They are unfortunately so comminuted as to resemble the *débris* of the food of some larger animal; but in so far as I can judge from specimens kindly given to me,[1] they resemble the bony coverings of some of the familiar fishes of the Devonian. Thus they would indicate, with Pander's and Rohan's specimens, already two distinct types of fishes as existing almost as early as the higher invertebrates of the sea.

In the Silurian (Upper Silurian of Murchison) we have undoubted evidence of the same kind, on both sides of the Atlantic, in teeth and spines of sharks, and the plates which protected the heads and bodies of the plate-covered fishes (Placo-ganoids). But it is in the Devonian that these types appear to culminate, and we have added to them that remarkable type of "lung fish," as the Germans call them, represented in our modern world only by the curious and exceptional Burramunda of Australia, and the mud fishes of Africa and South America,[2] creatures which show, as do some of the mailed fishes, or ganoids, of equally great age, the intermediate stages between a swimming bladder and a lung, and thus approach nearer to the air-breathing animals than any other fishes.

Many years ago, in "Acadian Geology," I referred to the probability that the mailed and lung fishes of the Devonian and Carboniferous possessed airb ladders so constructed as to enable them to breathe air, as is the case with their modern representatives. In the modern species this, no doubt, enables them to haunt badly aërated waters, in swamps and sluggish streams, and in some cases even to survive when the water in which they live is dried up. In the Carboniferous and Devonian it may have served a similar purpose, fitting them to inhabit the lagoons and creeks of the coal swamps, the water of which must often have been badly aërated. It makes against this that some sharks followed them into these waters,

[1] By Mr. F. D. Adams and Dr. Walcott.

[2] Ceratodus, Lipidosiren, Protopterus.