

On the west side of the South mountain near its base, there are other varieties of hematite to which *pipe* ore and other local names have been given. Those near the Potomac were long used at the Antietam furnace, and the iron therefrom always possessed a high reputation for its strength. The ore occurs at many points along the base of the mountain. It occurs again at the base of the North mountain near the Potomac river, and is now smelted at the furnace of J. Dixon Roman, Esq., near to old Fort Frederick, and upon the site of a furnace erected before the revolutionary war.

Westward of this, it is believed there are no important beds of hematite, but there are ample supplies of other iron ores which will be spoken of presently.

3. *Specular iron ore*—(Red oxide of iron.)

The ores of this species present themselves under different aspects, but they may be very easily distinguished from other ores, from the fact that when powdered the color is always dark red, whilst that of bog ore and hematite is yellowish brown. Some varieties which have a crystalline or a compact structure with a metallic lustre, resemble the magnetic iron ore: but the powder of the latter is nearly black and it is attracted by the magnet which has no effect upon the specular and red oxides.

When pure, this ore contains 70 pr. ct. of iron, but it is always more or less mixed up with earthy matters. The richest ore of this kind in Maryland is in the eastern part of Frederick county, where it constitutes one of the minerals of the metalliferous district between the Monocacy and Parr's ridge, which will come under our notice in treating of the copper ores of that region. I have noticed pieces of very rich ore lying upon the surface south of Liberty, but I believe no attempts have been made to ascertain whether it can be had in available quantities. And the same may be said of the specular ores in the Catoctin mountain.

One of the most important iron ores and which supplies a large proportion of the Pennsylvania furnaces, occurs in the surgent shales (14 a) in the table. These pass through Maryland on the western slope of the north mountain, and again in narrow belts along several lines further west, but without furnishing available quantities of ore, until we reach Sideling hill and Townhill. Little, however, has been done in developing the ore except at Wills mountain, on both sides of which it has been extensively mined for the Mount Savage iron works. It extends southwestward into Virginia, and has been mined for the use of the Lonaconing and Mt. Savage furnaces.

In this formation it is interstratified between the calcareous shales containing fossil shells, which has caused the distinctive name of fossil ore to be given to it. Some of its layers contain phosphoric acid in sufficient proportion to affect injuriously the quality of the metal. The general color of the fossil ore is reddish and it is without metallic lustre, but glistening scales of the specular oxide are not uncommon.

In the lower part of the formation we have what is called the "Hard ore" containing from 25 to 30 pr. ct. of iron mixed with grains of sand. This is too silicious to be smelted without being mixed with other kinds of ore.

4. *Magnetic oxide of iron.*

This is the richest ore of iron, and when pure (as it is sometimes the case in Sweden,) contains seventy-two per ct. of metal. It is usually however, more or less mixed up with earthy matters, and sometimes contains the oxides of titanium and manganese.

It has a metallic lustre and a dark grey or almost black color, the latter being also the color of its powder. It strongly attracts the magnetic needle, and when in small grains it is attracted by the magnet. Some of its varieties are sufficiently magnetic to attract iron filings or a small needle; hence the name of loadstone which was formerly applied to it.

These characters distinguish it from all other ores of iron.

It occurs in small quantities about seven miles west north-west from Balti-