. 50, fig. 2; 1930, p. 535, pl. 216, pl. 217, fig. 3, pl. 218, fig. 3. Nobili, 1901a, p. 8; 1902, p. 235. Lenz, 1902, p. 751. Porter, 1906, p. 132, text fig. 16; 1914, p. 275, text fig. 1; 1915, p. 39, text fig. 6; 1917a, p. 96; 1925, p. 317; 1936b, p. 152; 1936c, p. 338; 1940a, p. 146; 1940b, p. 312; 1941, p. 459.

Pilumnoides danai Kinahan, 1857, pp. 333, 337, pl. 14, fig. 2 (type locality, Chinchas Islands, Peru).

Previous records:

Panama: Taboga Island 'Vettor Pisani' (Cano) [extralimital].

Peru: Paita W. L. Schmitt (Rathbun, 1930), Bay of Sechura, W. of Matacaballa, 5 fms R. E. Coker (Rathbun, 1910), Salaverry W. L. Schmitt (Rathbun, 1930), Ancon 'Vettor Pisani' (Cano), shore of Peru, near Lima A. d'Orbigny (Milne Edwards and Lucas), Callao 'Vettor Pisani' (Cano), do Copenhagen Museum (Rathbun, 1930), Callao Reef J. R. Kinahan (Kinahan), San Lorenzo Island, 2.5 fms R. E. Coker (Rathbun, 1910), do, near NE side W. L. Schmitt (Rathbun, 1930), North Chinchas Island, 8—10 fms J. R. Kinahan(Kinahan).

Chile: Iquique L. H. Plate (Lenz), Antofagasta Prov. J. Herrera (Porter, 1940b), Mejillones 'Vettor Pisani' (Cano), Antofagasta J. N. Rose and do W. L. Schmitt (Rathbun, 1930), Bahía de Taltal A. Capdeville (Porter, 1917), Caldera 'Vettor Pisani' (Cano), do E. E. Gigoux (Porter, 1906), Coquimbo 'Vettor Pisani' (Cano), Bay of Guayacán L. H. Plate (Lenz), Los Vilos J. N. Thomas (Porter, 1906), Valparaíso (Nicolet), do U. S. Expl. Exped. (Dana), do 'Vettor Pisani' (Cano), do C. E. Porter (Porter, 1906), do E. Reed and do W. L. Schmitt (Rathbun, 1930), Curaumilla C. E. Porter (Porter, 1914), Tumbes and Talcahuano L. H. Plate (Lenz), Talcahuano (Porter, 1936b), do W. L. Schmitt (Rathbun, 1930), San Vincente [Vicente] E. Poeppig (Poeppig), do F. Silvestri (Nobili, 1901), Corral C. E. Porter (Porter, 1914), Isla Tenglo Mus. Nac. Chile Exped. (Porter, 1917a), Calbuco L. H. Plate (Lenz), Ancud F. T. Delfin (Porter, 1906), Chiloé 'Nassau' (Cunningham), Magellan Strait, 29.5 fms 'Albatross' (Rathbun, 1898). *Incertae sedis*: Cachuca L. H. Plate (Lenz).

Material examined:

Lund University Chile Expedition

St. M 94. 1♂. Red with black claws.

St. M 121. 1♂, 1♀. Red.

St. M 123. 1♀ ov.

St. M 128. 1♂, 2♀ ov, ca. 20 young.

St. M 129. 2♀ (1 ov), 49 young.

St. M 130. 1♂, 6 young. Brown.

St. M 131. 1♂, 2 young.

St. M 158. 2 young.

In the vicinity of Caleta Manzano, Golfo de Ancud, February 15, 1949. 1♂.

Hamburg Museum

Peru: Ancon, 5 m, from algae; leg. R. Paessler, June 24, 1911; K 4439, 2 young.
Mollendo, 16—17 m, in plant roots; leg. R. Paessler, November 13, 1906; K 5341, 2 young.

Chile: Alacrán Island, near Arica; leg. R. Paessler, 1902; K 7677, 1 young ♂.

Caleta Buena, among ascidians; leg. M. BRÅKENHIELM, April 13, 1901; K 5464, 9 young, 1 megalops.
Iquique, 12 fms; leg. R. PAESSLER, 1890; K 26804, 2 young; K 5311, 1 young.
Iquique; leg. F. BEUMER, May, 1913; K 12944 (part), 4 young.
South of Cavancha; leg. R. PAESSLER, November, 1909; K 26316, 1♂, 1♀.
Mejillones, shore; leg. J. OESTMANN, March 3, 1911; K 1837, 2♀.
Mejillones del Sur; leg. H. PIENING, July 22, 1928; K 13775, 3 young.
Antofagasta, 24 fms; leg. R. PAESSLER, 1895; K 26315, 1♂.
Taltal, shore; leg. R. PAESSLER, 1897; K 7655 (part), 1 young ♂.
Taltal, 10 fms; leg. R. PAESSLER, date?; K 1505, 8 young.
Taltal, 20 m; leg. R. PAESSLER, July 10, 1910; K 1810, 7 young.
Caldera, from sea stars; leg. R. PAESSLER, 1904; K 7735, 1 young ♂.
Valparaíso; leg. W. MICHAELSEN, May 30, 1893; K 1834, 1♀, 4 young.
Coronel; leg. R. PAESSLER, January 15, 1920; K 5268, 1♂.
Corral; leg. R. PAESSLER, February, 1916; K 5272, 3♂, 2♀.

Range: From Paita, Peru, to Strait of Magellan. Extralimital: Taboga Island, Panama. 0—29.5 fms.

Remarks: Among the 71 specimens from eight Lund University localities are males measuring from 15.0 to 24.6 mm, non-ovigerous females from 8.3 to 9.0 mm, ovigerous females from 11.4 to 12.6 mm, and young from 2.3 to 8.2 mm in length. The ovigerous females were encountered at Coquimbo on June 24 and Mejillones del Sur on June 30, and at the Montemar station from mid-September to mid-October. Ordinarily collected in the sublittoral from 0—0.5 m, *Pilumnoides perlatus* was dredged once in 40 m in the Canal Chacao. Hamburg Museum specimens include females of 16.2 and 20.7 mm length, approaching in size the largest Lund University Expedition males. These specimens are from Mejillones and have unbelievably roughened carapaces. The occurrence of the young in kelp holdfasts and among ascidians is also noteworthy.

Eriphia LATREILLE, 1817

Eriphia squamata STIMPSON

Restricted synonymy:

Eriphia squamata STIMPSON, 1859, p. 56 (type locality, Mazatlan, Mexico). A. MILNE EDWARDS, 1880a, p. 339, pl. 56, figs. 3, 3a—e. RATHBUN, 1910, pp. 544, 586, pl. 41, fig. 1; 1930, p. 550, pl. 223, pl. 224, fig. 1, text fig. 84.
Eriphia laevimana var. *smithii*, CANO, 1889, pp. 102, 210 (part: the Gulf of Panama specimens). Not MACLEAY, 1838.

Previous records:

Peru: Las Vacas, near Capon, on beach R. E. COKER (RATHBUN, 1910).
Chile: "Chili" Paris Museum (A. MILNE EDWARDS).

Material examined: None from Chile.

Range: From Magdalena Bay, Lower California, Mexico, to Las Vacas, near Capon, Peru. Chile, exact locality unknown.

Remarks: *Eriphia squamata* is another Panamic species of which the Chilean occurrence is in doubt pending confirmation by specimens with precise locality data.

Species erroneously reported from Chile

Leptodius cooksoni MIERS, 1877, p. 73, pl. 12, figs. 1—1d.

The reported occurrence of this species in Chile depends upon the type locality of *Leptodius lobatus* A. MILNE EDWARDS (1880a, p. 271, pl. 49, figs. 4, 4a, 4b), a synonym. Apart from this record, *L. cooksoni* is known only from the Revillagigedo Islands, Mexico, and the Galápagos Islands, Ecuador.

Ozius rugosus MILNE EDWARDS and LUCAS, 1843, Atlas, pl. 8*bis*, figs. 1, 1a—d; 1844, p. 17.

According to RATHBUN (1930, p. 540), *Ozius rugosus* is a synonym of *Lydia tenax* (RÜPPELL, 1834), which inhabits the western part of the Indian Ocean, from the Red Sea to Baluchistan, and "Chili" as given by MILNE EDWARDS and LUCAS is very likely an error in locality. It is not known to which species specimens collected at Coquimbo and Herradura by F. T. DELFIN and reported by PORTER (1903, p. 149) under this name should be assigned.

Eriphia granulosa A. MILNE EDWARDS, 1880a, p. 339, pl. 56, figs. 2, 2b.

According to RATHBUN (1930, p. 552, footnote), the word "Chili" on the label of the type specimen in the Paris Museum is followed by an interrogation point. The species is otherwise a Galápagos Islands endemic. (Cf. GARTH, 1946, p. 487.)

Family Pinnotheridae

Pinnotheres LATREILLE, 1801—02

Pinnotheres politus (SMITH)

(Figure 2)

Ostracotheres politus SMITH, 1870, p. 169 (type locality, Callao, Peru). ADENSAMER, 1897, p. 109. LENZ, 1902, p. 765, pl. 23, figs. 9, 9a. PORTER, 1909a, p. 249; 1909b, p. 37; 1911, p. 447. RATHBUN, 1910, pp. 545, 588, pl. 43, fig. 3.

Pinnotheres politus, RATHBUN, 1918, p. 71, pl. 159, fig. 5, text fig. 33. PORTER, 1936b, p. 152; 1936c, p. 338.

Previous records:

Peru: Ancon Bay R. E. COKER (RATHBUN, 1910), Callao F. H. BRADLEY (SMITH, 1870).
Chile: Tumbes L. H. PLATE (LENZ), Talcahuano 'Hassler' (RATHBUN, 1918), Arauco (PORTER, 1909b), Castro, Chiloé Island HOPKE (ADENSAMER).

Material examined:

Lund University Chile Expedition

St. M 22. 1♀ ov. Possibly from under a snail (*Calyptraea?*).

St. M 37. 1♂, 23♀ (18 ov). In the lower part of the littoral. Uncoloured to greybrown. Lives commensalistic under the snail *Calyptraea* (?). Eggs observed in February. Under ten of twenty-five examined full-grown snails.

St. M 59. 1♀ ov. From *Calyptraea?*.

St. M 90. 6♀ (2 ov, 4 post-ov). From *Calyptraea?*.

Hamburg Museum

Peru: Callao, on jetty under stones; leg. R. PAESSLER, date?; K 3301, 1♀ ov.
Chile: Arica, 10 m; leg. R. PAESSLER, June 2, 1910; K 3300, 1♀ ov.
Calbuco, "in einer Schnecke auf *Mytilus*"; leg. G. H. SCHWABE, January, 1938; K 25514, 1♀ ov.

Range: From Ancon Bay, Peru, to Castro, Chiloé Island, Chile. 0—10 m.

Description of the male: Carapace slightly broader than long, suborbicular, flattened dorsally, little convex in either direction, surface smooth, almost porcellanous, margins covered with dense short pile, a few stouter hairs on branchial and cardiac regions, gastric and hepatic regions bare, an H-shaped depression separating gastric and cardiac regions, areas otherwise not indicated. Front noticeably advanced, fringed with hair, broadly truncate, and divided by a slight median sulcus into two shallow lobes. Anterolateral margins broadly arcuate, continuous with posterolateral margins, carapace widest at level of gastrocardiac depression. Posterior margin straight, not rimmed, and concealing base of abdomen from dorsal view. Orbits small, circular in outline, sunken into margin, eyestalks swollen, their displacement equaling that of the corneas. Antennae short, slender, lodged in orbital hiatuses.

Chelipeds equal, robust, pilose; merus trigonal; carpus subquadrate, a conspicuous bare spot above; manus with a superior hairy crest, lower margin slightly sinous and fringed, median area smooth and glistening. Fingers meeting closely along an irregular line, dactyl strongly deflexed, a tooth at base fitting a corresponding hiatus at base of pollex, a thin, triangular blade of the pollex fitting the concavity of the dactyl; tips slender, pointed, crossing.

Merus of third maxilliped increasing in width distally, anteroexternal angle obtuse, anterointernal angle produced, obliquely truncated; carpus robust, cylindrical; propodus clavate, the minute round dactylus inserting at middle of inner margin; carpus and propodus ciliated.

Male abdomen widest between somites 3 and 4, gently tapering to middle of somite 6, the margins of which are concave, broadening slightly to base of somite 7, which is wider than long, with a rounded tip. Abdomen fringed with soft hair, with a scattering of stout hairs on basal somites. Male first pleopod long, cylindrical, reaching abdominal somite 7, tapering gradually toward tip, which is sharply bent and bears long hairs on its convex margin.

Second and third walking legs of approximately equal length, first leg slightly shorter, fourth leg decidedly shorter, slightly dorsal in position but resembling other legs closely. Legs compact, hairy; meri no more than twice as long as broad; carpi and propodi nearly as broad as long; dactyli short, blunt, tips strongly curved. Legs without long fringing hairs.

Measurements: Length of carapace 3.6 mm, width 3.7 mm, width of front 1.0 mm, of fronto-orbit 1.6 mm, length of cheliped 2.7 mm, length of chela 1.6 mm, of dactyl 0.9 mm, height of palm 1.0 mm, lengths of walking legs *ca.* 3.5, 4.0, 4.0, and 2.5 mm, length of male abdomen 2.6 mm, maximum width 1.7 mm. Length of largest female examined 9.6 mm, width 11.3 mm.

Remarks: This unique specimen from *St. M 37* is described as the male of *Pinnotheres politus* (SMITH), heretofore known only from females, on the strength of (a) its having been collected with ovigerous females of the species, (b) its resemblance to an immature female from the same station, and (c) the similarity of its external maxilliped to that of the female (cf. RATHBUN, 1918, fig. 33). Otherwise,

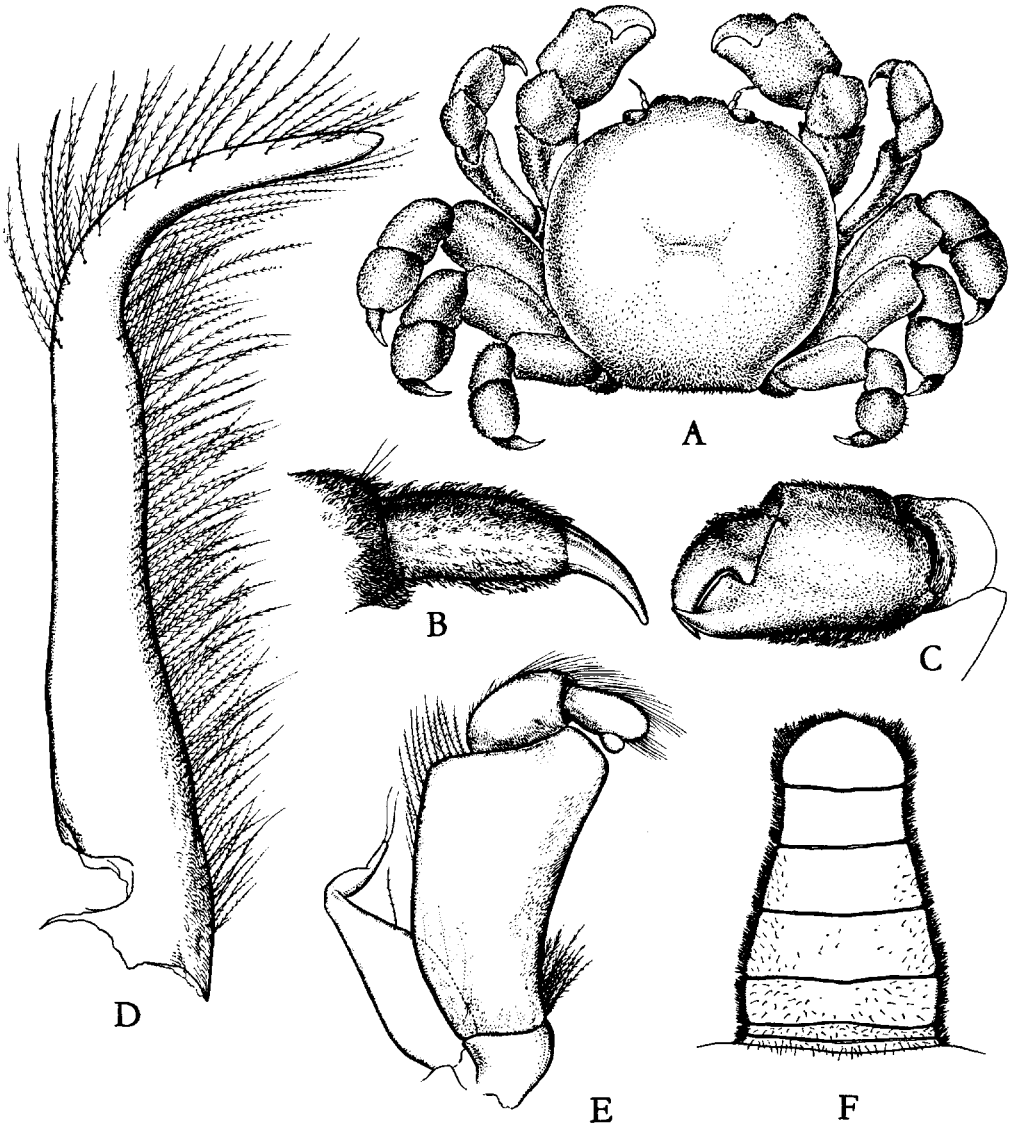

Fig. 2. *Pinnotheres politus* (SMITH), male, *St. M 37*. A, dorsal view × 10.4; B, right first dactyl, × 69.6; C, left chela, × 19.7; D, first pleopod, × 69.6; E, right outer maxilliped, × 17.4; F, abdomen, × 69.6.

Text figures were prepared by staff artists of the Allan Hancock Foundation as follows: fig. 1 by GLENNIS SAYERS; fig. 2, figs. 5, 7, and 8 (D—F), fig. 10 (B, D, E) and fig. 11 by ANKER PETERSEN; fig. 6, figs. 5, 7, and 8 (A—C), and fig. 10 (A, C) by RUSSEL CANGIALOSI; fig. 9 by GAYLEN C. HANSEN.

it bears but little resemblance to the animated egg-sacs that are the females of the species.

Pinnotheres bipunctatus NICOLET

Pinnotheres bipunctatum NICOLET, 1849, p. 155 (type locality, San Carlos de Chiloé [=Ancud]); 1854, Atlas, Crust. pl. 1, figs. 2, 2a—c. MILNE EDWARDS, 1853, p. 219. RATHBUN, 1910, p. 587. PORTER, 1911, p. 446.

Pinnotheres bipunctatus, RATHBUN, 1918, p. 78, pl. 159, figs. 10—12.

Previous records:

Chile: San Carlos de Chiloé [=Ancud], probably in sea urchins (NICOLET).

Material examined: None.

Range: Known only from the type locality above.

Remarks: The possibility that NICOLET's unique type specimen, a male, might be identical with the male of *Pinnotheres politus* described above has been considered carefully and is abandoned with reluctance. Considering NICOLET's description alone, the two punctae of the carapace of *bipunctatus* might be recognized in the H-shaped median depression of *politus*, and the different host accounted for by NICOLET's familiarity with the commensal habits of *Pinnaxodes chilensis*, which was to him a *Pinnotheres*. However, the figures of *bipunctatus* in GAY's Atlas, which stand in lieu of a specimen, depict the palpus and dactylus of the outer maxilliped as long and pointed and the terminal segment of the abdomen as triangular and broader than the preceding segment. Even with allowance for reasonable error in draftmanship, due to the small size of the specimen, the writer is unable to reconcile these details with the corresponding features of the *politus* male here represented.

Pinnixa WHITE, 1846

Prior to 1907, all *Pinnixa* from Chile were considered to be of but a single species, *P. transversalis* (MILNE EDWARDS and LUCAS). By 1912 it had been reported from the Strait of Magellan (LENZ, DOFLEIN and BALSS) to San Lorenzo Island, Peru (RATHBUN, 1910), and by recognizing *P. panamensis* FAXON as a synonym, RATHBUN (1918, p. 131) in effect extended its range northward to Panama. In 1918 also RATHBUN (*Ibid.*, p. 154) recognized as her earlier described (1907, p. 45) *P. valdiviensis* one collection recorded as *P. transversalis* by CUNNINGHAM (1871, p. 492), that of the 'Nassau' from Punta Arenas, but apparently it did not occur to her to question other records of *transversalis* from South Chile. It was not until specimens determined by MIERS, by DOFLEIN and BALSS, and by PORTER began arriving from London, Hamburg, Munich, and Paris that it was realized that the name *P. transversalis*, as applied collectively to Chilean specimens by these and other workers, was a quasi-generic designation, under which two and perhaps more species were included.

The Lund University Chile Expedition collection contains without doubt the largest and most varied representation of the genus ever to be taken from Chilean waters. Strangely enough, *P. transversalis*, as recognized by RATHBUN, the late STEVE A. GLASSELL (determined specimen in the Hancock collection), and the writer, except for a young specimen questionably so considered, is not among them. Nor, with the exception of a young specimen from Herradura, Bay of Guyacán, is *P. valdiviensis*, in the narrowest sense. Instead, a complex of *Pinnixa* species, one of which is tentatively referred to *P. valdiviensis*, the others of which are distinctly new, are described in the ensuing pages. The variety of species encountered in Chile's inland waterways makes it impossible to state, pending reexamination of each one of them, to which of the presently recognized species specimens from southern Chile formerly referred to *P. transversalis* (see also Remarks under that species) should now be assigned, and in view of the widely separated institutions in which these specimens now reside it has not been possible to reexamine all of them at this writing. It is hoped that other workers having access to *Pinnixa* specimens from Chile will complete the examination with the aid of the descriptions, keys, and detailed sketches provided.

Key to the Chilean species of *Pinnixa*

1a. A sharp ridge extending completely across carapace at cardiac level, posterior to which the carapace slopes abruptly downward
  2a. Second segment of palpus of external maxilliped short and stout. Male abdomen narrow throughout; terminal segment broadly arcuate . . *transversalis*
  2b. Second segment of palpus of external maxilliped long and narrow. Male abdomen tapering gradually from base to tip; terminal segment not noticeably broadened or rounded . . . . . *chiloensis* n.sp.

1b. Cardiac ridge absent, or if present, not extending completely across carapace
  3a. Second segment of palpus of external maxilliped short and stout. Male abdomen widest at segment 3; segments 4—6 narrow, margins scalloped . . . . . *bahamondei* n.sp.
  3b. Second segment of palpus of external maxilliped long and narrow. Male abdomen occupying one third of sternal width, sides narrowing gradually, rather than abruptly . . . . . *valdiviensis*

Pinnixa transversalis (MILNE EDWARDS and LUCAS)

(Figures 3, 4)

Pinnotheres transversalis MILNE EDWARDS and LUCAS, 1842, Atlas, pl. 10, figs. 3, 3a—e; 1844, p. 23 (type locality, shores of Chile). ?NICOLET, 1849, p. 156. Not CUNNINGHAM, 1871, p. 492 [specimen seen].

Pinnixa transversalis, MILNE EDWARDS, 1853, p. 220. MIERS, 1881, p. 70 (part: the Coquimbo specimen). RATHBUN, 1910, pp. 546, 588, pl. 46, fig. 1; 1918, p. 131, pl. 29, figs. 1—3, text figs. 74—76 (not all synonymy). GARTH, 1946, p. 497, pl. 84, figs. 6—8. Not DOFLEIN and

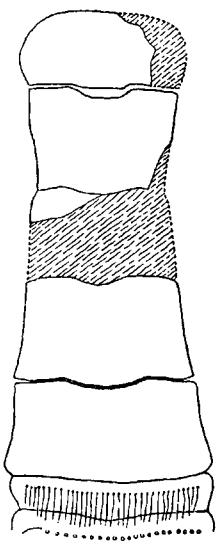

Fig. 3. *Pinnixa transversalis* (MILNE EDWARDS and LUCAS), FONTAINES, Chili, Paris Museum (Ancienne collection du Museum). Male abdomen, ×5.5, J. FOREST, del.

BALSS, 1912, p. 39, nor MIERS, 1881, p. 70 (part: the Punta Arenas specimens) [specimens seen]. Probably not: CANO, 1889, pp. 93, 98, 248. ORTMANN, 1897, p. 329. LENZ, 1902, p. 764. PORTER, 1909a, p. 246; 1909b, p. 35; 1911, p. 443; 1917a, p. 96; 1936b, p. 152; 1936c, p. 338 [specimens not seen].

Pinnixa panamensis FAXON, 1893, p. 158 (type locality, Panama); 1895, p. 30, pl. 5, figs. 1, 1a, 1b.

Previous records:

Panama: Panama 'Albatross' (FAXON).

Peru: San Lorenzo Island, 2.5 fms, from *Chaetopterus* R. E. COKER (RATHBUN, 1910).

Chile: Shores of Chile FONTAINES (MILNE EDWARDS and LUCAS), Coquimbo 'Alert' (MIERS), ?Valparaíso (NICOLET). For reasons stated under Remarks below, the following are considered not of this species: Talcahuano (PORTER, 1936b), [Puerto] Montt L. H. PLATE (LENZ), Isla Tenglo Mus. Nac. Chile Exped. (PORTER, 1917a), Calbuco and Ancud (PORTER, 1909a), Porto [Puerto] Bueno, 'Vettor Pisani' (CANO), Patagonia Philadelphia Museum (ORTMANN), Punta Arenas L. H. PLATE (LENZ).

Material examined:

Lund University Chile Expedition

St. M 74. 1 young ♂. Questionably referred to this species (see last paragraph under Remarks, below).

Hamburg Museum

Chile: Iquique, 12 fms; leg. R. PAESSLER, 1890; K 5312, 26 young.
Iquique; leg. R. PAESSLER, July, 1895; K 3270, 1♂.
Taltal, 10 fms; leg. R. PAESSLER, date?; K 3311, 1♂; K 1505 (part), 1♂.

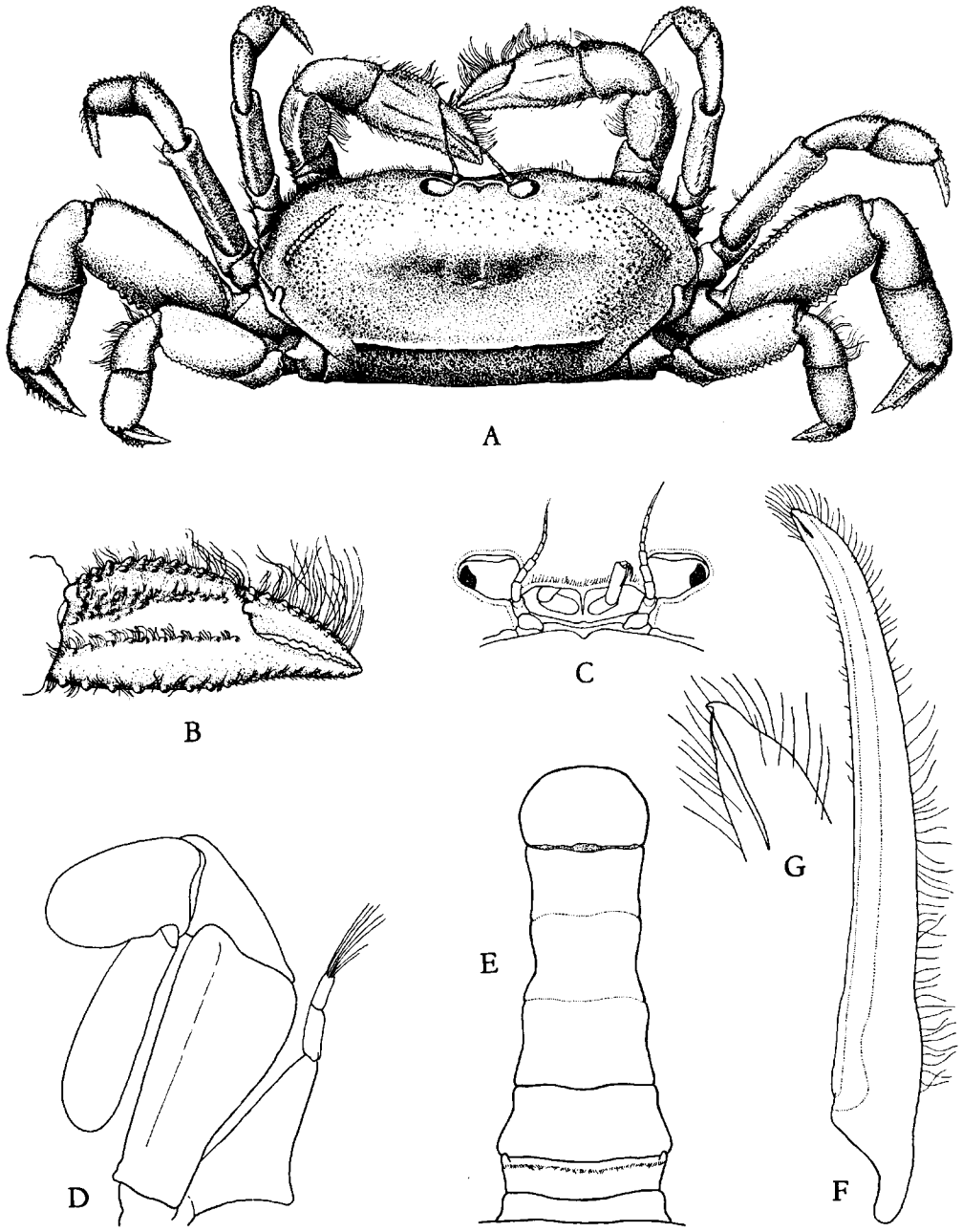

Fig. 4. *Pinnixa transversalis* (MILNE EDWARDS and LUCAS), male, Hamburg Museum K 3311. A, dorsal view, ×4; B, right chela, ×9; C, frontal view, ×8.5; D, left outer maxilliped, ×5; E, abdomen, ×6; F, first pleopod, ×15; G, tip of same, ×52.5.

Measurements: Length 7.4 mm, width 15.2 mm, frontal width 2.0 mm, fronto-orbital width 4.2 mm, cheliped (ischium-merus 4.0 mm, carpus-manus 7.6 mm) 11.6 mm, chela 4.8 mm, dactyl 2.2 mm, height of palm 2.2 mm, merus of leg 3: length 6.1 mm, width 3.2 mm; walking legs *ca.* 11.5, 12.0, 14.0, and 9.5 mm, respectively. (Hamburg Museum male, K 3311).

Diagnosis: Cardiac crest sharp, extends completely across carapace; antero-lateral ridges prominent in outer half only. Orbits with a strong dorsal inclination. Propodus of outer maxilliped short and broad, dactylus long and slender. Chelae slender, linear-granulate, fingers straight, closing without gape. Male abdomen narrow throughout, terminal segment a semicircle in which distal margins of subterminal segment are included. Merus of leg 3 less than twice as long as broad; leg 4 overreaching merus of leg 3 by length of its dactyl. Male first pleopod slender, cylindrical to tip, aperture a longitudinal slit.

Range: Panama to Coquimbo, Chile. Questionably to Valparaíso and beyond. Galápagos Islands. 2.5 to 70 fms.

Remarks: Mr. JACQUES FOREST of the Paris Museum has kindly provided the accompanying sketch of the abdomen of a male specimen of *Pinnotheres transversalis* MILNE EDWARDS and LUCAS, collected, like the type, in Chile by FONTAINES and determined, in all probability, by MILNE EDWARDS and LUCAS themselves. While cautioning against regarding this specimen as the actual type because of a difference in linear measurement (17 mm as against 11 mm), Mr. FOREST believes that it may well be the specimen so considered by RATHBUN (1918, p. 131). On the strength of the characteristic male abdomen with its broadly rounded terminal segment, as well as by conformity in other essentials, including the linear hand, specimens from North Chile in the Hamburg Museum collection have been identified with the MILNE EDWARDS and LUCAS species, and its earlier suggested northerly range, based upon the union with it of *Pinnixa panamensis* FAXON by RATHBUN (1918, p. 131), has been confirmed.

That PORTER did not recognize the true *P. transversalis* is indicated by specimens from Valparaíso sent by him to the Paris Museum in 1911 under that name which, on examination, proved to be *P. valdiviensis* RATHBUN instead. (Cf. text-figure 6). Specimens from Puerto Montt and Isla Tenglo collected by L. H. PLATE and by the Chile National Museum Expedition and reported as *P. transversalis* by LENZ (1902) and by PORTER (1917a), respectively, if not *P. valdiviensis* also, might be one of the two new species collected in the same vicinity by the Lund University Chile Expedition; the same might be said concerning specimens similarly reported by PORTER (1909a) from Calbuco and Ancud. Finally, specimens from Magellan Strait examined by the writer, including those from Punta Arenas reported as *P. transversalis* by MIERS (1881) and by DOFLEIN and BALSS (1912) proved to be *P. valdiviensis*. It would appear, then, that *P. transversalis* (MILNE EDWARDS and LUCAS) is a warm-water species occurring from Panama to Coquimbo, and questionably to Valparaíso and southward.

In view of the completeness of the description given by RATHBUN (1918, p. 131),

and of the clarity of the figures here provided (see text-fig. 4), supplementary description is deemed unnecessary. The above measurements and diagnosis are given to facilitate comparison with *Pinnixa* species subsequently treated.

The young male from *St. M 74*, which measures only 1.0 mm in length and lacks chelipeds and legs, is referred questionably to this species on the strength of its abdomen and third maxilliped. It does not seem to be of the same species as the female from the same station.

Pinnixa bahamondei, new species

(Figure 5)

Type: Ovigerous female, holotype, from south of Punta San Pedro at Isla Maillén, Seno Reloncaví, 20—25 m, July 16, 1949, *St. M 148*, from tubes of *Chaetopterus*. An additional 60 males, 56 females (34 ovigerous), and 44 young, paratypes, same station and date. For balance of specimens referred to this species see Material examined.

Measurements: Female holotype, length of carapace 4.05 mm, width of carapace 10.2 mm, width of front 1.4 mm, of fronto-orbit 3.0 mm, length of cheliped *ca.* 5.4 mm, of chela 2.55 mm, of dactyl 1.55 mm, height of palm 1.0 mm, length of ambulatory legs *ca.* 7.0, 7.7, 10.4, and 6.2 mm, respectively; length of merus of third leg 4.0 mm, width 2.1 mm. Male paratype, length of carapace 3.6 mm, width of carapace 8.2 mm.

Diagnosis: Carapace 2.5 (in the ♂ 2.3) times as wide as long; anterolateral margins crested; cardiac ridge lacking. Merus of leg 3 over half as wide as long; dactyls of legs 1, 2, and 4 straight or nearly so. Chelae weak, granular. Palpus of external maxilliped large, merus small. Abdomen of male broadest opposite segment 3, segments 4—6 narrow, tip broadly rounded. Male first pleopod with a terminal twist, concave margin distally channeled.

Description: Carapace suboblong, anterolateral margins forming shoulders from which the side walls drop away vertically both anteriorly and laterally, surface smooth, punctate, gastrocardiac trench shallow, a depression on either side, gastric and cardiac areas little elevated above general level, cardiac region lacking a ridge. Anterolateral margins marked by a well-defined but non-granular crest extending inward to the cervical suture. Posterior margin straight or (in the female) slightly concave. Front not advanced, almost recessed, truncate, lobes separated by a shallow median sulcus, margins hairy. Orbits small, inclined forward in dorsal view (more strongly so in female), lower margins horizontal in frontal view.

External maxilliped with merus narrowly rectangular; palpus large; dactylus reaching nearly to base of ischium and inserting near mid-point of short, broad propodus.

Chelipeds slender, hairy, margins of chelae subparallel, manus with a superior and an inferior row of granules continued on dactyl and pollex, respectively, and a median row ending at gape; fingers slender, tips pointed, incurving, closely approximated when closed, edges faintly separated or, in the male, denticulate.

Ambulatory legs of the first two pairs slender, their meri trigonal, their dactyls lanceolate, curving but slightly. Legs of the last two pairs stout, dactylus of leg 3 curved, of leg 4 straight. First leg little narrower than second, reaching end of propodus of second; second leg reaching scarcely beyond carpus of third; third leg very wide, merus over half as wide as long, a stout spine at posterodistal angle; a similar spine on lower margin of carpus; propodus as wide as anterior length, heavily furred beneath; fourth leg short, not exceeding merus of third; dactyls of legs 3 and 4 short, robust, tips corneous. Ischium, merus, carpus, and propodus of all legs granulate to spinate on lower margins.

Abdomen of male widest opposite segment 3, narrowest opposite segment 4, segments 4—6 constricted, with scalloped margins, and showing some degree of fusion. Distal portion of somite 6 widening to form with somite 7 an almost circular tip. Fringe of hair at distal end of somite 2 continued across sternum. Male first pleopod with a subterminal twist, beyond which the concave margin is grooved to the terminal aperture.

Material examined:

St. M 47. 10♂, 11♀. Lives in tubes of *Chaetopterus variopedatus* (RENIER). Between about 75—100 percent of the tubes with crab.

St. M 59. 1♂, 1♀. From tubes of *Chaetopterus variopedatus.*

St. M 90. 1♂. From tubes of *Chaetopterus variopedatus.*

St. M 91. 7♂, 17♀. Lowest littoral.

St. M 142. 6♂, 11♀, plus about 12 specimens unsexed. From tubes of *Chaetopterus variopedatus.*

St. M 147. 1♀ ov. From tubes of *Chaetopterus variopedatus.*

St. M 148. 60♂, 57♀ (35 ov), 44 young. [The type series.] From tubes of *Chaetopterus variopedatus.* Also *ca.* 50 young. [Not made paratypes.]

Remarks: The proposed new species is apparently very local in its distribution, being found only on the west side of the Seno Reloncaví, where it was collected by the Lund University Chile Expedition in the arenaceous tubes of *Chaetopterus variopedatus* (RENIER). Specimens collected subtidally to 25 m tend to be more ornate as to spinulation than specimens collected intertidally. The species resembles both *P. floridana* RATHBUN of the Gulf of Mexico and *P. pembertoni* GLASSELL of the Gulf of California in the general aspect of the carapace, the enlarged palpus of the external maxilliped, the terminal segment of which reaches almost to the base of the ischium, and the shape of the male abdomen, which is widest opposite segment 3, narrower between segments 4—6, and broadly rounded at the tip. It differs from *P. floridana,* according to Dr. F. A. CHACE, JR., who made the comparison, in the broader carapace, the form of the orbits, which are distinctly diagonal rather than transverse, and the merus of the third walking leg, which has the posterior margin acutely toothed rather than broadly lobate. Unfortunately, no comparison of the male pleopod is possible, as the specimen figured in RATHBUN (1918, fig. 82a) lacks this appendage. The new species differs from *P. pembertoni* in the chelipeds, which are weak and toothless instead of robust and toothed, and in the male abdomen, which is narrowest opposite segment 4 instead of segment 6.

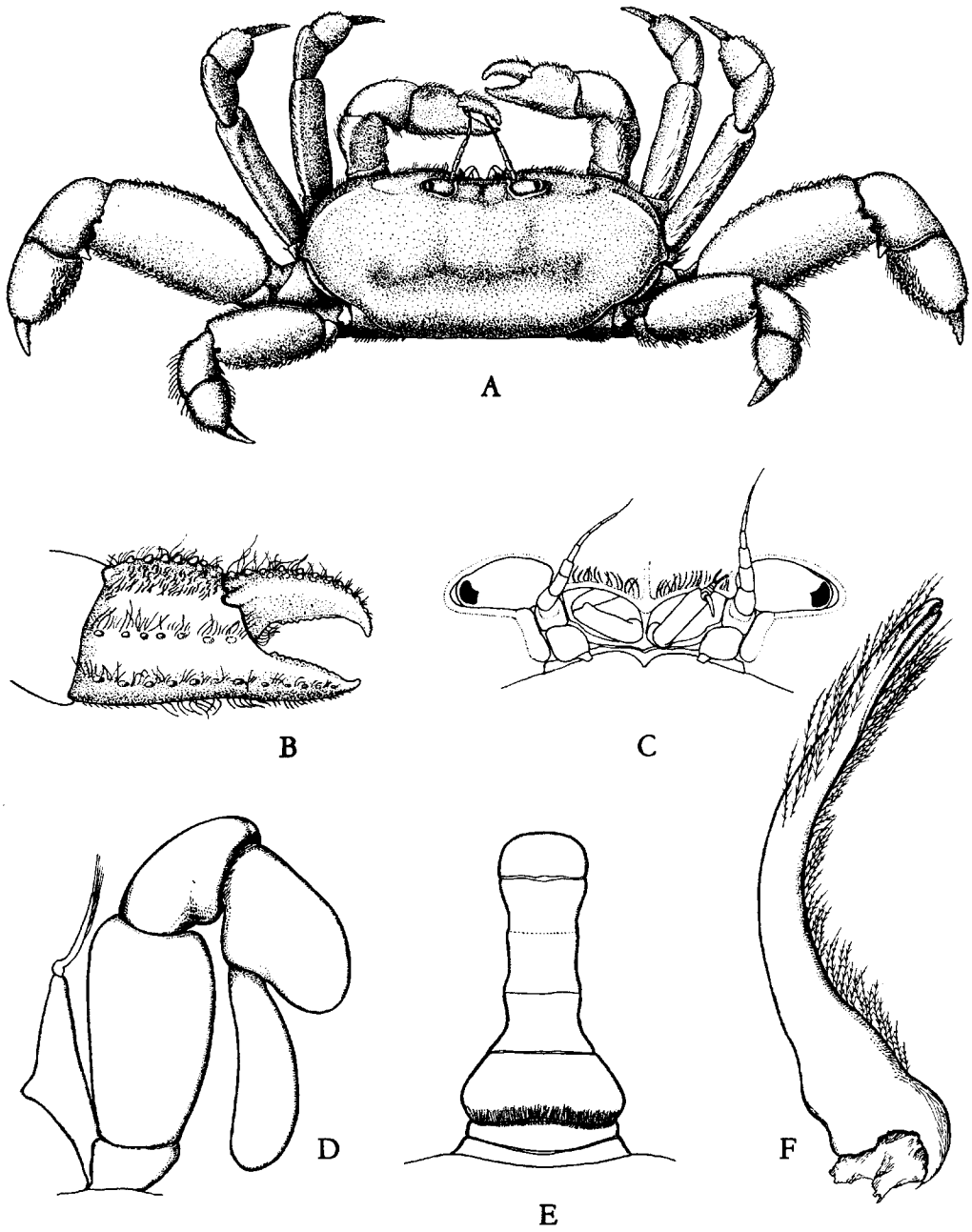

Fig. 5. *Pinnixa bahamondei*, male, *St. M 91.* A, dorsal view, ×6.1; B, right chela, ×20.4; C, frontal view, ×22.3; D, right outer maxilliped, ×33.3. Male, *St. M 90.* E, abdomen, ×10.2; F, first pleopod, ×33.3. Neither specimen is the holotype.

The new species is dedicated to Sr. NIBALDO BAHAMONDE N., junior zoologist and general scientific assistant of the expedition, in appreciation of his efforts in securing the material on which it is based.

Pinnixa valdiviensis RATHBUN

(Figure 6)

Pinnotheres transversalis, CUNNINGHAM, 1871, p. 492. Not *P. transversalis* MILNE EDWARDS and LUCAS, 1842.

Pinnixa transversalis, MIERS, 1881, p. 70 (part: the CUNNINGHAM specimens). DOFLEIN and BALSS, 1912, p. 39. Not *Pinnotheres transversalis* MILNE EDWARDS and LUCAS, 1842.

Pinnixa valdiviensis RATHBUN, 1907, p. 45, pl. 3, figs. 2, 3, text fig. 1 (type locality, Corral, prov. of Valdivia); 1910, p. 588; 1918, p. 154, pl. 33, figs. 1, 2, pl. 34, figs. 5, 6, text fig. 95. PORTER, 1909a, p. 247; 1909b, p. 35; 1911, p. 444.

Previous records:

Chile: Corral C. E. PORTER (RATHBUN, 1907); Eden Harbor, Smith Channel 'Hassler' (RATHBUN, 1918), Punta Arenas 'Nassau' (CUNNINGHAM), do R. MULACH (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

St. M 4.? 1♂. Orange coloured. Dead when found.

St. M 19.? 2♂.

St. M 20.? 2♂, 1 young. Possibly living in tubes of a polychaet.

St. M 74.? 1♀, 1 young. From tubes of *Chaetopterus variopedatus* (RENIER).

St. M 126. 1♂. Found at the shore. Probably from tubes of *Chaetopterus*.

St. M 150.? 1♀.

St. M 163.? 1 young. [Too immature to be assigned with assurance to species.]

British Museum (Natural History)

Chile: Punta Arenas, Strait of Magellan, on sandy beach after severe gale, 'Nassau', 1 large ♂ [This specimen reported by CUNNINGHAM, above].

Hamburg Museum

Chile: Punta Arenas, Strait of Magellan; leg. R. MULACH, November, 1892; K 3306; 1♀. 1906; K 3304, 1♀ post-ov [This specimen reported by DOFLEIN and BALSS, above].
Punta Arenas, Strait of Magellan; leg. H. MUTSCHKE, 1908; K 3272, 1♂.
Punta Arenas, Strait of Magellan; leg. R. MULACH, July 1, 1919; K 5469; 3♀ (2 ov, 1 post-ov).

Munich Museum

Chile: Punta Arenas, shore; leg. W. MICHAELSEN, November, 1892; from Hamburg Museum, 1♀ [This specimen determined as *Pinnixa transversalis* by DOFLEIN and BALSS].

Paris Museum

Chile: Valparaíso; C. E. PORTER, collector, 1911; 1♂, 1♀.

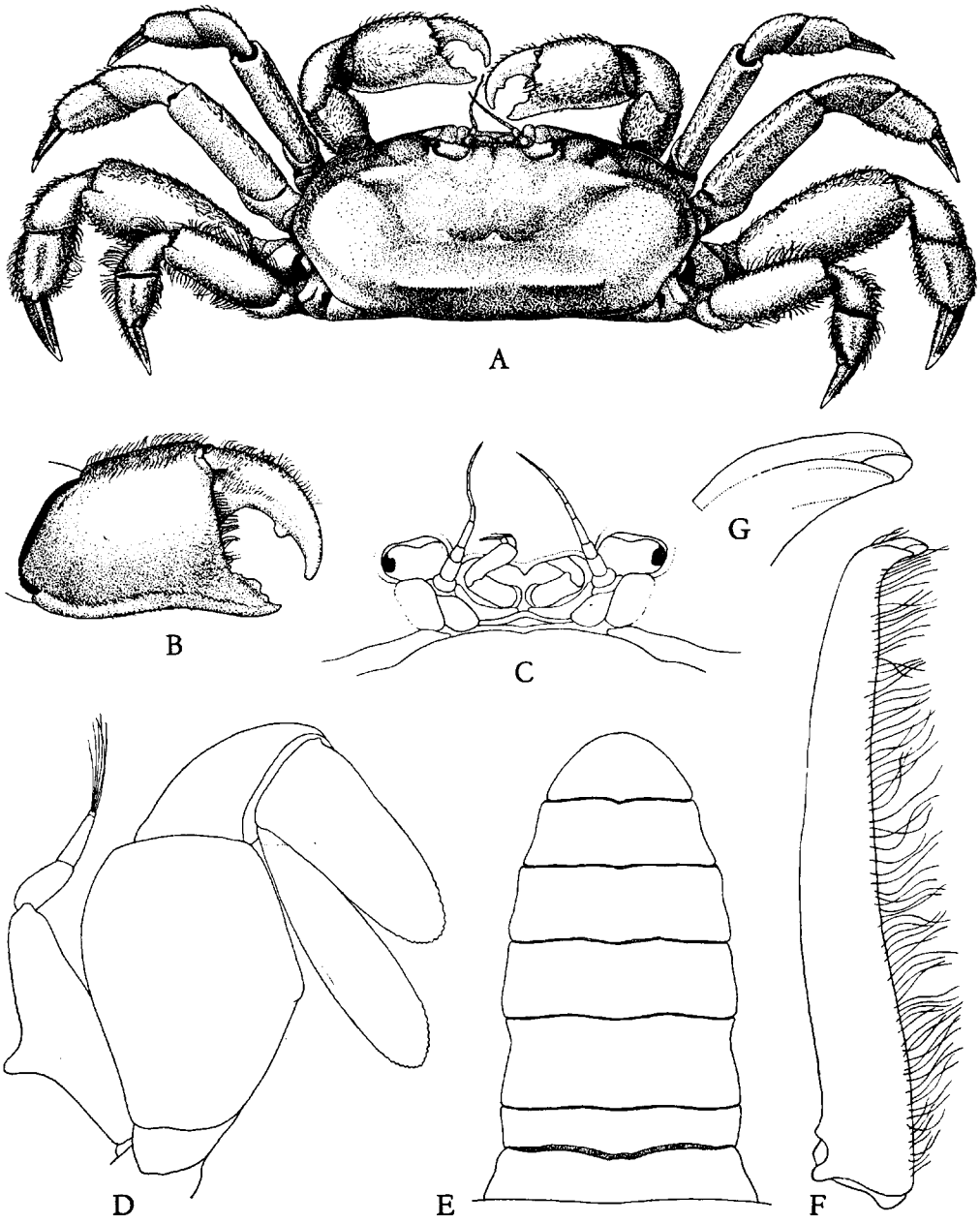

Fig. 6. *Pinnixa valdiviensis* RATHBUN, male, Paris Museum. A, dorsal view, ×2.5; B, right chela, ×4.5; C, frontal view, ×7; D, right outer maxilliped, ×12.5; E, abdomen, ×5; F, first pleopod, ×12; G, tip of same, ×51.

United States National Museum

Peru: Chinchas Islands; R. C. MURPHY, collector, December 1, 1919; 1♂ (U.S.N.M. No. 54209). [This specimen determined by M. J. RATHBUN].

Chile: Corral, Valdivia Province; C. E. PORTER, collector; 1♂, cotype. (U.S.N.M. No. 32260).

Museum of Comparative Zoology

Chile: Eden Harbor, Smith Channel, Strait of Magellan, 'Hassler' Expedition, 1♂ (M.C.Z. No. 5740). [This specimen determined by M. J. RATHBUN].

Measurements: Of the Paris Museum male from Valparaíso: length of carapace 9.8 mm, width of carapace 22.3 mm, width of front 2.5 mm, of fronto-orbit 5.7 mm, length of cheliped (ischium-merus 6.8; carpus-manus 11.4) 18.2 mm, of chela 8.0 mm, of dactyl 4.5 mm, superior length of palm 4.4 mm, height of palm 4.4 mm, inferior length (including pollex) 7.4 mm, merus of third leg, length 9.5 mm, width 4.3 mm. Female specimen, length 9.5 mm, width 21.0 mm.

Of the British Museum male from Punta Arenas: length 13.8 mm, width 30.1 mm, width of front 3.5 mm, of fronto-orbit 7.6 mm, chela 10.8 mm, dactyl 6.7 mm, superior length of palm 7.3 mm, height of palm 6.5 mm, merus of third leg, length 13.3, width 6.2 mm.

Diagnosis: Two short cardiac ridges and a transverse hepatic ridge. Front widening anteriorly. Orbits broad, each wider than half the front. Chelae robust, internally pubescent; pollex short and deflexed, two teeth on prehensile edge; dactyl with a median tooth. Merus of external maxilliped broad, propodus and dactylus narrow. Merus of leg 3 less than half as wide as long; leg 4 not greatly reduced. Male abdomen one-third width of sternum, sixth segment shortened, sides concave. Male first pleopod stout, cylindrical, apically curved, tip corneous.

Range: From Chinchas Islands, Peru, as extended by the MURPHY specimen (U.S.N.M. No. 54209) above, to Punta Arenas [Magallanes], Strait of Magellan.

Remarks: On the strength of the inclusion by RATHBUN (1918, p. 154) of the 'Hassler' specimen from Eden Harbor, Smith Channel (M.C.Z. No. 5740) with type material of *Pinnixa valdiviensis* from Corral, Valdivia province, it has been possible to refer to her species also specimens from Punta Arenas, Strait of Magellan, previously reported as *P. transversalis* by CUNNINGHAM (1871), MIERS (1881), and by DOFLEIN and BALSS (1912), as well as to attribute to *P. valdiviensis* specimens from Valparaíso sent to the Paris Museum as *P. transversalis* by Dr. CARLOS E. PORTER in 1911. Whether the differences noted between the 3.2 mm male cotype (U.S.N.M. No. 32260), the Valparaíso specimens measured above, and the still larger Punta Arenas specimens, can be attributed entirely to growth can best be decided by someone having access to specimens of good size from Valdivia province. The female from Valparaíso shows the cardiac ridges; in this respect it differs from the female cotype from Valdivia province. The male first pleopods of Chinchas Islands, Valparaíso, and Punta Arenas specimens compare favorably with those of the 'Hassler' male from Eden Harbor, Smith Channel (M.C.Z. No. 5740).

With the exception of a young male from Bahía Herradura de Guayacán, *St. M 126*, which compares quite favorably with the male cotype (U.S.N.M. No. 32260), Lund

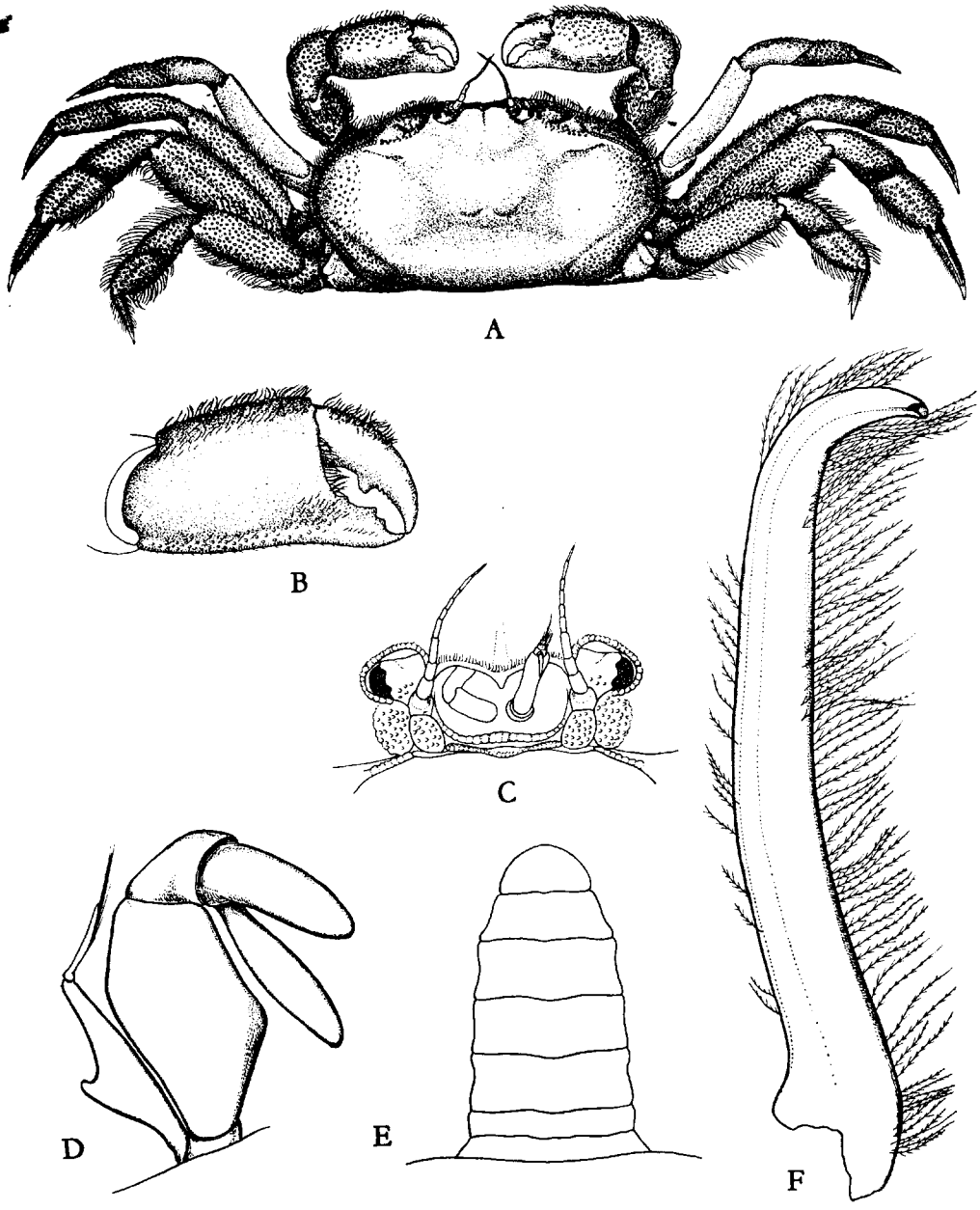

Fig. 7. *Pinnixa valdiviensis* RATHBUN (?), male, *St. M 19*. A, dorsal view, ×4; B, right chela, ×8; C, frontal view, ×10; D, right outer maxilliped, ×17.5; E, abdomen, ×6.6; F, first pleopod, ×25.

University Chile Expedition specimens have been referred to *Pinnixa valdiviensis* with a question mark. A male from Estero Huito, inner part, Golfo de Ancud, L. *M 19*, (Figure 7) here illustrates the points of difference noted between specimens from the vicinity of the Seno Reloncaví and larger specimens from Valparaíso or the Strait of Magellan. These include the less compressed cardiac ridges, the anteriorly narrowed front, the less broadened orbits, the more elongated chelae with the less deflexed pollex, the roughened merus of the cheliped, the increased granulation of the carapace and legs, and the slenderness of the legs, particularly those of the last two pair. These specimens were at first believed to represent a species distinct from *P. valdiviensis*, but the similarity of the male abdomen, male first pleopod, and external maxilliped argues strongly against this. Also, no ovigerous females are present among Lund University Expedition specimens, an indication that the accompanying males may not be fully matured. In uniting these specimens tentatively with RATHBUN's species it is the writer's belief that growth changes will be found to account for most of the discrepancies observed, with environmental differences accounting for the remainder.

Pinnixa chiloensis, new species

(Figure 8)

Type: Male holotype and three female paratypes (one ovigerous) from Lechagua, Bahía de Ancud, Chiloé, shore, in the tubes of the polychaet *Arenicola assimilis* EHLERS, var. *affinis* ASHWORTH, November 18, 1948, *St. M 11*. For additional specimens referable to this species, see Material examined below.

Measurements: Male holotype, length of carapace 6.1 mm, width of carapace 13.4 mm, width of front 1.5 mm, of fronto-orbit 3.5 mm, length of cheliped (ischium-merus 4.0; carpus-manus 4.5) 8.5 mm, of chela 4.0 mm, of dactyl 2.2 mm, height of palm 2.35 mm, superior length 2.2 mm, length of walking legs *ca.* 10.5, 12.0, 13.5, and 9.0 mm, respectively; merus of third leg: length 5.8 mm, width 3.1 mm. Female paratype: length of carapace 7.3 mm, width of carapace 15.6 mm.

Diagnosis: Cardiac ridge prominent, extends completely across carapace. No transverse crest across front. Margins of palm subparallel, pollex not deflexed nor shortened to a spine. Merus of leg 3 over half as broad as long, lower margin entire; dactylus of leg 4 overreaching merus of leg 3. Male first pleopod stout, abruptly angled, tip corneous.

Description: Carapace transversely oblong, laterally narrowed, hard textured, smooth and punctate, the larger punctae arranged linearly along the major depressions and felted. A blunt transverse ridge extending the width of the carapace and compressed in the male into two short, acute crests separated by a space equal to the width of one of them. From the cardiac ridge the carapace slopes gently forward to the gastrocardiac trench; behind it the carapace descends abruptly to the straight posterior margin. A similar ridge extending forward along anterolateral margins to

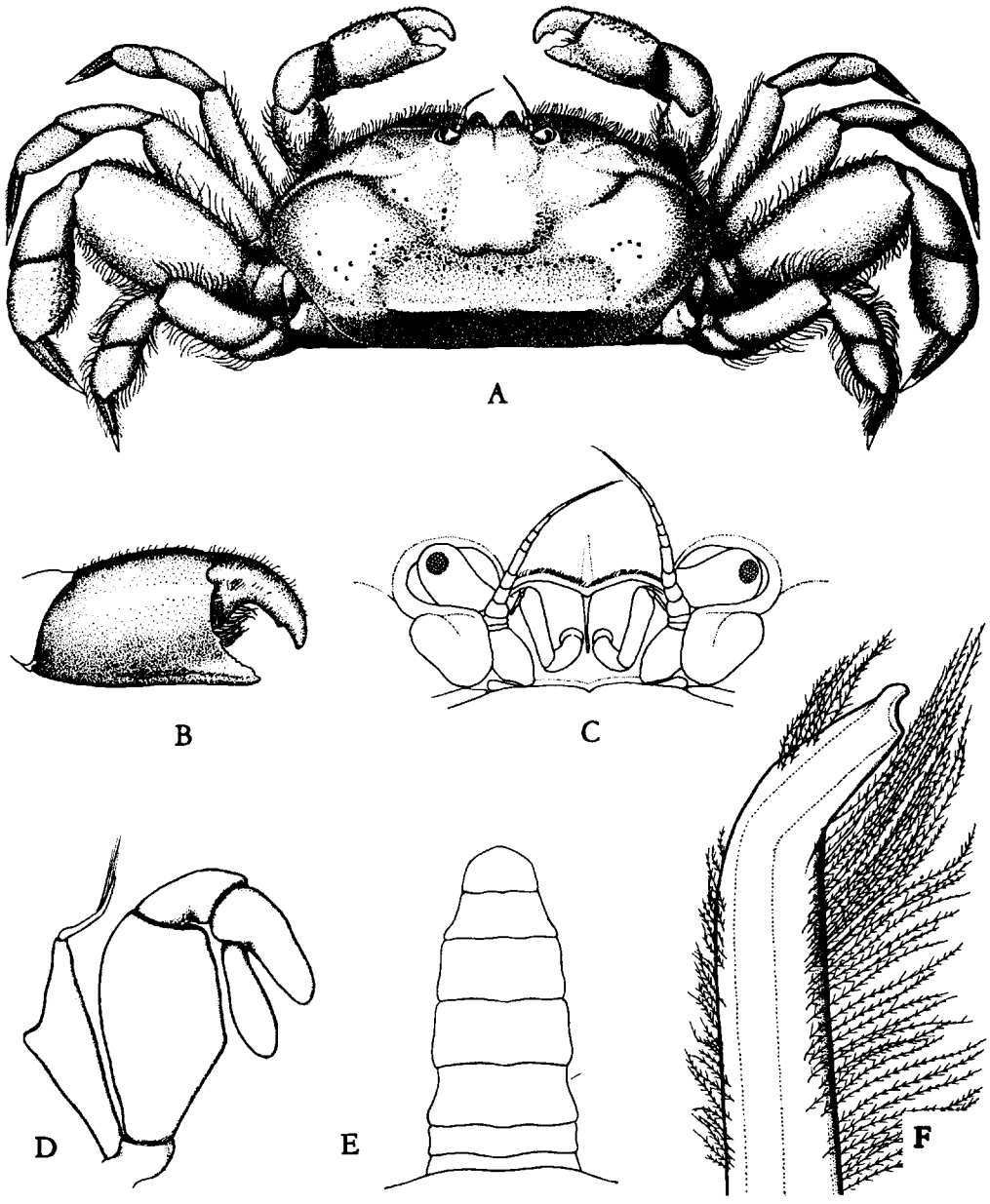

Fig. 8. *Pinnixa chiloensis*, male holotype, *St. M 11.* A, dorsal view, ×4.5; B, right chela, ×7.5; C, frontal view, ×12; D, right outer maxilliped, ×18; E, abdomen, ×5; F, first pleopod, ×35.

hepatic level, but not continuing to orbits or to front. Front advanced, truncate, bilobate, the lobes separated by a median furrow, margined, fringed, but lacking a transverse crest. Orbits large, more rounded than elongate, completely filled by eyes and eyestalks, inner margins inclined toward the longitudinal, outer margins toward the transverse.

Merus of external maxilliped elongate, outer margin rounded, inner margin obtusely angled; propodus narrow, nearly as long as dactylus; dactylus clavate, widening distally, and inserting on inner margin of propodus near base.

Chelae small in proportion to carapace and walking legs, compressed, a superior granular crest and a ridge parallel to lower margin, upper and lower margins of palm straight, subparallel, height of palm slightly greater than superior length, outer surface smooth and bare; pollex short, little deflexed, two teeth on upper margin; dactyl strongly curved downward, an abrupt median tooth; fingers gaping slightly when closed, tips not overlapping.

Dactyls of first three legs curving slightly inward at tips, dactyl of leg 4 with outer margin straight, inner margin convex. First leg slender, reaching mid-propodus of second; second leg with broader merus, reaching mid-propodus of third; third leg broadest, merus over half as wide, propodus fully as wide, as superior length, these segments conspicuously granulate beneath; fourth leg shorter, overreaching merus of third, which is not constricted distally, merus and propodus of leg 4 not conspicuously broadened. Margins of all legs hairy, the three terminal segments of the legs of the first two pair sparsely so.

Male abdomen occupying less than one third width of sternum, somites 3 and 6 with sides conspicuously concave, somites 6 and 7 shorter and of equal length. Male first pleopod stout, bent at an angle near end, tip corneous.

Female differing from male in having the transverse cardiac ridge uncrested and uninterrupted, and in having the manus widening distally, the pollex shorter, the dactylus more deflexed, and the digital tooth less prominent.

Material examined:

St. M 11. 1♂, 3♀. [The type series.] Lives in the tubes of the polychaet *Arenicola assimilis* EHLERS, var. *affinis* ASHWORTH.

St. M 26. 1♀ ov. [The same *Arenicola* species as the above was living at *St. M 26*].

Remarks: The proposed new species is allied to *Pinnixa patagoniensis* RATHBUN of the South Atlantic, but differs from it in the following particulars, according to Dr. F. A. CHACE, JR., who compared it with the small male paratype (U.S.N.M. No. 49248): the frontal, anterolateral, and posterior crests of the carapace are much blunter and less distinct; the submarginal ridge near the lower edge of the chela extends far back on the palm subparallel to the margin rather than diverging from the margin and disappearing before reaching the middle of the palm; the posterior margin of the merus of the third walking leg is evenly convex rather than deeply excavate and concave in the distal half, and the propodus of that leg much shorter and broader and not sharply bicarinate ventrally; and the male first pleopod, while

having the same general form, does not bend as abruptly, nor is the tip bilobate as in the paratype of *patagoniensis*. As compared with the figures of the male holotype (RATHBUN, 1918, pl. 30, figs. 1—3), the thumb is not noticeably deflexed, nor is it shortened to a spine, and there is no oblong tooth at the truncate distal end of the manus above the digital spine.

The host of the new *Pinnixa* species is *Arenicola assimilis* EHLERS, var. *affinis* ASHWORTH, as determined by Dr. G. P. WELLS, who defers an opinion on the validity of the variety pending further study. The host of *P. patagoniensis* is unknown.

Pinnaxodes HELLER, 1865

Pinnaxodes chilensis (MILNE EDWARDS)

(Figure 9)

Pinnotheres chilensis MILNE EDWARDS, 1837, p. 33 (type locality, shore of Valparaíso). MILNE EDWARDS and LUCAS, Atlas, 1842, pl. 10, figs. 2, 2a; 1844, p. 23. NICOLET, 1849, p. 155. SCHWABE, 1936, p. 125, figs. 1—6.

Fabia chilensis, DANA, 1852, p. 383.

Pinnaxodes hirtipes HELLER, 1865, p. 68, pl. 6, fig. 2 (type locality, Ecuador, in an *Echinus*). PORTER, 1909a, p. 248; 1909b, p. 36; 1911, p. 445.

Pinnaxodes chilensis, SMITH, 1869b, p. 246; 1870, p. 170. CANO, 1889, pp. 93, 99, 248. ORTMANN, 1894, p. 696, pl. 23, fig. 8. ADENSAMER, 1897, p. 107. LENZ, 1902, p. 764. PORTER, 1909a, p. 247; 1909b, p. 36; 1911, p. 444; 1936b, p. 152; 1936c, p. 338. RATHBUN, 1910, p. 587; 1918, p. 175, pl. 38, text fig. 111. DOFLEIN and BALSS, 1912, p. 39.

Pinnaxodes hirtipes?, RATHBUN, 1898b, p. 607, pl. 43, figs. 10, 11.

Pinaxodes chilensis, PORTER, 1906, p. 135.

Previous records:

Ecuador: Ecuador 'Novara' (HELLER).

Peru: Paita F. H. BRADLEY and J. ORTON (SMITH, 1870), Pacasmayo, 5—6 ft, W. H. JONES (RATHBUN, 1918), Callao F. H. BRADLEY (SMITH, 1870), Callao and San Lorenzo Island CHIERCHA (ORTMANN).

Chile: Tocopilla A. HRDLICKA (RATHBUN, 1918), Caldera C. E. PORTER (PORTER, 1909b), Coquimbo L. H. PLATE (LENZ), Los Vilos J. N. THOMAS (PORTER, 1906), Valparaíso (MILNE EDWARDS), do A. D'ORBIGNY and C. GAY (MILNE EDWARDS and LUCAS), do (NICOLET), do U. S. Expl. Exped. (DANA), Tumbes and Talcahuano L. H. PLATE (LENZ), Talcahuano C. E. PORTER (PORTER, 1909b), Puerto Montt F. LAU (DOFLEIN and BALSS), Chiloé Island 'Vettor Pisani' (CANO), do HOPKE (ADENSAMER), San Pedro, Chiloé Island 'Hassler' (RATHBUN, 1918), Chonos Archipelago 'Vettor Pisani' (CANO), Port Otway [Puerto Barroso] 'Albatross' (RATHBUN, 1898b).

Material examined:

Lund University Chile Expedition

St. M 21. 2♀. Parasite in the sea urchin *Loxechinus albus* (MOLINA).

St. M 91. 2♀. From *Loxechinus albus*. Lowest littoral.

Canal Chacao, Carelmapú, 41°45'S, 73°41'W, Jan. 1, 1949, 4 specimens from *Loxechinus albus*. Market purchase.

Seno Reloncaví, January 28, 1949, 8♀. From 12 *Loxechinus albus*. Market purchase.

Hamburg Museum

Chile: Junín, from sea urchins; leg. R. PAESSLER, March 16, 1903; K 3275, 2♀ ov.
Iquique; leg. F. RINGE, date?; K 26317, 1♀ ov.
Tocopilla, from a sea urchin; leg. R. PAESSLER, 1902; K 3797, 1♀ ov.
Valparaiso, from *Strongylocentrotus gibbosus* AGASSIZ [=*Coenocentrotus gibbosus* (VALENCIENNES)]; leg. W. MICHAELSEN, 1893; K 3282, 2♀.
Talcahuano, from sea urchins; leg. R. PAESSLER, 1902; K 3277, 3♀ ov.
Coronel, from sea urchins; leg. R. PAESSLER, 1903; K 3276, 5♀ ov.
Corral, Valdivia province, from *Strongylocentrotus gibbosus* AGASSIZ [=*Coenocentrotus gibbosus* (VALENCIENNES)]; leg. W. MICHAELSEN, [1893?]; K 3283, 1♀ ov.
Puerto Montt, Llanquihue province; leg. F. LAU, 1900; K 3284, 1♀ ov. [This is the specimen reported by DOFLEIN and BALSS, above.]

Museum of Comparative Zoology

Chile: Tocopilla, from *Loxechinus albus* (MOL.), WM. FORBES, collector, May, 1935, 1♂, 2♀ (M.C.Z. No. 10260).
San Pedro, Chiloé Island, 'Hassler' Exped., 1♂ (M.C.Z. No. 5737) [identified by M. J. RATHBUN].

Range: From Ecuador, exact locality unknown, to Port Otway [Puerto Barroso], Chile. Galápagos Islands. To 1 fm.

Description of male: Carapace subquadrilateral, wider than long, convex, firm textured, and pitted, appearing to narrow behind, actually widest at level of third coxae. Front scarcely advanced beyond orbits, lobes truncate when seen from above but rounding downward toward epistome, a shallow median sulcus. Eyestalks and eyes recessed in rimless orbits directed transversely or but slightly forward. Anterolateral margins arcuate, continuous with posterolateral, unrimmed, sides of carapace sloping steeply and obscured by shaggy hairs. Of the pits the four forming a cardiac square are most prominent, while of the less prominent, two occur in advance of the anterior cardiac pair, but set more closely together, two appear on each hepatic area in line with the almost non-existent lateral grooves, and one appears on each anterior branchial region. Palpus of external maxilliped large, propodus distally produced, dactylus clavate.

Chelipeds equal; carpus swollen, inner surface concave, hirsute; manus with superior margin slightly convex, inferior margin almost straight, height of palm equal to superior length; fingers little deflexed, equally broad at bases, dactyl with a larger and a smaller basal tooth; pollex with denticles proximally, cutting edges meeting without a gape, fingers pointed, incurving, tips crossing. Ambulatory legs long and slender, the first reaching the mid-propodus of the second, which is longest; the second but slightly overreaching the third; fourth leg shortest, reaching little beyond carpus of the third; propodi almost straight; dactyli slightly curved.

Male abdomen widest at middle of somite 3, sides of somites 4—5 straight, converging, somite 6 constricted at middle, somite 7 alate at base, tip rounded. Male first pleopod with a slight thickening at middle, straight nearly to tip, which is curved and bilobed.

Measurements: 'Hassler' Expedition male (M.C.Z. No. 5737): length 6.6 mm,

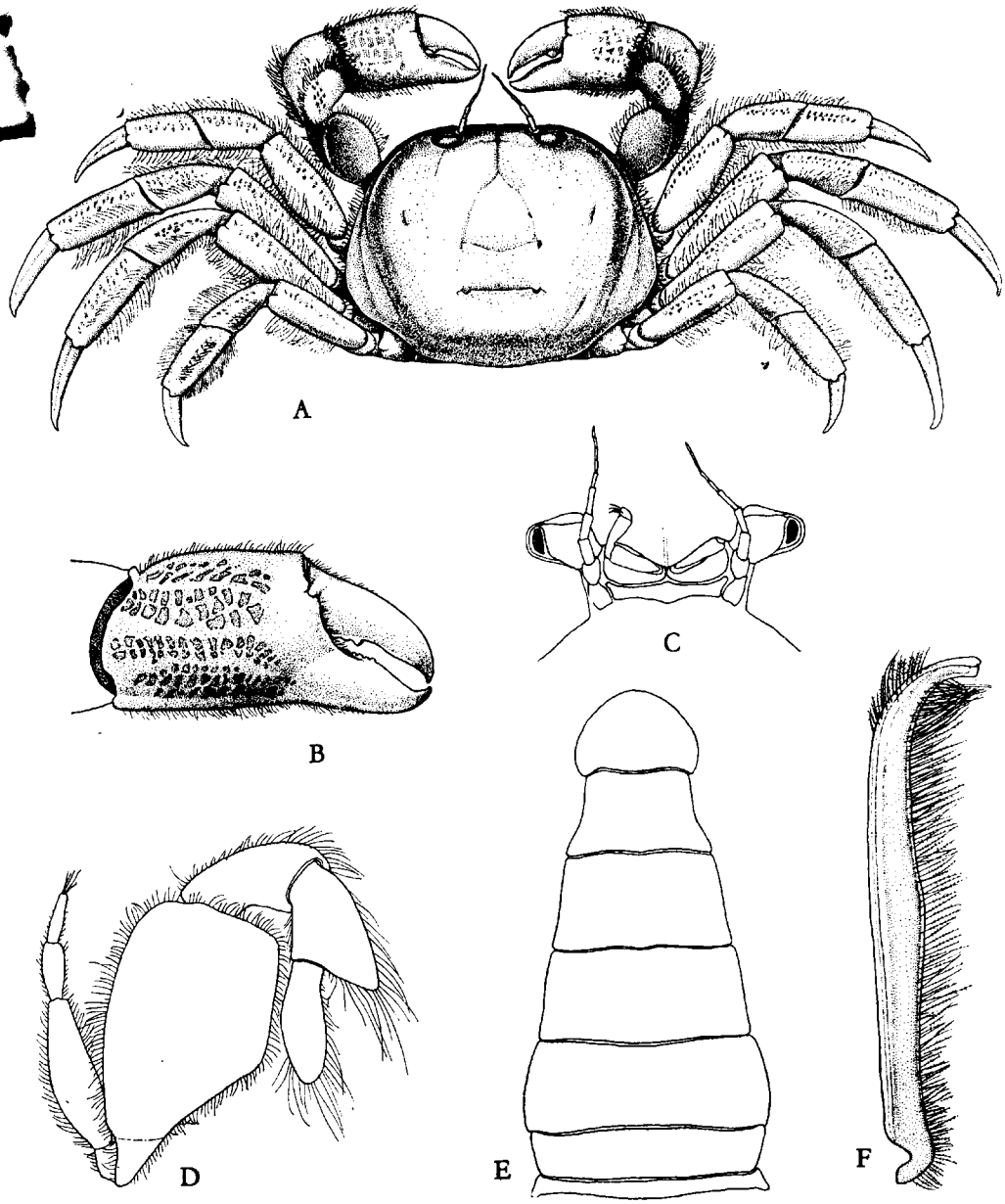

Fig. 9. *Pinnaxodes chilensis* (MILNE EDWARDS), male, M.C.Z. No. 5737. A, dorsal view, ×5.3; B, right chela, ×10.5; C, frontal view, ×10.5; D, right outer maxilliped, ×26.3; E, abdomen, ×10.5; F, first pleopod, ×15.3.

width 7.2 mm, frontal width 1.8 mm, fronto-orbital width 3.4 mm, length of che[illegible] 4.4 mm, length of dactyl 2.1 mm, height of palm 2.1 mm.

Remarks: Lund University Chile Expedition specimens, all post-oviger[illegible] females, measure from 12.2 to 19.3 mm in length. Hamburg Museum specimen[illegible] clude ovigerous females measuring from 12.7 to 19.7 mm in length, a young fe[illegible] measuring 11.2×12.0 mm, and a post ovigerous female measuring 20.0×20.5 [illegible] The FRITZ LAU specimen from Puerto Montt shows most clearly the incomp[illegible] suture line between the ischium and merus of the external maxilliped said to characterize the genus. The free-living male of this commensal species is seldom observed.

Pinnaxodes silvestrii (NOBILI), new combination

(Figures 10 and 11)

Pinnoteres silvestrii NOBILI, 1901a, p. 11 (type locality, San Vicente, Chile); 1902, p. 235.

Pinnaxodes meinerti RATHBUN, 1904b, p. 162 (type locality, Valparaíso); 1910, p. 587; 1918, p. 177, pl. 25, figs. 1—3; text fig. 112. PORTER, 1909a, p. 248; 1909b, p. 37; 1911, p. 446; 1936b, p. 152; 1936c, p. 338.

Pinnotheres silvestrii, PORTER, 1909a, p. 249; 1909b, p. 37; 1911, p. 446; 1936b, p. 152; 1936c, p. 338. RATHBUN, 1910, p. 587; 1918, p. 91.

Previous records:

Chile: Valparaíso KRØYER (RATHBUN, 1904b), Talcahuano 'Hassler' (RATHBUN, 1918) [these two as *Pinnaxodes meinerti*], San Vicente F. SILVESTRI (NOBILI, 1901a), Bay of Talcahuano (PORTER, 1909a, presumably a repetition of the NOBILI record).

Material examined:

Lund University Chile Expedition

St. M 121. 1 young ♂. The holothurian *Eucyclus chilensis* (SEMPER) (det. F. JENSENIUS MADSEN) was obtained at this station but it can not be stated with certainty wether the crab was living in this species as no notes indicating this are at hand.

St. M 123. 1♀ ov. From the cloaca of a holothurian, probably *Eucyclus chilensis* (the host has unfortunately been lost).

Turin Museum

Chile: San Vicente, F. SILVESTRI, collector, 1♀, type of *Pinnotheres silvestrii* NOBILI.

Museum of Comparative Zoology

Chile: Talcahuano, 1872, Hassler, 1♂, 1♀ (M.C.Z. No. 10994), determined by F. A. CHACE, JR., as *Pinnaxodes meinerti* RATHBUN.

Range: From Valparaíso to Bay of Talcahuano, Chile.

Remarks: Through the courtesy of Dr. LUCIA ROSSI of the Turin Museum it has been possible to examine the unique 14×16 mm holotype of *Pinnotheres silvestrii* NOBILI, a female, and to compare with it a set of sketches of the holotype of *Pinnaxodes meinerti* RATHBUN, a male, kindly provided by Dr. TORBEN WOLFF of the Copenhagen Museum. In addition Dr. ELISABETH DEICHMANN has supplied a pair

of specimens collected by the 'Hassler' at the same locality as a female specimen (M.C.Z. No. 5760) seen by RATHBUN and ascribed by her to *P. meinerti*. Allowing for the difference in sex of the respective holotypes, it is the opinion of the writer that they represent a single species, with NOBILI's name having priority, but correctly assigned by RATHBUN to *Pinnaxodes*. The fusion of the ischium and merus of the outer maxilliped is essentially complete, although a superficial line of demarkation remains on the external surface.

The small male from Pta. Liles, just W of Bahía San Vicente (*St. M 121*), NOBILI's type locality, measured 3.2×3.6 mm. It differs from the holotype of *Pinnaxodes meinerti*, a 6.8 mm male, and from the larger 'Hassler' male (M.C.Z. No. 10994) in having the lateral margins not only thickened but rimmed, the rim broken into a lobe at the hepatic level as prominent as one of the frontal lobes. The abdomen is even more slender. Although the pleopod is not well developed, the identification was made firm by correspondence of the outer maxilliped and the unmistakable channeled finger tips.

Pinnotherelia MILNE EDWARDS and LUCAS, 1843

Pinnotherelia laevigata MILNE EDWARDS and LUCAS

Pinnotherelia laevigata MILNE EDWARDS and LUCAS, 1843, Atlas, pl. 11, figs. 1, 1a—e; 1844, p. 25 (type locality, shores of Chile). NICOLET, 1849, p. 158. MILNE EDWARDS, 1853, p. 221. CANO, 1889, pp. 93, 98, 247. PORTER, 1909a, p. 246; 1909b, p. 34; 1911, p. 442; 1936b, p. 153; 1936c, p. 338. RATHBUN, 1910, pp. 546, 588, pl. 51, fig. 3; 1918, p. 181, pl. 39, figs. 1—3, pl. 40, figs. 1, 2, text fig. 115.

Cyclograpsus (?) *gnatherion* KINAHAN, 1857, p. 343 (type localities, Chinchas Islands and Callao, Peru).

Previous records:

Peru: Callao J. R. KINAHAN (KINAHAN), do R. E. COKER (RATHBUN, 1910), San Lorenzo Island U. S. Expl. Exped. (RATHBUN, 1918), Chinchas Islands J. R. KINAHAN (KINAHAN).

Chile: Shores of Chile FONTAINES (MILNE EDWARDS and LUCAS), do (NICOLET), Bay of Talcahuano (PORTER, 1936b), Bay of Arauco (PORTER, 1909a), Porto [Punta?] Arenas, "Canali Patagonici" 'Vettor Pisani' (CANO, 1889).

Material examined:

Hamburg Museum

Peru: Callao; leg. R. PAESSLER, 1886; K 15081, 3♂.
Callao; leg. H. REHBERG, 1894; K 4461, 3♂.
West coast of South America; leg. E. KRAUSE, 1903; K 4500, 1♂.

Range: From Callao, Peru, to Punta Arenas, Strait of Magellan. Occurs also at Marquesas Islands, in the south central Pacific.

Remarks: Hamburg Museum males measure from 6.7 to 9.7 mm in length; females are not represented. This remarkable species, which resembles a *Cyclo-*

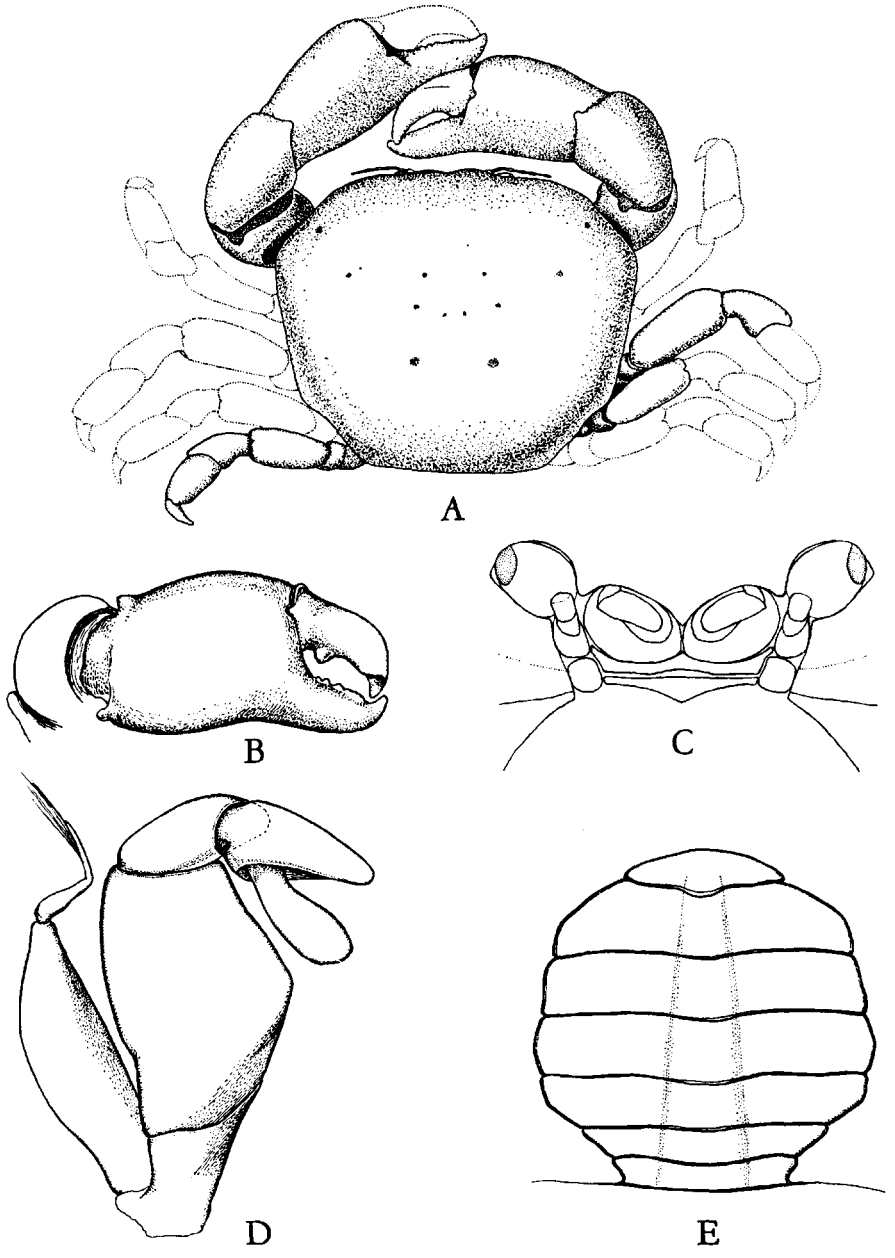

Fig. 10. *Pinnaxodes silvestrii* (Nobili), female holotype, Turin Museum. A, dorsal view, ×3.5 (in order to show the inner surface, the disjointed right chela has been rotated outwardly farther than its normal articulation with the carpus would permit. The detachment of all legs from the carapace casts doubt on the correctness of the sequence here shown.) B, right chela, ×4.6; C, frontal view, ×10.4; D, right outer maxilliped, ×18.6 (the prominent line between the ischium and merus is deceiving, as an examination of the under surface shows fusion of the two segments to be complete); E, abdomen, ×2.9 (the reconstruction from many fragments fails to show normal convexity, which would tend to impart a more circular outline to the whole).

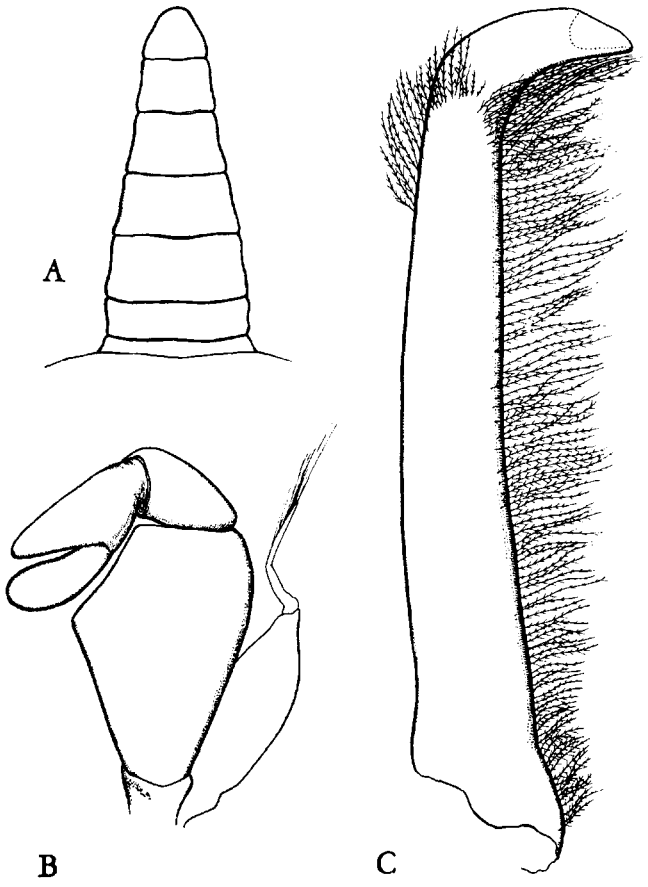

Fig. 11. *Pinnaxodes silvestrii* (NOBILI), male, M.C.Z. No. 10994. A, abdomen, ×6; B, left outer maxilliped, ×21; C, first pleopod, ×25.

grapsus sufficiently to have deceived KINAHAN, is one of the important links between the Chilean and Polynesian faunas.

Species erroneously reported from Chile

Pinnotheres globosum JACQUINOT, 1852, Atlas, pl. 5, figs. 21—26; 1853, p. 58.

CANO (1889, pp. 98, 247) referred to this species a specimen from Porto [Puerto] Lagunas, Patagonia. Since the type locality is Singapore, and since CANO failed to describe his Chilean specimens, confirmation of his record is needed. (Cf. RATHBUN, 1918, p. 65, footnote.)

Species *incertae sedis*

Leucosia pacifica POEPPIG, 1836, p. 140, pl. 4, fig. 3.

This species, which has Talcahuano as its type locality, is a pinnotherid rather than a leucosid, according to RATHBUN (1937, p. 183, footnote). In an earlier work RATHBUN (1910, p. 613) listed it as a possible synonym of *Cyclograpsus cinereus* DANA.

CHILEAN PINNOTHERIDS AND THEIR HOSTS

Commensal	Host	Authority
	MOLLUSCA - GASTROPODA	
Pinnotheres politus (SMITH)	*Calyptraea*, sp.	LENZ
	Calyptraea	THORSON
	MOLLUSCA - PELECYPODA	
	In bivalves, probably	
	Mytilus algosus GOULD	SMITH
	On mussels, with	
	Crepidula [*dilitata* LAMARCK]	COKER
	ECHINODERMATA - ECHINOIDEA	
Pinnotheres bipunctatus NICOLET	Probably in sea urchins	NICOLET
Pinnaxodes chilensis (MILNE	In "erizos"	NICOLET
EDWARDS)	In an *Echinus*	DANA
	Caenocentrotus gibbosus (VALENCIENNES)	
	(as *Euryechinus imbecillus* VERRILL)	SMITH
	Loxechinus albus (MOLINA)	LENZ
	Tetrapygus niger (MOLINA)	
	[as *Arbacia nigra* (MOLINA)]	LENZ
	ECHINODERMATA - HOLOTHURIOIDEA	
Pinnaxodes silvestrii (NOBILI)	*Eucyclus chilensis* (SEMPER)	MADSEN
	ANNELIDA - POLYCHAETA	
Pinnixa transversalis (MILNE	*Chaetopterus*, sp.	COKER
EDWARDS and LUCAS)	*Chaetopterus variopedatus* (RENIER)	WESENBERG-LUND
Pinnixa valdiviensis RATHBUN?	*Chaetopterus variopedatus* (RENIER)	WESENBERG-LUND
Pinnixa bahamondei, n. sp.	*Chaetopterus variopedatus* (RENIER)	WESENBERG-LUND
Pinnixa chiloensis, n. sp.	*Arenicola assimilis* EHLERS,	
	var. *affinis* ASHWORTH	WELLS

Family Gecarcinidae

Species erroneously reported from Chile

Cardisoma crassum SMITH, 1870, p. 144, pl. 5.

The reported occurrence of this species in Chile is based upon the inclusion of "Chili" in the distribution of the genus as given by ALCOCK (1900, p. 445), and the statement by RATHBUN (1918, p. 346) that, if this be correct, it is probably *C. crassum* that is found there. The species ranges from San José, Lower California, Mexico, to the mouth of the Tumbes River, Peru.

Ucides occidentalis (ORTMANN), 1897, p. 336 [new name for *Uca laevis* MILNE EDWARDS, 1854].

The source of the Valparaíso (?) record given by RATHBUN (1910, p. 550) has not been found. The species ranges from Lower California to Las Vacas, near Capon, Peru.

Family Grapsidae

Grapsus LAMARCK, 1801

Grapsus grapsus (LINNAEUS)

Restricted synonymy:

Pagurus maculatus CATESBY, 1743, p. 36, pl. 36, fig. 1.

Cancer grapsus LINNAEUS, 1758, p. 630 (type locality, America and Ascension Island).

Grapsus pictus LATREILLE, 1803, p. 69 (type locality, "les îles de l'amérique méridionale"). MILNE EDWARDS and LUCAS, 1844, p. 28. NICOLET, 1849, p. 166. DANA, 1852, p. 336; Atlas, 1855, pl. 21, fig. 1. PORTER, 1899, p. 180.

Grapsus (Goniopsis) pictus, DE HAAN, 1835, p. 33.

?*Grapsus strigosus*, POEPPIG, 1836, p. 136. NICOLET, 1849, p. 167. KINAHAN, 1857, p. 340. RATHBUN, 1910, p. 588. Not *Cancer strigosus* HERBST, 1799.

Grapsus maculatus MILNE EDWARDS, 1853, p. 167, pl. 6, figs. 1—1n (type locality, Antilles). CANO, 1889, pp. 100, 236.

Grapsus webbi MILNE EDWARDS, 1853, p. 167 (type locality, Canary Islands).

Grapsus ornatus MILNE EDWARDS, 1853, p. 168 (type locality, Chile).

Grapsus altifrons STIMPSON, 1860, p. 230 (type locality, Cape San Lucas).

Grapsus grapsus, IVES, 1891, p. 190. ORTMANN, 1894, p. 703. PORTER, 1903, p. 150; 1905, p. 31; 1925, p. 318; 1936b, p. 153; 1936c, p. 338; 1937, p. 21; 1940a, p. 146; 1940b, p. 312; 1941, p. 459. RATHBUN, 1910, pp. 547, 588, pl. 42, fig. 1; 1918, p. 227, pls. 53, 54, text fig. 135.

Previous records:

Peru: Pescadores Islands R. E. COKER (RATHBUN, 1910), Ancon 'Vettor Pisani' (CANO), Gulf of Ancon REISS (ORTMANN), Callao 'Bonite' (MILNE EDWARDS and LUCAS), do 'Vettor Pisani' (CANO), do R. E. COKER (RATHBUN, 1910), ? do U. S. Expl. Exped. (RATHBUN, 1918), San Lorenzo [Island] U. S. Expl. Exped. (DANA), do W. H. JONES (RATHBUN, 1918), Chinchas Islands J. R. KINAHAN (KINAHAN), Chinchas Islands and Mollendo R. E. COKER (RATHBUN, 1910).

Chile: "Chile" (NICOLET), Antofagasta Province J. HERRERA (PORTER, 1940a), Bahía de Taltal A. CAPDEVILLE (PORTER, 1925), Caldera E. GIGOUX (PORTER, 1899), Coquimbo F. T. DELFIN (PORTER, 1903), Valparaíso U. S. Expl. Exped. (DANA), do ACKERMANN (ORTMANN), Juan Fernandez Island F. T. DELFIN, J. SCHEID (PORTER, 1905), Bay of Talcahuano E. POEPPIG (POEPPIG), do (PORTER, 1936b).

Material examined:

Lund University Chile Expedition

Paita, Peru; I. VIGELAND, collector, January 15, 1949; 2♂, 1♀.

Range: From San Benito Islands, Lower California, Mexico, to Bay of Talcahuano, Chile, including the Revilla Gigedos, Galápagos, and Juan Fernandez Islands. In the Atlantic from South Florida to Pernambuco [Recife], Brazil, including Bermuda, the Azores, and Ascension Island. A subspecies inhabits the Indo-Pacific.

Remarks: Since *Grapsus grapsus* is a stenothermal, warmth-limited animal, its occurrence on the Chilean mainland as far south as Valparaíso must be attributed to exceptional circumstances. Particularly does the Talcahuano locality, recorded by POEPPIG under an obscure synonym, require confirmation.

The Lund University specimens from Peru, all immature, measured: males, 16.4 and 18.0 mm; female, 21.4 mm.

Geograpsus Stimpson, 1858

Geograpsus lividus (Milne Edwards)

Restricted synonymy:

Grapsus lividus Milne Edwards, 1837, p. 85 (type locality, Antilles). Dana, 1852, p. 340; 1855, Atlas, pl. 21, figs. 5a—c.

Grapsus brevipes Milne Edwards, 1853, p. 170 (type locality, unknown).

Geograpsus lividus, Stimpson, 1860, p. 230. Kingsley, 1880d, p. 195. Cano, 1889, pp. 100, 237. Rathbun, 1910, p. 588; 1918, p. 232, pl. 55. Porter, 1937, p. 21.

Geograpsus occidentalis Stimpson, 1860, p. 230 (type locality, Cape San Lucas).

Orthograpsus hillii Kingsley, 1880d, p. 194 (type locality, West Indies and Key West, Florida).

Previous records:

Peru: Callao 'Vettor Pisani' (Cano), San Lorenzo Island U. S. Expl. Exped. (Dana), do W. H. Jones (Rathbun, 1918).

Chile: "Chile" F. E. Guérin (Kingsley).

Material examined:

Lund University Chile Expedition

St. M 133. 1♀. Sparse among stones in upper part of tidal belt and above. Black.

Hamburg Museum

Chile: Caleta Coloso; leg. R. Paessler, July 20, 1914; K 26318, 1♀.

Range: From La Paz, Lower California, Mexico, to Caleta Coloso, Chile, including Clipperton and Galápagos Islands. Hawaii. In the Atlantic from Indian Key, Florida, to the state of São Paulo, Brazil.

Remarks: The single female taken by the Lund University Chile Expedition in the harbor at Iquique measured 17.4 mm in length. One cheliped and one leg are detached. The female collected by Captain Paessler at Caleta Coloso measured 20.8 mm in length and 26.1 mm in breadth. These are the first specific locality records for Chile for the species.

Leptograpsus Milne Edwards, 1853

Leptograpsus variegatus (Fabricius)

Restricted synonymy:

Cancer variegatus Fabricius, 1793, p. 450 (type locality, "in Americae meridionalis Insulis").

Grapsus variegatus, Latreille, 1803, p. 71. Milne Edwards and Lucas, 1844, p. 27. Nicolet, 1849, p. 167.

Grapsus personatus Lamarck, 1818, p. 249 (type locality, New Holland).

Grapsus strigilatus White, 1842, p. 78 (type locality, New Zealand).

Grapsus planifrons Dana, 1851a, p. 249 (type locality, Valparaíso); 1852, p. 338; 1855, Atlas, pl. 21, figs. 3a—e. Milne Edwards, 1853, p. 172. Cunningham, 1871, p. 493.

Leptograpsus verreauxi Milne Edwards, 1853, p. 172 (type locality, Australia).

Leptograpsus ansoni Milne Edwards, 1853, p. 172 (type locality, Juan Fernandez Island). de Man, 1890, p. 84.

Leptograpsus gayi MILNE EDWARDS, 1853, p. 172 (type locality, Chile).

Leptograpsus variegatus, MILNE EDWARDS, 1853, p. 172. KINGSLEY, 1880d, p. 196. MIERS, 1886, p. 257. CANO, 1889, pp. 100, 238. ORTMANN, 1894, p. 707. MURRAY, 1895, p. 1120. DOFLEIN, 1899, p. 188. LENZ, 1902, p. 765. PORTER, 1903, p. 150; 1905, p. 29; 1906, p. 135, pl. 12; 1925, p. 318; 1937, p. 23, text fig. 1. RATHBUN, 1910, pp. 547, 588, pl. 45, fig. 2; 1918, p. 234, pl. 56.

Leptograpsus planifrons, CANO, 1889, pp. 92, 99, 238.

Previous records:

Peru: Payta 'Vettor Pisani' (CANO), Callao 'Bonite' (MILNE EDWARDS and LUCAS), do 'Vettor Pisani' (CANO), do U. S. Expl. Exped. (DANA, 1852), Chinchas Islands Copenhagen Museum (RATHBUN, 1918), Mollendo R. E. COKER (RATHBUN, 1910).

Chile: "Chile" (NICOLET), do (MILNE EDWARDS), do Wilkes Exped. (KINGSLEY), do GILLIS and do C. E. PORTER (RATHBUN, 1918), Cavancha L. H. PLATE (LENZ), Cobija Copenhagen Museum (RATHBUN, 1918), Antofagasta H. R. H. PRINCESS THERESE OF BAVARIA (DOFLEIN), do J. N. ROSE (RATHBUN, 1918), Bahía de Taltal A. CAPDEVILLE (PORTER, 1925), Bay of Coquimbo 'Nassau' (CUNNINGHAM), Herradura F. T. DELFIN (PORTER, 1903), ?Los Vilos C. E. PORTER (PORTER, 1906), Valparaíso U. S. Expl. Exped. (DANA, 1851a), do 'Challenger' (MIERS), do 'Vettor Pisani' (CANO), do Mus. Godeffroy (ORTMANN), Juan Fernandez Island (MILNE EDWARDS), do L. H. PLATE (LENZ), Bahia Cumberland, Juan Fernandez Island F. T. DELFIN, and do J. SCHEID (PORTER, 1905), Easter Island [Isla Pascua] (PORTER, 1937).

Material examined:

Lund University Chile Expedition

St. M 123. 3♂, 2♀ (1 ov). In crevices in the rocks.

St. M 124. 3♂, 2♀. In a rockpool and under stones, in the littoral, exposed.

St. M 125. 5♂, 6♀, plus two detached chelipeds. In quiet waters between boulders, middle part of the littoral, to above high water level.

St. M 127. 1♀. Middle part of tidal belt.

St. M 131. 1♂, 2♀. 2 young.

St. M 133. 2♂, 3 young. Sparse among stones, upper part of tidal belt and above.

St. M 134. 2♂, 1♀. Red. Common in rock crevices.

St. M 135. 2♂, 6♀. In rock crevices, in a rockpool around high water level, and in middle part of tidal belt.

St. M 158. 6♂, 4♀ (2 ov).

Hamburg Museum

Chile: Caleta Coloso; leg. R. PAESSLER, July 20, 1914; K 5274, 1♂, 2♀.
Taltal; leg. R. PAESSLER, December 18, 1889; K 3743, 2♂.

Range: From Paita, Peru, to Valparaíso, Chile, including Juan Fernandez and Easter Island. Occurs also in the western Atlantic at Pernambuco [Recife], Brazil, and in the western Pacific at Shanghai and in the Antipodes.

Remarks: The 53 specimens from nine Lund University Chile Expedition localities include males of from 9.2 to 59.4 mm, non-ovigerous females of from 9.6 to 47.5 mm, and ovigerous females of from 20.3 to 36.4 mm, together with young of from 5.7 to 7.2 mm in length. The largest male measures 59.4 × 67.0 mm, the largest female, 47.5 × 54.0 mm. Ovigerous females were taken at Montemar between mid-September and mid-October, and at Tocopilla between January 5 and 8. Collected exclusively ashore, the species was reported both in rocky crevices around high water level and in quiet waters between boulders in the lower part of the littoral.

Pachygrapsus RANDALL, 1840

Pachygrapsus pubescens HELLER

Pachygrapsus pubescens HELLER, 1865, p. 45, pl. 4, fig. 4 (type locality, Chile). RATHBUN, 1910, p. 589; 1918, p. 252, pl. 160, fig. 1. PORTER, 1937, p. 23.

Previous records:

Chile: "Chile" 'Novara' (HELLER).

Material examined: None.

Range: Known only from the type locality above.

Remarks: This species has not been collected again since the type, which is located in the Vienna Museum.

Planes BOWDICH, 1825

Planes cyaneus DANA

Restricted synonymy:

Cancer cantonensis LINNAEUS, 1747, p. 137, pl. 1, figs. 1a—b.

Grapsus pusillus, DE HAAN, 1835, p. 59, pl. 16, fig. 2. Not *Cancer pusillus* FABRICIUS, 1775.

Nautilograpsus minutus, MILNE EDWARDS and LUCAS, 1844, p. 28. NICOLET, 1849, p. 168. JACQUINOT, 1853, p. 78. Not *Cancer minutus* LINNAEUS, 1758.

Planes cyaneus DANA, 1851a, p. 250 (type locality, Pacific Ocean, 28° N. × 174° E.); 1852, p. 347; 1855, Atlas, pl. 22, fig. 1. CHACE, 1951, p. 88 and synonymy.

Nautilograpsus angustatus STIMPSON, 1858, p. 103 (type locality, Pacific Ocean, 34° N. × 155° E.).

Planes minutus, MIERS, 1876, p. 39. RATHBUN, 1910, p. 589; 1918, p. 253, pl. 63. DOFLEIN and BALSS, 1912, p. 39. BALSS, 1924, p. 336. Not *Cancer minutus* LINNAEUS, 1758.

Nautilograpsus pusillus, DE MAN, 1879, p. 69. Not *Cancer pusillus* FABRICIUS, 1775.

Previous records:

Peru: Callao 'Bonite' (MILNE EDWARDS and LUCAS).

Chile: Bay of Valparaíso (NICOLET), Masatierra, Juan Fernandez Islands K. BÄCKSTRÖM (BALSS), off Juan Fernandez Islands W. L. SCHMITT and 40 miles E. of Juan Fernandez Island U. S. Fish. Miss. in Chile (CHACE, 1951), Smith Channel R. PAESSLER (DOFLEIN and BALSS), Port Famine, Strait of Magellan Paris Museum (JACQUINOT).

Material examined:

Hamburg Museum

Chile: Lat. 20° S., Long. 73° W.; leg. H. NISSEN, 1901; K 4006, 1♂, 1♀, 1 young.
Lat. 20° S., Long. 75° W.; leg. H. NISSEN, 1901; K 4068, 1♂, 2♀ ov.
Juan Fernandez Island; leg. C. BOCK, February, 1923; K 26807, 1♂, 3♀.
Smyth Channel; leg. R. PAESSLER, 1887; K 4011, 1♀ ov.
[This is the specimen reported by DOFLEIN and BALSS, above.]

Range: From Humboldt Bay, California, to Port Famine, Strait of Magellan. Widely distributed throughout the Central Pacific.

Remarks: The single male in the Juan Fernandez Island series measured 6.6 mm, the ovigerous females from 8.7 to 9.1 mm in length. The H. NISSEN specimens (K 4068) are of exceptional size, the male measuring 22.8 × 22.5 mm and the larger of

the two ovigerous females 22.5 × 22.0 mm. They were taken from a tortoise-shell sea turtle in the open ocean west of Pisagua. For a complete review of the oceanic crabs of the genera *Planes* and *Pachygrapsus* the reader is referred to CHACE (1951).

Cyrtograpsus DANA, 1851

Cyrtograpsus angulatus DANA

Cyrtograpsus angulatus DANA, 1851a, p. 250 (type locality, Río Negro, Patagonia); 1852, p. 352; 1855, Atlas, pl. 22, figs. 6a—e. RATHBUN, 1910, p. 589; 1918, p. 261, pl. 65, pl. 159, figs. 7, 8. PORTER, 1936b, p. 153; 1936c, p. 338; 1937, p. 23.
Cyrtograpsus cirripes SMITH, 1869c, p. 11, pl. 1, fig. 3 (type locality, Rio de Janeiro).

Previous records:

Peru: San Lorenzo Island H. E. AMES (RATHBUN, 1910, 1918).
Chile: Bay of Talcahuano (PORTER, 1936b).

Material examined: None.

Range: From San Lorenzo Island, Peru, to Bay of Talcahuano, Chile. In the Atlantic from Rio de Janeiro, Brazil, to Río Negro, Argentina.

Remarks: This species is said by RATHBUN (1918, p. 262) to be found "from Rio de Janeiro, Brazil, southward to Patagonia, thence northward on the Pacific coast to Peru." However, records for Chile south of Talcahuano are lacking. A divided range may present taxonomic difficulties, but it seems preferable to implying continuity of range where such continuity cannot be shown to exist.

Hemigrapsus DANA, 1851

Hemigrapsus crenulatus (MILNE EDWARDS)

Restricted synonymy:

Cyclograpsus crenulatus MILNE EDWARDS, 1837, p. 80 (type locality, "habite?").
Trichodactylus granarius NICOLET, 1849, p. 151, crust. pl. 1, figs. 3, 3a—c (type locality, Chile). CUNNINGHAM, 1871, p. 492.
Hemigrapsus crenulatus, DANA, 1852, p. 349; 1855, Atlas, pl. 22, figs. 3a—d. RATHBUN, 1898b, p. 604; 1910, p. 589; 1918, p. 266, pl. 68. PORTER, 1936b, p. 153; 1936c, p. 338; 1937, p. 23.
Trichodactylus granulatus [for *granarius*], MILNE EDWARDS, 1853, p. 216.
Lobograpsus crenulatus, A. MILNE EDWARDS, 1869b, p. 173.
?*Heterograpsus barbimanus*, CANO, 1889, pp. 93, 99, 243. Not *H. barbimanus* HELLER, 1865.
Heterograpsus sanguineus, LENZ, 1902, p. 765. Not *H. sanguineus* (MILNE EDWARDS)=*Grapsus sanguineus* DE HAAN, 1835.

Previous records:

Chile: "Chile" (NICOLET), Cavancha L. H. PLATE (RATHBUN, 1918), Talcahuano (PORTER, 1936b), Lota 'Albatross' (RATHBUN, 1898b), "Puerto Montt bei Calbuco" L. H. PLATE (LENZ), Chiloé Island 'Vettor Pisani' (CANO), do 'Hassler' (RATHBUN, 1918), Ancud 'Nassau' (CUNNINGHAM), Port Laguna [Puerto Lagunas] 'Nassau' (CUNNINGHAM), Port Otway [Puerto Barroso]

'Albatross' (RATHBUN, 1898b), N. of Darwin Channel, Chonos Archipelago 'Nassau' (CUNNINGHAM).

Material examined:

Lund University Chile Expedition

St. M 3. 18♂, 32♀ (16 ov). Very common under stones in middle part of tidal belt.
St. M 7. 1♂, 2♀ ov.
St. M 8. 3♂, 1♀.
St. M 10. 2♂. Grey. In rock pools. Sparse.
St. M 11. 1♀, under stone.
St. M 13. 11♂, 4♀ (1 ov). Grey-brown.
St. M 30. 11♂, 12♀ (5 ov), 6 young. Common in holes in sand. Some specimens captured among Balanida, *Elminius kingii*, on piles.
St. M 31. 4♂, 8♀. Common among Balanida, *Elminius kingii*.
St. M 33. 1♂, under stone.
St. M 37. 53♂, 32♀. Black-green-brown. Common in the lower and middle part of the littoral under stones, sparse in upper part. Rather lively.
St. M 50. 1♂, 1♀.
St. M 59. 52♂, 66♀. Black. At all levels in the tidal belt.
St. M 76. 2♂, 2♀. Black.
St. M 82. 4 young.
St. M 90. 8♂, 4♀, 1 young. Grey.
St. M 91. 9♂, 3♀. Grey.

Hamburg Museum

Chile: Talcahuano, shore; leg. R. PAESSLER, 1902; K 4112, 2♂, 2♀ (1 ov).
Coronel; leg. P. BRUNST, 1902; K 3816, 3♀.
Coronel; leg. R. PAESSLER, April 4, 1903; K 3811, 4♂, 1♀.
Corral; leg. A. GASSMANN, 1895; K 3815, 1♂; K 4116, 2♂.
Corral, 4 fms; leg. R. PAESSLER, 1902; K 4117, 1♂, 1♀.
Corral; leg. R. PAESSLER, August 5, 1904; K 3810, 2♀.

Range: From Cavancha to north of Darwin Channel, Chonos Archipelago, Chile. The species also occurs in New Zealand. To 11 m, as recorded below.

Remarks: Some 355 specimens of this abundant shore crab were collected from 16 Lund University Expedition localities. Included are males of from 7.3 to 34.6 mm, non-ovigerous females from 6.4 to 24.6 mm, ovigerous females from 8.8 to 22.3 mm, and young from minute size to 4.0 (♀) and 5.6 (♂) mm in length, at which size sex is readily determinable. The largest male measures 34.6 × 40.0 mm; the largest female is a 25.2 mm specimen in the Hamburg Museum collection. At Punta Pilluco in the Seno Reloncaví, 16 of 30 females collected in the November 10—29 period were ovigerous, while no egg-bearing females were taken in the January-April period. At Bahía Ralún in the Estero Reloncaví, three of 10 females collected on January 5 bore ova, while no egg-bearing females were taken during the balance of the January-April period. By March 31 minute young were encountered. Two ovigerous females were taken in the Golfo de Quetalmahué on November 17.

Although collected predominantly ashore under stones or on pilings, *Hemigrapsus crenulatus* was dredged three times in depths of 0—6, 2—5, and 11 m. The sand holes at *St. M 30* led to long communicating tubes, 10—15 cm in depth. The color of specimens from *St. M 3* was reported as variable, grey-brown, blue-grey or olive brown with some lighter parts. The protuberances of the carapace were often blue-black, the parts in between brown. The claws and underside were white.

Through the courtesy of Professor L. R. RICHARDSON of Victoria College, Wellington, it has been possible to examine specimens (3♂, 1♀) of this species from New Zealand. Only minute differences, such as amount of granulation and acuteness of anterolateral teeth, are discernible. This is the more remarkable considering the vast distance that separates the two populations. The male first pleopods correspond in detail.

Aratus MILNE EDWARDS, 1853

Aratus pisoni (MILNE EDWARDS)

Restricted synonymy:

Sesarma pisonii MILNE EDWARDS, 1837, p. 76, pl. 19, figs. 4, 5 (type locality, Antilles).

Aratus pisonii, MILNE EDWARDS, 1853, p. 187. RATHBUN, 1918, p. 323, pl. 96. GARTH, 1948, p. 57.

Aratus pisoni, RATHBUN, 1910, pp. 548, 590, pl. 50, fig. 4. DOFLEIN and BALSS, 1912, p. 39.

Previous records:

Peru: Near Capon R. E. COKER (RATHBUN, 1910).

Chile: Chacabuco, Smith Channel R. PAESSLER and H. PETERSEN (DOFLEIN and BALSS). [Note: Chacabuco is on Seno Aisén of Canal Moraleda, not Canal Smyth.]

Material examined:

Hamburg Museum

Peru: Mollendo; leg. SCHILLING, date? (ded. R. PAESSLER, 1902); K 4385, 1♂.

Chile: Chacabuco [not Smith Channel]; leg. R. PAESSLER and H. PETERSEN, date?; K 4384, 1 young ♂, 2♀. [These specimens reported by DOFLEIN and BALSS, above.]

West coast of South America: leg. E. KRAUSE, date? (ded. 1903); K 4255, 1 young ♀.

Range: From Tenacatita, Mexico, as extended above to Mollendo, Peru. Extralimital: Chacabuco, Chile. In the Atlantic from Tampa and Miami, Florida, to São Paulo, Brazil.

Remarks: The range of *Aratus pisoni* is mangrove-limited elsewhere, and it would be exceptional if this were not true on the South American west coast. One must conclude, therefore, either that mangroves occur in isolated favorable localities far south of their normally expected range, or that the Chacabuco, and perhaps even the Mollendo specimens are incorrectly labeled as to locality. Confirmation of the Chilean occurrence of the mangrove crab is much to be desired.

Cyclograpsus MILNE EDWARDS, 1837

Cyclograpsus cinereus DANA

Cyclograpsus cinereus DANA, 1851a, p. 251 (type locality, "ad oras Chilenses"); 1852, p. 360; 1855, Atlas, pl. 23, figs. 3a—d. CUNNINGHAM, 1871, p. 493. RATHBUN, 1910, p. 590; 1918, p. 327, pl. 98. PORTER, 1925, p. 318; 1936b, p. 153; 1936c, p. 338; 1937, p. 23.

Cyclograpsus eydouxi MILNE EDWARDS, 1853, p. 198. Not *Grapsus eydouxi* MILNE EDWARDS, 1853.

Cyclograpsus punctatus, KINAHAN, 1857, p. 342. Not *C. punctatus* MILNE EDWARDS, 1837.

Previous records:

Panama: Panama M.C.Z. (RATHBUN, 1910, 1918).

Peru: Ancon 'Vettor Pisani' (CANO), Callao J. R. KINAHAN (KINAHAN), San Lorenzo Island W. H. JONES, and do H. E. AMES (RATHBUN, 1918), Chinchas Islands Copenhagen Museum (RATHBUN, 1918).

Chile: Taltal A. CAPDEVILLE (PORTER, 1925), Valparaíso U. S. Expl. Exped. (DANA), do (RATHBUN, 1918), Talcahuano (PORTER, 1936), Lota, Bay of Arauco 'Nassau' (CUNNINGHAM), "Iquique to Calbuco" (PORTER, 1925).

Material examined:

Lund University Chile Expedition

St. M 22. 11♂, 13♀ (2 ov). Brown.

St. M 37. 53♂, 84♀ (1 ov). Brown, rather lively. Under stones in the middle and upper part of the tidal belt. Very common locally.

St. M 59. 51♂, 47♀, 5 young. Brown. In middle and upper part of the tidal belt.

St. M 90. 9♂, 10♀. Brown. In the upper part of the tidal belt.

St. M 91. 1♂, 2♀. Brown. Fairly common in upper part of the tidal belt.

St. M 120. 19♂, 30♀ (23 ov), 2 young. Brown. Very common in upper part of the tidal belt.

St. M 121. 2♂, 2♀ (1 ov). In the upper part of the tidal belt.

St. M 122. 26♂, 21♀ (8 ov). Brown. Common under stones in upper part of tidal belt. Common near high tide level, but lives to about 1 m above.

St. M 123. 1♀.

St. M 125. 15♂, 12♀ (4 ov). Brown. Above high water level.

St. M 126. 2♂, 1♀. Rather common above high tide level.

St. M 133. 26♂, 24♀ (13 ov), 4 young. Brown. Common among stones in upper part of tidal belt and above.

St. M 135. 3♂, 1♀ ov. Rockpool, above high water level.

Hamburg Museum

Chile: Caleta Buena, shore; leg. R. PAESSLER, 1902; K 3984, 1♀.
Caleta Buena, shore; leg. R. PAESSLER, November 17, 1909; K 4476, 3♂, 9♀ (1 ov).
Caleta Buena, shore; leg. R. PAESSLER, August 6, 1911; K 4477, 5♂, 2♀.
Iquique, shore; leg. R. PAESSLER, 1902; K 4503, 5♂, 8♀ (5 ov).
Tocopilla, shore; leg. R. PAESSLER, 1902; K 4480, 5♂, 3♀ (2 ov).
Tocopilla, shore; leg. R. PAESSLER, 1904; K 4479, 2♂, 3♀ (2 ov).
Mejillones del Sur, shore; leg. R. PAESSLER, June 12, 1912; K 4470, 3♂, 7♀ (3 ov).
Antofagasta, shore; leg. R. PAESSLER, 1904; K 4478, 1♂, 4♀ (2 ov).
Antofagasta, shore; leg. R. PAESSLER, November 8, 1913; K 6769, 1♀.
San Vicente at Talcahuano; leg. R. PAESSLER, December 8, 1909; K 4481, 1♂, 11♀ ov.
Chile; leg. A. PLAGEMANN, 1909; K 15085, 1♂.

Range: From Ancon, Peru, to Calbuco, Chile. Extralimital: Panama.

Remarks: The extensive Lund University Chile Expedition series numbers 472 specimens from 13 localities. Size range of adult specimens, as shown by selected samples of breeding populations from widely separated localities, are as follows:

Locality	*Latitude*	*Date*	*Number*	*Sex*	*Size Range*
Iquique	20° S	July 2	25	♂	4.2— 7.5 mm
			21	♀	4.0— 8.2
			(13)	ov ♀	6.0— 8.2
Herradura	30° S	June 22	15	♂	5.8— 9.5
			12	♀	5.7— 9.1
			(4)	ov ♀	7.9— 9.8

Locality	*Latitude*	*Date*	*Number*	*Sex*	*Size Range*
Lota	37° S	June 10	23	♂	5.3—11.0
			15	♀	5.5—11.6
			(4)	ov ♀	8.4—11.6
San Vicente	37° S	June 8	16	♂	5.4—13.5
			26	♀	5.5—13.7
			(20)	ov ♀	8.3—13.7
Punta Pilluco	41° S	Jan-Apr	11	♂	5.7—12.7
			26	♀	7.7—14.0

In the above table the increase in size with increasing Latitude is at once apparent. Minimum size of young is 2.0 mm at Iquique, 2.9 mm at San Vicente, and 3.5 mm at Punta Pilluco in the Seno Reloncaví. Ovigerous females were encountered in the Golfo de Ancud on December 16, in the Seno Reloncaví from January to April, in Bahía San Vicente on June 8 and 9, in the Bahía de Lota on June 10, at Herradura on June 22, and at Iquique on July 2—5. Hamburg Museum records add Caleta Buena on November 17, San Vicente on December 8, and Mejillones del Sur on June 12. The latter records are from different years.

Through the kindness of Mr. JACQUES FOREST of the Paris Museum it has been possible to examine a specimen of *Cyclograpsus eydouxi* MILNE EDWARDS determined by E. L. BOUVIER and compared with specimens collected by EYDOUX and by FONTAINES and identified by H. and/or A. MILNE EDWARDS. It proves to be identical with DANA's species. *C. eydouxi* should not be confused with *Grapsus eydouxi* MILNE EDWARDS, a synonym of *Pachygrapsus crassipes* RANDALL.

Cyclograpsus punctatus MILNE EDWARDS

Restricted synonymy:

Cyclograpsus punctatus MILNE EDWARDS, 1837, p. 78 (type locality, Indian Ocean). LENZ, 1902, p. 766. PORTER, 1906, p. 136, text fig. 17; 1937, p. 23. RATHBUN, 1910, p. 590; 1918, p. 328, pl. 99, text fig. 153.

Gnathochasmus barbatus MACLEAY, 1838, p. 65, pl. 3 (type locality, South Africa).

Sesarma barbata, KRAUSS, 1843, p. 45, pl. 3, figs. 3a—c.

Cyclograpsus minutus JACQUINOT, 1852, Atlas, Crust., pl. 6, figs. 8, H; 1853, p. 75 (type locality, Talcahueno [*sic*], Chile). NOBILI, 1901a, p. 13; 1902, p. 237.

Previous records:

Chile: Los Vilos J. N. THOMAS and Valparaíso C. E. PORTER (PORTER, 1906), Juan Fernandez Island L. H. PLATE (LENZ), Talcahuano Paris Museum (JACQUINOT), San Vicente F. SILVESTRI (NOBILI, 1901a).

Material examined:

Hamburg Museum

Chile: Juan Fernandez Island; leg. C. BOCK, February, 1923; K 5884, 5♂, 4♀, 3 young.

Range: From Los Vilos to San Vicente, Chile, including Juan Fernandez Island. Occurs also in South Africa, the Indian Ocean, and at Hong Kong.

Remarks: The Juan Fernandez Island specimens measured: males, 7.5 to 10.0 mm; females, 5.9 to 13.4 mm; young, from 4.4 mm in length. The largest specimen, the 13.4 mm female, measured 16.7 mm in width.

Mr. JACQUES FOREST writes that there is a dry, mutilated specimen in the Paris Museum collection labeled "*Cyclograpsus minutus* — Chili" that he thinks may be the type of JACQUINOT's species. Since it lacks all legs except the right cheliped, it is not possible to examine the meral teeth that distinguish *C. punctatus* from the preceding *C. cinereus*.

Plagusia LATREILLE, 1804

Plagusia immaculata LAMARCK

Restricted synonymy:

Plagusia immaculata LAMARCK, 1818, p. 247 (type locality, "la Méditerranée? Je la crois de l'Ocean Indien"). RATHBUN, 1918, p. 335, pl. 103. GARTH, 1948, p. 57.

Plagusia tuberculata, RATHBUN, 1898b, p. 605; 1910, p. 590. DOFLEIN and BALSS, 1912, p. 39. Not *P. tuberculata* LAMARCK, 1818.

Previous records:

Chile: Chacabuco, Smith Channel PETERSEN (DOFLEIN and BALSS). [Note: Chacabuco is on Seno Aisén of Canal Moraleda, not Canal Smyth.]

Material examined:

Hamburg Museum

Chile: Chacabuco, Smyth Channel; leg. R. PAESSLER and H. PETERSEN; K 4353, 2♂, immature.

Range: From Punta Arenas, Costa Rica, to Santa Elena Bay, Ecuador. Extralimital: Chacabuco, Chile. Indo-Pacific.

Remarks: The Hamburg Museum specimens examined are believed to be the same ones earlier reported by DOFLEIN and BALSS (1912) under the name of *Plagusia tuberculata*. The identification has been cut off the top of the original label, which now reads only "FRANZ DOFLEIN determ.", while a separate label in another hand gives the name of *Plagusia immaculata*. HOLTHUIS (1952, p. 55) reports that the DOFLEIN and BALSS specimens were reviewed by BALSS in 1934, and in the interim RATHBUN (1918) had come to a different conclusion with respect to the correct name to be assigned to the common eastern Pacific species. Thus, with the exception of a single record from Cape San Lucas (STIMPSON, 1860, p. 231), *P. tuberculata* may be regarded as a western Pacific form.

Plagusia chabrus (LINNAEUS)

Restricted synonymy:

Cancer chabrus LINNAEUS, 1758, p. 628 (type locality, "in Oceano Indico").

Plagusia capensis DE HAAN, 1835, p. 58 (type locality, Cape of Good Hope).

Plagusia tomentosa MILNE EDWARDS, 1837, p. 92 (type locality, Cape of Good Hope and Chile). NICOLET, 1849, p. 170.

Plagusia chabrus, WHITE, 1846a, p. 497. LENZ, 1902, p. 767. PORTER, 1903, p. 150; 1905, p. 29; 1906, p. 137; 1925, p. 318, pl. 8; 1937, p. 23, pl. 4. RATHBUN, 1910, p. 591; 1918, p. 336, pl. 104.

Plagusia gaimardi MILNE EDWARDS, 1853, p. 178 (type locality, Tongatabu).

Previous records:

Chile: "Chile" Paris Museum (MILNE EDWARDS), do (NICOLET), Bahía de Taltal A. CAPDEVILLE (PORTER, 1925), Coquimbo F. T. DELFIN (PORTER, 1903), Los Vilos J. N. THOMAS (PORTER, 1906), Juan Fernandez Island L. H. PLATE (LENZ), do F. T. DELFIN (PORTER, 1905).

Material examined: None.

Range: From Bay of Taltal to Los Vilos, Chile; Juan Fernandez Island. Occurs also off South Africa, South Australia, Tasmania, New Zealand, and in the Tonga or Friendly Islands.

Remarks: Writers who have treated the species recently, including BARNARD (1950, p. 136, fig. 26, a—f) from the South African standpoint, TWEEDIE (1941, p. 22, fig. 8) from the Tasmanian, and CHILTON and BENNETT (1929, p. 774) from the New Zealandian, although disagreeing on which name to apply, are in accord in granting it circum-subantarctic distribution. In the absence of specimen material the writer is not in a position to determine the relationship of the Chilean form to the South African, nor to the Tasmanian, which was illustrated by RATHBUN (1918, pl. 104) in lieu of an American specimen. TESCH (1918, p. 129, footnote 2) states that he felt sure of DE HAAN's *Plagusia capensis*, whereas he was in doubt about LINNAEUS's *Cancer chabrus*, which he gives with a query. Without prejudice to the nomenclatorial question involved, it seems less confusing to follow the synonymy of RATHBUN.

Species erroneously reported from Chile

Grapsus strigosus (HERBST)

DANA (1852, p. 338) described a mature male specimen, carapace length 2 inches, carapace breadth 2 inches, 2 lines, which he attributed to Valparaíso, Chile. Some of the characters mentioned are indeed those of *G. strigosus* rather than *G. pictus* (a synonym of *G. grapsus*), particularly the shorter epistome and the tridentate distal lower border of the merus of the last pair of walking legs. Moreover, his figure of the maxilliped (1885, Atlas, pl. 21, fig. 2) approaches that of *G. strigosus* rather than *G. grapsus*, according to S. K. Banerjee (*in litteris*), who is familiar with both forms. In view of the fact DANA recognized both species and differentiated between them correctly, it is probable that he had the Indo-West Pacific species before him, and that a transposition labels was responsible for his attributing it to Chile. This is not true of POEPPIG (1836, p. 136), whose material was of definite Chilean origin and must therefore be considered *G. grapsus*.

Pachygrapsus crassipes RANDALL, 1839, p. 127.

Records of the occurrence of this temperate North American species in Chilean waters are based upon the type locality "Chili" given for *Grapsus eydouxi* MILNE EDWARDS (1853, p. 170), a synonym of *Pachygrapsus crassipes* RANDALL. That this locality is in error is the opinion of

HIATT (1948, p. 137), who cites correspondence with Dr. CARLOS E. PORTER establishing the non-occurrence of *P. crassipes* on Latin American shores.

Percnon gibbesi (MILNE EDWARDS), 1853, p. 180.

In a footnote PORTER (1937, p. 23) states that he has not seen *P. gibbesi*, said by RATHBUN (1918, p. 337) to occur in Chile. Under the name *Percnon planissimum* the species was earlier reported by RATHBUN (1910, p. 591) as ranging from Cape San Lucas to Chile. The source of this record is not known.

Family Ocypodidae

Ocypode WEBER, 1795

Ocypode occidentalis STIMPSON

Restricted synonymy:

Ocypoda occidentalis STIMPSON, 1860, p. 229 (type locality, Cape San Lucas).

Ocypoda gaudichaudii?, LOCKINGTON, 1877b, p. 145. Not *Ocypode gaudichaudi* MILNE EDWARDS and LUCAS, 1843.

Ocypoda kuhlii, var. *occidentalis*, MIERS, 1882, p. 386.

?*Ocypoda urvillei*, DOFLEIN, 1899, p. 189. Probably not *Ocypode urvillei* MILNE EDWARDS, 1837 [=*O. ceratophthalma* (Pallas), 1772].

Ocypode occidentalis, RATHBUN, 1910, p. 591; 1918, p. 372, pl. 129, figs. 2, 3. CRANE, 1941b, p. 308, pl. 2, fig. 5, text figs. 3, 4E, F, 5A, C, E, G, 6A, C, 7A, B.

Previous records:

Peru: Ancon G. KEIFFER (RATHBUN, 1918), ?Mollendo H.R.H. PRINCESS THERESE OF BAVARIA (DOFLEIN).

Material examined:

Hamburg Museum

Chile: Iquique; leg. F. BEUMER, May, 1913; K 6811, 1 young.

Range: From Turtle Bay, Lower California, Mexico, as extended above to Iquique, Chile.

Remarks: Since the young of *Ocypode* under 7 mm are said by CRANE (1941, p. 298) to be superficially indistinguishable as to species, the 6.1 mm specimen above would be insufficient evidence on which to base the occurrence of *O. occidentalis* in northern Chile were it not for the reliable means of identification provided by the relative proportions of the ischium of the third maxilliped. In a key provided by the same author (*Op. cit.*, p. 299), the breadth of this segment in *O. occidentalis* is said to be from 58 to 69 per cent of its length, while in *O. gaudichaudi* the corresponding proportion is from 77 to 85 per cent. The measurements of the ischium of the Iquique specimen, breadth 0.9 mm, length 1.3 mm, give a percentage figure of 69, thus clearly identifying it as *O. occidentalis*.

It should be noted that while DOFLEIN distinguished two species from among young *Ocypode* at Mollendo, one of which RATHBUN (1918, p. 372, footnote) considered to be *O. occidentalis*, KOEPCKE and KOEPCKE (1953, p. 7) have not found

this species in the course of extensive field work on *O. gaudichaudi* in Peru. Confirmation of the occurrence of *O. occidentalis* in this portion of its range by the finding of adult specimens, which are nocturnal, is highly desirable.

Ocypode gaudichaudi Milne Edwards and Lucas

Restricted synonymy:

Ocypoda gaudichaudii Milne Edwards and Lucas, 1843, Atlas, pl. 11, figs. 4, 4a—b; 1844, p. 26 (type locality, shores of Chile). Nicolet, 1849, p. 163. Dana, 1852, p. 329. Milne Edwards, 1852, p. 142. Cano, 1889, pp. 91, 99, 100, 230. Doflein, 1899, p. 189.

Ocypoda gaudichaudi, Kingsley, 1880c, p. 181. Miers, 1882, p. 383, pl. 17, figs. 6, 6a. Lenz, 1902, p. 767. Porter, 1903, p. 150.

Ocypode gaudichaudii, Rathbun, 1904a, p. 190; 1910, pp. 550, 591, pl. 43, fig. 2; 1918, p. 373, pl. 129, fig. 1, pl. 130, fig. 1. Crane, 1941b, p. 299, pl. 1, fig. 1, pl. 2, figs. 3, 4, text figs. 2, 4A, B, C, D, 5B, D, F, H, 6B, D, 7E, F. Koepcke and Koepcke, 1953, p. 1, figs. 1, 5A, 6E, F, 7A, B, C, 9, 12, 13, 14.

Ocypode gaudichaudi, Porter, 1913a, p. 314, pl. 12, figs. 3, 3a, 3b; 1917b, p. 154, pl. 9—A; 1940a, p. 146; 1940b, p. 312; 1941, p. 459.

Previous records:

Peru: Las Vacas, near Capon, Lobos de Tierra [Islands], Chimbote, and Ancon R. E. Coker (Rathbun, 1910); Ancon and Callao 'Vettor Pisani' (Cano), Callao (Milne Edwards), Mollendo H. R. H. Princess Therese of Bavaria (Doflein).

Chile: Shores of Chile Gaudichaud and Fontaines (Milne Edwards and Lucas), Chile (Nicolet), do F. E. Guérin (Kingsley), do Hennah (Miers), Iquique and Cavancha L. H. Plate (Lenz), Antofagasta Province J. Herrera (Porter, 1940a), Caldera E. Gigoux and Coquimbo F. T. Delfin (Porter, 1903), Quintero F. T. Delfin (Porter, 1913a), Valparaíso U. S. Expl. Exped. (Dana), do M. C. Z. (Rathbun, 1918).

Material examined:

Lund University Chile Expedition

St. M 134. 2♂, 2♀. Extremely common on sandy beach.

Hamburg Museum

Peru: Chimbote; leg. B. Jansen, 1906; K 2926, 3 young.
Mollendo; leg. R. Paessler, November 13, 1909; K 2944, 1♂.
Chile: Arica; leg. R. Paessler, 1902; K 2925, 5 young.
Iquique, shore; leg. R. Paessler, 1896; K 2945, 1 young.
West coast of South America; leg. E. Krause, 1903; K 2947, 1 young.

Range: From Gulf of Fonseca, El Salvador, to Valparaíso, Chile. Galápagos Islands.

Remarks: The short series collected by the Lund University Chile Expedition at Iquique contains only one specimen of any size, a female measuring 28.0 mm long and 35.3 mm wide. Young males measure 12.5 and 12.7 mm, and a young female 15.0 mm in length. The young are mottled and resemble to a remarkable degree the salt-and-pepper sand grains found in the bottle with them. The Hamburg Museum series from Chimbote contains young of 7.7, 11.1, and 14.0 mm, of which

all but the smallest show the ocular style. The series from Arica contains young of from 6.6 to 12.0 mm, of which the largest, a female, shows the style. Of the Hamburg Museum specimens only the 17.4 mm male from Mollendo shows both the clipped fingers and the stalked eyes that distinguish the adults of this species from those of the preceding *Ocypode occidentalis*.

Uca Leach, 1814

Uca insignis (Milne Edwards)

?Ocypoda nigra Molina, 1810, p. 187.

Acanthoplax insignis Milne Edwards, 1852, p. 151, pl. 4, fig. 23 (type locality, Chile); 1854, p. 162, pl. 11, figs. 1—16.

Gelasimus (Acanthoplax) excellens Gerstaecker, 1856, p. 138 (type locality, Veragua, Panama).

Gelasimus armatus Smith, 1870, p. 123, pl. 2, fig. 5, pl. 3, figs. 4—4d, male (type locality, Gulf of Fonseca).

Gelasimus ornatus Smith, 1870, p. 125, pl. 2, figs. 9—9a, pl. 3, figs. 5—5c, female (type locality, west coast of Central America).

Gelasimus insignis, Smith, 1870, p. 126.

Uca insignis, Rathbun, 1910, pp. 551, 592, pl. 43, fig. 1; 1918, p. 385, pl. 161, figs. 5—15. Porter, 1913a, p. 317; 1917b, p. 158, text fig. 10. Crane, 1941a, p. 173, text fig. 5.

Previous records:

Peru: Salt marshes back of Chulliyache, on Bay of Sechura R. E. Coker (Rathbun, 1910).
Chile: "Chile" Paris Museum (Milne Edwards).

Material examined: None.

Range: From Gulf of Fonseca, El Salvador, to Chile (exact locality unknown).

Remarks: Molina's name, the black Ocypoda, might be applied with equal justification to *Uca princeps* (Smith, 1870), particularly in view of the fact that neither species has been taken in recent years further south than Sechura Bay, Peru. Confirmation of the Chilean record of Milne Edwards is needed.

Uca macrodactyla (Milne Edwards and Lucas)

Gelasimus macrodactylus Milne Edwards and Lucas, 1843, Atlas, pl. 11, figs. 3, 3a; 1844, p. 27 (type locality, shores of Valparaíso). Nicolet, 1849, p. 165.

Gelasimus annulipes, Kingsley, 1880b, p. 148 (part: the Valparaíso locality). Not *G. annulipes* Milne Edwards, 1837.

Uca macrodactyla, Nobili, 1901b, p. 49. Porter, 1913a, p. 316, pl. 2, figs. 1, 1a; 1917b, p. 158, pl. 9—B. Crane, 1941a, p. 178, text figs. 4G, 5.

Uca macrodactylus, Rathbun, 1910, p. 592; 1918, p. 404, pl. 143.

Previous records:

Chile: Quintero C. E. Porter (Porter, 1913a), shores of Valparaíso A. d'Orbigny (Milne Edwards and Lucas).

Material examined: None from Chile. The species is represented in the collection of the Allan Hancock Foundation by specimens from Colombia.

Range: From Guaymas, Mexico, to Valparaíso, Chile. Galápagos Islands.

Remarks: PORTER's record from Quintero, above, would appear to provide confirmation of the continued existence of the species in the environs of Valparaíso, the type locality.

Uca stenodactyla (MILNE EDWARDS and LUCAS)

Gelasimus stenodactylus MILNE EDWARDS and LUCAS, 1843, Atlas, pl. 11, figs. 2, 2a; 1844, p. 26 (type locality, shores of Valparaíso). NICOLET, 1849, p. 165. KINGSLEY, 1880b, p. 154.
Gelasimus gibbosus SMITH, 1870, p. 140, pl. 2, fig. 11, pl. 4, fig. 8 (type locality, Gulf of Fonseca).
Uca stenodactyla, ORTMANN, 1897, p. 356 (part: the Gulf of Fonseca and Valparaíso localities). PORTER, 1913a, p. 315, pl. 2, figs. 2, 2a; 1917b, p. 157, pl. 9—C. CRANE, 1941a, p. 195, pl. 4, fig. 15, pl. 5, fig. 21, pl. 6, fig. 28, pl. 9, figs. 41, 42, text figs. 4Q, 5.
Uca gibbosa, HOLMES, 1900, p. 77.
Uca stenodactylus, RATHBUN, 1910, p. 592; 1918, p. 416 (part: not pl. 152, fig. 3; not pl. 153).

Previous records:

Chile: Shores of Valparaíso A. D'ORBIGNY (MILNE EDWARDS and LUCAS), Bay of Valparaíso (NICOLET), Valparaíso, Quintero, and Algarrobo C. E. PORTER (PORTER, 1913a).

Material examined: None.

Range: From Gulf of Fonseca, El Salvador, to Valparaíso, Chile.

Remarks: As with the preceding species, the records of Dr. CARLOS E. PORTER from Quintero and Algarrobo would appear to substantiate the continued existence of *Uca stenodactyla* in the same general area as that from which it was originally described.

Euplax MILNE EDWARDS, 1852

Euplax leptophthalma MILNE EDWARDS

Euplax leptophthalma MILNE EDWARDS, 1852, p. 160 (type locality, Chile). RATHBUN, 1910, p. 593; 1918, p. 424. PORTER, 1913a, p. 317; 1917b, p. 159.

Previous records:

Chile: "Chile" Paris Museum (MILNE EDWARDS).

Material examined: None.

Range: Known only from the type locality above. The genus is widely distributed throughout the Indo-Pacific, including Australia.

Remarks: *Euplax leptophthalma* is one of a very few Chilean species not seen by either Dr. M. J. RATHBUN or Dr. C. E. PORTER.

Summary

At present 101 species of Crustacea Decapoda Brachyura have been or are currently reported from Chile. Of this number from 27 to 32, depending on the criteria applied, should be excluded from the presently recognized fauna, since the records on which their Chilean occurrence depends have been shown to be erroneous or are at best doubtful. These include 16 species with non-Chilean type localities, of which *Portunus pelagicus* (LINNAEUS) and *Grapsus strigosus* are Indo-Pacific, *Pinnotheres globosum* JACQUINOT Oriental, *Pseudothelphusa dentata* (LATREILLE) tropical west Atlantic, *Libinia spinosa* MILNE EDWARDS south Atlantic, *Cancer oregonensis* (DANA) and *Pachygrapsus crassipes* RANDALL north Pacific, *Mithrax* (*Mithrax*) *belli* GERSTAECKER and *Mithrax* (*Mithraculus*) *nodosus* BELL Galápagan, *Pseudothelphusa chilensis* (MILNE EDWARDS and LUCAS) Peruvian, and *Hepatus kossmanni* NEUMANN, *Eriphia squamata* STIMPSON, *Cardisoma crassum* SMITH, *Ucides occidentalis* (ORTMANN), *Aratus pisoni* (MILNE EDWARDS), and *Percnon gibbesi* (MILNE EDWARDS) Panamic species occurring south to Peru. Included also are 16 species having either "Chile" or, in two cases, Valparaíso as their purported type locality, of which *Ozius rugosus* MILNE EDWARDS and LUCAS [a synonym of *Lydia tenax* (RÜPPELL)] is west Indian Ocean, *Atelecyclus chilensis* MILNE EDWARDS is east Atlantic, *Potamon* (*Geothelphusa*) *chilensis* (HELLER) and *Pachygrapsus pubescens* HELLER are not only non-Chilean, but probably non-American as well, *Chionoecetes chilensis* STREETS [a synonym of *C. opilio* (O. FABRICIUS)] is boreal Pacific, *Leucippa pentagona* MILNE EDWARDS, *Epialtus bituberculatus* MILNE EDWARDS, and *Libinia subspinosa* STREETS (a synonym of *L. dubia* MILNE EDWARDS) are west Atlantic, with *Panopeus convexus* A. MILNE EDWARDS a possible synonym of the Atlantic *P. occidentalis* SAUSSURE, *Leptodius lobatus* A. MILNE EDWARDS (a synonym of *L. cooksoni* MIERS) and *Eriphia granulosa* A. MILNE EDWARDS are Galápagos Islands endemics, *Persephona orbiculata* BELL, *Portunus* (*Portunus*) *asper* (A. MILNE EDWARDS), *Heteractaea lunata* (MILNE EDWARDS and LUCAS), *Panopeus chilensis* MILNE EDWARDS and LUCAS, and *Uca insignis* MILNE EDWARDS are Panamic species not presently found south of Ecuador or Peru. In general, species known to occur in remote areas are treated as erroneously reported from Chile, while species occupying contiguous territory are retained as tentative members of the Chilean fauna pending confirmation of doubtful early records. Five of these are included in the following discussion.

Of the remaining 74 species that constitute the restricted fauna, one, *Trichodactylus* (*Trichodactylus*) *fluviatilis* (LATREILLE), inhabits fresh water, three, *Eurypodius*

longirostris MIERS, *Libidoclaea granaria* MILNE EDWARDS and LUCAS, and *L. smithi* MIERS, are deep sea, while four, *Euphylax dowi* STIMPSON, *Planes cyaneus* DANA, *Plagusia chabrus* (LINNAEUS), and *P. immaculata* LAMARCK, are pelagic. The 66 littoral species may be divided into four groups according to their geographical distribution. Species belonging to the Antiboreal region as defined by EKMAN (1953, p. 214), six in number, are *Halicarcinus planatus* (FABRICIUS), *Acanthocyclus albatrossis* RATHBUN, *Corystoides chilensis* MILNE EDWARDS and LUCAS, *Pinnotheres bipunctatus* NICOLET, *Pinnixa chiloensis* and *P. bahamondei*, new species. Species restricted to the Peruvian-North Chilean region (42° S to from 4° to 6° N Latitude), 14 in number, are **Hepatus chiliensis* MILNE EDWARDS, *Taliepus marginatus* (BELL), *Microphrys weddelli* MILNE EDWARDS, *Acanthocyclus gayi* MILNE EDWARDS and LUCAS, *A. hassleri* RATHBUN, *Bellia picta* MILNE EDWARDS, *Cancer porteri* RATHBUN, **Paraxanthus barbiger* (POEPPIG), *Platyxanthus orbignyi* (MILNE EDWARDS and LUCAS), *P. cokeri* RATHBUN, *Pinnaxodes silvestrii* (NOBILI), *Cyrtoplax angulatus* DANA (also Atlantic), *Cyclograpsus cinereus* DANA, and **C. punctatus* MILNE EDWARDS. Panamic species having their southern limit within these confines, 19 in number, are *Persephona orbicularis* BELL (if Chilean), *Mursia gaudichaudi* (MILNE EDWARDS), *Stenorynchus debilis* (SMITH), *Acanthonyx petiveri* MILNE EDWARDS, *Portunus* (*Portunus*) *asper* (A. MILNE EDWARDS) (if Chilean), *Callinectes arcuatus* ORDWAY, **C. toxotes* ORDWAY, *Heteractaea lunata* (MILNE EDWARDS) (if Chilean), *Cycloxanthops sexdecimdentatus* (MILNE EDWARDS and LUCAS), *Metopocarcinus truncatus* STIMPSON, *Panopeus chilensis* MILNE EDWARDS and LUCAS (if Chilean), *Pinnixa transversalis* (MILNE EDWARDS and LUCAS), **Grapsus grapsus* (LINNAEUS), *Geograpsus lividus* (MILNE EDWARDS), **Leptograpsus variegatus* (FABRICIUS), *Ocypode occidentalis* STIMPSON, *O. gaudichaudi* MILNE EDWARDS and LUCAS, *Uca macrodactyla* (MILNE EDWARDS and LUCAS), and *U. stenodactyla* (MILNE EDWARDS and LUCAS). Species common to both regions, 20 in number, are *Inachoides microrhynchus* MILNE EDWARDS and LUCAS, *Eurypodius latreillei* GUÉRIN, **Taliepus dentatus* (MILNE EDWARDS), *Pisoides edwardsi* (BELL), *Gomeza serrata* DANA, *Pseudocorystes sicarius* (POEPPIG), **Ovalipes punctatus* (DE HAAN), *Peltarion spinosulum* (WHITE), *Cancer edwardsi* BELL, *C. plebejus* POEPPIG, *C. polyodon* POEPPIG, **Gaudichaudia gaudichaudi* (MILNE EDWARDS), **Homalaspis plana* (MILNE EDWARDS), **Eurypanopeus crenatus* (MILNE EDWARDS and LUCAS), *Pilumnoides perlatus* (POEPPIG), *Pinnotheres politus* (SMITH), *Pinnixa valdiviensis* RATHBUN, *Pinnaxodes chilensis* (MILNE EDWARDS), *Pinnotherelia laevigata* MILNE EDWARDS and LUCAS, and *Hemigrapsus crenulatus* (MILNE EDWARDS). Occurring also in Juan Fernandez Islands are the species marked with an asterisk above, plus four endemic species: *Paromola rathbuni* PORTER, *Paramithrax baeckstroemi* BALSS, *Nectocarcinus bullatus* BALSS (included for the first time in a work on American crustaceans), and *Cycloxanthops bocki*, new species. Insufficiently known to place geographically are three species, *Leurocyclus tuberculosus* (MILNE EDWARDS and LUCAS), *Euplax leptophthalma* MILNE EDWARDS, and "*Leucosia*" *pacifica* POEPPIG (a pinnotherid).

Common to the South Atlantic via the Strait of Magellan are ten species: *Eury-*

podius latreillei GUÉRIN, *Leurocyclus tuberculosus* (MILNE EDWARDS and LUCAS), *Libidoclaea granaria* MILNE EDWARDS and LUCAS, *Halicarcinus planatus* (FABRICIUS), *Gomeza serrata* DANA, *Peltarion spinosulum* (WHITE), *Acanthocyclus albatrossis* RATHBUN, *Corystoides chilensis* MILNE EDWARDS and LUCAS, *Leptograpsus variegatus* (FABRICIUS), and *Cyrtograpsus angulatus* DANA. Excluding pelagic species of circumpolar distribution, three species, *Hemigrapsus crenulatus* (MILNE EDWARDS), *Halicarcinus planatus* (FABRICIUS), and *Leptograpsus variegatus* (FABRICIUS) are common to New Zealand, the latter species to Australia as well. *Cancer novae-zealandiae* (JACQUINOT) appears to be a derivative of the Chilean *C. plebejus* POEPPIG. Juan Fernandez Islands species with western Pacific ties are *Paramithrax baeckstroemi* BALSS, *Nectocarcinus bullatus* BALSS, and *Cycloxanthops bocki*, new species.

The collection assembled by the Lund University Chile Expedition contains 35 species from Chile, plus two Chilean species collected in Peru. Of these *Pinnixa bahamondei* and *P. chiloensis* are new to science, as is the male of *Pinnotheres politus* (SMITH). Material borrowed from the Hamburg Museum contains an additional 13 species, including *Cycloxanthops bocki*, a new species from Juan Fernandez Island, and the first Chilean specimens known of *Platyxanthus cokeri* RATHBUN and *Ocypode occidentalis* STIMPSON. The holotype of *Pinnotheres silvestrii* NOBILI, borrowed from the Turin Museum, proves to be a *Pinnaxodes* species, with *P. meinerti* RATHBUN a junior synonym. Specimens previously reported on by CUNNINGHAM and by MIERS and loaned by the London Museum and specimens reported on by DOFLEIN and BALSS and loaned by the Hamburg Museum make possible the further clarification of the confused synonymy of *Acanthocyclus gayi* MILNE EDWARDS and LUCAS and *A. albatrossis* RATHBUN, and of *Pinnixa transversalis* MILNE EDWARDS and LUCAS and *P. valdiviensis* RATHBUN.

Inclusion of Hamburg and United States National Museum specimens makes it possible to declare *Leptodius tridentatus* LENZ a synonym of *Gaudichaudia gaudichaudi* (MILNE EDWARDS) and to record extensions of range for the following seven species: of *Peltarion spinosulum* (WHITE) from Valparaíso north to Junín; of *Acanthocyclus hassleri* RATHBUN (excluding a questionable record from Panama) from Cavancha north to Alacrán Island, near Arica; of *Platyxanthus cokeri* RATHBUN from Pisco, Peru, south to Caleta Buena, Chile; of *Paraxanthus barbiger* (POEPPIG) from the Andalien River mouth south to Isla Pullinque, Golfo de Quetalmahué; of *Pinnixa valdiviensis* RATHBUN from Corral north to Chinchas Islands, Peru; and of *Ocypode occidentalis* STIMPSON from ?Mollendo, Peru, south to Iquique, Chile. The southern limit of *Geograpsus lividus* (MILNE EDWARDS) is refined from "Chile" only to Caleta Caloso, Chile. Bathymetric ranges of *Libidoclaea granaria* MILNE EDWARDS and LUCAS and of *Peltarion spinosulum* (WHITE) are increased, the former being taken in shallower, the latter in deeper water than heretofore.

The completeness of the habitat data provided by Dr. DAHL and Prof. BRATTSTRÖM makes it possible to determine the optimum conditions for growth and development for several intertidal species, the season at which ripe eggs are carried by *Eurypanopeus crenatus* (MILNE EDWARDS and LUCAS), *Pilumnoides perlatus* (POEP-

PIG), *Leptograpsus variegatus* (FABRICIUS), *Hemigrapsus crenulatus* (MILNE EDWARDS), and *Cyclograpsus cinereus* DANA, and the time at which the first adult stages appear for *Taliepus dentatus* (MILNE EDWARDS), *Hemigrapsus crenulatus* (MILNE EDWARDS), and *Cyclograpsus cinereus* DANA. Reduced size of ovigerous females of marine species from brackish or nearly fresh water is shown for *Eurypodius latreillei* GUÉRIN and *Acanthocyclus albatrossis* RATHBUN at Bahía Ralún, Estero Reloncaví. A cline for relative length to width of carapace for *A. albatrossis* is shown to be correlated with Latitude, and hence with temperature. Equatorial submergence, or its opposite, polar emergence, is shown by *Halicarcinus planatus* (FABRICIUS), while increasing average size of populations with increasing Latitude is shown by *H. planatus* and *Cyclograpsus cinereus* DANA.

The system of cross-reference used in the field makes it possible to list the following non-crustacean associates of Chilean crabs as determined by specialists: of epizooites, the ascidians, sponges, and bryozoans of *Eurypodius latreillei* GUÉRIN, the sponge of *Pisoides edwardsi* (BELL), the Spirorbis of *Cancer polyodon* POEPPIG, the bryozoan of *Homalaspis plana* (MILNE EDWARDS); of commensals, the anemone of *Hepatus chiliensis* MILNE EDWARDS; of parasites, the rhizocephalid (as yet undetermined) of *Paraxanthus barbiger* (POEPPIG); of hosts of commensal crabs: the molluscan host of *Pinnotheres politus* (SMITH), and the annelidan hosts of *?Pinnixa valdiviensis* RATHBUN, *P. bahamondei* and *P. chiloensis*, new species.

All species hitherto recorded from Chile are fully treated as to synonymy. with some restriction as to extra-Chilean distribution. Descriptions are given only in the Pinnotheridae, where diagnoses, line drawings of all species (except *Pinnotheres bipunctatus* NOBILI), and a key to Chilean members of the genus *Pinnixa* are presented.

Resumen

Ciento y una son las especies de Crustáceos (Decapoda Brachyura) que, hasta ahora, son o han sido citados de Chile. De éstas, de 27 a 32 podrían ser eliminadas, segun el criterio que se aplique, pues la mención de algunas es, sin duda, errónea y para otras su presencia en Chile es francamente dudosa. Entre las primeras, dadas erróneamente como halladas en Chile, citaremos las 16 siguientes: *Portunus pelagicus* (LINNAEUS) y *Grapsus strigosus* (HERBST) del Indopacífico; *Pinnotheres globosum* JACQUINOT, oriental; *Pseudothelphusa dentata* (LATREILLE), del Atlántico oeste tropical; *Libinia spinosa* MILNE EDWARDS del Atlántico Sur; *Cancer oregonensis* (DANA) y *Pachygrapsus crassipes* RANDALL del Pacífico Norte; *Mithrax* (*Mithrax*) *belli* GERSTAECKER y *Mithrax* (*Mithraculus*) *nodosus* BELL de Galápagos; *Pseudothelphusa chilensis* (MILNE EDWARDS y LUCAS), peruana y *Hepatus kossmanni* NEUMANN, *Eriphia squamata* STIMPSON, *Cardisoma crassum* SMITH, *Ucides occidentalis* (ORTMANN), *Aratus pisoni* (MILNE EDWARDS) y *Percnon gibbesi* (MILNE EDWARDS) que son especies panameñas, cuya distribución se extiende por el Sur hasta Perú. Tambien se citan como de "Chile" y en dos de ellas como de "Valparaíso" 16 especies más, que son: *Ozius rugosus* MILNE EDWARDS y LUCAS [un sinónimo de *Lydia tenax* (RÜPPELL)] que es del Oeste del Océano Indico; *Atelecyclus chilensis* MILNE EDWARDS, del Este del Atlántico; *Potamon* (*Geothelphusa*) *chilensis* (HELLER) y *Pachygrapsus pubescens* HELLER que no solamente no son chilenas, sino probablemente tampoco americanas; así como *Chionoecetes chilensis* STREETS [un sinónimo de *C. opilio* (O. FABRICIUS)] que es del Pacífico boreal; *Leucippa pentagona* MILNE EDWARDS, *Epialtus bituberculatus* MILNE EDWARDS y *Libinia subspinosa* STREETS (sinónimo de *L. dubia* MILNE EDWARDS) que son del Atlántico oeste; *Panopeus convexus* A. MILNE EDWARDS, probable sinónimo de *P. occidentalis* SAUSSURE, del Atlántico, *Leptodius lobatus* A. MILNE EDWARDS (sinónimo de *L. cooksoni* MIERS) y *Eriphia granulosa* A. MILNE EDWARDS que son endémicos de las Islas Galápagos; *Persephona orbiculata* BELL, *Portunus* (*Portunus*) *asper* (A. MILNE EDWARDS), *Heteractaea lunata* (MILNE EDWARDS y LUCAS), *Panopeus chilensis* MILNE EDWARDS y LUCAS y *Uca insignis* MILNE EDWARDS, especies panameñas no encontradas hasta la fecha al Sur del Ecuador o del Perú. En general, consideramos como no existentes en Chile, aquellas especies que se sabe viven en áreas muy lejanas y provisionalmente se admitiran como componentes de la fauna chilena, aquellas que positivamente se sabe viven en territorios contiguos, pendientes, no obstante de que nuevos hallazgos lo confirmen. Cinco de estas especies estan incluídas en la discusión que sigue.

De las 74 especies que constituyen la fauna así restringida, una, *Trichodactylus* (*Trichodactylus*) *fluviatilis* (LATREILLE) es de agua dulce; tres, *Eurypodius longirostris* MIERS, *Libidoclaea granaria* MILNE EDWARDS y LUCAS y *L. smithi* MIERS son de aguas profundas, mientras que otras cuatro *Euphylax dowi* STIMPSON, *Planes cyaneus* DANA, *Plagusia chabrus* (LINNAEUS) y *P. immaculata* LAMARCK, son pelágicas. Las 66 especies litorales que quedan pueden ser divididas en cuatro grupos, de acuerdo con su distribución geográfica. Especies que pertenecen a la Región Antiboreal, tal como la define EKMAN (1953, p. 214), en número de seis: *Halicarcinus planatus* (FABRICIUS), *Acanthocyclus albatrossis* RATHBUN, *Corystoides chilensis* MILNE EDWARDS y LUCAS, *Pinnotheres bipunctatus* NICOLET, *Pinnixa chiloensis* y *P. bahamondei* nuevas especies. Catorce especies pertenecientes a la Región Peruana — Norte de Chile (42° S a 4° o 6° de Latitud N.): **Hepatus chiliensis* MILNE EDWARDS, *Taliepus marginatus* (BELL), *Microphrys weddelli* MILNE EDWARDS, *Acanthocyclus gayi* MILNE EDWARDS y LUCAS, *A. hassleri* RATHBUN, *Bellia picta* MILNE EDWARDS, *Cancer porteri* RATHBUN, **Paraxanthus barbiger* (POEPPIG), *Platyxanthus orbignyi* (MILNE EDWARDS y LUCAS), *P. cokeri* RATHBUN, *Pinnaxodes silvestrii* (NOBILI), *Cyrtoplax angulatus* DANA (se encuentra tambien en el Atlántico), **Cyclograpsus cinereus* DANA y **C. punctatus* MILNE EDWARDS. El tercer grupo lo constituyen 19 especies panameñas cuyo límite Sur de distribución se extiende hasta esta región: *Persephona orbicularis* BELL (si verdaderamente ha sido encontrada en Chile), *Mursia gaudichaudi* (MILNE EDWARDS), *Stenorynchus debilis* (SMITH), *Acanthonyx petiveri* MILNE EDWARDS, *Portunus* (*Portunus*) *asper* (A. MILNE EDWARDS), (si realmente ha sido capturada en Chile), *Callinectes arcuatus* ORDWAY, **C. toxotes* ORDWAY, *Heteractaea lunata* (MILNE EDWARDS) (si es chilena), *Cycloxanthops sexdecimdentatus* (MILNE EDWARDS y LUCAS), *Metopocarcinus truncatus* STIMPSON, *Panopeus chilensis* MILNE EDWARDS y LUCAS (si realmente es chilena), *Pinnixa transversalis* (MILNE EDWARDS y LUCAS), **Grapsus grapsus* (LINNAEUS), *Geograpsus lividus* (MILNE EDWARDS), **Leptograpsus variegatus* (FABRICIUS), *Ocypoda occidentalis* STIMPSON, *O. gaudichaudi* MILNE EDWARDS y LUCAS, *Uca macrodactyla* (MILNE EDWARDS y LUCAS) y *U. stenodactyla* (MILNE EDWARDS y LUCAS). Veinte especies son comunes a ambas regiones: *Inachoides microrhynchus* MILNE EDWARDS y LUCAS, *Eurypodius latreillei* GUÉRIN, **Taliepus dentatus* (MILNE EDWARDS), *Pisoides edwardsi* (BELL), *Gomeza serrata* DANA, *Pseudocorystes sicarius* (POEPPIG), **Ovalipes punctatus* (DE HAAN), *Peltarion spinosulum* (WHITE), *Cancer edwardsi* BELL, *C. plebejus* POEPPIG, *C. polyodon* POEPPIG, **Gaudichaudia gaudichaudi* (MILNE EDWARDS), **Homalaspis plana* (MILNE EDWARDS), **Eurypanopeus crenatus* (MILNE EDWARDS y LUCAS), *Pilumnoides perlatus* (POEPPIG), *Pinnotheres politus* (SMITH), *Pinnixa valdiviensis* RATHBUN, *Pinnaxodes chilensis* (MILNE EDWARDS), *Pinnotherelia laevigata* MILNE EDWARDS y LUCAS y *Hemigrapsus crenulatus* (MILNE EDWARDS). En los párrafos anteriores, las especies marcadas con asterisco (*), se encuentran tambien en Juan Fernández; en estas islas se encuentran los cuatro endemismos siguientes: *Paromola rathbuni* PORTER, *Paramithrax baeckstroemi* BALSS, *Nectocarcinus bullatus* BALSS (citado por primera vez en un trabajo sobre Crustáceos americanos) y

Cycloxanthops bocki, nueva especie. Hay tambien tres especies cuya localidad geográfica no está bien conocida: *Leurocyclus tuberculosus* (MILNE EDWARDS y LUCAS), *Euplax leptophthalma* MILNE EDWARDS y el pinnotérido *Leucosia pacifica* POEPPIG.

Comunes con el Atlántico Sur, vía Estrecho de Magallanes, hay 10 especies: *Eurypodius latreillei* GUÉRIN, *Leurocyclus tuberculosus* (MILNE EDWARDS y LUCAS), *Libidoclaea granaria* MILNE EDWARDS y LUCAS, *Halicarcinus planatus* (FABRICIUS), *Gomeza serrata* DANA, *Peltarion spinosulum* (WHITE), *Acanthocyclus albatrossis* RATHBUN, *Corystoides chilensis* MILNE EDWARDS y LUCAS, *Leptograpsus variegatus* (FABRICIUS) y *Cyrtograpsus angulatus* DANA. Excluyendo las especies pelágicas de distribución circumpolar, tres especies son comunes con Nueva Zelanda: *Hemigrapsus crenulatus* (MILNE EDWARDS), *Halicarcinus planatus* (FABRICIUS) y *Leptograpsus variegatus* (FABRICIUS), especie esta última, que es tambien australiana. *Cancer novae-zealandiae* (JACQUINOT) parece ser un derivado de la especie chilena *C. plebejus* POEPPIG. *Paramithrax baeckstroemi* BALSS, *Nectocarcinus bullatus* BALSS y *Cycloxanthops bocki*, nueva especie, son especies de las Islas de Juan Fernández relacionadas con las del Pacífico Oeste.

La colección reunida por la Expedición de la Universidad de Lund a Chile contiene 35 especies de esta nación, mas dos chilenas recolectadas en el Perú. *Pinnixa bahamondei* y *P. chiloensis* son nuevas para la ciencia, así como el macho de *Pinnotheres politus* (SMITH). El material proporcionado por el Museo de Hamburgo contiene 13 especies más, entre las que se encuentran los primeros ejemplares chilenos conocidos de *Platyxanthus cokeri* RATHBUN y *Ocypode occidentalis* STIMPSON, como tambien una nueva especie de las Islas de Juan Fernández, *Cycloxanthops bocki*. El holotipo de *Pinnotheres silvestrii* NOBILI, recibido en préstamo del Museo de Turín, no pertenece a éste Género sino al de *Pinnaxodes*; *P. meinerti*, descrito posteriormente, es sinónimo de *silvestrii*. El estudio de ejemplares del Museo de Londres, citados por CUNNINGHAM y MIERS y el de otros, prestados por el Museo de Hamburgo y citados con anterioridad por DOFLEIN y BALSS, ha permitido poner en claro la confusa sinonimia de *Acanthocyclus gayi* MILNE EDWARDS y LUCAS y *A. albatrossis* RATHBUN y de *Pinnixa transversalis* MILNE EDWARDS y LUCAS y *P. valdiviensis* RATHBUN.

La revisión de los ejemplares del Museo de Hamburgo y del Museo Nacional de los Estados Unidos de Norteamérica hizo posible considerar a *Leptodius tridentatus* LENZ como sinónimo de *Gaudichaudia gaudichaudi* (MILNE EDWARDS) y ampliar la distribución geográfica de las siete especies siguientes: *Peltarion spinosulum* (WHITE) desde Valparaíso, hacia el Norte, hasta Junín; *Acanthocyclus hassleri* RATHBUN (prescindiendo de un dato dudoso de Panamá) desde Cavancha hacia el Norte a Isla Alacrán, cerca de Arica; de *Platyxanthus cokeri* RATHBUN desde Pisco, Perú, hacia el Sur hasta Caleta Buena en Chile; de *Paraxanthus barbiger* POEPPIG desde la desembocadura del Río Andalien hacia el Sur hasta la Isla Pullinque en el Golfo de Quetalmahué (Chiloé); de *Pinnixa valdiviensis* RATHBUN desde Corral hacia el Norte hasta las Islas Chinchas en Perú y de *Ocypode occidentalis* STIMPSON desde ?Mollendo, Perú, hacia el Sur hasta Iquique en Chile. El límite Sur de *Geograpsus lividus* (MILNE

EDWARDS) está indicado desde Chile solamente a Caleta Caloso, Chile. Se ha ampliado tambien, la distribución batimétrica de *Libidoclaea granaria* MILNE EDWARDS y LUCAS y de *Peltarion spinosulum* (WHITE), habiéndose recogido el primero a menores profundidades y el segundo a mayor que las que se habían señalado hasta la fecha.

Los numerosísimos y muy completos datos sobre el habitat tomados por el Dr. DAHL y por el Prof. BRATTSTRÖM, han hecho posible determinar las condiciones óptimas de crecimiento y de desarrollo de varias especies de la zona intercotidal; la estación en la cual llevan huevos maduros las hembras de *Eurypanopeus crenatus* (MILNE EDWARDS y LUCAS), *Pilumnoides perlatus* (POEPPIG), *Leptograpsus variegatus* (FABRICIUS), *Hemigrapsus crenulatus* (MILNE EDWARDS) y *Cyclograpsus cinereus* DANA y la determinación de la época en que aparecen los primeros estados adultos en *Taliepus dentatus* (MILNE EDWARDS), *Hemigrapsus crenulatus* (MILNE EDWARDS) y *Cyclograpsus cinereus* DANA. El tamaño reducido de las hembras ovígeras de las especies marinas en aguas salobres o agua casi dulce se demuestra en *Eurypodius latreillei* GUÉRIN y *Acanthocyclus albatrossis* RATHBUN en Bahía Ralún, Estero de Reloncaví. Una cline para la longitud relativa, en relación con el ancho del caparazón para *A. albatrossis* demostró estar relacionada con la latitud y en consecuencia con la temperatura. La submersión ecuatorial, o su opuesto, emergencia polar, se manifiesta en *Halicarcinus planatus* (FABRICIUS), mientras que el aumento del término medio del tamaño de la población con el incremento de la latitud se muestra en *H. planatus* y *Cyclograpsus cinereus* DANA.

El sistema de referencias usado en el trabajo sobre el terreno ha hecho posible hacer una lista de los diversos animales, no crustáceos, asociados con los cangrejos, (o "jaibas") de Chile y determinados por especialistas: los epizooitos, ascidias, esponjas y briozoos de *Eurypodius latreillei* GUÉRIN, la esponja de *Pisoides edwardsi* (BELL), el espirorbis de *Cancer polyodon* POEPPIG, el briozoo de *Homalaspis plana* (MILNE EDWARDS); entre los comensales, la actinia de *Hepatus chiliensis* (MILNE EDWARDS); de los parásitos, el rizocefálido (aun no determinado) de *Paraxanthus barbiger* (POEPPIG); de entre los huéspedes de los cangrejos o jaibas comensales, el molusco huesped de *Pinnotheres politus* (SMITH) y los anélidos huéspedes de *?Pinnixa valdiviensis* RATHBUN, *P. bahamondei* y P. *chiloensis*, nuevas especies.

Se da la sinonimia de todas las especies que aquí se citan de Chile, haciendo sólo alguna salvedad en cuanto a la distribución extra chilena. Se describen, únicamente, los Pinnotheridae, con diagnosis y diseños de todas las especies (excepto *Pinnotheres bipunctatus* NOBILI) y se da una clave para la diferenciación de las especies chilenas del género *Pinnixa*.

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Appendix A

The Carcinological Works of Dr. CARLOS E. PORTER,
Compiled by Dr. FRANCISCO RIVEROS-ZUÑIGA
(An asterisk denotes titles cited in the text)

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1901. Breves instrucciones acerca de la recolección de Crustáceos. Rev. Chilena Hist. Nat., vol. 5, pp. 260—265.

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1926. Carcinología Chilena. Petrolisthes patagonicus y Loxechinus albus. Rev. Chilena Hist. Nat., vol. 30, pp. 190—191, text fig. 23.
*1927. Carcinología Chilena. Nuevo hallazgo de un Homólido. Rev. Chilena Hist. Nat., vol. 31, pp. 141—143, pl. 10.
1927. Moluscos y Cirrópodos. Rev. Chilena Hist. Nat., vol. 31, p. 193, text fig. 13.
1929. Breves instrucciones para la recolección y conservación de los Crustáceos. Rev. Chilena Hist. Nat., vol. 33, pp. 226—232, text fig. 55.
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1932. Los Artrópodos de la obra de Molina. Rev. Chilena Hist. Nat., vol. 36, p. 55.
1935. Catálogo de los Pagúridos de Chile. Rev. Chilena Hist. Nat., vol. 39, pp. 134—137, text fig. 18.
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Appendix B

The Second Edition Names of Abbe G. I. MOLINA

The second edition of MOLINA's "Saggio sulla Storia Naturale del Chili" (Bologna, 1810) contains nine names of Decapoda Anomura and Brachyura that do not appear in the first edition (Bologna, 1782). Since seven of these appear not to have originated with MOLINA, and since none of them can be applied unequivocably to any presently recognized Chilean species, it has been considered best to treat them in this supplementary manner. The following conclusions, with the exception of the first, are tentative. The assistance of Dr. L. B. HOLTHUIS is gratefully acknowledged.

1. Although MOLINA gives no synonymy, the origin of his 1810 names is thought to be as follows:
   a. *Hippa adactyla* dates directly from FABRICIUS, 1787.
   b. *Albunea scabra*, *Portunus lancifer*, *P. defensor*, and *Calappa tuberculata* date from WEBER, 1795, and were applied, respectively, to *Hippa scabra*, *Cancer lancifer*, *C. defensor*, and *C. tuberculatus* of FABRICIUS, 1787. The latter is both a homonym and a synonym of *C. tuberculatus* HERBST, 1785, which in turn is a synonym of *C. hepaticus* LINNAEUS, 1758.
   c. *Portunus armatus* dates from FABRICIUS, 1798, and was applied to *Cancer armatus* FABRICIUS, 1787.
   d. *Maja ursus* dates from BOSC, 1801, and was applied to *Cancer ursus* FABRICIUS, 1787.
   e. *Ocypoda nigra* and *Cancer ranym* are new and, like the 1782 names, valid provided the species can be recognized from MOLINA's descriptions.

2. The FABRICIUS, 1787, names (1 a-d, above) were given to Indo-Pacific species collected on Captain COOK's first voyage by Sir JOSEPH BANKS, probably in Tahiti, and are incorrectly applied by MOLINA to Chilean species. (The alternate assumption, that these MOLINA, 1810, names are new, results in the conclusion that, as homonyms of the earlier FABRICIUS names, they are invalid.)

3. *Ocypoda nigra*, *al. heterochelos* is a *Uca* species, more probably either *U. macrodactylus* (MILNE EDWARDS and LUCAS, 1843) or *U. insignis* (MILNE EDWARDS, 1852), both of which have Chilean type localities, than *U. princeps* SMITH (1870), the present-day Pacific analogue of the Atlantic *U. heterochelos* (LAMARCK, 1801), which comes no further south than Peru.

4. *Cancer ranym*, *al. xaiva* may well be *Tailepus marginatus* (BELL), if indeed *Cancer xaiva* MOLINA, 1782, be *Taliepus dentatus* (MILNE EDWARDS), as suggested by PHILIPPI (1894) and by RATHBUN (1910, 1925). However, it is not necessary that two forms thought by MOLINA to be closely related be so considered in the present system of classification, for in MOLINA's day fewer species were known.

5. Supplementary information concerning *Cancer setosus* MOLINA, 1872, indicates that it is not *C. polyodon* POEPPIG, as suggested by PHILIPPI (1894) and by RATHBUN (1910), nor any *Cancer* species, but a majid crab, possibly the Peruvian *Libinia rostrata* BELL.

Appendix C

Hamburg Museum Collectors of Chilean Decapoda Brachyura,
Compiled from Data provided by Dr. A. PANNING

Name	Active Period	Occupation	Firm
BEUMER, F.	1913—1914		
BOCK, CHARLES	1923	Mining Engineer	
BRÅKENHIELM, MAX	1897—1902	Ship's Captain	
BRÜCK	1845—1865	Ship's Captain	Godeffroy & Son
BRUNST, P.	1902—1903	Ship's Captain	Hamburg-American
DELFIN, F. T.	1892—1896	Medical Doctor	
GASSMANN, A.	1895—1896	Medical Doctor	Kosmos
HILGER	1889	Medical Doctor	Kosmos
JANSEN, BLEIKE	1899—1906	Ship's Captain	Kosmos
KOPHAMEL, F. C. M.	1887—1889	Ship's Captain	M. G. Amsinck
KRAUSE, E.	1900—1911	Ship's Captain	Kosmos
KÖPKE, A.	1903—1914	Steward	Kosmos
LAU, FRITZ	1899—1903	Chief Engineer	Kosmos
LEIBFARTH, E.	1894	Ship's Captain	
LORENZEN, W.	1913—1914	Ship's Officer	
MAY, C. W.	1894	Ship's Officer	
MEYER, ENRIQUE	1907	Guano Co. employee	
MICHAELSEN, WILHELM	1892—1893	Curator Vermes	Hamburg Museum
MÖVIUS	1840—1860	Surgeon (Barber)	
MULACH, ROBERT	1903—1914	Resident, Punta Arenas	
MUTSCHKE, H.	1906—1907	Resident, Punta Arenas	
NISSEN, H.	1901	Ship's Captain	
OESTMANN, J.	1910—1912	Ship's Officer	Kosmos
OHLENDORFF, WALTER VON	1896—1897	Guano Importer	
PAESSLER, RICHARD	1886—1920	Ship's Captain	Kosmos
PIENING, H.	1927—1937	Ship's Captain	F. Laeisz
PÖHL, CARL A.	1862—1870	Ship's Captain	A. J. Hertz
PLAGEMANN, A.	1909—1910	Doctor and resident, Valparaíso	
PETERSEN, H.	1888—1889	Ship's Captain	Kosmos
REHBERG, H.	1894	Medical Doctor	Kosmos
RINGE, C. H. F.	1879—1885	Ship's Captain	M. G. Amsinck
ROLIN, E.	1903—1912	Ship's Captain	Hamburg-American
SCHILLING	1902	(through Paessler)	
SCHÜTT	1912	Ship's Captain	Kosmos
SCHMIDT, TH.	1912	Purser	Kosmos
SCHWABE, G. H.	1938	Zoologist and resident, Concepción	
STABEN, W.	1896	Ship's Officer	
SUXDORF, W.	1899—1901	Ship's Officer	Kosmos

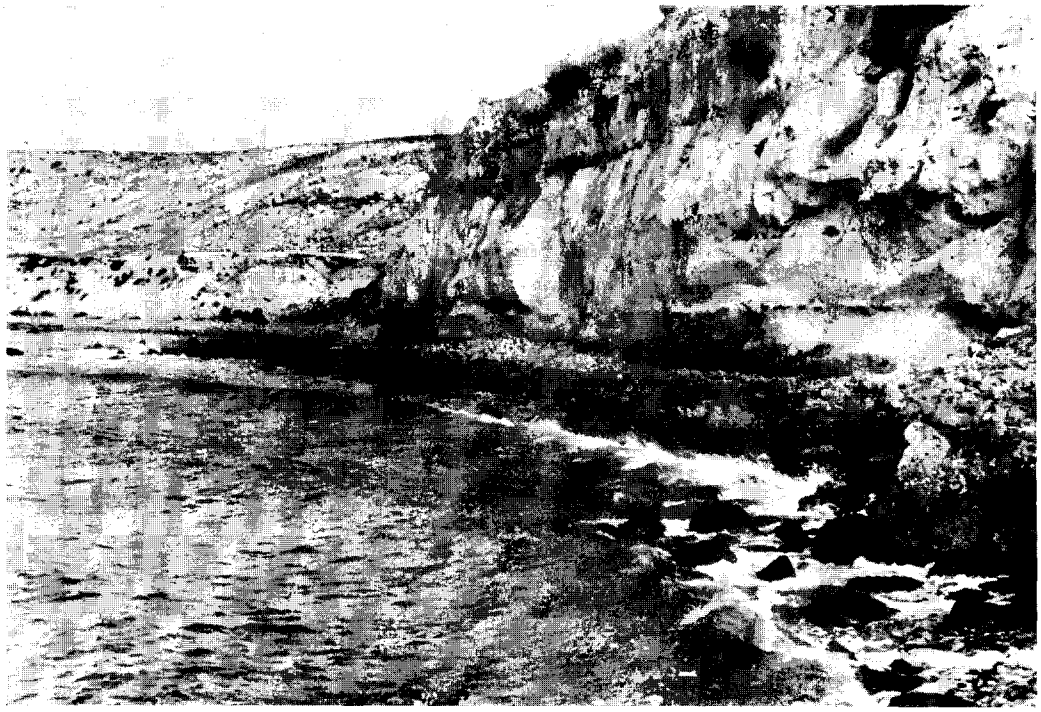
Contents

Tryckt den 10 oktober 1957.

A. *St. M 31.* Bahía Ralún, Estero Reloncaví. Here lived *Hemigrapsus crenulatus* (MILNE EDWARDS) among barnacles, *Elminius kingii* GRAY, in almost fresh water.

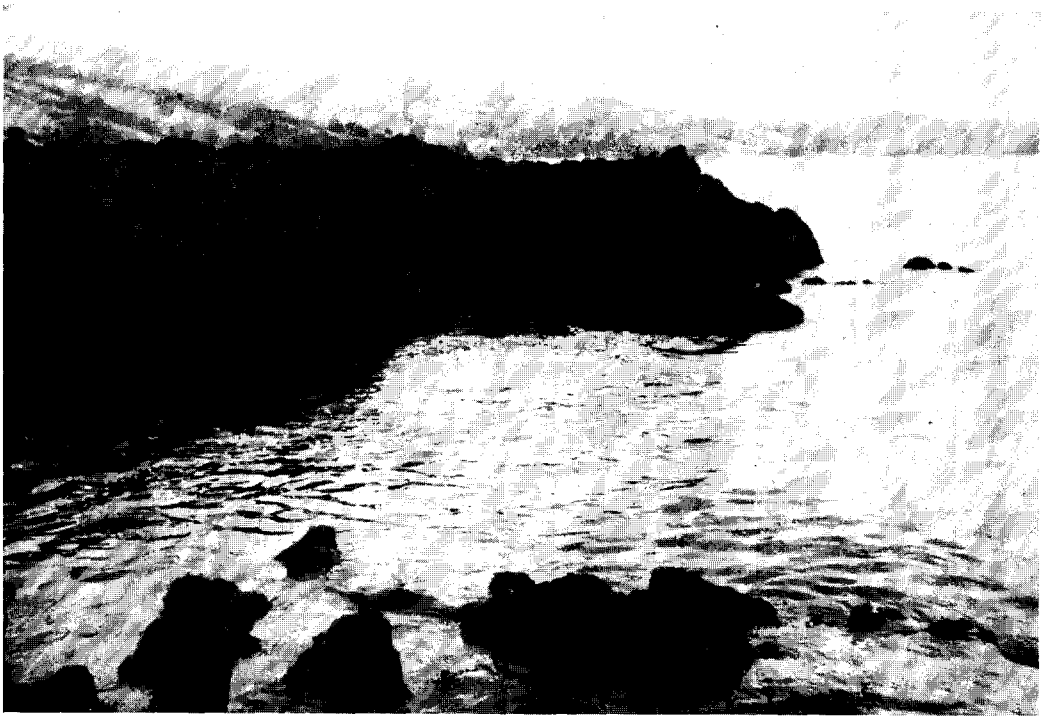
B. *St. M 82.* Bahía Sotomó, Estero Reloncaví. In a situation similar to the above (A), *Hemigrapsus crenulatus* (MILNE EDWARDS) was found living among *Elminius kingii* GRAY, while *Acanthocyclus albatrossis* RATHBUN occurred at a little lower level than the actual sea level in the photograph.

PLATE II



A. *St. M 125.* Bahía Herradura de Guayacán, SW corner, NW of Herradura. At the water level or above lived *Petrolisthes laevigatus* (GUÉRIN), *Cyclograpsus cinereus* DANA, and *Leptograpsus variegatus* (FABRICIUS).

B. *St. M 126.* Bahía Herradura de Guayacán. At both sides of the big stone *Emerita analoga* (STIMPSON) lived in small holes in the sand, *Hepatus chiliensis* MILNE EDWARDS burrowed into the sand, and *Cyclograpsus cinereus* DANA lived above high tide level. Also a young of *Cancer polyodon* POEPPIG was found at this station.

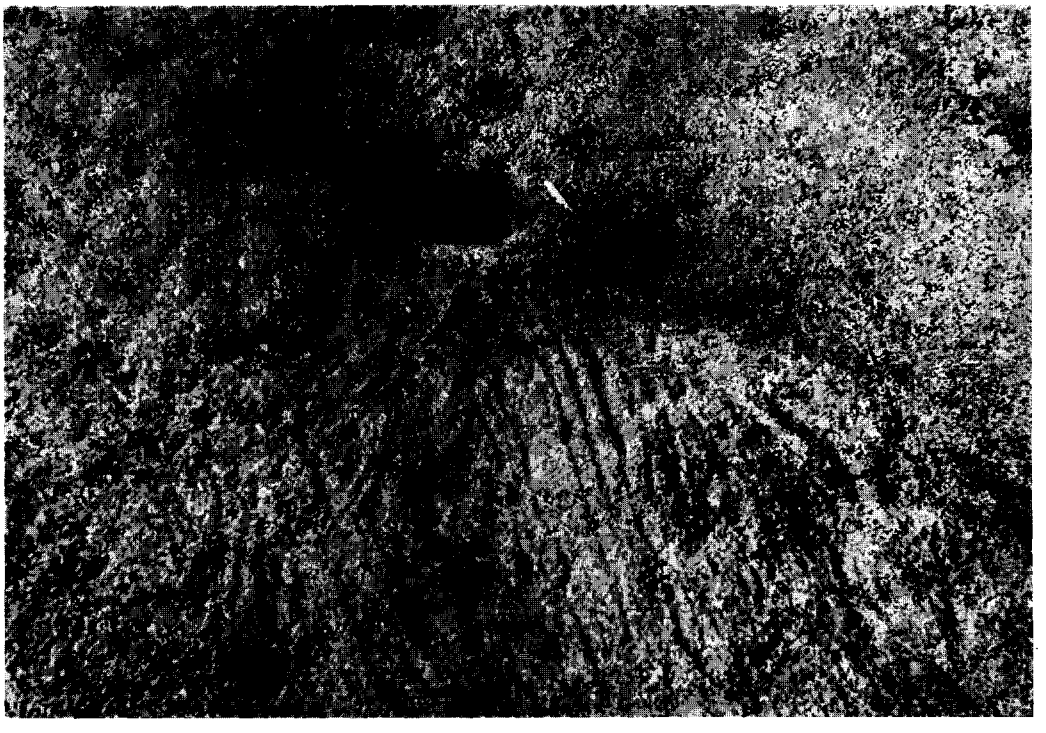


A. *St. M 10.* Punta El Morro, Bahía de Ancud. Here were found *Petrolisthes laevigatus* (GUÉRIN) and *Taliepus dentatus* (MILNE EDWARDS). Note heavy growth of seaweed.

B. *St. M 91.* Ensenada de Guatral, SW of Punta Guatral, Seno Reloncaví. Highest part of shore at high tide. At the water line lived *Hemigrapsus crenulatus* (MILNE EDWARDS) and *Cyclograpsus cinereus* DANA.

PLATE IV

A. *St. M 91.* Ensenada de Guatral, SW of Punta Guatral, Seno Reloncaví. In the lowest part were found *Cancer edwardsi* BELL, *Pinnaxodes chilensis* (MILNE EDWARDS) in sea urchins, *Loxechinus albus* (MOLINA), and *Pinnixa bahamondei* in *Chaetopterus* tubes. In the higher part were found *Acanthocyclus albatrossis* RATHBUN, *Hemigrapsus crenulatus* (MILNE EDWARDS), and *Cyclograpsus cinereus* DANA, while at both levels *Halicarcinus planatus* (FABRICIUS) occurred.



B. *St. M 134.* Punta Negra, N. of Iquique. Entrance to sand burrow of ghost crab, *Ocypode gaudichaudi* MILNE EDWARDS and LUCAS.