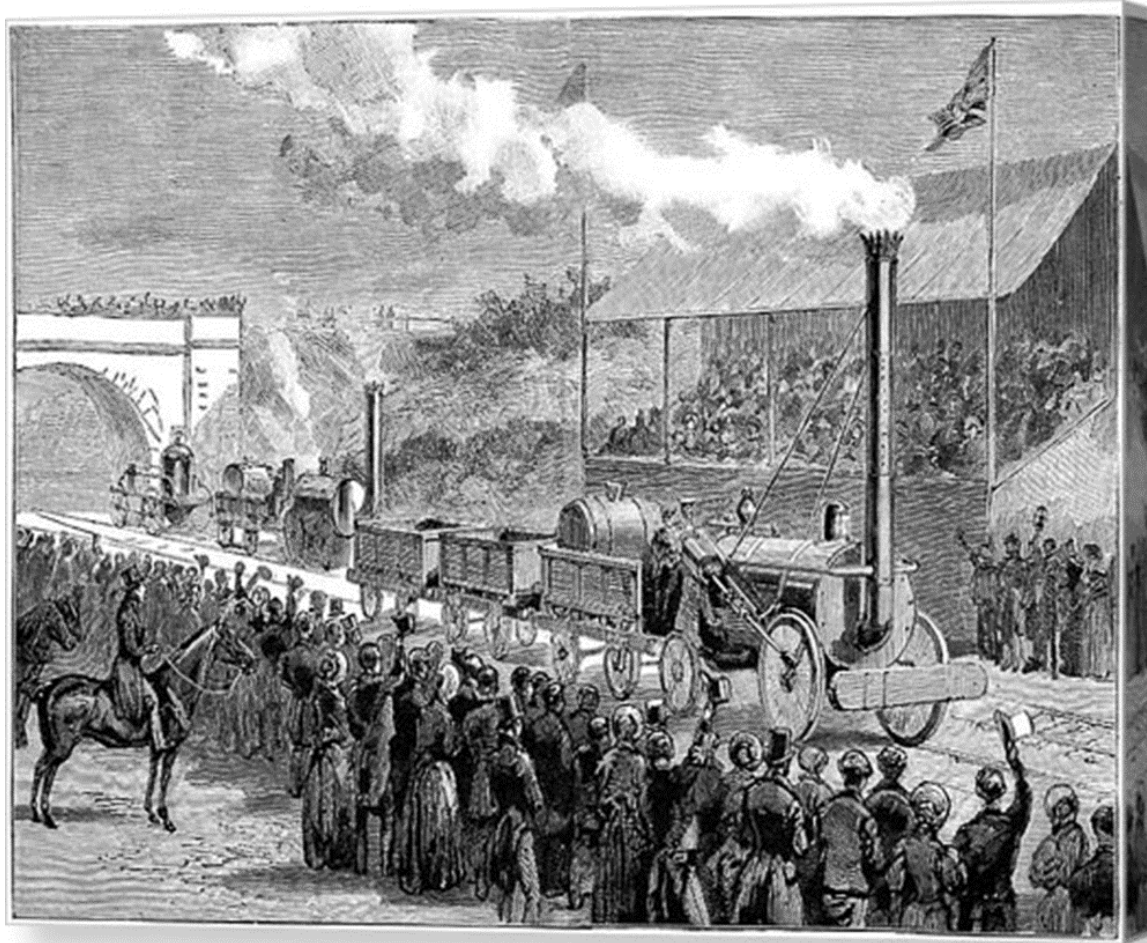


Big Question...



What do you think this is picture of and why is it famous?

January

L.O. I know what the Rainhill
Time Trails were and their
importance.

Key Skills

Year 3: I can identify primary and secondary sources

I can draw meaning about what life was like in the past from a range of sources and artefacts.

Year 4: I can identify primary and secondary sources and use them to infer meaning about the past.

I can draw meaning about what life was like in the past from a range of sources and artefacts.

Today's Knowledge

- 20th April 1825 Liverpool and Manchester Railway issued a challenge
- The Rocket was the only locomotive that completed the trials
- The Stephenson's were given £500 and the contract to produce locomotives for the L&MR.
- The world's first steam powered railway for passengers and goods

Today's Vocabulary

canal, locomotive, stationary engines, trials,
inter-city

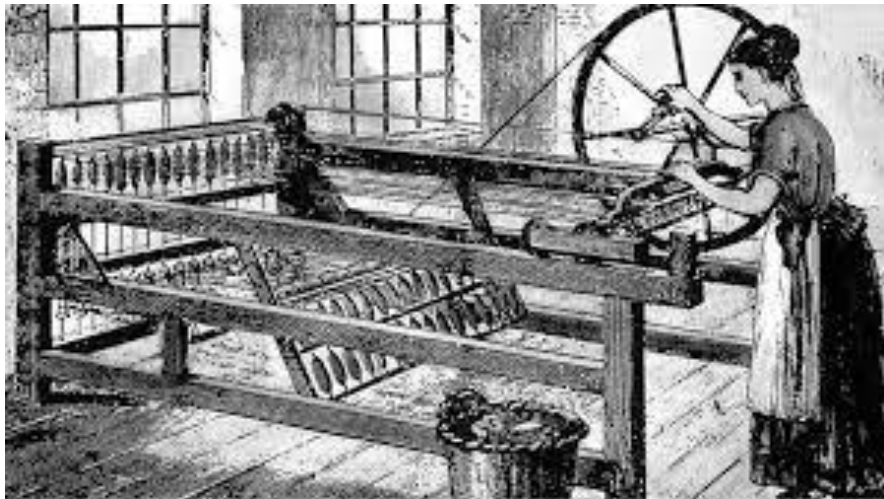
Historical Concepts

Legacy

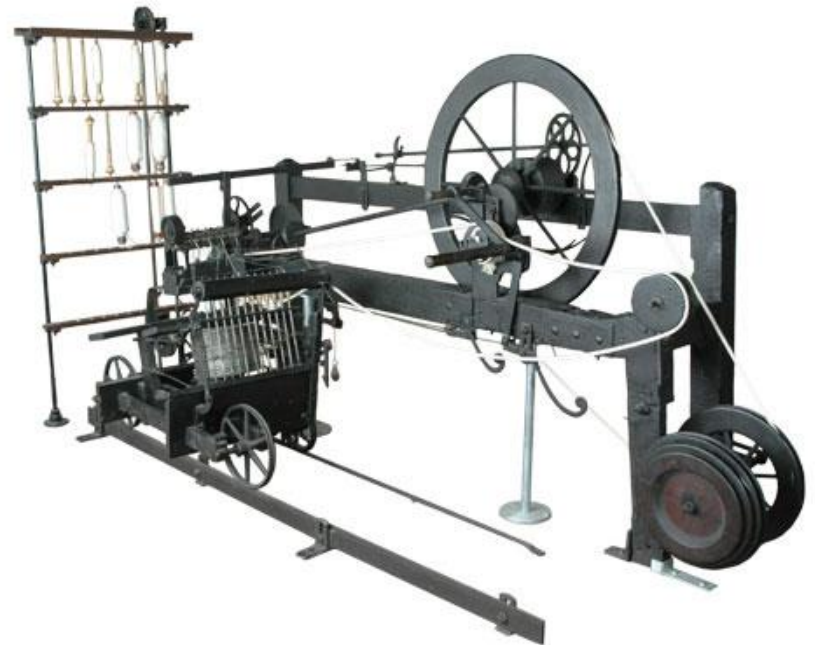


The demand for coal increased during the Industrial Revolution.
The textile industry in Manchester was growing rapidly due to inventions like...

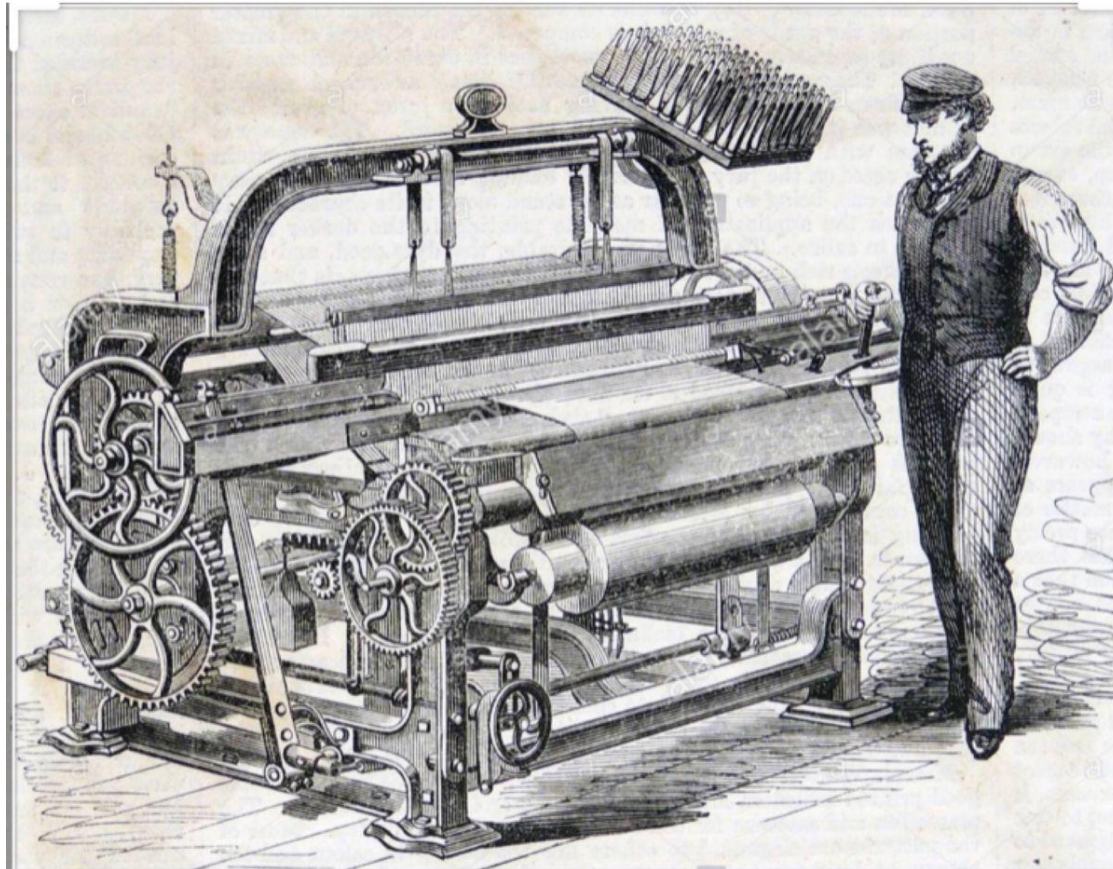
James Hargreaves
Spinning Jenny 1764



Samuel Crompton's Mule
1779



Then in 1785 Edmund Cartwright's Power Loom became the first steam powered weaving machine.



Between 1760 and 1770 James Watt's more efficient steam engines replaced water and horse power meaning factories could be built anywhere.

Steam engines started to be used to pull coal and other materials along tracks but George Stevenson had a great idea that he wanted to test...

'The Rainhill Story'

<https://www.bbc.co.uk/iplayer/episode/p01lw92v/the-rainhill-story-stephensons-rocket>

Watch 1:35 - 7:00 mins

CHALLENGE

20th April 1829 Liverpool and Manchester Railway issued a challenge.

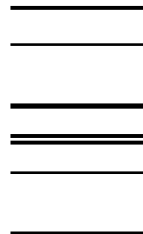
Your locomotive must be...

able to complete 10 return trips along 1.5 miles of track, simulating the 30-mile run between Liverpool and Manchester.

reliable

able to pull itself and 20 tonnes

able to travel at 10 m.p.h.



The winner would receive
£500 (£40,000 today) and
the chance to build more
locomotives.

TO ENGINEERS AND IRON FOUNDERS.
THE DIRECTORS of the LIVERPOOL and MAN-
CHESTER RAILWAY hereby offer a Premium of £500 (over
and above the cost price) for a LOCOMOTIVE ENGINE, which
shall be a decided improvement on any hitherto constructed, sub-
ject to certain stipulations and conditions, a copy of which may
be had at the Railway Office, or will be forwarded, as may be di-
rected, on application for the same, if by letter, post paid.
HENRY BOOTH, Treasurer.
Railway Office, Liverpool, April 25, 1829.

advertisement for the trials in the Liverpool Mercury, 1 May 1829

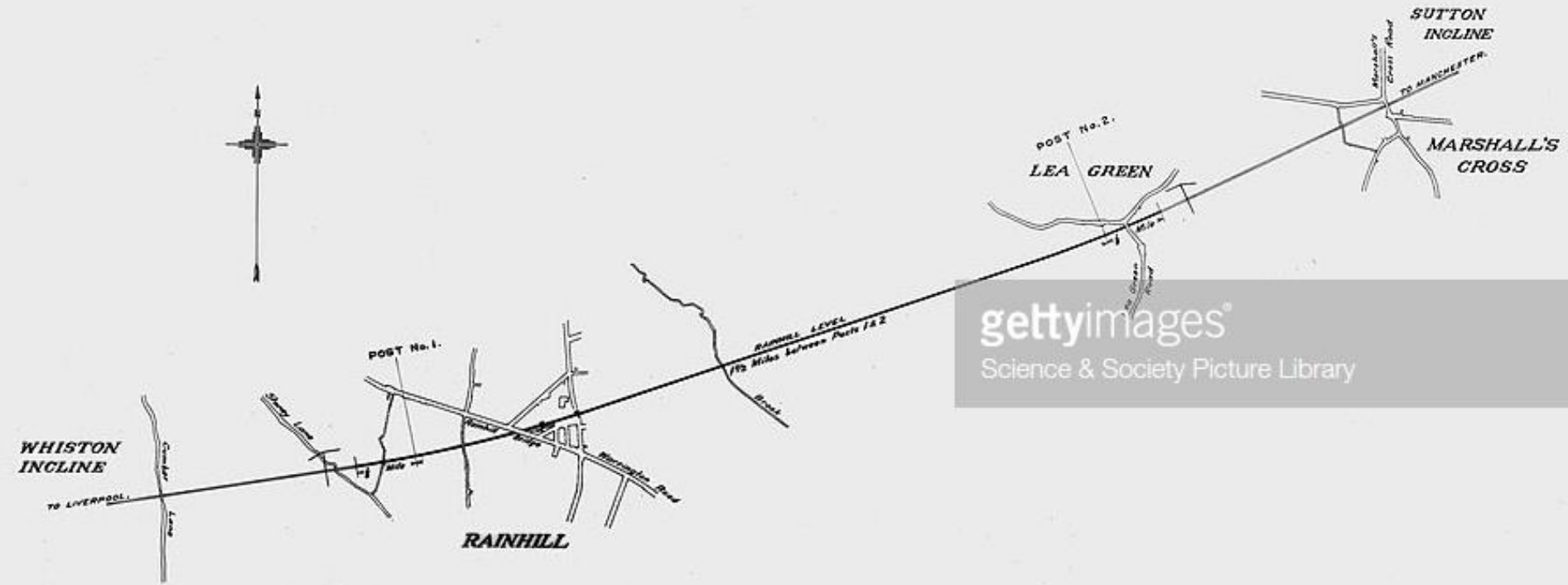


*'Near Whiston' From a series of colour
prints by T.T. Bury, published in 1831
by R. Ackermann*

LIVERPOOL & MANCHESTER RAILWAY. SITE OF RAINHILL TRIALS.

SCALE, 6 INS. = 1 MILE

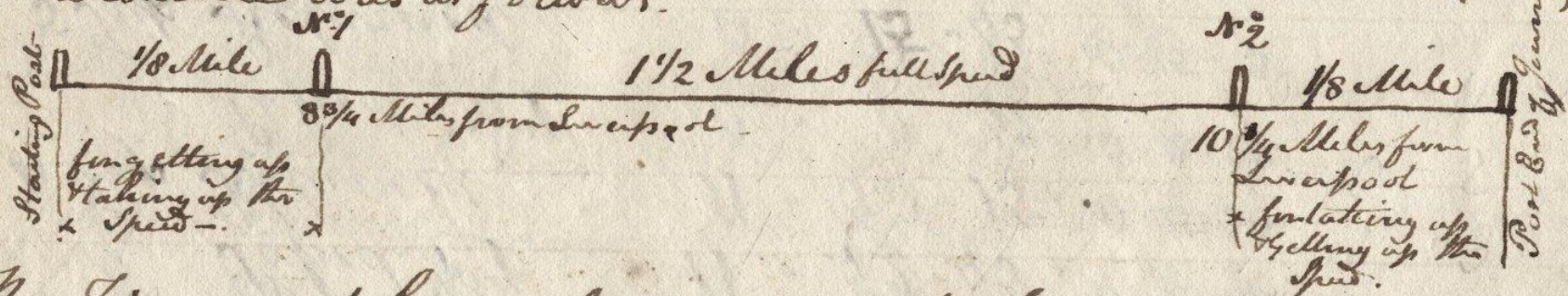
Rainhill was selected due to its level land.



Can you see Whiston on the map?

The start of the trial course was not far away from school
– Blundells Hill.

The Distance was as follows.

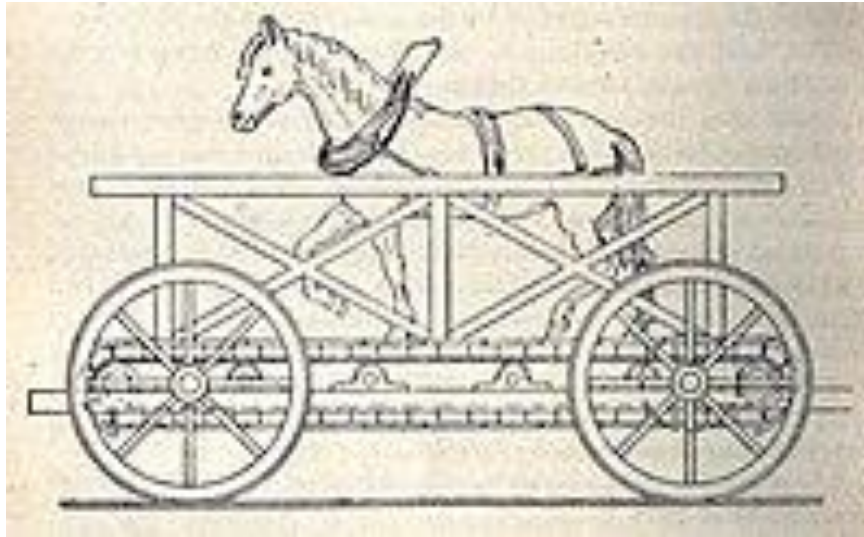


The Time was taken at Starting from the Starting Post and also - every time the Engine Passed the Posts No. 1 & No. 2, for Ten Trips & at the Conclusion of the first Journey the Time was taken when the Engine Returned to the Starting Post. The Number of trips was fixed at 10 & The distance travelled at full Speed was 30 Miles and the Total Journey was 35 Miles

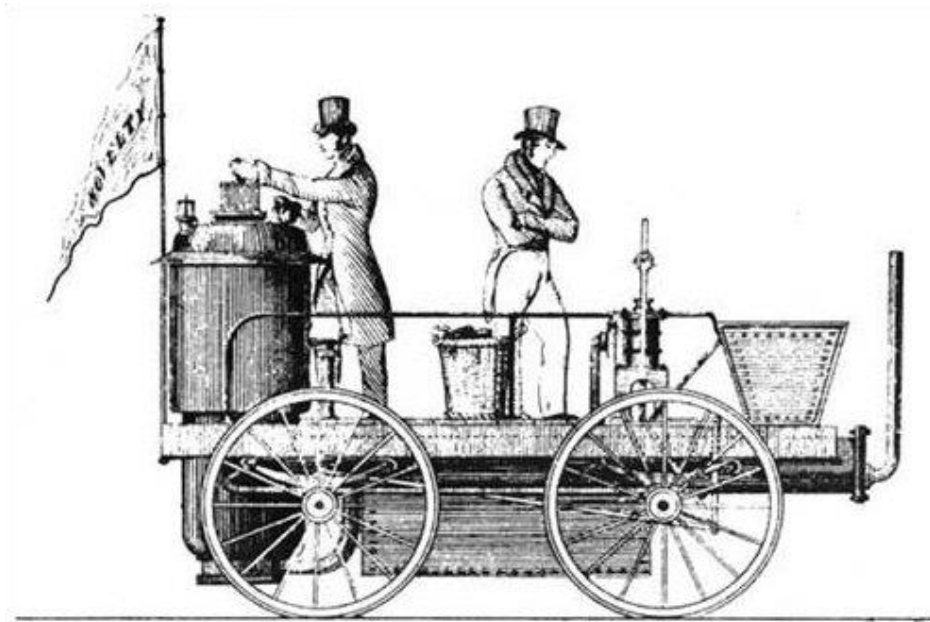
Handwritten description of the course by Rastrick, one of the judges.

There were 10 entries but
on the 6th October 1829
- only 5 locomotives
were available to run.

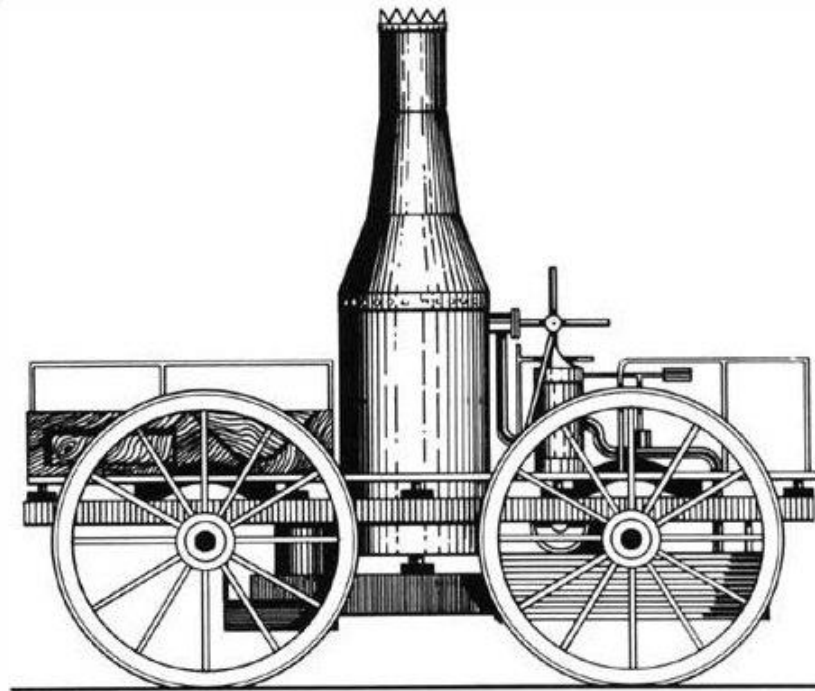
Brandreth's Cycloped - a horse powered locomotive



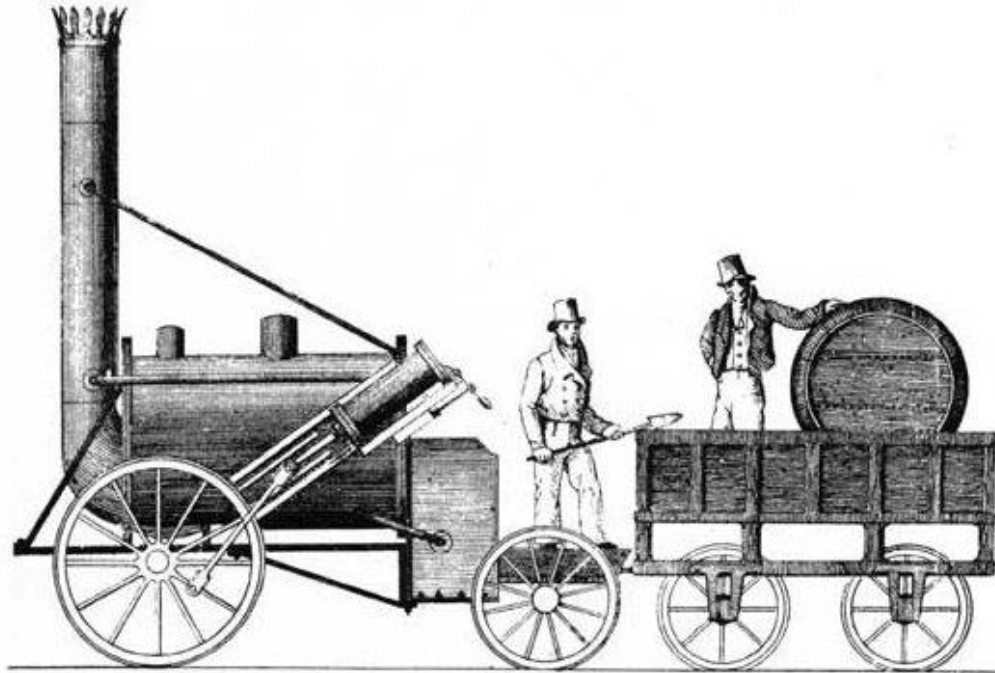
Ericsson and Braithwaite's Novelty - the world's first tank locomotive



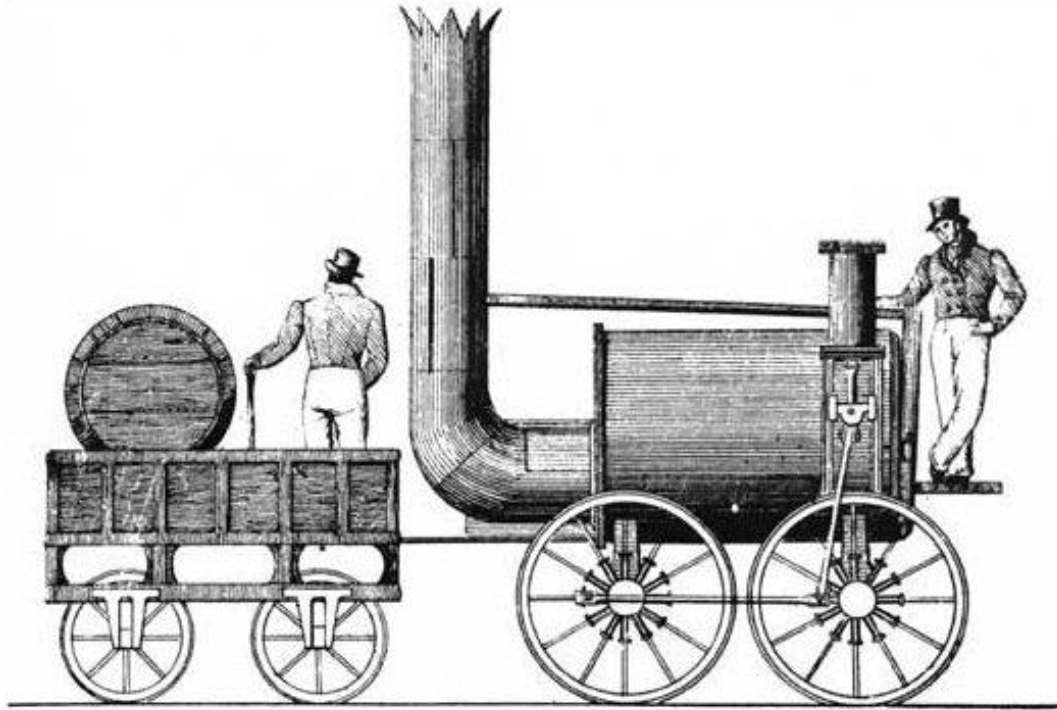
Burstall's Perseverance

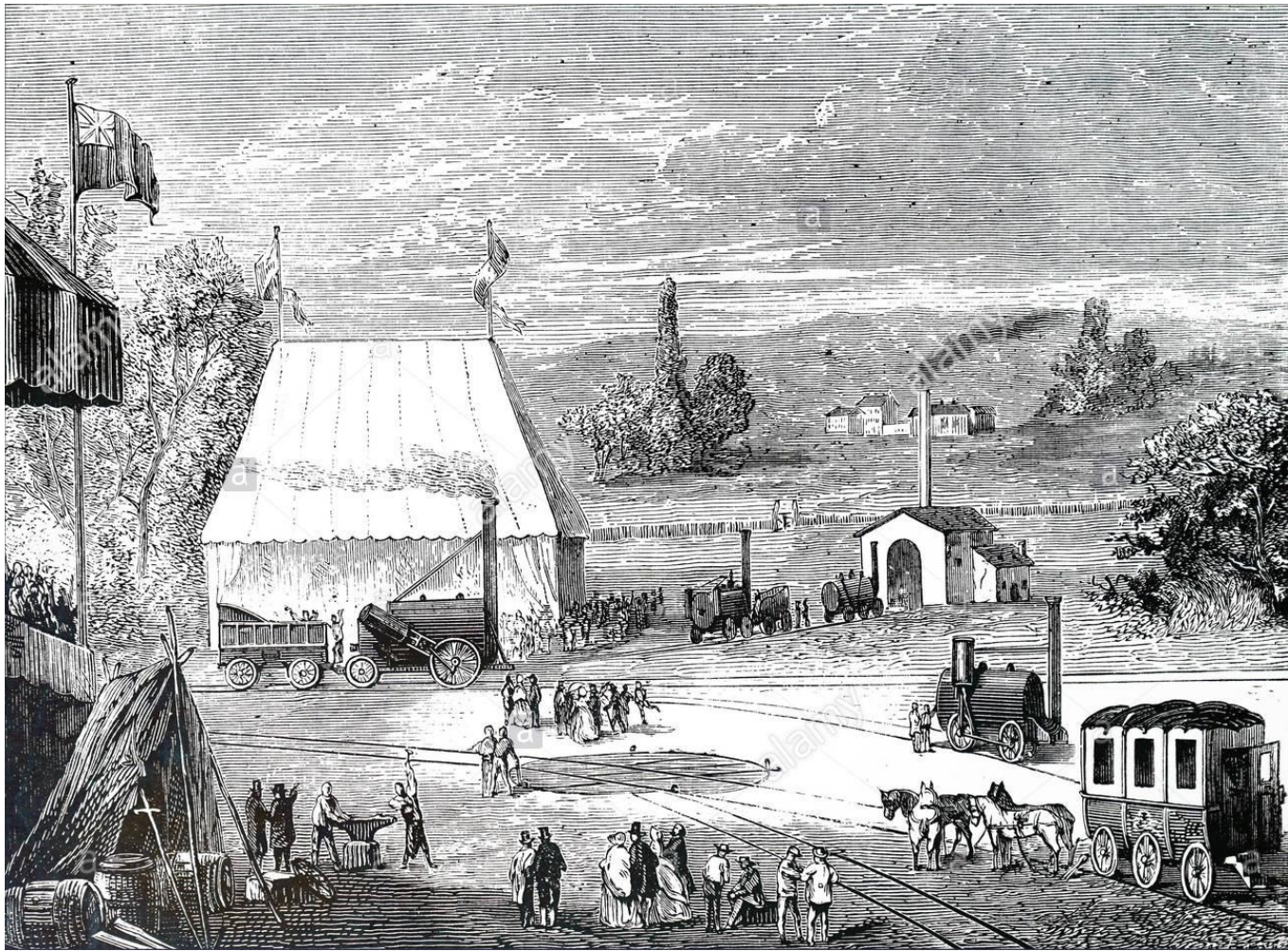


Stephenson's Rocket

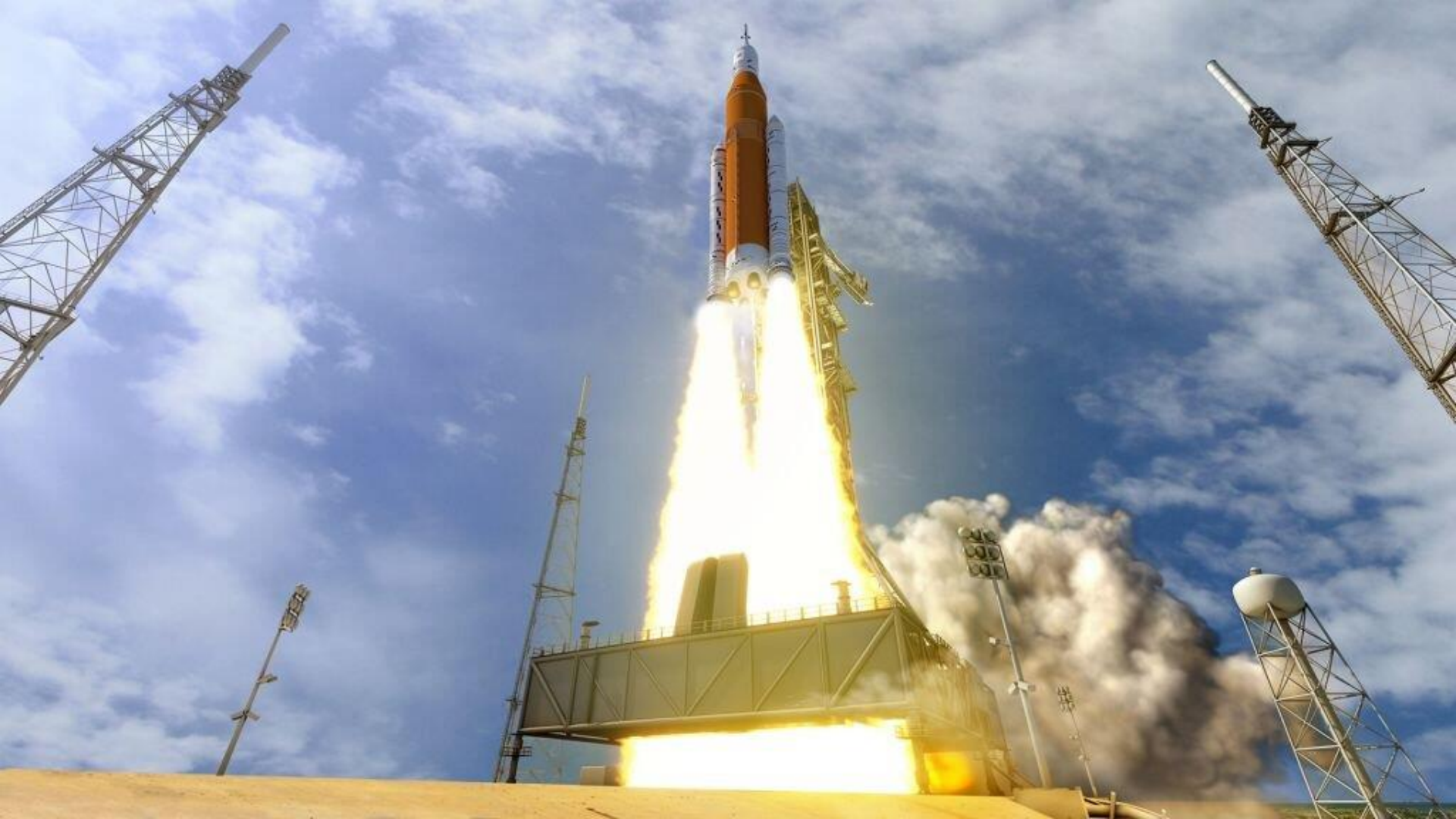


Hackworth's Sans Pareil (French for 'without equal')





More than 10,000 people came to watch the Trails. There was a brass band playing and lots of excitement. Remember, this was the most advanced technology on display!



*It would be like us watching a brand new
rocket taking off to Mars.
How do you think spectators felt watching
the locomotives?*

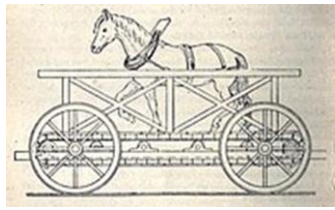
[Never] on any occasion were so many scientific gentlemen and practical engineers collected together on one spot.

The Times (1829)

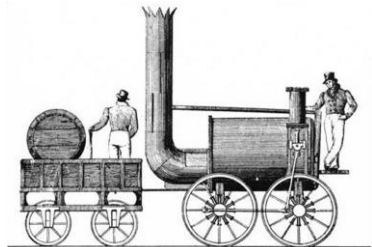
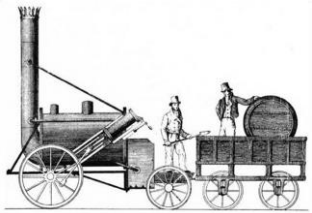
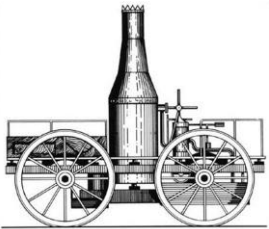
The Derby Mercury newspaper described the way Rocket "darted past the spectators", comparing it with the "rapidity with which the swallow darts through the air".

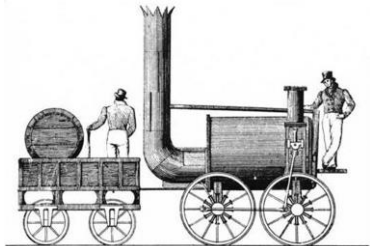
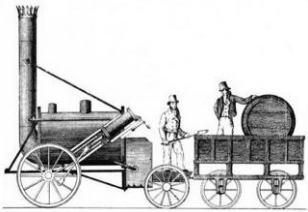
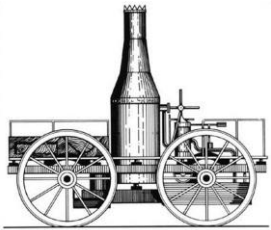


You could even buy commemorative mugs!

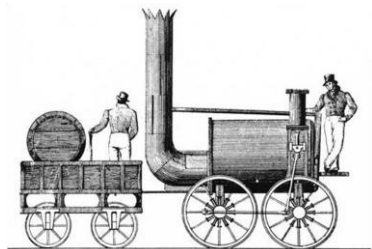
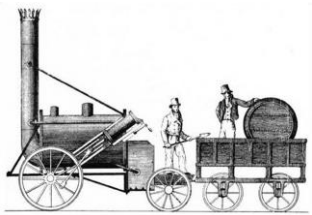
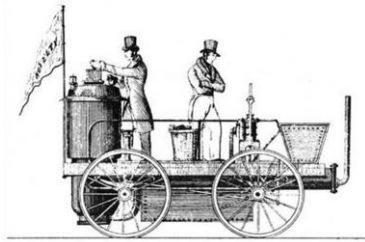


Cycloped was the first to drop out. It used a horse walking on a drive belt for power. There was an accident an the horse broke through the floor.

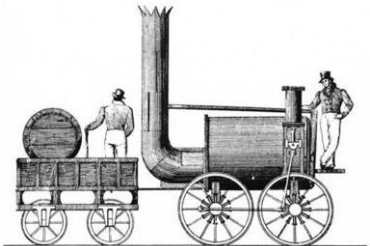
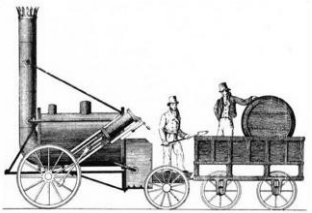




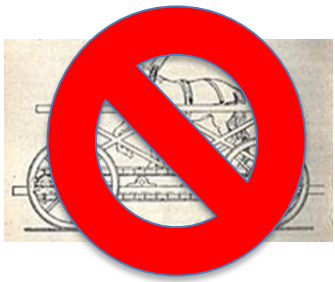
Perseverance was the next to withdraw. It was damaged on the way to the trails and only ran on the sixth day. If failed to reach 10 mph and was withdrawn receiving £25 - about £2020 now.



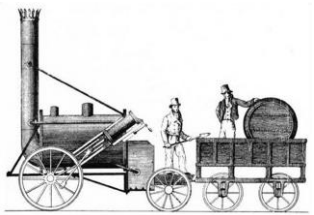
Sans Pareil completed 8 trips but then a part broke and it had to withdraw.

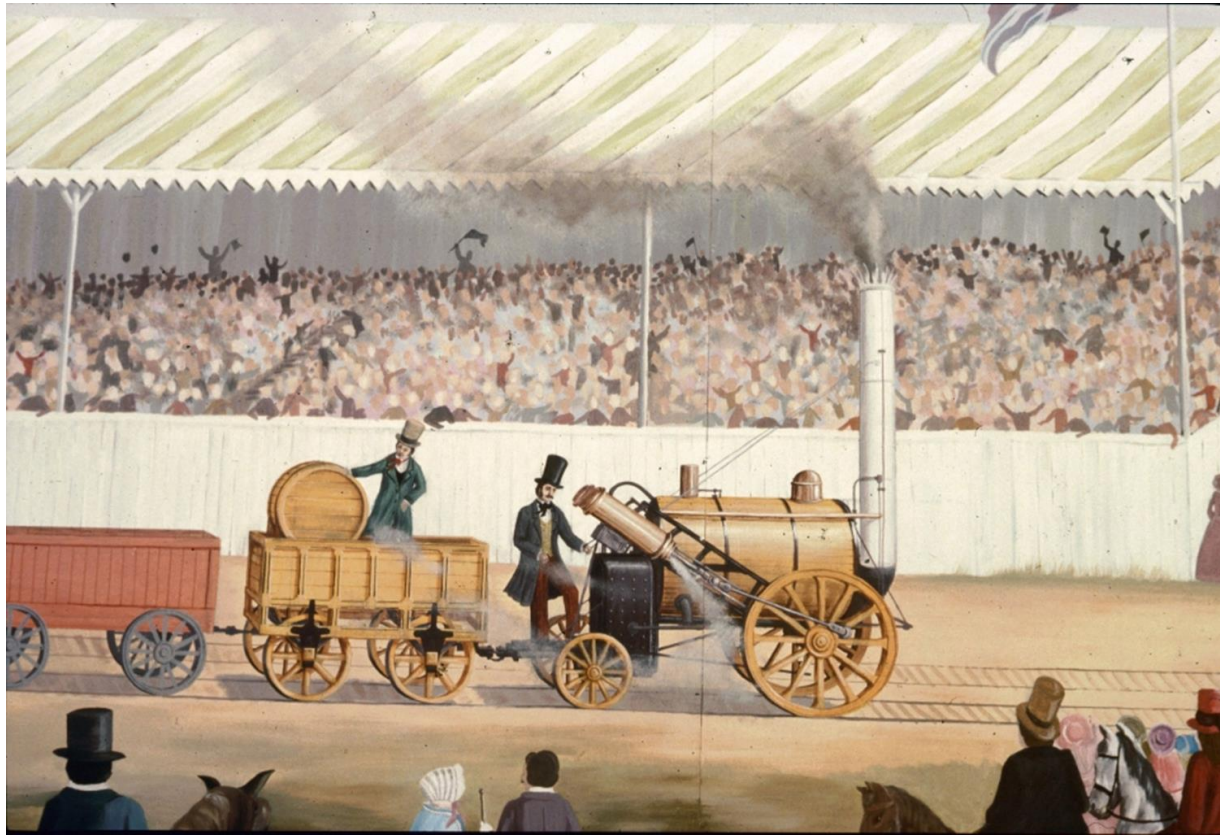


Sans Pareil completed 8 trips but then a part broke and it had to withdraw.

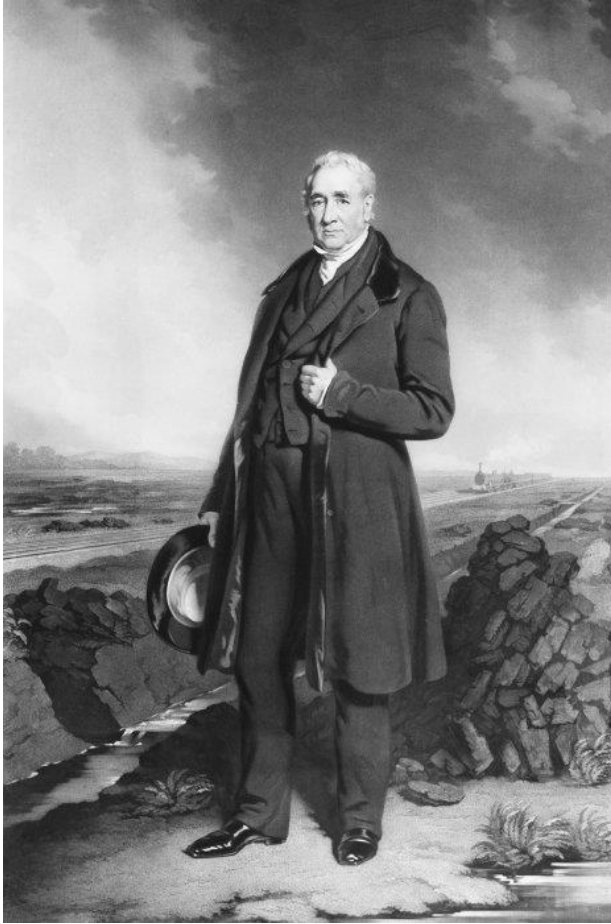


Novelty was the last to drop out despite reaching an amazing 28 mph on the first day. It broke down and was unable to continue.





The Rocket was the only locomotive that completed the trials. It averaged 12 miles per hour (19 km/h) and achieved a top speed of 30 miles per hour (48 km/h)) hauling 13 tons, and was declared the winner of the £500 prize. The Stephensons were given the contract to produce locomotives for the L&MR.



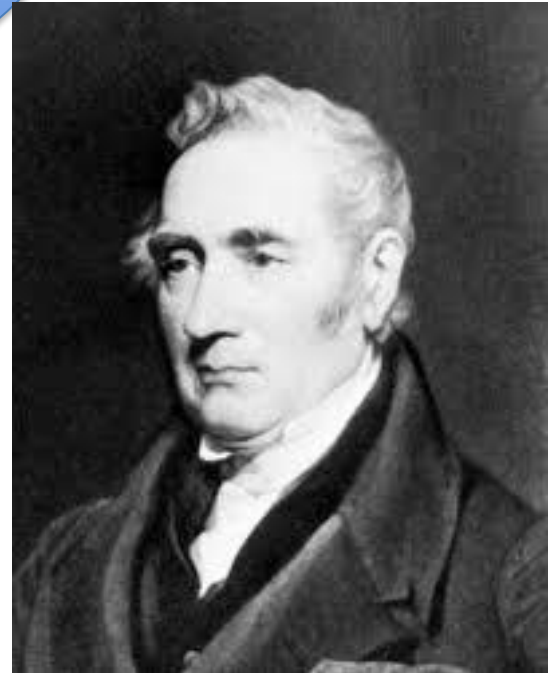
The Stephensons -
George Stephenson and his son Robert

What do you think the artist wants us to think about
these men?
How did they do it?

Rely upon it, locomotives shall not be cowardly given up. I will fight for them until the last. They are worthy of a conflict.

Robert Stephenson

What does this tell us about Stephenson's opinion of locomotives.



Notes from one of the observers notebooks showing the times of each locomotive



Oct 1029 And on Board at Hartley 8th 3-2 of Coke & 300 Gallons of Water.

Thursday

Lighted the Fire 9^h 37-0 } 0-57-0 Time of getting up the Steam

Steam up 10-34-0 } 0-2-50 Time taken up before starting

Started 10-36-30 } 0-2-50 Time taken up before starting

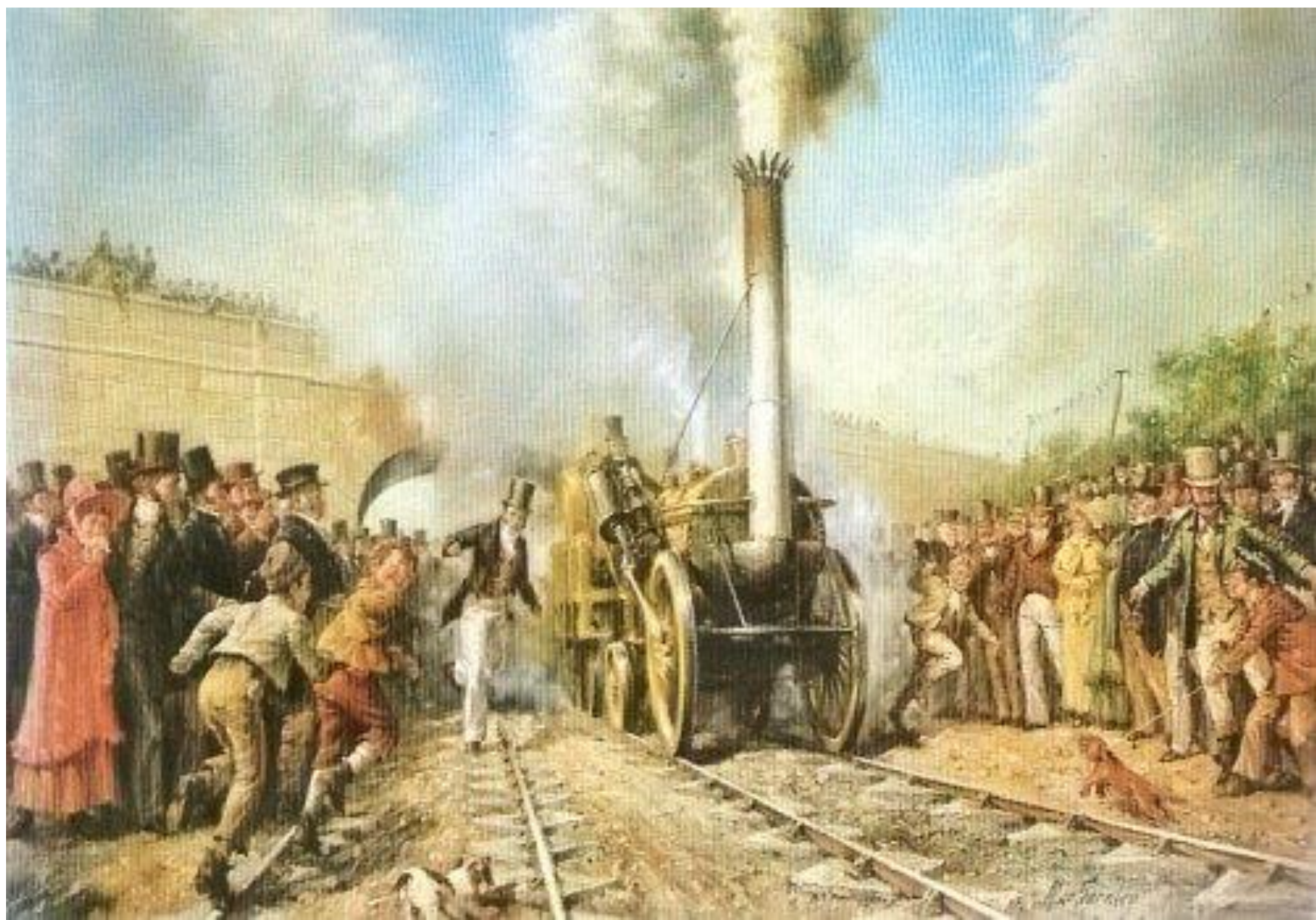
First Experiment

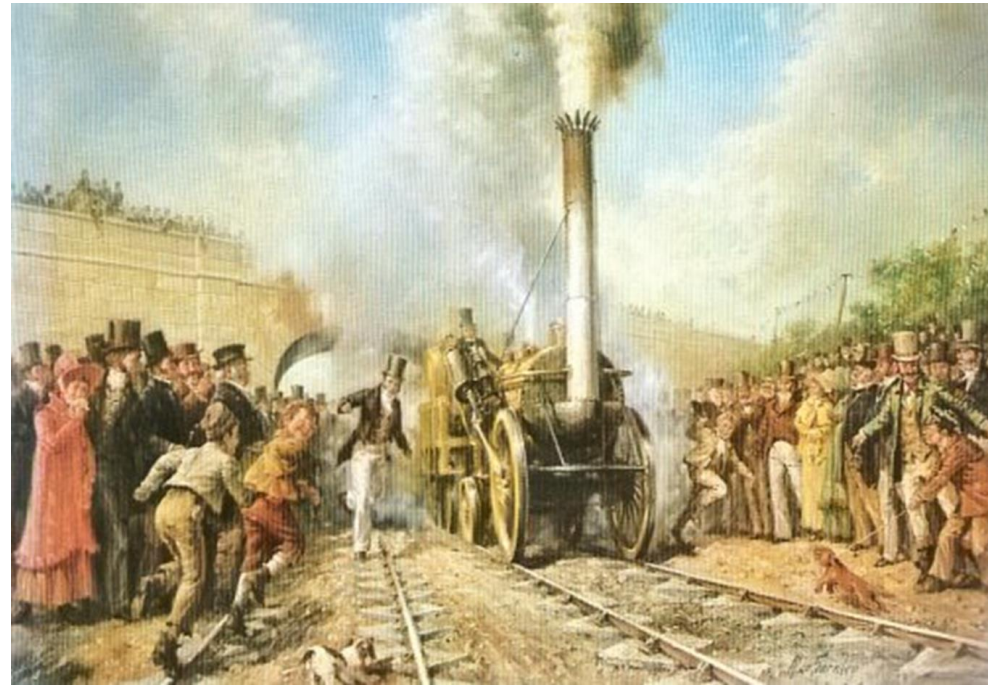
Table of the Time Occupied each Trip & the Time of going 30 Miles at full Speed

and 5 Miles in stoppage and stopping

Observations	No. of Trips	Time in getting up the steam	Time taken when the engine is first started	Time in getting down the steam	Time taken when the engine is first started	Time in getting up the steam	Time in getting down the steam	Observations
Started	10-36-30	0-1-25	10-38-15	0-7-43	10-45-58	0-2-16		
Stopped 6d.	1	0-3-42	10-54-55	0-6-48	10-48-12	0-4-55		greased the Pistons.
	2	0-2-20	11-16-42	0-0-22	11-10-20	0-2-10		
	3	0-2-55	11-39-50	0-0-3	11-31-47	0-2-20		
	4		11-58-15	0-7-31	11-51-12			
	5		0-2-27	0-0-42	0-7-13	0-2-27		
	6		0-2-5	0-15-45	0-6-5	0-9-40	0-2-53	
Stopped 1st time 6 hours of Water equal to 19 th 3m. Gal.	7	0-4-5	0-35-20	0-8-42	0-26-38	0-2-35		
	8		0-55-30	0-7-35	0-47-55	0-3-14		
	9		0-2-24	0-57-54	0-5-40	1-3-34	0-4-2	took in 16 th 3m. Gallons of Water
	10		0-3-25	1-17-10	0-5-18	1-22-28	0-2-1	
	11		0-2-15	1-33-35	0-7-5	1-26-30		
	12		0-2-15	1-35-50	0-4-12	1-40-2		
Stopped 2nd time 6 hours of Water equal to 23 rd 10	13	0-1-23	1-47-15	0-5-12	1-42-3	0-29-6		2 nd In of Water up in each at End of this Experiment
Total Time	3-11-48	0-28-34	1-11-47	1-2-21	0-29-6			

Watch video from
39:35 - 40:32





What is similar about the two paintings?

Did you notice the same bridge? The bridge is Skew Bridge in Rainhill. It still exists today and is by Rainhill station.



There are pubs called the
Rocket in Rainhill and
Liverpool.





You can actually go to see the real Rocket! It has been on display in different places but is now at the National Railway Museum in York.



There is a small museum of the Trails at Rainhill library that you can visit for free!



This plaque is at Rainhill station to mark the Trails



Retention Task

Create a mind map of the 5 locomotives and their results.



Application Task

Write a newspaper report about the Rainhill Trials announcing George Stephenson as the winner.