

formations are entirely deceptive and never formed part of living plants or animals. Yet unless we make the effort to realise the attitude of men's minds in those days, we cannot rightly appreciate the acumen and sagacity of the arguments with which Guettard assailed these opinions. In much detail, and with many admirable illustrations drawn from his personal observations all over France, he demonstrated that fossil shells often have attached to them other shells, and likewise barnacles and serpulæ; that many of them have been bored into by other organisms, and that in innumerable instances they are found in a fragmentary and worn condition. In all these respects the beds of fossil shells on the land are shown to present the closest possible analogy to the floor of the present sea, so that it becomes impossible to doubt that the accidents which have affected the fossil organisms arose from precisely the same causes as those of exactly the same nature that still befall their successors on the existing ocean bottom.

Of course nowadays such reasoning appears to us so obvious as to involve no great credit to the writer who elaborated it. But we must remember the state of natural knowledge one hundred and forty years ago. As an example of the method of explaining and illustrating the former condition of the earth's surface by what can be seen to happen now, Guettard's memoir is unquestionably one of the most illustrious in the literature of geology, opening up, as it did, a new field in the investigation of the history of our globe, and unfolding the method by which this field must be cultivated.