The genus *Ophryotrocha* sensu lato (Polychaeta, Dorvilleidae) in the Tromsø area, northern Norway

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ABSTRACT

Five species of small dorvilleids, here referred to the genus *Ophryotrocha* Claparède & Mecznikow, 1869, have been collected from shallow-water soft-bottom areas near Tromsø, Norway. The species are *O. baccii* Parenti, 1961, *O.* cf. *scarlatoi* Averincev, 1989, *O. cosmetandra* Oug, 1990, *O.* cf. *puerilis*, and one species which is probably new to science. In *O.* cf. *scarlatoi* the last 7-9 segments and pygidium are rimmed by a pair of scalloped longitudinal folds arising dorsolaterally and appearing to curve and meet across the dorsum. The presumed new species is close to *O. littoralis* (Levinsen, 1879) in having similar mandibles with four strong teeth. It differs from this species in having a smaller size, in the shape of the palps, and in details of the maxillae. The genus *Mammiphitime* Orensanz, 1990, erected for forms similar to *O. cosmetandra*, is discussed.

RÉSUMÉ

Le genre *Ophryotrocha sensu lato* (Polychaeta, Dorvilleidae) dans la région de Tromsø, nord de la Norvège.

Cinq petites espèces de Dorvilleidiens du genre *Ophryotrocha* Claparède & Mecznikow, 1869, ont eté récoltées dans les sédiments meubles peu profonds da la région de Tromsø, au nord de la Norvège. Les espèces sont *O. baccii* Parenti, 1961, *O.* cf. *scarlatoi* Averincev, 1989, *O. cosmetandra* Oug, 1990, *O.* cf. *puerilis*, et une espèce qui probablement est nouvelle pour la science. Chez *O.* cf. *scarlatoi* les derniers 7-9 segments et le pygidium portent dorsalement des plis longitudinaux. Ces plis ont un bord formé comme des vagues, ils se courbent et se rencontrent dans la face dorsale. L'espèce supposée nouvelle est proche de *O. littoralis* (Levinsen, 1879) parce qu'elle a des mâchoires inférieures avec quatre fortes dents. L'espèce se distingue de *O. littoralis* par sa petite taille, par la forme de ses palpes et par ses mâchoires supérieures. Le genre *Mammiphitime* Orensanz, 1990, établi pour quelques espèces ressemblant à *O. cosmetandra*, est décrit et commenté.

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INTRODUCTION

During benthic surveys in the vicinity of Tromsø, Norway, five species referred to the dorvilleid genus *Ophryotrocha* Claparède & Mecznikow, 1869 have been found. The samples were taken in 1980-91, but most specimens were collected during an environmental impact assessment survey in 1983 (OUG *et al.*, 1985). The specimens have been found in shallow water or at moderate depths (< 25 m).

One of the species is probably new to science, but it is close to *Ophryotrocha littoralis* (Levinsen, 1879) from Greenland. Type specimens of this species were examined for comparison, especially with regard to maxillary parts.

The genus *Ophryotrocha* contains about 30 species. A number of species are similar, but some recently described species show unusual features not seen in typical forms of the genus. In a recent revision of *Ophryotrocha* HILBIG & BLAKE (1991) discussed the character variations, but found it impossible to split the genus into less heterogeneous new genera. However, ORENSANZ (1990) erected the new genera *Mammiphitime, Pinniphitime* and *Palpiphitime* for species with special morphological traits. ORENSANZ (1990) further argued in favour of separating *Ophryotrocha* and allied forms from the other dorvilleids. He proposed to transfer the "ophryotrochas" to the family Iphitimidae, consequently revising the definitions of Dorvilleidae and Iphitimidae. The species collected in the Tromsø area are presently assigned to *Ophryotrocha* (in the wider sense), but the need for a revision of the genera is acknowledged.

METHODS

Tromsø is located in a fjord area sheltered from the open sea (Fig. 1). Annual sea temperature and salinity variations are 2-10 °C and 31-33 P.S.U. respectively, but higher temperatures and lower salinities may occur in surface waters.

Samples were taken using a 0.1 m^2 van Veen grab or a modified light-weight Ockelmann detritus sled. The collected material was sieved through a 1 mm screen and preserved in 4 % formaldehyde solution. The material was subsequently transferred to 70 % alcohol.

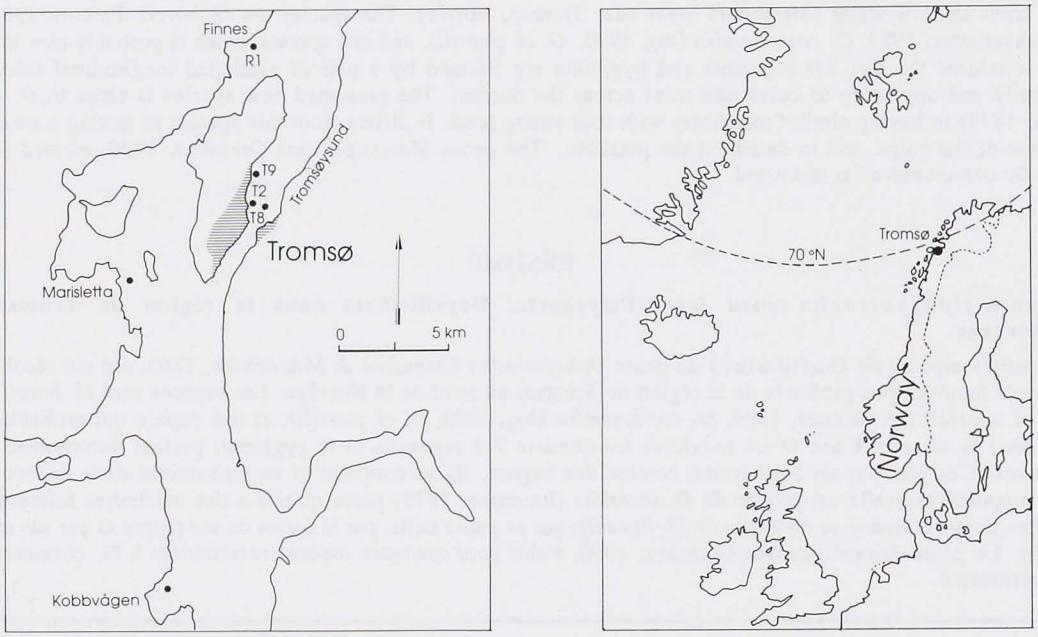

FIG. 1. — Map showing location of Tromsø, northern Norway (left) and sampling stations (right). Station numbers refer to the environmental impact assessment study in 1983 (OUG *et al.*, 1985).

Specimens in alcohol or glycerine were examined for general morphology. Parapodia were removed and mounted in glycerol for examination of setae and parapodial structures. Pharyngeal structures were removed by dissection and mounted in glycerine or (permanent mounts) in Eukitt or Gurr's Hydramount direct mounting medium. Drawings were made primarily with the aid of a Leitz camera lucida attachment.

SYSTEMATICS

Ophryotrocha baccii Parenti, 1961

Fig. 2 a-g

Ophryotrocha baccii Parenti, 1961: 438-440, fig. I: 1-5, fig. II: 6-7. — HILBIG & BLAKE, 1991
Ophryotrocha bacci. — ÅKESSON, 1973. — GEORGE & HARTMANN-SCHRÖDER, 1985

MATERIAL EXAMINED. — Kobbvågen, 27 Nov. 1980, 6 m, mud with H_2S: six specimens. — Tromsøysund, 24 March 1983, 7m (stn T9), sand-mixed mud: 20 specimens.

DESCRIPTION. — Complete specimens 4.0-4.5 mm long, 0.5-0.8 mm wide excluding parapodia, with 30-38 setigers. Prostomium with digitiform antennae and similar ventrolateral palps (Fig. 2a). Parapodia with distinct acicular lobes and digitiform dorsal and ventral cirri (Fig. 2d). Setae of three kinds: dorsal to acicula 3-5 capillary setae, distally slightly dilated, with an apical curved tooth (Fig. 2e), ventral to acicula 4-7 compound setae (Fig. 2f) and one needle-thin unjointed inferior seta emerging from setal lobe (Fig. 2g). Mandibles strongly chitinized, each piece with two distinct serrated teeth (Fig. 2b). Maxillae of p-type, with forceps and seven pairs of denticles in two rows (Fig. 2c).

REMARKS. — The specimens fit the original description of *O. baccii* well, except that the maximum number of segments (38) is greater, and most specimens have a few more bristles than stated by PARENTI (1961). The mandibles differ slightly in shape by having distinct flat, less chitinized lateral projections behind the teeth (Fig. 2b). Sectioned specimens examined for gonadal products had sperm in 2-3 anterior segments and eggs in the next approximately 20 segments. ÅKESSON (1973) classified *Ophryotrocha baccii* as a contemporary hermaphrodite with anterior male and posterior female trunk regions.

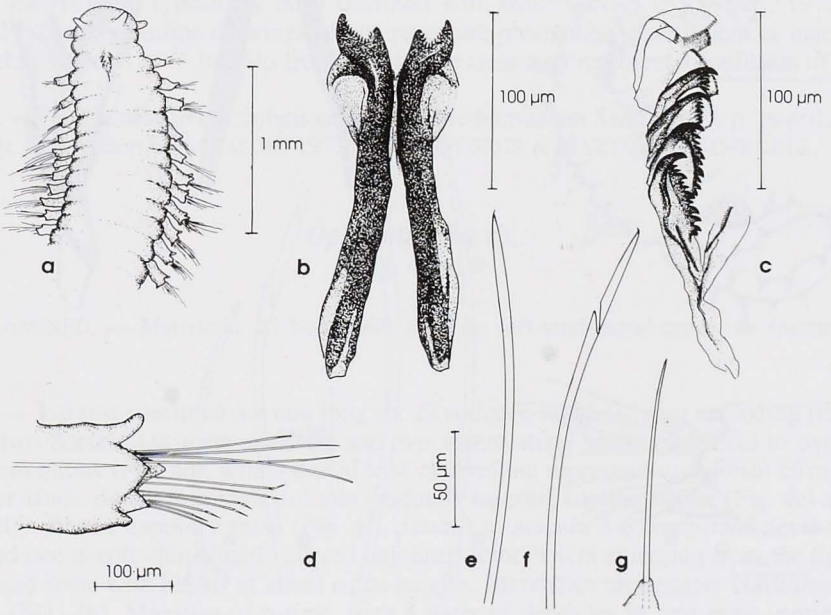

FIG. 2. — *Ophryotrocha baccii*: **a**, anterior end, dorsal view. **b**, mandibles. **c**, maxillae, forceps and left denticle row. **d**, parapodium, setiger 16. **e**, supra-acicular simple seta. **f**, subacicular compound seta. **g**, inferior simple seta.

DISTRIBUTION. — The species is previously known from France (Roscoff), The British Isles and the Swedish west coast (ÅKESSON, 1973 ; GEORGE & HARTMANN-SCHRÖDER, 1985).

Ophryotrocha cf. scarlatoi Averincev, 1989

Fig. 3 a-h

MATERIAL EXAMINED. — Marisletta, 27 Nov. 1980, 15 m, dark mud with H_2S: four specimens, — Tromsøysund, 24 March 1983, 7 m (stn T2), black mud with H_2S: one specimen, 24 March 1988: 1 specimen, — Finnes, 24 March 1983, 7 m (stn R1), sand-mixed mud: one specimen.

DESCRIPTION. — Complete specimens 4.5-6 mm long, 0.5-0.6 mm wide excluding parapodia, with 26-34 setigers. Last 7-9 segments and pygidium rimmed by two scalloped longitudinal folds arising dorsolaterally and curving across the dorsum (Fig. 3a). Setae of four kinds: dorsal to acicula 2-3 thin gradually tapering capillary setae (Fig. 3e) and 2-4 shorter blunt capillary setae (Fig. 3f), ventral to acicula 5-10 compound setae with blunt-tipped blades (Fig. 3g) and one, occasionally two, unjointed inferior seta emerging from the tip of the setal lobe (Fig. 3h). Some setae with very fine subdistal serration. Maxillae of p-type, with enlarged forceps and seven pairs of denticles in two rows (Fig. 3c). Some specimens with eggs from setiger 7 to about setiger 20.

REMARKS. — The description of *Ophryotrocha scarlatoi* by AVERINCEV (1989) is brief and illustrated with simple drawings. Details of jaw elements are not given. The specimens from Tromsø seem to differ by having slimmer mandibles and bristles with weak or no serrations. A similar form from the Canadian Arctic (FOURNIER & CONLAN, 1994), which may belong to *O. scarlatoi*, seems to differ from the Tromsø specimens in having somewhat shorter mandibles, in details of maxillary parts, and in having a ventral cirrus on posterior parapodia.

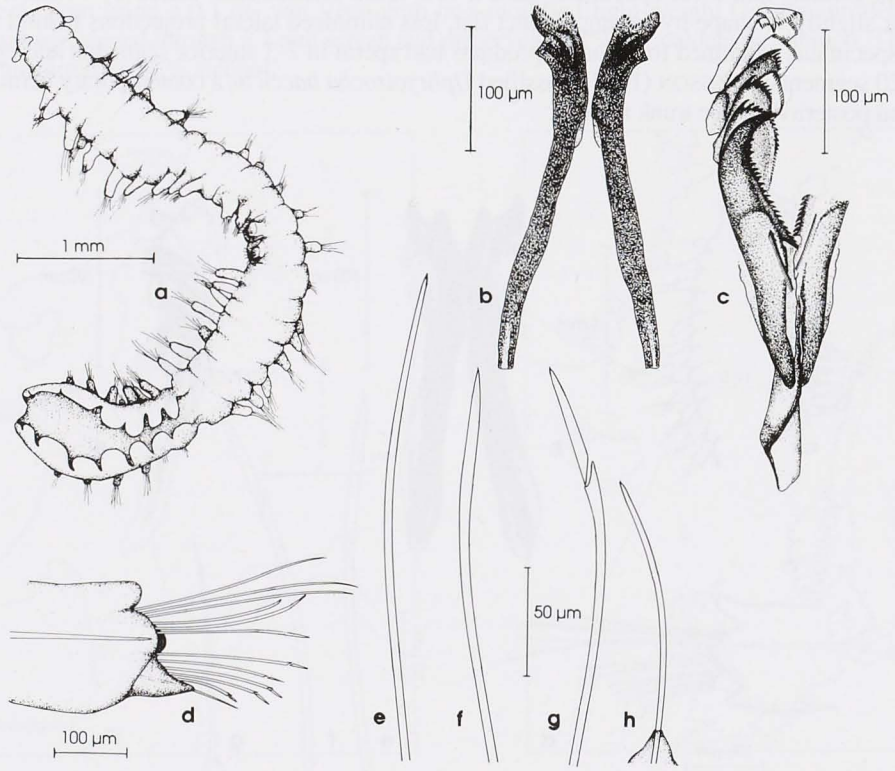

FIG. 3. — *Ophryotrocha* cf. *scarlatoi*: **a**, complete specimen, dorsal view. **b**, mandibles. **c**, maxillae, forceps and left denticle row. **d**, parapodium, setiger 13. **e**, **f** supra-acicular simple setae. **g**, subacicular compound seta. **h**, inferior simple seta.

DISTRIBUTION. — *Ophryotrocha scarlatoi* is previously reported only from Franz Joseph Land (AVERINCEV, 1989). The species may have a wide distribution in the Arctic.

Ophryotrocha cosmetandra Oug, 1990

REMARKS. — This species shows a strong sexual dimorphism. Mature males are characterized by conspicuous dorsolateral processes on the posterior segments and the pygidium. Only males show the K-type maxillae. Both sexes are further distinguished by setal morphology and mandibles with three strong teeth (OUG, 1990).

ORENSANZ (1990) erected the genus *Mammiphitime*, belonging to the revised family Iphitimidae, for some *Ophryotrocha*-related forms with conspicuous dorsal lobes. The species *Mammiphitime tridentata* Orensanz, 1990 from the southern Atlantic is similar to *O. cosmetandra* in a number of characters, e.g. the shape of the mandibles with three strong teeth and compound setae of the spiniger type only. Sexual dimorphism was not described. It seems that *O. cosmetandra* and *M. tridentata* should be referred to the same genus, but *Mammiphitime*, if adopted, may need to be redefined.

DISTRIBUTION. — *O. cosmetandra* is the most common dorvilleid in the Tromsø area. It is known from northern Norway and Greenland (see OUG, 1990 for records) and has recently also been collected in organically polluted harbours in the Faroes (M.E. Petersen, pers. comm).

Ophryotrocha cf. *puerilis* Claparède & Mecznikow, 1869

Ophryotrocha puerilis. — FAUVEL, 1923. — LA GRECA & BACCI, 1962

MATERIAL EXAMINED. — Tromsøysund, 24 March 1983, 25 m (stn T8), sandy mud with gravel and shell fragments: one specimen.

REMARKS. — The specimen fits the descriptions of *Ophryotrocha puerilis* given by PARENTI (1961), LA GRECA & BACCI (1962) and HARTMANN-SCHRÖDER (1971), except for the mandibles which appear to have more than two teeth. The mandibles, however, are worn and presumably damaged. The specimen has K-type maxillae. Eggs are visible in setigers 8 to 16.

Ophryotrocha puerilis has repeatedly been confused with other species (ÅKESSON, 1973, 1984). Present descriptions, mostly showing outline drawings of jaw parts, are presumably insufficient or inacurrate for critical species discrimination. Reports of *O. puerilis* from world-wide areas may represent a confusion of related species.

DISTRIBUTION. — The confirmed distribution is in the Mediterranean Sea (ssp. *O. p. puerilis*) and the eastern North Atlantic (ssp. *O. p. siberti*) (ÅKESSON, 1973, 1984 ; GEORGE & HARTMANN-SCHRÖDER, 1985).

Ophryotrocha sp.

Fig. 4 a-h

MATERIAL EXAMINED. — Marisletta, 27 Nov. 1980, 6-10 m, soft sand-mixed mud: one specimen, 15 June 1987: two specimens.

DESCRIPTION. — Largest specimen 3.4 mm long for 28 setigers, width 0.3 mm excluding parapodia (Fig. 4a). Prostomium with two dorsal digitiform antennae and two ventrolateral small sphaerical to ovoid faintly visible palps. Parapodia uniramous (Fig. 4d), with a dorsal lobe or swelling representing a dorsal cirrus, without ventral cirrus. Setae of four kinds: dorsal to acicula 1-3 thin gradually tapering capillary setae (Fig. 4e) and 1-2 somewhat shorter blunt distally dilated capillary setae (Fig. 4f), ventral to acicula 3-6 compound setae with blunt-tipped blades (Fig. 4g) and one needle-thin slightly curved unjointed inferior seta emerging from the tip of the setal lobe (Fig. 4h). Compound setae with blades of about equal lengths. Mandibles moderately chitinized, each piece with four distinct teeth (Fig. 4b). Maxillae of p-type, with 8 pairs of denticles in two rows, posterior small pieces ('forceps') weakly fused (Fig. 4c).

REMARKS. — This form is close to *Ophryotrocha littoralis* (Levinsen, 1879), which is the only *Ophryotrocha* species hitherto described having mandibles with four strong teeth (Fig. 4i). It seems to differ from it in having a smaller size, in the shape of the palps, and in details of dentition of the maxillary parts. The mandibles are

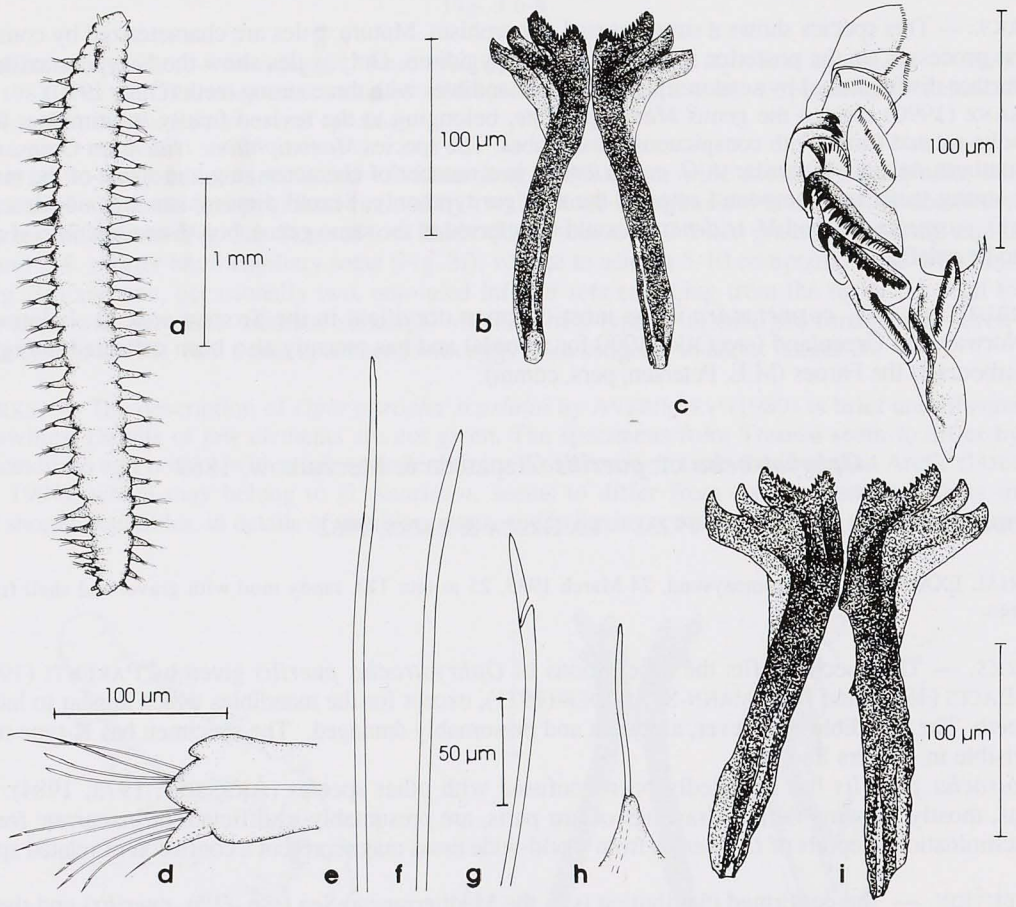

FIG. 4. — *Ophryotrocha* sp: **a**, complete specimen, dorsal view. **b**, mandibles. **c**, maxillae, forceps and left denticle row. **d**, parapodium, setiger 10. **e**, **f** supra-acicular simple setae. **g**, subacicular compound seta. **h**, inferior simple seta. *Ophryotrocha littoralis*: **i**, mandibles.

strikingly similar, but are smaller than in *O. littoralis* (Figs 4b, i). The specimens may belong to a new species, but the material at hand was considered insufficient for naming a new species.

The type collection of *O. littoralis* (= *Paractius littoralis*) contains numerous specimens which all are well preserved. Most characters are referred to in the original description (LEVINSEN, 1879), but the figures fail to show critical details of jaw parts. The palps appear shorter than originally stated.

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