Studies on the New Zealand Amphipodan Fauna

No. 3. The Family Phoxocephalidae *

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Summary

A checklist and keys for the New Zealand genera and species of Phoxocephalidae are given. The species *Heterophoxus stephenseni* Schellenberg, *Portharpona australis* (Barnard), and *Phoxocephalus regius* Barnard are redescribed and figured.

Introduction and Acknowledgments

The Family Phoxocephalidae are bottom-dwelling and burrowing amphipods represented in New Zealand by some six recorded species belonging to five genera. A number of other previously recorded species and genera have been relegated to the synonyms of these six species after re-examination of material. There has been considerable confusion in nomenclature in previous New Zealand work on this family and overseas workers, whilst bringing much of the classification up to date, have been able to do little towards rectifying the New Zealand position because of lack of type and comparison material.

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Family Phoxocephalidae

Stebbing, 1906: 133.
Pilott, 1932.

“Body fusiform. Hooded rostrum covering base of antenna, lateral corners of head obsolete, postero-antennal angles distinct. Sideplates rather large, 1st to 4th obtusely truncate, hinder lobe of sideplate 5 the deeper. Pleon segments 4-6 in male narrower than in female. Eyes dorsal, lateral or wanting. Antennae more or less modified in male, short in female, accessory flagella well developed. Epistome not projecting. Upper lip rounded. Inner lobes of lower lip usually small. Mandible short, cutting edges distinctly developed, molar variable, seldom large, palp rather large. Maxilla 1, inner plate small, palp 1- or 2-jointed. Maxilla 2, plates short, rounded at apex. Maxillipeds, plates small, palp large. Gnathopods 1 and 2 generally similar in form, hands subchelate, large, with

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palmar tooth fortified by a spine. Peraeopod 4 the longest. Peraeopod 5 short, second joint greatly expanded. Branchial vesicles simple. Pleopods stronger in male than in female. Uropod 3 often varying sexually, outer ramus the longer, 2-jointed. Telson cleft to or nearly to the base.” (Stebbing, 1906.)

The species and genera from New Zealand which I have not described and figured below are those recorded and described by Barnard (1930). These have only been taken by the Terra Nova Expedition, and I have no material available. However, Barnard’s paper covers them adequately.

**Key to New Zealand Genera of Phoxocephalidae**

1. Maxilla 1, palp one-segmented .. .. .. .. .. .. .. .. .. .. .. 2
   Maxilla 1, palp two-segmented .. .. .. .. .. .. .. .. .. .. .. 4

2. Mandible, molar well developed .. .. .. .. .. \textit{Phoxocephalus} Stebbing, 1888
   Mandible, molar feebly developed .. .. .. .. .. .. .. .. .. .. .. \textit{Trichophoxus} Barnard, 1930

3. Fifth segment of both gnathopods elongate .. .. .. .. .. .. \textit{Paraphoxus} G. O. Sars, 1865
   Fifth segment of both gnathopods not elongate .. .. .. .. .. .. \textit{Paraphoxus} G. O. Sars, 1865

4. Peraeopod 3 basos not expanded; mandible molar process with 2 or 3 strong spines .. .. .. .. .. \textit{Heterophoxus} Shoemaker, 1925
   Peraeopod 3 basos expanded somewhat; mandible molar process lacking strong spines .. .. .. .. .. \textit{Pontharpinia} Stebbing, 1897

   The following species have been recorded from New Zealand:—

   \textit{Pontharpinia australis} (Barnard), 1930 See below.
   \textit{Paraphoxus pyrides} Barnard, 1930.
   \textit{Trichophoxus capillatus} Barnard, 1930.
   \textit{Heterophoxus stephenseni} Schellenberg, 1931. See below.
   \textit{Phoxocephalus regium} Barnard, 1930. See below.
   \textit{Phoxocephalus bassi} Stebbing, 1888. See Barnard, 1930.

   The three species described below are common in Otago Harbour, and are easily distinguished from one another. The third epimeral plate, to which Barnard suggests more attention should be paid in this family, proves a useful sorting character for these three species, the produced angle of the plate in \textit{Heterophoxus stephenseni} being quite distinctive from the rounded angle of \textit{Phoxocephalus regium}, and the external oblique row of setae on that in \textit{Pontharpinia australis} being even more easily seen.

   These are the most obvious features for distinguishing between the undissected animals of the three species. For definite specific identification, however, full dissection and comparison with the figures given is desirable, especially since there is every likelihood of meeting other species of the family possessing epimeral plates falling into one or other of these three categories.

   The family itself has a reasonably distinctive facies of which the most pronounced characteristics are the large hooded rostrum produced shield-like over the bases of the antennae, and the elongated fourth peraeopod.

**Genus Pontharpinia** Stebbing, 1897.

\textit{(Urothoe Dana, 1853). Pontharpinia Stebbing, 1897; Parhaprina Stebbing, 1889; Protaphoxus Barnard, 1930; Pontharpinia. Pilsbry, 1932}

"Rostrum long. Eyes (generally) well developed. Third peduncle segment of 1st antenna short; secondary flagellum well developed. Fourth segment of 2nd antenna peduncle broad and long, with setae and spines; flagellum long in male,
relatively short in the female. Upper lip not cleft. Mandible with cutting edge little developed, *lacinia mobilia* little differentiated; spine row of numerous feeble articles; molar process little developed and with some spines. Second and 3rd segments of mandible palp little different. Lower lip with accessory lobes. First maxilla with 2-segmented palp. Second maxilla with plates subequal. Maxillipeds with short inner plates; outer plates varying with age and sex, sometimes not longer than the first segment of the palp, sometimes reaching the middle of the following segment; palp relatively long, second segment little dilated; 4th segment long and slender.

Epimeral plates 1 to 4 deep; those of segments 5 to 7 small. Gnathopods 1 and 2 subchelate, differing little one from the other; carpus posterior margin generally excavated by a groove on which the propod rests. Peraeopods 1 and 2 with merus longer than carpus or propod; carpus with a long apical spine, almost as long as the propod; distal portions of the propod and dactylos typically carrying numerous spines. Peraeopods 3 and 4 with segments more or less dilated according to the species, and also the sex and age of the individuals; abundantly spined. Peraeopod 5 short with basos very much expanded and more or less prolonged. Gills on segments 1–5. Broodplates on segments 2–5. Rami of uropods 1 and 2 distinctly 2-segmented. Rami of uropod 3 subequal in male, bearing many long plumose setae, outer ramus 2-segmented; in the female, the spination is more modest, the inner ramus noticeably shorter than the outer. Telson deeply cleft.

(Prilot, 1932, in translation)

One species only, *Pontharpinia australis* (Barnard) is known from New Zealand.

**Pontharpinia australis** (Barnard), 1930. (Figs. 1–28.)

*non* *Phoxus batesi* Haswell Thomson, 1882 232-233, pl XVII, fig 2a-e

*Protophoxus australis* Barnard, 1930 335-336, fig 12 a-e


**MALE**

Colour in spirit, white; eyes black and almost contiguous, irregular in shape; rostrum reaching ½ along 3rd segment of antenna 1 peduncle. Length, 6 mm.; depth, 2 mm.; width, 2 mm.

**Antennae. First**: Length almost 2 mm. Flagellum longer than peduncle, of 19 segments, segments longer than wide, setae on distal angles, an ovate calculeus and small plumose sensory seta on superodistal angle of each segment, accessory flagellum of 12 similar segments without calculei. Peduncle, segment 3 barely longer than wide, ½ length 2nd, slender spines on inferodistal angle, a few fine setae marginally, 2nd, width ½ length, less than ½ length 1st, strong field of long setae along inferior margin, plumose sensory seta on distal angle, spine plus seta or two on surface; 1st, margin slightly convex, width ½ length, small area of fine bristles medially on surface, row of short plumose sensory setae on distal ½ of inferior margin. **Second**: Length, 6½ mm. Flagellum longer than body, of about 42 longer than wide segments, 2 or 3 setae and an ovate calculeus on each superodistal angle. Peduncle, 3rd segment ¾ length 4th, slightly longer than wide, a small spine superodistally, field of bristles and fine setae along most of superior margin; 4th, width ½ length, margins convex, a few fine setae superproximally, field of short bristles along superior surface, row of 12 stout, blunt,
TEXT-FIG. 1 — Pontharpinia australis (Barnard). ♂. 1—Adult. 2—Rostrum. 3—Antenna 1. 4—Calceolus from antenna 1 flagellum. 5—Antenna 2. 6—Tufted sensory sets from antenna 2 peduncle margin. 7—Calceolus from antenna 2 peduncle margin. 8—Maxilla 1. 9—Maxilla 2. 10—Mandible. 11—Maxilliped, left side showing outer plate, right side showing inner plate and palp. 12—Uropod 1.
long spines obliquely across surface to superodistal angle; similar longer spine on inferodistal angle reaching ¼ along 5th segment, brush of long slender setae inferodistally, 6 or 7 plumose sensory setae on inferoproximal margin; 5th segment inferiorly convex, barely shorter than 4th, width ½ length, 3 pairs of stout, blunt spines on superior surface, 3 groups of short, fine setae with a caleciolus each on superior margin, distal ½ of inferior margin with 4 long single setae each beside very short plain or plumose sensory seta. Calecioli distinctly stalked, body proper with 2 or 3 annulations, distinct longitudinal striations probably due to internal structure.

Mouthparts. First Maxillae: Outer plate has 11 strong curved spines terminally, outer 2 smooth, five distally toothed, the other 4 alternating with them each have small spur-like distal tooth. Palp reaching further, 2nd segment more than twice length 1st, inner surface finely bristled, long single spine and about 10 slender setae on distal inner and terminal margins. Second Maxillae: Outer plate has slender marginal setae distally, outer ones short; inner plate has setae on distal and inner distal margins, latter finely plumose, fine bristles at plate base. Mandibles: Spine row of about 10 spines; palp long, 1st segment small, indistinct, 2nd as long as 3rd. 2 or 3 setae on inner margin, pair on distal angle; 3rd with groups of long setae midway on surface; obliquely truncate distal margin has about 10 mostly bayonet-shaped long spines. Maxillipeds: Narrow, subrectangular inner plate reaching carpus base, 2 sharp stout spines distally; long finely plumose setae on distal margin and distal ½ of inner; tufts of 3 or more long setae on basos and ischiun inner distal angles. Slender outer plate reaching ¼ along carpus. About 13 strong slightly curved and distally frayed spines on straight inner margin; row of about 10 long plumose setae on outer margin. Merus outer margin twice ischiun length, ¾ carpus, seta or two on inner margin. Carpus widening a little distally, width ½ length; single seta on outer distal angle, inner margin slightly convex, fringed by long, slender setae. Propod ovate, margins convex, length ¼ carpus and nearly twice width; long setae on inner and distal margins, medially on outer, oblique row across surface from near inner proximal to outer distal angle. Slender curved daetylos as long as propod, stout terminal nail.

Gnathopods. First: Sideplate subtriangular, deeper than wide, distally widest; 13 or so long setae on ventral margin, posteroventral angle quite sharp, posterior margin straight. Basos width less than ½ length, a few long setae on straight anterior and slightly convex posterior margins. Ischiun width ⅔ length, length ⅔ basos, 2 or 3 setae postero-distally. Merus subtriangular, width ⅔ length, length ⅔ basos, anterior margin contiguous with proximal ⅓ of convex carpus posterior margin, 7 or 8 setae postero-distally. Carpus fusiform, ⅔ basos length, width ½ length, long setae on posterior free margin. Propod ovately-oblong, width ⅔ length, as long as carpus; palm oblique and slightly convex, fringed with short setae, defined by small notch and small blunt lobe with small seta-tipped spine; several long, slender setae below lobe and on outside margin, a few on surface. Daetylos palm length, nearly ⅔ propod length, slender and curved with scalpel-blade protuberance at tip. Second: Sideplate subrectangular, width ½ depth, widening slightly distally, anterodistal angle rounded, postero-distal sharp, 10 or so long setae on posterior ⅔ of ventral margin. Segments more setose than in Gn. 1; carpus more triangular, ⅔ basos length, width ½ length,
posterior margin strongly convex, setae medially; propod width more than $\frac{1}{2}$ length, length $\frac{3}{4}$ basos, 2 spines on palm defining lobe; otherwise like Gn. 1.

_Peraeopods._ First: Sideplate, basos and ischium much like Gn. 2. Merus constricted proximally, nearly basos length, width more than $\frac{1}{4}$ length, anterior margin convex, a few long setae on slightly produced anterodistal angle, long slender setae along posterior. Carpus $\frac{1}{2}$ merus length, width $\frac{3}{4}$ length, narrowing a little distally, oblique row of long setae across posterodistal surface; posteriorly fringed with long setae, stout apical spine reaches $\frac{3}{4}$ along propod. Propod width less than $\frac{1}{2}$ length, slightly longer than carpus, 10 strong seta-tipped spines on surface and posterior margin. Stout spine-like dactylos nearly $\frac{1}{2}$ propod length. Second: Sideplate not greatly deeper than wide, angles broadly rounded to convex ventral margin which has only 2 or 3 setae; otherwise like Pr. 1. Third: (Damaged.) Sideplate posterior lobe ovate. Basos oblong-ovate, narrowing slightly distally; width $\frac{3}{4}$ length; anterior margin slightly concave with short fine setae proximally, about 4 long setae on distal $\frac{1}{2}$, are of 5 at angle; very small single setae along and not extending past convex posterior margin giving cracked appearance. Ischium wider than long, $\frac{1}{2}$ basos length, strong are of long setae anterodistally. Merus piriform, widening strongly distally, length $\frac{2}{3}$ basos, as long as distal width; groups of 1, 2 and 5 stout spines on anterior margin, long setae all along; groups of 3 and 5 stout spines on posterior margin, each group with a long plumose seta. Carpus subrectangular, width $\frac{3}{4}$ length, length $\frac{1}{2}$ basos, 4 groups of 3 to 5 stout spines on anterior margin, outermost the longest, long plain setae and a few long fine plumose setae on margin; 3 groups of 2 to 5 stout long spines posteriorly, several long fine plumose setae especially distally. Fourth: Basos ovate, width $\frac{3}{4}$ length, short marginal setae on strongly convex anterior margin proximally, long setae singly and grouped on distal $\frac{1}{2}$; slightly convex posterior margin has cracked look; posteriorly expanded downwards a little as lobe. Ischium $\frac{1}{2}$ basos length, wider than deep; strong groups of setae anterodistally. Merus nearly $\frac{1}{2}$ basos length, anteriorly damaged, several long, finely plumose setae and 3 groups of 2 to 4 strong spines on convex posterior margin. Carpus damaged but with several marginal long setae, groups of 5 or more strong spines on distal angles, 1 or 2 long fine setae. Propod width about $\frac{1}{2}$ length, length $\frac{3}{4}$ basos, margins indented with 4 groups of 2 or 3 strong spines anteriorly, posteriorly 4 groups of 4 or 5 spines, each group with single long seta. Slender dactylos more than $\frac{1}{2}$ propod length. Fifth: Basos greatly expanded, anterior margin straight, $\frac{3}{4}$ greatest width, as wide as greatest length; posterior margin greatly convex, expanded downwards and outwards almost to carpus; about 10 distinct serrations on margin medially, merging distally into cracked appearance. Ischium subsquare, barely more than $\frac{1}{2}$ length basos anterior margin, setae on anterodistal angle. Merus nearly $\frac{1}{2}$ length basos anterior margin, 4 groups of slender spine-setae anteriorly, 2 or 3 fine setae posteriorly, long spine-seta on distal angle. Rest damaged.

_Epimeral Plates._ First: Trapezoid, fine setae distally on straight anterior margin, anterodistal angle bluntly obtuse, ventral margin rounded to posterior. Second: Subrectangular, groups of fine setae medially on anterior margin, rounding to straight ventral; dorsal margin straight and almost right-angled to posterior, row of about 7 long plumose setae on anterior $\frac{1}{2}$ of ventral surface and parallel to ventral margin. Third: Wider than deep, subrectangular, angles
broadly rounded, a few fine setae on anterior margin; oblique row of 8 or 9 setae of decreasing lengths running upwards on posterior surface from near posterodistal angle.

**PleoPods.** Inner ramus the shorter, both longer than peduncle, which has fine setae in surface groups, 2 coupling spines and finely bristled seta; rami of about 15 (inner) and 19 (outer) segments.

**UroPods.** First: Rami and peduncle subequal. Strong comb of about 6 large spines on one dorsal margin of peduncle, as many smaller spines distally on other, each ramus with terminal blunt thumb-nail-like spine (Pirlot regards this spine as 2nd segment), dorsal margin with indications of 3 or more strong spines; ventral margin of one ramus with single spine proximally, thick inter-ramal spine. Second: Peduncle and rami subequal; comb of about 13 or so strong spines on peduncle dorsal margin; 7 or so dorsal spines on outer ramus, 2 on inner; rami each with blunt thumb-nail spine terminally. Third: Partially damaged; rami more than twice peduncle length, plumose setae on margins of rami giving pleopod appearance, outer margin of outer ramus notched with 1 or 2 spines as well as plumose seta per notch; peduncle inner distal angle has 1 spine, outer ¼ of distal margin has 5 or 6. Telson: Cleft to base, length more than twice width, lobes apically rounded, spine medially on surface; 2 spines and a seta in notch on outer margin near apex.

**Localities:** Queen Charlotte Sound, Cook Strait, dredged from “small debris bottom”, 20–30 fathoms. coll. W. H. Dawbin, 25/6/50; off Three Kings Island and Spirits Bay, North Auckland (Barnard, 1930); Port Chalmers, surface, 24/11/04, 9 p.m., Chilton Collection; Paterson Inlet, Stewart Island, 7 fathoms (Thomson, 1882).

**Hypotypes.** Slides 97 (personal collection); C.30, Chilton Collection

**Discussion**

The specimen described above, a slightly damaged male from Cook Strait, agrees closely with Barnard’s description; it differs from his figures only in that the telson has but one spine on the median surface, a condition intermediate between that which he figures and that which he describes for larger specimens (8 to 9 mm.) from a different station, which show no sign of the spines.

The inclusion of *Phoxus batei* in the synonymy is perhaps unexpected. Pirlot (1932) excluded it from Haswell’s *Phoxus batei* and included it under “‘species insufficiently known’ as possibly a synonym of ‘Parharpinia villosa auctorum’.” I was unable to find any material which I considered corresponded to Thomson’s specimens, and none so labelled, but providentially came across Thomson’s original drawings for his paper. Only about half of these were published, and comparison with Barnard’s and my own leaves no doubt whatsoever that Thomson’s *Phoxus batei* is indeed *Pontharpinia australis*. This was further confirmed by finding in a tube of “*Phizoocephalus bassi*” a number of *Pontharpinia australis* from Otago Harbour, suggesting the species is not uncommon around New Zealand. It has now been recorded, literally, from “North Cape to the Bluff”.

Barnard’s specific name *australis* is retained because, although Thomson’s *batei* (not synonymous with Haswell’s *Phoxus batei*, fide Pirlot, 1932) has priority, Haswell’s *P. batei* is considered by Pirlot synonymous with *Pontharpinia*
rostrata; thus batei has already been used as a specific name within the genus even though now relegated to a synonym.

Genus Heterophoxus Shoemaker, 1925

Shoemaker, 1925: 22.
Barnard, 1930: 333.
Schellenberg, 1931: 73.

"Body not very broad. Head with evenly vaulted hood, not carinate or deflexed. Eyes well developed. Sideplates plumose; fourth broadly produced backward, fifth with oblique hind lobe. Eyes very large, oval, black. Antenna 1 in δ, first joint very large, flagellum in δ with calceoli and sensory clubs. Antenna 2 in δ, lower anterior corner of second joint produced into a prominent lobe, flagellum nearly as long as body, fifth joint and flagellum with calceoli. Mandible, cutting edge and spine-row well developed, accessory cutting plate present, molar feeble, tipped with 3 spine-teeth, palp linear with few setae, 3rd joint very little shorter than 2nd. Maxilla 1, palp 1-jointed, well developed, inner plate well developed with 2 setae. Maxilla 2, plates subequal. Maxilliped, outer plate reaching nearly to middle of second joint of palp, inner plate obtusely rounded at apex, third joint of palp not produced, fourth very short, tipped at apex with 2 long curved spines. Gnathopods and pereaeopods much as in Harpinia. Pereaeopod 3, second joint not expanded. Pereaeopod 4 much longer than the rest, second joint narrowed distally. Pereaeopod 5 rather small, second joint much expanded. Uropod 3 in male well developed, outer ramus the shorter and both rami bearing long, plumose setae. Telson rather short and broad, cleft a little over half its length, lobes broadly rounded apically."

(Shoemaker, 1925)

As Schellenberg (1931) and Barnard (1930) point out, Shoemaker's genus is characterized by a 1-segmented first maxilla palp, whereas the following species and Barnard's H. videns have 2-segmented palps. However, Barnard passes over this rather than erect a new genus, especially since Shoemaker's figure (1925, fig 3e) shows some hint of a possible second segment. This seems the most satisfactory policy and Schellenberg has followed Barnard though not without misgivings Heterophoxus stephenseni differs further from the above diagnosis in having a longer telson cleft to the base, and, more important, in lacking the lobe to the second segment of the second antenna. However, agreement otherwise is very close with H. pennatus, and the differences do not, in my opinion, preclude it from Heterophoxus.

Key to Species of Heterophoxus

1. Antenna 2 peduncle, second segment without process
   Antenna 2 peduncle, second segment with tonguelike process

2. Pri. 5, 2nd segment with rounded teeth on hind margin 3rd pleon segment not produced posterodistally to acute upwardly-pointing tooth
   Pri. 5, 2nd segment hind margin sharply serrate; 3rd pleon segment posterodistally produced to acute upwardly pointing tooth

H. stephenseni Schellenberg, 1931
H. videns Barnard, 1930
H. pennatus Shoemaker, 1925
TEXT-FIG 3—*Heterophorus stephensi* Schellenberg 9 (except 43) 29—Adult. 30—Antenna 1. 31—Antenna 2. 32—Antenna 2, inferior margin of peduncle 4th segment showing arrangement of spines and setae. 33—Tufted flagellate sensory seta from antenna 2. 34—Lower lip. 35—Maxilla 1. 36—Maxilla 2. 37—Left mandible. 38—Left mandible, spine row, cutting edge and molar process. 39—Right mandible, spine row, cutting edge and molar process. 40—Maxilliped, left side outer plate and palp. 41—Maxilliped inner plate. 42—Gnathopod 1. 43—Gnathopod 1, g. 44—Gnathopod 2. 45—Uropod 1. 46—Uropod 2. 47—Uropod 3. 48—Uropod 3, tip of 2nd segment of outer ramus. 49—Telson.
**Heterophoxus stephensi** Schellenberg (Figs. 29-67.)

*Heterophoxus stephensi* Schellenberg 1931 fig 37a

**Female**

Eyes medium-sized, black. Length, 6 mm

**Antennae** First: Flagellum shorter than peduncle, reaching $\frac{1}{2}$ along 5th peduncle segment of antenna 2, up to 9 segments with distal ordinary and flaccid sensory setae; accessory of 6 similar segments. Peduncle, 1st segment very stout, proximally almost as wide as long, interodistal angle with 7 or more tufted setae; 2nd almost as wide as long, less than $\frac{1}{2}$ length 1st, distal $\frac{1}{2}$ of inferior margin with row of up to 10 very long strong sparsely bristled spine-setae, also single tufted seta; 3rd wider than long, about $\frac{3}{4}$ length 2nd, short and long spine-seta inferodistally, 3 or 4 mediodistally, 1 or 2 on superodistal angles of all segments.

Second: Flagellum of up to 23 naked segments, mostly wider than long. Peduncle, 3rd segment normal width $\frac{3}{4}$ length, margins convex, inferior $\frac{1}{2}$ length superior with 3 or 4 medium spine-setae; 4th, inferior margin a strong convex lobe, as wide as 3rd is long, a little shorter than own length, spine and 2 setae midway on superior margin, row of 10 and more strong, very long spine-setae on diagonal to superodistal angle and $\frac{1}{2}$ across surface meeting strong group of similar spines on angle; parallel row of about 8 shorter ones from inferodistal angle across lobe, row of about 8 tufted setae proximally below them, at least 4 very long, strong, sparsely bristled spine-setae on inferior margin, 2 or 3 very fine plumose setae on surface, 3 or 4 in middle of distal margin; 5th segment, width $\frac{3}{4}$ length, length $\frac{3}{4}$ 4th, about 3 long and several short setae superiorly, about 8 strong spine-setae on convex inferior margin distally, tufted seta also.

**Mouthparts.** First Maxillae Inner plate reaching base of spines on outer, rounded. 3 short and 1 longer plumose setae distally; outer plate obliquely truncate, 7-toothed spine and 4 terminally bifurcate spines distally; palp much longer, 1st segment subsquare, 2nd as wide, 3 times as long, distally blunt, about 10 spine-setae on distal $\frac{1}{4}$ of inner margin, fine surface bristles. Second maxillae: Plates subequal, distally setose. Left mandible: Cutting edge bifurcate, accessory plate small, of 2 small adjacent and one slightly apart large tooth; molar process has 2 strong spines, fine bristle tuft. Palp long, slender, 2nd segment inferior margin has several fine setae distally; obliquely truncate 3rd has 2 setae on surface $\frac{1}{2}$ along, distal margin has about 11 setae. Right mandible: Cutting edge entire, accessory plate of 5 teeth, spine row of 7 strong, finely-toothed spines.

Maxilliped Outer plate short, $\frac{1}{2}$ palp width, lanceolate; 4 or 5 plumose long setae on outer margin, 10 curved, strong spines and about 4 long setae on inner. Inner plate, stout tooth and 4 long plumose spine-setae on end, 2 smaller plain ones across surface. Palp strong, 2 or 3 fine setae on ischium and merus inner distal angles, merus inner margin about $\frac{1}{4}$ length outer, as wide as long, outer margin $\frac{1}{2}$ length carpus inner, fine long setae on inner margins of both. Propod margins strongly convex, bluntly pointed dactylos arising from inner margin distally; as long as carpus outer margin; 4 fine setae $\frac{1}{4}$ along outer margin, 4 or 5 distally; about 8 long and 4 short setae on inner, row of 5 long setae on ridge medially down surface; slender curved dactylos as long as propod, distal $\frac{1}{4}$ a long slender nail, 1 or 2 fine setae arising with nail.
GNATHOPODS. *First:* Sideplate narrowing greatly proximally, almost triangular, distally almost as wide as long, long fine plumose setae ventrally and anterodistally. Basos constricted proximally, posterior convex margin has several short and 3 or 4 very long finely plumose setae; width $\frac{1}{4}$ length, length $\frac{3}{4}$ sideplate. Ischium width $\frac{2}{3}$ length, length almost $\frac{3}{4}$ basos, 4 or 5 long setae postero-distally. Merus somewhat bullet-shaped, width $\frac{4}{3}$ length, length $\frac{5}{3}$ basos. Posterior margin distally convex with long, fine setae; anterior margin contiguous with carpus proximal margin. Carpus subtriangular, width $\frac{3}{4}$ length, length $\frac{3}{4}$ basos, long seta on anterodistal angle, anterior margin convex; convex posterior very small, with long fine setae, 3 fine setae medially near proximal margin, 1 or 2 nearby on ischium. Propod narrowly ovate, width almost $\frac{1}{4}$ length, as long as basos; anterior margin has 2 groups of fine setae, further groups at dactylos base; posterior free margin $\frac{3}{4}$ length anterior with about 4 groups of short setae, defined from continuous palm by stout spine; palm strongly setose, a few paired setae set back a little; curved slender dactylos more than $\frac{3}{4}$ propod length. *Second:* Like Gn. 1, except: Sideplate subrectangular, ventrally setose, width about $\frac{2}{3}$ length; basos width $\frac{3}{4}$ length, a few fine setae anteriorly; ischium as wide as long, $\frac{3}{4}$ basos length; merus width nearly $\frac{2}{3}$ length, postero-distally almost right-angled; carpus subrectangular, proximally as wide as long, barely narrower distally, length $\frac{1}{4}$ basos; propod width $\frac{1}{4}$ length, posterior margin $\frac{3}{4}$ length anterior, palm defined by spine and distally recessed from free posterior margin. Gills ovate, as long as basos, twice its width.

PERAEOPODS. *First:* Sideplate, basos and ischium as in Gn. 2, but basos almost as long as sideplate, ischium $\frac{3}{4}$ basos. Merus proximally constricted, anterior margin slightly convex, distally produced a little over carpus in small setose lobe, width $\frac{1}{3}$ length, length $\frac{3}{4}$ basos; posterior margin has about 4 paired sets of long, fine, sparsely plumose setae. Carpus ovate, width $\frac{2}{3}$ length, length nearly $\frac{3}{4}$ merus, margins convex, posterior has row of 8 increasingly longer stout spines, distal almost one reaching $\frac{1}{4}$ along dactylos, 7 fine setae in almost parallel row a little in from margin. Propod as long, width not quite $\frac{2}{3}$ length, row of 6 strong spines obliquely across anterodistal surface to postero-distal angle, 2 on anterior margin just above dactylos; dactylos quite stout, $\frac{3}{4}$ propod length, almost straight. *Second:* Like Pr. 1 except: Sideplate subrectangular, angles rounded, margins slightly convex, slightly longer than wide, very shallowly excavate posteriorly for perhaps $\frac{1}{4}$ width. *Third:* Sideplate posterior lobe trapezoid, 4 or 5 long setae on ventral angle, anterior much less than $\frac{1}{2}$ its depth, almost semi-circular. Gills heart-shaped, much wider and slightly longer than sideplate or basos. Basos linear, as long as sideplate posterior lobe; long plumose seta postero-distally, 4 anterodistally; width about $\frac{2}{3}$ length. Ischium almost as wide, length less than $\frac{1}{4}$ basos, long setae on anterodistal angle. Merus posterior margin widening sharply proximally, distal $\frac{3}{4}$ parallel with anterior, strongly spine-setose; long setae all along anterior; length $\frac{4}{3}$ width and $\frac{3}{4}$ basos length; 4 or 5 spine-setae across anterodistal angle. Carpus subrectangular, a little more than $\frac{1}{2}$ basos length, width $\frac{3}{4}$ length, lateral margins and free portion of distal strongly spine-setose. Propod narrowing distally, anterior margin slightly convex, margins strongly spine-setose; as long as carpus, width $\frac{1}{3}$ length. Dactylos a straight spike, $\frac{3}{4}$ propod length. *Fourth:* Nearly twice length 3rd and 5th. Basos ovate, convex anterior margin has 8 single or grouped sets of plumose setae or spines;
Text-Fig. 4—Heterophorus stephensoni Schellenberg 50—Antenna 1, ♂ 51—Antenna 1, ♀, calceolus, and sensory setae. 52—Antenna 2, ♂ 53—Antenna 2, ♀, inner surface of 4th peduncle segment. 54—Antenna 2, ♂, flagellar calceolus. 55—Antenna 2, ♀, tip of flagellum. 56—Pereopod 1, ♀ 57—Pereopod 2 sideplate, ♀ 58—Pereopod 3, ♀ 59—Pereopod 4, ♀ 60—Pereopod 5, ♀ 61—Pleopod coupling spines and accessory seta 62—Epimeral plate 1 63—Epimeral plate 2 64—Epimeral plate 3 65—Uropod 1, ♂ 66—Uropod 2, ♂ 67—Uropod 3 and telson, ♀. Phoxocephalus regium Barnard 68—Antenna 1, ♀ 69—Epimeral plate 1 70—Epimeral plate 2 71—Epimeral plate 3 72—Uropod 3, ♀.
posterior slightly concave, posterodistally produced to merus in small flange; width ⅗ length, band of fine bristles slightly set in from posterior margin. Ischium as wide as long, length ⅔ basos, long plumose setae anterodistally. Merus almost linear, width ⅔ length, length more than ½ basos, spine on anterodistal angle, 1 or 2 spines and setae posterodistally, 1 and 2 setae on posterior margin. Carpus slightly narrower but as long, linear, 2 or 3 spines on posterodistal angle; 4 groups of 1 to 4 increasingly longer spines anteriorly. Propod linear, ⅔ basos length, width ⅓ length, 4 pairs of long spines on anterior and 3 on posterior margin, 1 long and 2 short on anterior angle, 1 short and 2 much longer than dactylos on posterior. Dactylos as in Pr. 3. Fifth: Basos anterior margin straight, group of about 4 setae proximally, spine and 3 spine-setae distally; posteriorly expanded to wide strongly convex flange reaching carpus, as wide distally as anterior margin is long, flange a little longer, slightly serrate marginally. Basos as long as other segments less dactylos; ischium produced triangularly down merus, margins convex, long spine-setae anterodistally; ischium and merus each approximately ¼ basos length, as wide as long. Spine-setae on slightly convex merus anterior margin, straight posterior margin naked. Carpus about merus length, propod slightly longer, segments successively narrower; about 6 long regular and 3 short spine-setae on carpus anteriorly, seta at 3 posteriorly, 3 long setae on distal angle; spine-setae on propod posterodistal angle almost as big as dactylos, about 6 anteriorly; dactylos as before.

PLEOPODS Short plumose seta beside the two simple coupling spines, rami much longer than peduncle, inner the shorter, of 13–16 segments (3rd).

EPIMERAL PLATES. First. As wide as long, anterior margin concave, posterior convex and parallel, ventral slightly convex, angles rounded. Second: Subsquare, anterior margin slightly concave, posterior convex, anterodistal angle rounded, posterodistal much sharper, about 6 plumose setae midway on ventral margin. Third: Wider than deep, like second but posterodistal angle strongly produced, posterior margin straight, as though rectangular piece punched out from posterior surface, about 8 plumose setae on ventral margin.

UROPODS. First. Rami as long as peduncle, peduncle has 5 long spines on outer dorsal margin, 1 on inner, inner ramus with 2 spines proximally, outer naked. Second: Subequal naked rami longer than peduncle, which has 11 long spines on outer margin, 1 on inner. Third: Peduncle ½ length subequal rami, about 9 spines on slightly lobed distal margin, outer ramus of 2 segments, 2nd ¼ length 1st and spine-like with 1 long and 1 short terminal seta, seta on outer distal angle of 1st; inner lanceolate, margins of inner and inner margins of outer ramus slightly serrate and very minutely spined. Telson: Cleft to base, long lobes with 2 plumose fine setae along margins; 1 very stout and 1 smaller spine plus 1 or 2 plain and plumose setae distally.

MALE

ANTENNAE. First: Like female, but flagellum of 8 segments, strongly bristled patch on inferodistal margin, 1st 4 main flagellar segments with large stalked radially striated calceoli arising ⅔ along. Second. Third and 4th segments as in female, but fine bristle patch superodistally on 3rd, tract of bristles across superior surface of 4th; 5th inferiorly convex and widest distally, inferodistally rounded with 6 or so small setae, slightly longer than 4th, 2 spines with 4 calceoli on superior margin, 2 or 3 plumose-tipped setae beside each; the 31 flagellar seg-
ments long and narrow, 1st 4 with calceolus and pair of setae superodistally, after that calceoli on alternate segments.

**GNATHOPODS.** Like female, slightly fewer spines, palms in both defined by strong spine, inside it an acute palmar tooth.

**PERAEODONS.** Fewer spines than in female; pr. 5 propod lacks spines anteriorly.

**UROPODS.** *First:* Peduncle inner dorsal margin has 3 spines, outer has 1; 4 spines on each dorsal margin of inner ramus, 1 small spine on outer. *Second:* Inner dorsal margin of peduncle has 7 spines, inner ramus 3. *Third:* Like female but both margins of rami plumose; 2nd segment of outer ramus very short, 2 plumose setae terminally. *Telson:* Reaches end of 3rd uropod peduncle, 1 large spine on outer distal margin, small seta each side.

**LOCALITIES.** Female from sandbank, Quarantine Island, Otago Harbour, 19/1/53, coll. D.E.H.; male attracted to light, small jetty, Portobello Aquarium (near same sandbank), 31/1/53, coll. Dr. E. J. Batham; Otago Harbour, surface, 24/11/04, 9 p.m., surface net, (Chilton Collection); Auckland Islands (Stephensen, 1927).

**HYPOTYPES.** Slides P.31, female; P 32, male; personal collection.

**DISCUSSION**

Specimens from Campbell Island were referred by Chilton (1909) to Harpinia obtusifrons without description. Stephensen (1927) figured a female specimen from Coleridge Bay (Carnley Harbour, Auckland Island). Schellenberg (1931) points out that their possession of eyes rules them out from Harpinia and he transfers them to Heterophonus as a new species. They differ from Heterophonus videns particularly in lacking a tongue-shaped process to the second antenna peduncle, and also in the shape of the third epimeral plate.

My specimens agree with Stephensen’s in almost all details. However, the female has the first uropod rami almost naked, the second completely so, while the 3rd epimeral plate has the posterodistal angle produced further than Stephensen indicates. The male partly bridges this gap, having uropods as in Stephensen’s and an intermediate 3rd epimeral plate. As well, the gnathopods and peraeopods are slightly less spinose in the male. It is very unlikely that the male and female belong to different species.

**Genus Phoxocoephalus Stebbing, 1888.**

Stebbing, 1906. 134.
Schellenberg, 1942. 173.

“Body compressed. Hood more or less acute. Sideplates with a few simple setae on lower margin. Fourth not expanded much backwards, 5th with hind lobe rounded. Antenna 1 shorter than antenna 2, the latter in male with long filiform flagellum, calceoliferous. Mandible with well-developed molar and 2nd and 3rd joints of palp not greatly expanded. Maxilla 1, outer plate with 7–9 spines, palp 1-jointed, small, with slender spines. Maxilla 2, plates nearly equal. Maxillipeds, outer plates scarcely larger than inner, fringed with curved spine-teeth, 3rd joint of palp oval. Gnathopod 2 larger than gnathopod 1. Peraeopod 3 short, 2nd joint expanded. Peraeopods 3 and 4, 4th and 5th joints not expanded. Peraeopod 5, 2nd joint large, eelypeiform. Uropod 3 in female, inner ramus unarmad, much shorter than outer, in male much larger than in female, both rami
well developed, lanceolate, fringed with plumose setae. Telson, lobes rather narrow, especially in male.”

*Phoxocephalus bassi* has previously been recorded from New Zealand. Barnard (1930) suggested that these previously recorded New Zealand specimens belonged to his new species, *Phoxocephalus regium*. This appears to be an accurate summation of the position. I have been unable to find material of any species of *Phoxocephalus* other than *P. regium* in the Chilton collection, and it is labelled *P. bassi* at that. Barnard himself records *P. bassi* from New Zealand waters.

It is interesting to note that the tube previously mentioned as containing *Ponthropinia australis* under the label “*Phoxocephalus bassi*, surface, Port Chalmers, 24. xi. 04, 9 p.m.” contained in approximately equal numbers all three species described in this paper.

The following are the species of *Phoxocephalus*, to the best of my knowledge, excluding those given by Stebbing (1906) as doubtful:—

*Phoxocephalus coxalis* Barnard, 1932: 97–99, fig. 48.
*Phoxocephalus regium* Barnard, 1930: 331–332, fig. 9a.
*Phoxocephalus tenepes* Stephensen, 1925. 160–161, fig. 47.

Patience (1909) advocated the uniting of *Metaphoxus* Bonnier with *Phoxocephalus*, but this view has been rejected by later workers (e.g., Fage, 1934: 204).

**KEY TO NEW ZEALAND SPECIES OF PHOXOCEPHALUS**

1. Third epimeral plate, small tuft of 3 setae within margin on postero-inferior angle
   - *P. bassi* Stebbing, 1888
   - Third epimeral plate, posterior margin convex with several small marginal setules in slightly crenulate margin
     - *P. regium* Barnard, 1930

**Phoxocephalus regium** Barnard (1930). (Figs. 68–91.)

*Phoxocephalus regium* Barnard, 1930. 331–332, fig. 9a.


**MALE**

Large black eyes apart and reniform. Length, 4½ mm Rostrum reaching end of antenna 1 peduncle.

**ANTENNAE.** *First*: Peduncle longer than flagellum; 3rd segment ¾ length 2nd; 2nd ½ length and width of 1st; inferior margin of 1st strongly convex, area of fine bristle-setae and tufted setae inferodistally; 2 or 3 long setae on distal angles of 2nd; 3rd almost naked; flagellum of 5 segments each with seta or 2 superodistally, inferodistally 1 or 2 long setae plus long flaccid sensory seta and on some a calceolus; an extremely long, blunt-ended spine terminally; accessory of 3 distally setose segments, reaching main flagellum 3rd segment. *Second*. Peduncle, 3rd segment almost as long as 4th, strongly convex superiorly with distal area of fine bristle-setae; 4th with a few setae, tract of fine bristle-setae on superior margin, several strong spine-setae distally, 2 spines medially on surface, about 6 tufted sensory setae obliquely between them and inferoproximal angle, about 9 bifurcate-tipped spine-setae on rest of margin. Flagellum of 29 suces-
TEXT-FIG. 5.-Phoxocephalus regium Barnard. ♂. 73—Antenna 1. 74—Antenna 2. 75—Maxilla 1. 76—Maxilla 2. 77—Maxilliped, right side. 78—Mandible, spine row, molar process and cutting edge. 79—Mandibular palp. 80—Gnathopod 1. 81—Gnathopod 2. 82—Peraeopod 1. 83—Peraeopod 2 sideplate. 84—Peraeopod 3. 85—Peraeopod 4. 86—Peraeopod 5. 87—Pleopod coupling spines and accessory seta. 88—Uropod 1. 89—Uropod 2. 90—Uropod 3. 91—Telson.
sively longer and more slender segments, inferiorly naked, superodistally 1 or 2 setae, calceolus on 1st 4 and then alternate segments to 12th; last segment has long terminal seta.

Mouthparts. First Maxillae: Palp has 4 strong setae at end. Second Maxillae: Inner plate much the wider, 6 or 7 small plumose spines on inner margin; outer plate has about 6 plumose setae on end. Mandible: Cutting edge of 2 barely-toothed plates; spine row of 2 or 4 spines, numerous bristles; molar process with rounded, distally toothed face. Palp segments narrow; 1st segment short; 2nd barely longer than 3rd, about 5 long setae on inner margin distally, small seta proximally, 3rd very obliquely truncate, about 12 short and long setae on truncate end, single seta proximally on mid-surface. Maxilliped: Inner plate subrectangular, width ⅓ length, single seta on mid-surface about ⅔ along, 3 stout teeth on end margin; plate reaching ⅔ along outer plate, ⅔ along merus. Outer plate as narrow, distally blunt, reaching ⅔ along merus (outer margin), 2 single spines on inner margin at ⅓ and ⅔, 3 strong inwardly curved teeth on distal ⅔. Basos and merus inner distal angles with single spine, outer margins naked as in ischium, carpus and propod. Ischium outer margin as long as merus inner and ⅔ merus outer; carpus outer margin nearly as long as merus outer, more than ⅗ carpus inner, which is slightly longer than propod; carpus as wide as outer margin is long, convex inner margin with 14–15 spine-setae; propod inner margin has median convexity, 6 or 7 long spine-setae, outer distal angle has 2 or 3 more. Daetyslos almost propod length, slender and curved, not greatly narrowing but setae and strong short nail on end.

Gnathopods. First: Sideplate width ⅔ depth, angles rounded especially anterior, proximally greatly narrowed, 6 or so long setae ventroproximally. Basos greatly constricted proximally, as long as sideplate, width less than ⅔ length. Ischium subrectangular, width ⅔ length, as long as basos is wide, seta at ⅓ posterior margin. Merus subtriangular, free slightly convex posterior margin ⅔ basos length, seta ⅔ along, width ⅔ length. Carpus anterior margin slightly convex, ⅔ basos length, posterior scooped out especially distally to take propod, 2 or 3 setae proximally, length little more than ⅔ anterior margin, proximal width twice distal width so carpus becomes a narrow stalk. Propod subrectangular, width ⅔ length, barely shorter than basos, posterior ⅔ of proximal margin free, postero-proximal angle rounded, palm slightly convex and oblique, small spines each side, defined by strong spine on postero-distal angle, small pocket inside it for tip of curved daetyslos which is almost as long as propod is wide; 2 setae on propod posterior margin distally. Second: Sideplate subrectangular, width less than ⅔ length, 5 or 6 spine-setae ventro-posteriorly. Basos as long, width nearly ⅔ length, about 3 very long setae posteriorly. Ischium ⅔ basos length, almost as wide, 2 long spine-setae postero-distally, merus somewhat subtriangular, width ⅔ length, length ⅔ basos, posterior margin convex, spine-setae on angle, distal margin oblique to anterior which is ⅔ length posterior, forms base of scooped spoon-shaped carpus. Carpus ⅔ basos length, propod as before, anterior margin as long as basos, palm more oblique and convex, pocket more defined, stout postero-distal spine set back ⅔ its length from small produced blunt angle-tooth.

Pereaeopods. First: Like Gn. 2 in 1st 3 segments. Merus nearly ⅔ basos length, slightly constricted proximally, antero-distal angle produced slightly above carpus with 2 or 3 long setae, 2 a little previously also; posterior with several long setae irregularly. Carpus ovate, length ⅔ basos, width ⅔ length, about 9
succeedingly longer spine-setae posteriorly with one stout seta-tipped spine as long as propod and ¼ its width. Propod barely longer than carpus and dactylos, linear, width about ⅓ length, 3 spine-setae distally, and posterior to dactylos a strong spine, almost dactylos length and ⅔ its width; single seta ⅓ along posterior margin. Dactylos slender, barely curved. Second: Sideplate posteriorly excavate, anterior margin straight, ventral rounding to oblique posterior, as wide as long but narrowing distally, excavation not deep. Third: Sideplate lobes ovate, posterior nearly twice depth anterior. Basos anterior margin barely concave, 3 long setae on distal angle, posterior a broad convex flange, narrowing more distally, almost as wide as long and produced down posteriorly to merus. Ischium subrectangular, barely wider than long, 2 long setae anterodistally. Merus posterior margin a little constricted proximally, width ⅔ length, length ⅓ basos; spine, long spine-seta and a few fine setae posterodistally, the angle slightly produced downwards, small spine plus spine-setae in 3 groups anteriorly. Carpus length twice width, nearly ⅓ basos length, posterior margin straight and naked, angle as in merus; anterior margin strongly indented for each of 3 groups of 1–3 spine-setae and 0–2 stout spines, spine-setae on distal angle. Propod ⅓ to ⅔ carpus width, 3 spines just past ⅔ along, 5 spine-setae, some as long as slender dactylos distally, dactylos nearly ⅔ propod length. Fourth: Basos ovate, anterior margin convex, posterior almost straight but produced as flange to merus, median width ⅔ length; anterior margin with a few setae on proximal ⅓, 8 oblique ranks of plumose setae increasing in number regularly from 1 to 8. Ischium subsquare, nearly ⅓ basos length, 3 or 4 plumose setae anterodistally. Merus width ⅔ length, length ⅔ basos, 4 small single or paired spines on anterior margin, 4 longer spines with 1 or 2 setae on slightly convex posterior margin. Carpus slightly shorter and narrower, linear, short spine and long spine-setae at ⅔ and on distal angle of posterior margin. 3 groups of 3 slightly longer spines on anterior. Propod linear, width ⅔ length, almost as long as carpus, long seta ⅔ along posterior margin, short spine and stout dactylos-length spine-seta on angle; anterior margin has 3 spines at ⅔, longer spine on angle. Dactylos as before. Fifth: Basos strongly convex, posterior margin produced in great flange, widest about ischium level and reaching almost to carpus, deeper than remaining segments combined, 6 or 7 distinct minutely spined serrations posteriorly, indistinctly crenulate ventrally, as wide as length of straight anterior margin plus ischium, single spine on anterodistal angle, 2 on ischium angle. Ischium subsquare, ⅔ length merus, which is ⅔ basos anterior margin, width ⅔ length, has 3 spine-setae distally on straight posterior margin, 5 groups of 1 or 2 long plumose spine-setae on distal ⅔ of slightly curved serrate anterior margin. Carpus slightly narrower, as long, linear, anterior margin with 3 groups of 2–4 spine-setae; posterior straight, naked but for 3 long plumose spine-setae on angle. Propod linear, ⅔ carpus length, ⅔ its width, widest a little distally, 2 long spine-setae on each angle; dactylos arising anteriorly, as long as propod and about ⅔ width.

Epimeral Plates. Basically subrectangular, 1st only deeper than wide (in female more subtrangular); anterior angles rounded, posterior margins slightly convex, 3rd with 3 minute spines and indistinct serrations, no other spines or setae; 2nd with slightly oblique rank of about 6 long plumose setae across surface near anterodistal angle.

Pleon - Peduncle shorter than rami, stout, 2 simple hooked coupling spines and small plumose seta.
UROPODS. First and Second: Peduncle and rami subequal, rami slender, naked except 1st uropod outer ramus which has 2 spines; 2 spines on each dorsal margin of 1st, 2 on outer and 3 on inner of 2nd. Third: Peduncle ¼ length outer ramus, 4 or so spines on outer distal angle; rami plumose especially inner margin; 2nd segment of outer ramus a very strong spine, ¼ 1st segment length. Telson: Stout spine and small seta and plumose sensory seta on end of each lobe; 2 sensory setae at about ¼.

**Female**

Length, 4 mm.

**Antennae. Second:** Fourth peduncle segment longer than 3rd, nearly twice length 5th and as long as flagellum, width ¼ length, setae much as in male, without bristled tract but 1 and 2 spines superiorly; 5th subrectangular, width about ¼ length, about 9 strong spine-setae and 2 tufted sensory setae distally; flagellum of 4 distally setose segments.

** Gnathopod. First:** Five long setae on basos posterior margin.

**Uropod. Third:** Inner ramus barely longer than peduncle, ¼ length outer ramus 1st segment, arising earlier, tapering to strong end spine and smaller seta; outer ramus has 3 strong spines on outer margin, 2 on inner, 1 on outer distal angle at base of comparatively strong 2nd segment, which is ¼ length 1st.

**Localities:** Otago Harbour, surface, 24/11/04, 9 p.m., surface (Chilton Collection); Snares Island, dredged by Captain Bollons, (Chilton, 1909); Three Kings (Barnard, 1930).

**Hypotypes.** Slides C.28, male; C.29, female. (Chilton Collection).

**Discussion**

There seems little doubt of Barnard’s correctness in referring previous New Zealand records of *Phoxocephalus* to this species. He suggests Otago Harbour as a probable locality and this has proved correct. Specimens of *Phoxocephalus kergueleni* recorded from the Snares Islands (Chilton, 1909: 618) are mounted in such a manner as to make accurate specific identification difficult, but they are almost certainly, as Barnard suggests, *P. regium*.

**Literature Cited**


