longed to the same individual; and by fitting it in its proper place, and then making the necessary allowance for the breadth of the nether jaw, which swept two thirds around it, and was surmounted by the snout, we ascertain that the buckler, when entire, must have been, as nearly as may be, a . foot in length. If the Asterolepis was formed in the proportions of the Coccostcus, the buckler (fig. 28) must have belonged to an individual five feet in length; if in the proportions of the *Pterichthys* or *Glyptolepis*, to an individual five and a half feet in length; and if in those of the Diplopterus or Osteolepis, to an individual of from six and a half to seven feet in length. Now I find that the hyoid plate can be inscribed — such is its form — in a semicircle, of which the nail-shaped ridge in the middle (if we strike off a minute portion of the sharp point, usually wanting in detached specimens) forms very nearly the radius, and of which the diameter equals the breadth of the cranial buckler, along a line drawn across at a distance from the nape, equal to two thirds of the distance between the nape and the eyes. Thus, the largest diameter of a hyoid plate which belonged to a cranial buckler a foot in length is, I find, equal to seven one quarter inches, while the length of its nape somewhat exceeds three five eighth inches. The nail of the Stromness specimen measures five and a half inches. It must have run along a hyoid plate eleven inches in transverse breadth, and have been associated with a cranial buckler eighteen one eighth inches in length; and the Asterolepis to which it belonged must have measured from snout to tail, if formed, as it probably was, in the proportions of its brother Cœlacanth the Glyptolepis, eight feet three inches; and if in those of the Diplopterus, from nine feet nine to ten feet six inches. This oldest of Scottish fish