

ADDITIONS to the Article concerning
Shells, and other Productions of the Sea, found
in the interior Parts of the Earth, Vol. I.
p. 188.

I.

Of Fossil and petrified Shells.

FROM what I have written, p. 202. on the
subject of the Italian letter, in which it is
remarked by this author, that *the pilgrims brought*
from Syria, in the time of the Crusades, those
shells peculiar to the Levant, which are now
found petrified in France, in Italy, and in other
parts of Christendom, I find that I have not
treated M. de Voltaire with sufficient respect.
I acknowledge, that I should rather have taken
no notice of this opinion, than revived it with
a jest, especially as humour is not my talent,
and as this is perhaps the only example of
pleasantry in all my works. M. de Voltaire is
a man whose superiority of genius merits * the
highest regard. I was furnished with this letter
at the very time I was correcting the sheet which
contains the passage in question. I read part of
it only, imagining it to be the production of
some learned Italian, who, from mere historical

* This apology was published in the year 1778.

knowledge, had followed his own prejudices,
without consulting Nature; and it was not till
after my volume on the Theory of the Earth was
printed, that I knew the letter was written by
M. de Voltaire. I then sincerely regretted the
expressions I had used. This truth I thought it
incumbent on me to make public, as well for the
sake of M. de Voltaire, as for my own and that
of posterity, to whom I would not leave a doubt
of the high esteem I have always had for a man
of such uncommon talents, and who has done
so much honour to human nature and to the age
in which he lived.

As the authority of M. de Voltaire made an
impression upon some persons, others have en-
deavoured to discover whether his objection,
with regard to the shells found below ground,
has any foundation. Upon this subject, I shall
subjoin an extract of a memoir which was trans-
mitted to me, and which appears to have been
written with that intention.

In traversing the different provinces of France,
and even of Italy, 'I every where saw,' le P.
Chabernat remarks, 'figured stones; and, in par-
' ticular places, their number was so great, and
' they were arranged in such a manner, that it
' was impossible not to be satisfied, that these parts
' of the earth had formerly been covered with
' the sea. I saw shells of every kind, which were
' perfectly similar both in figure and size to those
' which now exist. This observation was suffi-
c 2 cient

‘ cient to convince me, that all these individuals
 ‘ were of different ages, but of the same species.
 ‘ I saw cornua ammonis from half an inch to
 ‘ near three feet in diameter. I saw cockles of all
 ‘ sizes, as well as other bivalves and univalves.
 ‘ I likewise saw belemnites, sea mushrooms, &c.

‘ The form and number of these figured stones
 ‘ prove, in the most incontestible manner, that
 ‘ they were formerly animals which existed
 ‘ in the ocean. The shells with which the
 ‘ moulds are covered seem to remove every
 ‘ doubt upon this subject; for, in particular specimens,
 ‘ it is equally lustrous, fresh, and natural,
 ‘ as in the living animal. If separated from
 ‘ the mould or nucleus, we could not believe
 ‘ that it was petrified. The same observation is
 ‘ applicable to many other figured stones found
 ‘ in that beautiful and extensive plain which
 ‘ stretches from Montauban to Toulouse, and
 ‘ from Toulouse to Alby, as well as to the circum-
 ‘ jacent places. The whole of this vast plain
 ‘ is covered with vegetable soil from half a foot
 ‘ to two feet thick. Below the soil there is a bed
 ‘ of coarse gravel about two feet in thickness.
 ‘ The gravel is succeeded by a bed of fine sand,
 ‘ which is nearly of an equal thickness; and the
 ‘ rock lies immediately under this bed of sand.
 ‘ I have repeatedly examined the gravel with the
 ‘ greatest attention, and I found it interperfed
 ‘ with an infinite number of figured stones of

‘ the

‘ the same form, but of various sizes. I likewise
 ‘ found a number of sea hedge-hogs, and other
 ‘ stones of a regular figure, and perfectly similar.
 ‘ All these facts announce, in language the
 ‘ most expressive, that this country, as well as
 ‘ many others, had formerly been the bottom of
 ‘ the sea, which, by some sudden revolution, had
 ‘ retired, and left its various productions behind.
 ‘ I shall, however, suspend my judgment, on
 ‘ account of M. de Voltaire’s objections, to re-
 ‘ move which, experience and observation must
 ‘ be united.*

Le P. Chabenat next subjoins several experiments,
 to prove that the shells found in the earth are the same
 with those which still exist in the sea. These experiments
 I shall not relate, because they contain nothing new;
 and every man is satisfied, that fossil and marine shells
 are precisely of the same nature. Le P. Chabenat
 concludes his Memoir with remarking, that ‘ all the
 ‘ shells found in the bowels of the earth are un-
 ‘ questionably real shells, and relics of animals
 ‘ whose element is the ocean, which had formerly
 ‘ covered these countries; and, consequently,
 ‘ that the objections of M. de Voltaire are ill
 ‘ founded*.’

* Memoir Manuscrit for les Pierres Figurées, par le P.
 Chabenat, Montauban, Or. S. 1773.