

alarm, and at other times lay close by the creature's side and that the sole instrument of motion was the tail, which, when covered by its coat of scales, was proportionally of a somewhat larger size than the tail shown in the print, which, as in the specimens from whence it was taken, exhibits but the obscure and uncertain lineaments of the skeleton. The river bull-head, when attacked by an enemy, or immediately as it feels the hook in its jaws, erects its two spines at nearly right angles with the plates of the head, as if to render itself as difficult of being swallowed as possible. The attitude is one of danger and alarm; and it is a curious fact, to which I shall afterwards have occasion to advert, that in this attitude nine tenths of the *Pterichthyes* of the Lower Old Red Sandstone are to be found. We read in the stone a singularly preserved story of the strong instinctive love of life, and of the mingled fear and anger implanted for its preservation — "The champions in distorted postures threat." It presents us, too, with a wonderful record of violent death falling at once, not on a few individuals, but on whole tribes.

Next to the *Pterichthys* of the Lower Old Red I shall place its contemporary the *Coccosteus* of Agassiz, a fish which, in some respects, must have somewhat resembled it. Both were covered with an armor of thickly tubercled bony plates, and both furnished with a vertebrated tail. The plates of the one, when found lying detached in the rock, can scarcely be distinguished from those of the other: there are the same marks as in the plates of the tortoise, of accessions of growth at the edges — the same cancellated bony structure within, the same kind of tubercles without. The forms of the creatures themselves, however, were essentially different. I have compared the figure of the *Pterichthys*, as shown in some of my better specimens, to that of a man with the head cut off at the