

a series of vesicles; no other *Thenea* approaches it in the abundance of this tissue, except *Thenea wyvillii*. In *Thenea schmidtii* it is comparatively scanty, even the main canals being but sparingly provided with it.

3. *Flagellated Chambers*.—These are considerably larger in *Thenea schmidtii*, being on the average of about twice the diameter of those of *Thenea muricata*.

4. *Distribution*.—*Thenea muricata* is a northern species, found in company with *Craniella cranium*, auctt. *Thenea schmidtii* is a more southern form, with which *Craniella schmidtii*, n. sp., is associated.

There may be a slight difference in colour between the two species, *Thenea schmidtii* being nearly white, and *Thenea muricata* a very evident grey, but I lay no stress on this.

With regard to the differences which exist between different specimens of *Thenea schmidtii*, they are chiefly differences of external form and size—some resembling *Thenea grayi*, and others being agariciform—and in the dimensions of the plesiaster, though not in its relative abundance. The rays of the plesiaster in specimens from Station IV. (depth, 600 fathoms; bottom, blue mud) are almost twice the thickness of those from Station 73 (depth, 1000 fathoms; bottom, Pteropod ooze); it is to be supposed that the difference in the size of the plesiaster, in different examples of what has every appearance of being the same species, is due to some difference in local conditions, but from so small a basis of observation, one cannot connect it with the difference observed to exist in the depth and character of the sea-bottom.

It only remains to explain the adoption of "*schmidtii*" as the specific name of the sponge. I avoided the designation "*agariciformis*" because Schmidt did not at first call his Floridan specimens by this name, but simply stated that they resemble *Tisiphonia agariciformis*, Thomson, and he refrains from describing them because Thomson had previously sent him examples and plates illustrative of this sponge. As the Florida specimens are probably of the species just described, and Thomson's is the northern form *Thenea muricata*, it would lead to confusion to credit Schmidt with Thomson's name; while all uncertainty is avoided by the adoption of a new one.

*Thenea fenestrata* (O. Schmidt) (Pl. VIII. figs. 1–8).

*Tisiphonia fenestrata*, O. Schmidt, Spong. Meerb. Mexico, p. 71, Taf. x. fig. 2.

*Sponge* (Pl. VIII. fig. 1) cushion-shaped with an oval margin; upper surface rounded, rising in the middle into a conical eminence, truncated by the oscule at the summit. An equatorial series of poriferous areas (six to seven in number), separated by intervals where the upper and lower surfaces pass insensibly into each other over a rounded edge. As a rule only one large incurrent canal originates in the cavity lying beneath each poriferous sieve.

The oscule is protected by a dense conical fringe of projecting oxeas; spicular fringes