The Camillidae are a small family of drosophilid-like acalypterate Diptera which are known mainly from Africa (see e.g. Barraclough 1997a, b, 1998a, b, c) and the Palaearctic Region (Papp 1982), but also occur in the Nearctic Region and the northern Neotropics (Barraclough & Wheeler 1995, Barraclough & Fitzgerald 2001). Although most species are small or tiny flies, which are invariably missed by collectors, they have interesting life histories, being associated mostly with the dung of various small mammals, birds and bats, where the immature stages of most taxa presumably develop (Kirk-Spriggs et al. 2002). Barraclough (1992) reared the South African species *Afrocamilla stuckenbergi* Barraclough, 1992 from the droppings of the rock hyrax *Procavia capensis* (Pallas, 1766), whilst Kirk-Spriggs et al. (2002) reared the Namibian species *Katacamilla cavernicola* Papp, 1978 from guano of the rock pigeon *Columba guinea* Linnaeus, 1758 and of the slit-faced bat *Nycteris thebaica* Geoffroy, 1818. *K. cavernicola* (Namibia) and *K. braacki* Barraclough, 1998 (South Africa) are of particular interest as both species are troglophilous. It appears that the troglophilic habit is a specialisation (Barraclough 1998a).

*Katacamilla* is one of four genera known from the Afrotropics. It was known only from the holotype of *K. cavernicola* from northern Namibia until Barraclough’s 1998a revision treated more than 400 specimens in five species. These species are now known to be distributed as follows: *K. braacki* (Northern Province, South Africa); *K. cavernicola* (various Namibian localities); *K. ctenidia* Barraclough, 1998 (Nigeria); *K. gallagheri* Barraclough, 1998 (Oman, Saudi Arabia, Yemen).

The discovery of an undescribed species from southwestern Saudi Arabia and western Yemen is of particular interest for three reasons. Firstly, it confirms that the Arabian Peninsula has a notable endemic fauna of Camillidae. Three species are now recorded from there: *K. gallagheri*, *K. vanharteni* sp. n. and a species near *Afrocamilla arthropenna* (see...
Barraclough 2004). Secondly, although none of these species is recorded from Africa, two of them have strong African affinities. *K. vanharteni* (see below) is the sister species of *K. ctenidia* (Nigeria), whilst the undescribed species of *Afrocamilla* is closely related to a South African species. The final point of interest is that these two species pairs are unusually disjunct geographically, suggesting that Camillidae are likely to occur in extensive intervening areas of Africa where the family has hitherto been unrecorded. This includes the Sudan, Democratic Republic of the Congo, the Central African Republic and Cameroon, as well as Malawi, Zimbabwe, Mozambique and Zambia. I have already seen unidentified material from Ethiopia. Our knowledge of Arabian Peninsula Camillidae may also be of interest to zoogeographers, who are in dispute about the exact boundary between the Palaeartic and Afrotropical Regions (see Barraclough 2004). The most recent catalogue of Afrotropical Diptera (Crosskey 1980) suggests for example that only Yemen be included in the Afrotropics.

### Materials and methods

The type material is deposited in the Entomology Section of the National Museums and Galleries of Wales, Cardiff, United Kingdom. Holotype label data are quoted exactly as they appear; a slash denotes the end of a line of print and a semicolon separates data on different labels.

The apical half of the abdomen was cleared in warm KOH and then rinsed in alcohol. After examination, the dissected terminalia and associated abdominal parts were stored in glycerine in a microvial pinned beneath the specimen.

Morphological terminology mainly follows Barraclough (1998a); reference should be made to the annotated figures in this publication, particularly the male terminalia.

Bilaterally symmetrical structures are described in the singular. Head and thorax length was measured from the anterior margin of the third antennal segment to the abdominal base. Wing length was measured from the humeral crossvein to the wing tip. The measurements of the holotype are placed in parentheses at the end of the range for specimens examined.
**Taxonomy**

**Genus Katacamilla** Papp, 1978

Type species: *Katacamilla cavernicola* Papp, 1978, by original designation (aftropical).

*Katacamilla vanharteni* sp. n.

(figs 1-2)

**Diagnosis/Relationships**

*Katacamilla vanharteni* belongs to the clade *ctenidia* + *procavia* [K. *procavia* Barraclough, 1998 is a Namibian species], which is defined by the extensively coiled aedeagal distiphallus (Barraclough 1998a). In other species the distiphallus is straight or only moderately furled. The relationship (*ctenidia* + *vanharteni*) + *procavia* is suggested by the following synapomorphies uniting the first species pair: distiphallus with hair-like vestiture present on most surfaces, and the male forefemur with a conspicuous apical ctenidium on the posteroventral surface, most spines of which are obviously short and strong. It is not certain that these spines are similarly developed in the female. *K. vanharteni* and *K. procavia* both have paired, backwardly directed projections on the hypandrium, although this is a homoplastic character state, occurring also in the clade *braacki* + *cavernicola*. *K. vanharteni* is readily distinguished from *K. ctenidia* by having a pale forefemur (darker brown in *ctenidia*) and distinctive male terminalia. The terminalia differ notably from *ctenidia* as follows (character states of *ctenidia* in parentheses); aedeagal apodeme elongate, length about 1.5 times length of epandrium (subequal in length); postgonites and epiphallus subequal in length (postgonites longer than epiphallus); epiphallus depressed in profile (not depressed, apically smoothly rounded); epiphallus and postgonites concealed behind epandrium in profile (epiphallus and postgonites prominently exposed beyond anterior margin of epandrium); hypandrium posteriorly with backwardly directed projections (hypandrium posteriorly without backwardly directed projections). In addition the cerci appear to be more prominently exposed above the dorsal margin of the epandrium in *K. vanharteni*, but examination of additional material of both species is required to confirm this.

Type material. – **Yemen**: Holotype ♂; ‘Yemen: / Al Kadan. [15°16’N:43°12’E] / i.2003, / light trap, / A. van Harten & / T. Abdul Haq’; ‘holotype ♂ / Katacamilla / vanharteni / Barraclough, 2005’ [rectangular card, red perimeter]. In fair condition; pinned to card point ex ethanol, head bristles displaced. This specimen was collected at the meteorology station of the Agricultural Research and Extension Authority (area) research farm, just outside the village of al-Kadan, at the foot of Jebel Milhan (van Harten, pers. comm.). – Paratype ♂: **Saudi Arabia**: Aseer, Maraba, 1–30.v.2004, Malaise trap, H. A. Dawah.

**Description**

Male: Dimensions (mm): head/thorax length 1.2–1.4 (1.4); wing length 1.8–2.0 (2.0). Colour and pollinosity: Head mostly pale yellow to pale yellow-brown, but apical four-fifths of arista, much of posterior half of frons (sometimes), and occellar triangle somewhat darker brown; pollinosity not evident (probably because of initial deposition in ethanol). Thorax pale yellow to pale yellow-brown (posterior half of mesonotum and scutellum slightly darker); silver pollinosity sparse, evident only on pleuron. Abdomen medium to dark brown, but noticeably paler basally and sometimes apically; indistinct silver pollinosity evident.

Head. – Second antennal segments closely approximated, prominently exerted in profile. Epistome poorly developed, barely visible in profile. One vibrissa, elongate, vibrissal pores closely approximated, distance about 0.7 times length of vibrissa apart. Gena with maximum depth about half maximum width of third antennal segment. Lower occipital bristles: one anteroventrally-directed and sometimes one very weak posterior backwardly-directed bristle.

Thorax (fig. 1). – Forefemur with apical ctenidium strongly developed on posteroventral two- to three-fifths, with 7 to 8 spines, the basal four of which are noticeably short and strong; length of longest spines one-quarter to one-third maximum depth of forefemur (fig. 1). Mid femur with weakly developed dorso-apical bristle. Weakly developed prescutellar acrostichals absent or barely evident.

Abdomen. – Appearing somewhat robust in profile, not noticeably depressed, nor sharply deflexed at juncture of first and second terga.

Postabdomen (fig. 2). – T6 and T7 damaged, dimensions and armature not discernible. Terminalia (fig. 2): Epandrial lobes well separated anterior to cerci. Ejaculatory apodeme elongate and broader posteriorly. Aedeagal apodeme elongate, length slightly more than 1.5 times that of epandrium. Postgonites closely approximated to epiphallus, each converging towards apex of epiphallus, broader basally, narrowing towards slender, depressed apex. Epiphallus reasonably well developed, subequal in length to postgonite, depressed and relatively broad apically; apices of postgonites and epiphallus not exposed in profile, well concealed behind epandrium as in *K. cavernicola*. Differentiated surstylus evident, mostly concealed by epandrium. Distiphallus slender,
coiled, total length probably slightly more than that of epandrium, without dentation but obvious hair-like setulae visible as relatively dense pile on parts of surface, apex forked, one protrusion noticeably longer than the other. Hypandrium posteriorly with backwardly-directed projections and internally without forwardly or downwardly-directed projections; anteriorly with poorly developed single, median, upcurved, tooth-like projection.

Female. – Unknown.

Etymology
The species name honours Mr Tony van Harten, the co-collector of the holotype, and an intrepid collector of Camillidae and other Diptera in Yemen.

Discussion
Katacamilla vanharteni is currently recorded only from the southwestern part of the Arabian Peninsula (the southwest of Saudi Arabia and the west coast of Yemen). Little is known about the Saudi Arabian locality, but the Yemeni specimen was collected on a farm with fruit crops (mango, banana), cotton, sesame, sorghum and vegetables (van Harten, pers. comm.). As with two other camillid species previously recorded from Yemen (Barraclough 2004) there is no apparent association with animal dung. Studies investigating the life history of Camillidae in the Arabian Peninsula are therefore urgently required.

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