

INSTITUT ROYAL DES SCIENCES NATURELLES DE BELGIQUE

EXPÉDITION OCÉANOGRAPHIQUE BELGE
DANS LES
EAUX CÔTIÈRES AFRICAINES
DE L'ATLANTIQUE SUD
(1948 - 1949)

RÉSULTATS SCIENTIFIQUES

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EXTRAIT

PORCELLANID CRABS

BY

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INTRODUCTION

The porcellanid crabs thus far known from West Africa are not numerous. M. RAYMOND (1909) mentioned only three species in her list of West African decapods. One of these has not been recorded again since it was briefly described by B. OSMAN in 1887 and it must be considered a species *dubia* for the present; one is redescribed below; the third is described below under a new name. European porcellanid crabs have been recorded from two species from the Cape Verde Islands; all three of these have since been found on the shores of the African mainland. In the present report, the Canary and Cape Verde Islands are treated as part of the West African faunal region. H. BELAS (1916) listed six West African species; one of these is synonymized below. W. SCHURR (1928) recorded no porcellanids from the collections of the American Museum of Natural History. B. BELAS compiled his survey; only two species have been recorded from the porcellanid fauna of West Africa, both by T. MOXON (1933). Including the species *dubia* mentioned above, nine valid species have apparently been recorded from this region heretofore.

FENNER A. CHACE (Washington)

The first shipment of specimens on which the present study is based was received in 1948 from Dr. T. MOXON, Director of the Institut Français d'Afrique Noire at Dakar. This material, most of it from Senegal, had been sent previously to the late STEVE A. GLASSWELL, who added so much to our knowledge of the porcellanids of the Pacific coasts of America, but he preferred not to report on it because of the lack of some of the pertinent literature. Two subsequent collections were sent by Dr. T. MOXON in 1949 and 1953, the second one containing not only material from Senegal but also collections made by Dr. J. FONTAINE and others off French Guinea and by Dr. B. BASTONNET off the Gold Coast. Prior to this last shipment, in 1950, the porcellanids collected by the Expedition Océanographique Belge and those taken earlier off West Africa by the "Mertator" had been received from Dr. ALBERT CAVANT of the Institut royal des Sciences naturelles de Belgique. Finally, two shipments were received in 1954 and 1955 from Dr. J. FONTAINE; the first included the remainder of the collections made by him off the coasts of Senegal and French Guinea and the second was made up of lots of unidentified porcellanids previously collected off West Africa for Muséum National d'Histoire Naturelle at Paris. Because of commitments made to Dr. T. MOXON and the advantage of combining data from all of these sources in a single study, permission was granted to use all of the records in this report.

INTRODUCTION

The porcellanid crabs thus far known from West Africa are not numerous. M. RATHBUN (1900) mentioned only three species in her list of West African decapods. One of these has not been recorded again since it was briefly described by B. OSORIO in 1887 and it must be considered a *species dubia* for the present; one is redescribed below; the third is described below under a new name. Previously, C. HELLER (1863) had recorded a common European porcellanid from the Canary Islands and A. MILNE-EDWARDS (1878) had described two species from the Cape Verde Islands; all three of these have since been found on the shores of the African mainland. In the present report, the Canary and Cape Verde Islands are treated as part of the West African faunal region. H. BALSS (1916) listed six West African species; one of these is synonymized below. W. SCHMITT (1926) recorded no porcellanids from the collections of the American Museum Congo Expedition. Since H. BALSS compiled his survey, only two species have been added to the known porcellanid fauna of West Africa, both by TH. MONOD (1933). Including the *species dubia* mentioned above, nine valid species have apparently been recorded from this region heretofore.

The first shipment of specimens on which the present study is based was received in 1948 from Dr. THÉODORE MONOD, Director of the Institut Français d'Afrique Noire at Dakar. This material, most of it from Senegal, had been sent previously to the late STEVE A. GLASSELL who added so much to our knowledge of the porcellanids of the Pacific coasts of America, but he preferred not to report on it because of the lack of some of the pertinent literature. Two subsequent collections were sent by Dr. TH. MONOD in 1949 and 1953, the second one containing not only material from Senegal but also collections made by Dr. JACQUES FOREST and others off French Guinea and by Dr. R. BASSINDALE off the Gold Coast. Prior to this last shipment, in 1950, the porcellanids collected by the Expédition Océanographique Belge and those taken earlier off West Africa by the « Mercator » had been received from Dr. ANDRÉ CAPART of the Institut royal des Sciences naturelles de Belgique. Finally, two shipments were received in 1954 and 1955 from Dr. J. FOREST; the first included the remainder of the collections made by him off the coasts of Senegal and French Guinea and the second was made up of lots of unidentified porcellanids previously collected off West Africa for Muséum National d'Histoire Naturelle at Paris. Because of commitments made to Dr. TH. MONOD and the advantages of combining data from all of these sources in a single study, permission was granted to include all of the records in this report.

These various collections, amounting to more than 1400 specimens, contain seven of the nine valid species previously known from West Africa. A specimen of one of the other two was kindly made available by Dr. J. FOREST; the remaining species is unknown today. In addition to the known species, the collections include six previously undescribed species and a new subspecies; one of the species and the subspecies had been recorded earlier under other names. Including the *species dubia* referred to above, the porcellanids now known from West Africa and the neighboring islands number fifteen species and a subspecies in four genera.

Of these fifteen species, all but three are thus far known from no other faunal region. Of the three, one ranges from Sweden and Norway to Angola; one occurs in the northeastern Atlantic and the Mediterranean from the Shetland and Orkney Islands to the Canary Islands, with a subspecies on the mainland from Rio de Oro to Senegal; and one is common on the tropical and subtropical Atlantic and Pacific shores of America, as well as in the eastern Atlantic. It may be significant that these three widely ranging species are the most abundant ones in the collections studied; together, they account for more than 85 per cent of the specimens examined.

Although several species will undoubtedly be added to the known porcellanid fauna of West Africa when other parts of that coast, especially the more southern shores, are investigated thoroughly, the collections available for this study are probably fairly complete for the littoral zone to the west and north of the Gulf of Guinea. The fact that none of the species in these collections seems to agree with any of those recorded by K. BARNARD (1950) from South Africa emphasizes the importance of collecting extensively along the coast of Angola and southward; additional investigation of this area is also needed if one of the species described from Angola by B. OSORIO (1887) is to be rediscovered.

Special thanks are due to Dr. TH. MONOD, Dr. A. CAPART, and Dr. J. FOREST for entrusting these interesting collections to my care and for assisting with the preparation of the manuscript. I am greatly indebted to Dr. J. FOREST for checking type specimens and sending material for comparative study; without his expert help, two of the most perplexing problems encountered would have gone unsolved.

Most of the material studied has been returned to the institutions from which it was received: the Institut Français d'Afrique Noire at Dakar; the Institut royal des Sciences naturelles de Belgique at Brussels; and the Muséum National d'Histoire Naturelle at Paris. Some duplicate specimens have been retained for the collections of the U.S. National Museum at Washington. The disposition of type material is indicated under each of the new species.

PORCELLANID CRABS

FAMILY PORCELLANIDAE DE HAAN, 1849.

KEY TO THE WEST AFRICAN GENERA OF THE FAMILY PORCELLANIDAE.

1. Epimeral plate (lateral wall of carapace) divided into two or more pieces separated by membranous interspaces; movable segments of antenna barely separated from orbit; front little prominent, nearly transverse in dorsal view *Pachycheles*.
— Epimeral plate entire 2
2. Basal antennal segment small, not meeting margin of carapace, so that movable segments of antenna have free access to orbit; carapace about as long as wide; front prominent, subtriangular *Petrolisthes*.
— Basal antennal segment strongly produced anteriorly and broadly in contact with margin of carapace, so that movable portion of antenna is considerably removed from orbit 3
3. Carapace slightly longer than wide; front prominent; dactyls of walking legs simple, with small, movable accessory spinules on lower margin *Porcellana*.
— Carapace much wider than long; front bent downward, nearly transverse in dorsal view; dactyls of walking legs with two or more fixed spines in addition to movable spinules *Polyonyx*.

Genus PACHYCHELES STIMPSON 1858.

KEY TO THE WEST AFRICAN SPECIES OF PACHYCHELES.

1. Front bare; major cheliped bare except in gape of fingers, minor chela hairy on outer half; carpus without pearly tubercles; telson composed of seven pieces *P. sahariensis*.
— Surface of front hairy; both chelipeds hairy or bristly; carpus with rows of pearly tubercles; telson composed of five pieces 2
2. Chelipeds bearing long, stiff, light-brown setae and shorter plumose hairs on carpus and hand; merus with three or four teeth on inner margin; carpus with three sharp, denticulate teeth; tubercles of major chela scattered and largely hidden by setae *P. barbatus*.
— Chelipeds bearing short, stiff, dark bristles arranged in clusters on carpus and chela; merus with subtriangular denticulate lobe on inner margin; carpus of major cheliped with two large denticulate teeth and a smaller simple one; major chela with tuberculate nodules arranged in rows *P. bellus*.

***Pachycheles sahariensis* MONOD, 1933.**

(Fig. 1, A-E.)

Pachycheles sahariensis MONOD, T., 1933, p. 474 [19], fig. 26.

Source and material.

Collector	Locality	Date	Depth m	Bottom tem- perature °C	Nature	Material
TH. MONOD	Sao Thiago, Cape Verde Is.	2.XI.1948	—	—	—	1 ♂
R. SOURIE	Anse Bernard, Dakar, Senegal	14.VI.1946	Under stones at low tide			1 ♂
D'COLIN	Rufisque, Senegal	22.III.1890	Rocks of the fort and neighboring island			1 ♂, 3 ovig. ♀
J. FOREST	Off N'Gazobil, Senegal	21.II.1953	4	—	—	1 ♂, 4 ♀ (1 ovig.)
—	Joal, Senegal	24.II.1947	From cavities of sponges collected on the beach			1 ♂ (figured), 1 ovig. ♀
J. FOREST	»	18.II.1953	6	—	—	2 ♂, 3 ♀ (1 ovig.)
»	»	19.II.1953	4	—	—	1 ♂
—	»	14.IV.1953	—	—	—	1 ♂, 1 ovig. ♀
I. MARCHE- MARCHAD	Banc de Guque, Joal, Senegal	14.IV.1953	6	—	—	2 ♂, 1 ovig. ♀
»	Off Joal, Senegal	17.IV.1953	15-17	—	—	2 ♂, 1 ovig. ♀
J. CADENAT	Saloum, Senegal	16.VI.1947	On buoy at entrance			1 ♂, 1 ovig. ♀
« SYLVANA » St. 98	11°38'N-15°49'W (channel between Rouban and Bubaque, Portuguese Guinea)	12.VI.1913	25-30	—	— Rock, coral	11 ♂, 8 ♀ (6 ovig.)
SYLVANA » St. 100	Same	13.VI.1913	Rocks at low tide			2 ♂, 1 ♀
J. FOREST	Conakry, French Guinea	13.III.1953	Low tide			2 ovig. ♀
»	Tombo (Conakry) French Guinea	15.III.1953	»			1 ♂
R. BASSINDALE	Apam, Gold Coast	16.II.1949	Shore			2 ♂
»	Christiansborg, Gold Coast	15.I.1949	»			1 ovig. ♀
»	»	17.III.1949	»			1 ♂, 1 ovig. ♀
»	»	19.XI.1949	—	—	—	1 ♂
»	Accra or Tenpobo, Gold Coast	13.II.1949	Shore			1 ♂, 2 ♀ (1 ovig.)
»	Tenpobo, Gold Coast	17.I.1949	»			7 ♂, 8 ♀ (5 ovig.)
»	»	13.II.1949	»			2 ♂, 1 ovig. ♀
»	Winneba, Gold Coast	22.XI.1949	»			1 ♂, 1 ovig. ♀

Diagnosis. — Carapace broader than long in adults. Surface irregularly rugose on frontal and hepatic regions regularly so on lateral branchial areas, and with a pair of transverse crests on protogastric region. Carapace practically devoid of hairs dorsally. Front regularly convex in dorsal view, with a prominent median lobe in frontal view. Lateral wall of carapace usually of two pieces, rarely of three or four.

Carpus of cheliped with three broad teeth on anterior margin. Dorsal surface practically bare, except for a fringe of hairs along distal margin, and ornamented with rather crowded tubercles of various sizes which are depressed

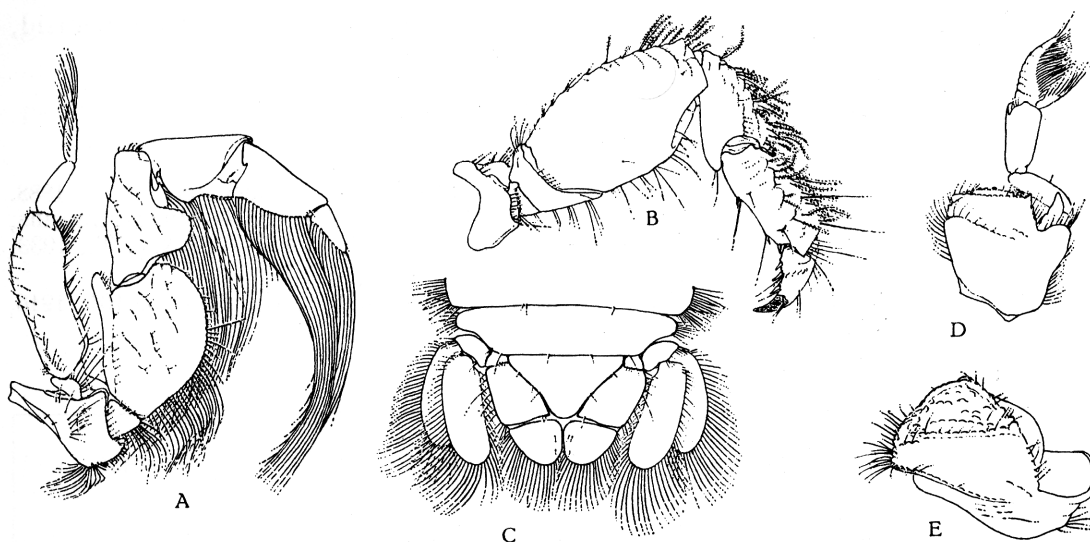


FIG. 1. — *Pachycheles sahariensis* MONOD, 1933.

A, right third maxilliped. — B, right first walking leg. — C, telson and uropods.

D, right antennule in ventral view. — E, same in anterior view.

Male; Joal, Senegal; scale: A, $\times 11.4$; B, $\times 6.6$; C, $\times 7.2$; D, $\times 15.6$; E, $\times 24$.

and distally truncate on central part of segment. Major chela grossly tuberculate; most prominent tubercles compound and arranged roughly in two longitudinal rows on median part of hand; distal tubercle of inner row considerably larger than others. Surface almost bare except for a dense growth of plumose hairs along cutting edge of fixed finger. Minor chela clothed with stout setae and plumose hairs on outer two thirds of dorsal surface, without hairs in gape of fingers.

Telson composed of seven pieces.

No abdominal appendages in male.

The carapaces of the males are from 2.2 to 6.5 mm. long and from 2.2 to 7.5 mm. wide; those of the females, 2.2 to 7.3 mm. long and 2.2 to 8.5 mm. wide, and of ovigerous specimens, 2.8 to 7.3 mm. long and 3.0 to 8.5 mm. wide.

Remarks. — This species can hardly be a synonym of *Porcellana mattsii* B. OSORIO, 1887, as suggested by TH. MONOD. Not only is the margin of the

larger hand practically devoid of hairs, in contradistinction to OSORIO's description, but the carpus of the chelipeds is far from « lisse », as noted by OSORIO in *Porcellana mattsosi*.

Ecology. — No ecological information is available in the literature. *P. sahariensis* occurs in the intertidal zone and to a depth of 25 or 30 meters. One lot was found in sponges on the beach and another on a buoy. Ovigerous females were taken in every month for which collections were available: January, February, March, April, and November.

Geographical distribution. — *Pachycheles sahariensis* was recorded previously only from the type lot of nine specimens from Lemsid, Mauritania.

***Pachycheles barbatus* A. MILNE-EDWARDS, 1878.**

(Fig. 2, A-H.)

Pachycheles barbatus MILNE-EDWARDS, A., 1878, p. 228 [9]. — HENDERSON, J. R., 1888, p. 114, pl. XI, fig. 4. — ORTMANN, A., 1894, p. 29; 1897, pp. 292-293. — MILNE-EDWARDS, A., and BOUVIER, E. L., 1900, p. 348. — BALSS, H., 1916, p. 42. — MONOD, T., 1933, p. 476 [21].

Pachycheles ornatus BOUVIER, E. L., 1906, p. 494 [4]. — BALSS, H., 1914, p. 101; 1916, p. 41. — MONOD, T., 1933, p. 476 [21].

Source and material.

Collector	Locality	Date	Depth m	Bottom tem- perature °C	Nature	Material
« SYLVANA » St. 137	Praia, Sao Thiago, Cape Verde Is.	3.V.1913			Shore	1 ovig. ♀
TH. MONOD	Anse Bernard, Dakar, Senegal	30.XI.1947	—	—	—	1 ♂, 2 ovig. ♀
R. SOURIE	Dakar, Senegal	—	—	—	—	1 ♂ (figured), 5 ♀ (3 ovig.)
I. MARCHE- MARCHAD	Wreck of the « PERSÉE », between Cap Manuel and Gorée, Senegal	7.V.1953	15	—	—	1 ovig. ♀
»	»	29.V.1953	15	—	—	1 ♂
J. CADENAT	Gorée, Senegal	26.III.1946	—	—	—	4 ♀
»	»	30.III.1946	—	—	—	1 ♂, 2 ♀
DELAIS	»	IX.1950	2-3	—	—	1 ovig. ♀
M. DELAIS and I. MARCHE- MARCHAD	Wreck of the « TACOMA », Gorée, Senegal	7.I.1953	1 1	— —	— —	1 ♂, 1 juv. 1 ♂, 1 juv.
SERAND	Pointe Topsail, Tamara I., Iles de Los, French Guinea	13.III.1914	—	—	—	1 ovig. ♀
R. BASSINDALE	Tenpobo, Gold Coast	17.I.1949			Intertidal	1 ♂ (chelipeds missing)
—	Senegal or Gold Coast	—	—	—	—	1 ♀