1893. *Kepon*, Stebbing, History of Crustacea, Internat. Sci. Ser., vol. lxxiv., p. 412.

1900. *Cepon*, Bonnier, The Bopyridæ, p. 250.

1906. *Grapsicepon*, Giard, Comptes rendus Soc. de Biologie, vol. lxi., p. 704. Dec. 22, 1906.

Several other references will be found in the late M. Bonnier's great work above cited.

The species which I venture to assign to this genus agrees with *Kepon typus*, Duvernoy, but not with *Cepon? naxiæ*, Bonnier, in having no medio-dorsal protuberances on the peræon. In the pleon the first five segments have prolonged side-plates and carry double-branched pleopods, all of tuberculate foliaceous character, and the single-branched uropods have a similar appearance, all these points showing agreement with the type-species. On the limbs Duvernoy could not perceive any finger, but rightly surmised that it was not really absent.

27. *Kepon halimi*, n. sp. (Plate 10 c.)

The typical species, derived from an unknown crab of Mauritius, since identified as *Grapsus strigosus* (Herbst), offers scarcely any points for exact comparison with the present form. The size, however, differs very considerably. The adult female of *Kepon typus* attains a length of 12 mm., whereas the specimen here dealt with measured only about 3 mm., or at full stretch might have been 4 mm. long. The head, however, was forced towards the pleon by the enormous globe of eggs in the marsupium, in such a way that the earlier peræon segments were not dorsally visible. This condition of affairs, while introducing a difficulty into the measurement, made it fairly certain that the female was fully adult. The lateral bosses of the early peræon segments, though large, do not show that peculiar verrucosity described by Duvernoy, on which Bonnier lays stress as an exceptional character of much importance, and the existence of which has been recently endorsed by Giard.

In the present species the limbs of the peræon are all provided with a small apical seventh joint or finger as usual. The fifth peræopod is rather remarkable from the shape of the second joint, the front margin of which is produced into a large oval excrescence above and a small circular one below. This limb on the left side (right of ventral view) was lying closely adpressed to the pleopods, bearing a puzzling resemblance to one of their branches. In *Ergyne hendersoni* (Giard and Bonnier) the fifth peræopod has an oval excrescence on the lower part of the front margin. The maxillipeds have the narrow apical lobe common to all the neighbouring genera. It showed no setules. The secondary lamellæ of the cephalic lamina are small, sub-equal, almost simple.

The male, which according to Bonnier has not hitherto been recognised for this genus, was enclosed along with the eggs in the last marsupial plate of the female of this species. In shape it agrees with that figured for *Cancricepon elegans* (Giard and Bonnier) except that I could not see any medio-ventral bosses. The eyes are dark and reniform, much longer than wide. I could not make out more than two joints in the first antennæ and four in the second, but a minute apical joint might in each case be present.

Locality. This species was taken from the left branchial cavity of *Halimus* sp. nov. ♂, as identified by Miss M. J. Rathbun, at Cargados Carajos, 30 fathoms.

DACTYLOKEPON, n. g.

This genus agrees with *Trapezicepon*, Bonnier, in having no medio-dorsal bosses on the peræon, but the inner branches of the pleopods in the adult female are long and irregular. Also it differs from that genus in having the lateral bosses of the peræon small and discontinuous, and in regard to the hind lamina of the head, which, instead of two simple pointed secondary lamellæ at each corner, here has those lamellæ more or less digitate.

The generic name compounded of δάκτυλος, finger, and *kepon*, alludes in the first part to the digitate processes of the head, which find a parallel in the species *Orbione penei*, Bonnier. The second portion of the name, based on *Kepon*, Duvernoy, refers to its close alliance with that genus and with those which have been named with a similar termination by Giard and Bonnier.

28. *Dactylokepon richardsonæ*, n. sp. (Plate **11** C.)

The single specimen for which this species is instituted contained a vast multitude of eggs in the earliest epicaridian stage, but no male could be found. Miss Rathbun's notification that it was found in the left branchial cavity of *Trapezia cymodoce* (Herbst) suggested an expectation that it would prove to be *Trapezicepon amicorum* (Giard and Bonnier), but this was negatived by the characters mentioned for the genus. The present species is much larger than that just named, having a length of 6 mm. instead of 3 mm., and it was taken, not at the Friendly Isles, but the Seychelles.

The anterior lamina of the head is unusually narrowed forward, but as this part of the organism is very soft, its shape might easily be altered by accidental circumstances of pressure in the branchial cavity of the host. The leading characteristic of the species is the strongly digitate form of the outer lamella in the hind lamina of the head. The inner lamella is also somewhat digitate. The maxilliped has the narrow curved extremity following an emargination, in agreement with Bonnier's description and figure of the maxilliped in *T. amicorum*. The side-plates of the pleon, the outer branches of the pleopods and the uropods are all long and digitate as in that species, but the uropods are decidedly narrower. The inner branches of the pleopods could not be at all clearly made out in the confusing mass of digitations to which they lie closely adpressed.

The species is named out of respect to Miss Harriet Richardson, who has done so much valuable work in this and other groups of the Isopoda.

29. *Dactylokepon catoptri*, n. sp. (Plate **10** B.)

The present small species agrees with the preceding species in the generic characters, but the outer lamella of the cephalic lamina is poorly instead of strongly digitate. The maxillipeds have the palp-like apical process more produced and narrower than in the preceding species. It has three minute setules on the apex. The second joint of the fifth peræopod is without excrescences of the front margin.

Length of specimen about 3 mm.

Locality. Extracted from the left branchial cavity of *Catoptrus nitidus*, A. Milne-Edwards, ♂, as identified by Miss M. J. Rathbun. Taken at Amirante, from a depth of

30 fathoms. The young were all in the epicaridian stage, in which the fifth pair of peræopods is still undeveloped.

Gen. *TRAPEZICEPON*, Bonnier.

1900. *Trapezicepon*, Bonnier, Les Bopyridæ, p. 269.

This genus is distinguished by its author from *Cancricepon* and *Grapsicepon* by the absence of the medio-dorsal bosses on the hinder peræon segments, and from *Portunicepon* by the rudimentary condition of the inner branches of the pleopods, in the adult female.

All the three genera were instituted by Giard and Bonnier in 1887, *Portunicepon* being evidently a synonym of *Ergyne*, Risso, 1816. This last has the medio-dorsal bosses, and the other two genera have the rudimentary inner branches of the pleopods, so that the differential characters of *Trapezicepon* might well have been considered as of specific rather than generic value. The four genera may be tabulated as follows:

1 { Without medio-dorsal bosses on the peræon. *Trapezicepon.*
  { With medio-dorsal bosses on the peræon. 2.

2 { Inner branches of pleopods not rudimentary. *Ergyne.*
  { Inner branches of pleopods rudimentary.

3 { Last four segments of peræon with medio-dorsal bosses. *Cancricepon.*
  { Only last two segments of peræon with medio-dorsal bosses. *Grapsicepon.*

It may be added that in *Ergyne* one species has the last three, and a second the last two peræon segments raised into median processes.

30. *Trapezicepon amicorum* (Giard and Bonnier). (Plate **11** B.)

1888. *Grapsicepon amicorum*, Giard and Bonnier, Compt. Rend. Acad. Sciences, July 2, p. 2.

1900. *Trapezicepon amicorum*, Bonnier, Les Bopyridæ, p. 269, pl. 10.

The present specimen agrees in general appearance with that figured and described by Bonnier, but differs in some details. The inner branch of the pleopods is not apically pointed but obtuse in the female, and the uropods are less elongate and with little approach to digitation. In the male the medio-ventral tubercle could only be distinguished on the first three peræon segments, instead of occurring plainly on each segment of the peræon and the first of the pleon.

The length of the female was only a little over 2 mm., instead of 3 mm.

The host was not *Trapezia cymodoce* (Herbst), but *Actumnus tomentosus*, Dana, ♂, as identified by Miss M. J. Rathbun. Position of parasite in left branchial cavity of host.

Locality. Amirante, 34 fathoms.

As I was withdrawing the specimen from the tube, there fell from its well-developed marsupium what I supposed to be a mass of eggs, but it proved to be a bladder-like organism, showing no actual segmentation and no appendages unless a minute process might pass for one. It was of a size to fairly well fill the marsupium of its host. It is reminiscent of the species *Cyproniscus cypridinæ*, Sars, and the genus *Asconiscus*,

Sars. His species, *A. simplex*, is parasitic on *Boreomysis arctica* (Kröyer), and he remarks that in all instances of its capture "the marsupial pouch of the host was fully developed, and it thus seems that the parasite must have entered the pouch immediately after the young of the host had escaped; several male specimens were found with the female, and in one instance two or three females of different development were found in the same host" (Crustacea of Norway, vol. ii., pp. 233, 238, 1899). It seems possible that in these cases the marsupial plates develop round the parasite which usurps the place of eggs. In the tube with the *Trapezicepon* there were no eggs, but a *Bopyrus*-form which I have regarded as the male of *T. amicorum*, and, in addition to this, four specimens of a cryptoniscian larva, slightly larger than the *Bopyrus*-form, not very greatly differing from the male of *Asconiscus simplex* as figured by Sars. There was also present a very much smaller cryptoniscian larva, and a very small duplicate of the bladder-like organism. The relative sizes of these creatures may be judged from the plate, wherein they are drawn to the same scale. If I am right in supposing that the specimens which have lost all clear traces of segmentation belong to *Asconiscus* or some closely allied genus, it will be, I believe, a novelty to find one of the Epicaridea parasitic on one of its own tribe, though there are well-known instances of Epicaridea parasitic on other parasites. *Zeuxo longicollis*, described by Kossmann in his Zool. Ergebnisse einer Reise in die Küstengebiete des rothen Meeres, first part of second half, p. 124 (1880), as figured in his pl. 11, fig. 8, is very like in shape to the occupant of our *Trapezicepon's* marsupium, but with a comparatively long "tap-root" instead of a short one.

Gen. *ERGYNE*, Risso.

1816. *Ergyne*, Risso, Crustacés des environs de Nice, p. 150.

1887. *Portunicepon*, Giard and Bonnier, Travaux Lab. Zool. Wimereux, vol. v., p. 73.

1893. *Ergyne*, Stebbing, History of Crustacea, Internat. Sci. Ser., vol. lxxiv., p. 413.

1900. *Portunicepon*, Bonnier, Les Bopyridæ, p. 276.

The hind lamina of the head has at the outer corners two simple lappets. The peræon carries medio-dorsal bosses. The inner branches of the pleopods are more or less lobed, like the outer branches and the lateral extensions of the segments.

Risso's original species, *E. cervicornis*, was transferred to *Cepon* by Kossmann in 1881. The species of the genus may be distinguished as follows:

Sixth and seventh segments of peræon raised into median bosses. 1. *E. hendersoni* (Giard and Bonnier).

Fifth, sixth and seventh segments so raised. 2. *E. cervicornis*, Risso.

A slight carina rising from the first segment to strongly developed bosses on the last three. 3. *E. savignyi*, n. sp.

31. *Ergyne savignyi*, n. sp. (Plate **10** A.)

Female. Head very broad; in the hind lamina the outer lappet is much longer than the inner, both are microscopically beset with minute setules. The centre of the peræon is slightly angled on the first three segments, more decidedly on the fourth, while each of

the three following segments rises into a very decided prominence, which is a little tip-tilted on the seventh segment.

The maxillipeds have the narrow anterior lobe bordered with eight well separated setæ. Between the lobes a fine membrane projects ending in an emargination between two blunt, not widely separated, apices. This is apparently the lower lip, firmly attached to the maxillipeds.

The outer branches of the five pairs of pleopods are strongly tuberculate on both margins and at least some of them on the surface, the first pair long and broad, and all tending to conceal the inner branches from a dorsal view, and the lateral prolongations of the segments from a ventral view. These prolongations and the inner branches except in size agree much in character with the outer branches. The uropods are single-branched, with the edges moderately incised.

Male. The first antennæ are three-jointed, with four short filaments on the little apical joint. The second antennæ have a setule on the second joint and five short filaments on the fourth, which is the apical joint. In the ventral view of the pleon processes will be seen which appear to represent single-jointed pleopods. Judging by the figures which Bonnier gives of the young male (*Bopyrus* stage), which shows such processes, and of the adult male without them, in *Cancricepon elegans*, it may be supposed that the male in our specimen is not fully adult.

Length of female about 4 mm.

The host was identified by Miss M. J. Rathbun as *Actæa savignyi* (A. Milne-Edwards) in which the parasite occupied the left branchial cavity.

Locality. Cargados Carajos, 30 fathoms.

Gen. *CANCRICEPON*, Giard and Bonnier.

1887. *Cancricepon*, Giard and Bonnier, Travaux Lab. Zool. Wimereux, vol. v., p. 172.

1900. *Cancricepon*, Bonnier, Les Bopyridæ, p. 257.

32. *Cancricepon* sp.

To this genus I refer two specimens, one from the right, the other from the left branchial cavity of a crab identified by Miss M. J. Rathbun as *Pilumnus longicornis*? Hilg., taken on the 18th of October, 1905, in a depth between 22 and 24 fathoms at Amirante. The specimens were alike, both loaded with eggs. The one that was measured only attained a length of 1·5 mm. The medio-dorsal upheaval is faint on the fourth segment of the peræon, but well expressed on the three following segments. The apical lobe of the maxillipeds is rather strongly emarginate and furnished with four or five setules on the concave margin. The secondary lamellæ at the corners of the cephalic lamina are simple, the outer the larger. The uropods are smooth.

The preparation of these small specimens was not sufficiently successful to enable me to give satisfactory figures. I have therefore abstained from giving a specific name.

As compared with *Cancricepon elegans* (Giard and Bonnier), which attains a length of over 9 mm., the small size of the present form adds to the probability that it is specifically distinct.

Gen. *GIGANTIONE*, Kossmann.

1881. *Gigantione*, Kossmann, Zeitschr. wiss. Zool., vol. xxxv., p. 655.

1887. *Gigantione*, Giard and Bonnier, Travaux Lab. Zool. Wimereux, vol. v., pp. 13, 74, etc.

1900. *Gigantione*, Bonnier, Les Bopyridæ, p. 276.

In the female all the segments of peræon and first five of pleon are laterally produced, the extensions on the right side being very considerable. First antennæ of female having the first joint developed into a large pad, against which the two following joints appear to be flattened about at the middle, the third joint very small. The second antennæ five-jointed in the female, six-jointed in the male. Maxillipeds of the female with principal lobe nearly circular, fringed with setules, showing no palp-like prominence. Limbs of the peræon with finger well developed in the male but almost obsolete in the female. Pleopods of the female two-branched, diminishing in size successively from the first to the fifth, with varying development of fringing lobules. Pleopods of the male simple, ovoid, diminishing in size from first to fifth. Uropods in the female very small, but with distinct peduncle and two branches, in the male each consisting of a single piece larger than the preceding pleopod.

Gigantione moebii, Kossmann, for which the genus was founded, measured in the female 15 mm. It was taken at Mauritius from the branchial cavity of *Rüppellia impressa*, de Haan. The pleopods of the male are figured more than twice as long as broad.

Gigantione bouvieri, Bonnier, measures in the female scarcely 3 or 4 mm. It was taken off the Azores from the branchial cavity of *Pilumnus hirtellus* (Linn.), var. *inermis*, A. Milne-Edwards and Bouvier. The branches of the uropods in the female are described as cylindrical, slender at the free extremity.

33. *Gigantione rathbunæ*, n. sp. (Plate **11** A.)

This species agrees very closely with the preliminary description of *G. bouvieri*, which is unfortunately not accompanied by illustrative drawings. Its size, in the female not quite 4 mm., agrees with that of Bonnier's species. Both differ in one respect from Kossmann's generic account, in that the last pleon segment is not produced into lateral lobes, but on that point Kossmann's own figures do not appear to be in accord with his statement.

In the new species eyes are visible, not only in the male, but also in the female. In *Pseudione hoylei*, the visibility of the eyes in a female 12 mm. long is regarded by Bonnier (Op. cit., p. 309) as an indication that the specimen was not yet quite adult. In the present case that inference can scarcely be drawn, since a multitude of young ripe for discharge were in the Epicaridean stage.

The characters of the antennæ, mouth-organs, and other appendages, so far as they could be made out, will be best understood by the figures. With one or two exceptions they do not appear to offer any solid specific characters. Concerning the uropods of the female Bonnier says that in his species they are in accord with the generic character,

having a broad, perfectly distinct peduncle, which carries two little cylindric branches, slenderly drawn out (effilées) at their free extremity, and almost equal. In the new species these branches are of equal breadth all along. The uropods of the male are a broad oval, closely adjacent, extending beyond the sixth pleon segment, each nearly equalling it in size.

Locality. The species was obtained from the left branchial cavity of *Actæa polyacantha* (Heller), at the Salomon Isles, and forwarded to me, with subsequent determination of the host, by the distinguished carcinologist, Miss Mary J. Rathbun, after whom I have the pleasure of naming it. The male was lying transversely across the end of the pleon.

EXPLANATION OF THE PLATES.

Plate 5.

Kalliapseudes makrothrix, n. g. and sp.

n.s. Line indicating length of specimen figured below.

C.V., a.s. Ventral view of head (distal margin) supporting the first antennæ and one of the second antennæ.

a.i. Second antenna.

Per. s. 7., *prp.* 5., *Pl., urp.* Dorsal view of fifth peræon segment and the pleon, with fifth peræopod and the uropods in position.

m., m., mx. 1., *mx.* 2., *mxp., mxp.* The mandibles (much broken), the first and second maxillæ (not very distinctly seen), the maxillipeds (detached one from the other).

gn. 1., *gn.* 2., *prps.* 2, 3, 4, 5. First and second gnathopods, second, third, fourth, and fifth peræopods. The fingers of all but the first gnathopods and some spines and setæ are separately given on the same scale of enlargement as the mouth-organs, which is higher than that of the other detail figures.

plp. 1. First pleopod.

Plate 6.

A. *Janira crosslandi*, Stebbing.

n.s. ♂. Line indicating actual length of male specimen figured below in lateral view (*L*), and in dorsal view, minus the head (*D*).

a.s., a.i., a.i. juv. First and second antennæ with higher magnification, only the first four joints of second antennæ from the adult, but this appendage complete from the marsupial young.

l.s., l.i. Upper and lower lips.

m., m., mx. 1., *mx.* 2, *mxp.* The mandibles, first and second maxillæ, and maxillipeds (in part).

gn. 1., *gn.* 2., *prp.* 5. First and second gnathopods and fifth peræopods, to the same scale as the antennæ.

plps. 1, 2, 3. First, second, and third pleopods of the male, on the same scale of magnification as the mouth-organs, higher than that of the gnathopods.

operc. ♀. Opercular plate (first pleopods) of female, to the same scale as dorsal view of the male.

urp. Uropod of marsupial young, to the same scale as separate gnathopods of male.

B. *Parapseudes hirsutus*, n. sp.

n.s. Line indicating length of specimen in curvature as in the lateral view below.

C.V., a.s., a.i. Ventral view of head with first peræon segment, the eyes and one each of the first and second antennæ in position.

Pl., urp. Dorsal view of pleon and part of seventh peræon segment; uropods in position, outer branch on right imperfect.