

Metallurgy and the Industrial Revolution

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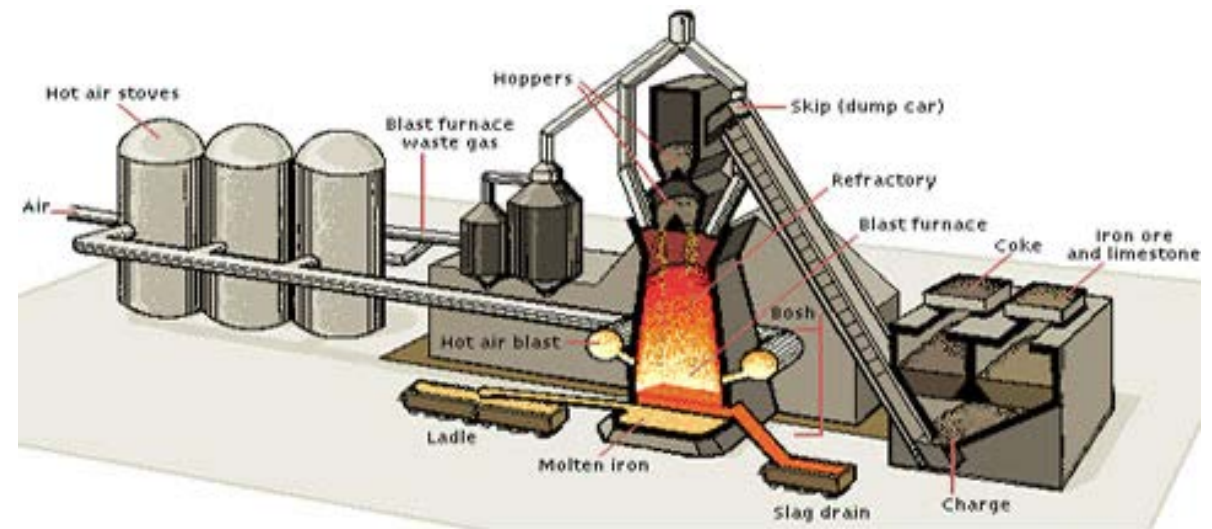
Charcoal was originally used in smelting

- Although charcoal kinda worked, it didn't get as hot as coal
- Charcoal has a combustion temp of up to 1,300 degrees while coal has a combustion temp of up to about 2,100 degrees.



First coal blast furnace

- The first attempt was believed to be used by the English metallurgist Dud Dudley in the 1620s
- His experiments were mostly scientific and didn't benefit anybody



Sir Clement Clerke

- Originally was a sponsor of Dudley's experiments
- Improved upon Dudley's method by using a reverberatory furnace
- This furnace isolated contact from the material being in contact with the fuel
- This helped to remove coal impurities from the metal

The Darby dynasty and the industrial revolution

- The Darby family has been given a large amount of credit for helping the industrial revolution with the push it needed
- Starting with Darby I he was the first to use coke in his industrial furnace.
- Coke is coal that has been burned in the absence of air and when used in a furnace it burn really hot
- Darby I used coke, charcoal, and peat to smelt cast iron and thus began a new era in the metallurgical age
- Interesting fact: Historians believe that the great-grandmother of Abraham Darby I was Dud Dudley's sister

Darby dynasty

- Darby II came up with the idea of using only coke in smelting
- This helped bring his foundry to be one of if not the leader in iron production In Great Britain.

Iron Bridge

- Darby the III was commissioned to build a bridge that connected two towns together
- No one in the world has experience building such a large infrastructure from metal
- Almost 385 tones of iron and consists of 1,700 parts
- Bridge remained in use until 1935



Metal Consumers

- Great Britain was a leader in the metallurgical industry
- In 1875 it accounted for 47% of global production of pig iron and nearly 40% of steel