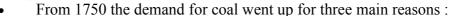


The Coal Industry

Why did the demand for coal increase?



- i) There was a shortage of wood
- ii) Coal was being used to heat more homes
- iii) More industries were using coal such as iron making and steam engines.

What problems did the increased demand for coal cause?

- Mine shafts would have to dug deeper to reach the coal seams.
- Miners would have to travel a lot further to reach the coal face

What were the main problems / dangers mining coal?

Problem One - How do you get the coal out without causing the roof of the mine to cave in?

Old solution - Wood posts (pit props) were used to hold the roof up but these rotted

New solution - Iron and steel pit props were used. These lasted a lot longer.

Problem Two - How do you avoid flooding in the mines?

- As the mine shafts got deeper and deeper they started to fill up with

water and flooding would happen very quickly

Old solution - Leather buckets were filled with water and carried up to the surface

New solution - **Thomas Savery** in 1698 invented a steam pump

- **James Watt** in 1776 invented a steam engine this was used to pump

the water out of mines

Problem Three - How do you avoid 'bad air in the mine?

- As mine shafts got deeper miners were at risk from two gases

a) Fire Damp – would explode on contact with a flame, the problem

was that miners carried candles for light

b) Choke Damp – would suffocate the miners

Old solution - For Fire Damp – ventilation shafts were dug to let fresh air in

For Choke damp – miners carried a canary in a cage

New Solution - For Fire Damp -. The main help for the miners was the

Safety Lamp. This was invented in 1815 by **Sir Humphrey Davy**. This lamp had a fine gauze around the candle and so it didn't give off enough

heat to light the gas.

For Choke Damp – Exhaust fans (which sucked the bad air out of the

mine shaft) were tried but didn't work well

Problem Four How do you get the coal to the surface?

Coal is heavy to carry so how do you get it along the mine shaft and

then out of it?

Old solution - Trucks were pushed along the mine shafts on wooden rails, but the rails

buckled.

- Baskets were carried up the mine shafts (normally by women!)

New Solution - Iron rails were used instead of wooden ones and pit ponies would pull

the truck.

- By 1780 horse powered winding gear was used to pull the coal to the

surface.

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