



A. *Lithodes nintokuae* sp. nov. ニントクイバラガニ
B. Same, ventral view. 同腹面

For explanation of plate, see p. 17.

3 DECAPOD CRUSTACEA FROM THE EMPEROR SEAMOUNT CHAIN

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Introduction

The Emperor Seamount Chain, lying to the northwest of the Midway Islands in the central Pacific, consists of a series of numerous seamounts, which are named after early Japanese Emperors. Between the northernmost Tenchi (50°N-168°E) and the southernmost Kanmu (30°N-173°E) there are, north to south, Jinmu, Suiko, Nintoku Jingu, Ohjin, Kinmei and Yūryaku, and they are lined with the eastwardly situated Merish Seamount and the southeastwardly situated Hancock Seamount to form a chain which extends towards the Midway Islands.

These Seamounts are at the depth of 2000 Fathoms or more and therefore they remained unexplored. Recently, however, some of them, which are in relatively shallow water, have been surveyed for the purpose of investigation deep-sea animals by Japanese fisheries research organizations and marine product industries.

Such surveys are as follows:

- 1) Kushiro Fisheries Experimental Station, Hokkaido surveyed Kinmei in Aug. 1976 by the Chiyoki-maru, by using otter-trawl.
- 2) Hamaya Marine Product Company, Hokkaido, surveyed Nintoku, during June to Sept. 1977, by the Keikyu-maru No. 26, using gillnets.
- 3) The Marine Fishery Resources Research Center, Tokyo, surveyed Nintoku, Ohjin and Kinmei during June to August, 1977, by means of crab-pots.

The specimens of Decapod Crustacea out of the material gained through the above-mentioned surveys have been brought to the author for identification. They are classified in 11 species: 3 species of Anomura, including 2 new species; 8 species of Brachyura, including 1 new genus, 2 new species and 1 new subspecies.

They are listed as follows:

Section BRACHYURA

Family MAJIDAE SAMOUELLE

Subfamily OREGONIINAE GARTH

Genus *Macroregonia* gen. nov.

Macroregonia macrochira gen. et sp. nov.

Genus *Oregonia* DANA

Oregonia bifurca RATHBUN

Genus *Chionoecetes* KRÖYER

Chionoecetes japonicus pacificus subsp. nov.

Family PORTUNIDAE RAFINESQUE

Subfamily MACROPIPINAE STEPHENSON et CAMPBELL

Genus *Ovalipes* RATHBUN

Ovalipes iridescens (MIERS)

Family GONEPLACIDAE DANA

Subfamily CARCINOPLACINAE H. MILNE EDWARDS

Genus *Neopilumnoplax* SERÈNE

Neopilumnoplax major sp. nov.

Family GERYONIDAE BALSS

Genus *Geryon* KRÖYER

Geryon affinis A. MILNE EDWARDS et BOUVIER

Genus *Progeryon* BOUVIER

Progeryon guinotae CROSNIER

Family GRAPSIDAE DANA

Subfamily GRAPSINAE DANA

Genus *Planes* BOWDICH

Planes cyaneus DANA

Section ANOMURA

Family LITHODIDAE DANA

Subfamily LITHODINAE ORTMANN

Genus *Lithodes* LATREILLE

Lithodes nintokuae sp. nov.

L. longispina SAKAI

Genus *Paralomis* WHITE

Paralomis pacifica sp. nov.

Prior to the description of the species, the author thanks Mr. Yukio OKUDA, Director of Kushiro Fisheries Experimental Station, Hokkaido; Mr. Kōki FUJIMURA, Director of Marine Fishery Resources Research Center, Tokyo, and Mr. Hisashi HAMAYA, General Director of Hamaya Marine Product Company, for offering the author such valuable material for study. The author also expresses sincere gratitude to Mr. Koji ABE, a staff of Kushiro Fisheries Experimental Station and Mr. Soji NAKANO, a staff of Marine Fishery Resources Research Center for their aid in assorting and arranging the materials.

Section BRACHYURA

Fam. MAJIDAE SAMOUELLE

Subfam. OREGONIINAE GARTH

The subfamily OREGONIINAE was established by GARTH (1958) to accommodate three early recorded genera—*Oregonia* DANA, *Ilyas* LEACH and *Chionoecets* LEACH. The basis of this subfamily is on the form of male abdomen, which is broad and the terminal tergum transversely oval and invaginated to the preceding tergum.

A new genus, which corresponds to the fourth genus of this subfamily has been taken from the Nintoku Seamount in the Emperor Seamount Chain, which will be described in the following:

Macroregonia gen. nov.

An extremely large spider crab, its carapace is suboblong or lyrate, anteriorly broadened, and its dorsal surface markedly swollen. The rostral spines are short and simple, widely separated by a U-shaped frontal sinus. No orbit is formed. Abdomen is seven-segmented in both sexes; that of male is broad and distally broadened, the terminal tergum short and transversely subovate, invaginated to the preceding tergum (Fig. 3).

Thoracic legs are very slender and cylindrical. The chelipeds of full-grown male are longer than any pair of ambulatory legs, which are subequal in length.

In general generic features, this new crab seems to have no alliance to the three genera referred to, however, by reason of its characteristic of the male abdomen, the new genus falls into the subfamily OREGONIINAE.

Derivation of generic name: The new generic name means 'Oregonia' of an enormous size.

Genotype: *Macroregonia macrochira* gen. et sp. nov.

Macroregonia macrochira gen. et sp. nov.

Pl. I, figs. A, B; Figs. 1-7.

Material examined:

- 1 ♂, No. 590, holotype. North of Nintoku Seamount, 42°20'N-170°50'E. Depth more than 800 M. Hamaya Marine Product Co., No. 26 Keikyu-maru, July 20-Sept., 1977.
- 1 ♀, No. 627, allotype. Nintoku Seamount, 41°11'N-170°36'E. Depth 1050-1100 M. Marine Fishery Resources Research Center, by means of crab-pots. Aug. 21, 1977.
- 1 ♂, No. 588, paratype. North of Nintoku Seamount, 42°20'N-170°50'E. Depth 800 M. Hamaya Marine Product Co. July 20-Sept., 1977.
- 1 ♀, No. 589, paratype. Loc. and date same as above.

This new crab is one of the largest spider crabs known in the Indo-Pacific waters, resembling Japanese giant crab, *Macrocheira* in its outside view.

Carapace is oblong-ovate or lyrate, anteriorly broadened. The dorsal surface is extremely convex and its regions well delimited. The gastric, cardiac and intestinal regions are clearly separated from each other by deep grooves. The entire dorsal surface is tuberculated; the tubercles are few in the median area but are thick and pointed on the lateral and posterior surfaces. There are two tiny spinules side by side on the anterior gastric area.

The rostrum is basally confluent; the two rostral spines are short and simple, widely separated by a U-shaped frontal sinus, directed slightly upwards. On account of the remarkable convexity of the gastric area, the rostrum produces from a very low level. The ventral rostral process is projecting rectangularly downwards, basally very broad and sulcate, and its distal portion pointed and directed forwards (Fig. 3). There is no orbit, the eye-stalk is basally surrounded by the upper orbital eave and the basal segment of antenna.

There is a tiny spinule at the anterior corner of the hepatic margin, which corresponds to the strong hepatic spine seen in the genus *Oregonia*.

The abdomen is seven-segmented in both sexes. The male abdomen is broad and the terminal tergum short and transvesely ovate in outline, invaginated into the penultimate tergum. The anterior pleopod of male is very long and thin, subcylindrical, curved outwards in the median portion and its distal portion set with filamentous setae of different lengths (Fig. 6).

Thoreic legs are very long and cylindrical. The chelipeds of full-grown male are much longer than the first pair of ambulatory legs. The arm, wrist and palm are thickly and uniformly covered with tubercles. The fingers are compressed, sulcate and the prehensile edges are cut into numerous thin obtuse teeth. All pairs of ambulatory legs are almost subequal in length, exactly, however, the first pair is longest. All segments are thickly covered with tubercles and the merus is set with a series of procurved spinules along anterior and posterior borders.

Measurements:

Male holotype, length of carapace, measured in the median line, 122 mm, width of same 107 mm, length of rostral spine 16 mm, total length of cheliped 470 mm, that of 1st ambulatory leg 420 mm.

Oregonia bifurca RATHBUN Fig. 8.

Oregonia bifurca RATHBUN 1902, Proc. U. S. Nat. Mus. vol. 24, p. 885; *ibid.* 1904, Decapod Crustaceans of the Northwest Coast of North America, Harriman Alaska Series. X, p. 171, pl. 6, fig. 5; *Ibid.* 1925, The Spider Crabs of America, Bulletin 129, U. S. Nat. Mus. p. 79, pls. 26-28, text-fig. 21; GARTH 1958, Allan Hancock Pacific Expedition, vol. 21, pt. 1, p. 140, pl. I, fig. 1, pl. 11, fig. 2.

Material examined:

1♀, Nintoku Seamount. Coll. by staffs of Kushiro Fisheries Experimental Station, by means of crab-pot, Aug. 15, 1977.

A female specimen of this rare species was obtained by a crab-pot. This species has only been recorded from the western part of the Bering Sea at the depth of 276-769 fathoms. The Emperor Seamount is the second locality for this species.

Distribution. West of Bering Sea and the Nintoku Seamount.

Chionoecetes japonicus pacificus subsp. nov.

Pl. III, Fig. C, figs. 9-11.

Material examined:

1♂, No. 623, holotype. North of Nintoku Seamount, 42°20'N 170°50'E, depth 800 M. Hamaya Marine Product Co., No. 26, Keikyu-maru. July 20-Sept., 1977.

1♂, No. 526. Same locality, same collector.

1♂, No. 586 (photo), same locality, same collector.

In their outside view, these specimens seem to belong to the Japanese edible crab *Chionoecetes japonicus*, however, on account of the different form of tubercles and granules of carapace, the author preferred to rank these crabs to a new subspecies of *C. japonicus*.

On the distribution of C. japonicus.

Chionoecetes japonicus was originally recorded by RATHBUN (1932) from off Sado Island, the Sea of Japan. This crab is now abundantly gained from various localities around the Japanese Mainland, and are used for food. The known localities for this crab are as follows:

Off Sawa-Zaki, Sado Island, Sea of Japan (type locality).

Gulf of 'Peters des Grossen' and the northern parts of the Sea of Japan (as *Chionoecetes angulatus bathyalis* DERJUNGIN & KOBAYAKOWA, 1935).

Toyama Bay, numerous ♂♂ and ♀♀; the Fisheries Experimental Station, Toyama Prefecture.

Off Mikuni, Fukui Prefecture, numerous ♂♂ and ♀♀, fish market.

Off Tottori Prefecture, numerous ♂♂ and ♀♀, sent by S. Maeda, member of Carcinological Society of Japan.

Off Sendai Bay, Miyagi Prefecture, numerous ♂♂ and ♀♀, fish market.

Off Onahama, Fukushima Prefecture, 1♂, 1♀, obtained by crab-pot.

Off Chyōshi, Chiba Prefecture, numerous ♂♂ and ♀♀, from the refuge of the trawl-nets.

Off Enoshima, Sagami Bay, 2 ♂♂, June 1978, obtained by crab-pot.

Specific difference between C. japonicus and C. opilio.

C. japonicus differs from the early known *C. opilio* O. Fabricius in the following particulars.

The bathymetric range of *C. japonicus* is more or less than 2000 meters, while that of *C. opilio* (in Japanese waters) is nearly 200 meters. The fresh colour of *C. japonicus* is uniformly deep red, that of *C. opilio* is light copper brown.

In *C. japonicus*, the branchial regions of carapace are extremely swollen, and in consequence, the posterior slope of carapace appears very steep. In *C. opilio*, the branchial regions are rather flattish and the posterior slope is not so steep.

In both species, the lateral and posterior transverse ridges of branchial regions are set with low protuberances, each of which is mounted with a cluster of granules (Fig. 9). These two ridges meet at the postero-lateral corner of the carapace at an angle of about 60°, where a strong process is found in *C. japonicus*, but no such process in *C. opilio*, the process being replaced by a cluster of granules.

The posterior margin of carapace of this genus is marked with two granulated ridges; in *C. japonicus* these two ridges meet near the posterolateral angle, in *C. opilio*, however, they run parallel onto the anterolateral portion.

The anterior pleopod of male of *C. japonicus* is provided with long inwardly curved apical process, that of *C. opilio*, the apical process is short and beak-like and curved rectangularly inward (Figs. 11, 12, 13).

Diagnosis of Chionoectes japonicus pacificus subsp. nov.

The new subspecies differs from the typical *C. japonicus* in the following particulars:

1. The fresh colour of the typical *C. japonicus* is uniformly deep red while that of the new subspecies is light yellowish pink with the tubercles and spinules coloured in deep purplish red (Pl. III, fig. C).

Fresh colour of *C. japonicus* obtained from off Sendai Bay and off Onahama (both Pacific side of Japan) somewhat different from the deep red of the typical specimens from the Sea of Japan, the carapace being of pale bluish pink with the tubercles deep purplish red. In colouration, these specimens seem to approach the new subspecies

from the Emperor Seamount.

2. The branchial regions of the new subspecies are extremely convex as in the typical *C. japonicus*, and the posterior slope of carapace is also very steep. On the branchial regions, the lateral and posterior transverse ridges are marked with a series of an obtuse spinule or process, not with granulated protuberances (Fig. 9). As in *C. japonicus*, however, there is an obtuse and remarkable process at the junction of the two ridges. Different from *C. japonicus*, non of the tubercles of carapace is mounted with a cluster of granules. As in *C. japonicus*, the two ridges of the posterior and posterolateral margins are thickly granulated and meet near the posterolateral portion of the carapace.

3. The anterior pleopod of male is slender and cylindrical throughout, gently curving outward. Near its distal portion, filamentous setae of various lengths are growing, a bundle of longish ones on the inner concave border, several rows of medium sized ones along outer convex border, and a few short ones on the upper surface. The apical process is slender and longer than that of *C. japonicus* (Fig. 11), curving strongly inward and recurved to the tip.

Measurements: Type male. length of carapace including rostrum 113 mm, width of same 126 mm.

Fam. PORTUNIDAE RAFINESQUE

Subfam. MACROPIPINAE STEPHENSON et CAMPBELL

Ovalipes iridescens (MIERS, 1886).

Pl. III, fig. B.

Platyonichus iridescens MIERS 1886, Challenger Report, vol. 17, p. 202, pl. 17, fig. 2.

Ovalipes iridescens SAKAI 1939, p. 375, pl. 42, fig. 4; Ibid. 1976, p. 331, pl. 112, fig. 1, (Lit. and references)

Material examined:

- 1 ♂, No. 614, Kinmei Seamount, 35°22'N-171°26'E, depth 300-320 M, by means of crab-pot. The Marine Fishery Resources Research Center, June 11, 1977.
- 1 ♂, No. 527 (Photo). Loc. and collector same as above.
- 1 ♂, No. 572 (Photo). Loc. and collector same as above.

This crab is notable by having a pair of roundish transparent membrane (=tympana) on the dorsal surface of carapace. Such feature is also seen in *Cryptodromia tridens* BORRADAILE 1903, a kind of Indian Dromiidae.

Measurements: Male, length of carapace 77 mm, width of same 97 mm.

Distribution. Japan-Toshima, one of Izu Seven Islands, Mikawa Bay, Tosa Bay, Bungo Strait, Koshiki Island (Nagasaki Pref.), Kei Islands (type locality), Indian Archipelago and the Emperor Seamount as reported here.

Fam. GONEPLACIDAE DANA

Subfam. CARCINOPLACINAE H. Milne EDWARDS

Genus *Neopilumnoplax* SERÈNE, 1969

Neopilumnoplax SERÈNE, in GUINOT 1969, Bull. Mus. Hist. Nat. (2), 41, (3), p. 689; 1970 (1971), Ibid. (2), 42, (5), p. 1082; SERÈNE and LOHAVANIJAYA 1973, p. 68; SAKAI 1976, p. 532.

In 1970 (1971) GUINOT enumerated three species for this genus, i.e. *N. heterochir* (STUDER) (= *Pilumnoplax heterochir* STUDER, 1883), *N. americana* (RATHBUN) (= *Pilumnoplax americana* RATHBUN, 1898) and *N. saintclairi* (ALCOCK and ANDERSON) (= *Pilumnoplax saintclairi* ALCOCK and ANDERSON, 1899).

In 1976, the author added one new species *N. serratus* SAKAI to this genus from Oga Peninsula, Akita Prefecture, Japan, which constitutes fourth species of this genus.

In the collection from the Emperor Seamount, one new species, which is remarkable by its enormous size has been comprised, and will be described below.

Neopilumnoplax major sp. nov.

Pl. II, fig. A; Figs. 14-15.

Material examined:

- 1 ♂, No. 621, holotype. Kinmei Seamount, 35°22N-171°26E, depth 300-320 M., by means of crab-pot. The Marine Fishery Resources Research Center, June 11, 1977.
 1 ♀, egg-bearing, allotype. Loc. and date same as above.
 1 ♂, No. 526 (Photo). Loc. and date same as above.

A large and stoutly-built crab, with very thick and hard exoskeleton. The carapace is transversely ovoid and anteriorly broadened. The dorsal surface is rather depressed and the regions moderately defined. Among the areolae of carapace, 2M, 3M, 2L, 1P are moderately convex and defined, but other areolae are ill-defined.

The frontal margin is well produced anteriorly beyond the preorbital cave, and its free margin narrow, double-edged, about one fourth the greatest breadth of the carapace. The median notch ill-defined.

The anterolateral borders are markedly arched, divided into five teeth, of which the first and second are fused together, their margin is transverse in position and tuberculated. The third and fourth teeth are almost same size and the last one small and pointed.

The anterior and posterior pleopods of male are figured in Figs. 16, 17, which are almost same as those of *N. serratus* (Figs. 14, 15). Chelipeds are very unequal in both sexes, the right chela of male is very massive and long; the palm is very high and swollen. Both fingers are coloured in deep black except for their proximal portion.

Ambulatory legs are almost same in form and size, but exactly, the second and third pairs are a little longer than the first and last pairs.

Measurements: Male holotype, length of carapace 64 mm, width of same 87 mm, length of right cheliped 177 mm, that of other side 145 mm.

Fam. GERYONIDAE BALSS

The family GERYONIDAE is represented by six genera, of which two are obtained from the Emperor Seamounts, viz. *Geryon* Kröyer and *Progeryon* BOUVIER.

Genus *Geryon* KRÖYER.

The two early known species of the genus *Geryon*—*G. quinquedens* SMITH 1879 and *G. affinis* A. MILNE EDWARDS et BOUVIER, 1894, have often been confused as they are closely related with each other in their features. F. A. CHACE (1940) already pointed out their systematical differences, and recently M. E. CHRISTIANSEN (1969) of the University of Oslo, and D. J. G. GRIFFIN and D. E. BROWN (1976) of the Australian Museum have made an exhaustive study of their differences and distributions. The latter two authors, who examined the type specimen of *G. trispinosus* (HERBST, 1803) from Indonesia, preserved in the Zoological Museum in East Berlin, have reported with its photos that *G. trispinosus* from the Japanese coasts (ORTMANN 1896; BALSS 1922; SAKAI 1939, 1965, 1976) is to be named *G. affinis*.

It is notable that the features of the type specimen of *G. trispinosus* (HERBST, 1803) (cf. GRIFFIN and BROWN, 1976, fig. 10) seem to agree well with those of *G. tridens* KRÖYER 1837 (cf. CHRISTIANSEN, 1969, fig. 34). In both species the two median frontal teeth are markedly close together and the anterolateral borders are represented by only three teeth. The similarity of these two species has also been alluded to by GRIFFIN and BROWN. *G. trispinosus* was recorded from Indonesia and *G. tridens* from Denmark.

Geryon affinis A. MILNE EDWARDS et BOUVIER, 1894

Pl. II, fig. D; Figs. 18, 19.

Geryon affinis A. MILNE EDWARDS et BOUVIER 1894, p. 41, pl. 1, fig. 1, figs. A, C; Alcock 1899, p. 85; Doflein 1904, p. 106, pls. 3, 4, 33, 34, 38, figs. 1-6, pl. 41, figs. 3-7, pl. 43, figs. 2, 8; CHACE 1940, p. 39; CHRISTIANSEN 1969, p. 87, figs. 35, map. 29; GRIFFIN and BROWN 1976, p. 256, figs. 7-9.

Geryon quinquedens RATHBUN 1937, p. 271 (nec SMITH, part), pls. 85, 86 (fide Chace).

G. trispinosus (nec HERBST 1803) ORTMANN 1896, p. 685; BALSS 1922, p. 121; SAKAI 1939, p. 561; 1965, p. 168, pl. 82; 1976, p. 521, pl. 185.

Material examined:

1♂, No. 613, Kinmei Seamount, 35°34'N-171°41'E. Depth 600-640 M., by means of crab-pot. The Marine Fishery Resources Research Center, June 18, 1977. (Size: cl 90× cw 102 mm)

- 1 ♀, No. 615, South of Kinmei Seamount, 34°42'N 171°48'E, depth 980-1100 M. Same collector, June 22, 1977. (Size: cl 59.5 × cw 68 mm)
- 1 ♂, No. 617, Kinmei Seamount, depth 500-700 M. Same collector, same date as above. (Size: cl 131 × cw 150 mm)
- 1 ♂, very large, No number. Jingu Seamount, depth 890-930 M. Same collector. (Size: cl 141 × cw 155 mm)
- 1 ♂, No. 591 (photo), North of Nintoku Seamount 42°20'N-170°50'E. Depth 800 M, by means of gill-net. Hamaya Marine Product Co., July 20 Sept. 1977.

All of these specimens may be, after consideration, identified as *G. affinis*. As far as fresh colours are concerned, however, the present specimens are different from other ones in that the carapace is of pale purple and that the thoracic legs are of pale yellowish brown with purple markings; the typical *G. affinis* usually presents, as DÖFLEIN (1904) and GRIFFIN (1976) described, light yellowish tan with red markings, sometimes reddish tan among its juveniles, just like the specimens of the Japanese coasts.

Contrary to the Japanese specimen, the carapace of these material is slightly depressed and the gastric area not markedly convex, and the hepatic area also rather flattish, so that the entire dorsal surface of carapace looks like slightly more broadened and flatter anteriorly than in the typical form of the Japanese and Australian materials. Each of the four frontal teeth is remarkably developed and the intervals of each tooth are subequal, especially in the young. The five anterolateral teeth are well developed and acuminate at tip in the young, but the second and fourth are altogether obliterated in full grown specimens.

Just like gastric and the cardiac areas, the branchial areas are rugose all over but with less developed granules, and almost flat and smooth. The anterior pleopod of male is shown in Figs. 18, 19, which is almost same with that of the Sagami Bay specimen.

On peculiarity of Japanese specimen of G. affinis.

The Japanese species of *G. affinis*, which was formerly called *G. trispinosus*, is very common on the Pacific side of Japanese Mainland, whose localities are off Boso Peninsula, Sagami Bay, Mikawa Bay, off Kii Peninsula, and Tosa Bay. The bathymetric range of this species is 800-1000 meters. The fresh material shows such light yellowish brown with reddish brown markings, including red one in female, as in the specimens from Eastern Australia and South Indian Ocean.

The Japanese specimens are strikingly characterized by the gastric area in both male and female, very much convex and the hepatic area is also not flat but somewhat protruded near the base of the third anterolateral tooth. The branchial areas are very thickly covered with granules, which sometimes form oblique or longitudinal rows. The gastric and cardiac areas are also thickly granulated (cf. Fig. 23).

No one has alluded in his papers on *G. affinis* to the granulation of the branchial area, except for a few rows of granules, figured on his coloured plate by DÖFLEIN

(1904). These areas appear flat and smooth and show no sign of marked granulation in such photos and drawings presented by DOFLEIN (1904), RATHBUN (1937), CHRISTIANSEN (1969) and GRIFFIN and BROWN (1976). If such features of the Japanese species are worthy of being recognized as local features, the author wishes to take the present opportunity to give it the new subspecific name '**granulatus**'.

From the published accounts, *G. affinis* has an extensive distribution in the Atlantic Ocean (the southern coast of Iceland, Norway, Southwest Africa and Florida Sea), the Indian Ocean, Eastern Australia and Japan, and therefore seems to represent a notable variation.

CHRISTIANSEN (1969) reported the third species from the Southwest Africa, which is systematically in close relation with both *G. affinis* and *G. quinquedens*, however, she gave no detailed description and drawings.

Genus *Progeryon* BOUVIER, 1922.

This genus is represented by two species—*P. paucidens* BOUVIER from the Atlantic Ocean and *P. guinotae* CROSNIER from south of Indian Ocean. The last named species has been comprised in the present collection.

Progeryon guinotae CROSNIER

Pl. II, figs. B, C; Figs. 21, 23.

Progeryon guinotae CROSNIER 1972, p. 246, pl. 1, fig. 2, text-fig. 9.

Material examined :

1 ♀, No. 593. North of Nintoku Seamount, 42°20'N-170°50'E. Depth 800 M., by means of gill-net. No. 26 Keikyū-maru, Hamaya Marine Product Co., July 20-Sept., 1977.

The fresh colour of this species is uniformly crimson red. This crab is characterized by a talon-shaped strong tooth found near the outer proximal portion of the movable finger of right side. Such a tooth is also seen in *Lydia annulipes* of the family XANTHIDAE, and also in the species of the family CALAPPIDE, OXYSTOMATA, which is used by the living crab to cut off the gastropod shells to devour the hermit crab living inside.

Measurements: Length of carapace 42 mm, width of same 54 mm.

Distribution: Leunion Islands (type locality) and Nintoku Seamount, Emperor Seamount Chain, Central Pacific.

Fam. GRAPSIDAE DANA

Subfam. GRAPSINAE DANA

The crabs of this family and subfamily are mostly littoral or estuaries in habitat.

One species, which is pelagic in habit, was obtained from the Emperor Seamount.

***Planes cyaneus* DANA**

Planes cyaneus DANA 1851, Proc. Acad. Nat. Sc. Philad., vol. 5, p. 250; 1852, p. 347, pl. 22, fig. 1(a-g) (1855); CHACE 1951, pp. 65-103 and figs. 1, 2; SAKAI 1976, p. 637, pl. 219, fig. 1 (Lit. and References).

Material examined :

1♂, 1♀. Kinmei Seamount, 35°37'N-170°04'E. Depth 560 M. (?), obtained from the rope of gill-net. Hokuyo-maru, Kushiro Fisheries Experimental Station, June 11, 1977.

This crab is pelagic in habits, usually attaching to the drift timber, sea-weeds, etc. The depth 560 meters is probably due to error, the specimens were obtained by the rope of gill-net.

Distribution: This species ranges throughout the Indian and the Pacific Oceans, and the west coast of South America.

Section ANOMULA

Fam. LITHODIDAE DANA

Subfam. LITHODINAE DANA

Crabs of the subfamily LITHODINAE are mostly large in size and deep bottoms in habitat, and are important as one of the provision resources. The present collection comprises two genera and three species of this family, inclusive of two new species, which will be described further on.

Genus *Lithodes* LATREILLE.

Species of the genus *Lithodes* are closely related to those of the genus *Paralithodes*. The principal characteristic of this genus is in the form of abdomen, that is, the second tergum is usually (but not always) composed of three pieces, against five (one median, two lateral and two marginal) of *Paralithodes*. In both genera, the median plates of third to fifth terga are replaced by a membranous interspace, bearing numerous calcareous nodules.

Four species of this genus have been recorded in Japan :

Lithodes turritus ORTMANN.

Loc. Bōsō Peninsula, Sagami Bay, Mikawa Bay and Kii Peninsula.

L. aequispina BENEDICT.

Loc. Sagami Bay, off Sendai Bay, off Kushiro, Seas of Okhotsk and Bering.

L. couesi BENEDICT.

Loc. Off Onahama, off Kushiro, Bristol Bay and off Sandiego, California.

L. longispina SAKAI.

Loc. Sagami Bay, Off Bōsō Peninsula, Sendai Bay and Midway.

The Emperor Seamount collection comprises two species of this genus, one of which is new to science.

Lithodes nintokuae sp. nov.

Pl. IV, figs. A, B; Figs. 24, 25.

Material examined:

- 1 ♂, No. 584, holotype. North of Nintoku Seamount, 42°20'N-170°50'E, depth 800 M or more. By means of gill-net. No. 26 Keikyu-maru, Hamaya Marine Product Co., July 20-Sept., 1977.
 1 ♀, No. 585, allotype. Loc and date same as above.
 1 ♂ and 1 ♀, paratypes, loc. and date same as above.
 1 ♂, No. 603, paratype. Nintoku Seamount, 41°10'N-170°35'E, depth 1070-1055 M., obtained by crab-pot. The Marine Fishery Resource Research Center, Aug. 20, 1977.

Carapace almost as long as broad, narrowed anteriorly. The dorsal surface is moderately convex, marked with obtuse tubercles of various sizes; a few of the tubercles on the gastric and branchial areas are prominent and obtusely pointed. The gastric and branchial regions are moderately convex but the cardiac and hepatic regions are narrow and depressed; all these regions are well demarcated by deep grooves.

There are three pairs of remarkable gray scars near the middle portion of carapace, the one pair anterior and lateral, each situated on the groove separating gastric and anterior branchial areas; the second and third pairs are longitudinally close together, each situated on either side of the anterior cardiac area (Fig. 24).

The rostrum is short and basally thickened, projecting obliquely upward; armed with a spinule on either middle portion of the lateral border, and the distal end narrowly bifid. The postorbital spine is long and straight, projecting forward. The hepatic margin is armed with three or four spines, of which the anterior and posterior ones are remarkable in size.

Around the branchial margin, there are 13 to 14 marginal processes, of which several anterior ones are acuminate and the third one largest of all the marginal processes, and two or three posterior ones are obtuse and deviated to the intestinal surface. The posterior border of carapace is concave or invaginated.

The abdomen of this species is aberrant, the second tergum being entire, not divided into three pieces as in other Japanese congeners. The third to fifth terga have a usual median membranous portion, which is marked with transverse rows of calca-

reous nodules of variable sizes (Fig. 25).

The thoracic legs are slender. The arm, wrist and palm of both chelipeds are set with longitudinal rows of spines. The merus, carpus and propodus of ambulatory legs are also provided with a row of spinules along anterior, posterior borders and also on upper surface.

Measurements: Male holotype, length of carapace 116 mm, width of same 123 mm, length of rostrum 19 mm, that of right cheliped 221 mm.

REMARKS—In 1974, M. TAKEDA (National Science Museum, Tokyo) reported *Lithodes couesi* BENEDICT from off Midway, Central Pacific. The materials were obtained by Nippon Suisan Kaisha, Tokyo (Japan Fisheries Company). So far as his description and figures (photos) are concerned, his identification is questionable. In *L. couesi*, the posterior margin of carapace is rounded and rather weakly convex as shown in the original figure of SCHMITT, 1921. The marginal spines of the branchial border are slender and not thickened basally. The author had examined numerous specimens of this species brought from the Bristol Bay and also from off Onahama; these specimens are now deposited in Kanagawa Prefectural Museum, Yokohama. It is probable that his *L. couesi* is very closely related, or rather identical, with the present new species.

Lithodes longispina SAKAI

Lithodes longispina SAKAI 1971, Researches on Crustacea, Nos. 4, 5, p. 11, pl. 4, fig. 2; pl. 10; pl. 11, fig. 2; Text-fig. 2; Ibid., 1976, p. 694, pl. 241, 243, fig. 2, text-figs. 377 a-d; TAKEDA 1974, p. 205, pl. I, fig. 1.

Material examined:

- 1♂, No. 611. South of Kinmei Seamount, 34°42'N-171°48'E. Depth 980-1100 M, by means of crab-pot. The Marine Fishery Resources Research Center, June 22-Sept. 1977.
1♂, No. 583. North of Nintoku Seamount, 52°20'N 170°50'E. Depth 800 M, by means of gill-net. Hamaya Marine Product Co., July 20-Sept. 1977.

This species occurs along the Pacific coast of Japanese Mainland—Sagami Bay, off Bōsō Peninsula, off Sendai Bay. Also Central Pacific, Midway Is. (Takeda) and the Emperor Seamounts.

Genus *Paralomis* WHITE.

The genus *Paralomis* is closely related to the genus *Lithodes*. The principal characteristic of this genus is in the form of abdomen, that is, the second tergum is entire and not divided into three pieces, and the third to fifth terga are all distinct.

Japanese fauna comprises following five species, none of which is allied to the species of the Emperor Seamount:

Paralomis hystrix (De HAAN, 1849)

Loc. Japan endemic, from off Boso Peninsula to Nagasaki.

P. multispina (BENEDICT, 1895).

Loc. Japan, Sagami Bay, off Bōsō Peninsula, Onahama, Sendai Bay, coast of Hokkaido; and Bering Sea, Okhotsk Sea, from Alaska to San Diego.

P. verrilli (BENEDICT, 1864).

Loc. Nemuro, Hokkaido and Bering Sea, Bristol Bay, from Alaska to San Diego.

P. dofleini BALSS 1911.

Loc. Japan endemic, Sendai Bay, Bōsō Peninsula and Sagami Bay (type locality).

P. japonica BALSS 1911.

Loc. Japan endemic, Sagami Bay (type locality) and Kii Peninsula.

The collection from the Emperor Seamount comprises one new species, which will be described below:

***Paralomis pacifica* sp. nov.**

Pl. III, fig. A; Figs. 26, 27.

Material examined:

1♂, No. 587, holotype. North of Nintoku Seamount, 42°20'N-170°50'E, depth 800 M., by means of gill-net. Hamaya Marine Product Co., July 20 Sept. 1977.

Carapace is elongate pyriform in outline, narrowed anteriorly. The entire dorsal surface is covered with obtuse and low tubercles of various sizes. The tubercles are rather sparse and depressed in the median portion, but are thick and pointed near the anterior and lateral borders. The regions of carapace are simply but clearly demarcate, the gastric and branchial regions are convex but the cardiac region is narrow and triangular in shape base forward, and the intestinal region almost diminished.

The rostrum is short and basally broadened, proximally marked with a spinule on either lateral side, and distally with a pair of apical spines, between which the ventral medium spine is projecting forward. The postorbital spine is moderately long. The hepatic margin is armed with five spines, of which three are strong; the branchial margin is provided with ten to eleven acuminate spines, which are alternately different in size. The posterior border is marked with low obtuse tubercles and the median portion is invaginated.

The male abdomen is almost smooth and the second to five terga are only indistinctly punctulated. The sixth tergum is provided with a process on either posterior margin; the terminal tergum also marked with a pair of obtuse processes near the

distal end. The ascicle of the left antenna is armed with a long terminal spine with four or five accessory spinules; that of the right side is abnormally not armed. The pulp of the antenna is extremely long and nearly one and a half times as long as the carapace.

The thoracic legs are very long and slender. The cheliped of the right side is robust and much more than twice the length of carapace. The arm, wrist and palm are armed with spines of various sizes, the larger spines are mounted with yellow, stiff hairs. Fingers are also set with a bundle of such hair. Ambulatory legs are very slender, merus, carpus and propodus are set with a longitudinal row of spines on the anterior and posterior border, and also on dorsal surface. The larger spines of these segments are furnished with yellowish hair as in the chelipeds.

This new species is closely related to *P. zealandica* DAWSON & YALDWYN, 1971 from the sea of New Zealand, however, in that species, the carapace is covered more thickly with pointed tubercles, and the the abdomen is also more thickly covered with such tubercles.

Colour in life of this species is creamy-white with pink markings in the median and lateral surfaces of the carapace and the proximal portion of the thoracic legs.

Measurements: Male holotype, length of carapace 74 mm, width of same 77 mm, length of rostrum 8 mm, total length of right cheliped 198 mm.

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Explanation of Plate I

- Fig. A. *Macroregonia macrochira* gen. et sp. nov. Male holotype, dorsal view, $\times 1/4$.
 Fig. B. Same, ventral view.

Explanation of Plate II

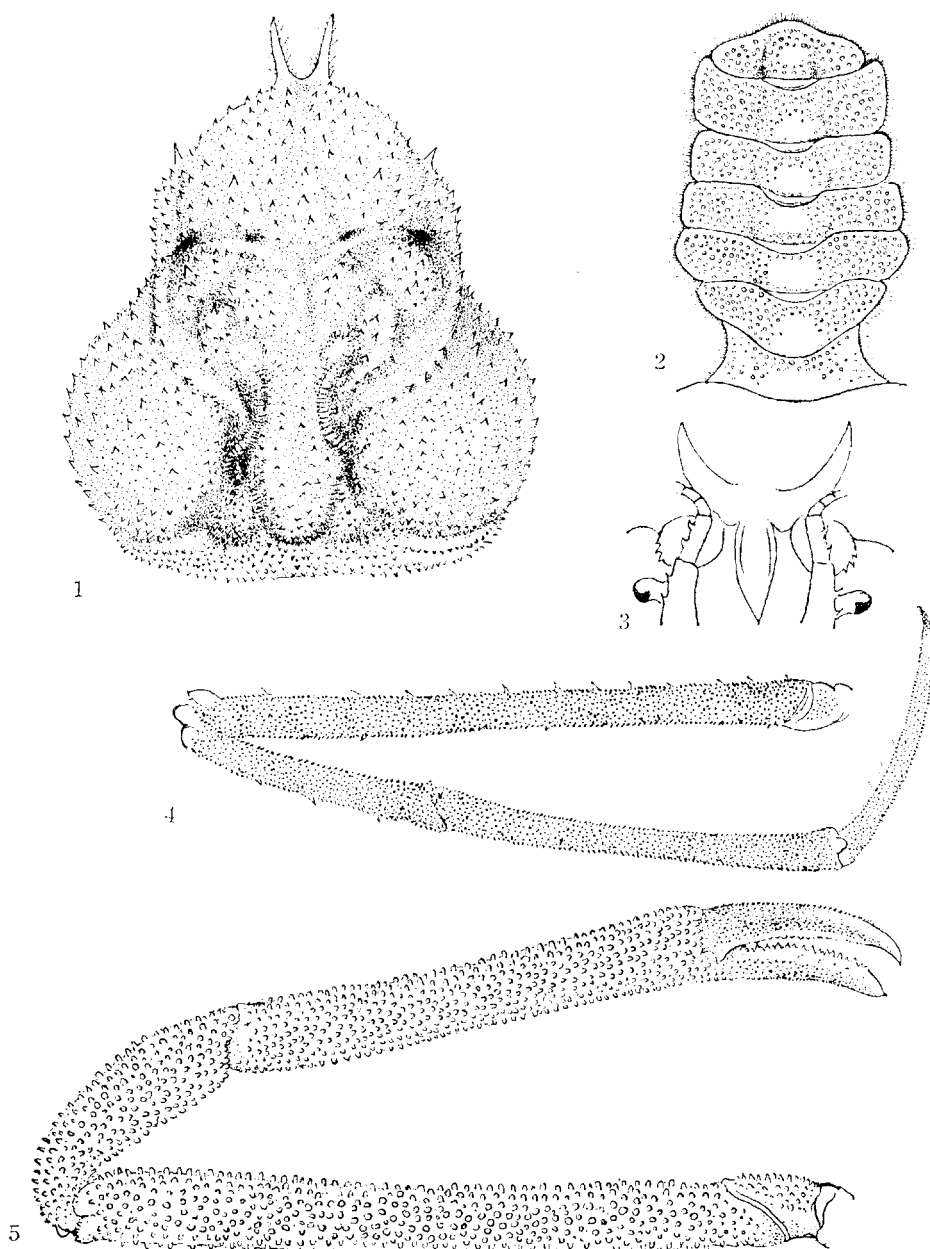
- Fig. A. *Neopilumnoplax major* sp. nov. Male holotype, dorsal view, $\times 1/2$.
 Fig. B. *Progeryon guinotae* CROSNIER. Male, dorsal view, $\times 3/5$.
 Fig. C. Same, ventral view.
 Fig. D. *Geryon affinis* A. MILNE EDWARDS et BOUVIER. Male, dorsal view, $\times 1/4$.

Explanation of Plate III

- Fig. A. *Paralomis pacifica* sp. nov. Male holotype, dorsal view, $\times 1/3$.
 Fig. B. *Ovalipes iridescens* (MIERS). Male, dorsal view, $\times 1/3$.
 Fig. C. *Chionoectes japonicus pacificus* subsp. nov. Male holotype, dorsal view, $\times 1/3$.

Explanation of Plate IV

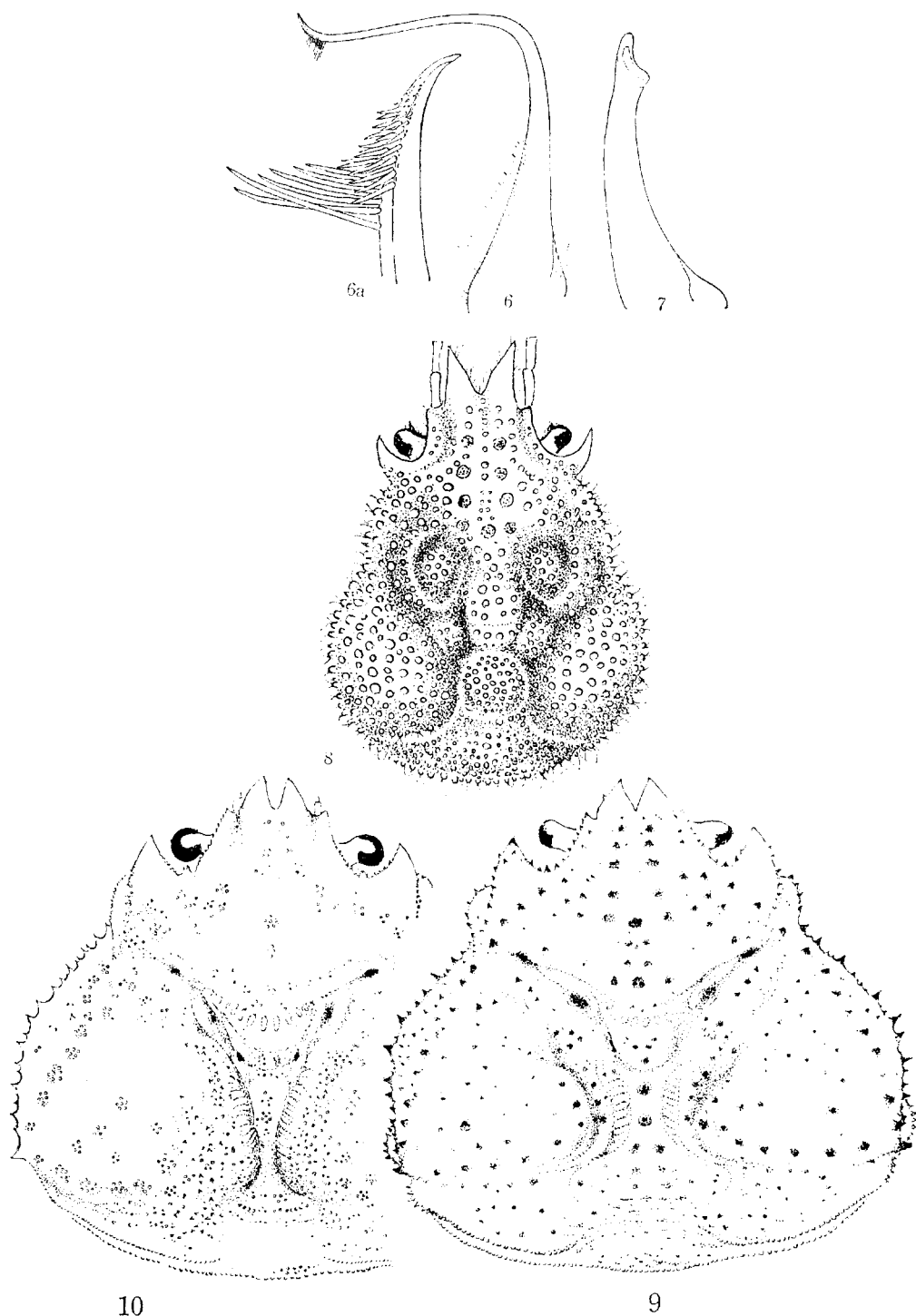
- Fig. A. *Lithodes nintokuuae* sp. nov. Male holotype, dorsal view, $\times 1/3$.
 Fig. B. Same, ventral view.



Figures 1-5. *Macroregonia macrochira* オオケセンガニ

1. Carapace, dorsal view of male holotype.
2. Abdomen of same.
3. Ventral median rostrum, viewed from in front.
4. First ambulatory leg of left side.
5. Cheliped of left side.

(1, $\times 0.5$; 2, $\times 0.9$; 3, $\times 1$; 4, $\times 0.5$; 5, $\times 0.5$.)



Figures 6, 7. *Macroregonia macrochira* (continued from previous page).

6. Anterior pleopod of male. 6a. Same enlarged.

7. Posterior pleopod of male. (6, $\times 2$; 6a, $\times 8$; 7, $\times 5$).

Figure 8. *Oregonia bifurca*. Carapace of ♀, $\times 3.5$. フタツノケセンガニ.

Figure 9. *Chionoecetes japonicus pacificus* カイザンベニズワイガニ (新亜種).
Carapace of type male, $\times 0.7$.

Figure 10. *Chionoecetes japonicus* ベニズワイガニ, left half of carapace, $\times 0.7$.

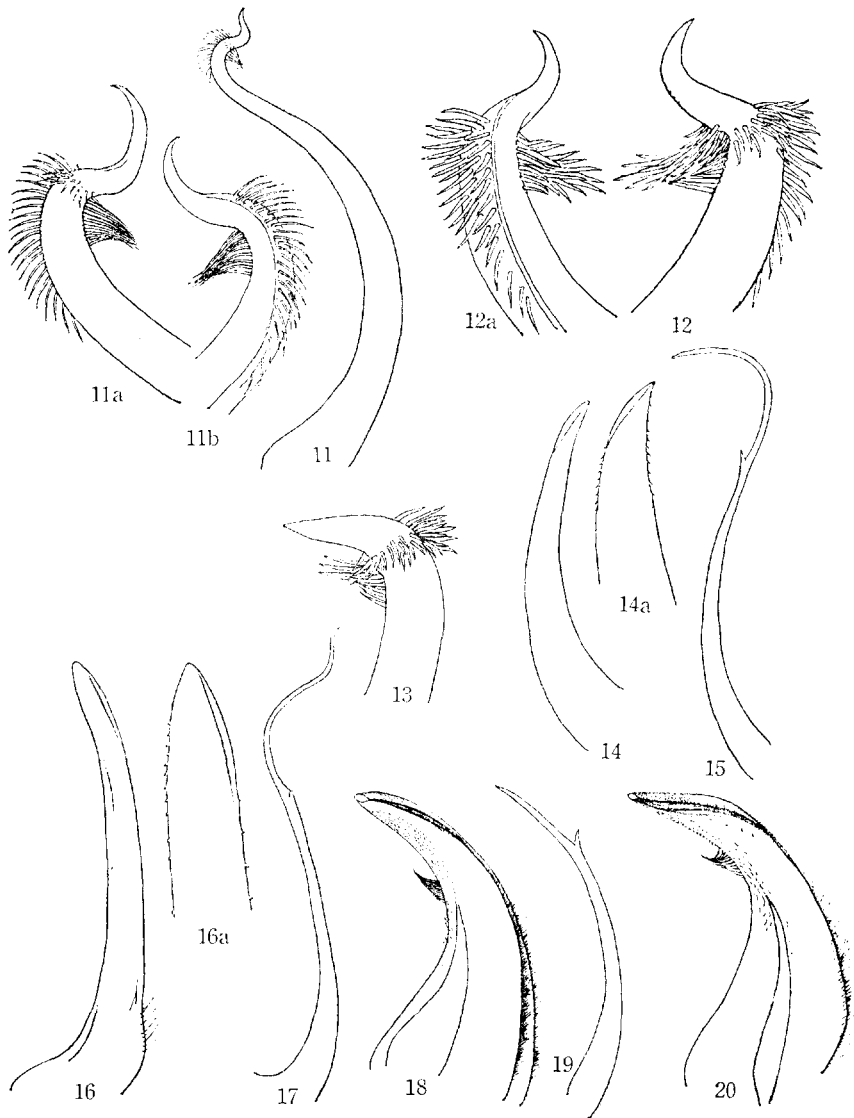


Figure 11. Anterior pleopod of male of *Ch. japonicus pacificus* (continued from previous page), $\times 2.5$.

Figure 11a. Same, viewed from outside, $\times 10$.

Figure 11b. Same, viewed from inside, $\times 10$.

Figure 12. Same of *Ch. japonicus* (continued from previous page), viewed from inside, $\times 12$.

Figure 12a. Same, viewed from outside, $\times 12$.

Figure 13. Same of *Ch. opilio*, viewed from outside, $\times 10$.

Figures 14-15. *Neopilumnoplax serratus*. ノコギリエンコウガニ

14. Anterior pleopod of male, $\times 8$. 14a. Same enlarged, $\times 15$.

15. Posterior pleopod of male, $\times 8$.

Figures 16-17. *Neopilumnoplax major*. オオノコギリエンコウガニ

16. Anterior pleopod of male, $\times 3$. 16a. Same, enlarged, $\times 9$.

17. Posterior pleopod of male, $\times 3$.

Figures 18-20. *Geryon affinis*. オオエンコウガニ

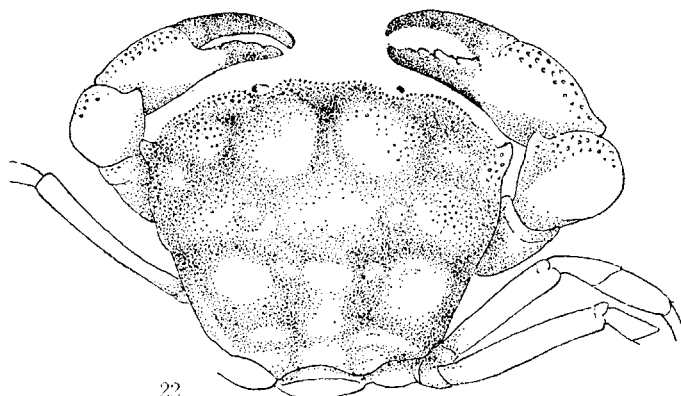
18. Anterior pleopod of male from Emperor Seamount, $\times 2$.

19. Posterior pleopod of same, $\times 2$.

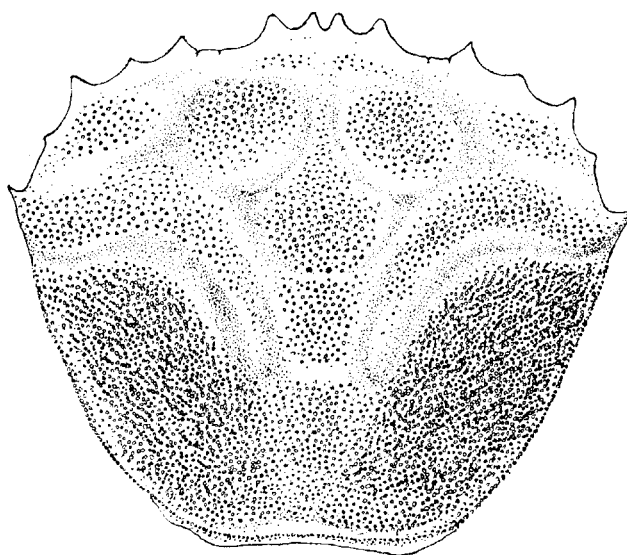
20. Anterior pleopod of male from Sagami Bay, $\times 2$.



21



22



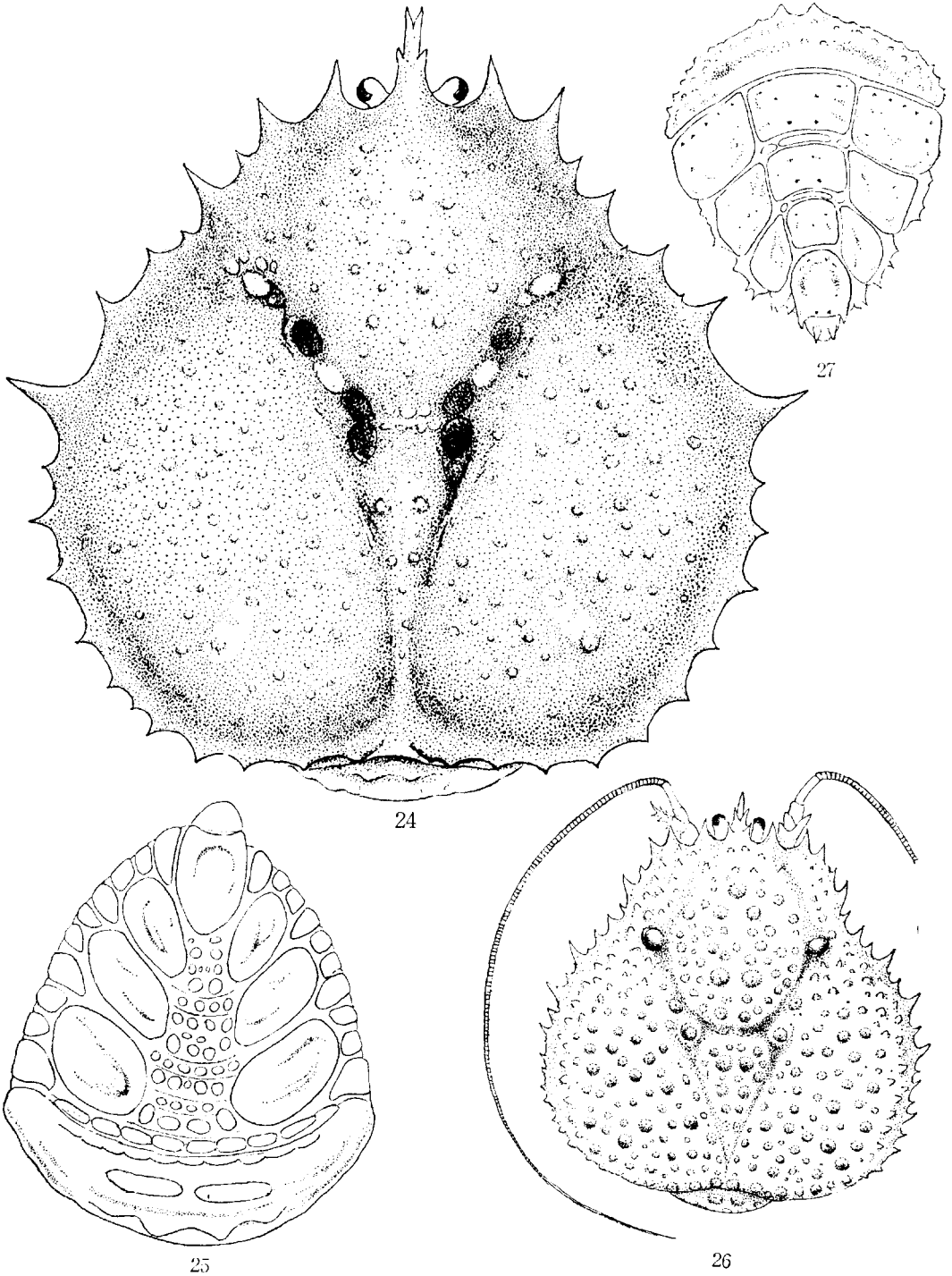
23

Figures 21, 22. *Progeryon guninotae*. ベニオオエンコウガニ

21. Chelae of both side, $\times 1.3$.

22. Dorsal view of female from The Emperor Seamount, $\times 0.9$.

Figure 23. *Geryon affinis* from Sagami Bay, showing the thick granulation on the branchial regions of carapace. 相模湾産オオエンコウガニ. 甲の鰓域の顆粒を示す。 $\times 0.5$.



Figures 24, 25. *Lithodes nintokuae*. ニントクイバラガニ
 24. Carapace of male holotype, dorsal view, $\times 0.9$. Three pairs of scars are shown by black dots.
 25. Abdomen of same, $\times 0.3$.
 Figure 26, 27. *Paralomis pacifica*. シロエゾイバラガニ
 26. Carapace of male holotype, dorsal view, $\times 0.6$.
 27. Abdomen of same, $\times 1$.

天皇海山の十脚甲殻類

酒 井 恒

(日本甲殻類学会)

所謂天皇海山 Emperor Seamount Chain は中部太平洋のミッドウェー島の西北部に位置し、深さのいろいろに異なる多くの海山の連続より成っている。それらの海山にはそれぞれ日本の初期の天皇の名前がつけられていて、最も北に位する天智、ついで神武、推古、仁徳、神功、応仁、欽明、雄略、桓武と南へ続いている。最も北に位置する天智山は北緯 50°N に近く、東にメリシュ海山 (Merish Seamount)、東南にハンコック海山 (Hancock Seamount) からミッドウェー島 (Midway Is.) へと連っている。また最も西に位置する天智山は東経 168°E に、最も東に位置する桓武山は東経 173°E に近い。これらの海山には 2000 尋或いはそれ以上に深いものもあり未だ調査の手はのびていない。しかし、比較的浅い海山のあるものは最近日本の水産関係の機関や会社によって海底動物資源の調査が行われた。それらの調査は、

北海道、釧路水産試験場の第85千代丸による調査。欽明海山周辺、オッタートロールによる。1976年8月。

北海道、浜屋水産 KK による調査。仁徳北海山、刺網による。1977年7月～9月。

東京、海洋水産資源開発センターによる籠による調査。仁徳海山、応仁海山、欽明海山。1977年、6月～8月。

これらの調査によって得られた資料のうち、十脚甲殻類の標本は、種類の同定のために筆者の許に送られてきた。種類の総数は11種でその内訳は異尾類 Anomura が2属3種、短尾類 (カニ類) が1新属1新種を含む8属8種でそれらのリストは下記の通りである。

天皇海山の十脚甲殻類

Section BRACHYURA 短尾区

MAJIDAE SAMOUELLE くもがに科

OREGONIINAE GARTII けせんがに亜科

Macroregonia gen. nov. オオケセンガニ属 (新属)

Macroregonia macrochira gen. et sp. nov. オオケセンガニ (新属新種)

Oregonia DANA ケセンガニ属

Oregonia bifurca RATHBUN フタツノケセンガニ

Chionoecetes KRÖYER ズワイガニ属

Chionoecetes japonicus pacificus subsp. nov. カイザンベニズワイガニ (新亜種)

PORTUNIDAE RAFINESQUE わたりがに科

MACROPIPINAE STEPHENSON et CAMPBELL しわがざみ亜科

Ovalipes RATHBUN ヒラツメガニ属

Ovalipes iridescens (MIERS) ヒメヒラツメガニ

GONEPLACIDAE DANA えんこうがに科

CARCINOPLACINAE H. MILNE EDWARDS えんこうがに亜科

Neopilumnoplax SERÈNE ノコギリエンコウガニ属

Neopilumnoplax major sp. nov. オオノコギリエンコウガニ (新種)

GERYONIDAE BALSS おおえんこうがに科

Geryon KRÖYER オオエンコウガニ属

Geryon affinis A. MILNE EDWARDS et BOUVIER オオエンコウガニ

Progeryon BOUVIER ベニオウエンコウガニ属

Progeryon guinotae CROSNIER ベニオウエンコウガニ

GRAPSIDAE DANA いわがに科

GRAPSINAE DANA いわがに亜科

Planes BOWDICH オキナガレガニ属

Planes cyaneus DANA オキナガレガニ

Section ANOMURA 異尾区

LITHODIDAE DANA たらばがに科

LITHODINAE ORTMANN たらばがに亜科

Lithodes LATREILLE イバラガニ属

Lithodes nintokuuae sp. nov. ニントクイバラガニ (新種)

Lithodes longispina SAKAI ハリイバラガニ

Paralomis WHITE エゾイバラガニ属

Paralomis pacifica sp. nov. シロエゾイバラガニ (新種)