

which animals attain their greatest size, and corresponding gradations of descent on both sides, whether we increase the heat until we reach the point at which life can no longer exist, or diminish it until we arrive at the same result from intensity of cold? The line of existence bisects on both sides the line of extinction. May it not probably form a curve, descending equally from an elevated centre to the points of bisection on the level of death? But whatever may have been the cause, the change furnishes another instance of analogy between the progress of individuals and of orders. The shark and the sword-fish begin to exist as little creatures of a span in length; they expand into monsters whose bodies equal in hugeness the trunks of ancient oaks; and thus has it been with the order to which they belong. The teeth, spines, and palatal bones of the fish of the Upper Ludlow Rocks are of almost microscopic minuteness; an invariable mediocrity of dimension characterizes the ichthyolites of the Lower Old Red Sandstone; a marked increase in size takes place among the existences of the middle formation; in the upper the bulky *Holoptychius* appears; the close of the system ushers in the still bulkier *Megalichthys*; and low in the Coal Measures we find the ponderous bones, buckler-like scales, and enormous teeth of another and immensely more gigantic *Holoptychius* — a creature pronounced by Agassiz the largest of all osseous fishes.* We begin with an age of dwarfs — we end with an age of giants. The march of Nature is an onward and an ascending march; the stages are slow, but the tread is stately; and to Him who has commanded,

* There have been fish scales found in Burdie House five inches in length, by rather more than four in breadth. Of the gigantic *Holoptychius* of this deposit we have still much to learn. The fragment of a jaw in the possession of the Royal Society of Edinburgh, which