

from water holding iron in solution. The deposits of most other kinds of ore appear to have been completed at periods more or less remote, but in some localities bog ore continues to be formed in the present day. This is evidently taking place in several of the more southern counties of Maryland.

It abounds in numerous localities in Worcester and Somerset counties, and also in Caroline and in the north-eastern parts of Dorchester, and in a few localities in Charles county. It consists of irregular beds varying from six inches to two feet in thickness, lying just under the surface of the bog or marsh. In searching for it the workmen probe the ground with iron bars, the penetration of which is little resisted by the marsh muck, but is arrested by the harder iron ore.

Bog ore invariably contains phosphoric acid, which when the proportion is one or two per ct. impairs the quality of the metal by rendering it cold short. For this reason, therefore, it seldom answers to smelt it alone. A small proportion of bog ore mixed in the furnace with most other kinds, renders the smelting more facile without impairing the quality of the metal. In fact, when such mixtures are judiciously managed, the fusibility of the metal is increased, and it is especially adapted for making smooth and handsome castings.

In former years some of the furnaces in the vicinity of Baltimore used the bog ore from Worcester county for this purpose, and it will again be wanted whenever the business of iron manufacture shall revive.

The geological position of these ores is among what is technically termed "recent," by which is meant such as continue to be formed in the present day. They rest upon the newest tertiary or post pliocene.

The proportion of iron in these ores varies from 30 to 35 per cent.

b. *Carbonate of Iron in the counties of Cecil, Harford, Baltimore, Anne Arundel and Prince George's.*

On page 42 of the first report I took occasion to refer briefly to what I called *Iron ore clays*, numbered 22 in the table of formations. At that period it was believed that this formation should be placed with the formations of the *cretaceous period* in geology. Since then, however, I am disposed to place it at least as low as the oolitic period. M. Agassiz, to whom I exhibited a photograph of the fossil *Cycas*, (noticed in the first report, and of which I have discovered several specimens in this formation,) fully agrees with me in this regard.

These clays possess an especial interest to us from the existence therein of large deposits of iron ores, from which it is believed the first pig iron was made in this State. The quality of the metal is very superior.