

ther, nor even in places contiguous; it is only in the neighbourhood, and some leagues distant from the sea, that we find beds of shells in their natural state, and these are commonly the same with those which exist in the adjacent seas. Petrified shells, on the contrary, are found, almost every where, at great distances from the sea, and on the highest hills, many species of which belong not to our seas, and several of them have no existing representatives; such as those ancient species we formerly mentioned, which only existed when the globe was much warmer. Of more than a hundred species of *cornua ammonis*, remarks one of our learned Academicians, with which we are acquainted, and which are found in the environs of Paris, of Rouen, of Dive, of Langres, and of Lyons, as well as in the Cevennes, in Provence, in Poitou, in Britain, in Spain, and in other countries of Europe, there is but one species, called the *Nautilus papyraceus*, found in our seas, and five or six others produced in foreign seas*.

* Mem. de l'Acad. des Sciences, année, 1722, p. 242.

III.

Of those great Volutes called Cornua Ammonis, and of some large Bones of terrestrial Animals.

IN p. 211. I said, *That many shell-fishes inhabit the deepest parts of the ocean, and are never thrown upon the coasts; authors have, therefore, termed them Pelagie, to distinguish them from the other kind, which they call Littorales. It is probable that the cornu ammonis, and some other species found only in a petrified state, belong to the former, and that they have been impregnated with stony matter in the very places where they are discovered. It is also probable, that the species of some animals have been extinguished, and that these shells may be ranked among this number. The extraordinary fossil bones found in Siberia, in Canada, in Ireland, and several other places, seem to confirm this conjecture; for no animal has hitherto been discovered to whom bones of such enormous size could possibly belong.*

Upon this passage I have to make two important remarks:

1. That these *cornua ammonis*, which are so different from each other both in figure and size,

size, seem to form rather a genus than a species in the class of shell animals, are really the relicks of so many species which have perished, and no longer subsist. I have seen some of them so small, that they exceed not a line, and others so large that they were more than three feet in diameter. Observers worthy of credit have assured me, that they have seen some still larger, and particularly one of eight feet in diameter, and one foot thick. These different cornua ammonis seem to form distinct species. Some of them are more or less fluted. They are all spiral; but they terminate differently, both at their centres and at their extremities. These animals, formerly so numerous, are no longer found in any of our seas. They are known to us by their relicks only; and the immensity of their number cannot be better represented than by an example which I have daily before my eyes. In the iron mine near Etivey, (three leagues from my forge of Buffon), which has been wrought 150 years, and has supplied the iron works of Aisy during all that time, there are such quantities of cornua ammonis, entire and in fragments, that the greatest part of the ore seems to have been moulded in these shells. The mine of Conflans in Lorraine, which supplies the furnace of Saint Loup in Franche-comte, is likewise entirely composed of belemnites and cornua ammonis. These last ferrugi-

nous

nous shells are so different in size, that they weigh from a drachm to two hundred pounds*. Other places might be mentioned where they equally abound. In the same manner, we find belemnites, lenticular stones, and moulds of many other shells, which now no longer exist in any part of the ocean, though they are almost universally diffused over the surface of the earth. I am persuaded that all these lost species formerly subsisted during the time that the temperature of the earth and waters was warmer than it is at present; and that, in proportion as the globe cools, other species, which now exist, will perish like the former, for want of heat sufficient to support them.

2. That some of those enormous bones, which I thought had belonged to unknown animals, whose species was supposed to be lost, have nevertheless, after the most accurate examination, appeared to belong to the elephant and hippopotamus, but to species of these animals much larger than those which now exist. Of land-animals I know only one species which is lost; and it is that of the animals whose grinding teeth, with their just dimensions, are represented in plates CCCII, CCCIII, CCCIV. The other large teeth and bones which I have collected belonged to the elephant and hippopotamus.

* Mem. de Physique de M. Grignon, p. 378.