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PORCELLANIDS FROM TANABE BAY

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PORCELLANIDS FROM TANABE BAY¹

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ONE PLATE and TWO TEXTFIGURES

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The Porcellanids dealt with in this article are all preserved in the collection of the Seto Marine Biological Laboratory of the Kyoto Imperial University. At the outset I wish to offer my warmest thanks to Mr. Fujio Hiro of the said Laboratory, for placing the material in my hands for study. Special thanks are due to Prof. Hiroshi Ohshima, under whose direction I am now studying Porcellanids of Japan, for his suggestions and criticisms given me during the course of the present work.

The following is the list of the species described :

1. *Petrolisthes japonicus* (de Haan)
2. *Petrolisthes bosci* (Audouin et Savigny)
3. *Petrolisthes nippensis* sp. nov.
4. *Porcellanella picta* Stimpson
5. *Pisosoma sculptum* (H. Milne-Edwards)
6. *Polyonyx asiaticus* Shen

Besides, the allotype of *Petrolisthes nippensis* is collected during the Second Okinoshima Expedition in May 19-29, 1933. I desire to express my hearty thanks to Prof. H. Ohshima, Messrs. H. Ikeda and K. Yasumoto who collected it and kindly handed it over to me.

1. *Petrolisthes japonicus* (de Haan) (Pl. 12, fig. 5)

Porcellana japonica, de Haan, Fauna Japonica, Crustacea, 1849, p. 199, Pl. 50, fig. 5
(Japan).

Petrolisthes japonicus. Stimpson, Proc. Acad. Nat. Sci., vol. 10, 1858, p. 214 (Shimoda ; Bonin Islands ; Kikai-Jima ; Kerama Islands ; Hongkong).

Porcellana (Petrolisthes) japonica, de Man, Journ. Linn. Soc., vol. 22, 1888, p. 215
(Elphinstone Island Bay)

¹ Contributions from the Zoological Laboratory, Kyūshū Imperial University, No. 107.

- Petrolisthes japonicus*, Ortmann, Zool. Jahrb., Syst., Bd. 6, 1892, p. 261 (Katsuyama; Sagami Bay; Kagoshima; Amami-Ōshima).
 —, de Man, Zool. Jahrb., Syst., Bd. 9, 1896, p. 373 (Borneo; Malacca).
 —, Balss, K.B. Akad. Wiss., Math.-phys. Kl., Suppl.-Bd. 2, Abh. 9, 1913, p. 30 (Fukaura; Kominato; Katsuyama; Nagasaki; Bonin Islands).
 —, Kikuchi, Toyama Kyoiku, 1932, p. 7 (Toyama Bay).

Material examined. Hatake-Jima, Kii, Wakayama-Ken; July 7, 1922; 1 male and 2 females; in the Seto Marine Biological Laboratory of the Kyoto Imperial University.

Habitat. Collected under rocks at low tide.

2. *Petrolisthes bosci* (Audouin et Savigny)

(Fig. 1; Pl. 12, fig. 2)

- Porcellana Bosci*, Audouin et Savigny, Description de l'Egypte, Crust. Paris. 2. Edit., 1826, Pl. 7, fig. 2 (Red Sea).
Porcellana Bosci, Heller, S.B. Wiener Akad. Wiss., Bd. 44, Abt. 1, 1861, p. 256 (Red Sea).
Petrolisthes Bosci, Kossman, Zool. Ergebnisse einer Reise nach dem Rothen Meer, 2. Hälfte, 1. Lief., 1877, p. 74 (Red Sea).
Porcellana Bosci, de Man, Note from the Leyden Museum, vol. 3, 1881, p. 104 (Red Sea).
Porcellana (Petrolisthes) Bosci, de Man, Journ. Linn. Soc., vol. 22, 1888, p. 217 (Elphinstone Island Bay; King Island Bay).
Petrolisthes bosci, Henderson, Trans. Linn. Soc., (2), vol. 5, 1893, p. 427 (Kurachi; North Australia).
 —, Ortmann, Zool. Jahrb., Syst., Bd. 10, 1897, p. 284 (No new record).
 —, Nobili, Ann. Sci. Nat., (9), Zool., Tom. 4, 1906, p. 130 (Red Sea).
 —, Balss, K.B. Akad. Wiss., Math.-phys. Kl., Suppl.-Bd. 2, Abh. 9, 1913, p. 29, Pl. 1, fig. 4 (Satsuma; Suruga).

Description. The carapace is depressed and a little longer than broad. The surface of the carapace is pubescent and is ornamented with various forms of flattened granules. These granules on the gastric region and the postero-lateral portions are furnished with microscopical hairs on the anterior margin. The front is triangular, with the apex deflected downward and concave above. The first antennal peduncle is armed with an acute, cristate tooth. The epibranchial spine is presented and acute. The lateral margin is distinct. The surface of the epimera is ornamented with some striated lines longitudinally.

The chelipeds are almost equal. The arm has a long tooth at the distal end of the anterior margin. There are three spinules on the distal margin of the arm, two spines being on the outside, the other on the inside. The wrist is provided with five acute teeth on the anterior margin, being smaller distally. The rugose posterior margin

of the wrist is armed with three spines at distal part. The upper surface of the wrist is ornamented with squamiform granules with minute or microscopical hairs obliquely. The upper surface of the palm is furnished with similar granules. These granules gradually pass into small ones changing into acute spinules on the outer margin. The fingers are much shorter than the palm and their tips cross one another. The fingers are furnished with minute hairs on the inner margins. There is no gap between the fingers.

The ambulatory legs are of a moderate length and are hairy. The merus is furnished with transverse, squamiform granules with microscopical hairs. The first two ambulatory legs of the merus are provided with an acute spine at the distal end of the posterior margin. The propodi of the ambulatory legs are furnished with four spinules on the posterior margins; two spinules are in a longitudinal line and two spines are arranged transversely at the distal end. The dactyli of the ambulatory legs are terminating in a black horny claw and are armed with three spinules on the inner margin. The terminal segment of the abdomen and the abdominal appendage of the male are as in the textfigures.

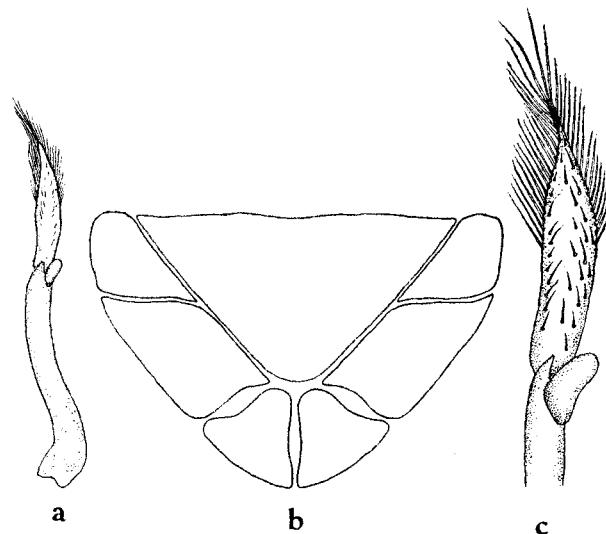


Fig. 1. *Petrolisthes boscii*. a. male abdominal appendage, $\times 8.1$.
b. 7th segment of abdomen, $\times 12$. c. apex of
anterior male abdominal appendage, $\times 18$.

Colour in alcohol. The dorsal surface of the body is white, but

granules are Indian lake, whereas the ventral surface is eupatorium purple.

Material examined. Tsunashirazu, Seto, Kii, Wakayama-Ken; Apr. 3, 1936; 1 male, S. M. B. L. Cat. No. 17, IX, J.

Dimensions (in mm.). Length of carapace 11.5; Breadth of carapace 11; Length of chela 18; Breadth of palm 6.8; Length of wrist 9.2.

Habitat. Collected under rocks at low tide.

Distribution. Japan: Suruga Bay; Seto, Kii, Wakayama-Ken; Satsuma, Kagoshima-Ken; Australia; Red Sea.

3. *Petrolisthes nippensis* sp. nov.

(Fig. 2; Pl. 12, fig. 1)

Petrolisthes pubescens, Balss, K. B. Akad. Wiss., Math.-phys. Kl., Suppl.-Bd. 2, Abh. 9, 1913, p. 30, Pl. 1, fig. 2 (Not *P. pubescens* Stimpson, 1858).

Type. Holotype, male, S. M. B. L. Cat. No. 19, IX, J; from Tsunashirazu, Seto, Wakayama-Ken; Apr. 3, 1936. Allotype, female, deposited in the Zoological Laboratory, Kyushu Imperial University; from Okinoshima, Fukuoka-Ken; May 19-29, 1933.

Description. The carapace is depressed and a little broader than long. The upper surface of the carapace is pubescent, and is furnished with squamiform granules in the anterior half. The front is triangular, with the apex rounded and concave above. The front is separated from the gastric region by a slightly elevated transverse crest which is interrupted in the middle by the median frontal furrow. There is a supraocular spine which is acute. The first and second antennal peduncles are armed with an acute tooth on the anterior margins. The cervical groove is faint and covered with hairs thickly. The epibranchial spine is prominent and acute. The lateral margin is distinct, with the epimeral suture running close beneath it. The surface of the epimera is ornamented with a longitudinal line of granules, and is furnished with long hairs.

The chelipeds are unequal, the right one being larger in both types. The ischium is prolonged in an acute tooth at the distal end of the anterior angle. The arm has a long tooth at the distal end of the anterior margin; the posterior angle of the arm is prolonged in an acute tooth as in the ischium. There are two small but acute spines on the distal margin of the arm; one is situated at the middle of the outside, the other near the anterior angle of the inside. The wrist is provided with three or four stout and acute teeth on the anterior

margin. The holotype has four such teeth and allotype has only three; the variation in the number of the teeth is not due to sexual differences but is a mere local or perhaps individual character. The rugose posterior margin of the wrist is armed with two or three teeth at the distal part. The anterior half of the upper surface of the wrist is covered with flattened granules beneath short, soft hairs, which gradually pass into transverse, squamiform lines in the posterior half. The upper surface of the palm is covered with similar flattened granules beneath minute hairs. The outer margin of the palm is armed with ten spines. The fingers are much shorter than the palm and their tips cross one another; on the upper surface of the movable finger is ornamented with a longitudinal line of squamiform granules.

The ambulatory legs are of a moderate length and hairy. The merus is furnished with transverse, squamiform granules on the upper surface beneath minute hairs and armed with acute spine on the anterior margin which is bordered with dense long hairs. All of the specimens of this series agree in the number of spines on the anterior margin of the merus, the only variation observable being the following: There are nine, eight and six spines in the first, second and third ambulatory legs respectively. The merus is armed with an acute spine

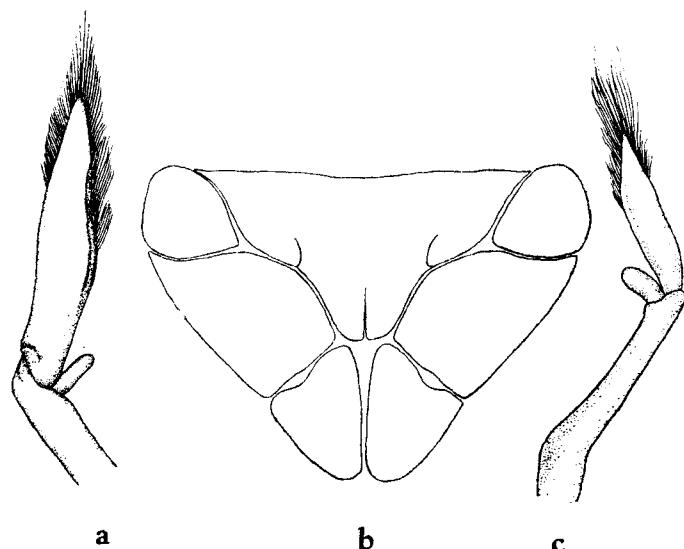


Fig. 2. *Petrolisthes nipponensis* sp. nov. a. apex of anterior male abdominal appendage, $\times 13.2$. b. 7th segment of abdomen, $\times 8.4$. c. male abdominal appendage, $\times 6.6$.

on the subdistal part of the posterior margin. The propodi of the first three pairs are armed with two spinules along the longitudinal axis and with two similar spinules at the distal ends of their posterior margins. The dactyli are terminating in a black horny claw and are armed with three spinules on the inner margins. The forms of the terminal segment of the abdomen and the abdominal appendage of the male are as in the textfigure.

Colour in alcohol. The body is vandyke red. The surface of the epimera is greenish blue.

Material examined. Tsunashirazu, Seto, Kii (Type-locality); Apr. 3, 1936; 2 males. The holotype for this species has been selected from this material S. M. B. L. Cat. No. 19, IX, J.

Okinoshima, Fukuoka-Ken; May 19-29, 1933; 2 males and 1 female (Allotype), collected by Prof. H. Ohshima, Messers. H. Ikeda and K. Yasumoto of the Zoological Laboratory, Kyushu Imperial University.

Koura, Kagoshima-Ken; May 1911; 1 male, deposited in the Kagoshima Museum.

Tomioka, Amakusa, Kumamoto-Ken; Apr. 3, 1931; 1 male, deposited in the Amakusa Marine Biological Laboratory, Kyushu Imperial University.

Distribution. Kominato, Bōshū, Chiba-Ken [Balss]; Seto, Kii, Wakayama-Ken; Okinoshima, Fukuoka-Ken; Tsushima, Nagasaki-Ken [Balss]; Tamioka, Amakusa, Kumamoto-Ken; Koura, Kagoshima-Ken.

| <i>Dimensions</i> (in mm.). | | Holotype | Allotype |
|-----------------------------|---------|----------|----------|
| Length of carapace... | ... | 19 | 15.5 |
| Breadth of carapace | ... | 19.2 | 16 |
| Length of chela | { Right | 36.5 | 25.5 |
| | Left | 34 | 24.5 |
| Length of wrist | { Right | 18 | 12 |
| | Left | 16 | 11.5 |
| Breadth of palm | { Right | 11.5 | 9.2 |
| | Left | 10.5 | 8 |

Remarks. This species is allied to *Petrolisthes pubescens* Stimpson², *P. nipponensis* bears only ten teeth on the outer margin of the palm, but *P. pubescens* bears minute spines, furnishing moreover long hairs. There is a prominent supraocular spine in *P. nipponensis*, but it is absent in *P. pubescens*. *P. nipponensis* is the largest among the Japanese species, but *P. pubescens* is rather small. I may add that the Japanese

² Stimpson (1858), 1907, Smiths. Misc. Coll., vol. 49, p. 183, Pl. 22, fig. 3.

specimen of *Petrolisthes* described by Balss as *P. pubescens* (1913, p. 30, Pl. 1, fig. 2) is in reality to be identified with *P. nipponensis*.

4. *Porcellanella picta* Stimpson

(Pl. 12, figs. 3-4)

Porcellanella picta, Stimpson, Proc. Acad. Nat. Sci., vol. 10, 1858, p. 243 (Hongkong).
Porcellana (Porcellanella) picta, de Man, Journ. Linn. Soc., vol. 22, 1888, p. 220 (King Island Bay).

Porcellanella picta, Stimpson, Smiths. Misc. Coll., vol. 49, 1907, p. 193, Pl. 22, fig. 6 (No new record).

Porcellanella picta, Yokoya, Journ. Coll. Agr. Tokyo Imp. Univ., vol. 12, no. 1, 1933, p. 70 (Toba, Mie-Ken).

Material examined. Off Shirahama, Kii, Wakayama-Ken; July 6, 1934; 1 male and 1 ovigerous female, S. M. B. L. Cat. No. 18, IX, J. Seto, Kii, Wakayama-Ken; July 28, 1936; 2 males and 2 ovig. females, S. M. B. L. Cat. No. 16, IX, J.

Habitat. This Porcellanid is found living in *Pteroides chinense* at 10-30 fathoms.

5. *Pisosoma sculptum* (H. Milne-Edwards)

Porcellana sculpta, Milne-Edwards, Hist. Nat. Crust., Tom. 2, 1837, p. 253 (Java).

Porcellana sculpta, Dana, U. S. Expl. Exp., 1852, p. 412, Pl. 26, fig. 2 (Sulu Sea; Fiji Islands).

Porcellana pulchella, Haswell, Cat. Australian Crust., 1882, p. 148 (Australia).

Porcellana (Pisosoma) sculpta, de Man, Journ. Linn. Soc., vol. 22, 1888, p. 218 (Mergui Islands).

Pisosoma sculptum, Ortmann, Zool. Jahrb. Syst., Bd. 6, 1892, p. 265 (Amami-Oshima).

Pachycheles (Pisosoma) sculptus, Balss, K. B. Akad. Wiss., Math.-phys. Kl., Suppl.-Bd. 2, Abh., 9, 1913, p. 32 (No new record).

Material examined. Shisho-Jima, Kii, Wakayama-Ken; May 10, 1937; 1 ovigerous female, S. M. B. L. Cat. No. 22, IX, J.

Dimensions (in mm.). Length of carapace 3.5; Breadth of carapace 3.5.

Habitat. Collected under rocks at low tide.

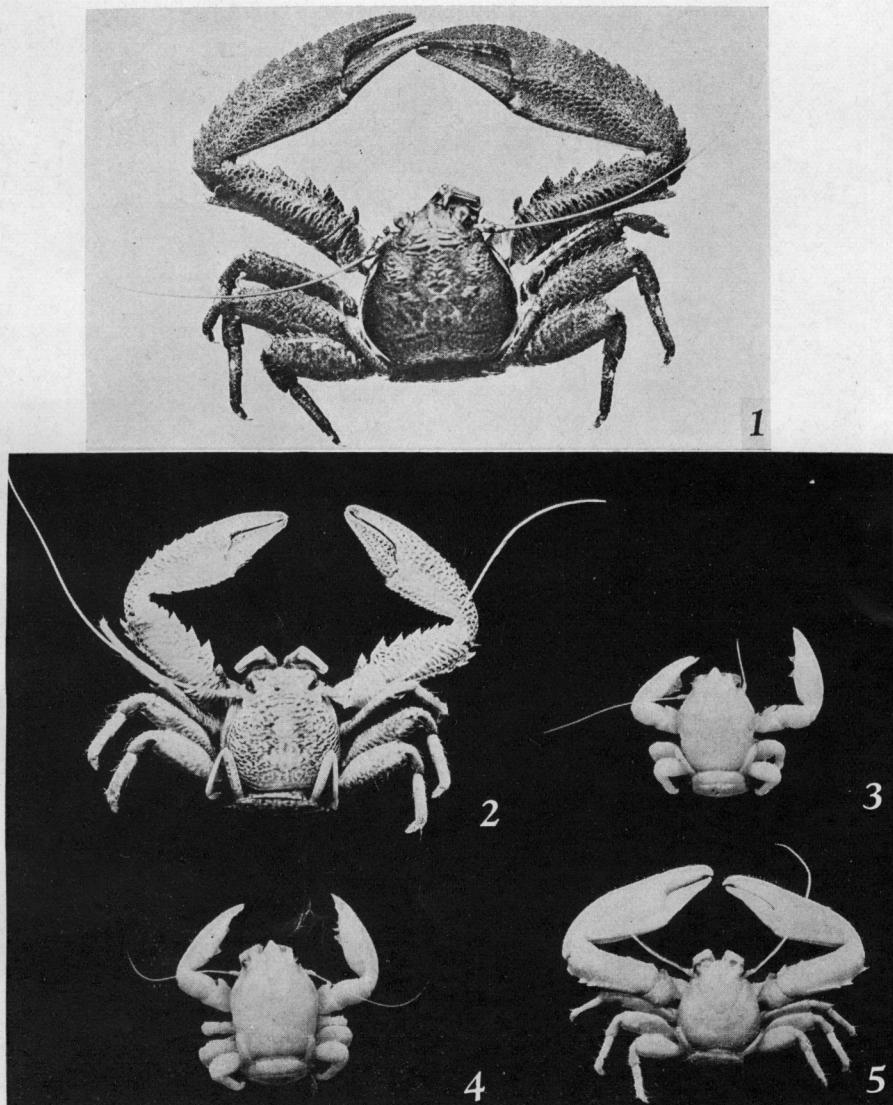
6. *Polyonyx asiaticus* Shen

Polyonyx asiaticus, Shen, Bull. Fan Mem. Inst. Biol. (Zool.), vol. 6, no. 6, 1936, p. 279, textfigs. 1-2 (Chefoo, China).

Material examined. Tanosaki, Kii, Wakayama-Ken; Apr. 12, 1937; 1 male, S. M. B. L. Cat. No. 20, IX, J.

Dimensions (in mm.). Length of carapace 4; Breadth of carapace 5.4.

Habitat. Living in the tube of *Chaetopterus variolosus*.



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1. *Petrolisthes nipponensis* sp. nov. Holotype, male.
2. *Petrolisthes bosci* (Audouin et Savigny), male.
3. *Porcellanella picta* Stimpson, male.
4. The same, female.
5. *Petrolisthes japonicus* (de Haan), male.