

The ore was also tested at the steel works of Charles Cammell & Co., Sheffield, England, who made steel direct therefrom, using only "a little lime and charcoal to act as a flux," this steel was "forged or drawn out under the hammer into a rude ingot;" it was also taken in hand by Edward Riley, Esq., F.C.S., metallurgist, analytical, consulting chemist, one of the leading members of the Steel and Iron Institute of London, England. The first test contained too small a portion of charcoal, making a mild steel. See letter May 22nd.

Laboratory and Assay Office,
14 Finsbury Square, City Road,
LONDON, May 22nd, 1874.

DEAR SIR,

Herewith I beg to forward you the result of my analysis of the sample of specular iron ore received from you, several pounds weight of the sample pulverized together gave:—

Peroxide of Iron.....	89.04
Protoxide of Iron	7.92
Alumina	.32
Lime	.56
Magnesia	.40
Silica	1.77
Phosphoric Acid	.21 = ^{Phosphorus} _{.003}
Sulphur.....	.04
	100.26

Metallic Iron per cent..... 68.49

This ore is specular iron ore, containing a little magnetic oxide, I carefully tested it for titanac acid, but could not detect any, or any manganese.

The silica contains a little rock, consisting of mica and micaceous shist, the quantity is however so small that it could not be separated.

I ran down 1,500 grains of the ore in a small crucible, using only a little manganese and fluor spar, with wood charcoal, the result was a well formed button, weighing 1,040 grains.

This button was worked by a smith into a cold chisel without a crack or flaw, (although the shape of the button was most unfavourable). The steel was too soft to take a temper, shewing it to be a mild steel, due to too little charcoal being used to make a hard tool steel.

Believe me to remain,
Yours very faithfully,

EDWARD RILEY, F.C.S.,
Metallurgist, Analytical and Consulting Chemist.

To EDWARD HAYCOCK, Esq.

P.S.—The ore was run down at the first trial most readily.