

NEW DATA ON THE SQUIDS (CEPHALOPODA: OEGOPSIDA)
FROM THE SCOTIA SEA (ANTARCTIC)

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ABSTRACT

A collection of squids (Cephalopoda, Oegopsida) is described which was obtained during cruises I and III in the Scotia Sea by the research vessel (R/V) "Academician Knipovitch". The collection contains 33 specimens representing 5 genera and 6 species, of which 3 species and 1 genus are new to science; *Moroteuthis knipovitchi*, *Galiteuthis aspera*, and *Kondakovia longimana*; the latter is the type species of a new genus belonging to family Onychoteuthidae. Among the species found, *Psychroteuthis glacialis* is of especial interest, since this rare antarctic species, known previously only from fragments taken from seal and penguin stomachs, was encountered for the first time in 50 years. The most common species found in the Scotia Sea was the *Brachioteuthis* sp. (?riisei).

INTRODUCTION

The cephalopod fauna of Antarctic waters (especially the squids) is still far from being adequately studied. Those scant data which are presently available come mainly from certain expeditions realized by the "Alert", "Valdivia", "Scotia" and some other ships in the past century and in the first quarter of the present one. Results connected with cephalopods were published in a number of works (Smith, 1881; Chun, 1910; Hoyle, 1912; Thiele, 1921; Odhner, 1923; Robson, 1925). After a fairly long recess some informative articles have appeared (R. Clarke, 1956; Dell, 1959; M. Clarke, 1966; Korabelnikov, 1959), and recently American malacologists have started the study of cephalopods of the Antarctic (Voss, 1967; Roper & Young, 1968; Young & Roper, 1968; Roper, Young & Voss, 1969).

Since 1965 ВНИРО (All-Union Research Institute of Marine Fisheries and Oceanography) has been carrying out investigations within the Atlantic sector of the

Antarctic Ocean, making use of the research vessel "Academician Knipovitch".

The present communication deals with a description of a rather modest collection gathered on board this ship during its cruises I and III in the Scotia Sea. This latter is located between the Falkland, S. Shetland, S. Orkney and S. Georgia Isles and lies predominantly south of the Antarctic convergence; consequently, it forms an integral part of the Antarctic waters.

The collection contains 33 specimens from 14 stations (Fig. 1) captured by use of various commercial trawls of both the benthic and pelagic types.

The animals were measured according to the Adam's scheme (Adam, 1952). The absolute magnitude is given for the mantle length only, all other sizes are given as a % of this first value. Their symbols are as follows: ML - mantle length; MWI - mantle width index; FLI - fin length index; FWI - fin width index; CLI - club length index; I, II, III, IV - arms length index.

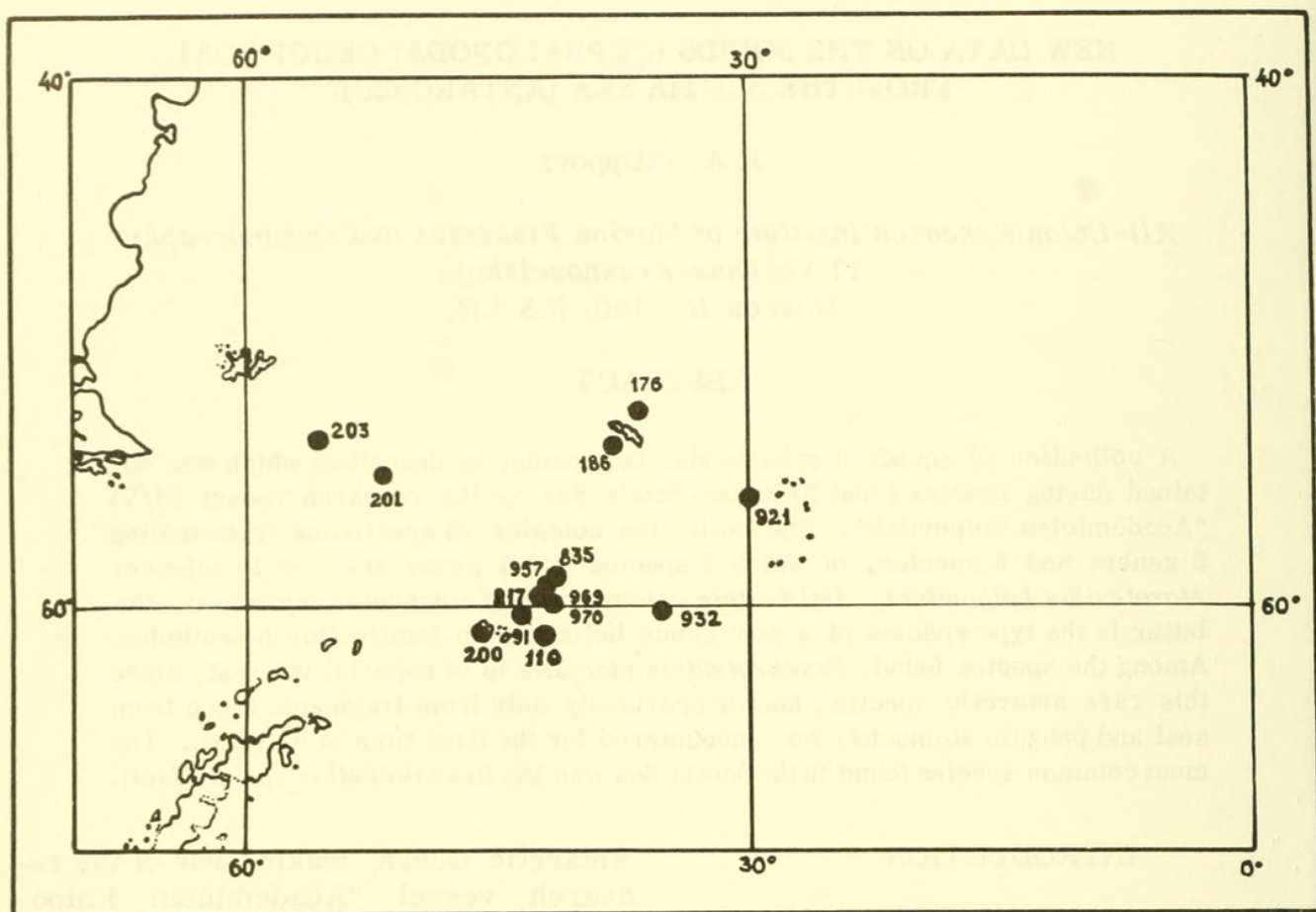


FIG. 1. Map of the stations of R/V "Academician Knipovitch" in the Scotia Sea from which the squids were caught.

SYSTEMATIC SECTION

Family Onychoteuthidae

Moroteuthis ingens (E. Smith, 1881)

Sta. 203, March 17, 1965. Trawling depth 30-50 m. 1♂; ML - 212 mm.

This species is endemic to the Southern hemisphere. It has been taken in Magellan Strait (E. Smith, 1881; Lonnberg, 1898), near the S. Orkney Isles (Hoyle, 1912), and off New Zealand (Massy, 1916; Filippova, unpublished). It was considered to be a rare species because of its paucity in the trawls. However data on the feeding of sperm whales show that it forms the principal part of the diet of these whales in antarctic waters (R. Clarke, 1956; M. Clarke, 1965, 1966). This suggests that *M. ingens* is abundant, as whales generally feed on the schooling animals, at least in summer (Klumov, 1963).

In our collection this species is re-

presented by a single specimen, the characters of which fully coincide with those described by Pfeffer (1912), with the exception of the relative length of the fins. They are shorter (FLI-48) than the fins of specimens described by Pfeffer (FLI-49-58). Our specimen is a male with a ripe gonad and with spermatophores in Needham's sac. The genital organ is a long narrow tube which reaches the middle of the funnel cartilage. There are no traces of the hectocotylus. The radula has 7 rows of teeth. The central teeth are tricuspid, the first lateral ones bicuspid, and the others unicuspid.

Moroteuthis knipovitchi, sp. nov.

Sta. 176, March 3, 1965. Trawling depth 550-400 m. 1♀; ML - 225 mm

The structure of the gladius is with short rhachis, long wide vane and terminal cartilaginous conus; the presence

of rows of hooks on the clubs, and suckers with smooth rings on the arms; a rounded funnel groove; the absence of nuchal folds and photophores.

These characters allow this squid to be placed in the genus *Moroteuthis*. However as it differs from the other known species of this genus, it is here referred to as a new species.

Description. (Fig. 2,3). The mantle, cylindrical in its anterior half, tapers from the base of the fins toward the posterior end (Fig. 2a). The anterior dorsal margin of the mantle is slightly produced while the ventral margin is emarginated in a gentle curve.

The fins are large and united together into a rhombus. They are broadest in the middle of their length. The skin is thin and smooth. The head is narrower than the mantle width. The funnel, broad at its base, is gradually attenuating and reaches the lower margin of the eye opening. The funnel organ (Fig. 2d) consists of the inverted V-shaped dorsal pad and 2 oval ventral pads. The locking apparatus (Fig. 2c) consists of a longitudinal cartilaginous groove on the funnel and a long narrow ridge on the mantle.

The arms are stout, in order 2-3 = 4-1. The suckers have smooth horny rings (Fig. 2e). The suckers of the ventral arms are smaller (d-1.8 mm) than those on the others (d-2.0-2.3 mm).

The tentacles are long with the stalks compressed laterally. At the base of the club there is an adhesive organ consisting of 9 minute, closely sitting suckers and 9 pads. The club (Fig. 2b) is slightly expanded with the swimming keel on the aboral surface. The oral surface is occupied by 13 pairs of long narrow hooks, those of the ventral row being larger than those of the dorsal. The largest is 1 cm in length. The hooks are wrapped in skin hoods. The base of each large hook is asymmetrical due to the presence of a semi-circular appendage on 1 side (Fig. 2f). There is a small patch of 16 minute suckers at the distal extremity of the club.

The gladius (Fig. 3) with the vane

running along its larger part has a terminal cartilaginous conus, which occupies about $\frac{1}{6}$ of the length of the gladius. The terminal conus is triangular in cross section with a sharp ventral edge and flattened dorsal one.

The radula has 7 rows of teeth. All of the teeth are uniform unicuspid with narrow bases. There are no additional cusps (Fig. 2g). Photophores are absent. The color of the preserved animal is light violet.

The squid described above is a young female with minute eggs in the ovaries and moderate-sized nidamental glands, the length of which is 34 mm, i.e., 16% of mantle length.

The Holotype of *Moroteuthis knipovitchi*, sp. nov. is in the Zoological Institute of the Academy of Sciences of the U.S.S.R. Its measurements and indices are as follows:

ML	-	225 mm
FLI	-	60%
FWI	-	69%
Arms I	-	44%
II	-	54%
III	-	53%
IV	-	53%
CLI	-	35%

Locality: near South Georgia Island.

Discussion. This species is allied to *M. aequatorialis* Thiele, 1921, by the presence of the thin, smooth skin while the other species of *Moroteuthis* (*M. robusta*, *M. ingens*, *M. lonnbergii*, *M. robsoni*) have warty skin. However *M. knipovitchi* is distinguished from these and *M. aequatorialis* by the peculiarities of the radula, the teeth of which are unicuspid while the radulae of other species are characterized by the presence of additional cusps: 2 on the teeth of the central row and 1 on the 1st lateral teeth.

Hoyle (1912) illustrated the radula of a species which, in his opinion, was *M. ingens*. At the same time he pointed out its differences from that of *M. ingens* described by Smith (1881). I am inclined to think that this radula is related to *M. knipovitchi*. I have had the opportunity

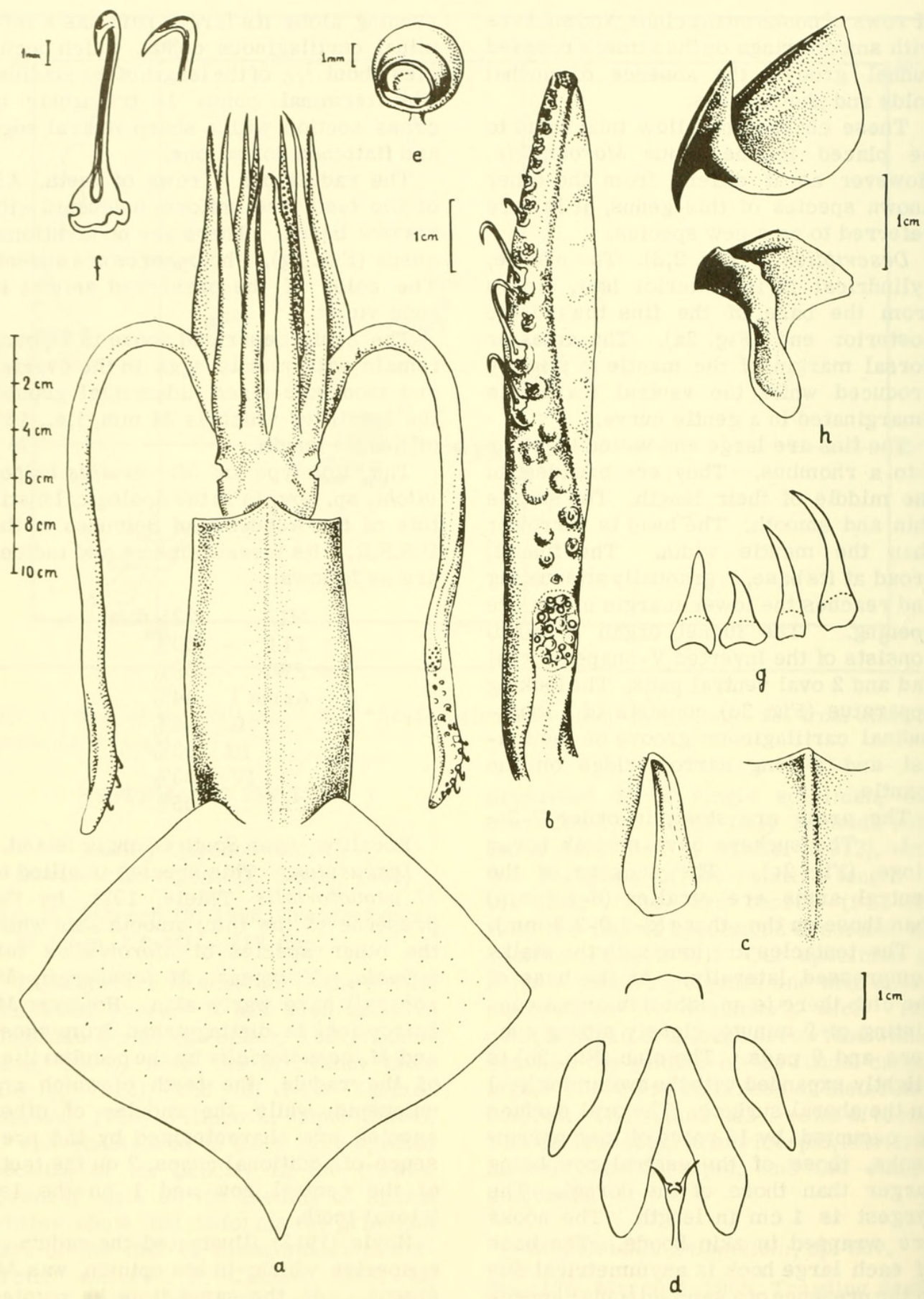


FIG. 2. *Moroteuthis knipovitchi* sp. nov. a, dorsal view; b, tentacular club; c, funnel and mantle cartilages; d, funnel organ; e, armsucker; f, large hook of tentacular club; g, radular teeth; h, mandibles.

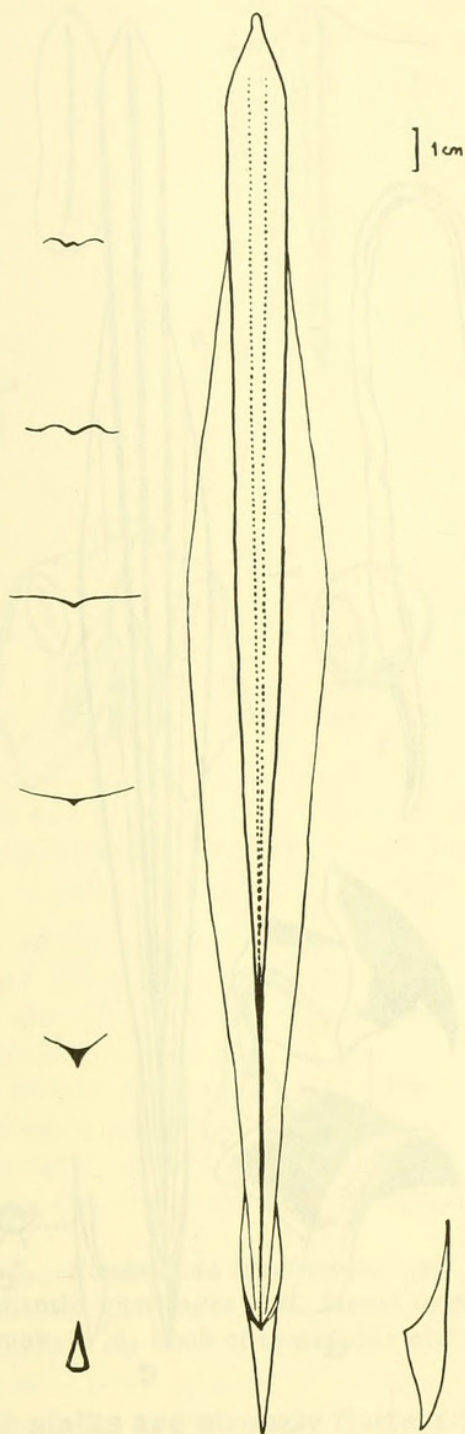


FIG. 3. *Moroteuthis knipovitchi*, sp. nov.
The gladius.

to examine the radula of *M. ingens* from specimens caught in different parts of its range - in the Scotia Sea and off New Zealand. The radula has median teeth distinctly tricuspid, and the 1st lateral ones bicuspid.

Diagnosis. *M. knipovitchi* is characterized by the smooth, thin skin, pecu-

liar radula, the asymmetrical base of hooks of the club, and the large rhombic fins. This species is named in honour of the famous Russian oceanologist academician N. M. Knipovitch.

Kondakovia, gen. nov.

Since this new genus presently includes a single species, it is impossible to delimit the generic characters separately from the specific ones; the diagnosis of the genus coincides with that of a species. The genus is named after the noted Russian malacologist N. N. Kondakov.

Kondakovia longimana, sp. nov.

Sta. 835, February 17, 1967. Trawling depth 50 m. 1 ♀; ML - 138 mm

Sta. 969, March 20, 1967. Trawling depth 50 m. 1 ♀; ML - 210 mm

Sta. 970, March 20, 1967. Surface. 1 ♀; ML - 260 mm.

Description. (Fig. 4) The mantle is broadly cylindrical, shaped like a bag, slightly tapering posteriorly. Its walls are soft and fleshy. The anterior margin is slightly produced dorsally into a moderate prominence, while forming a shallow notch ventrally.

The head and arms are more massive and longer than the mantle portion (Fig. 4a). The fins are soft and feeble with a slightly extended tail. Their length is less than half that of the mantle and their width somewhat exceeds the length.

The head is narrower than the mantle. The funnel, broad at the base, reaches the lower edge of the eye opening. The funnel groove is rounded in front. The mantle-locking cartilage is longitudinal with nearly parallel margins and a deep, slightly curved groove. Its frontal end is more acute than the posterior one. The corresponding mantle cartilage is shaped like a thin longitudinal ridge (Fig. 5a). The nuchal cartilage consists of 2 marked ribs separated by a longitudinal groove. The funnel organ consists of an inverted V-shaped dorsal pad and 2 oval ventral pads (Fig. 5b).

The skin on the dorsal surface of the

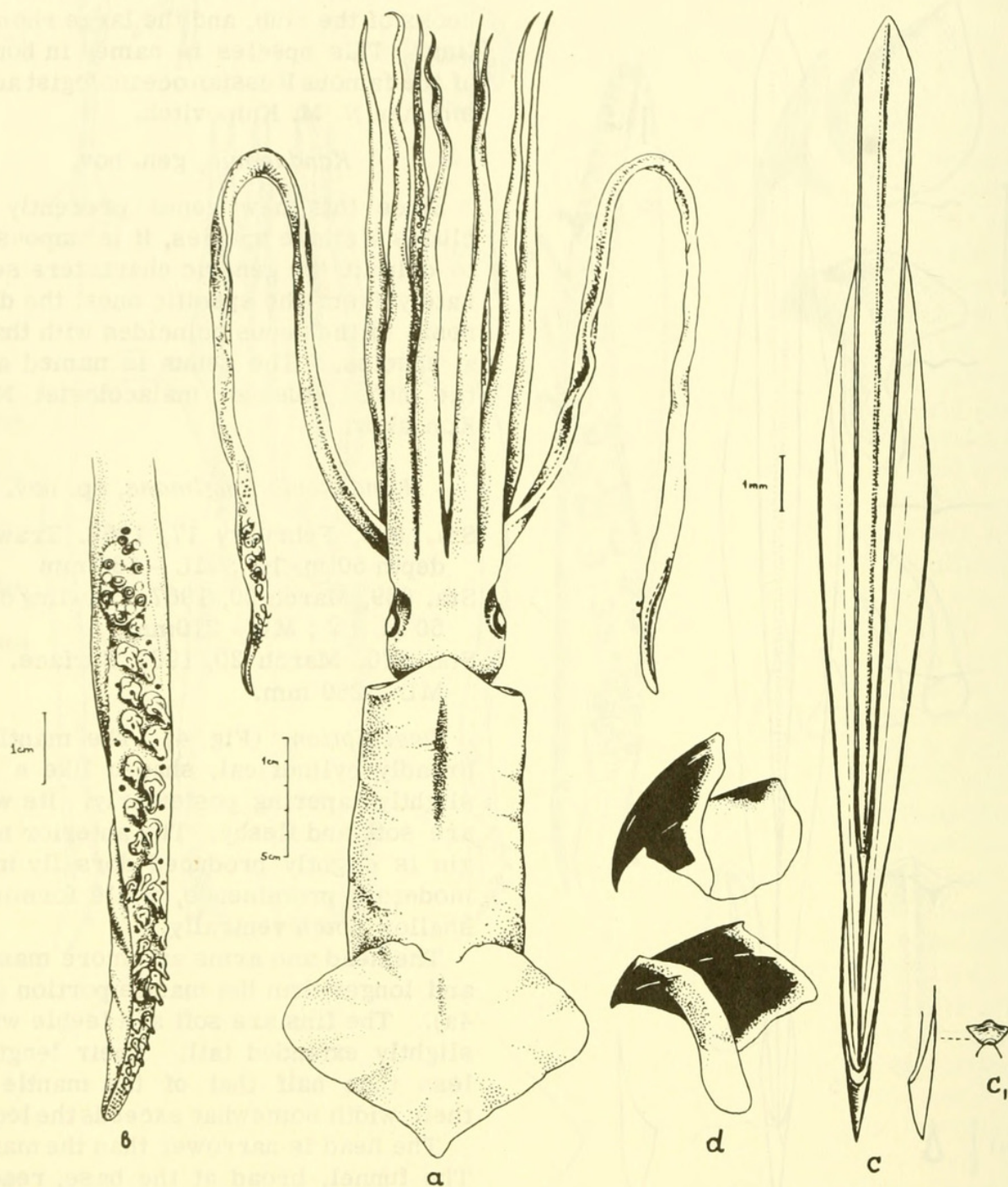


FIG. 4. *Kondakovia longimana*, gen. nov. sp. nov. a, dorsal view; b, tentacular club; c, gladius; c₁, transversal section of terminal conus of gladius; d, mandibles.

mantle, of the head and the base of the arms is vesicular. The arms are massive and fleshy, equalling or exceeding the mantle in length. While stout at their bases, they thin out progressively to become nearly thread-like at the tips. The distal part of the ventral arms reveals a swimming membrane. The oral

surface of the arms is bordered on either side by a protective wavy membrane with muscular supports. The suckers on the arms have smooth horny rings (Fig. 5c). The suckers on the ventral arms are smaller than those on the other arms. The tentacles are long, being $1\frac{1}{2}$ times longer than the mantle.

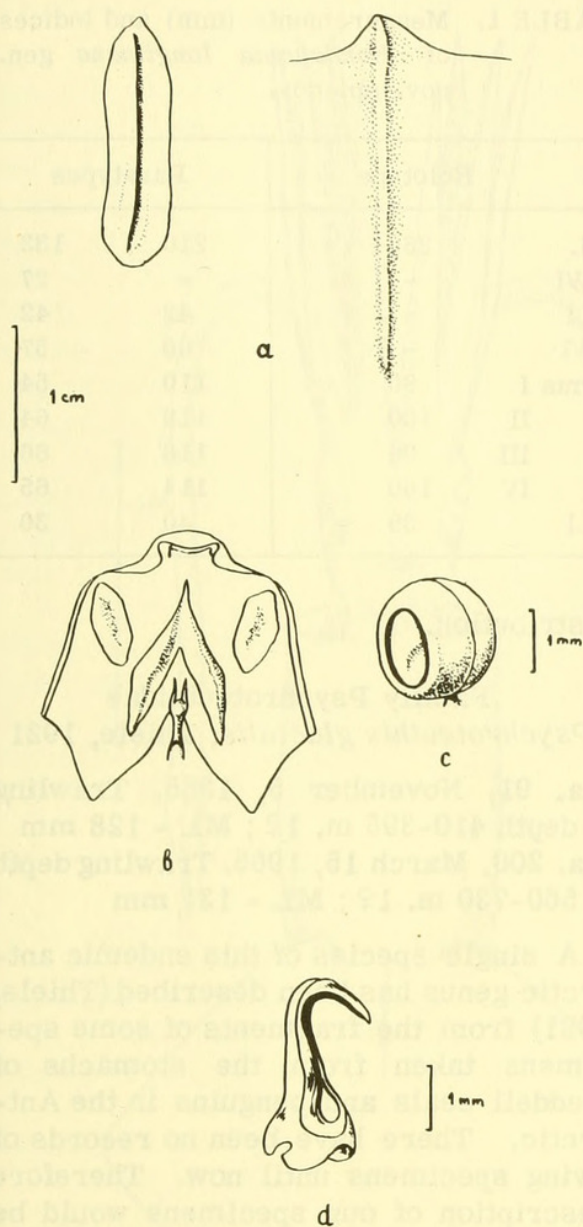


FIG. 5. *Kondakovia longimana*. a, funnel and mantle cartilages; b, funnel organ; c, armsucker; d, hook of tentacular club.

Their stalks are strongly flattened from both sides, ribbon-shaped. The fixing apparatus at the base of the club is not as compact as the one of the genus *Moroteuthis* and its boundaries are less distinctly defined. It consists of 10 suckers and 7 pads on the right club, and 10 pads and 9 suckers on the left one.

The club is slightly expanded (Fig. 4b); the bordering protective membrane and the swimming keel running its whole length are indistinctly pronounced. The

club is equipped with 2 rows of hooks and 2 series of minute suckers arranged peripherally. Each club is armed with 33 hooks and an equal number of marginal suckers. The distal portion of the club is occupied by 28 closely fitted, minute suckers.

The general pattern of the gladius is much the same as that of *Moroteuthis*; that is a short rachis, a vane running nearly the whole length of the gladius and a cartilaginous rostrum at the end. Yet the gladius discussed has a number of distinguishing features. It is thinner, more fragile and furnished with 3 pairs of narrow longitudinal ribs (Fig. 4c). The first pair, shaped like narrow, deep grooves, border the rachis on both sides, while those of the second pair follow the marginal rim, and the third pair (the least distinct) are located between the first 2. The rostrum, shaped like a thin, semitransparent plate, begins within 15 mm from the end of the gladius, on its dorsal surface; it extends backwards ending in a trihedral point. There is a convex rib over the full length of its flat dorsal surface. In cross-section this rostrum shows a laminated structure (Fig. 4c₁).

The lower mandible has a gentle rib on its lateral wall, which is directed from the upper frontal angle backwards in such a manner as to cross midway the back edge of the lateral wall. The mandible is black-brown coloured except for the cartilage-coated wings, which are milky-semitransparent, and the marginal rim on the lateral wall which is transparent. The upper mandible has transparent wings and lateral walls. There is a dark spot on the dorsal mandible surface (Fig. 4d). The radula has 7 longitudinal rows of extremely minute teeth. The specimen from Sta. 969 has only 6 rows, as it lacks the central one. It is possible that we have here a case of pathological departure.

The squids were purple-brown coloured, and without photophores. All 3 specimens were immature females, jud-

ging by the size of their ovaries and nidamental glands. These latter varied from 14% of the mantle length to 9.8% for the smallest specimen. All 3 squids had their stomachs tightly packed with semidigested remains of *Euphausia superba*. The holotype is in the Zoological Institute of The Academy of Sciences of the U.S.S.R.

Discussion. *Kondakovia longimana* resembles the genus *Moroteuthis*. Indeed, the general structural pattern of the gladius, the rounded funnel groove, the presence of the neck folds and the absence of the nuchal folds, the gladius being nontranslucent on the dorsal surface - all these features emphasize their affinity. On the other hand the somewhat different bodily proportions, peculiar characters of the gladius, and suckers and hooks located together on the club of the adult squids do not allow us to place it in the genus *Moroteuthis*. Since the gladius and club structure are the generic features for the family Onychoteuthidae I believe I must attribute these animals to a new genus with the following characters: a massive anterior portion of the body with long thick arms, weakly developed fins, a club equipped with suckers and hooks, and a thin, fragile gladius with narrow longitudinal thickenings. Three specimens of *Kondakovia longimana* were encountered at 3 stations somewhat north of the S. Orkney Isles, in localities with high krill concentrations. The contents of squid stomachs show that they feed upon Euphausiids. This, along with the peculiar bodily proportions, the looseness of the tissues and a moderate size of radula with very minute teeth, is indicative of a form adapted to feed upon macrozooplankton (Euphausiids). An easily accessible and abundant food is evidently responsible for the loss of a number of features inherent to active, predatory pelagic dwellers, such as squids of the genus *Moroteuthis*. All of this indicates that the new squid is endemic to Antarctic waters, and does not extend beyond the limits of *E. superba*

TABLE 1. Measurements (mm) and indices of *Kondakovia longimana* gen. nov. sp. nov.

Holotype		Paratypes	
ML	260	210	133
MWI	-	-	27
FLI	-	42	42
FWI	-	60	57
Arms I	80	110	54
II	100	119	64
III	96	116	66
IV	100	114	65
CLI	39	40	30

distribution.

Family Psychroteuthidae

Psychroteuthis glacialis, Thiele, 1921

Sta. 91, November 5, 1965. Trawling depth 410-396 m. 1♀; ML - 128 mm

Sta. 200, March 15, 1965. Trawling depth 560-730 m. 1♀; ML - 131 mm

A single species of this endemic antarctic genus has been described (Thiele, 1921) from the fragments of some specimens taken from the stomachs of Weddell seals and penguins in the Antarctic. There have been no records of living specimens until now. Therefore description of our specimens would be useful.

Description. (Fig. 6) The mantle is cylindrical, tapering rapidly from the beginning of the fins. The anterior mantle margin is slightly produced dorsally in the midline, while ventrally it is emarginated beneath the funnel with small lateral lappets (Fig. 6a).

The fins are large, rhomboidal, wider than long, with the length slightly exceeding half the mantle length.

The head is narrower than the mantle, with small eyes and 2 neck folds on each side of the head.

The funnel is wide at its base, and tapers rapidly to the safe end. It is short and reaches to about the level of the eyes. The funnel organ consists of

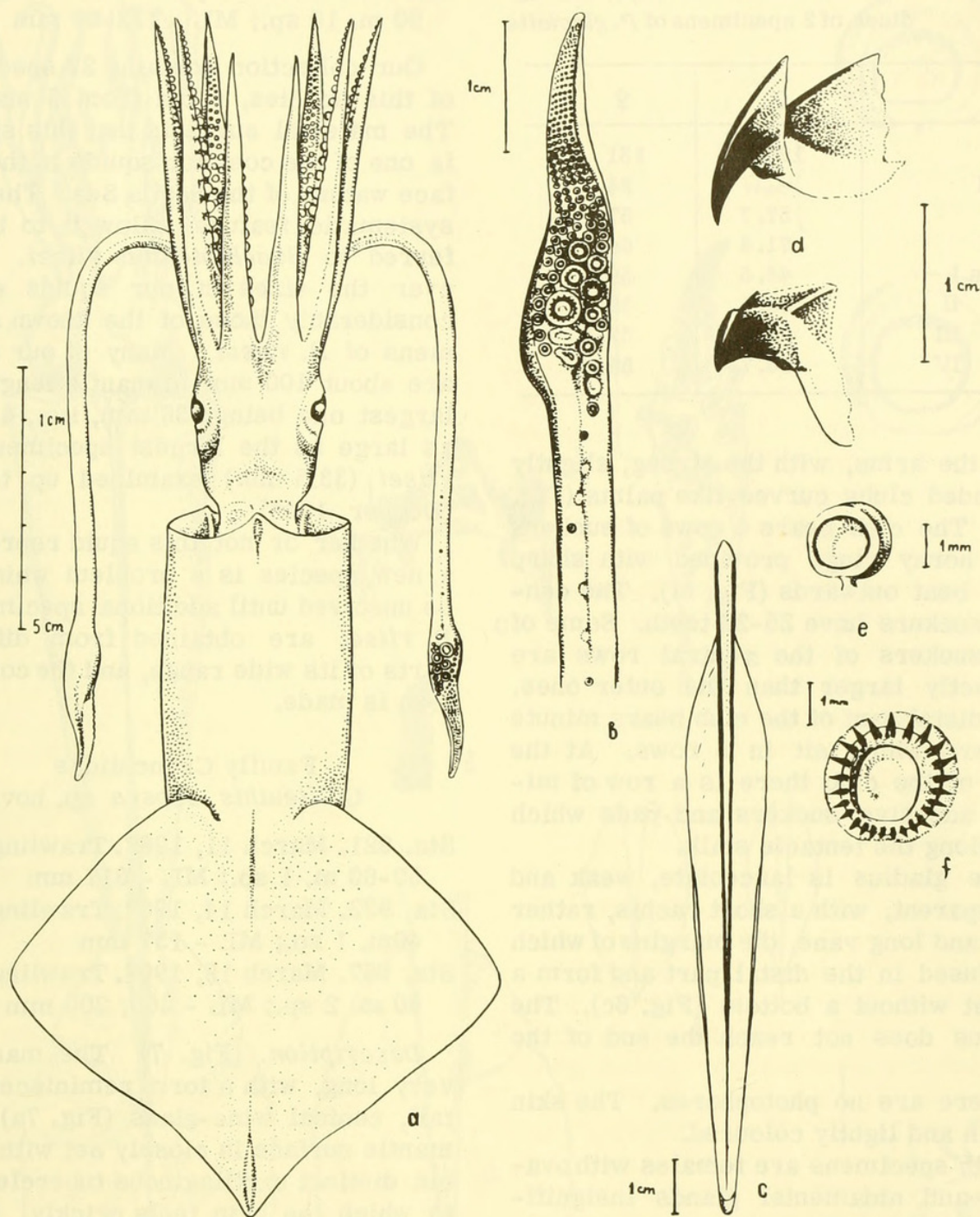


FIG. 6. *Psychroteuthis glacialis*. a, dorsal view; b, tentacular club; c, gladius; d, mandibles; e, armsucker; f, large sucker of tentacular club.

an inverted V-shaped dorsal pad with a small papilla in the middle of its anterior margin and 2 ventral oval pads.

The funnel cartilage is simple with a somewhat sinous, longitudinal groove. The corresponding member on the mantle is a ridge of the same length.

The arms are moderately long, stout

in the base, gradually tapering to the end. Their suckers are biserial and are protected on either side by a low protective membrane. The suckers are provided with smooth horny rings except the terminal ones which have finely toothed rings (Fig. 6e).

The tentacles are considerably longer

TABLE 2. The measurements (mm) and indices of 2 specimens of *P. glacialis*

	♀	♀
ML	128	131
MWI	-	24.4
FLI	57.7	57.2
FWI	71.8	64.8
arms I	44.5	56.4
II	53.1	59.5
III	51.5	57.2
IV	50.7	55.7

than the arms, with the strong, slightly expanded clubs curved like palms (Fig. 6b). The club bears 4 rows of suckers with horny rings provided with sharp teeth bent outwards (Fig. 6f). The central suckers have 25-26 teeth. Some of the suckers of the central rows are distinctly larger than the outer ones. The distal part of the club bears minute suckers which sit in 5 rows. At the base of the club there is a row of minute adhesive suckers and pads which run along the tentacle stalk.

The gladius is lanceolate, weak and transparent, with a short rachis, rather wide and long vane, the margins of which are fused in the distal part and form a pocket without a bottom (Fig. 6c). The gladius does not reach the end of the body.

There are no photophores. The skin is thin and lightly coloured.

Both specimens are females with ovaries and nidamental glands insignificantly developed.

Family Brachioteuthidae

Brachioteuthis sp. (?*riisei* Steenstrup, 1882)

Sta. 110. February 9, 1965. Trawling depth 40 m. 3 sp.; ML - 90; 66; 58 mm

Sta. 186. March 11, 1965. Trawling depth 50-60 m. 3 sp.; ML - 117; 110; 107 mm

Sta. 201. March 16, 1965. Trawling depth 50-60 m. 3 sp.; ML - 115; 22; 26 mm

Sta. 817. February 14, 1967. Trawling depth 30 m. 3 sp.; ML - 138; 106; 77 mm

Sta. 957. March 18, 1967. Trawling depth 50 m. 10 sp.; ML - 132-80 mm

Our collection contains 22 specimens of this species, taken from 5 stations. The material suggests that this species is one of the common squids in the surface waters of the Scotia Sea. The main systematic features allow it to be referred to *Brachioteuthis riisei*. However the sizes of our squids exceed considerably those of the known specimens of *B. riisei*. Many of our squids are about 100 mm in mantle length, the largest one being 138 mm, i.e., 4 times as large as the largest specimen of *B. riisei* (33.5 mm) examined up to now (Degner, 1925).

Whether or not this squid represents a new species is a problem which will be unsolved until additional specimens of *B. riisei* are obtained from different parts of its wide range, and the comparison is made.

Family Cranchiidae

Galiteuthis aspera sp. nov.

Sta. 921. March 11, 1967. Trawling depth 50-60 m. 1 sp.; ML - 317 mm

Sta. 932. March 14, 1967. Trawling depth 40m. 1 sp.; ML - 137 mm

Sta. 957. March 18, 1967. Trawling depth 50 m. 2 sp.; ML - 260; 200 mm

Description. (Fig. 7) The mantle is very long, with a form reminiscent of a tall, conical wine-glass (Fig. 7a). The mantle surface is closely set with small but distinct cartilaginous tubercles, due to which the skin feels prickly. On the surface of the mantle, at the points of its attachment with the funnel and the head, there are clusters of 5-6 spines (Fig. 7b, c).

The fins are large, festonal on their margins; their outline may be described as longitudinal oval (Fig. 7a, d). Their length equals about $1/2$ of the mantle-length, their width is $1/2$ their length.

The funnel is broad at the base, and then tapers while its tubular distal end is curved ventrally. The funnel organ consists of a large dorsal pad, which

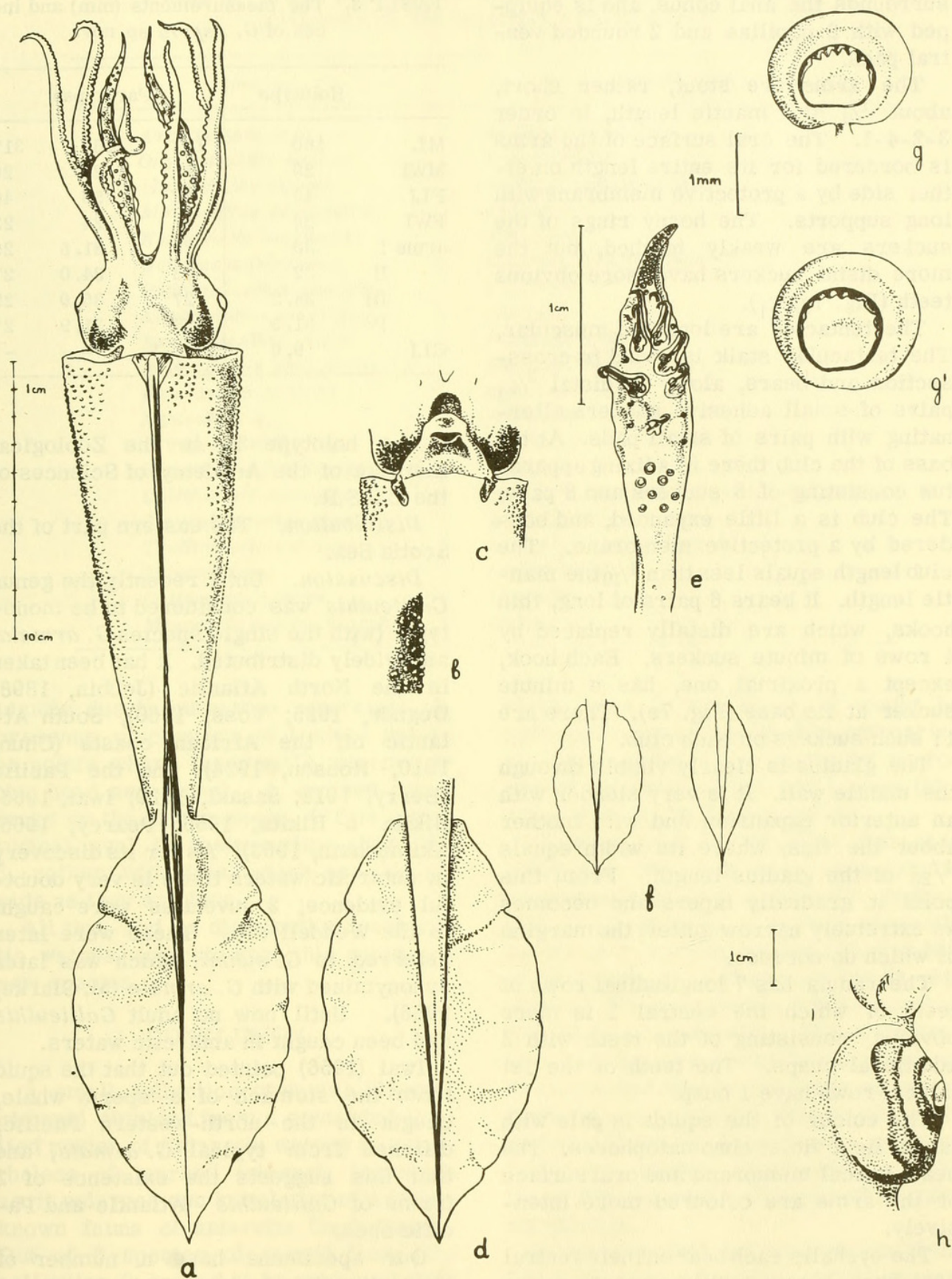


FIG. 7. *Galiteuthis aspera*, sp. nov. a, dorsal view (paratype; the tentacles are torn away); b, part of mantle skin; c, funnel; d, ventral view of fins; e, tentacular club (holotype's); f, outline of fins of *G. aspera* and *G. armata*; g, armsucker from the distal part of arm III; g₁, armsucker from the proximal part of arm III; h, eyeball with the large semilunar photophores.

surrounds the anal conus, and is equipped with 2 papillae and 2 rounded ventral pads.

The arms are stout, rather short, about $\frac{1}{4}$ the mantle length, in order 3-2-4-1. The oral surface of the arms is bordered for its entire length on either side by a protective membrane with long supports. The horny rings of the suckers are weakly toothed, but the more distal suckers have more obvious teeth (Fig. 7g, g₁).

The tentacles are long and muscular. The tentacular stalk is round in cross-section and bears, along its distal $\frac{3}{4}$, pairs of small adhesive suckers alternating with pairs of small pads. At the base of the club there is a fixing apparatus consisting of 8 suckers and 8 pads. The club is a little expanded, and bordered by a protective membrane. The club length equals less than $\frac{1}{10}$ the mantle length. It bears 6 pairs of long, thin hooks, which are distally replaced by 4 rows of minute suckers. Each hook, except a proximal one, has a minute sucker at its base (Fig. 7e). There are 11 such suckers on each club.

The gladius is clearly visible through the mantle wall. It is very slender with an anterior expansion and with another about the fins, where its width equals $\frac{1}{23}$ of the gladius length. From this point it gradually tapers and becomes an extremely narrow gutter, the margins of which do not fuse.

The radula has 7 longitudinal rows of teeth of which the central 1 is more obvious, consisting of the teeth with 2 additional cusps. The teeth of the 1st lateral rows have 1 cusp.

The colour of the squids is pale with large, light violet chromatophores. The head, buccal membrane and oral surface of the arms are coloured more intensively.

The eyeballs each bear on their ventral periphery 2 large semilunar photophores (Fig. 7h), the outer being much larger than the inner one, and enclosing the latter.

TABLE 3. The measurements (mm) and indices of *G. aspera* sp. nov.

Holotype		Paratypes		
ML	180	137	260	317
MWI	20	18	23	20
FLI	48	43	50	46
FWI	20	19	24	23
arms I	30	20	31.5	25
II	32	23	34.0	27
III	34.2	27	35.0	29
IV	31.5	28	31.9	27
CLI	9.0	8.7	-	-

The holotype is in the Zoological Institute of the Academy of Sciences of the U.S.S.R.

Distribution. The eastern part of the Scotia Sea.

Discussion. Until recently the genus *Galiteuthis* was considered to be monotypic (with the single species *G. armata*) and widely distributed. It has been taken in the North Atlantic (Joubin, 1898; Degner, 1925; Voss, 1960), South Atlantic off the African coasts (Chun, 1910, Robson, 1924), and the Pacific (Berry, 1912; Sasaki, 1929; Iwai, 1956; Hikita & Hikita, 1956; Pearcy, 1965; Akimushkin, 1963). As for its discovery in antarctic waters there is very doubtful evidence; 2 juveniles were caught in the Weddell sea. These were later referred to *G. suhmi*, which was later synonymized with *G. armata* (M. Clarke, 1966). Until now no adult *Galiteuthis* had been caught in antarctic waters.

Iwai (1956) pointed out that the squid from the stomach of a sperm whale, caught in the north-western Pacific, differed from typical *G. armata*, and that this suggests the existence of 2 forms of *Galiteuthis* - Atlantic and Pacific ones.

Our specimens have a number of characteristic features which distinguish it from typical forms of *G. armata* and from Iwai's specimen. Their features are: 1. prickly surface of the

TABLE 4. List of squid species from the Antarctic region (based on published data and the author's observations)

Species	Distribution
<i>Architeuthis</i> spp.	widespread (genus)
<i>Onychoteuthis banksi</i>	cosmopolitan
<i>Moroteuthis ingens</i>	antarctic and notalian
<i>Moroteuthis knipovitchi</i>	antarctic
<i>Kondakovia longimana</i>	antarctic
<i>Gonatus antarcticus</i>	antarctic and notalian
<i>Psychroteuthis glacialis</i>	antarctic
<i>Alluroteuthis antarcticus</i>	antarctic
<i>Brachiotheuthis riisei</i>	cosmopolitan
<i>Bathyteuthis abyssicola</i>	cosmopolitan
<i>Batoteuthis scolops</i>	antarctic
<i>Neoteuthis</i> sp.	antarctic
<i>Promachoteuthis</i> sp.	antarctic
<i>Oregoniateuthis lorigera</i>	antarctic
<i>Calliteuthis miranda</i>	antarctic, notalian and south-subtropical
<i>Crystalloteuthis glacialis</i>	antarctic
<i>Teuthowenia antarctica</i>	antarctic and notalian
<i>Taonius pavo</i>	cosmopolitan
<i>Galiteuthis aspera</i>	antarctic
<i>Mesonychoteuthis hamiltoni</i>	antarctic

mantle due to numerous tubercles; 2. presence of clusters of hyaline spines at points where the mantle attaches to the head and funnel. 3. toothed horny rings on the arm suckers. 4. fins longitudinal oval in their outline (Fig. 7f). 5. rather wide fins, which are $\frac{1}{2}$ as wide as they are long.

All this, and its distribution in antarctic waters, indicate that this squid is a new species.

CONCLUSION

A small collection of squids (33 specimens) obtained from a somewhat limited region of Antarctic waters is, nonetheless of marked interest, inasmuch as it enlarges our knowledge of a little-known fauna of antarctic Cephalopods. Out of 6 species of squids from this collection 3 proved to be new, including one belonging to a new genus.

The teuthofauna of the Antarctic region has been studied to a far lesser extent than the ichthyofauna from this

same area. Therefore, it would be quite premature at present to summarize all data available, as might be appropriate for other groups of animals (Ekman, 1953; Andriyashev, 1964).

However poor the available data, it is clear that the squid fauna of Antarctic waters is quite characteristic. In fact, out of 20 species of squids presently known in Antarctic waters, 11 (or 55% of the total) are endemic (Table 4). Six genera (*Psychroteuthis*, *Alluroteuthis*, *Batoteuthis*, *Neoteuthis*, *Mesonychoteuthis* and the new genus *Kondakovia*) out of 19 are undeniable Antarctic endemics (Table 4). Considering that endemism is rather odd for the Cephalopoda, particularly for squids (Akimushkin, 1963), these figures may be thought of as quite significant.

It appears that the squid fauna of the Antarctic region is composed of 3 groups: autochtones (not extending beyond the Antarctic waters), squids spread to much the same extent in Antarctic and notalian waters and, finally those squids

which are widespread (cosmopolitan). Future investigations will, beyond doubt, extend this list. It is now clear that cephalopods, primarily squids, play an important part in the food-chains of antarctic vertebrates (Dell, 1959), and this corroborates our suggestion that the teuthofauna of this vast area is far richer than is presently known.

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ZUSAMMENFASSUNG

NEUE BEFUNDE VON DEN KOPFFÜSSLERN (CEPHALOPODA: OEGOPSIDA)
AUS DEM SCOTIA-MEER (ANTARKTIS)

J. A. Filippova

Ein Posten Kopffüssler (Cephalopoda, Oegopsida) wird beschrieben, der von dem Expeditionsschiff (R/V) "Akademiker Knipowitsch" während der Fahrten I und III im Scotia-Meer aufgefischt worden ist. Das Material umfasst 33 Individuen von 5 Gattungen und 6 Arten, wobei 3 Arten und eine Gattung neubeschrieben sind: *Moroteuthis knipovitchi* n.sp., *Galiteuthis aspera* n.sp. und *Kondakovia* n.g. *longimana* n.sp. - die Typus-Art eines neuen Genus, das zu der Familie Onychoteuthidae gehört.

Unter den gefundenen Arten ist *Psychroteuthis glacialis* besonders wichtig, da diese seltene antarktische Art, die früher nur in Bruchstücken aus den Mägen von Robben und Pinguinen bekannt war, zum ersten Male seit 50 Jahren angetroffen wurde. Die häufigste Art, die in dem Scotia-Meer gefunden wurde, war *Brachiteuthis* sp. (aff. *riisei*?).

H. Z.

RÉSUMÉ

NOUVELLES DONNÉES SUR LES CALMARS (CEPHALOPODA: OEGOPSIDA)
DE LA MER SCOTIA (ANTARCTIQUE)

J. A. Filippova

L'auteur décrit une collection de calmars (Cephalopoda, Oegopsida), qui a été récoltée pendant les croisières I et III en Mer Scotia, par le navire de recherche "Academicien Knipovitch". La collection contient 33 exemplaires représentant 5

genres et 6 espèces, parmi lesquels 3 espèces et 1 genre sont nouveaux pour la science: *Moroteuthis knipovitchi*, *Galiteuthis aspera* et *Kondakovia longimana* - l'espèce type du nouveau genre appartenant à la famille des Onychoteuthidae. Parmi les espèces trouvées, *Psychroteuthis glacialis* est d'un intérêt tout spécial, puisque cette rare espèce antarctique n'était précédemment connue que d'après des fragments trouvés dans les estomacs de Phoques et de Manchots et n'avait pas été rencontrée depuis 50 ans. L'espèce la plus communément rencontrée dans la Mer Scotia a été *Brachiotheuthis* sp. (*?riisei*).

A. L.

RESUMEN

NUEVOS DATOS SOBRE CALAMARES (CEPHALOPODA: OEGOPSIDA)
DEL MAR DE ESCOCIA (ANTARTICA)

J. A. Filippova

Se describe una colección de calamares, obtenida durante los cruceros I y II en el Mar de Escocia, por el barco de investigación (R/V) "Academician Knipovitch". La colección contiene 33 ejemplares representando 5 géneros y 6 especies, de los cuales 3 especies y 1 género son nuevos para la ciencia: *Moroteuthis knipovitchi*, *Galiteuthis aspera* y *Kondakovia longimana* - especie tipo de un nuevo género de la familia Onychoteuthidae. Entre las especies encontradas, *Psychroteuthis glacialis* es de especial interés, desde que esa rara especie antártica, previamente conocida sólo por fragmentos extraídos de los estómagos de focas y pingüinos, es la primera vez que se registra en 50 años. La especie más común en el Mar de Escocia es *Brachiotheuthis* sp. (*?riisei*).

J. J. P.

АБСТРАКТ

НОВЫЕ ДАННЫЕ О КАЛЬМАРАХ (СЕРФАЛОПОДА: ОЕГОПСИДА)
ИЗ МОРЕЯ СКОТИЯ (АНТАРКТИКА)

Ю. А. ФИЛИПОВА

Описывается коллекция кальмаров (Cephalopoda, Oegopsida), полученная в 1 и 3 рейсах исследовательского судна "Академик Книпович". В коллекции имеется 5 родов и 6 видов, из которых 3 вида и 1 род новые для науки: *Moroteuthis knipovitchi*, *Galiteuthis aspera* и *Kondakovia longimana* - (типовой вид нового рода из сем. Onychoteutidae). Среди найденных видов особый интерес представляет *Psychroteuthis glacialis*, так как этот редкий антарктический вид, прежде известный только по фрагментам, полученным из желудков тюленей и пингвинов, был найден впервые за 50 лет. Наиболее обычным видом в море Скотия был *Brachiotheuthis* sp. (*?riisei*).

Z. A. F.



Filippova, J A. 1972. "New data on the squids (Cephalopoda: Oegopsida) from the Scotia Sea (Antarctic)." *Malacologia* 11, 391–406.

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