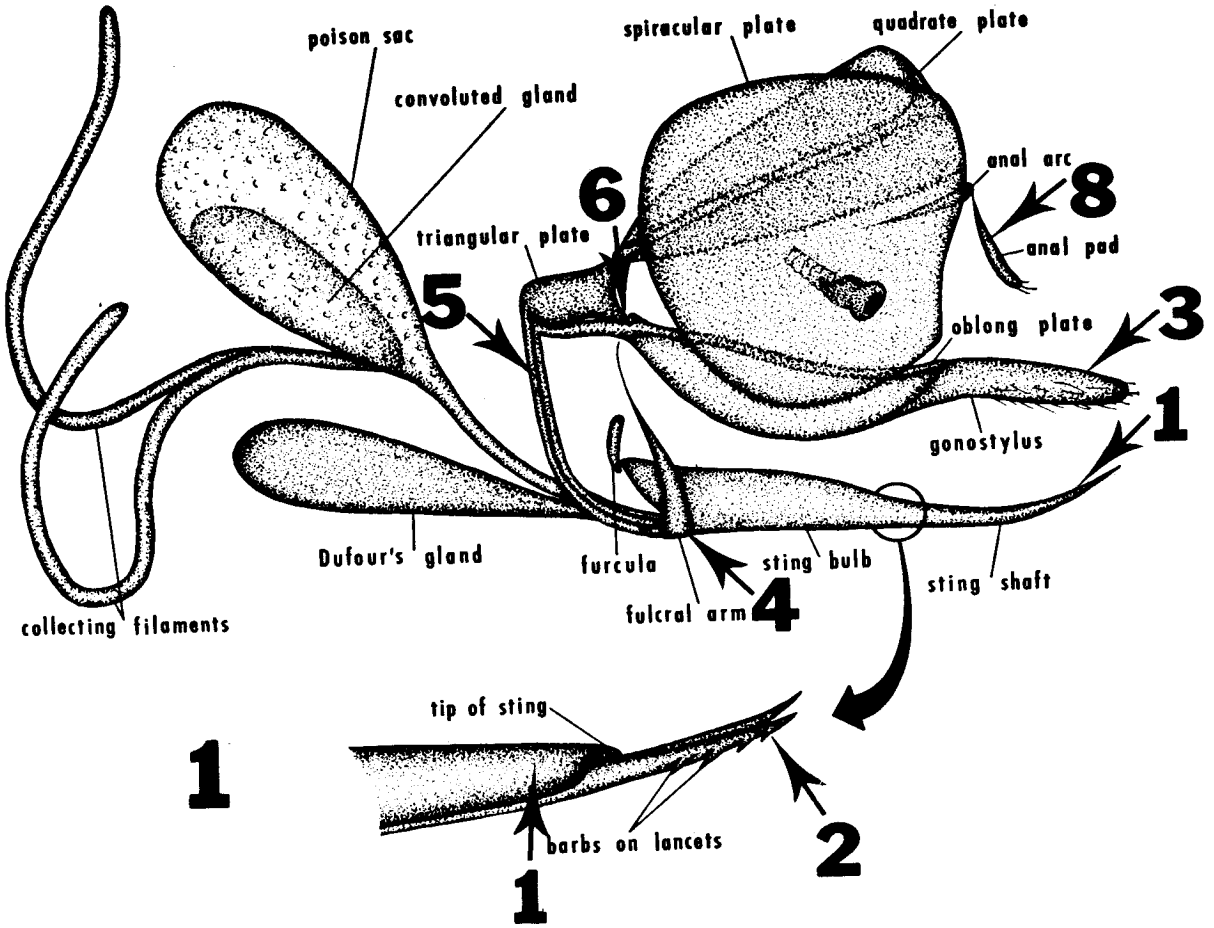

FIG. 1.—Lateral view of a generalized aculeate venom apparatus, pointing out the regions in which specific sensory structures are found. 1. Distal sting tip (SEM in Fig. 2). 2. Distal lancet tip (SEM in Fig. 2). 3. Gonostylus (SEM in Fig. 3 and 4). 4. Mesal side of fulcral arm (SEM in Fig. 5). 5. Rami of 1st and 2nd valvifers (SEM in Fig. 6 and 7). 6. Oblong plate in area where it articulates with triangular plate (SEM in Fig. 8). 7. Seventh sternum (not pictured) (SEM in Fig. 9 and 10). 8. Anal pad (SEM in Fig. 11).

of the 2nd valvulae (sting) (ST) have several *sensilla campaniformia*. King and Fordy (1970) recorded these sensory structures as pegs, modifications of pegs or simple dome-like structures set in depressions or cavities. Snodgrass (1956) reported that *sensilla campaniformia* like the ones shown here occur on the legs, sting, mouth parts, antennal bases and wing bases in honey bees. Similar sensilla have been reported on the inner surface of the sting and apparently are found scattered on the entire surface of the sting (McIndoo 1914), although in *P. clavata* they are concentrated primarily near the distal sting tip.

The presence of these structures in an aculeate hymenopteran makes one wonder about their function. Certainly the parasitic Hymenoptera employ their ovipositor tip in discriminating between acceptable and nonacceptable hosts (Narayanan and Chaudhuri 1954, Weseloh 1969, Wylie 1958). *Paraponera clavata* and most other ants employ their sting primarily in defense and in predation. No information has been reported on the use of the sting in a discriminatory capacity. Since the sting enters the wound during the act of stinging, the sensilla may serve a function in penetration or in the detection of venom release.

Lancets.—Fig. 2.—The appearance of sensory structures on the distal lancet tip (LN) is much the same (*sensilla campaniformia*) as those on the sting tip. McIndoo (1914) reported abundant sensory structures at the base of each barb on honey bee lancets. The sensilla (PS) in *P. clavata* are ventrally located and near the base of the lancet barbs (BB).

Gonostyli.—Fig. 3 and 4.—Abundant mechanoreceptors cover the gonostyli. Most of these receptors are long and trichoid (TS) in appearance. They typically extend distally from both the proximal (PR) and distal (DR) gonostylar lobes. In addition, a few *sensilla campaniformia* (PS) may be found scattered on the gonostylar surface. These *sensilla* appear to be longer than the structures on the sting and lancets.