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REPORTS
OF
THE LUND UNIVERSITY CHILE EXPEDITION 1948—49

20.

THE CRUSTACEA ANOMURA
OF CHILE

BY

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CON RESUMEN EN ESPAÑOL

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Introduction

The Crustacea Anomura collected by the Lund University Chile Expedition in 1948—49 form the basis of this report. The Expedition's collections include nearly 1400 specimens of Anomura from Chile, comprising a total of twenty-four species. This is the largest number of species ever taken in this region by a single expedition. L. H. PLATE's extensive collections of Crustacea from Chile, which were reported on in 1902 by LENZ, included twenty anomuran forms. NICOLET (1849) listed twenty-one Anomura from Chile, but not all of these stand today as good species.

Although numerous collections have been made and the literature on these crabs is extensive, no account of all the Crustacea of Chile has appeared since the time of NICOLET; furthermore, much of the work on the group is found in obscure or hard-to-obtain publications. It was thought advisable, therefore, to expand the scope of this report to include all the Crustacea Anomura which have been reported from Chile. The literature has been thoroughly reviewed and all locality records, with collectors, have been noted; in each species account, these and material examined are listed in geographical order from north to south. Since a great majority of these crabs are to be found in Peru as well as Chile, but nowhere else, Peruvian records are included as well.

Synonymies are meant to be complete insofar as Peruvian and Chilean records are concerned. However, in the case of the few species with more extensive ranges, synonymies include only original descriptions and primary synonyms; new combinations; the first use of each variation of spelling; and records relating wholly or partly to Peru and Chile (the Pacific side only). In most cases, references are not included which merely list a species from Chile, with no additional information.

Through the kindness of Dr. A. PANNING, a large part of the Crustacea Anomura in the collections of the Zoologisches Museum, Hamburg, only recently removed from its place of storage during the war years, was placed at the author's disposal. This material included six species not represented in the Lund University Chile Expedition collections, and helped greatly in establishing the status of several forms. Other specimens were received on loan from the U. S. National Museum; from the Museum of Comparative Zoology, Harvard; and from Prof. F. RIVEROS-ZUÑIGA, Estación de Biología Marina, Viña del Mar, Chile. A few forms collected by Allan Hancock Pacific Expeditions in Peru were examined. During a visit to London the author studied material in the British Museum (Natural History).

Since published records on the life histories of Chilean crabs are very scarce, all available information relating to size and time of collecting of ovigerous females has been noted in each species account.

Where measurements are given in this report, "length" refers in every case to the median length of the carapace, including the rostrum. In the literature, in some cases, "length" evidently refers to length of carapace plus abdomen; but the precise meaning of the term is not always apparent.

Remarks on Zoogeography

The long shoreline of Chile embraces two faunal provinces. RATHBUN (1910, p. 533) calls them the Peruvian Province, which extends from Guayaquil, Ecuador, to the island of Chiloé, Chile; and the Magellanic Province, which continues southward from this point. Somewhat more specifically, EKMAN (1953, p. 209) defines the Peru or warm-temperate fauna as having its northern limit at approximately Point Aguja, Peru, or the Gulf of Guayaquil on the Peru-Ecuador border. The transition region between the warm- and cold-temperate faunas, according to EKMAN, is poorly defined but lies at about 40—42°S latitude, a little to the north of Chiloé Island.

Although this principle does not appear to hold for some groups of animals, an excellent illustration of it is furnished by a study of the known ranges of the Anomura of Chile. Out of a total of thirty littoral and sublittoral species, ten have either their northern or southern limits of range, as known at the present time, at or close to the northern end of Chiloé Island; while only eight are to be found on both sides of this faunal barrier.

Twenty-four littoral and sublittoral species belong to the Peruvian Province, and six to the Magellanic Province. This is in accordance with the general principle that warm-water regions tend to be much richer in variety of forms than are colder regions (see for example EKMAN, 1953, p. 3).

The Juan Fernandez Islands are part of the Peruvian Province, but their fauna also has affinities with that of New Zealand. Only two littoral species of Anomura have been reported from Juan Fernandez; of these, *Galathea lenzi* is also known from the Chilean mainland, and *Porcellanopagurus platei* either is identical with a New Zealand species, *P. edwardsi*, or is a Juan Fernandez Islands endemic very closely related to it.

Two Magellanic species, *Munida gregaria* and *M. subrugosa*, occur not only in the southern Atlantic Ocean, but also in the vicinity of New Zealand and its subantarctic islands.

Twelve species of Chilean Anomura are confined to deep water, and in the vicinity of Chile have been taken only by the 'Challenger' and the 'Albatross', no other vessel having done deep-sea collecting in this region. A few of these species are of wide distribution, but most of them are known from Chile only. Following EKMAN (1953, p. 267) such species are referred to in this paper as archibenthal or abyssal, according

to their depth of capture. These forms constitute about 28 per cent of the total of Chilean marine anomuran species. None were taken by the Lund University Chile Expedition, which did practically no deep-water dredging.

Aegla, an endemic South American fresh-water genus, is represented in Chile by six species.

Acknowledgments

To a number of persons the author is pleased to acknowledge her indebtedness for aid in preparing this report. Dr. HANS BRATTSTRÖM and Dr. ERIK DAHL made the Lund University Chile Expedition Anomura available for study, and were ever ready to furnish additional information on the collection when needed. Dr. JOHN S. GARTH of the Allan Hancock Foundation supplied much advice and encouragement. Through Dr. A. PANNING of the Zoologisches Museum, Hamburg, much valuable supplemental material was received. Prof. F. RIVEROS-ZUÑIGA, Estación de Biología Marina, Viña del Mar, Chile; Dr. FENNER A. CHACE, JR., U. S. National Museum; and Dr. ELISABETH DEICHMANN, Museum of Comparative Zoology, Harvard, sent comparative material and supplied information of various kinds. Dr. ISABELLA GORDON of the British Museum (Natural History) placed many specimens at the author's disposal, and made a comparison of specimens. Dr. W. L. SCHMITT, U. S. National Museum, made the determinations on a portion of the Aeglidae. Special thanks are due to Dr. J. FOREST of the Muséum National d'Histoire Naturelle, who compared specimens with MILNE EDWARDS' pagurid types and supplied illustrations of one of them; without his help a better understanding of the Chilean Paguridae would have been impossible. Mr. W. I. FOLLETT of the California Academy of Sciences, San Francisco, furnished the author with information on nomenclatorial changes enacted at the 1953 International Congress of Zoology in Copenhagen. Dr. G. THORSON, Copenhagen, has determined the prosobranchs from the Lund University Chile Expedition, pp. 16—25. The photographs were by ROYFORD GEORGE, Allan Hancock Foundation. Finally, the author wishes to thank Captain ALLAN HANCOCK, who provided the facilities, and permission to use the time, necessary to carry out this project.

List of stations where Decapoda Anomura were collected by the Lund University Chile Expedition

Cf. BRATTSTRÖM and DAHL: Chile Report No. 1. 1951—52.

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 8. Golfo de Quetalmahué, Isla Pullinque, N of Punta Rangui, 41°50'12" S, 73°56'57" W; tidal belt, sheltered; rocks; 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 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 16. Seno Reloncaví, Piedra Azul, NW of Punta Quillaípe, 41°31'30"S, 72°48'15"W; depth 40—55 m; hard, grey, coarse sand and small stones; commercial fish trawl; December 2 and 4, 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.

St. M 24. Seno Reloncaví, S of Isla Guar, W of Bajo Pucará, 41°44'25"S, 72°55'45"W; depth about 70 m; sand with shells; Agassiz trawl; 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 27. Golfo de Ancud, between Isla Quenu and Isla Chidguapi, 41°49'40"S, 73°08'W; depth 45 m; coarse sand with shells; triangular dredge and Agassiz trawl; May 3, 1949.

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 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 40. Seno Reloncaví, N of Isla Quellín, 41°51'S, 72°55'W; depth 100 m; small stones, probably on hard sand; triangular dredge and Agassiz trawl; January 23, 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 44. Golfo de Ancud, SW of Isla Tabon, 41°58'S, 73°18'W; depth about 200 m; fine sand mixed with clay; 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 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 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 61. Golfo de Ancud, S of Quetalco, 42°21'10"S, 73°33'40"W; depth 39 m; fine dark sand; Hunt bottom collector; February 15, 1949.

St. M 68. Islas Guaitecas, at the light-house Falsa Melinka, 43°52'30"S, 73°44'20"W; depth 3—5 m, very exposed; rocks; rectangular dredge; February 18, 1949.

St. M 75. Archipiélago de los Chonos, Canal Moraleda, Peñon Blanco, 44°24'S, 73°34'W; tidal belt, very exposed; rather steep rocks with rock pools; hand sampling; February 24, 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 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 89. Estero Reloncaví, Bahía Ralún, between Cayo Nahuelgúapi and Punta Veriles, 41°24'30"S, 72°18'54"W; depth 25 m; coarse sand, tree-trunks and leaves from terrestrial plants; rectangular dredge and Agassiz trawl; 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 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 104. Golfo de Ancud, SE of Punta Tres Cruces, 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, Agassiz trawl and Petersen grab; 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 111. Estrecho de Magallanes, estuary of Río los Ciervos, S of Punta Arenas, 53°11'S, 70°55'W; tidal belt, exposed (shelter: kelp); sand with stones; hand sampling; April 29, 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 114. Estrecho de Magallanes, Punta Santa María, near Agua Fresca, 53°22'S, 70°57'W; holdfasts of kelp, thrown up on the shore during gale; 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 120. Bahía San Vicente, 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 biología 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 Pelicanos, 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 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 and 4, 1949.

St. M 132. Iquique, the harbour, 20°12'30"S, 70°10'21"W; depth 1—5 m; sand and black mud; hand sampling by diver; July 1, 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 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 136. Iquique, southern part of the town, 20°13'08"S, 70°10'19"W; tidal belt, very exposed; sand beach; hand sampling; July 6, 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 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 biología 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 153. Bahía San Vicente, the Ramuntcho bay, SE of Punta Gualpén, 36°44'58"S, 73°11'02"W; tidal belt, exposed; sand beach with coarse sand; hand sampling; June 8, 1949.

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 157. Tocopilla, N of the rubbish dumps, 22°05'S, 70°13'W; tidal belt, extremely exposed; sand beach; hand sampling; January 5 and 8, 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 160. Montemar (N of Valparaíso), between "Estación de biología marina" and Reñaca, 32°58'S, 71°33'15"W; tidal belt, extremely exposed; sand beach with rather fine sand; hand sampling; December 26, 1948.

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

St. L 5. Provincia de Chiloé, Departamento de Ancud, Isla Chiloé, NE of Ancud, 41°51'50"S, 73°49'20"W; forest brook with stony bottom, 0—0.2 m deep; hand sampling; February 23, 1949.

St. L 7. Provincia de Llanquihue, Departamento de Llanquihue, Río Pichicothuin, 41°25'S, 72°45'W; sand and gravel between and under stones and trunks; depth 0—0.2 m; hand sampling; November 21, 1948.

St. L 8. Provincia de Llanquihue, Departamento de Puerto Varas, Río Petrohué, at its outlet from Lago Todos los Santos, 41°08'S, 72°23'W; stones and gravel; depth 0—3 m; rectangular dredge; December 28, 1948.

ALBUNEIDAE

In the second edition of his "Saggio sulla storia naturale del Chili", MOLINA (1810, p. 187) included the species *Albunea scabra*, with a short diagnosis. Although the fact is not evident from MOLINA's work, since he cited no previous author, the species was originally described by FABRICIUS (1787, p. 330) as *Hippa scabra*, with locality "in southern ocean." The identity of this species is unknown to the present author, but it was probably collected in the Indo-Pacific region and has no connection with the Chilean fauna.

CUNNINGHAM (1871, p. 494) reported "*Albunea* sp." from Chile. ("Dead specimens of a species of this genus were met with in Herradura Bay, on the coast of Chile, in August 1867; but I have not found them among my collections at the British Museum.") *Albunea* has not been reported from Chile by any other author, and for the present it can safely be assumed that this genus does not occur in Chile.

Blepharipoda RANDALL, 1839

Blepharipoda spinimana (PHILIPPI)

Fig. 1

?*Albunhippa spinosa* DANA, 1852, p. 406. Not *A. spinosa* MILNE EDWARDS and LUCAS, 1841.

Abrote spinimana PHILIPPI, 1857, p. 129, pl. 8 (type locality, Tomé, Bay of Talcahuano, Chile).

Blepharopoda spinimana MIERS, 1878a, p. 335.

?*Blepharopoda spinosa* CANO, 1889, pp. 100, 263.

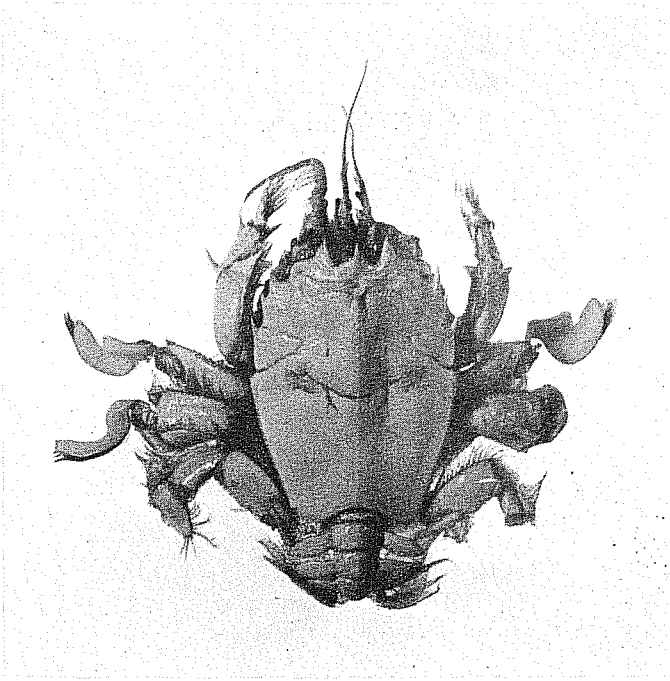


Fig. 1. *Blepharipoda spinimana* (PHILIPPI). Male. Mollendo, Peru (Hamburg Museum).
Carapace length 28.5 mm.

Blepharipoda occidentalis ORTMANN, 1896, p. 222 (part; Chilean records). LENZ, 1902, p. 749.
RATHBUN, 1910, p. 594 (part; Chilean records). PORTER, 1915a, p. 78, text fig. 10; 1915b, p. 14,
text fig. 3; 1936a, p. 254; 1936c, p. 338; 1940a, p. 146; 1940b, p. 312; 1941, p. 460 (part;
Chilean records). Not *B. occidentalis* RANDALL.
Blepharipoda occidentalis PORTER, 1936b, p. 153. Not *B. occidentalis* RANDALL.
Blepharipoda spinimana SCHMITT, 1942c, p. 1, pl. 1, figs. 7—8. FESQUET, 1942, p. 111.

Previous records:

Peru: ?San Lorenzo: U. S. Expl. Exped. (DANA), ?Callao: 'Vettor Pisani' (CANO).
Chile: Iquique and Cavancha L. H. PLATE (LENZ), Prov. of Antofagasta J. HERRERA (PORTER
1940a), Quintero C. E. PORTER (PORTER 1936a), Bay of Valparaíso, in deep water (MIERS),
Valparaíso (FESQUET), San Antonio R. BARROS V. (PORTER 1915a), Tomé P. GERMAIN
(PHILIPPI).

Material examined: None from the Lund University Chile Expedition.

Hamburg Museum

Peru: Mollendo; leg. R. PAESSLER; Nov. 16, 1906; ca. 16 m; K 5141. 1 ♂.
Chile: Junin; leg. J. OESTMANN; 1909; 9 fms.; K 5142. 1 ♀ ov.

Range: Known from Mollendo, Peru, to Tomé, Province of Concepción, Chile
(and possibly from as far north as Callao and San Lorenzo, Peru). The Peruvian
record represents an extension of range northward from Iquique, Chile. Primarily a
shore and shallow water species, taken once in deep water.

Remarks: The male examined measured 28.5 mm, and the ovigerous female 26.9 mm. The largest specimen on record was 43.5 mm.

SCHMITT (1942c) resurrected this species, which most authors had considered a synonym of *B. occidentalis* RANDALL, for specimens from Chile. The three now definitely established members of the genus are *B. spinimana*; *B. occidentalis*, from San Francisco, California, to Santa Rosalia Bay, Lower California, Mexico; and *B. doelloi* SCHMITT, known from Mar del Plata to Necochea, Argentina.¹

The type locality of *Albunhippa spinosa* MILNE EDWARDS and LUCAS (1841), which is a *Blepharipoda*, is not known, nor is its validity as a species established. Specimens from San Lorenzo, Peru, were attributed to *A. spinosa* by DANA (1852, p. 406), but without description enough to identify them; and CANO (1889, pp. 100, 263) listed an individual from Callao under the name *Blepharopoda spinosa*. It is quite likely, in view of the fact that *B. spinimana* is now known to occur in Peru, that DANA's and CANO's specimens belong to the latter species.

Lepidopa STIMPSON, 1858

Lepidopa chilensis LENZ

Lepidopa chilensis LENZ, 1902, p. 749, pl. 23, figs. 5, 5a (type locality, Iquique, Chile). RATHBUN, 1910, p. 595. PORTER, 1915a, p. 82; 1915b, p. 17.

Previous records:

Chile: Iquique L. H. PLATE (LENZ), Curauquilla C. E. PORTER (PORTER).

Material examined: None.

Range: Restricted to Chile, and known only from Iquique, Province of Tarapaca, and Curauquilla, Province of Valparaíso.

Remarks: The type specimen measured 11 mm.

HIPPIDAE

Hippa adactyla is another species incorrectly ascribed to Chile by MOLINA (1810, p. 187). It was originally described by FABRICIUS (1787, p. 329), and belongs to the Indo-Pacific fauna; it occurs throughout the Indo-Pacific region, and there are a few records from the west coast of tropical America. ORTMANN (1896, p. 229, footnote) mentioned specimens in the Philadelphia Academy of Sciences (under the name *Remipes adactylus*) with the label "Valparaiso," adding that this record needed confirmation. The species need not be considered with the anomuran fauna of Chile.

Emerita MEUSCHEN, 1778

Emerita analoga (STIMPSON)

Hippa emerita MILNE EDWARDS and LUCAS, 1844, p. 32. NICOLET, 1849, p. 185. ORTMANN, 1896, p. 232 (part). PORTER, 1899, p. 180; 1903a, p. 151. DOFLEIN, 1899, p. 186. NOBILI, 1901, p. 7; 1902, p. 235. LENZ, 1902, p. 750. DOFLEIN and BALSS, 1912, p. 35. Not *Emerita emerita* (LINNAEUS).

¹ A fourth species, *B. liberata*, has recently been described from China (SHEN, 1949, Contr. Inst. Zool. Nat. Acad. Peiping, vol. 5). The present author had no opportunity to see this paper.

Hippa talpoides DANA, 1852, p. 409; 1855, pl. 25, figs. 10a—c. CUNNINGHAM, 1871, p. 495. Not *Emerita talpoida* (SAY).

Hippa analoga STIMPSON, 1857, p. 85 (type locality, coast of California). MIERS, 1878a, p. 324, pl. 5, fig. 10. CANO, 1889, pp. 95, 99, 100, 263. ORTMANN, 1892b, p. 537, pl. 26, fig. 1 (part). BOUVIER, 1910, p. 178.

?*Hippa chilensis* PHILIPPI, 1860, p. 169.

Emerita analoga RATHBUN, 1910, pp. 554, 595, pl. 49, fig. 1. PORTER, 1915a, p. 85; 1915b, p. 19. SCHMITT, 1935, p. 214, figs. 75a—b.

Emerita emerita RATHBUN, 1910, p. 595 (Chile only). PORTER, 1925, p. 318; 1936b, p. 153; 1936c, p. 338; 1940a, p. 146; 1940b, p. 312; 1941, p. 460. Not *E. emerita* (LINNAEUS).

Emerita emeritus PORTER, 1915a, p. 84; 1915b, p. 18 (not all synonymy). Not *E. emerita* (LINNAEUS).

Previous records:

Peru: Salavery (SCHMITT), Gulf of Ancon REISS (ORTMANN 1892b), Ancon, sand beach R. E. COKER (RATHBUN), Ancon and Callao: 'Vettor Pisani' (CANO), NE side San Lorenzo Island, sand beach R. E. COKER (RATHBUN), Chinchas Islands (ORTMANN 1892b), Mollendo H. R. H. PRINCESS THERESE OF BAVARIA (DOFLEIN), do R. E. COKER (RATHBUN).

Chile: Iquique and Cavancha L. H. PLATE (LENZ), Prov. of Antofagasta J. HERRERA (PORTER 1940a), Bahía de Taltal A. CAPDEVILLE (PORTER 1925), Caldera E. E. GIGOUX (PORTER 1899), Coquimbo F. T. DELFIN (PORTER 1903a), Viña del Mar F. SILVESTRI (NOBILI 1901), Valparaíso (MILNE EDWARDS and LUCAS), do U. S. Expl. Exped. (DANA), do 'Vettor Pisani' (CANO), do (ORTMANN 1892b), do (BOUVIER), Curaumilla C. E. PORTER (PORTER 1915a), Tumbes L. H. PLATE (LENZ), Lota (SCHMITT), San Vicente, Ancud (Chiloé) and Luco Bay: 'Nassau' (CUNNINGHAM), Eden Harbor PAESSLER (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

<i>St. M 136.</i> 8 young. From sand, in the littoral.	<i>St. M 126.</i> 21 ♂, 40 ♀, 2 young. From near middle sea level;	<i>St. M 160.</i> 1 ♂, 4 ♀ ov.
<i>St. M 157.</i> 60 ♂, 17 ♀.	small holes in the sand.	<i>St. M 153.</i> 4 young. From sand, in the littoral.
	<i>St. M 152.</i> 36 ♀ (15 ov).	

Hamburg Museum

Pisagua; leg. KOPHAMEL; K 5120. 5 ♂, 19 ♀ (4 ov).

Range: Discontinuous. From Washington (BANNER and MCKERNAN) to Magdalena Bay, Lower California, Mexico, and from Salavery, Peru, to Eden Harbor, Territory of Aysén, Chile. The reader is referred to SCHMITT, 1935, for a discussion of the ranges of this and other species of *Emerita*. Habitat, sandy beaches.

Remarks: The largest male in the Lund University Chile Expedition collection measured 12.2 mm (*St. M 126*), and the largest female 28.7 mm (*St. M 160*). PORTER (1915a) reported specimens up to 40.5 mm. Mature males of this species are considerably smaller than mature females.

15 ovigerous females were taken at Montemar in October, and 4 at the same locality in December. They measured from 13.3 to 28.7 mm.

LITHODIDAE

Lithodes LATREILLE, 1806*Lithodes antarcticus* JACQUINOT¹

?*Cancer santolla* MOLINA, 1782, p. 207; 1810, p. 186.

Lithodes antarctica JACQUINOT, 184?, pl. 7; pl. 8, figs. 9—14; 1853, p. 90 (type locality, Strait of Magellan). MILNE EDWARDS and LUCAS, 1844, p. 32. NICOLET, 1849, p. 182. CUNNINGHAM, 1871, p. 494. TARGIONI-TOZZETTI, 1872a, p. 398; 1872b, p. 470; 1877, p. 227. CANO, 1888, pp. 164, 177; 1899, pp. 95, 98, 264. RATHBUN, 1910, p. 595. ORTMANN, 1911, p. 657.

Lithodes antarcticus MIERS, 1881, p. 71. MIKLOUHO-MACLAY, 1884, p. 462. ORTMANN, 1892a, p. 321. LENZ, 1902, p. 742. PORTER, 1903b, p. 259, pl. 16. DOFLEIN and BALSS, 1912, p. 32.

Previous records:

Pacific side of Chile: Chiloé (NICOLET), do (MIKLOUHO-MACLAY), Bay of Ancud C. E. PORTER (PORTER), Alert Bay and Neesham Cove, Trinidad Channel: 'Alert' (MIERS), Smith Channel and Chacabuco, Smith Channel: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Puerto Bueno, Smith Channel, 4 fms.: 'Alert' (MIERS), Strait of Magellan: 'Astrolabe' and 'Zélée' (JACQUINOT), do 'Nassau' (CUNNINGHAM), do 'Vettor Pisani' (CANO 1889), do STEINMANN (ORTMANN 1892a), Woods Bay and Field Anchorage: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Punta Arenas J. B. HATCHER (ORTMANN 1911), do L. H. PLATE (LENZ), do F. E. NEF, F. T. DELFIN (PORTER), do Hamb. Magalh. Samm. (DOFLEIN and BALSS), western Patagonia: 'Magenta' (TARGIONI-TOZZETTI 1872a), channels of Patagonia: 'Carraciolo' (CANO 1888).

Material examined:

St. M 94. 1 young.

St. M 21. 1 ♂.

St. M 76. 1 ♂.

Range: From Chiloé, Province of Chiloé, around the southern end of South America and through the Strait of Magellan to Tierra del Fuego. The vertical range is from shore to 82 fms.

Remarks: The largest specimen in the Lund University Chile Expedition collection is an immature male measuring 66.2 mm (*St. M 76*). Specimens up to 160 mm have been reported. Young individuals are much more spiny than adults.

The common name of this crab is "centolla." It is an edible species of commercial importance.

Neolithodes A. MILNE EDWARDS and BOUVIER, 1894*Neolithodes diomedea* (BENEDICT)

Lithodes diomedea BENEDICT, 1894, p. 480 (type locality, off Chiloé Island, Chile, 'Albatross' Sta. 2789, 1,342 fms.). PORTER, 1903b, p. 263.

Neolithodes diomedea BOUVIER, 1896, p. 9.

¹ The new species in the Crustacea section of "Voyage au Pole sud", Atlas and text, have been variously attributed to JACQUINOT, to LUCAS, to JACQUINOT and LUCAS, and to HOMBRON and JACQUINOT. The correct authorship of these species is clearly stated on page 4 of the section on Crustacea, volume 3 of the text:

"Les genres et les espèces portant une † sont décrits pour la première fois dans ce travail; ils ont été presque tous créés par M. H. Jacquinet et figurés par lui dans l'Atlas, à l'exception du *Sesarma gracilipes*, qui appartient à M. Milne Edwards, et des *Chlorodius Hombronii*, *Etisus macrodactylus*, *Galene hirtipes*, *Galene laevimanus*, qui appartiennent à M. H. Lucas."

Previous records:

Chile: Off Chonos Archipelago, 1,050 fms., and off Chiloé Island, 1,342 fms.: 'Albatross' (BENEDICT).

Material examined: None from the Lund University Chile Expedition. Through the kindness of Dr. F. A. CHACE, Jr., of the U. S. National Museum, the author was able to examine an immature male and an immature female specimen from 'Albatross' Station 2788, off Chonos Archipelago, U.S.N.M. Cat. No. 18527.

Range: Restricted to Chile, and known only from the two localities given above. An abyssal species, known bathymetric range 1,050—1,342 fms.

Remarks: No measurements were given in the original description, nor have any been reported since. The following measurements were taken on the immature specimens borrowed from the U. S. National Museum:

Immature male: length of carapace, 62.3 mm; greatest width of carapace, 56.0 mm; length of rostrum, 25.4 mm; cheliped, 85.5 mm; walking leg 1, 139.0 mm; walking leg 2, 150.6 mm; walking leg 3, 164.0 mm. Immature female: length of carapace, 41.5 mm; greatest width of carapace, 35.0 mm; length of rostrum, 21.5 mm; cheliped, 58.1 mm; walking leg 1, 89.0 mm; walking leg 2, 93.4 mm; walking leg 3, 96.4 mm.

The species has never been figured nor adequately described. No attempt was made to do so here because adult material was not available.

Paralomis WHITE, 1856*Paralomis granulosa* (JACQUINOT)

Lithodes granulosa JACQUINOT, 184?, pl. 8, figs. 15—21 (type locality, Strait of Magellan).

Lithodes verrucosa DANA, 1852, p. 428 (type locality, Fuegia); 1855, pl. 26, fig. 16. CUNNINGHAM, 1871, p. 494.

Lithodes granulata JACQUINOT, 1853, p. 94.

Paralomis granulosa WHITE, 1856, p. 134. PORTER, 1903b, p. 264, text fig. 6. ORTMANN, 1911, p. 658. DOFLEIN and BALSS, 1912, p. 32.

Paralomis granulosus STIMPSON, 1858, p. 231. A. MILNE EDWARDS, 1891, p. 20.

Paralomis verrucosus STIMPSON, 1858, p. 231. MIERS, 1881, p. 71. CANO, 1889, pp. 95, 98, 264. LENZ, 1902, p. 741.

Echinocerus granulatus BENEDICT, 1894, p. 484.

Paralomis verrucosa BOUVIER, 1895, p. 187, pl. 13, fig. 3.

Previous records:

Pacific side of Chile: Puerto Lagunas: 'Vettor Pisani' (CANO), Port Otway [=Puerto Barroso] B. R. WILSON (PORTER), Trinidad Channel and Puerto Bueno, Smith Channel: 'Alert' (MIERS), Puerto Bueno and Long Island, Smith Channel: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Strait of Magellan: 'Astrolabe' and 'Zélée' (JACQUINOT), do 'Nassau' (CUNNINGHAM), do 'Vettor Pisani' (CANO), Punta Arenas [Sandy Point] (BENEDICT), do J. B. HATCHER (ORTMANN), do Hamb. Magalh. Samm. (DOFLEIN and BALSS), Cook Bay: Miss. Sci. Cap Horn (A. MILNE EDWARDS), exact locality unknown L. H. PLATE (LENZ).

Material examined:

St. M 42. 1 young.

St. M 114. 1 young.

Range: From Paso Tenaun, off the east coast of Chiloé Island, Province of Chiloé, around the southern end of South America and through the Strait of Magellan to Tierra del Fuego and the Falkland Islands. The Paso Tenaun locality represents an extension of range northward from Puerto Lagunas, Province of Aisén. Vertical range, from shore to 55 fms.

Remarks: The Lund University Chile Expedition collection contained only two very young specimens, measuring 9.0 and 9.3 mm. Adult individuals reach about 95 mm.

PAGURIDAE

Calcinus DANA, 1851

Calcinus chilensis (H. MILNE EDWARDS)

Pagurus chilensis MILNE EDWARDS, 1836, p. 279 (type locality, shore of Chile); 1837, p. 230, pl. 22, figs. 9, 10; 1848, p. 63. NICOLET, 1849, p. 191.

Calcinus chilensis STIMPSON, 1858, p. 234. RATHBUN, 1910, p. 597. PORTER, 1935, p. 136.

Previous records:

Chile: (MILNE EDWARDS 1836).

Material examined: None.

Range: The only record for this species seems to be the general locality "Chile" as given in the original description, although it was listed, with a question mark, from Lower California by RATHBUN (1910). All later records were based on that of MILNE EDWARDS. Without substantiation, the locality "Chile" must be regarded as a possible error of labelling, and the species as only doubtfully belonging to the Chilean fauna. As HOLTHUIS (1952, p. 86) has pointed out, there are several known instances in which MILNE EDWARDS gave erroneous locality records for his species.

Clibanarius DANA, 1852

Clibanarius aequabilis (DANA)

Pagurus aequabilis DANA, 1851, p. 271 (type localities, Madeira and St. Jago Islands, Cape Verde).

Clibanarius aequabilis DANA, 1852, p. 464; 1855, pl. 29, fig. 4a—f. HELLER, 1865, p. 91. RATHBUN, 1910, p. 596. PORTER, 1935, p. 136.

Clibanarius aequalis DANA, 1854, p. 175.

Previous records:

Chile: 'Novara' (HELLER).

Material examined: None.

Range: Reported from west Africa and adjacent islands; islands of the south Pacific; California; Chile.

Remarks: This species ordinarily occurs in west Africa and vicinity, and in the Indo-Pacific region; there is an unsubstantiated record from California (DANA 1854). Since this is obviously a tropical and subtropical species, and since many of HELLER's records are known to be inaccurate, it is quite likely that his material came from some other locality and that there was a mixup of labels. The species must be considered as only questionably from Chile.

Isocheles STIMPSON, 1858*Isocheles aequimanus* (DANA)

Bernhardus aequimanus DANA, 1852, p. 445; 1855, pl. 27, fig. 6 (type locality, Valparaíso?).

Isocheles aequimanus STIMPSON, 1858, p. 235. RATHBUN, 1910, p. 596.

Isocheles equimanus PORTER, 1935, p. 136.

Previous records:

Chile: Valparaíso?: U. S. Expl. Exped. (DANA 1852).

Material examined: None.

Range: Known only from Valparaíso, Chile.

Remarks: The species has not been reported since its original description, and even the type locality is apparently uncertain. For the present it is considered, like the two preceding species, as only questionably belonging to the Chilean fauna.

Paguristes DANA, 1851*Paguristes weddelli* (H. MILNE EDWARDS)

Pagurus weddellii MILNE EDWARDS, 1848, p. 64 (type locality, shores of Peru).

Paguristes hirtus DANA, 1851, p. 272 (type locality given as "in mari Sinensi," evidently in error);

1852, p. 437 (type locality corrected to Chile); 1855, pl. 28, fig. 2a—f. LENZ, 1902, p. 740.

RATHBUN, 1910, pp. 555, 596, pl. 51, fig. 2. DOFLEIN and BALSS, 1912, p. 30. PORTER, 1917,

p. 96; 1935, p. 136; 1940a, p. 146; 1941, p. 460.

Paguristes weddellii KINAHAN, 1857, p. 350. RATHBUN, 1910, p. 596.

Paguristes weddellii STIMPSON, 1858, p. 236.

Previous records:

Peru: WEDDELL (MILNE EDWARDS), Sechura Bay W. of Matacaballa, 5 fms. R. E. COKER (RATHBUN), Chinchas Islands, 4—10 fms. J. R. KINAHAN (KINAHAN).

Chile: U. S. Expl. Exped. (DANA 1852), Iquique L. H. PLATE (LENZ), Prov. of Antofagasta

J. HERRERA (PORTER 1940a), Llanquihue L. H. PLATE (LENZ), Taitao: Mus. Nac. Chile Exped.

and Canal Smith F. T. DELFIN (PORTER 1917), Molineux Sound [Canal Molinas?], Smith

Channel: Hamb. Magalh. Samm. (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

Paita, Peru; shore; leg. I. VIGELAND; Jan. 15, 1949. 1 ♀.

St. M 155. 7 ♂, 7 ♀ (2 ov). In shells of *Oliva peruviana*, *Thais chocolata* and other prosobranchs.

Hamburg Museum

Numerous specimens from 17 localities, from Arica to Smith Channel, Chile.

Range: From Sechura Bay, Peru, to Smith Channel, Territory of Magallanes, Chile. A shore and shallow water species. An Atlantic record by DOFLEIN and BALSS (E. Patagonian Bank, 92 m depth) needs confirmation.

Remarks: The largest male in the Lund University Chile Expedition collection measured 19.5 mm (*St. M 155*), and the largest female 13.1 mm (Paita, Peru).

Ovigerous females were collected at Tocopilla in January; they were 8.4 mm and 12.2 mm in size. Ovigerous females were taken by an Allan Hancock Pacific Expedi-

tion in Peru in February. Specimens borrowed from the Hamburg Museum included ovigerous females collected in March, August, and October.

KINAHAN (1857), reporting specimens from Peru under the name *Paguristes weddelli* MILNE EDWARDS, noted that they also tallied with DANA's description of *P. hirtus*. At the request of the present author, Dr. J. FOREST of the Natural History Museum, Paris, re-examined MILNE EDWARDS' type, a male specimen with the carapace 22 mm in length, and determined that *P. hirtus* is identical with *P. weddelli*.

Paguristes tomentosus (H. MILNE EDWARDS)

Pagurus tomentosus MILNE EDWARDS, 1848, p. 64 (type locality, Chile?).

Clibanarius tomentosus KINAHAN, 1857, p. 351.

Paguristes tomentosus STIMPSON, 1858, p. 236. RATHBUN, 1910, pp. 555, 596, pl. 50, fig. 1. PORTER, 1935, p. 136.

?*Pagurus pallescens* PHILIPPI, 1860, p. 169 (type locality, Atacama, Chile).

Previous records:

Peru: Sechura Bay, about half-way between Bayovar and Mataballa, 5—6 fms. R. E. COKER (RATHBUN), Chinchas Islands, 5—10 fms. J. R. KINAHAN (KINAHAN).

Chile: ? (MILNE EDWARDS), Antofagasta (PORTER), ?Atacama R. A. PHILIPPI (PHILIPPI).

Material examined:

Lund University Chile Expedition

St. M 132. 2 ♂. In shells of *Trophon xanthostoma*.

Hamburg Museum

Caleta Buena; leg. R. PAESSLER; 1897; K 6334. 1 ♀.

Taltal; leg. R. PAESSLER; 1901; K 6375. 1 ♂, 1 ♀ ov.

Taltal; leg. R. PAESSLER; 1904; 12—15 fms.; K 6276. 1 ♂, 1 ♀ ov.

Range: From Sechura Bay, Peru, to Taltal, Province of Antofagasta, Chile (possibly to Province of Atacama). A shore and shallow water species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 13.6 mm.

Pagurus pallescens of PHILIPPI is perhaps this species, although the description might also apply to *Paguristes weddelli*.

Parapagurus SMITH, 1879

Parapagurus pilosimanus SMITH

Parapagurus pilosimanus SMITH, 1879, p. 51 (type locality, off Nova Scotia, 250 fms.). PORTER, 1906, p. 129.

Eupagurus jacobii A. MILNE EDWARDS, 1880, p. 42 (type localities, Guadeloupe, 'Blake' Sta. 163, 769 fms.; Santa Lucia, Sta. 221, 423 fms.; Martinique, Sta. 205, 334 fms.).

Parapagurus abyssorum HENDERSON, 1888, p. 87, pl. 9, fig. 2 (type localities, off Juan Fernandez Islands, 'Challenger' Sta. 300, 1,375 fms.; off Port Otway, Chile, Sta. 304, 45 fms. [record probably in error]; also off Bermuda; off Sierra Leone; near Tristan da Cunha; off Banda; off the Philippines; N. of Papua; off Yokohama). MURRAY, 1895, p. 1129.

Parapagurus pilosimanus var. *abyssorum* A. MILNE EDWARDS and BOUVIER, 1892, p. 204.

Parapagurus pilosimanus abyssorum FAXON, 1895, p. 68.

Parapagurus bouvieri STEBBING, 1910, p. 357, pl. 43 (type locality, off Buffalo River, South Africa, 549 m).

Previous records:

Chile: Los Vilos J. N. THOMAS (PORTER) [no depth data given], off Port Otway [=Puerto Barroso], 45 fms.: 'Challenger' (HENDERSON) [record probably in error], off Mas Atierra Island, Juan Fernandez Islands, 1, 375 fms.: 'Challenger' (HENDERSON).

Material examined: None.

Range: World-wide in distribution. An archibenthal-abyssal species, known from 250 to 1,875 fms. HENDERSON's record "Port Otway, 45 fms." was evidently due to an error in labelling, as the species normally inhabits much deeper water. PORTER's record may be based on a misidentification, since the other species collected by J. N. THOMAS were not deep-water forms.

Remarks: Usually associated with *Epizoanthus*, the colonies of which grow on the outside of the gastropod chosen by the crab for its dwelling place. The coelenterates exert a solvent action on the shell, entirely dissolving it or greatly reducing it in size.

Parapagurus dimorphus (STUDER)

Eupagurus dimorphus STUDER, 1883, p. 24, pl. 2, figs. 11—12 (type locality, S. of Cape of Good Hope, 117 fms.).

Parapagurus dimorphus HENDERSON, 1888, p. 86, pl. 10, fig. 1. MURRAY, 1895, p. 1161.

Previous records:

Chile: Off Port Churruca, Strait of Magellan, 245 fms.: 'Challenger' (HENDERSON).

Material examined: None.

Range: Known from the Strait of Magellan, Tristan d'Acunha, off southern Africa, and off Marion Island. An archibenthal species, known range 110—310 fms.

Remarks: This species, like the preceding one, is usually found in shells covered with *Epizoanthus* colonies.

Pagurus FABRICIUS, 1798

Key to the Chilean Species of *Pagurus*

1a. Right cheliped without hairs.

2a. Right hand finely granulate, oval to oblong, with a strong crest on the inner edge of the upper surface below the movable finger, and sometimes with another crest down the center of the hand. *forceps*

2b. Right hand without crests on the upper surface.

3a. Right hand oval, covered with low, rounded white granules on a red background. Eyestalks long and slender. *edwardsi*

3b. Right hand oblong, covered with large, projecting granules. Eyestalks short and stout. *perlatus*

1b. Right cheliped hairy.

4a. Chelipeds with several longitudinal series of black-tipped spines; left cheliped nearly as large as right. A row of spines on superior margins of walking legs. *gaudichaudi*

4b. Chelipeds with spiniform tubercles, especially projecting on internal margins; left cheliped considerably smaller than right. Superior margins of walking legs without spines. Size very small. *villosus*

Pagurus forceps H. MILNE EDWARDS

- Pagurus forceps* MILNE EDWARDS, 1836, p. 272, pl. 13, fig. 5 (type locality, shores of Chile); 1837, p. 221. NICOLET, 1849, p. 189. CUNNINGHAM, 1871, p. 495. RATHBUN, 1910, p. 598. PORTER, 1935, p. 137.
- Pagurus comptus* WHITE, 1847a, p. 59 (type locality, Falkland Islands); 1847b, p. 122. RATHBUN, 1910, p. 598. PORTER, 1935, p. 137; 1936b, p. 153; 1936c, p. 339.
- Pagurus gayi* NICOLET, 1849, p. 190 (type locality, Chile); 1854, Crust. pl. 1, figs. 6, 6a—c. PORTER, 1898, p. 33; 1935, p. 137, text fig. 18 (a reproduction of NICOLET's plate). RATHBUN, 1910, p. 598.
- Eupagurus gayi* STIMPSON, 1858, p. 237.
- Eupagurus forceps* STIMPSON, 1858, p. 237. LAGERBERG, 1905, p. 2, pl. 1, figs. 1—3. DOFLEIN and BALSS, 1912, p. 31.
- Eupagurus comptus* STIMPSON, 1858, p. 237. MIERS, 1881, p. 72. A. MILNE EDWARDS, 1891, p. 29. LENZ, 1902, p. 738. PORTER, 1903a, p. 151.
- Eupagurus comptus* var. *latimanus* MIERS, 1881, p. 73.
- Eupagurus comptus* var. *jugosa* HENDERSON, 1888, p. 67, pl. 7, fig. 2. ORTMANN, 1892a, p. 303. MURRAY, 1895, p. 1152.

Previous records:

Pacific side of Chile: (MILNE EDWARDS 1836), do (NICOLET), Coquimbo L. H. PLATE (LENZ), do F. T. DELFIN (PORTER 1903a), Quintero C. E. ZILLERUELO (PORTER 1898), Curaumilla C. E. PORTER (PORTER 1935), Tumbes L. H. PLATE (LENZ), Guaitecas Islands (LAGERBERG), off Tom Bay, Canal Concepción, 175 fms.: 'Challenger' (HENDERSON), Cockle Cove, 2—32 fms., Puerto Bueno, 4 fms., Portland Bay, 10 fms., and Port Rosario, 2—30 fms.: 'Alert' (MIERS), Smith Channel: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Strait of Magellan and western channels: 'Nassau' (CUNNINGHAM), Strait of Magellan STEINMANN (ORTMANN), do Hamb. Magalh. Samm. (DOFLEIN and BALSS), Punta Arenas, 7—10 fms. COPPINGER (MIERS), do Miss. Sci. Cap Horn (A. MILNE EDWARDS), do 0—22 m: Hamb. Magalh. Samm. (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

- | | | |
|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <i>St. M</i> 40. 1 ♂. | <i>St. M</i> 68. 3 ♂. In shells of <i>Tegula atra</i> . | <i>St. M</i> 114. 3 ♀ ov. In shells of <i>Natica</i> sp. |
| <i>St. M</i> 41. 3 ♂, 12 young. In shells of <i>Alectrion dentifera</i> , <i>Drillia</i> sp., and <i>Trophon laciniatus</i> . | <i>St. M</i> 115. 2 ♂. In shells of <i>Photinula sigaretina</i> and <i>Euthria plumbea</i> . | |

Hamburg Museum

- Punta Arenas, Str. Magellan; leg. H. MUTSCHKE; 1908; K 6372. 7 ♂.
- Punta Arenas, Str. Magellan; leg. R. MULACH; April 23, 1909; K 6869. 6 ♂, 3 ♀ (1 ov). Chile; K 6239. 3 ♂.
- Chile; leg. F. T. DELFIN; 1896; K 6302. 1 ♂.
- W. coast South America; leg. R. PAESSLER; April 12, 1893; K 6304. 2 ♀ ov.

Range: From Coquimbo, Province of Coquimbo, southward through the Strait of Magellan to Tierra del Fuego and the Falkland Islands. Bathymetric range, from shore to about 175 fms.

Remarks: The largest male in the Lund University Chile Expedition collection measured 12.3 mm (*St. M* 68), and the largest female 6.4 mm (*St. M* 114). Oviparous females, from 5.2 to 6.4 mm in length, were collected at Punta Santa María, Strait

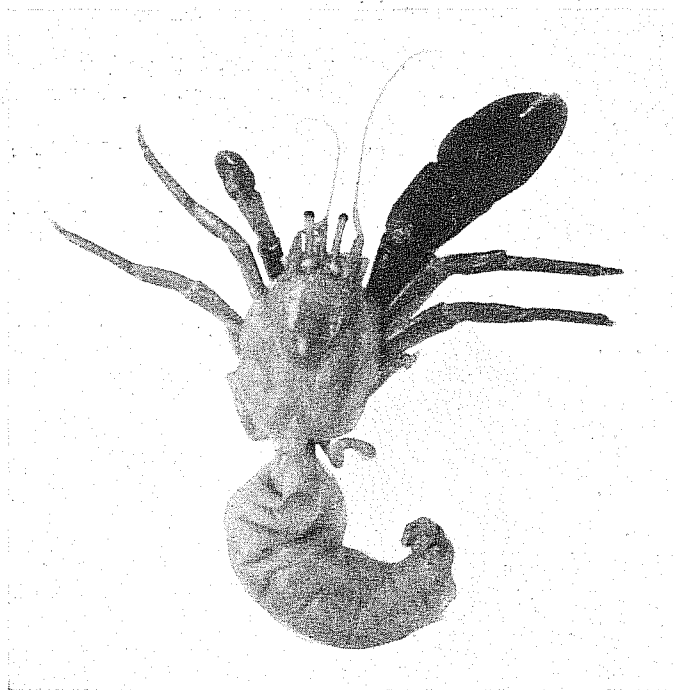


Fig. 2. *Pagurus edwardsi* (DANA). Male. Golfo de Ancud, Isla Quenu, Chile (*St. M 22*).
Carapace length 12.7 mm.

of Magellan, in May. Ovigerous females in the collection of the Hamburg Museum from the Strait of Magellan were taken in April, and were from 3.3 to 12.4 mm in length.

LAGERBERG (1905) has shown that there is considerable intraspecific variation in *Pagurus forceps* in the form of the right cheliped, and that *P. comptus* WHITE is a synonym of it. *P. gayi* of NICOLET is also undoubtedly synonymous with this species, to judge from NICOLET's description and his figure of the right cheliped, which is identical with that of LAGERBERG, pl. 1, fig. 1, for *P. forceps*.

This species is of very common occurrence in the Magellanic Province and can be said to belong to this province, although it has been taken on a few occasions in the Peruvian Province also.

Pagurus edwardsi (DANA)

Fig. 2

Bernhardus edwardsii DANA, 1852, p. 447 (type locality, Callao, Peru and Chile).

Bernhardus perlatus KINAHAN, 1857, p. 352. Not *Pagurus perlatus* MILNE EDWARDS.

Eupagurus perlatus ORTMANN, 1892a, p. 300. DOFLEIN and BALSS, 1912, p. 32. Not *Pagurus perlatus* MILNE EDWARDS.

Eupagurus edwardsi LENZ, 1902, p. 739, pl. 23, fig. 1. PORTER, 1906, p. 130.

Eupagurus edwardsii PORTER, 1903a, p. 151. Not FILHOL, 1885b, p. 412.

Pagurus edwardsii RATHBUN, 1910, p. 597. PORTER, 1935, p. 136.

Pagurus edwardsi PORTER, 1925, p. 318; 1936b, p. 153; 1936c, p. 339.

Previous records:

Peru: Callao: U. S. Expl. Exped. (DANA), Chinchas Islands J. R. KINAHAN (KINAHAN).

Chile: U. S. Expl. Exped. (DANA), ACKERMANN (ORTMANN), Cavancha L. H. PLATE (LENZ), Taltal, Prov. of Antofagasta A. CAPDEVILLE (PORTER 1925), Coquimbo and Herradura F. T. DELFIN (PORTER 1903a), Los Vilos J. N. THOMAS (PORTER 1906), Valparaíso C. E. PORTER (PORTER 1906), Talcahuano A. WHITESIDE (PORTER 1906), Bay of Talcahuano (PORTER 1936b), Llanquihue L. H. PLATE (LENZ), Puerto Montt, Prov. Llanquihue F. LAU (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

<i>St. M 131.</i> 5 ♂, 2 ♀ (1 ov). In shells of <i>Turbo niger</i> and <i>Tegula atra</i> .	<i>St. M 123.</i> 5 ♂, 2 ♀ (1 ov). In shells of <i>Ocenebra crassilabrum</i> .	<i>St. M 91.</i> 4 ♂, 1 ♀, 1 young. In <i>Tegula atra</i> .
<i>St. M 125.</i> 6 ♂, 3 ♀ ov. In shells of <i>Tegula luctuosa</i> and <i>T. tridentata</i> . In calm water between stones.	<i>St. M 90.</i> 5 ♂, 6 ♀ (3 ov). In shells of <i>Tegula atra</i> .	<i>St. M 22.</i> 20 spec. (incl. 5 ♀ ov). In <i>Tegula atra</i> and <i>Acanthina calcar</i> . Common.

Hamburg Museum

Junin; leg. R. PAESSLER; Mar. 16, 1903; K 6308. 2 ♂.

Iquique; leg. F. RINGE; 8 fms.; K 6292. 2 ♂.

Antofagasta; leg. ROLIN; 1903; K 6296. 1 ♂.

Taltal; leg. R. PAESSLER; July 10—11, 1910; 20 m; K 6335. 1 ♂, 1 ♀ ov.

Puerto Montt, Prov. Llanquihue; leg. F. LAU; 1900; K 5907. 3 ♂, 4 ♀.

(Recorded by DOFLEIN and BALSS 1912 as *Eupagurus perlatus*.)

Range: From Callao, Peru, to Isla Quenu, Golfo de Ancud, Province of Llanquihue, Chile. A shore and shallow water species. The Isla Quenu locality represents a slight extension of range southward from Puerto Montt.

Remarks: The largest male in the Lund University Chile Expedition collection measured 16.7 mm, and the largest female 11.6 mm (both *St. M 91*).

Ovigerous females were taken at Isla Tenglo in April, at Isla Quenu in May, at Bahía Herradura de Guayacán in June, at Iquique in July, and at Montemar in October. They measured from 5.7 to 11.6 mm.

The author examined specimens reported from Puerto Montt by DOFLEIN and BALSS (1912) under the name of *Eupagurus perlatus*, and found them to be *Pagurus edwardsi*. Specimens listed by ORTMANN (1892a) as *Eupagurus perlatus* are also *P. edwardsi*, judging from the accompanying description.

Pagurus perlatus H. MILNE EDWARDS

Figs. 3, 4

Pagurus perlatus MILNE EDWARDS, 1848, p. 60 (type locality, shores of Chile). RATHBUN, 1910, p. 598. PORTER, 1935, p. 137; 1936b, p. 153; 1936c, p. 339.

Bernhardus obesocarpus DANA, 1852, p. 445 (type locality, Valparaíso?); 1855, pl. 27, figs. 5a—d.

Eupagurus perlatus STIMPSON, 1858, p. 237. LENZ, 1902, p. 738. Not ORTMANN, 1892a, p. 300, nor DOFLEIN and BALSS, 1912, p. 32.

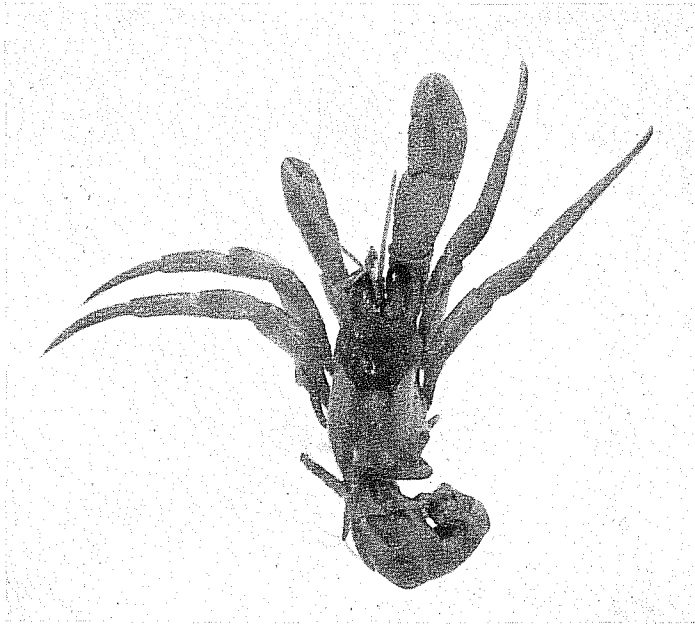


Fig. 3. *Pagurus perlatus* MILNE EDWARDS. Male. West coast of South America (Hamburg Museum). Carapace length 10 mm.

Eupagurus obesocarpus STIMPSON, 1858, p. 237.

Bernhardus obeso-carpus CUNNINGHAM, 1871, p. 495.

Eupagurus obesocarpus ALCOCK, 1905, p. 180.

Pagurus obesocarpus RATHBUN, 1910, p. 597. PORTER, 1935, p. 137.

Previous records:

Chile: FONTAINES (MILNE EDWARDS), Coquimbo: 'Nassau' (CUNNINGHAM), between Coquimbo and Curaumilla C. E. PORTER (PORTER 1935), Papudo and Quintero (PORTER 1935), ?Valparaíso: U. S. Expl. Exped. (DANA), Tumbes L. H. PLATE (LENZ), Puerto de Corral C. E. PORTER (PORTER 1935).

Material examined: None from the Lund University Chile Expedition.

Hamburg Museum

W. coast of South America; leg. R. PAESSLER; Apr. 12, 1893; K 6324. 1 ♂, 1 ♀.

British Museum (Natural History)

Coquimbo; leg. 'Nassau' (labelled *Bernhardus obeso-carpus*).

Range: Restricted to Chile, and known from Coquimbo, Province of Coquimbo, to Puerto de Corral, Province of Valdivia.

Remarks: According to J. FOREST (personal communication), the type specimens of *Pagurus perlatus* are an ovigerous female, 7.5 mm, and a male, 9 mm in carapace length. A specimen reported by CUNNINGHAM under the name of *Bernhardus obeso-carpus* was seen by the author; the length of the carapace was 26.2 mm. The two specimens in the Hamburg Museum collection are 10.0 and 13.7 mm.

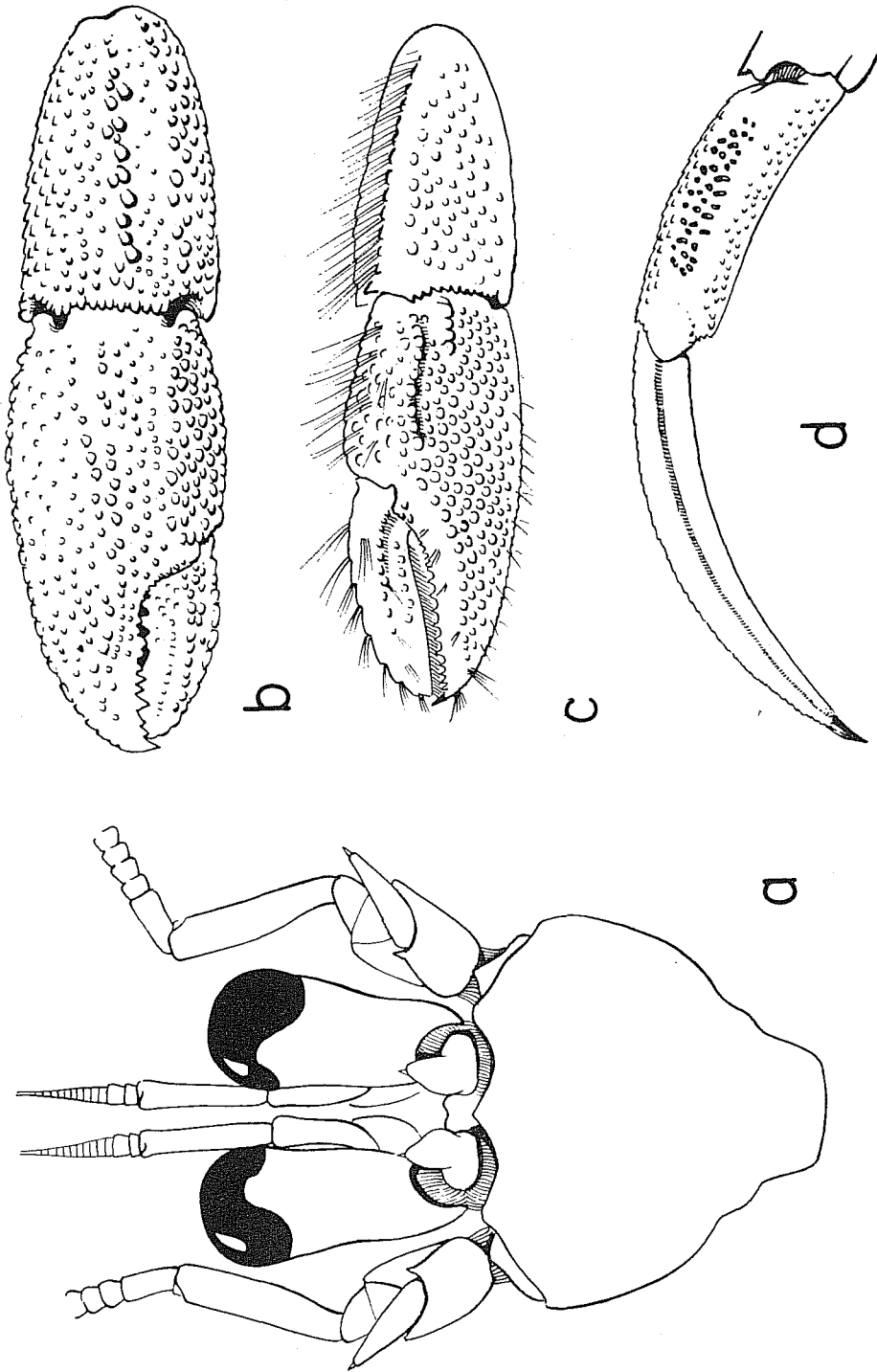


Fig. 4. *Pagurus perlatus* MILNE EDWARDS. Female syntype (Paris Museum). a, anterior part of body in dorsal view, x 14; b, distal portion of right cheliped, x 11; c, distal portion of left cheliped, x 14; d, distal portion of second left walking leg, x 11.

It is the present author's opinion, in which Dr. J. FOREST of the Paris Natural History Museum concurs, that *Bernhardus obesocarpus* DANA is a synonym of *Pagurus perlatus*. Dr. FOREST supplied the accompanying drawings of the female type of *P. perlatus*, which show the greatest affinity with DANA's illustration (pl. 27, figs. 5 a—d). He points out (*in litt.*) that the external margin of the right cheliped is much less convex in the specimen figured by DANA than in MILNE EDWARDS' type; this, however, could be due to individual variation.

Records for *Pagurus perlatus* given by ORTMANN (1892a) and by DOFLEIN and BALSS (1912) have been placed in the synonymy of *Pagurus edwardsi*, as explained in the account of the latter species.

Pagurus gaudichaudi H. MILNE EDWARDS

Pagurus gaudichaudii MILNE EDWARDS, 1836, p. 269 (type locality, shore of Valparaíso, Chile).

NICOLET, 1849, p. 188. RATHBUN, 1910, p. 598.

Pagurus gaudichaudi MILNE EDWARDS, 1837, p. 217. PORTER, 1935, p. 137.

Bernhardus barbiger A. MILNE EDWARDS, 1891, p. 28, pl. 3, figs. 1, 1a—c (type locality, Orange Bay, Patagonia).

Eupagurus patagoniensis BENEDICT, 1892, p. 3 (type locality, E. coast of Patagonia).

Pagurus patagoniensis BENEDICT, 1901, p. 465, 1 text fig.

Pagurus barbiger BENEDICT, 1901, p. 466. RATHBUN, 1910, p. 598. PORTER, 1935, p. 137.

Eupagurus barbiger LENZ, 1902, p. 737. LAGERBERG, 1905, p. 4. DOFLEIN and BALSS, 1912, p. 31.

Previous records:

Pacific side of Chile: Coquimbo to Valparaíso (PORTER), Valparaíso (MILNE EDWARDS 1836), Bay of Valparaíso (NICOLET), Calbuco L. H. PLATE (LENZ), Guaitecas Islands (LAGERBERG), Smith Channel: Hamb. Magalh. Samm. (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

St. M 16. 3 ♂, 1 ♀ ov. In shells of *Voluta ancilla*, *V. magellanica*, and *Fusus* sp. M 16.

St. M 147. 1 ♀ ov. In shells of *Argobuccinum magellanicum*.

St. M 46. 1 ♀ ov.

St. M 106. 2 ♀ (1 ov). In shells of *Trophon geversianus*.

St. M 104. 1 ♂. In shell of *Argobuccinum magellanicum*.

St. M 42. 2 ♂, 4 ♀ (2 ov). In shells of *Argobuccinum magellanicum* and *Natica* sp. Eyes light blue with dark margin.

Hamburg Museum

Valparaíso; leg. MOEVIUS; K 6032. 1 ♂.

Valparaíso; leg. R. PAESSLER; 1895; 8—10 fms.; K 6303. 2 ♂.

Range: From Coquimbo, Province of Coquimbo, through the Strait of Magellan and on the east coast of Patagonia. The vertical range is from shallow water to about 55 fms.

Remarks: The largest male in the Lund University Chile Expedition collection measured 43.3 mm, and the largest female 30.1 mm (both *St. M 16*). This is much the largest of the Chilean hermit crabs.

Ovigerous females were taken at Canal Caicaen and Paso Tenaun in January, at

Piedra Azul in April, off Punta Abtao in May, and at Isla Maillén in July. They measured from 15.2 to 30.1 mm.

LAGERBERG (1905) discussed his reasons for considering *Eupagurus patagoniensis* BENEDICT a synonym of *Bernhardus barbiger* A. MILNE EDWARDS. This species had been collected at a few localities in the Magellanic Province. From its description, the present author suspected that *Pagurus gaudichaudi* MILNE EDWARDS, from much farther north in Chile, might be this same species. Dr. J. FOREST examined the types of both *P. gaudichaudi* and *P. barbiger* in the Natural History Museum, Paris, and confirmed the identity of the two forms. The oldest available name, *gaudichaudi*, must be used for this species, which is now shown to have an extensive range but which is evidently of relatively rare occurrence.

Pagurus villosus NICOLET

Pagurus villosus NICOLET, 1849, p. 188 (type locality, Chile); 1854, Crust. pl. 1, figs. 5, 5a—b.

RATHBUN, 1910, p. 598. PORTER, 1935, p. 137; 1936b, p. 153; 1936c, p. 339.

?*Pagurus benedicti* RATHBUN, 1910, pp. 557, 597, pl. 48, fig. 1. Not *P. benedicti* (BOUVIER).

Previous records:

Chile: (NICOLET), Bay of Talcahuano (PORTER 1936b).

Material examined:

Lund University Chile Expedition

Talcahuano; Dec. 17, 1948. 1 spec.

St. M 156. 1 spec.

St. M 26. 2 spec. In *Nassa gayii*.

St. M 59. 19 spec. (incl. 5 ♀ ov). In *Nassa gayii*. Very common in lower part of tidal belt.

St. M 87. 2 spec.

St. M 37. 11 spec. In *Nassa gayii* and *Alectrion dentifera*. Common.

St. M 150. 6 ♀ ov. In *Nassa gayii* and *Alectrion dentifera*.

St. M 90. 1 spec.

St. M 148. 13 spec. (incl. 4 ♀ ov). In *Nassa gayii*.

St. M 91. 12 spec. (incl. 3 ♀ ov). In *Nassa gayii*. Very common.

St. M 24. 1 spec.

St. M 108. 19 spec. (incl. 7 ♀ ov). In *Alectrion dentifera*.

St. M 18. 2 spec. (incl. 1 ♀ ov). *Alectrion dentifera*.

St. M 46. 4 spec. (incl. 3 ♀ ov). In *Alectrion dentifera*.

St. M 17. 51 spec. (incl. 21 ♀ ov). In *Nassa gayii* and *Alectrion dentifera*. Very common.

St. M 107. 1 spec. In *Alectrion dentifera*.

St. M 22. 5 spec. In *Nassa gayii*. Common.

St. M 95. 5 spec. (incl. 3 ♀ ov). In *Nassa gayii*.

Hamburg Museum

Chile:

Pisagua; leg. R. PAESSLER; 1902; 10 fms.; K 6359. 28 spec. (incl. 14 ♀ ov).

Junin; leg. R. PAESSLER; Aug. 18, 1902; 12—15 fms.; K 6352. 15 spec.

Junin and Pisagua; leg. W. LORENZEN; 1913; 30—40 m; K 6739. 19 spec.

Caleta Buena; leg. R. PAESSLER; 1895; 8 fms.; K 6310. 5 spec.

Iquique; leg. F. RINGE; 8 fms.; K 6315. 1 spec.

Iquique; leg. R. PAESSLER; 1902; 10—12 fms.; K 6328. 5 spec.

Iquique; leg. R. PAESSLER; Nov. 21, 1909; 25 m; K 26319. 9 spec. (incl. 3 ♀ ov).

Tocopilla; leg. R. PAESSLER; July 5, 1910; 38 m; K 26330. 2 ♀ ov.

Taltal; leg. R. PAESSLER; July 10, 1910; K 6356. 6 spec. (incl. 1 ♀ ov).

Taltal; 10 fms.; K 26321. 21 spec.

Valparaíso; leg. R. PAESSLER; 15—20 fms.; K 6337. 2 spec.

Coronel; leg. R. PAESSLER; May 13, 1905; 4—7 m; K 6287. 2 spec.

Lota; leg. MICHAELSEN; July 3, 1893; 8 fms.; K 6371. 2 spec. (incl. 1 ♀ ov).
 Chile; leg. DELFIN; 1896; K 6363. 10 spec. (incl. 6 ♀ ov).
 W. coast South America; leg. R. PAESSLER; Oct. 6, 1887; K 6345. 5 spec.

Allan Hancock Foundation

Peru:

146 specimens from 5 localities (8 collecting stations), from as far north as Sechura Bay. Taken by an Allan Hancock Pacific Expedition.

Range: From Sechura Bay, Peru, to SW. of Punta Aucan, Golfo de Quetalmahué, Province of Chiloé, Chile. A shore and shallow water species, known to nearly 40 fms.

Remarks: The largest specimen taken by the Lund University Chile Expedition measured 6.8 mm in carapace length; no individuals of all the material examined exceeded 8.7 mm. This is by far the smallest of all the species of Paguridae occurring in Chile.

Ovigerous females ranged in size from 1.9 to 5.0 mm; those in the Lund University Chile Expedition collection were from 2.4 to 4.9 mm. In this collection, ovigerous females were taken in January at Canal Caicaén; in March at Isla Tenglo; in April at Ensenada de Guatral; in May at Punta Aucan and Canal San Antonio; in July at Punta Pilluco and Isla Maillén; and in December at Estero Huito and Calbuco. In all the material examined, ovigerous females were encountered which had been collected in every month of the year except June, August, September, and October.

It is an amazing fact that this species, although well described and figured by NICOLET as early as 1849, should have almost escaped attention since that time. Since the type description, in which the locality was given only as "Chile," it has been mentioned only in faunal lists, without additional records, although PORTER (1936b, 1936c) implied that it is known from the Bay of Talcahuano. During the course of this study, however, it was discovered that *P. villosus* ranges over a wide area in Chile and Peru, and moreover is of common occurrence within this range. The apparent lack of material in most collections may be due to the tiny size of the species, since it occupies only very small shells which might escape the notice of many collectors.

Porcellanopagurus FILHOL, 1885

Porcellanopagurus platei LENZ

Porcellanopagurus platei LENZ, 1902, p. 740, pl. 23, fig. 2 (type locality, Juan Fernandez Islands).
 RATHBUN, 1910, p. 598. PORTER, 1935, p. 137. FOREST, 1951, p. 185.

Previous records:

Chile: Juan Fernandez Islands L. H. PLATE (LENZ).

Material examined: None.

Range: Apparently a Juan Fernandez Islands endemic species. However, FOREST (1951) believes it may be synonymous with *P. edwardsi* FILHOL (1885a) of New Zealand.

COENOBITIDAE

Coenobita LATREILLE, 1825*Coenobita rugosus* H. MILNE EDWARDS

Coenobita rugosa MILNE EDWARDS, 1837, p. 241 (type locality, Indian Ocean).

Caenobita clypeata OWEN, 1839, p. 85, pl. 25, fig. 3. Not *C. clypeatus* LATREILLE.

Coenobita rugosus HILGENDORF, 1869, p. 99, pl. 6, figs. 2, 3a, 4b. RATHBUN, 1910, p. 595. DOFLEIN and BALSS, 1912, p. 32.

Coenobita rugosa MIERS, 1878, p. 410; 1879, p. 492.

Coenobita rugosus LENZ and RICHTERS, 1881, p. 426.

Coenobita compressa var. *rugosa* BOUVIER, 1891, p. 21.

Coenobita compressus MAN, 1902, p. 742, pl. 24, fig. 45. Not *C. compressus* (GUÉRIN).

Previous records:

Chile: Coquimbo (MIERS 1879), Field Anchorage, Strait of Magellan: Hamb. Magalh. Samm. (DOFLEIN and BALSS).

Material examined: None from the Lund University Chile Expedition.

Hamburg Museum

Valparaíso; leg. J. MEYER; K 6081. 1 ♂.

Fields Anchorage, Strait of Magellan; leg. B. JANSEN; 1899; K 6116. 2 ♀ (1 ov). (Reported by DOFLEIN and BALSS 1912.)

W. coast of South America; leg. R. PAESSLER; Apr. 12, 1893; K 6348. 1 ♂, 1 ♀ ov.

Range: Indo-Pacific to tropical west Africa; Lower California to Chile.

Remarks: This wide-ranging species, generally occurring in the tropics, has been reported on two occasions from Chilean waters; a third record from Chile is included here.

An ovigerous female from an unspecified locality was collected in April; DOFLEIN and BALSS (1912) state that the ovigerous female from the Strait of Magellan was taken in November.

Adults of this species are land-living, and larvae are aquatic.

AEGOLIDAE

The Aeglidæ are an endemic South American group, all members of which are confined to fresh water. The family was monographed by SCHMITT (1942b); for the most recent and complete account of the Chilean species, the reader is referred to this paper.

Prior to the publication of this monograph, descriptions of two new species of *Aegla* appeared in *Revista Chilena Hist. Nat.*, volume 44 (SCHMITT 1942a). The date of publication of this volume is everywhere given as 1940. However, according to Dr. SCHMITT (*in litt.*), volume 44 (1940) of *Revista Chilena* was actually published in 1942. This fact was determined by him after correspondence with the late Dr. C. E. PORTER, then editor of the journal. Perhaps the accuracy of the dates given in other volumes of *Revista Chilena* is open to question.

Aegla LEACH, 1820*Aegla denticulata* NICOLET

Aeglea denticulata NICOLET, 1849, p. 200 (type locality, Chile); 1854, Crust. pl. 2, fig. 1. GIRARD, 1855, p. 255. SCHMITT, 1942a, pp. 25, 26.

Aegla denticulata RATHBUN, 1910, p. 602. SCHMITT, 1942b, p. 480, pl. 26C, text fig. 53.

Previous records:

Chile: (NICOLET), Osorno C. H. EIGENMANN (SCHMITT 1942b).

Material examined: None.

Range: The only specific locality from which the species is known is Osorno, Province of Osorno, Chile.

Aegla intermedia GIRARD

Aeglea intermedia GIRARD, 1855, p. 255 (type locality, upper affluents of Río de Maypu, near Santiago, Chile). SCHMITT, 1942a, pp. 25, 26.

Aegla intermedia SCHMITT, 1942b, pp. 436, 448 footnote.

Previous records:

Chile: Upper affluents of Río de Maypu, 2000 ft. above sea level, near Santiago: U. S. N. Astron. Exped. (GIRARD).

Material examined: None.

Range: Known only from the single locality listed above.

Remarks: This species has apparently never been taken since the time of its original description.

Aegla papudo SCHMITT

Fig. 5

Aegla papudo SCHMITT, 1942b, p. 483, pl. 27C, text fig. 54 (type locality, Papudo, Chile).

Previous records:

Chile: WILSON (Acad. Nat. Sci. Philadelphia), (Museu Paulista, São Paulo, Brazil), Papudo J. A. WOLFSOHN, Río Mapocho near Talaganti, Prov. Santiago C. E. PORTER, Talcahuano (Mus. Comp. Zool. Harvard) (SCHMITT).

Material examined:

Walking between the trees in Parque Vergara, Viña del Mar; Sept.—Oct. 1948. 2 ♂.

Range: Known from Papudo, Province of Aconcagua, to Talcahuano, Province of Concepción.

Remarks: The two male specimens collected by the Lund University Chile Expedition measured 22.1 and 23.5 mm. The holotype was a 26 mm male.

These specimens were sent to Dr. W. L. SCHMITT for identification. In a personal communication to the present author he writes, in part:

"I am tempted to call them *A. papudo*, which species they seem to be in every detail, except that the rostral carina is quite well marked about to the end of the rostrum. This is not the case in any of the specimens I have seen (regrettably most of them are fairly small) except in the dried specimen in the Philadelphia Academy



Fig. 5. *Aegla papudo* SCHMITT. Male. Viña del Mar, Chile. Carapace length 23.5 mm.

(p. 486, last paragraph [of SCHMITT 1942b]) I would not want to call your specimens new; they may represent a variation, but until I had seen more specimens of the species proper and more of your possible variant, I would be inclined to let it go as *A. papudo* ? with remarks on the rostral carination."

Aegla concepcionensis SCHMITT

Aeglea concepcionensis SCHMITT, 1942a, p. 26, pl. 5, fig. 1 (type locality, near Concepción, Chile).
Aegla concepcionensis SCHMITT, 1942b, p. 501, pl. 28A, text fig. 60.

Previous records:

Chile: Near Concepción W. L. SCHMITT (SCHMITT 1942a), vicinity of Concepción A. SANTA-CRUZ, Corral T. BARBOUR (SCHMITT 1942b).

Material examined:

St. L 5. 1 ♀ ov. Under stones.

Range: Known from near Concepción, Province of Concepción, to the northern end of Chiloé Island. The latter locality represents an extension of range southward from Corral, Province of Valdivia. This is the first record of any *Aegla* from Chiloé Island.

Remarks: The ovigerous female from the Lund University Chile Expedition was collected in February and measured 16.9 mm. The male holotype of the species was 33 mm in length.

Aegla laevis (LATREILLE)

Galathea laevis LATREILLE, 1818, pl. 308, fig. 2 (type locality not given).

Aegla laevis LEACH, 1820, p. 49. RATHBUN, 1910, p. 602 (not all synonymy nor all localities listed). SCHMITT, 1942b, p. 504, pl. 28D, text fig. 61.

Aegla laevis DESMAREST, 1825, p. 178, pl. 33, fig. 2. DANA, 1852, p. 476. SCHMITT, 1942a, pp. 25, 31.

Aegla levis DANA, 1855, pl. 30, fig. 6a—f.

Previous records:

Chile: F. SILVESTRI, river near St. Iago-de-Chile (SCHMITT 1942b), beyond the Cuesto del Prado [Cuesta de Prado] on road from Valparaíso to Santiago; U. S. Expl. Exped. (DANA), Río Maipo GILLISS, near Melipilla, Prov. Santiago C. E. PORTER (SCHMITT 1942b).

Material examined: None.

Range: Definitely known only from the localities given above (see Remarks, below).

Remarks: As noted by SCHMITT (1942b, p. 504, footnote), many specimens designated in the literature as *A. laevis*, when the genus was thought to be monotypic, cannot now be assigned with certainty to the correct species. The most important *Aegla* records may be found in SCHMITT's review of the literature of the genus (1942b).

Aegla laevis talcahuano SCHMITT

Aegla laevis talcahuano SCHMITT, 1942b, p. 508, pl. 28B—C, text fig. 62 (type locality, Talcahuano, Chile).

Previous records:

Chile: Talcahuano and an unknown locality: 'Hassler' (SCHMITT).

Material examined: None.

Aegla abtao SCHMITT

Aegla abtao SCHMITT, 1942a, p. 30, pl. 5, fig. 2 (type locality, Abtao, Chile).

Aegla abtao SCHMITT, 1942b, p. 510, pl. 28F—G, text fig. 63.

Previous records:

Chile: El Volcan [erroneously written El Valean by SCHMITT], Santiago C. E. PORTER (SCHMITT 1942b), falls of Petrohué C. H. EIGENMANN (SCHMITT 1942b) [probably this species], Abtao C. H. EIGENMANN (SCHMITT 1942a), locality unknown (Buenos Aires Museum) (SCHMITT 1942b).

Material examined:

St. L 8. 8 ♂, 8 ♀, 3 young.

St. L 7. 8 ♂, 7 ♀, 6 young. On sand, between stones. Some small specimens were red. Swam very fast backwards. Shed casts common between the stones.

Range: Known from El Volcan, Santiago, Province of Santiago, to Abtao, Province of Llanquihue.

Remarks: The largest male in the Lund University Chile Expedition collection measured 27.6 mm (*St. L* 8), and the largest female 16.0 mm (*St. L* 7). The largest specimen recorded by SCHMITT (1942b) was a male of 28.0 mm, from an unknown locality.

Many of the specimens from *St. L* 8 were parasitized with *Temnocephala chilensis* (MOQUIN-TANDON) (det. Å. ANDERSSON).

CHIROSTYLIDAE

Uroptychus HENDERSON, 1888*Uroptychus parvulus* (HENDERSON)

Diptychus parvulus HENDERSON, 1885b, p. 420 (type locality, Sarmiento Channel [Canal Sarmiento], Chile, 'Challenger' Sta. 310, 400 fms.).

Uroptychus parvulus HENDERSON, 1888, p. 177, pl. 21, fig. 3. MURRAY, 1895, p. 1157.

Previous records:

Chile: Sarmiento Channel [Canal Sarmiento], 400 fms.: 'Challenger' (HENDERSON 1885b).

Material examined: None.

Range: Known only from the type locality, Canal Sarmiento, Territory of Magalanes, Chile. An archibenthal species, known from 400 fms.

Remarks: The largest specimen in the type series was an ovigerous female measuring 16 mm.

Chirostylus ORTMANN, 1892*Chirostylus milneedwardsi* (HENDERSON)

Ptychogaster milne-edwardsi HENDERSON, 1885a, p. 901, text fig. 330 (type locality, Sarmiento Channel [Canal Sarmiento], Chile, 'Challenger' Sta. 310, 400 fms.); 1885b, p. 418; 1888, p. 171, pl. 20, fig. 2. MURRAY, 1895, p. 1157.

Chirostylus milne-edwardsii DOFLEIN and BALSS, 1913, p. 166.

Previous records:

Chile: Sarmiento Channel [Canal Sarmiento], 400 fms.: 'Challenger' (HENDERSON 1885a).

Material examined: None.

Range: Known only from the type locality, Canal Sarmiento, Territory of Magalanes, Chile, where it was taken with the preceding species. An archibenthal species, known from 400 fms.

Remarks: Measurements for a male were given as 55 mm.

GALATHEIDAE

Galathea FABRICIUS, 1793*Galathea lenzi* RATHBUN

Fig. 6

Galathea latirostris LENZ, 1902, p. 742. Not *G. latirostris* DANA.

?*Galathea* sp. PORTER, 1906, p. 130.

Galathea lenzi RATHBUN, 1907, p. 49, pl. 3, fig. 1 (type locality, Corral, Chile); 1910, p. 601.

PORTER, 1916a, p. 96; 1916b, p. 112.

Galathea lenzii DOFLEIN and BALSS, 1913, p. 170. BALSS, 1924, p. 334.

Previous records:

Chile: ?Los Vilos J. N. THOMAS (PORTER 1906), Toimé A. HONORATO (PORTER 1916a), Corral



Fig. 6. *Galathea lenzi* RATHBUN. Female. Juan Fernandez Islands (Hamburg Museum).
Carapace length 4.6 mm.

(RATHBUN 1907), Juan Fernandez Islands, 15 fms. L. H. PLATE (LENZ), Masatierra, Juan Fernandez Islands K. BÄCKSTRÖM (BALSS).

Material examined: None from the Lund University Chile Expedition.
Hamburg Museum

Juan Fernandez; leg. C. BOCK; March 1923; K 5882. 2 ♂, 2 ♀ (1 ov), 2 young.

Range: Restricted to Chile, and definitely known from Tomé, Province of Concepción, to Corral, Province of Valdivia, and from the Juan Fernandez Islands.

Remarks: The largest specimen examined measured 4.6 mm. The specimen from Juan Fernandez reported by LENZ was 6.3 mm.

An ovigerous female collected in March measured 4.4 mm.

Pleuroncodes STIMPSON, 1860

Pleuroncodes monodon (H. MILNE EDWARDS)

Fig. 7

?*Grimotea gregaria* GUÉRIN, 1831, pl. 3, figs. 1, 1A—D; 1838a, p. 32. Not *Munida gregaria* (FABRICIUS).

Galathea monodon MILNE EDWARDS, 1837, p. 276 (type locality, shores of Chile); 1851, pl. 11,

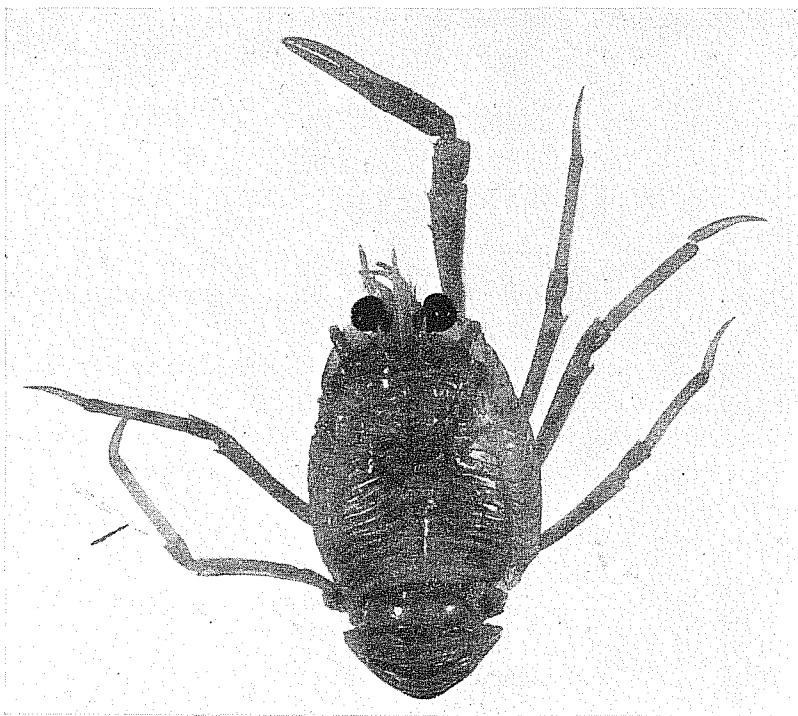


Fig. 7. *Pleuroncodes monodon* (MILNE EDWARDS). Male. Coquimbo, Chile (Hamburg Museum).
Carapace length 24.5 mm.

figs. 6—9. MILNE EDWARDS and LUCAS, 1844, p. 35. NICOLET, 1849, p. 203. Not SPENCE BATE, 1868, p. 447, pl. 21, figs. 2, 2c, 2k.

?*Grimothea duperreii* MILNE EDWARDS, 1837, p. 277.

Pleuroncodes monodon STIMPSON, 1860, p. 245. PORTER, 1903a, p. 151; 1906, p. 130; 1916a, p. 97; 1916b, p. 113; 1925, p. 320. RATHBUN, 1910, p. 602 (part; Chile records).

Munida cockeri RATHBUN, 1910, pp. 559, 601, pl. 53, fig. 5 (type locality, Callao Bay, Peru).

Munida cockeri DOFLEIN and BALSS, 1913, p. 168.

Previous records:

Peru: Lobos de Afuera and Callao Bay R. E. COKER (RATHBUN), ?Callao roadstead: 'Coquille' (GUÉRIN).

Chile: (MILNE EDWARDS), Taltal A. CAPDEVILLE (PORTER 1925), Caldera E. GIGOUX (PORTER 1903a), Coquimbo F. T. DELFIN (PORTER 1903a), Los Vilos J. N. THOMAS (PORTER 1906), Bay of Valparaíso (PORTER 1916a), Calbuco and Ancud R. MALDONADO (PORTER 1903a).

Material examined: None from the Lund University Chile Expedition.

Hamburg Museum

Peru:

Northern Callao; leg. B. JANSEN; 1901; from the pump shafts of steamship; K 7845. 2 ♂, 2 ♀ (1 ov).

Chile:

Antofagasta; leg. R. PAESSLER; 1903; K 7833. 9 ♂, 3 ♀ (1 ov).

Antofagasta; leg. ROLIN; 1903; K 7844. 1 ♂, 4 ♀.

Taltal; leg. R. PAESSLER; 1904; 16 fms.; K 7836. 5 ♂, 3 ♀.

Coquimbo; leg. R. PAESSLER; 1902; from the stomach of a fish ("congrío"); K 7835. 2 ♂, 1 ♀.

U. S. National Museum

Peru: Callao; leg. R. E. COKER; June, 1908; U.S.N.M. Cat. No. 40483. 2 ♂, 2 ♀, labelled "*Munida cokeri* RATHBUN" and collected at the same time as the types of the latter.

Range: From Lobos de Afuera Islands, Peru, to Ancud, Province of Chiloé, Chile. (See Remarks, below.)

Remarks: The largest male specimen examined measured 24.5 mm, and the largest female 18.4 mm. The largest ovigerous female in the collection of the Hamburg Museum was 13.7 mm.

No careful study has ever been made of the differences between *P. monodon* and its northern hemisphere congener, *P. planipes* STIMPSON, but examination of the two species would seem to indicate that they may be identical. A comparative study of the two forms will be the subject of a future paper. If they prove to be separable, the *P. monodon* reported by FAXON (1893, 1895) from Acapulco, Mexico, and from the Gulf of Panama probably belongs with *P. planipes*.

RATHBUN (1910) described a new species, *Munida cokeri*, from Peru. The present author examined several specimens taken along with the types, and found them to be identical with the Chilean *Pleuroncodes monodon*.

MILNE EDWARDS (1837) gave a new name, *Grimothea duperreii*, to crabs from Callao called *Grimotea gregaria* by GUÉRIN (1831). RATHBUN (1910) referred GUÉRIN's record to her new species *Munida cokeri*, but was apparently unaware of MILNE EDWARDS' name *duperreii*, which would take precedence over *cokeri*. GUÉRIN's illustration resembles young individuals of *Pleuroncodes monodon*, and his specimens can probably be safely referred to it.

None of the Chilean records for *P. monodon* indicate a pelagic mode of life for the species, although the northern hemisphere *P. planipes* has repeatedly been reported occurring in large swarms at the surface of the sea. However, the Peruvian record of GUÉRIN, if it is accepted as belonging to *P. monodon*, shows that that species is also pelagic; GUÉRIN stated that it was so abundant in the roadstead of Callao that it gave the water the appearance of blood. The specimens from northern Callao in the collection of the Hamburg Museum were taken from the pump shafts of a steamship, which suggests that they had been living pelagically.

Various records of PORTER for the species show that it has been found on numerous occasions in the stomach of a fish, the "congrío" (*Genypterus* sp.). Specimens from Coquimbo in the Hamburg Museum collection were also taken from the stomach of one of these fishes.

Cervimunida BENEDICT, 1902

Cervimunida johni PORTER

Fig. 8

Cervimunida johni PORTER, 1903c, p. 276, pl. 17, text fig. 9 (type locality, Coquimbo, Chile); 1905, p. 17; 1916a, p. 97, text fig. 27; 1916b, p. 114; 1936a, p. 255, pl. 18. RATHBUN, 1910, p. 601.

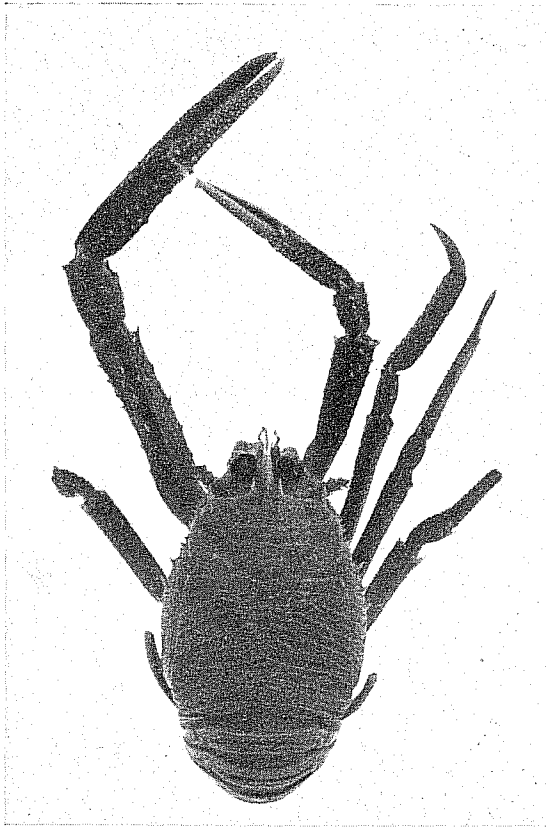


Fig. 8. *Cervimunida johni* PORTER. Male. Montemar, Chile (*St. M 123*).
Carapace length 62.3 mm.

Munida gregaria BOONE, 1938, p. 267, pls. 106, 107 (part; description and the Lengua de Vaca Point locality at least). Not *M. gregaria* (FABRICIUS).

Previous records:

Chile: Coquimbo S. JOHN (PORTER 1903c), 5 mi. from Lengua de Vaca Point, 90 fms.: 'Alva' (BOONE) [as *Munida gregaria*], Bay of Valparaíso E. LAROZE (PORTER 1905), Matanzas (near Valparaíso) Z. VERGARA (PORTER 1916a).

Material examined:

St. M 123. 1 ♂.

Range: Restricted to Chile, from Coquimbo, Province of Coquimbo, to Matanzas, Province of Santiago. It has been taken to a depth of 90 fms.

Remarks: The single specimen in the Lund University Chile Expedition collection measured 62.3 mm, which seems to be the largest on record.

This crab was originally described from a specimen taken at Coquimbo from the stomach of a fish, the "congrío" (*Genypterus* sp.). Two specimens were later recovered at Valparaíso from the stomach of another fish of this type.

"This crustacean appeared to be very rare until 1934. However, at the end of November of the year before last [1934], it began to be sold at the Central Market of this capital and at the restaurants." (PORTER, 1936a.)

A large series taken by the 'Alva' off Lengua de Vaca Point was identified by BOONE (1938) as *Munida gregaria*. (See Remarks under account of the latter species.)

Munida LEACH, 1820

Munida gregaria (FABRICIUS)

Fig. 9

Galathea gregaria FABRICIUS, 1793, p. 473 (type locality, south Atlantic, 37°30'S. Lat.).

Grimotaea gregaria LEACH, 1820, p. 50.

Grimothea gregaria MILNE EDWARDS, 1837, p. 277. WHITE, 1847a, p. 66. Not GUÉRIN, 1831, pl. 3, figs. 1, 1A—D; 1838a, p. 32.

?*Galathea monodon* SPENCE BATE, 1868, p. 447, pl. 21, figs. 2, 2c, 2k. Not *Pleuroncodes monodon* (MILNE EDWARDS).

Munida gregaria MIERS, 1881, p. 73 (part). A. MILNE EDWARDS, 1891, p. 32, pl. 2, figs. 1, 1a—c. LENZ, 1902, p. 744. BENEDICT, 1902, p. 308, text figs. 45, 46. RATHBUN, 1910, p. 601. ORTMANN, 1911, p. 659. DOFLEIN and BALSS, 1912, p. 33. PORTER, 1916a, p. 99; 1916b, p. 115. BOONE, 1938, p. 267 (part; not pls. 106, 107, nor description nor all localities). Not BOONE, 1930, p. 53, pl. 12, nor COVENTRY, 1944, p. 536.

Grimothea novae zelandiae FILHOL, 1885b, p. 426.

Previous records:

Pacific side of Chile: Calbuco L. H. PLATE (LENZ), do F. T. DELFIN (PORTER 1916a), Ancud F. T. DELFIN (PORTER 1916a), Chiquiso Channel between Chiloé and Cailin Islands, 7 fms., and Port Lagunas, 9 fms.: 'Alva' (BOONE 1938) [perhaps this species], Cockle Cove, 2—32 fms., and Trinidad Channel, 4 fms.: 'Alert' (MIERS), Dixon Cove PAESSLER (DOFLEIN and BALSS), Mollyneux Sound [Canal Molinas?], Smith Channel, 50 m: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Strait of Magellan J. E. GRAY, T. HARDWICKE, Antarctic Exped. (WHITE), do L. H. PLATE (LENZ), do 'Albatross' (BENEDICT), Punta Arenas J. B. HATCHER (ORTMANN), do 7—10 fms.: 'Alert' (MIERS), do F. T. DELFIN (PORTER 1916a), do PAESSLER (DOFLEIN and BALSS), Paso Brecknock: Miss. Sci. Cap Horn (A. MILNE EDWARDS).

Material examined:

St. M 111. 1 ♀. From upper part of tidal belt. Common. *St. M 115*. 2 ♂, 25 ♀. Among kelp, growing in the tidal belt. *St. M 113*. 1 ♂, 1 ♀.

Range: Discontinuous. From Calbuco, Province of Llanquihue, around the southern end of South America and through the Strait of Magellan to Tierra del Fuego and the Falkland Islands; also New Zealand. Vertical distribution, from shore to 60 fms.

Remarks: The largest male in the Lund University Chile Expedition collection measured 32.2 mm (*St. M 115*), and the largest female 31.0 mm (*St. M 113*). The largest specimen on record was 38.0 mm.

The young are pelagic. For an account of the habits of this species and of *Munida subrugosa*, and a review of the literature concerning them, see MATTHEWS (1932).

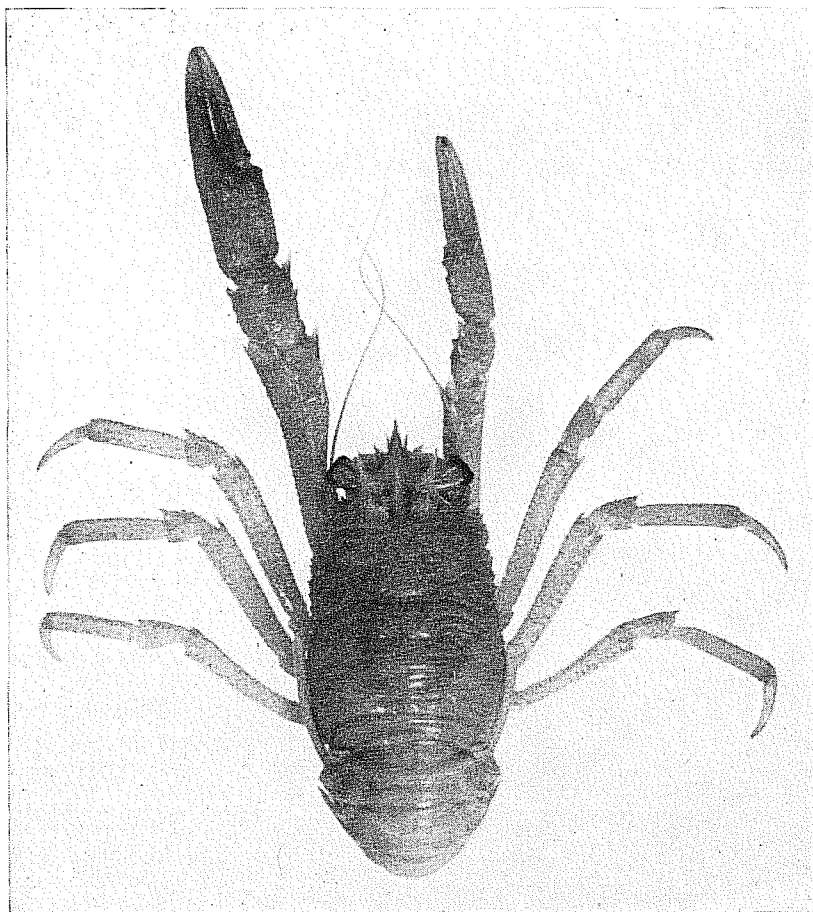


Fig. 9. *Munida gregaria* (FABRICIUS). Male. Estrecho de Magallanes, Punta Santa María (St. M 113). Carapace length 32 mm.

BOONE (1938) described a large series of galatheids from various Chilean localities as *Munida gregaria*. The description and figure, of a specimen from Lengua de Vaca Point, apply to *Cervimunida johni* PORTER, and the rest of the material from this locality probably belongs to the same species. Specimens from Port Lagunas and Chiquiso Channel are perhaps *Munida gregaria*.

The specimen from Costa Rica described and figured by BOONE (1930) as *Munida gregaria* does not belong to this species, nor do individuals from off Lower California, Mexico, attributed to it by COVENTRY (1944). Specimens observed by R. O. CUNNINGHAM in the Strait of Magellan and off the Falkland Islands, identified by SPENCE BATE (1868) as *Galathea monodon* MILNE EDWARDS, were probably young of *Munida gregaria*.

Munida subrugosa (WHITE)

Fig. 10

Galathea subrugosa WHITE, 1847a, p. 66 (type locality, Rendezvous Cove, Auckland Islands). CUNNINGHAM, 1871, p. 495.

Munida subrugosa DANA, 1852, p. 479; 1855, pl. 30, fig. 7a—c. TARGIONI-TOZZETTI, 1877, p. 234, pl. 13, figs. 5, 5a—b. HENDERSON, 1888, p. 124. A. MILNE EDWARDS, 1891, p. 36, pl. 2, figs. 2, 2a—c. MURRAY, 1895, pp. 1140, 1143, 1164, 1166. ORTMANN, 1911, p. 659. DOFLEIN and BALSS, 1912, p. 33.

Munida gregaria MIERS, 1881, p. 73 (part). Not *M. gregaria* (FABRICIUS).

Previous records:

Pacific side of Chile: Ancud and Port Otway [=Puerto Barroso]: 'Nassau' (CUNNINGHAM), Port Otway [=Puerto Barroso] 45 fms. and Messier Channel, 125 fms.: 'Challenger' (HENDERSON), Cockle Cove, 2—32 fms., and Trinidad Channel, 4 fms.: 'Alert' (MIERS), Smith Channel: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Strait of Magellan: 'Nassau' (CUNNINGHAM), do Hamb. Magalh. Samm. (DOFLEIN and BALSS), Punta Arenas J. B. HATCHER (ORTMANN), do 7—10 fms.: 'Alert' (MIERS), do 0—20 m: Hamb. Magalh. Samm. (DOFLEIN and BALSS), Port Famine, 10—15 fms., and Grays Harbor: 'Challenger' (HENDERSON), Paso Brecknock: Miss. Sci. Cap Horn (A. MILNE EDWARDS), western Patagonia: 'Magenta' (TARGIONI-TOZZETTI).

Material examined:

<i>St. M</i> 29. 3 young.	<i>St. M</i> 144. 1 ♀.	<i>St. M</i> 21. 2 ♀.
<i>St. M</i> 87. 1 young.	<i>St. M</i> 19. 31 ♂, 26 ♀ (1 ov),	<i>St. M</i> 27. 2 ♀, 2 young.
<i>St. M</i> 89. 1 young.	24 young.	<i>St. M</i> 98. 2 ♂.
<i>St. M</i> 4. 1 larva. Eyes green.	<i>St. M</i> 20. 5 ♂, 3 ♀, 3 young.	<i>St. M</i> 40. 1 ♂.
A red field at the base of the abdomen. The lower margins of the carapace red. The rest of the body transparent.	<i>St. M</i> 108. 7 ♂, 10 ♀, 6 young.	<i>St. M</i> 95. 4 ♂, 5 ♀.
	<i>St. M</i> 18. 1 ♀.	<i>St. M</i> 96. 4 ♂, 1 ♀.
	<i>St. M</i> 46. 5 ♂, 7 ♀ (3 ov), 4 young.	<i>St. M</i> 97. 2 ♂, 1 ♀.
	<i>St. M</i> 17. 2 young.	<i>St. M</i> 44. 1 young.
<i>St. M</i> 13. 1 ♂.	<i>St. M</i> 107. 2 ♀, 9 young.	<i>St. M</i> 43. 1 ♀, 5 young.
<i>St. M</i> 16. 1 ♀, 1 young.	<i>St. M</i> 106. 8 ♂, 5 ♀.	<i>St. M</i> 42. 3 young.
		<i>St. M</i> 61. 1 ♂.

Range: Discontinuous. From Ancud, Province of Chiloé, around the southern end of South America and through the Strait of Magellan, and northward as far as Montevideo, Uruguay on the Atlantic coast; Falkland Islands. Also New Zealand and its subantarctic islands, and south of Australia. Vertical distribution, from shore to 600 fms.

Remarks: The largest male in the Lund University Chile Expedition collection measured 32.5 mm, and the largest female 26.5 mm (both *St. M* 46). The largest specimen on record was 69 mm.

Ovigerous females were collected in the Golfo de Ancud in December and January, and ranged in size from 17.8 to 25.1 mm.

In contrast to the preceding species, the young of *Munida subrugosa* are bottom-living like the adults.

Munida curvipes BENEDICT

Munida curvipes BENEDICT, 1902, p. 254, text fig. 6 (type locality, off Archipiélago de los Chonos, Chile, 'Albatross' Sta. 2788, 1,050 fms.).

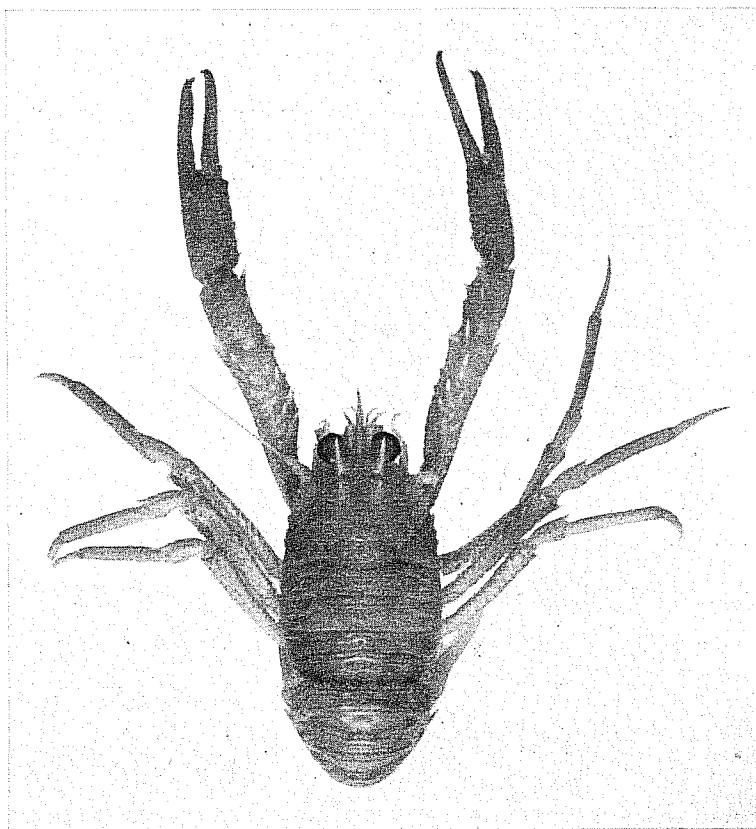


Fig. 10. *Munida subrugosa* (WHITE). Male. Golfo de Ancud, Estero Huito, Chile (St. M 19).
Carapace length 29.2 mm.

Previous records:

Chile: Off Archipiélago de los Chonos, 1,050 fms.: 'Albatross' (BENEDICT).

Material examined: None.

Range: Known only from the type locality, off Archipiélago de los Chonos, Chile.
An abyssal species, known from 1,050 fms.

Munidopsis WHITEAVES, 1874

Munidopsis rostrata (A. MILNE EDWARDS)

Galacantha rostrata A. MILNE EDWARDS, 1880, p. 52 (type locality, 'Blake' Sta. 236, Bequia, 1,591 fms.).

Munidopsis rostrata SMITH, 1885, p. 493.

Galacantha talismani FILHOL, 1885c, pl. 3 (type locality, off Morocco).

Galacantha bellis HENDERSON, 1885b, p. 418 (type locality, off Mas Atierra Island, Juan Fernandez Islands, Chile, 'Challenger' Sta. 300, 1 375 fms.); 1888, p. 167, pl. 19, fig. 6. MURRAY, 1895, p. 1129.

Galacantha talismanii HENDERSON, 1888, p. 167, pl. 20, fig. 1.

Galacantha areolata WOOD-MASON in WOOD-MASON and ALCOCK, 1891, p. 200 (type locality, Bay of Bengal, 'Investigator' Sta. 97, 1,310 fms.).

Galacantha investigatoris ALCOCK and ANDERSON, 1894, p. 173 (type locality, Laccadive Sea, 'Investigator' Sta. 127, 1,200 fms.).

Galacantha rostrata var. *investigatoris* ALCOCK, 1901, p. 276.

Galacantha faxoni BENEDICT, 1902, p. 304.

Previous records:

Chile: Off Mas Atierra Island, Juan Fernandez Islands, 1,375 fms.: 'Challenger' (HENDERSON 1885b).

Material examined: None.

Range: Western Atlantic, from off New Jersey to Bequia, Lesser Antilles; eastern Atlantic, off Morocco; off Cape Point, South Africa; Arabian Sea and Bay of Bengal; off the Banda Islands, Moluccas; eastern Pacific, off the Galapagos Islands and off Juan Fernandez Islands, Chile. An abyssal species, known from 900—1,591 fms.

Remarks: The species was taken in Chilean waters only by the 'Challenger', and was described by HENDERSON as *Galacantha bellis*.

Munidopsis antoni (A. MILNE EDWARDS)

Galathodes antonii A. MILNE EDWARDS in FILHOL, 1884, p. 230, text fig. 2.

Munidopsis antonii HENDERSON, 1888, p. 151, pl. 18, fig. 1. MURRAY, 1895, p. 1129. A. MILNE EDWARDS and BOUVIER, 1900, p. 321, pl. 4, fig. 2; pl. 30, figs. 21—25 (type locality, N. of the Azores, 'Talisman' Sta. 133, 3,975 m).

Munidopsis antoni A. MILNE EDWARDS and BOUVIER, 1894, pp. 198, 223, 225, 231, 275, text figs. 5, 26.

Previous records:

Chile: Off Mas Atierra Island, Juan Fernandez Islands, 1,375 fms.: 'Challenger' (HENDERSON).

Material examined: None.

Range: Off the Azores; SW of Australia; off Juan Fernandez Islands, Chile. An abyssal species, known from 1,375—2,192 fms.

Remarks: Taken in Chilean waters only by the 'Challenger', from the same locality as the preceding species.

Munidopsis trifida HENDERSON

Munidopsis trifida HENDERSON, 1885b, p. 415 (type locality, Sarmiento Channel [Canal Sarmiento], Chile, 'Challenger' Sta. 310, 400 fms.); 1888, p. 156, pl. 16, fig. 2. MURRAY, 1895, p. 1157. BENEDICT, 1902, p. 329. Not ALCOCK and ANDERSON, 1894, p. 168.

Galathodes trifidus A. MILNE EDWARDS and BOUVIER, 1894, p. 278.

Previous records:

Chile: Canal Messier, 449 fms.: 'Albatross' (BENEDICT), Canal Sarmiento, 400 fms.: 'Challenger' (HENDERSON), Estrecho Collingwood, 348 fms.: 'Albatross' (BENEDICT).

Material examined: None.

Range: As far as known restricted to Chile, from Canal Messier, Territory of Aysén, to Estrecho Collingwood, Territory of Magallanes. An archibenthal species, known from 348—449 fms.

Munidopsis aspera (HENDERSON)

Elasmonotus asper HENDERSON, 1885b, p. 416 (type localities, off Port Churruca, Strait of Magellan, Chile, 'Challenger' Sta. 311, 245 fms., and off the coast of Brazil, Sta. 107, 1,500 fms.); 1888, p. 163, pl. 19, fig. 4. MURRAY, 1895, p. 1161.

Munidopsis aspera FAXON, 1893, p. 188.

Previous records:

Chile: Off Port Churruca, Strait of Magellan, 245 fms.: 'Challenger' (HENDERSON 1885b).

Material examined: None.

Range: From southern California south to the Strait of Magellan; Galapagos Islands; Brazil. An archibenthal-abyssal species, bathymetric range 57—1,500 fms.

Munidopsis aculeata HENDERSON

Munidopsis subsquamosa var. *aculeata* HENDERSON, 1888, p. 153, pl. 16, fig. 1 (type localities, W. of Chiloé Island, Chile, 'Challenger' Sta. 302, 1,450 fms., and between Marion Island and the Crozets, Sta. 146, 1,375 fms.). MURRAY, 1895, p. 1135.

Munidopsis subsquamosa aculeata FAXON, 1895, p. 86.

Munidopsis aculeata BENEDICT, 1902, p. 315.

Previous records:

Chile: W. of Chiloé Island, 1,450 fms.: 'Challenger' (HENDERSON).

Material examined: None.

Range: Pacific coast of the Americas, Gulf of Panama and off Chiloé Island, Chile; S. of Africa, between Marion Island and the Crozets. An abyssal species, known from 1,375 to 1,793 fms.

Munidopsis opalescens BENEDICT

Munidopsis opalescens BENEDICT, 1902, p. 287, text fig. 31 (type localities, Estrecho Collingwood, Chile, 'Albatross' Sta. 2781, 348 fms., and Canal Messier, Chile, Sta. 2785, 449 fms.).

Previous records:

Chile: Canal Messier, 449 fms., and Estrecho Collingwood, 348 fms.: 'Albatross' (BENEDICT).

Material examined: None.

Range: Known only from the two Chilean localities listed above. An archibenthal species, known bathymetric range 348—449 fms.

PORCELLANIDAE

The porcellain crabs are a very characteristic feature of the littoral zone along the coast of Chile. The genus *Petrolisthes* is represented by more species than is any other anomuran genus within this geographical area, and most of the species occur abundantly within their ranges of distribution. It is perhaps surprising that no porcellanid has ever been recorded from the Juan Fernandez Islands.

WHITE (1847a) listed two new species from Chile, *Porcellana squamulata* and *Porcellana rugosimanus*. Both names are *nomina nuda*, and neither has been mentioned in

the literature since. In an effort to establish the identity of these forms, the present author examined the type specimens, which are among the dry collections in the British Museum (Natural History). Both proved to be referable to species which are not part of the Chilean fauna. Dr. I. GORDON informs the author (personal communication) that wrong locality labels are frequently met with in the old dry collection of the British Museum.

Porcellana squamulata is one of several closely related *Petrolisthes* with squamulations covering the carapace and chelipeds and with the carpus of the chelipeds armed with a row of teeth, possibly *P. edwardsi* (SAUSSURE) of the tropical eastern Pacific. *Porcellana rugosimanus* proved to be a *Pachycheles*; at the request of the author, it was compared with an example of the tropical western Atlantic species *P. monilifer* (DANA) by Dr. GORDON, who states (*in litt.*) that in her opinion the two are identical.

The following key to the Chilean Porcellanidae, based on that of GUÉRIN-MÉNEVILLE, does not include *Petrolisthes desmaresti* (EYDOUX and GERVAIS) since no specimens have been seen by the present author and its description is too brief to characterize it adequately. It stands very close to *P. acanthophorus* (MILNE EDWARDS and LUCAS), with which it may be identical.

Key to the Chilean Porcellanidae

- 1 a. Lateral portions of carapace in several pieces, separated from each other by membranous interspaces. Chelipeds unequal, thick, and roughened; carpus short. *Pachycheles grossimanus*
- 1 b. Lateral portions of carapace entire. Chelipeds equal or subequal, broad and flattened; carpus more or less elongate. *Petrolisthes*
 - 2 a. Carpus of cheliped entire, without spines or angular projections. Anterior portion of carapace sloping sharply downwards, starting behind eyes. Front broadly triangular.
 - 3 a. Orbital margin without a concavity, following a straight line from rostrum to behind eye. Carapace and carpus of cheliped smooth. *violaceus*
 - 3 b. Orbital margin deeply concave, with a sharp outer orbital angle. Carapace and carpus of cheliped either smooth or finely granulate. *laevigatus*
 - 2 b. Carpus of cheliped armed with spines or angular projections.
 - 4 a. Carpus of cheliped with a distinct broad angular projection on its anterior margin.
 - 5 a. Orbital margin straight, without a concavity. Anterior portion of carapace sloping sharply downwards, starting behind eyes. *angulosus*
 - 5 b. Orbital margin deeply concave. Anterior portion of carapace sloping downwards only slightly.
 - 6 a. Front with three well-defined lobes, about equal in breadth, the middle one the longest. Carpus of cheliped (including the angular projection) about as broad as long. Carapace and chelipeds smooth. *punctatus*
 - 6 b. Front with five lobes. Carpus of cheliped not so broad as long. Carapace and chelipeds rough and uneven. *spiniifrons*
 - 4 b. Carpus of cheliped with a row of spines or teeth on its anterior margin.
 - 7 a. Front with a single lobe flanked on either side by a sharp spine. Merus of walking legs with a row of spines on anterior margin. *acanthophorus*
 - 7 b. Front trilobate. Merus of walking legs without spines on anterior margin.
 - 8 a. Lobes of front about equal in length, not granulate on edges. Anterior margin of carpus with an uneven row of teeth.

- 9a. All three teeth of front about equal in breadth. Anterior margin of carpus with about eight subequal teeth. *tuberculatus*
 9b. Middle tooth of front much broader than the other two, and with a concavity in the center. Anterior margin of carpus with two or three spiniform teeth followed by several small ones. *affinis*
 8b. Middle lobe of front longer than the other two; all three triangular and granulate on the edges. Anterior margin of carpus with two or three well-separated spines. Hand very long and slender. *mitra*

Pachycheles STIMPSON, 1858*Pachycheles grossimanus* (GUÉRIN)

Porcellana grossimana GUÉRIN, 1835, p. 116 (type locality, Chile); 1838b, p. 8, pl. VII 26, fig. 3; 1839, p. 176, pl. 52, fig. 3. MILNE EDWARDS and LUCAS, 1844, p. 34. NICOLET, 1849, p. 198. DANA, 1852, p. 414.

Pachycheles grossimanus STIMPSON, 1858, p. 228. CANO, 1889, pp. 96, 99, 259. ORTMANN, 1897, p. 293. LENZ, 1902, p. 748. RATHBUN, 1910, pp. 559, 600, pl. 46, fig. 5. Not PORTER, 1936a, p. 255, pl. 18.

Pachycheles laevidactylus ORTMANN, 1892a, p. 266, pl. 12, fig. 1 (type locality, Brasil, is incorrect, *vide* ORTMANN, 1897).

Previous records:

Peru: Sechura Bay W. of Matacaballa, ca. 5 fms. R. E. COKER (RATHBUN), San Lorenzo: U. S. Expl. Exped. (DANA), N. Chincha Island R. E. COKER (RATHBUN).

Chile: (GUÉRIN 1835), Cavancha L. H. PLATE (LENZ), Valparaíso: 'Favorite' (GUÉRIN 1838b), do (MILNE EDWARDS and LUCAS), do U. S. Expl. Exped. (DANA), do 'Vettor Pisani' (CANO), Tumbes L. H. PLATE (LENZ).

Material examined:

Lund University Chile Expedition

- | | | |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <i>St. M 131.</i> 3 ♂, 3 ♀ (2 ov), 15 young. | <i>St. M 129.</i> 1 ♂, 1 ♀ ov, 23 young. | <i>St. M 121.</i> 1 ♂, 18 young, plus cheliped and walking legs. |
| <i>St. M 135.</i> 5 young. In upper part of tidal belt and from holdfasts of brown alga. | <i>St. M 127.</i> 3 ♂, 4 ♀ (1 ov), 48 young. In holdfasts of a brown alga. | From holdfasts of kelp. |
| <i>St. M 130.</i> 2 ♂, 8 ♀ (1 ov), 21 young. | <i>St. M 123.</i> 1 ♂, 3 ♀ (1 ov), 2 young. From the tidal zone, and in holes in roots of brown algae. | <i>St. M 94.</i> 1 ♂, 1 ♀ ov. Black claws. |
| <i>St. M 158.</i> 3 young. | | |

Hamburg Museum

Alacrán I. near Arica; leg. R. PAESSLER; 1902; K 7677. 2 young.

Pisagua; leg. R. PAESSLER; 1902; 10 fms.; K 7652. 1 young.

Junín; leg. R. PAESSLER; Nov. 25, 1909; on seaweed; K 7661. 3 young.

Caleta Buena; leg. R. PAESSLER; Nov. 17, 1909; K 7649, 7650. 5 ♂, 9 ♀, 10 young.

Caleta Buena; leg. R. PAESSLER; Aug. 6, 1911; K 7734. 1 ♂.

Iquique; leg. F. BEUMER; May 13, 1913; K 6809. 3 young.

Iquique; leg. F. RINGE; K 26419. 2 young.

S. of Cavancha near Iquique; leg. R. PAESSLER; Nov. 1909; K 7513. 1 ♂.

Antofagasta; leg. A. GASSMANN; 1895; K 5322. 1 ♀ young.

Taltal; leg. R. PAESSLER; 1904; shore, under stones; K 26418. 1 ♀.

Chile; leg. DELFIN; K 7584. 1 ♀.

?*Pachycheles grossimanus* Antofagasta; leg. R. PAESSLER; 1890; K 7732. 23 young.

In addition, several specimens collected by an Allan Hancock Pacific Expedition at Peruvian localities.

Range: From Sechura Bay, Peru, to Canal Chacao, Province of Chiloé, Chile. The latter locality represents an extension of range southward from Tumbes, Province of Concepción. A shore and shallow water species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 20.7 mm (*St. M 94*), and the largest female 20.5 mm (*St. M 131*). These appear to be the largest on record.

Ovigerous females were taken at Canal Chacao in May, at Punta de Lobos, Puerto Mejillones del Sur, and Península Coquimbo in June, at Iquique in July, and at Montemar in October; they measured from 7.5 to 20.5 mm. Ovigerous females were taken at Peruvian localities in February by an Allan Hancock Pacific Expedition.

Petrolisthes STIMPSON, 1858

Petrolisthes violaceus (GUÉRIN)

Porcellana violacea GUÉRIN, 1831, pl. 3, figs. 2, 2A (type locality not given); 1835, p. 115; 1838a, p. 33 (type locality, Peninsula of Talcahuana [Talcahuano], Chile; 1838b, p. 6, pl. VII 25, fig. 2; 1839, p. 174, pl. 51, fig. 2. MILNE EDWARDS, 1837, p. 250. MILNE EDWARDS and LUCAS, 1844, p. 34. WHITE, 1847a, p. 62. NICOLET, 1849, p. 196. DANA, 1852, p. 416; 1855, pl. 26, figs. 6a—b. KINAHAN, 1857, p. 346.

Porcellana macrocheles POEPPIG, 1836, p. 142, pl. 4, fig. 1 (type locality, Bay of San Vicente, Chile).

Petrolisthes violaceus STIMPSON, 1858, p. 227. TARGIONI-TOZZETTI, 1872a, p. 398; 1872b, p. 470; 1877, p. 219, pl. 13, figs. 2, 2a—h. HENDERSON, 1888, p. 105. CANO, 1889, pp. 96, 99, 100, 257. ORTMANN, 1892a, p. 259; 1897, p. 277. MURRAY, 1895, p. 1120. LENZ, 1902, p. 745. PORTER, 1903a, p. 150; 1906, p. 132; 1917, p. 97; 1925, p. 320; 1936b, p. 153; 1936c, p. 339; 1940a, p. 147; 1940b, p. 313; 1941, p. 460. RATHBUN, 1910, p. 599. DOFLEIN and BALSS, 1912, p. 34.

Previous records:

Peru: Callao J. R. KINAHAN (KINAHAN), do 'Vettor Pisani' (CANO), San Lorenzo and Ancon: 'Vettor Pisani' (CANO), Chinchas Islands J. R. KINAHAN (KINAHAN).

Chile: (MILNE EDWARDS), do (MILNE EDWARDS and LUCAS), do T. BELL (WHITE), do ACKERMANN (ORTMANN 1892a), Iquique G. BERMÚDEZ (PORTER 1903a), Cavancha L. H. PLATE (LENZ), Prov. of Antofagasta J. HERRERA (PORTER 1925), Bahía de Taltal A. CAPDEVILLE (PORTER 1925), Caldera E. GIGOUX (PORTER 1940a), Coquimbo and Herradura F. T. DELFIN (PORTER 1903a), Los Vilos J. N. THOMAS (PORTER 1906), Bay of Valparaíso U. S. Expl. Exped. (DANA), Valparaíso: 'Magenta' (TARGIONI-TOZZETTI 1872a), do 'Challenger' (HENDERSON), do 'Vettor Pisani' (CANO), do GUÉRIN collection (ORTMANN 1897), Prov. of Concepción (NICOLET), Tumbes L. H. PLATE (LENZ), Talcahuano: 'Coquille' (GUÉRIN 1838a), do L. H. PLATE (LENZ), do F. T. DELFIN (PORTER 1903a), Bay of San Vicente E. POEPPIG (POEPPIG), Puerto Montt and Isla Tenglo F. LAU (DOFLEIN and BALSS), Chiloé and Chonos: 'Vettor Pisani' (CANO), Taitao: Mus. Nac. Chile Exped. (PORTER 1917).

Material examined:

<i>St. M 127</i> . 5 ♂, 2 ♀ (1 ov). Middle part of the littoral.	<i>St. M 125</i> . 4 ♂, 7 ♀ (5 ov). In quiet water between boulders, lower part of the littoral.	<i>St. M 161</i> . 1 ♂, 1 ♀ ov. <i>St. M 120</i> . 19 ♂, 14 ♀ (7 ov).
<i>St. M 124</i> . 1 ♂, 1 ♀. Near low tide level in the littoral. Under stones.		

Range: From Callao, Peru, to Taitao, Territory of Aysén, Chile. A littoral species. ORTMANN (1897) mentions specimens from the Galapagos Islands examined by him at the Academy of Natural Sciences in Philadelphia. This record is undoubtedly an error, as the species has not been reported from the Galapagos Islands by any other author.

Remarks: The largest male in the Lund University Chile Expedition collection measured 25.6 mm (*St. M 124*), and the largest female 22.9 mm (*St. M 120*). The largest specimens on record were about 27 mm.

Ovigerous females, measuring 13.1 to 18.5 mm, were taken at Península Coquimbo, Bahía Herradura de Guayacán, and Bahía San Vicente in June, and at San Antonio in December. An Allan Hancock Pacific Expedition encountered an ovigerous female at a Peruvian locality in February.

Petrolisthes laevigatus (GUÉRIN)

- Porcellana laevigata* GUÉRIN, 1835, p. 115 (type locality, Chile); 1838b, p. 6; 1839, p. 174. MILNE EDWARDS and LUCAS, 1844, p. 34. NICOLET, 1849, p. 195.
- Porcellana granulosa* GUÉRIN, 1835, p. 115 (type locality, Chile); 1838b, p. 7, pl. VII 25, fig. 1; 1839, p. 175, pl. 51, fig. 1. MILNE EDWARDS and LUCAS, 1844, p. 34. NICOLET, 1849, p. 197. DANA, 1852, p. 416; 1855, pl. 26, fig. 7. KINAHAN, 1857, p. 345.
- Porcellana striata* MILNE EDWARDS, 1837, p. 250 (type locality, shores of Chile).
- Porcellana valida* DANA, 1852, p. 415; 1855, pl. 26, figs. 5a—b (type locality, Valparaíso, Chile?). CUNNINGHAM, 1871, p. 495.
- Petrolisthes validus* STIMPSON, 1858, p. 227. HENDERSON, 1888, p. 105. CANO, 1889, pp. 96, 99, 100, 257. MURRAY, 1895, pp. 1120, 1166.
- Petrolisthes granulosis* ORTMANN, 1892a, p. 260.
- Petrolisthes laevigatus* ORTMANN, 1897, p. 278. RATHBUN, 1910, p. 600. PORTER, 1936b, p. 153; 1936c, p. 339.
- Petrolisthes granulosa* BOONE, 1938, p. 273, pl. 108 (not all synonymy).

Previous records:

- Peru: Payta: 'Favorite' (GUÉRIN 1838b), Callao: 'Vettor Pisani' (CANO), Ancon REISS (ORTMANN 1892a), off N. Chinchas Island, 10 fms. J. R. KINAHAN (KINAHAN).
- Chile: (GUÉRIN 1835), do 'Favorite' (GUÉRIN 1838b), do J. SCHNEIDER (ORTMANN 1892a), Valparaíso (MILNE EDWARDS and LUCAS), do U. S. Expl. Exped. (DANA), do 'Challenger' (HENDERSON), Lota: 'Nassau' (CUNNINGHAM), Chiloé: 'Vettor Pisani' (CANO), Ancud, Chiloé Island: 'Nassau' (CUNNINGHAM), Clotilde Island, Chiloé Archipelago: 'Alva' (BOONE), Chonos: 'Vettor Pisani' (CANO), Messier Channel: 'Challenger' (HENDERSON).

Material examined:

Lund University Chile Expedition

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|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <i>St. M 133.</i> 1 ♂, 2 ♀, 1 young.
Above mean sea level,
among stones. | <i>St. M 124.</i> 12 ♂, 6 ♀ (5 ov), 6
young. Under stones in the
littoral. | <i>St. M 123.</i> 6 ♂, 4 ♀ (3 ov), 4
young. From the tidal zone. |
| <i>St. M 131.</i> 4 young. In a
sandy rock pool, about
mean sea level. | <i>St. M 125.</i> 29 ♂, 13 ♀ (9 ov),
8 young. In quiet water bet-
ween boulders, lower part
of the littoral to above high
water mark. | <i>St. M 161.</i> 2 ♂. |
| <i>St. M 127.</i> 3 ♂, 2 ♀ (1 ov), 4
young. Above mean sea level. | | <i>St. M 121.</i> 3 ♂. |

<i>St. M 120.</i> 7 ♂, 4 ♀ (1 ov), plus 1 cheliped and 2 walking legs.	<i>St. M 59.</i> 6 ♂, 5 ♀.	<i>St. M 8.</i> 5 ♂, 4 ♀ (1 ov), 2 young.
<i>St. M 122.</i> 3 ♂, 3 ♀ ov. Near high tide level.	<i>St. M 90.</i> 2 ♂, 5 ♀ (1 ov), 1 young.	<i>St. M 55.</i> 4 ♂.
<i>St. M 37.</i> 31 ♂, 15 ♀ (2 ov), 14 young. Very common in the lower and middle part of the littoral. Lively; lives under stones.	<i>St. M 139.</i> 1 young. Lowest part of tidal belt.	<i>St. M 33.</i> 3 ♂. Under stones.
	<i>St. M 91.</i> 3 ♂, 2 ♀, 1 young.	<i>St. M 10.</i> 5 ♂, 1 ♀. In the littoral.
	<i>St. M 56.</i> 5 ♂, 1 young.	<i>St. M 76.</i> 2 ♀.
	<i>St. M 22.</i> 1 ♂, 1 ♀. In the littoral.	<i>St. M 75.</i> 3 ♂, 1 ♀, 1 young.

Hamburg Museum

Antofagasta; leg. R. PAESSLER; 1904; shore; K 7730. 14 ♂, 14 ♀ (8 ov).

Taltal; leg. R. PAESSLER; 1903; shore; K 7654, 26333. 4 ♂.

Taltal; leg. R. PAESSLER; Aug. 11, 1911; K 26332. 2 ♂, 1 young.

Range: From Payta, Peru, to Messier Channel, Territory of Aysén, Chile. A shore and shallow water species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 23.9 mm (*St. M 75*), and the largest female 17.6 mm (*St. M 127*). These are as large as any previously reported.

Ovigerous females were taken at Punta Pilluco in January, at Isla Tenglo in April, at Península Coquimbo, Bahía Herradura de Guayacán, Bahía San Vicente, and Golfo de Arauco in June, at Montemar in September, and at Isla Pullinque in November. They measured from 6.0 to 16.7 mm, while those in the collection of the Hamburg Museum were from 3.3 to 6.7 mm in size. Ovigerous females were collected by Allan Hancock Pacific Expeditions in Peru in January and February.

This species exhibits two distinct varieties, which were considered separate species by many authors. In the *laevigatus* type the carapace, legs, and chelipeds are smooth, the rostrum is faintly or not at all grooved in the middle, and the outer margin of the cheliped is covered with fine hairs; while in the *granulosus* type the carapace, legs, and chelipeds are covered with fine granulations, the rostrum is deeply grooved in the middle, and the outer margin of the cheliped lacks hairs. Some specimens show a gradation between the two extremes, and both varieties frequently occurred at the same collecting station.

Petrolisthes angulosus (GUÉRIN)

Porcellana angulosa GUÉRIN, 1835, p. 115 (type locality, Chile); 1838b, p. 7, pl. VII 25, fig. 3; 1839, p. 175, pl. 51, fig. 3. MILNE EDWARDS and LUCAS, 1844, p. 34. NICOLET, 1849, p. 195. TARGIONI-TOZZETTI, 1877, p. 212, pl. 12, figs. 6, 6a—e; pl. 13, figs. 1, 1a—d. CANO, 1889, pp. 96, 101, 259.

Porcellana punctata DANA, 1852, p. 421. Not *Petrolisthes punctatus* (GUÉRIN).

Porcellana carinata KINAHAN, 1857, p. 347, pl. 14, fig. 3 (type locality, North Chinchas Island, Peru).

Petrolisthes angulosus TARGIONI-TOZZETTI, 1872a, p. 398; 1872b, p. 470. ORTMANN, 1897, p. 279. NOBILI, 1901, p. 5; 1902, p. 233. LENZ, 1902, p. 745. RATHBUN, 1910, p. 599. PORTER, 1936b, p. 153; 1936c, p. 339.

Petrolisthes reissi ORTMANN, 1892a, p. 260, pl. 11, fig. 15 (type locality, Ancon Gulf, Ecuador, is incorrect, actually Ancon, Peru, *fide* ORTMANN, 1897).

Previous records:

Peru: San Lorenzo: 'Vettor Pisani' (CANO), do U. S. Expl. Exped. (DANA), Ancon REISS (ORTMANN 1892a), N. Chinchas Island, 7 fms. J. R. KINAHAN (KINAHAN).

Chile: (GUÉRIN 1835), Coquimbo: 'Favorite' (GUÉRIN 1838b), Valparaíso (MILNE EDWARDS and LUCAS), do 'Magenta' (TARGIONI-TOZZETTI 1872a), Tumbes L. H. PLATE (LENZ), San Vicente F. SILVESTRI (NOBILI 1901), Calbuco (Tabon Bajo) L. H. PLATE (LENZ).

Material examined:

Lund University Chile Expedition

<i>St. M 131.</i> 3 ♂, 8 ♀ (4 ov), 3 young.	<i>St. M 125.</i> 1 ♀ ov, 1 young, plus 2 chelipeds. In quiet water between boulders, lower part of the littoral.	<i>St. M 121.</i> 4 ♂, 2 ♀ (1 ov), plus 4 chelipeds and walking legs.
<i>St. M 135.</i> 7 young. From holdfasts of brown alga.	<i>St. M 123.</i> 2 ♂, 3 ♀ (1 ov), 1 young. From the tidal zone.	<i>St. M 120.</i> 2 ♀ (1 ov).
<i>St. M 124.</i> 1 ♂, 1 ♀. Near low tide level, under stones.		<i>St. M 56.</i> 1 ♂, 2 ♀ (1 ov). Red.
		<i>St. M 22.</i> 3 ♂, 6 ♀ (1 ov). In the littoral.

Hamburg Museum

Peru:

Callao; K 7521. 1 ♂, 1 ♀ ov.

Chile:

Iquique; leg. F. BEUMER; May 13, 1913; K 62330. 5 young.

Iquique; leg. F. RINGE; 8 fms.; K 7536, 7612, 7712, 7720. 3 ♂, 1 ♀ ov.

Antofagasta; leg. R. PAESSLER; 1904; shore; K 7729. 3 ♂.

Taltal; leg. R. PAESSLER; 1897; shore; K 7655, 7658. 10 ♂, 11 ♀ (8 ov).

Taltal; leg. R. PAESSLER; 1904; shore, under stones; K 26331, 7728. 6 ♂, 12 ♀ (7 ov).

Taltal; leg. R. PAESSLER; Aug. 11, 1911; K 7727. 4 ♂, 8 ♀ (7 ov), 2 young.

Huasco; leg. R. PAESSLER; 1903; K 7740. 1 ♀ ov.

Range: From San Lorenzo, Peru, to Calbuco, Province of Llanquihue, Chile. A shore species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 19.0 mm, and the largest female 15.0 mm (both *St. M 22*). The 19.0 mm specimen is larger than any previously recorded.

Ovigerous females were collected at Punta Corona in February, at Isla Quenu in May, at Bahía Herradura de Guayacán and Bahía San Vicente in June, at Iquique in July, and at Montemar in October; they measured 6.5 to 12.4 mm. Ovigerous females from 5.0 to 8.9 mm were included in material from the Hamburg Museum, including several collected in August. Ovigerous females were collected by Allan Hancock Pacific Expeditions in Peru in January and February.

Petrolisthes spinifrons (H. MILNE EDWARDS)

Porcellana spinifrons MILNE EDWARDS, 1837, p. 256 (type locality, shores of Chile). MILNE EDWARDS and LUCAS, 1844, p. 34. NICOLET, 1849, p. 193. DANA, 1852, p. 424. PHILIPPI, 1860, p. 169. CANO, 1889, pp. 96, 99, 261.

Petrolisthes spinifrons NOBILI, 1901, p. 6; 1902, p. 233. LENZ, 1902, p. 746, pl. 23, fig. 3. RATHBUN, 1910, pp. 559, 599, pl. 48, fig. 5.

Previous records:

Peru: San Lorenzo: U. S. Expl. Exped. (DANA), Pescadores Islands R. E. COKER (RATHBUN).

Chile: (MILNE EDWARDS), Isla Blanca R. A. PHILIPPI (PHILIPPI), Coquimbo: 'Vettor Pisani' (CANO), Valparaíso (MILNE EDWARDS and LUCAS), do U. S. Expl. Exped. (DANA), Tumbes L. H. PLATE (LENZ), San Vicente F. SILVESTRI (NOBILI 1901).

Material examined:

Lund University Chile Expedition

St. M 125. 2 young. In quiet water between boulders, lower part of the littoral. *St. M 123*. 1 ♂, 1 ♀ ov. From the sublittoral. *St. M 120*. 1 young.

Hamburg Museum

Caleta Buena; leg. R. PAESSLER; Nov. 17, 1909; K 26336. 1 young.
 Iquique; leg. R. PAESSLER; 1890; 12 fms.; K 26335. 1 young.
 Iquique; leg. F. RINGE; 8 fms.; K 7510, 7530. 2 ♂, 2 ♀.
 Mejillones del Sur; leg. H. PIENING; July 22, 1928; K 13773. 1 ♂.
 Coloso near Antofagasta; leg. R. PAESSLER; Dec. 7—11, 1906; shore; K 7660. 1 ♀ ov.
 Taltal; leg. R. PAESSLER; 1904; shore, under stones; K 7726, 26337. 1 ♀ ov, 2 young.
 ?*Petrolisthes spinifrons* Pisagua; leg. KOPHAMEL; K 7689. 7 young.
 » » Antofagasta; leg. R. PAESSLER; 1890; K 26338. 3 young.

Material examined also included two males and an ovigerous female from Peru, on loan from the Museum of Comparative Zoology, Harvard; and four young males collected at Montemar, Chile, sent by Prof. F. RIVEROS-ZUÑIGA, Estación de Biología Marina, Viña del Mar, Chile.

Range: From San Lorenzo, Peru, to San Vicente, Province of Concepción, Chile.

Remarks: The largest male in the Lund University Chile Expedition collection measured 11.2 mm, and the largest female 17.4 mm (both *St. M 123*). The type specimen was reported to be about 20 mm.

An ovigerous female, measuring 17.4 mm, was collected at Montemar in October. Ovigerous females from an Allan Hancock Pacific Expedition and in the collection of the Museum of Comparative Zoology, Harvard, were taken in Peru in February and November; those from the Hamburg Museum, including one taken in December, measured 10.7 and 11.3 mm.

Four young males, 3.5 to 4.5 mm, sent for identification by Prof. RIVEROS-ZUÑIGA, were found on the sea stars *Stichaster aurantiacus* [= *S. striatus*] and *Meyenaster gelatinosus*. This is the first reported instance of commensalism for this particular crab. It is probable that only the young of this species live in association with sea stars.

Petrolisthes punctatus (GUÉRIN)

Fig. 11

- Porcellana punctata* GUÉRIN, 1835, p. 115 (type locality, Chile); 1835, pl. 18, fig. 1 (*Icon. Regn. Anim. Cuvier*, 1829—44; pl. 18 was issued in 1835); 1838b, p. 7; 1839, p. 175. MILNE EDWARDS, 1837, p. 255. CANO, 1889, pp. 96, 99, 261. Not DANA, 1852, p. 421.
Porcellana cristata MILNE EDWARDS, 1837, p. 254 (type locality unknown). NICOLET, 1849, p. 194. CANO, 1889, pp. 96, 99, 100, 260.
Petrolisthes punctatus ORTMANN, 1897, p. 279. RATHBUN, 1910, p. 599.
Pachycheles grossimanus PORTER, 1936a, p. 255, pl. 18. Not *P. grossimanus* (GUÉRIN).

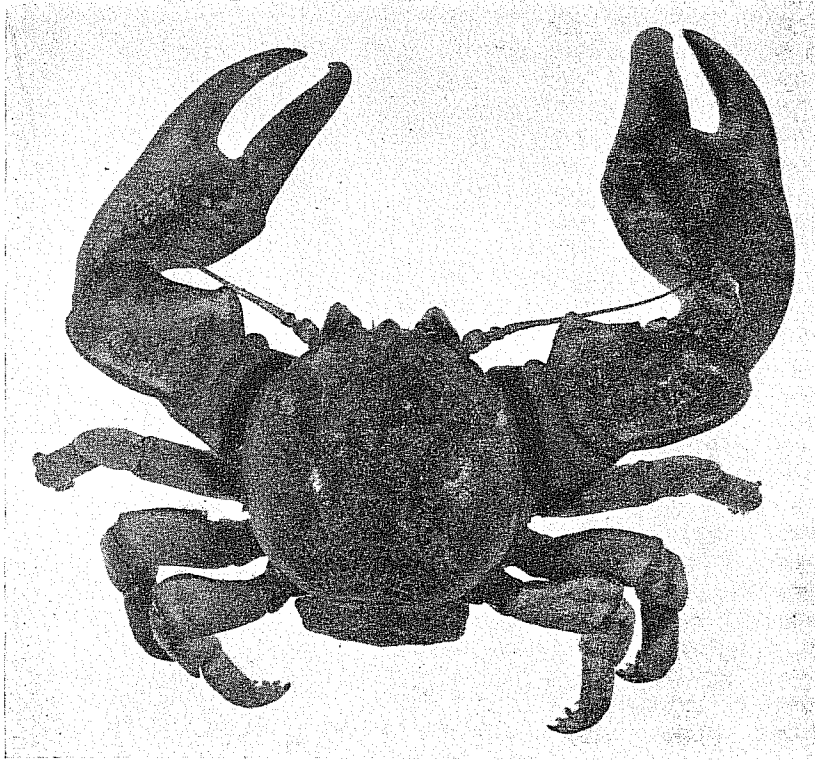


Fig. 11. *Petrolisthes punctatus* (GUÉRIN). Male. Montemar, Chile (*St. M 123*).
Carapace length 34 mm.

Previous records:

Peru: Ancon: 'Vettor Pisani' (CANO).

Chile: (GUÉRIN 1835), Valparaíso: 'Favorite' (GUÉRIN 1838b), do 'Vettor Pisani' (CANO), San Antonio (PORFÉR 1936a) [as *Pachycheles grossimanus*].

Material examined:

St. M 131. 2 young.

St. M 123. 5 ♂, 2 ♀ (1 ov); 1

St. M 130. 1 ♂.

young. From the sublittoral.

In addition, a male and two ovigerous females from Talcahuano, Museum of Comparative Zoology Cat. No. 7952.

Range: From Ancon, Peru, to Talcahuano, Province of Concepción, Chile. The latter locality (specimens borrowed from the Museum of Comparative Zoology, Harvard) represents an extension of range southward from San Antonio, Province of Santiago. A littoral species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 34.0 mm, and the largest female 30.8 mm (both *St. M 123*). The largest specimen on record was 38 mm.

One ovigerous female, 30.8 mm, was collected at Montemar in October.

The common name for the species is "tizerita" (BRATTSTRÖM and DAHL field notes).

Petrolisthes affinis (GUÉRIN)

Fig. 12

Porcellana affinis GUÉRIN, 1835, p. 116 (type locality, Chile).

Porcellana tuberculosa MILNE EDWARDS, 1837, p. 256 (type locality, shores of Chile). GUÉRIN, 1838b, p. 8; 1839, p. 176. NICOLET, 1849, p. 194.

Porcellana tuberculifrons MILNE EDWARDS and LUCAS, 1844, p. 33 (part). DANA, 1852, p. 422. CUNNINGHAM, 1871, p. 495.

Porcellana desmarestii WHITE, 1847a, p. 62. Not *Petrolisthes desmarestii* EYDOUX and GERVAIS.

Petrolisthes tuberculifrons STIMPSON, 1858, p. 227.

Petrolisthes tuberculatus STIMPSON, 1858, p. 228. RATHBUN, 1910, p. 600.

Petrolisthes affinis ORTMANN, 1897, p. 290. NOBILI, 1901, p. 7; 1902, p. 235. LENZ, 1902, p. 746. DOFLEIN and BALSS, 1912, p. 35.

Previous records:

Chile: (GUÉRIN 1835), do 'Favorite' (GUÉRIN 1838b), do (MILNE EDWARDS), Coquimbo: 'Nassau' (CUNNINGHAM), do L. H. PLATE (LENZ), Valparaíso: U. S. Expl. Exped. (DANA), Tumbes and Talcahuano L. H. PLATE (LENZ), San Vicente F. SILVESTRI (NOBILI 1901), Chiloe: 'Nassau' (CUNNINGHAM), S. coast of America, probably Chile PAESSLER (DOFLEIN and BALSS).

Material examined:

Lund University Chile Expedition

St. M 127. 2 ♂, 2 young. *St. M 123*. 1 ♂, 5 young. From
Lower part of the tidal belt. the tidal zone.
St. M 125. 1 young. Lower *St. M 120*. 1 ♀.
part of the tidal belt.

Hamburg Museum

Taltal; leg. R. PAESSLER; 1904; shore, under stones; K 26329. 1 young.

Range: Restricted to Chile, from Taltal, Province of Antofagasta, to Chiloé, Province of Chiloé. The Taltal record represents an extension of range northward from Coquimbo, Province of Coquimbo. A shore species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 22.9 mm (*St. M 127*), and the largest female 11.0 mm (*St. M 120*). The largest individual ever recorded was 29.6 mm.

While examining crustacean material in the British Museum (Natural History) the author discovered that specimens identified by WHITE as *Porcellana desmarestii*, and so listed by him (1847a), are actually examples of *Petrolisthes affinis*. They are four dry specimens, 15.2 to 26.9 mm.

Petrolisthes tuberculatus (GUÉRIN)

Porcellana tuberculata GUÉRIN, 1835, p. 116 (type locality, Chile); 1838b, p. 7, pl. VII 26, fig. 2; 1839, p. 175, pl. 52, fig. 2. MILNE EDWARDS and LUCAS, 1844, p. 34. DANA, 1852, p. 422. CUNNINGHAM, 1871, p. 495.

Porcellana lobifrons MILNE EDWARDS, 1837, p. 256 (type locality, shores of Chile).

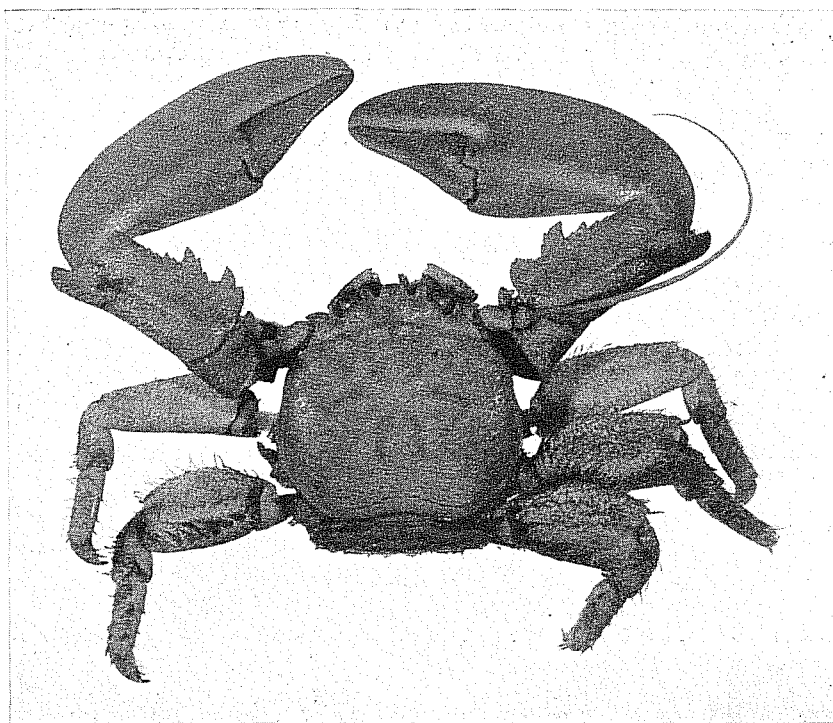


Fig. 12. *Petrolisthes affinis* (GUÉRIN). Male. Peninsula Coquimbo, Chile (*St. M 127*).
Carapace length 21.6 mm.

Porcellana tuberculifrons MILNE EDWARDS and LUCAS, 1844, p. 33 (part). NICOLET, 1849, p. 193.
Petrolisthes tuberculatus STIMPSON, 1858, p. 227. TARGIONI-TOZZETTI, 1872a, p. 399; 1872b, p. 471;
1877, p. 216, pl. 13, figs. 3, 3a—f. CANO, 1889, pp. 96, 99, 258. ORTMANN, 1897, p. 290. LENZ,
1902, p. 746. PORTER, 1903a, p. 151. RATHBUN, 1910, p. 600.

Previous records:

Peru: San Lorenzo: U. S. Expl. Exped. (DANA).

Chile: (GUÉRIN 1835), do (MILNE EDWARDS), Coquimbo: 'Nassau' (CUNNINGHAM), do L. H. PLATE
(LENZ), Herradura F. T. DELFIN (PORTER), Valparaíso: 'Favorite' (GUÉRIN 1838b), do U. S.
Expl. Exped. (DANA), do 'Vettor Pisani' (CANO), do 'Magenta' (TARGIONI-TOZZETTI), Tumbes
and Talcahuano L. H. PLATE (LENZ).

Material examined:

Lund University Chile Expedition

<i>St. M 131</i> . 1 ♂.	<i>St. M 124</i> . 3 ♂, 1 ♀, 11 young.	<i>St. M 123</i> . 3 ♀. From the tidal
<i>St. M 135</i> . 1 ♂, 2 young. From	Near low tide level, under	zone.
holdfasts of brown alga.	stones.	<i>St. M 161</i> . 3 ♂.
<i>St. M 158</i> . 1 young.	<i>St. M 125</i> . 3 ♂, 2 ♀, 3 young,	<i>St. M 121</i> . 1 ♀.
<i>St. M 127</i> . 6 ♂, 2 ♀ (1 ov), 6	plus 7 chelipeds. In quiet	<i>St. M 120</i> . 4 ♀ (1 ov).
young. Lower and middle	water between boulders,	
part of the tidal belt and	lower part of the littoral.	
above mean sea level.		

Hamburg Museum

Caleta Buena; leg. R. PAESSLER; Nov. 17, 1909; K 7648. 5 ♀ (3 ov), 4 young.
 Iquique; leg. F. BEUMER; May 13, 1913; K 26339. 2 young.
 Taltal; leg. R. PAESSLER; 1903; shore; K 7656. 2 ♂, 1 ♀ ov.
 Taltal; leg. R. PAESSLER; 1904; shore, under stones; K 7725, 7728. 1 ♂, 1 ♀, 2 young.
 Taltal; leg. R. PAESSLER; Aug. 11, 1911; K 26340. 1 ♀ ov, 1 young.

Range: From San Lorenzo, Peru, to San Vicente, Province of Concepción, Chile. The latter locality represents a slight extension of range southward from Talcahuano. A shore species.

Remarks: The largest male in the Lund University Chile Expedition collection measured 15.8 mm (*St. M 127*), and the largest female 18.5 mm (*St. M 120*). The largest recorded specimen was 23 mm.

Ovigerous females collected at Península Coquimbo and Bahía San Vicente in June measured 11.0 to 18.5 mm. Ovigerous females in the Hamburg Museum collection were taken in August and November and measured 7.8 to 10.3 mm. An Allan Hancock Pacific Expedition collected ovigerous females at Peruvian localities in February.

Petrolisthes mitra (DANA), n. comb.

Porcellana mitra DANA, 1852, p. 419 (type locality, San Lorenzo, Peru); 1855, pl. 26, fig. 9a—b. CANO, 1889, pp. 96, 101, 260. RATHBUN, 1910, p. 601. MEREDITH, 1939, p. 113, plate. Not HELLER, 1865, p. 74.
 ?*Porcellana spinosa* PHILIPPI, 1860, p. 169 (type locality, Isla Blanca, Chile).
Porcellana patagonica CUNNINGHAM, 1871, p. 495 (type localities, Strait of Magellan and Port Otway, Chile).
 ?*Porcellana pulchellula* CANO, 1889, p. 260 (type locality, San Lorenzo, Peru). RATHBUN, 1910, p. 601.
Petrolisthes patagonicus LENZ, 1902, p. 748, pl. 23, fig. 4. BOUVIER, 1906, p. 28. RATHBUN, 1910, p. 600. DOFLEIN and BALSS, 1912, p. 34. PORTER, 1926, p. 190, text fig. 23; 1936a, p. 255; 1936b, p. 153; 1936c, p. 339.

Previous records:

Peru: San Lorenzo: U. S. Expl. Exped. (DANA), do 'Vettor Pisani' (CANO), Independencia Bay: 'Velero III' (MEREDITH).
 Chile: Iquique L. H. PLATE (LENZ), do RINGE (DOFLEIN and BALSS), Valparaíso C. E. PORTER (PORTER 1926), Valparaíso and Curaumilla C. E. PORTER (BOUVIER), Port Otway [=Puerto Barroso] and Strait of Magellan: 'Nassau' (CUNNINGHAM).

Material examined:

Lund University Chile Expedition

<i>St. M 135</i> . 1 young.	<i>St. M 127</i> . 1 ♀. Lower part of	<i>St. M 59</i> . 1 ♂.
<i>St. M 158</i> . 1 ♂, 2 ♀.	tidal belt.	<i>St. M 46</i> . 1 ♀ ov.
	<i>St. M 122</i> . 1 young.	<i>St. M 68</i> . 2 ♂, 1 ♀ ov.

Hamburg Museum

Peru:

Mollendo; leg. R. PAESSLER; Nov. 1906; from a sea urchin; K 7676. 1 ♀ ov.

Chile:

Pisagua; leg. KOPHAMEL; K 27334. 2 young.

Iquique; leg. F. RINGE; K 7613, 7687. 5 ♂, 5 ♀ (4 ov).

Caldera; leg. R. PAESSLER; 1904; from sea stars; K 7735. 11 ♂, 33 ♀ (21 ov).

Corral; leg. P. KREFFT; K 7557. 1 ♂, 2 young.

Material examined also included a male and an ovigerous female collected by the 'Hassler' at Port San Pedro, Chiloé Island, Chile, on loan from the Museum of Comparative Zoology, Harvard; and a female collected at Montemar, Chile, sent by Prof. F. RIVEROS-ZUÑIGA, Estación de Biología Marina, Viña del Mar, Chile.

Range: From San Lorenzo, Peru, to the Strait of Magellan. A shore species.

Remarks: This is the smallest of the Chilean porcellanids, the largest specimens on record being 13 mm. The largest male in the Lund University Chile Expedition collection measured 8.0 mm (*St. M 68*), and the largest female 8.7 mm (*St. M 46*).

An ovigerous female was collected at Canal Caicaen in January and one at Islas Guaitecas in February; they measured 7.2 and 8.7 mm. Another ovigerous female, borrowed from the Museum of Comparative Zoology, was taken at Chiloé Island in April, and was 12.0 mm in length. The ovigerous females in the collection from the Hamburg Museum, one of which was collected in November, were 4.3 to 6.8 mm.

During the course of this study the author examined material of both *Petrolisthes patagonicus* (CUNNINGHAM) and *Porcellana mitra* DANA; the latter was found to be not only a member of the genus *Petrolisthes*, but identical with *P. patagonicus*. In adult examples, on which *P. patagonicus* was based, the rostrum is tridentate, with the middle tooth broader and longer than the lateral ones; on the anterior margin of the carpus of the cheliped are three well-separated spines. *P. mitra* was based on young examples, in which the lateral teeth of the rostrum and the distal spine on the carpus of the cheliped appear only slightly or not at all developed. Available material showed the development of these teeth and spines with increase in size of the specimens.

Porcellana spinosa PHILIPPI and *P. pulchellula* CANO, to judge from their descriptions, are almost certainly identical with *Petrolisthes mitra*. If this is true, *Porcellana* should be deleted from the list of genera occurring in the Peruvian faunal province (RATHBUN, 1910, p. 601).

Young specimens have been reported as commensal under the arms of the sea star *Heliaster helianthus* by BOUVIER; between the bases of spines of the sea urchin *Loxechinus albus* by PORTER (1926); and on the sea star *Stichaster aurantiacus* [= *S. striatus*] by MEREDITH. Prof. RIVEROS-ZUÑIGA (*in litt.*) reported it, along with other crustaceans, as a commensal on *Stichaster aurantiacus* [= *S. striatus*] and another sea star, *Meyenaster gelatinosus*. Specimens from the Hamburg Museum were also taken from sea urchins and sea stars; many of them were adults, including ovigerous females, although other records had seemed to suggest that only the young crabs occur commensally. The field notes of BRATTSTRÖM and DAHL do not indicate any association of specimens with echinoderms in the Lund University Chile Expedition collection.

Some specimens of this species exhibit a beautiful blue marbled pattern on the carapace and legs, as shown in the illustration of MEREDITH (1939). The specimen sent on loan from Prof. RIVEROS-ZUÑIGA showed this same type of pattern. Others

have a very characteristic marking consisting of a broad longitudinal stripe on the carapace. Both types were encountered occurring together in one of the lots sent from the Hamburg Museum, a few individuals even having a combination of both patterns.

The name *mitra* (L., a type of headdress) is a substantive in the nominative used in apposition to the generic name.

Petrolisthes acanthophorus (MILNE EDWARDS and LUCAS)

Fig. 13

Porcellana acanthophora MILNE EDWARDS and LUCAS, 1844, p. 33, pl. 16, fig. 2 (type locality, vicinity of Valparaíso, Chile). NICOLET, 1849, p. 196.

Porcellana dubia KINAHAN, 1857, p. 348, pl. 14, fig. 4 (type locality, Callao reef, Peru).

Petrolisthes acanthophorus STIMPSON, 1858, p. 228. CANO, 1889, pp. 96, 100, 258. RATHBUN, 1910, p. 600. PORTER, 1925, p. 320; 1936b, p. 153; 1936c, p. 339.

Previous records:

Peru: Callao J. R. KINAHAN (KINAHAN), do 'Vettor Pisani' (CANO).

Chile: Bahía de Taltal A. CAPDEVILLE (PORTER 1925), Valparaíso A. D'ORBIGNY (MILNE EDWARDS and LUCAS).

Material examined: None from the Lund University Chile Expedition.

Hamburg Museum

Pisagua; leg. R. PAESSLER; 1902; 10 fms.; K 7651, 26417. 1 ♂, 6 young.

Iquique; leg. R. PAESSLER; June 1, 1910; ca. 20 m; K 7736. 2 ♂.

Coloso near Antofagasta; leg. R. PAESSLER; Dec. 9, 1906; 37 m; K 7659. 1 ♂ young.

Taltal; leg. R. PAESSLER; May 14, 1910; 20 m; K 7657. 2 young.

Coronel; leg. R. PAESSLER; 1902; 8—9 fms.; from a piece of wood; K 7653. 2 young.

Coronel; leg. R. PAESSLER; Dec. 30, 1915; K 5266. 2 ♂, 2 ♀ (1 ov).

W. coast of S. America; leg. REHBERG; 1894; K 7505. 1 ♂, 1 ♀ ov.

Range: From Callao, Peru, to Coronel, Province of Concepción, Chile. The latter locality is an extension of range southward from Valparaíso, Province of Valparaíso. A shore and shallow water species.

Remarks: The largest male specimen examined measured 30.3 mm, and the largest female 26.2 mm. The type was 33 mm.

Ovigerous females measuring from 21.9 to 26.2 mm, collected in December, are included in the collections from the Hamburg Museum.

Petrolisthes desmarestii (EYDOUX and GERVAIS)

Porcellana desmarestii EYDOUX and GERVAIS in GUÉRIN, 1835, p. 115 (type locality, Chile).

GUÉRIN, 1838b, p. 7, pl. VII 26, fig. 1; 1839, p. 175, pl. 52, fig. 1. NICOLET, 1849, p. 198. Not WHITE, 1847a, p. 62.

Petrolisthes desmarestii RATHBUN, 1910, p. 600.

Previous records:

Chile: (GUÉRIN 1835), Valparaíso: 'Favorite' (GUÉRIN 1838b).

Material examined: None.

Range: Valparaíso is the only specific locality recorded.

Remarks: The specimens listed by WHITE (1847a) as *Porcellana desmarestii* (with

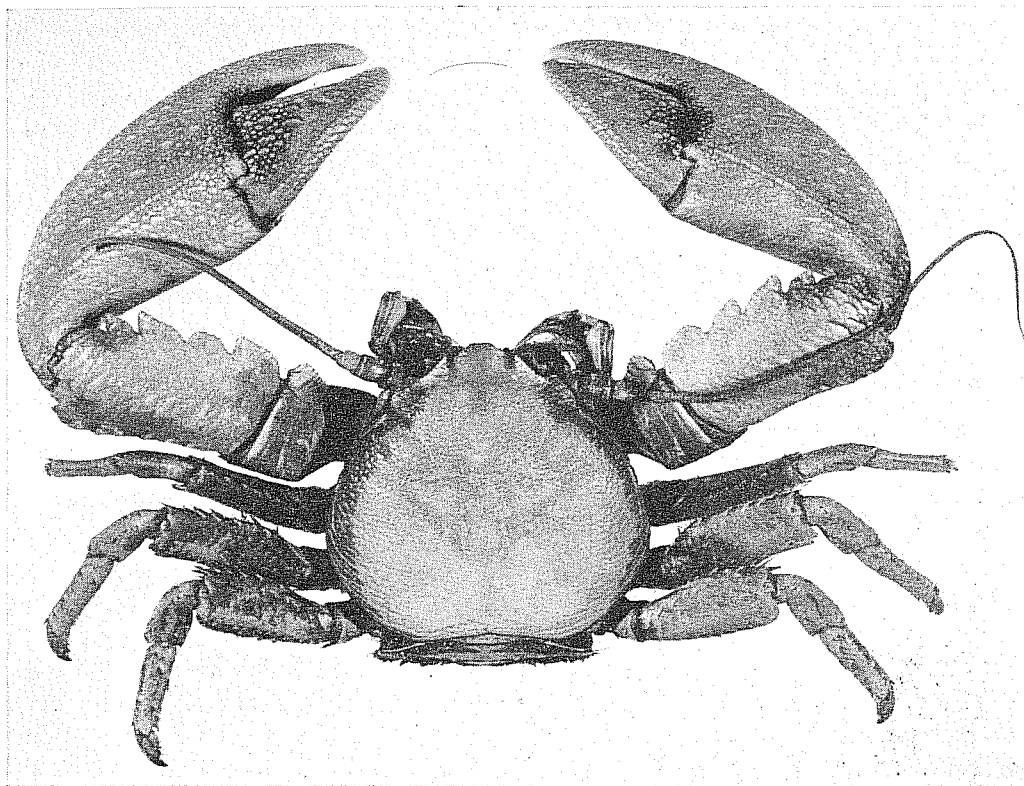


Fig. 13. *Petrolisthes acanthophorus* (MILNE EDWARDS and LUCAS). Male. West coast of South America (Hamburg Museum). Carapace length 30.3 mm.

a question mark) were examined by the author in the British Museum (Natural History) and found to be *Petrolisthes affinis* (GUÉRIN).

This species has apparently not been seen by any author aside from GUÉRIN-MÉNEVILLE. The latter first described it in his 1835 paper, giving only a short diagnosis as part of a key: "Carapace [error for carpus] multidentée au bord intérieur [for antérieur]. Front saillant et arrondi; une petite épine en avant des fossettes oculaires; carapace finement granuleuse sans tubercules." He gave EYDOUX and GERVAIS as authors, without explanation.

In 1838, GUÉRIN-MÉNEVILLE republished this key, with the above-noted errors corrected; he furnished no further information on the species except for the locality "Valparaíso," but included a colored figure. The 1838 paper, with plates, was republished the following year as part of the results of the voyage of the 'Favorite'. The author made no further mention of the species except in the Crustacea section of SAGRA's "Histoire physique, politique et naturelle de l'île de Cuba" (1857), in which some Cuban porcellanids were incorporated into the key to Chilean forms; in this instance GUÉRIN-MÉNEVILLE gave himself as author instead of EYDOUX and GERVAIS.

Very little can be told about this species from the description, but the illustration closely resembles the two published figures of *Petrolisthes acanthophorus* (MILNE EDWARDS and LUCAS). It was hoped that the types of these two forms could be compared, but Dr. FOREST informed the author (*in litt.*) that the type of *P. desmaresti* cannot be found in the Paris Museum and must be considered lost. Should the two species prove to be identical, the name *desmaresti* has priority.

Summary

Forty-eight species of Crustacea Anomura are known to occur in Chile and its offshore waters, while three others, *Calcinus chilensis* (MILNE EDWARDS), *Clibanarius aequabilis* (DANA), and *Isocheles aequimanus* (DANA), can only questionably be assigned to Chile. Six species are confined to fresh water: *Aegla denticulata* NICOLET, *A. intermedia* GIRARD, *A. papudo* SCHMITT, *A. concepcionensis* SCHMITT, *A. laevis* (LATREILLE) (with a subspecies, *A. l. talcahuano* SCHMITT), and *A. abtao* SCHMITT. Twelve species are abyssal or archibenthal: *Neolithodes diomedea* (BENEDICT), *Parapagurus pilosimanus* SMITH, *P. dimorphus* (STUDER), *Uroptychus parvulus* (HENDERSON), *Chirostylus milne-edwardsi* (HENDERSON), *Munida curvipes* BENEDICT, *Munidopsis rostrata* (A. MILNE EDWARDS), *M. antoni* (A. MILNE EDWARDS), *M. trifida* HENDERSON, *M. aspera* (HENDERSON), *M. aculeata* HENDERSON, and *M. opalescens* BENEDICT. Some of them are species with a very wide distribution, and others have been collected only off Chile.

The remaining thirty species have a littoral or sublittoral habitat. *Lithodes antarcticus* JACQUINOT, *Paralomis granulosa* (JACQUINOT), *Munida gregaria* (FABRICIUS), *M. subrugosa* (WHITE), *Pagurus forceps* MILNE EDWARDS, and *P. gaudichaudi* MILNE EDWARDS belong to the Magellanic Province; all of them range into the Atlantic, and the last two occur in the Peruvian Province, north of Chiloé Island. Twenty-four species belong to the Peruvian Province. *Emerita analoga* (STIMPSON) has a discontinuous distribution, occurring also in the northern hemisphere from Washington to Mexico; *Pleuroncodes monodon* (MILNE EDWARDS) may prove to be conspecific with *P. planipes* STIMPSON of the northern hemisphere; *Coenobita rugosus* MILNE EDWARDS occurs widely through the tropical Pacific; and *Porcellanopagurus platei* LENZ, known only from the Juan Fernandez Islands, may be identical with a New Zealand species. The other twenty species are confined to Peru and Chile; *Paguristes weddelli* (MILNE EDWARDS), *Petrolisthes violaceus* (GUÉRIN), *P. laevigatus* (GUÉRIN), and *P. mitra* (DANA) range southward into the Magellanic Province. The remaining sixteen are found only in the Peruvian Province proper, between extreme northern Peru and the northern end of Chiloé Island, Chile: *Blepharipoda spinimana* (PHILIPPI), *Lepidopa chilensis* LENZ, *Paguristes tomentosus* (MILNE EDWARDS), *Pagurus edwardsi* (DANA), *P. perlatus* MILNE EDWARDS, *P. villosus* NICOLET, *Galathea lenzi* RATHBUN, *Cervimunida johni* PORTER, *Pachycheles grossimanus* (GUÉRIN), *Petrolisthes angulosus* (GUÉRIN), *P. spinifrons* (MILNE EDWARDS), *P. punctatus*

(GUÉRIN), *P. affinis* (GUÉRIN), *P. tuberculatus* (GUÉRIN), *P. acanthophorus* (MILNE EDWARDS and LUCAS), and *P. desmaresti* (EYDOUX and GERVAIS).

Ten of the thirty littoral and sublittoral species have either their northern or southern range limits at or close to the northern end of Chiloé Island, where the division between the Peruvian and Magellanic faunal provinces occurs: *Lithodes antarcticus*, *Paralomis granulosa*, *Pagurus edwardsi*, *P. villosus*, *Pleuroncodes monodon*, *Munida gregaria*, *M. subrugosa*, *Pachycheles grossimanus*, *Petrolisthes angulosus*, and *P. affinis*. Eight occur on both sides of this faunal barrier: *Emerita analoga*, *Paguristes weddelli*, *Pagurus forceps*, *P. gaudichaudi*, *Coenobita rugosus*, *Petrolisthes violaceus*, *P. laevigatus*, and *P. mitra*.

The Lund University Chile Expedition collected a total of twenty-four species of Crustacea Anomura, or exactly half the known total. Of the six fresh-water species, three were taken: *Aegla papudo* (identification not certain), *A. conceptionensis*, and *A. abtao*. Twenty-one of the thirty littoral and sublittoral species were collected: *Emerita analoga*, *Lithodes antarcticus*, *Paralomis granulosa*, *Paguristes weddelli*, *P. tomentosus*, *Pagurus forceps*, *P. edwardsi*, *P. gaudichaudi*, *P. villosus*, *Cervimunida johni*, *Munida gregaria*, *M. subrugosa*, *Pachycheles grossimanus*, *Petrolisthes violaceus*, *P. laevigatus*, *P. angulosus*, *P. spinifrons*, *P. punctatus*, *P. affinis*, *P. tuberculatus*, and *P. mitra*.

An additional seven species, not collected by the Lund University Chile Expedition, were included among material from other sources.

All the species known to occur in Chile are included, and synonymy and published records are given for each. As a result of the study leading to the preparation of this report, the following species were reduced for the first time to synonymy: *Paguristes hirtus* DANA, *Pagurus obesocarpus* (DANA), *Pagurus barbiger* (A. MILNE EDWARDS), *Munida cokeri* RATHBUN, and *Petrolisthes patagonicus* (CUNNINGHAM). One name, *Petrolisthes mitra*, is a new combination. Range extensions were established for *Blepharipoda spinimana*, *Paralomis granulosa*, *Pagurus edwardsi*, *P. villosus*, *Aegla conceptionensis*, *Pachycheles grossimanus*, *Petrolisthes punctatus*, *P. affinis*, *P. tuberculatus*, and *P. acanthophorus*.

Included are illustrations of a syntype and of several rarely-figured species. This report is the first compilation in many years of all the Anomura of Chile, and it is possible to present a clearer picture of their relationships, habits and habitats, and geographic ranges, owing largely to the active collecting and careful recording of data that was accomplished by the Lund University Chile Expedition.

Resumen

Se conocen 48 especies de Crustacea Anomura de Chile y sus aguas de la costa adyacentes, mientras otras 3, *Calcinus chilensis* (H. MILNE EDWARDS), *Clibanarius aequabilis* (DANA), e *Isocheles aequimanus* (DANA) pueden, sólo problemáticamente, atribuirse a Chile. 6 especies se encuentran sólo en agua dulce: *Aegla denticulata* NICOLET, *A. intermedia* GIRARD, *A. papudo* SCHMITT, *A. conceptionensis* SCHMITT,

A. laevis (LATREILLE) (con una subespecie *A. l. talcahuano* SCHMITT), y *A. abtao* SCHMITT. 12 especies son abisales o arquibénticas: *Neolithodes diomedea* (BENEDICT), *Parapagurus pilosimanus* SMITH, *P. dimorphus* (STUDER), *Uroptychus parvulus* (HENDERSON), *Chirostylus milne-edwardsi* (HENDERSON), *Munida curvipes* BENEDICT, *Munidopsis rostrata* (A. MILNE EDWARDS), *M. antoni* (A. MILNE EDWARDS), *M. trifida* HENDERSON, *M. aspera* (HENDERSON), *M. aculeata* HENDERSON y *M. opalescens* BENEDICT. Algunas de ellas son especies con una distribución muy amplia, mientras otras sólo han sido colectadas en aguas chilenas.

Las 30 especies restantes tienen un habitat litoral o sublitoral. *Lithodes antarcticus* JACQUINOT, *Paralomis granulosa* (JACQUINOT), *Munida gregaria* (FABRICIUS), *M. subrugosa* (WHITE), *Pagurus forceps* H. MILNE EDWARDS y *P. gaudichaudi* H. MILNE EDWARDS, pertenecen a la Provincia Magallánica; todas ellas se extienden hacia el Atlántico y las dos últimas se hallan también en la Provincia Peruana, al Norte de la Isla de Chiloé. 24 especies pertenecen a la Provincia Peruana. *Emerita analoga* (STIMPSON) tiene una distribución discontinua; se encuentra también en el hemisferio norte desde Washington a Méjico; *Pleuroncodes monodon* (H. MILNE EDWARDS) puede ser conespecífica con *P. planipes* STIMPSON del hemisferio norte; *Coenobita rugosus* MILNE EDWARDS se encuentra con frecuencia en el Pacífico tropical; y *Porcellanopagurus platei* LENZ, conocida sólo de las Islas Juan Fernandez, puede ser idéntica con una especie de Nueva Zelanda. Las otras 20 especies se encuentran confinadas a Perú y Chile; *Paguristes weddelli* (H. MILNE EDWARDS), *Petrolisthes violaceus* (GUÉRIN), *P. laevigatus* (GUÉRIN) y *P. mitra* (DANA) se extienden hacia el Sur hasta la Provincia Magallánica. Las 16 restantes se encuentran sólo en la Provincia Peruana propiamente dicha, entre el extremo norte del Perú y el extremo norte de la Isla de Chiloé, Chile: *Blepharipoda spinimana* (PHILIPPI), *Lepidopa chilensis* LENZ, *Paguristes tomentosus* (H. MILNE EDWARDS), *Pagurus edwardsi* (DANA), *P. perlatus* H. MILNE EDWARDS, *P. villosus* NICOLET, *Galathea lenzi* RATHBUN, *Cervimunida johni* PORTER, *Pachycheles grossimanus* (GUÉRIN), *Petrolisthes angulosus* (GUÉRIN), *P. spinifrons* (H. MILNE EDWARDS), *P. punctatus* (GUÉRIN), *P. affinis* (GUÉRIN) *P. tuberculatus* (GUÉRIN) *P. acanthophorus* (MILNE EDWARDS y LUCAS) y *P. desmaresti* (EYDOUX y GERVAIS).

10 de las 30 especies litorales o sublitorales tienen su límite norte o sur en o cerca del extremo norte de la Isla de Chiloé donde se encuentra la división entre la fauna de la Provincia Peruana y Magallánica: *Lithodes antarcticus*, *Paralomis granulosa*, *Pagurus edwardsi*, *P. villosus*, *Pleuroncodes monodon*, *Munida gregaria*, *M. subrugosa*, *Pachycheles grossimanus*, *Petrolisthes angulosus*, y *P. affinis*. 8 se encuentran a ambos lados de esta barrera faunística: *Emerita analoga*, *Paguristes weddelli*, *Pagurus forceps*, *P. gaudichaudi*, *Coenobita rugosus*, *Petrolisthes violaceus*, *P. laevigatus* y *P. mitra*.

La Expedición de la Universidad de Lund a Chile colectó un total de 24 especies de Crustacea Anomura, o sea exactamente la mitad de las especies conocidas. De las 6 especies de agua dulce se colectaron 3: *Aegla papudo* (cuya identificación no es segura), *A. conceptionensis* y *A. abtao*. Se colectaron 21, de las 30 especies litorales y sublitorales: *Emerita analoga*, *Lithodes antarcticus*, *Paralomis granulosa*, *Paguristes weddelli*,

P. tomentosus, *Pagurus forceps*, *P. edwardsi*, *P. gaudichaudi*, *P. villosus*, *Cervimunida johni*, *Munida gregaria*, *M. subrugosa*, *Pachycheles grossimanus*, *Petrolithes violaceus*, *P. laevigatus*, *P. angulosus*, *P. spinifrons*, *P. punctatus*, *P. affinis*, *P. tuberculatus*, y *P. mitra*.

7 especies adicionales, no colectadas por la Expedición de la Universidad de Lund a Chile, se obtuvieron de otras fuentes y fueron incluidas entre el material.

En esta publicación se incluyen todas las especies que se encuentran en Chile y se dá la sinonimia y los datos publicados para cada una de ellas. Como resultado del estudio que condujo a la preparación de esta publicación las siguientes especies fueron reducidas, por primera vez a sinonimia: *Paguristes hirtus* DANA, *Pagurus obesocarpus* (DANA), *Pagurus barbiger* (A. MILNE EDWARDS), *Munida cokeri* RATHBUN, y *Petrolisthes patagonicus* (CUNNINGHAM). Un nombre, *Petrolisthes mitra*, es una combinación nueva. Se amplió el área de distribución para *Blepharipoda spinimana*, *Paralomis granulosa*, *Pagurus edwardsi*, *P. villosus*, *Aegla conceptionensis*, *Pachycheles grossimanus*, *Petrolisthes punctatus*, *P. affinis*, *P. tuberculatus*, y *P. acanthophorus*.

Se incluyen ilustraciones de un *syntipo* y de varias especies pocas veces diseñadas. Esta publicación es la primera compilación desde hace muchos años de todos los Anomura de Chile, y es posible presentar una visión mas clara de sus relaciones de parentesco, hábitos y habitats y de su distribución geográfica, debido principalmente a la activa colecta y la cuidadosa anotación de datos por parte de los integrantes de la Expedición de la Universidad de Lund a Chile.

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