

“Do not be deterred,” said Agassiz, in the course of one of the interviews in which he obligingly indulged the writer of these chapters, who had mentioned to him that one of his opinions, just confirmed by the naturalist, had seemed so extraordinary that he had been almost afraid to communicate it, — “Do not be deterred, if you have examined minutely, by any dread of being deemed extravagant. The possibilities of existence run so deeply into the extravagant, that there is scarcely any conception too extraordinary for nature to realize.” In all the more complete specimens which I have yet seen, *the position of the jaws is vertical, not horizontal*; and yet the creature, as shown by the tail, belonged unquestionably to the vertebrata. Now, though the mouths of the crustaceous animals, such as the crab and lobster, open vertically, and a similar arrangement obtains among the insect tribes, it has been remarked by naturalists, as an invariable condition of that higher order of animals distinguished by vertebral columns, that their mouths open horizontally. What I would remark as very extraordinary in the *Coccosteus* — not, however, in the way of directly asserting the fact, but merely by way of soliciting inquiry regarding it — is, that it seems to unite to a vertebral column a vertical mouth, thus forming a connecting link between two orders of existences, by conjoining what is at once their most characteristic and most dissimilar traits.\*

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\* These statements regarding the character of the teeth and the position of the jaws of the *Coccosteus* have been challenged by very high authorities. I retain them, however, in this edition in their original form, as first made nearly six years ago. In at least two of my specimens of *Coccosteus* the teeth and jaw form unequivocally but one bone — a result, it is not improbable, of some after anchylosing process, but