

of the Lower Old Red Sandstone appear,—curious, as the most ancient ganoids known to the geologist, and further, from the circumstance that, while the still older placoids of the Upper Silurian system exist merely as detached teeth, spines, and shagreen points, these Old Red fishes exhibit in the better specimens the entire outline of the original animals, with not a few of their anatomical peculiarities. It is from this formation that our knowledge of the oldest skulls, of the oldest vertebral columns, and of the oldest pelvic and thoracic arches, anywhere preserved, is to be derived. With the fish we sometimes find associated, though not often, specimens illustrative of what seems to be our most ancient terrestrial Flora,—club-mosses,—reed-like casts and impressions, streaked longitudinally, like the interior of the calamite, but apparently without joints,—what appear to be ferns,—and, in at least one unique specimen, a true wood of the araucarian family,—the oldest which has yet presented its structure to the microscope. In some localities, such as Cromarty, Thurso, and perhaps Moray, the various ichthyic species of the formation seem to have been pretty nearly ascertained and collected: for several years I have not succeeded in discovering from the several Cromarty deposits a single new species; and my friend Mr. Dick, though permanently resident on the spot, has had a similar experience at Thurso. Species of the rarer kinds may, however, long elude very assiduous search, and yet turn up at last; and in the course of the present twelvemonth I have received from a tract of shore near Cromarty, which I have walked over many hundred times, an ichthyic species,—the *Diplacanthus crassispinus*,—of which my collection had possessed no previous specimen. I owe it to the kindness of Miss Catherine Alardyce,—a lady who, to a minute knowledge of not a few other branches of natural science, adds an intimate acquaintance with the fossils of our northern formations, and whose skill in