

which water dis-  
solved 20.4 grains;

per cent, 100 grains  
of salt were  
rains, from which  
nearly ninety-eight  
percent rendered soluble.  
partial to producing  
peated, the iron  
ing and lixiviat-  
it is, seventy per

lates of fire-clay  
e used was pre-  
lixivating and  
er approxima-  
be adopted in  
mixtures were  
ited billets of  
seen that the  
from the ore  
near Lennox-

8.60  
30.31  
34.34  
26.75  
—  
100.00  
—  
ical compo-

24.72  
19.79  
26.75  
—  
1.26  
ted of one  
rth rock.  
e purpose  
quantity

10,000 grains of the ore were first calcined with 2,000 grains of salt, and without oxide of iron. The result weighed 10,860 grains. Water extracted from it 0.8 per cent of copper, and diluted sulphuric acid dissolved further a quantity of flocculent matter containing 1.8 per cent. Of the 860 grains copper contained in the original ore there were therefore,

|                               |                             |
|-------------------------------|-----------------------------|
| Dissolved by water.....       | 86.88 grains = 10 per cent. |
| Dissolved by dilute acid..... | 195.48 " " 22 "             |
| Left in the residue.....      | 577.64 " " 68 "             |
|                               | <hr/> 860.00                |

The product of the foregoing experiment after lixiviation and drying assayed 6.4 per cent. copper. A second calcination was performed with it and other substances having copper contents, as follows:

|                                                                                     |                      |
|-------------------------------------------------------------------------------------|----------------------|
| 400 grains lixiviated product of above experi-<br>ment containing 6.4 per cent..... | = 256 grains copper. |
| 2000 grains fresh ore of 8.6 per cent.....                                          | = 172 "              |
| 1200 grains salt.....                                                               | —                    |
| 7200 grains mixture with.....                                                       | 428 grains copper.   |

After being calcined in the usual manner the whole weighed 7850 grains, and contained four per cent of copper soluble in water slightly acidulated with sulphuric acid, and 1.11 per cent of copper insoluble therein. Of the 428 grains there were therefore,

|                      |                   |
|----------------------|-------------------|
| Dissolved.....       | 314 grains.       |
| Left insoluble.....  | 87 "              |
| Unaccounted for..... | 27 "              |
|                      | <hr/> 428 grains. |

Thus 73.3 per cent of the original copper contents were obtained in a soluble form.

The product of the foregoing experiment was, as in the first case, lixiviated and dried. It then contained  $1\frac{1}{3}$  per cent of copper, and was calcined a third time, with fresh ore and salt in the following proportions:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| 4800 grains residue with $1\frac{1}{3}$ per cent.... | = 64.0 grains copper. |
| 2400 grains fresh ore of 8.6 per cent.....           | = 204.5 "             |
| 1440 grains common salt.....                         | —                     |
| 8640 grains, containing.....                         | 270.4 grains copper.  |