## 1866.] MACFARLANE—ON CUPRIFEROUS BEDS.

sustaining at the same time a loss of 1.32 p.c. No effervescence is produced by hydrochloric acid, which dissolves out from the rock 32.44 per cent. of bases, consisting of

Alumina	7.52
Peroxide of iron	15.04
Lime	4.34
Magnesia	5.54

which, doubtless, principally belong to the chloritic mineral. The residue contains a very small quantity of the heavier and darker constituent which was found in the rock first described. The residue is not decomposed by concentrated sulphuric acid.

Next, in downward succession, comes the cupriferous bed generally known as the ' Pewabic Lode,' although it possesses none of the characters of a vein. It has a thickness of about 12 feet, and in places resembles the rock which constitutes the foot-wall of the mine, into which it seems to graduate. In its characteristic varieties it differs, however, completely from that rock. It is a reddish-brown or chocolate coloured uncrystalline rock with amygdaloidal structure and uneven, almost earthy fracture. The matrix sometimes contains some small amygdules, which are not always completely filled, and thus render the rock porous. The matrix is fusible to a black, slightly magnetic glass. It is in places impregnated with grains of metallic copper, from the minutest size to those having a diameter of a tenth of an inch. Those of a still larger size very generally project from the matrix into the amygdules, or form rounded particles lying entirely within these cavities, and filling them. The copper is here accompanied by a mineral of a light green colour, very soft, and separable from the rock as a green powder. It fuses before the blowpipe to a black slightly magnetic glass. On ignition it changes to a light yellow colour losing 0.4 p. c. of its weight. It is decomposed by hydrochloric acid and the resulting solution contains protoxide as well as peroxide of iron. On analysis, it gave the following results, in which all the iron is calculated as protoxide, and the difference between it and peroxide put down as water

Silica	46.48
Alumina	17.71
Protoxide of iron	21.17
Lime	9.89
Magnesia	trace