

modifies the quality of the marl beneath it. The cause of this is apparent. The superincumbent earth (understanding thereby the whole mass of materials covering the marl) consists either of clay, gravel or sand, or a mixture of all these; and having it is presumed, been deposited upon the marl subsequent to its formation, it will, from a variety of causes, have become mixed with it. It is, however, more especially by infiltration that the marl becomes modified in consequence of the condition of the soil above it. If the latter contain fine particles of sand, as is very commonly the case, these will be taken up by the waters that traverse the soil, and so charged, will penetrate more or less deeply into the marl bed. Should the shells there be loosely scattered in their mineral envelope, which is also frequently sand, the whole of their calcareous particles may be dissolved and become replaced by a silicious deposit. The bed of fossils will in this case, at least in its upper portions, exhibit an accumulation of indurated *casts* alone of shells. Such is the case in many places on Chew's Island, in some of the fossil deposits of Skipton creek, and in several places on the Wye. It is evident that then the material cannot be used as marl. When again the superincumbent soil is ferruginous, it very generally happens that the shells are bound together by an argillo ferruginous cement extremely hard, which unfits them for use not only in this respect, but also by substituting for the calcareous ingredient which they originally contained a predominating constituent of oxide of iron, which cannot be beneficial to the soil.

It must be borne in mind, however, that this sort of disnaturing of the shell marl is most generally confined to the upper portions of the deposit. Hence, if in the search after marl, these silicious or ferruginous incrustations are met with, they should always be removed to ascertain the nature of the material beneath. There is a very remarkable example of a thick coat of silicious incrustations covering very excellent marl, on the estate of William Carmichael, Esq. on Back Wye, Queen Anne's county.

As to the fossil constituents of the shell marl deposits on the Eastern Shore of Maryland they are very