as we see in the modern Limulus; and each of these ocelli must have been a perfect photographic camera, and more than this, since absolutely automatic, and probably having the power to represent colour as well as light and shade. We know also, from the recent experiments of an Austrian physiologist on the eyes of insects, that such compound eyes are so constructed as to present a single picture, just as we can see the whole landscape in looking through the many little panes of a cottage window. In our own time the king-crab and lobster no doubt see just as their predecessors did millions of years ago, and with precisely similar instruments.

But the eyes of the modern Crustaceans have to compete with eyes of a dissimilar type, constructed on the same general optical principles, but quite different in detail. These are the simple or single eyes of the cuttlefishes and the true fishes. The same rivalry existed in the oldest seas, when the competition of Crustaceans and cuttles was just as keen as now. Though the eyes of the latter have not been preserved, or at least have not yet been found, we have a right to infer that the cuttles of the Cambrian and Silurian seas must have been able to see as well as their Crustacean foes and competitors. If so, the other type of eye must have been perfected for aquatic vision as early as the compound type. In any case we know that a little later, in the Carboniferous period, we have evidence that the eyes of fishes conformed to those of their modern successors. I have myself described [1] a carboniferous fish (*Palæoniscus*) from the bituminous shales of Albert County, New Brunswick, in which the hard globular lens of the eye had been sufficiently firm and durable to retain its form, and to be replaced by calcite, showing even that like the lens of the eye of a modern fish it had been constructed of concentric laminæ. In the Carboniferous period also, both types of eye, the compound and the single, experienced the further modifications

[1] *Canadian Naturalist.*