

that its lateral and anterior neighbors impinged upon it along these grooves to the extent of about one third its area, — and that it impinged, in turn, to the same extent on the scales that bordered on it posteriorly and latero-posteriorly. Now, in the Cœlacanth family, (and on this special point the foregoing remarks are intended to bear,) the scales, which were generally of a round or irregularly oval form, (fig. 6, *b*,) overlapped each other to as great an extent as in any of the existing fishes of the Cycloid or Ctenoid orders, — to as great an extent, for instance, as in the carp, salmon, or herring. In a slated roof there is no part on which the slates do not lie double, and along the lower edge of each tier they lie triple; — there is more of slate covered than of slate seen: whereas in a tile-roof, the covered portion is restricted to a small strip running along the top and one of the edges of each tile, and the tiles do not lie double in more than the same degree in which the slates lie triple. The scaly cover of the two genera of Dipterians to which I have referred was a cover on the *tile-roof* principle; and this is an exceedingly common characteristic of the scales of the Ganoids. The scaly cover of the Cœlacanths, on the other hand, was a cover on the *slate-roof* principle; — there was in some of their genera about one third more of each scale covered than exposed; and this is so rare a ganoidal mode of arrangement, that, with the exception of the *Dipterus*, — a genus which, though it gives its name to the Dipterian sept, differed greatly from every other Dipterian, — I know not, beyond the limits of the ancient Cœlacanth family, a single Ganoid that possessed it. The bony covering of the Cœlacanths was *farthest* removed in character from shagreen, as that of their contemporaries the Acanths approximated to it most nearly; they were, in this respect, the two extremes of their order; and, did we find the