

means of good illustrations to an ever-increasing number of observers. The works of Aldrovandi, Athanasius Kircher the Jesuit, Sebastian Kirchmaier, Alberti, Balbini, Geyer, Hartley, and many others in the seventeenth century contain some very good figures, and extended the knowledge of the fossils found in various European localities. The fossils were, however, treated usually as mineral curiosities, or as illusions of nature, sometimes as forms called forth in the earth by *vis plastica* or some other force, sometimes compared with living mussels, snails, sea-urchins, plants, etc., and named accordingly.

Probably the greatest representatives of this literature are the Englishmen Lister and Lhuyd (Luidius) and the Swiss Nikolaus Lang. Martin Lister¹ had an excellent knowledge of living conchylia. He had also observed that certain rocks are present over a definite extent of surface, so that maps might be constructed with respect to the distribution of different kinds of rock, and further, that the fossil bivalves and snails differed in the different kinds of rock. He therefore laid down the important principle that the different rocks might be distinguished according to their particular fossil contents, although, strange to say, he thought the rocks themselves had the power to produce the different forms of fossils. Lister warmly combated the idea that the fossils could have proceeded from animals (*Philos. Trans. Roy. Soc. London*, 1671). Nevertheless, he illustrated living and fossil conchylia side by side with one another, in order to demonstrate their resemblance, at the same time writing in the text, that the fossil conchylia were mere rough imitations of the real forms—imitations produced in the rocks by some unknown causes.

The English antiquary, Edward Lhuyd (Luidius), described a thousand species of British fossils in a long and beautifully illustrated work. Lhuyd's theory of "Aura seminalis" strongly recalls the fanciful doctrines of Anaximander and Theophrastus. In a letter, "De fossilium et foliorum mineralium origine," to the famous zoologist John Ray, Lhuyd sets forth how the fossils have developed from moist seed-bearing vapours which have risen from the seas and entered into the strata of the earth.

¹ Lister was born at Radcliff in 1638, studied in Cambridge, and was highly respected in York and London as a medical man. In 1698 he accompanied the English ambassador, Lord Portland, to Paris, in 1709 became house physician to Queen Anne, and died 1711.