

also beset with thorns and prongs, varying in form, size, and direction (Pl. LVIII. fig. 6 ; Pl. XI. fig. 2 ; Pl. XXVII. fig. 13 ; Pl. XVI. fig. 8).

In certain cases, as Marshall has shown, individual thorns become greatly developed, are directed obliquely inwards, and unite with the opposite thorns of other rays on the same hexact. This results in the remarkable formation of octahedral margins round the intersections of the lattice-like framework in many fossil, and also in some living Hexactinellida (Pl. CIV. fig. 3).

The rays of most regular hexacts are straight, but curved forms often occur. The curvature may be quite irregular and undulating, but it has in most cases a definite form and direction, varying in different species of Sponges, and in many instances characteristic. The curved rays may be smooth or rough, and are sometimes also beset with prickles (Pl. XXVII. fig. 10). When the rays run out to a pointed extremity, the name "*oxyhexact*" may be applied. When a knob or disc-like thickening is formed at the end of each ray the term "*discohexact*" may be conveniently used.

In many regular hexacts secondary rays appear, either as diverging and similar terminal branches on the principal rays, or arranged in a circle or a disc-like transverse expansion of the latter, or finally they may be uniformly distributed close to one another. To such hexacts, provided with secondary or terminal rays, Carter has applied the term "*rosette*." The number of terminal rays on each principal is generally constant in one and the same kind of rosette, though it may occasionally vary in different rays, even on the same rosette, and on different rosettes otherwise similar. Variations in the form, direction, and dimensions of the terminal rays result in numerous kinds of rosettes.

The length of the terminal rays is generally in inverse ratio to that of the basal principals, which are, as a rule, cylindrical and smooth, and less frequently rough or beset with prongs (Pl. LXXXVIII. figs. 8, 9 ; Pl. XCI. fig. 7). The terminal rays are sometimes smooth, sometimes rough (Pl. XXIV. fig. 6), or covered with prongs (Pl. XXV. fig. 6), sometimes straight, sometimes bent in different ways, but usually in such a way that the planes of curvature in all the terminal rays are directed radially towards the axis of the principal. If the curvature is simple, either its concavity or its convexity may be directed towards the principal axis ; if it is S-like the terminal ray bulges in its proximal or inner portion towards the exterior, while the distal outer portion has its convexity turned towards the axis of the principal, and bends outwards like the petal of a lily. The terminal rays are seldom quite cylindrical, in many cases their diameter decreases towards the free ends, in other cases the converse is observed. The very end may be pointed, truncated, rounded off, or terminated by a sharply truncated terminal expansion of a knob-, cylinder-, disc-, or bell-like form.

As to the abundant rosettes, it is convenient to distinguish in the first place those forms in which the principal rays are wholly or partly divided into two or more uniformly