process seemed almost mechanical, so little did it employ the attention, and so invariable were the results. The fossils of the surrounding bed always found their places on the huge stone in three groups, and at times there was yet a fourth group added — a group whose organisms belonged not to the animal, but the vegetable kingdom. What led to the arrangement, or in what did it originate? In a principle inherent in the human mind — that principle of classification which we find pervading all science — which gives to each of the many cells of recollection its appropriate facts — and without which all knowledge would exist as a disorderly and shapeless mass, too huge for the memory to grasp, and too heterogeneous for the understanding to employ. I have described but two of the groups, and must now say a very little about the principle on which, justly or otherwise, I used to separate the third, and on the distinctive differences which rendered the separation so easy.

The recent bony fishes are divided, according to the Cuvierian system of classification, into two great orders, the soft-finned and the thorny-finned order — the *Malacopterygii* and the *Acanthopterygii*. In the former the rays of the fins are thin, flexible, articulated, branched: each ray somewhat resembles a jointed bamboo; with this difference, however, that what seems a single ray at bottom, branches out into three or four rays a-top. In the latter, (the thorny-finned order,) — especially in their anterior dorsal, and perhaps anal fins, — the rays are stiff continuous spikes of bone, and each stands detached as a spear, without joint or branch. The perch may be instanced as a familiar illustration of this order — the gold-fish of the other. Now, between the fins of two sets — shall I venture to say orders? — of the ichthyolites of the Lower Old Red Sandstone, an equally striking difference