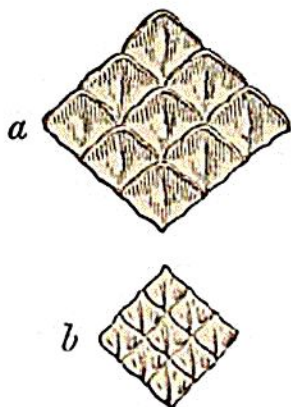


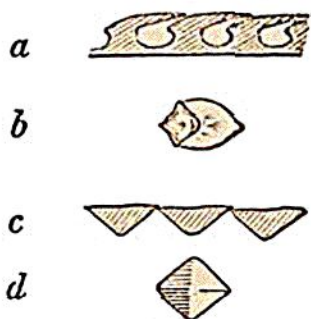
scales, (fig. 4, *a*,) and their free gills were protected by gill-

Fig. 4.



- a. Scales of Cheiracanthus microlepidotus.*
b. Shagreen of Spinax Acanthias. (Snout.)
 (Mag. eight diameters.)

Fig. 5.



- a. Section of shagreen of Scyllium stellare.*
b. Under surface of do.
c. Section of scales of Cheiracanthus microlepidotus.
d. Under surface of do.
 (Mag. eight diameters.)

covers; and so they must be regarded as real Ganoids; but as the shagreen of the spotted dog-fish nearly approaches, in form and character, to ganoid scales, without being really such, the scales of this family, on the other hand, approached equally near, without changing their nature, to the shagreen of the Placoids, especially to that of the spiked dogfish, (*Spinax Acanthias*.) (Fig. 4, *b*.) We even find on their under surfaces what seems to be an approximation to the characteristic footstalk. They so considerably thicken in the middle from their edges inwards, (fig. 5, *c*,) as to terminate in their centres in obtuse points. With these shagreen-like scales, the heads, bodies, and fins of all the species of at least two of the Acanth genera, — *Cheiracanthus* and *Diplacanthus*, — were as thickly covered as the heads, bodies, and fins of the sharks are with their shagreen; and so slight was the degree of imbrication, that the portion of each scale overlaid by the two scales in immediate advance of it did not ex-

ceed the one twelfth part of its entire area. In the scale of the *Cheiracanthus* we find the covered portion indicated by a smooth, narrow band, that ran along its anterior edges, and which the furrows that fretted the exposed surface did not