with certainty determine, since I was never able to find a completely intact graphiohexaster. I am, however, inclined to the former opinion, since I have always found a number of these rhaphide bundles together, and in the neighbourhood usually a small six-rayed cross, with a discoid expansion of the cylindrical principal rays, from which numerous small points projected like the broken ends of fine terminal rays. The whole exactly resembled the middle portion of a graphiohexaster whose terminal rays had been broken off.

The sword-like hexacts of the dermal skeleton are distinguished by the strength of the four tangential and of the distal rays, all of which terminate in rounded off extremities, while the prolonged proximal gradually decreases in diameter towards the extremity, and finally terminates in a conical point. The distal ray corresponding to the hilt of the sword bears, sometimes in the middle or towards the outer extremity, a club-like thickening (Pl. XI. fig. 6).

On the distal ray of most of the hypodermalia a floricome occurs, which is distinguished from those of *Euplectella aspergillum* by the greater number (fifteen) of the S-like curved terminal rays on each principal, and by the wider cup-like form of each whorl of terminals (Pl. X. fig. 2).

A special gastral skeleton is always absent where the large beams of the lattice-work directly form the inner wall. Where this is not the case, it consists of simple hypogastral pentacts, with four equally long intersecting rays, lying on the parenchymal side of the gastral membrane, while the prolonged unpaired fifth ray penetrates widely into the parenchyma (Pl. XI. fig. 2).

The extremities of all the five rays are simply rounded or slightly knobbed and thickened, only the prolonged distal is sometimes narrowed towards the extremity, and may even terminate in a point.

I have named this memorable sponge in honour of my esteemed friend and colleague Professor Walter Flemming of Kiel.

Since the single and much damaged specimen of *Walteria flemmingii* is inhabited by many comparatively large commensal hydroid polypes, which have doubtless produced the peculiar tubules running obliquely or at right angles to the peripheral strands (Pl. X. figs. 4, 6; Pl. XI. fig. 4), the question arises whether we have here to do with a *normally* formed individual, or not rather with one essentially modified. In specimens without these invading polypes, the wide lumen of the parietal gaps may be in great part filled up by the soft portion of the body-wall, which is here restricted almost exclusively to a cortical layer for the supporting beams.

I know of at least one case in another group of sponges, namely, that of a *Myxilla*, found abundantly near Trieste, which is normally a compact bulbous body, but which when invaded by *Stephoscyphus mirabilis* becomes bush-like, resembling a tuft of the common heath *Calluna vulgaris*.