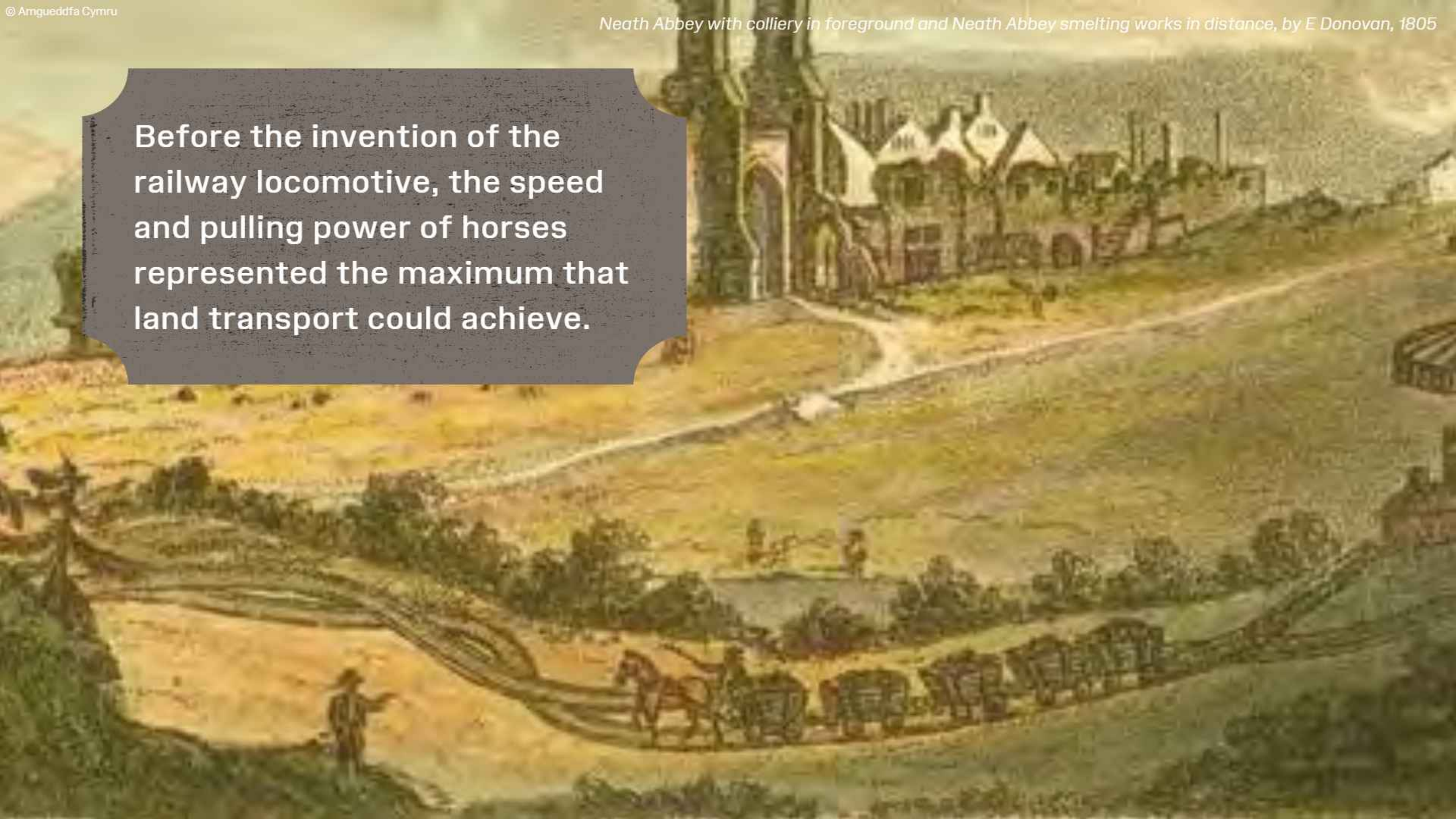
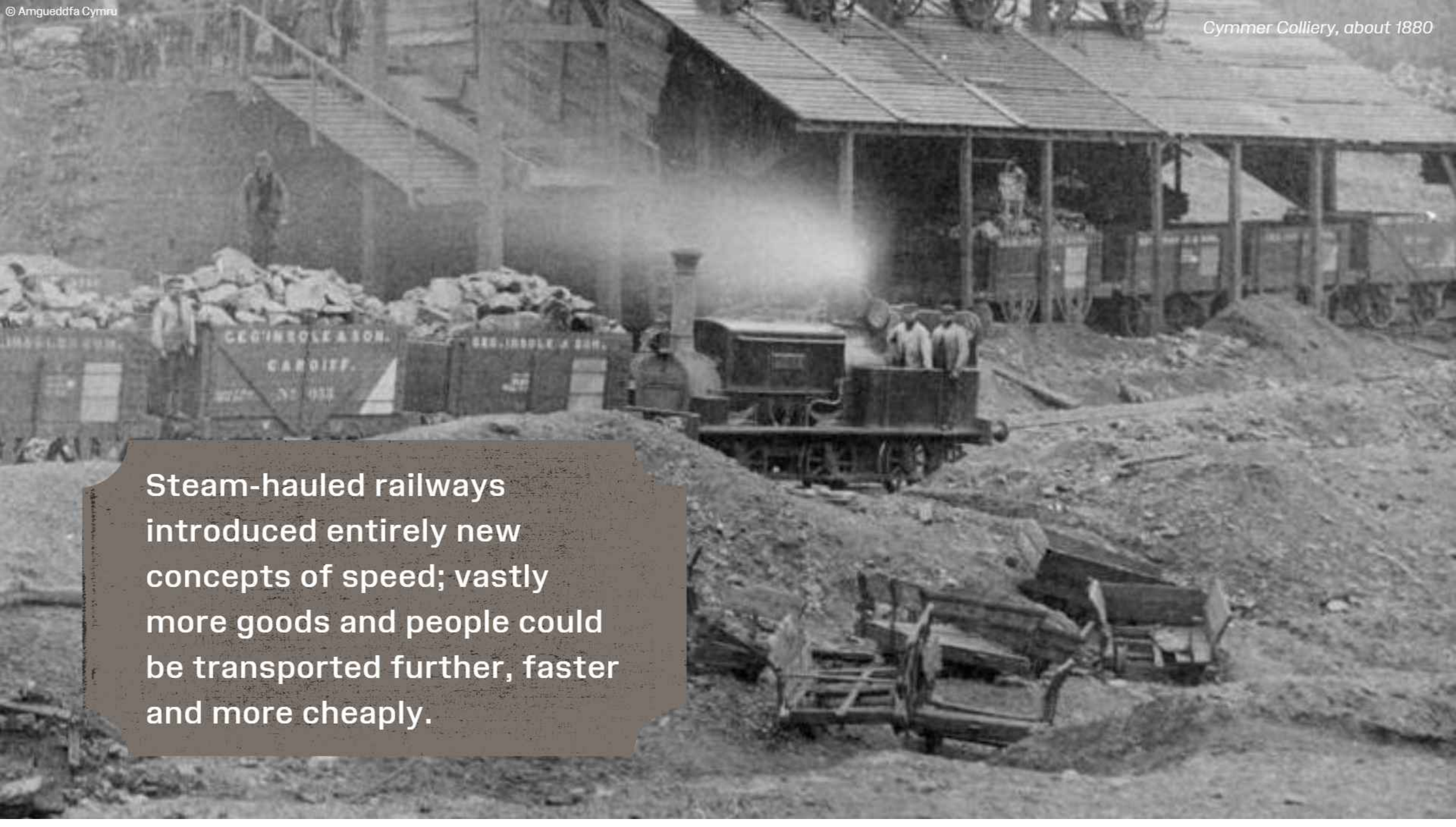




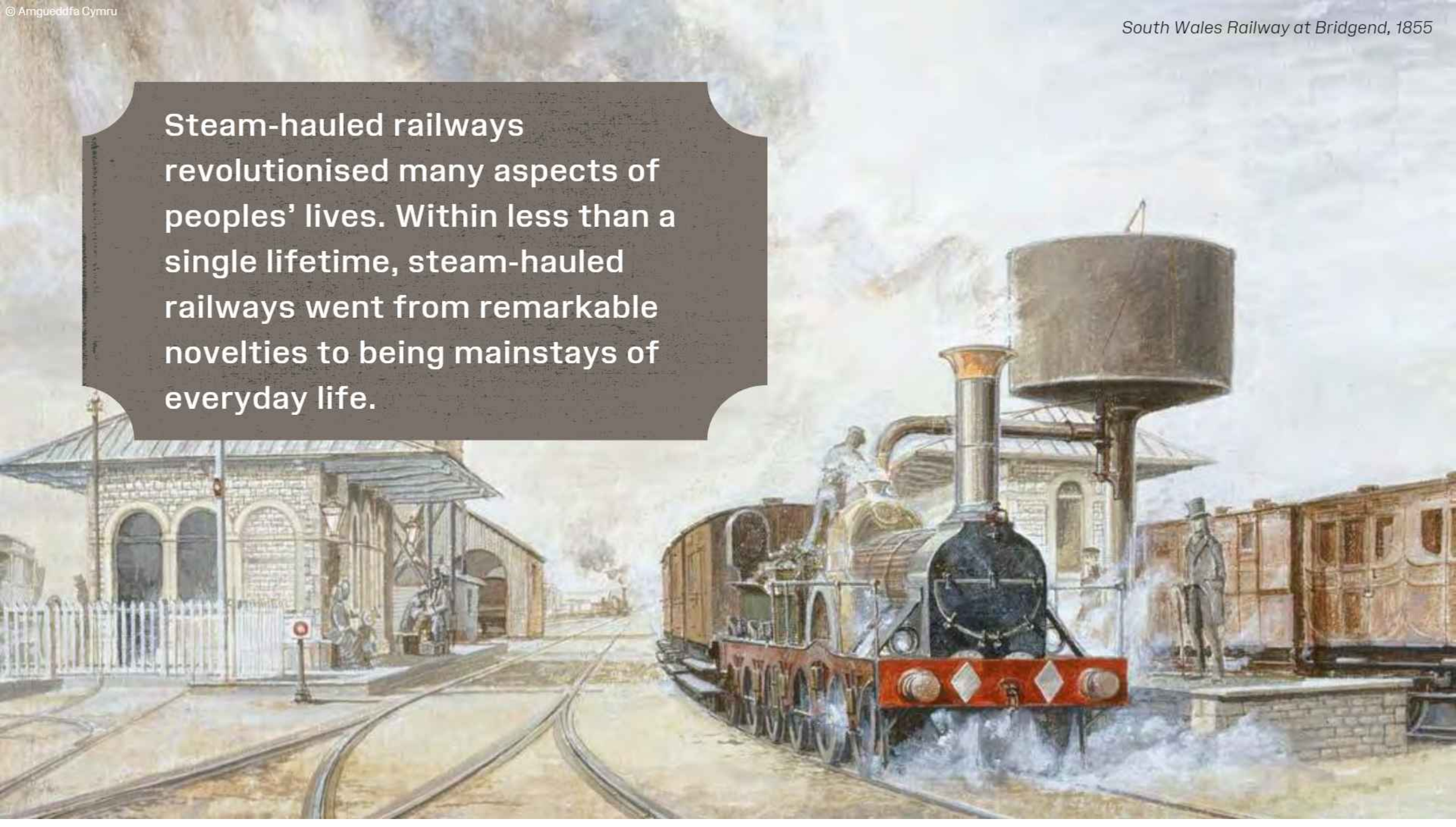
Before the invention of the railway locomotive, the speed and pulling power of horses represented the maximum that land transport could achieve.





Steam-hauled railways introduced entirely new concepts of speed; vastly more goods and people could be transported further, faster and more cheaply.

Steam-hauled railways revolutionised many aspects of peoples' lives. Within less than a single lifetime, steam-hauled railways went from remarkable novelties to being mainstays of everyday life.



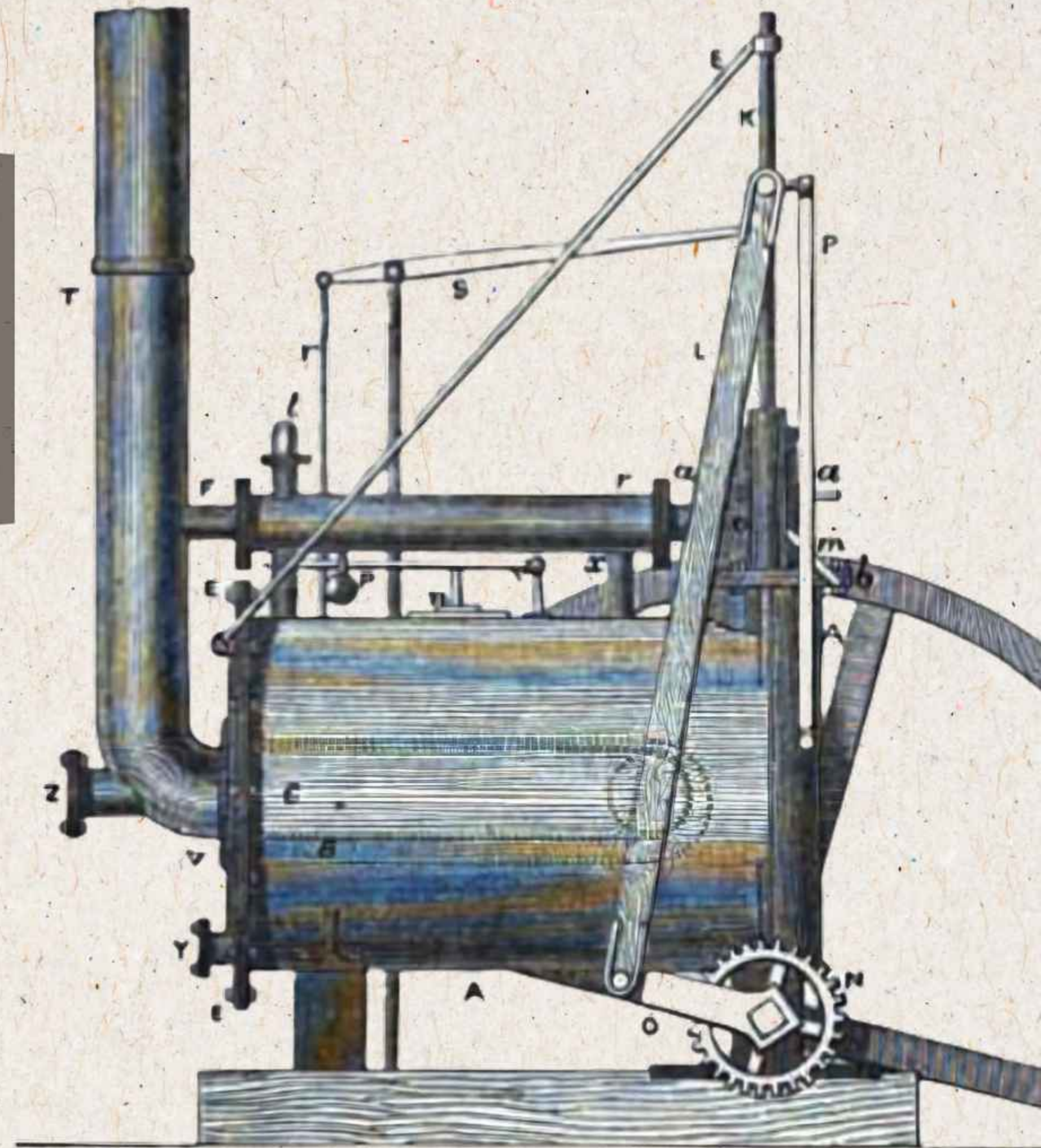
The railway revolution began in Merthyr Tydfil on 21 February 1804 with the first recorded steam-hauled journey on rails.



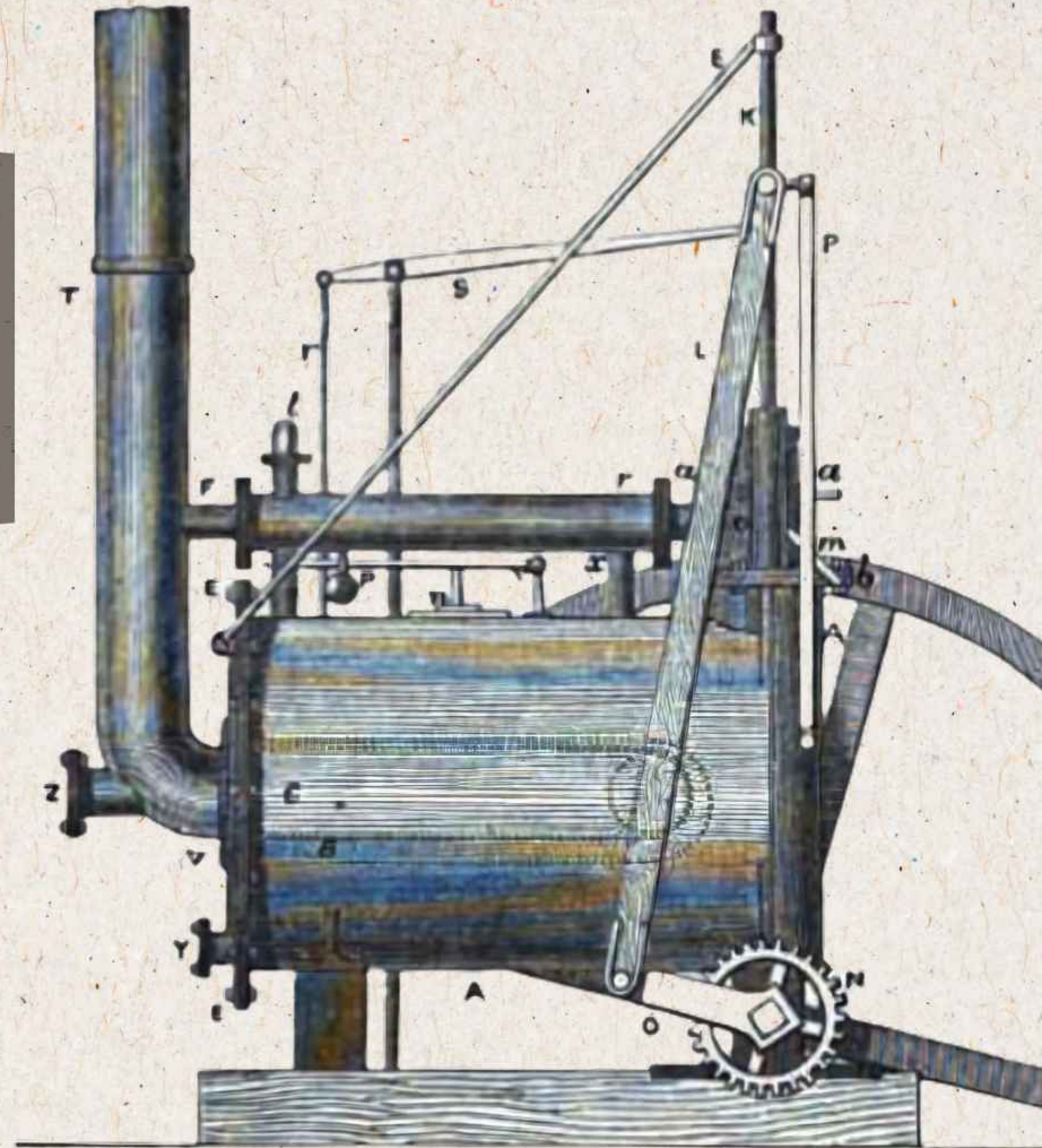


The key personalities were the talented Cornish engineer Richard Trevithick and Samuel Homfray, owner of the Penydarren Iron Works.

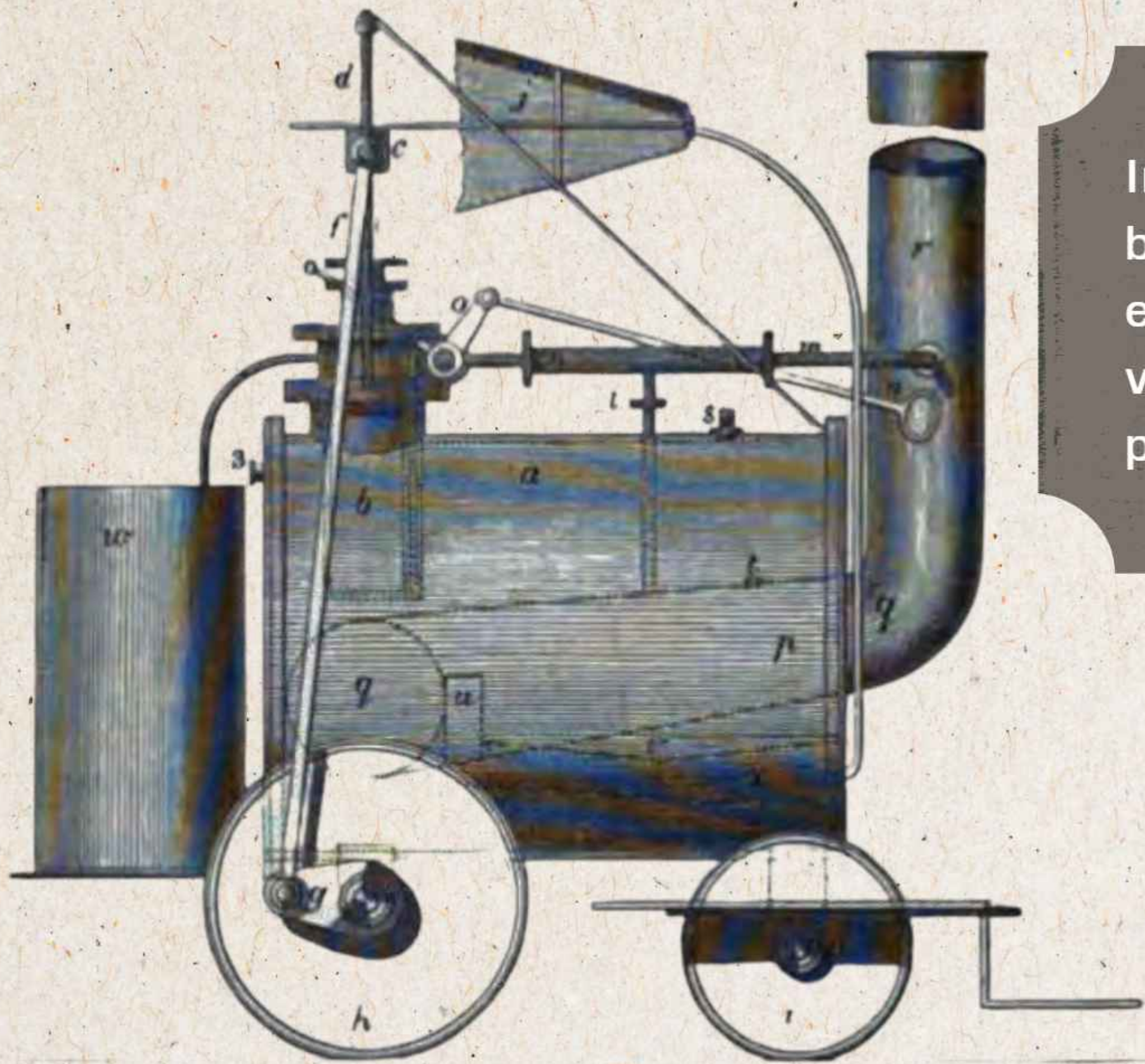
Trevithick had developed a compact high pressure stationary steam engine that could be built more cheaply and produce more power than pre-existing designs of similar size.



Homfray formed a partnership with Trevithick to manufacture the stationary engines.



'Puffing-Devil' road vehicle

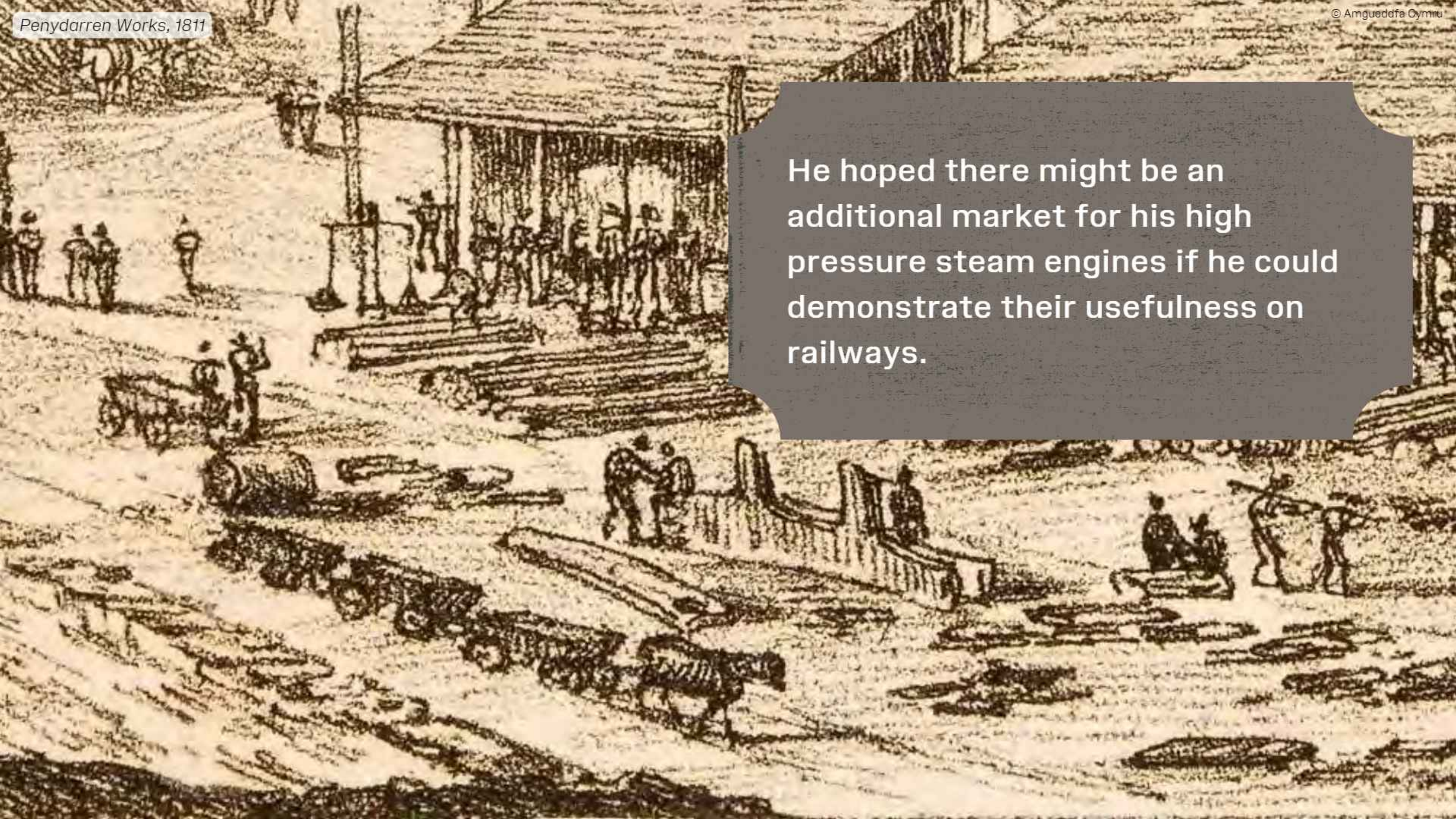


In 1801 and in 1803 Trevithick had built and demonstrated experimental steam-powered road vehicles but had failed to arouse public enthusiasm.

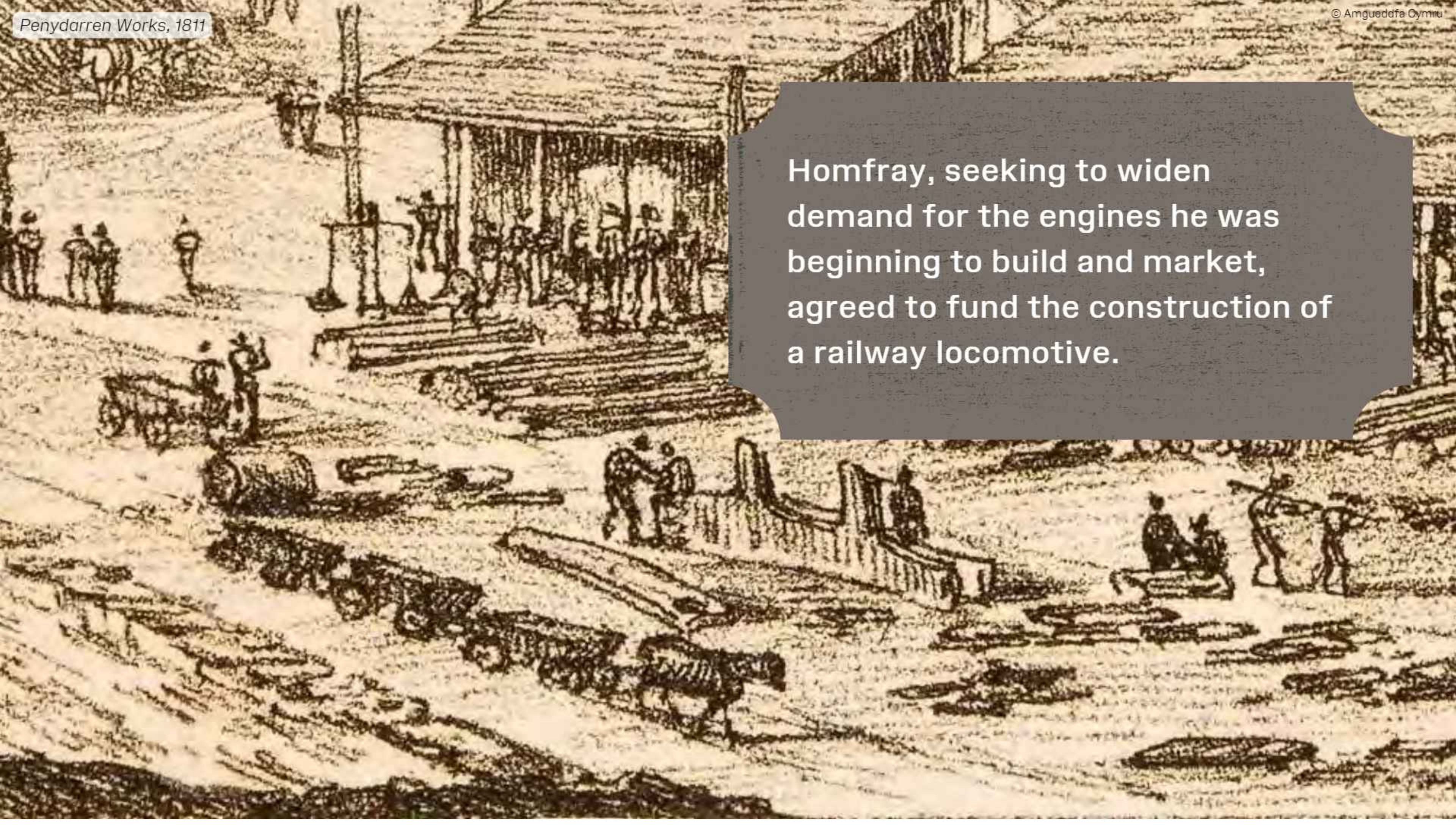
A plain representation of the teams and trams of coal bought down to Pillgwenlly by Samuel Homfray, 1821

In south Wales he encountered a dense network of tramroads serving the ironworks, quarries and mines – all horse drawn and all built with iron rails.





He hoped there might be an additional market for his high pressure steam engines if he could demonstrate their usefulness on railways.



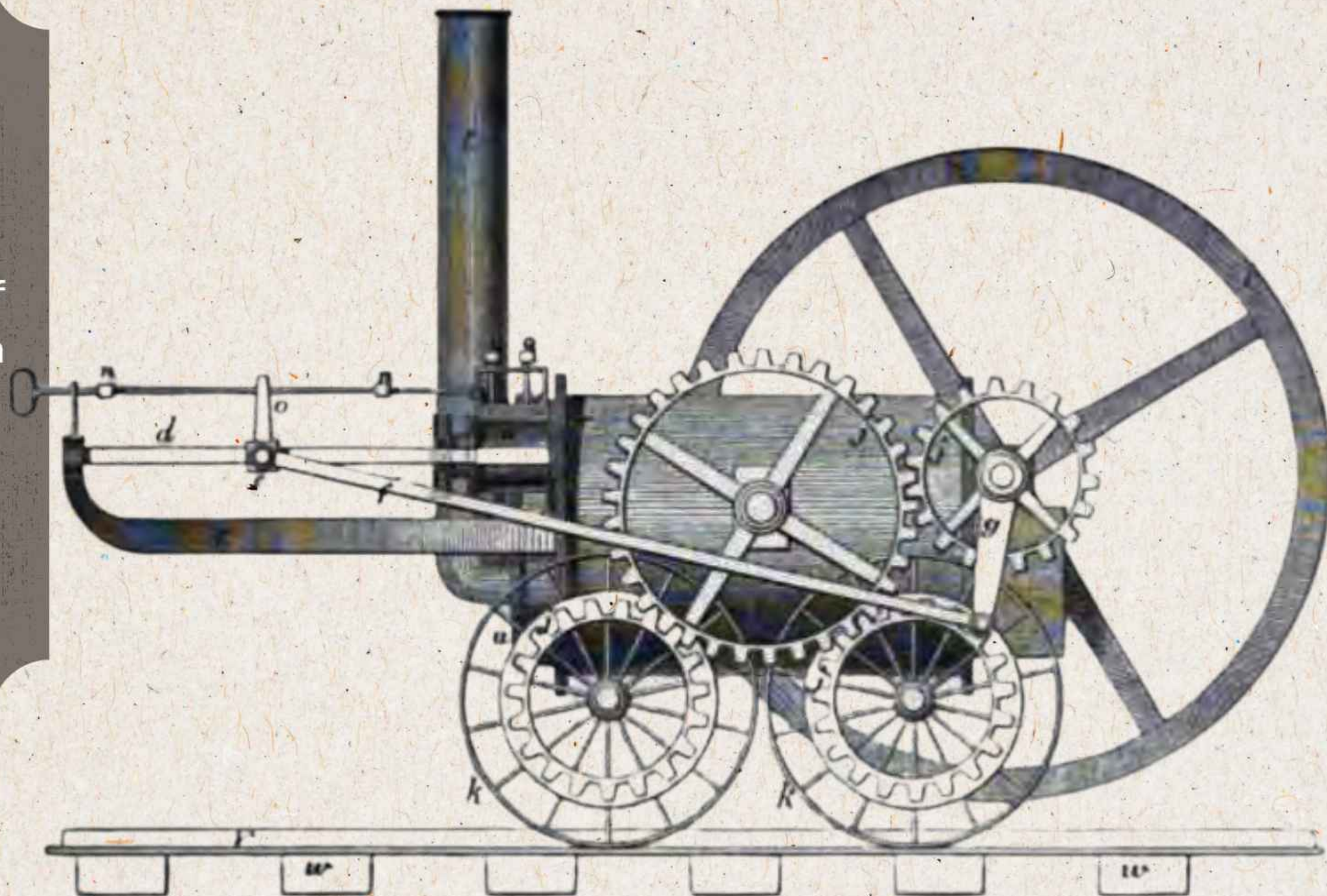
Homfray, seeking to widen demand for the engines he was beginning to build and market, agreed to fund the construction of a railway locomotive.

The pioneering locomotive
was designed and built at
Penydarren Iron Works over
the winter of 1803-04.



PENYDARRAN IRON WORKS.

The locomotive successfully pulled five wagons loaded with ten tons of iron and 70 men who had hitched a ride on the wagons for the $9\frac{3}{4}$ mile journey.



Over the following weeks the locomotive made a number of further journeys the length of the tramroad.



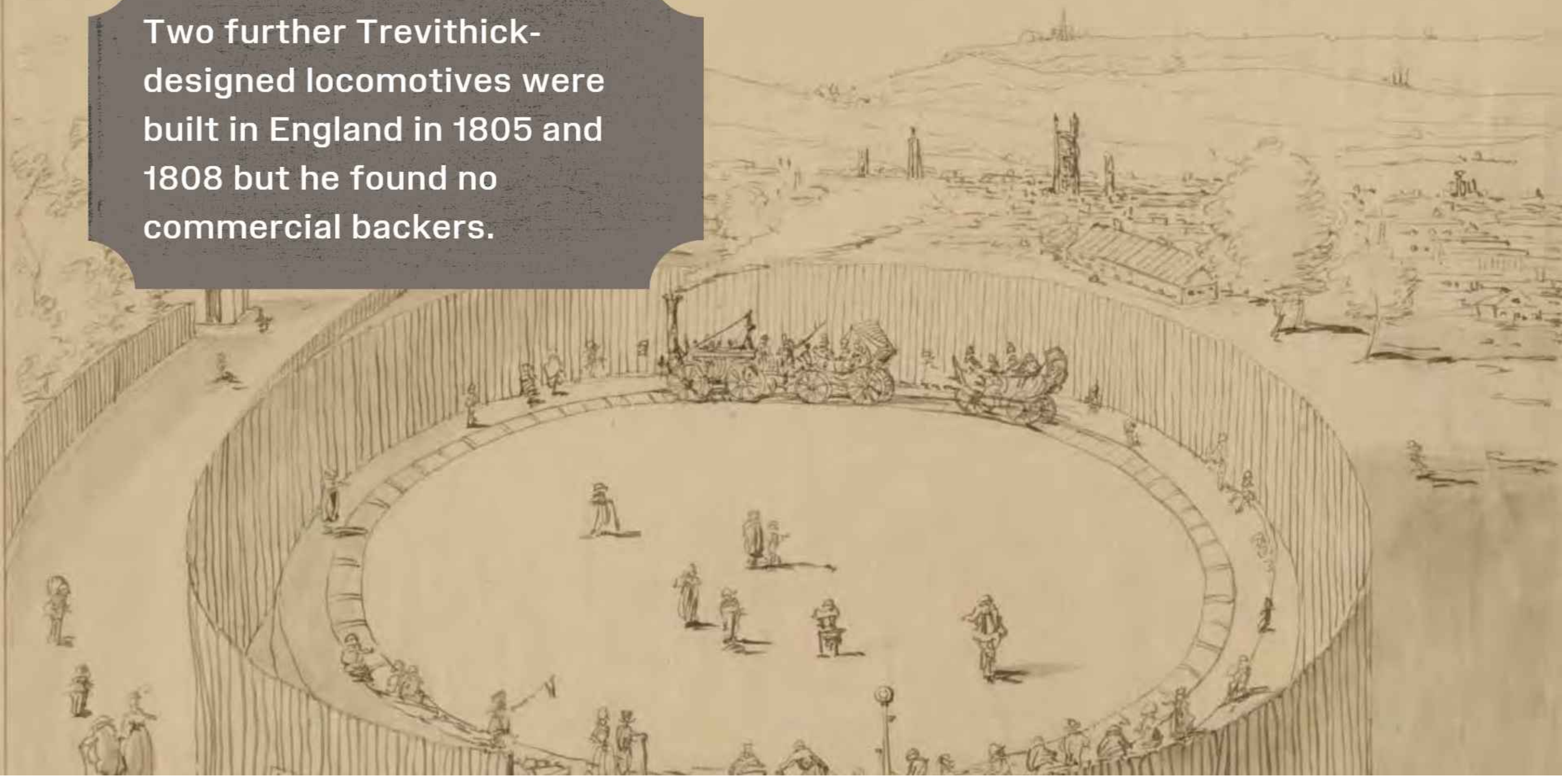
The locomotive was widely reported at home and abroad.

Frequent breakages of the brittle cast iron track by the unsprung locomotive resulted in it being converted into a stationary engine within a few months.



On the 21st. ult. the long expected trial of a new invented steam-engine, to draw and work carriages of all descriptions, on various kinds of roads, as well as for other purposes to which its power may be usefully applied, took place near Merthyr Tidvil. The novel application of steam was made use of to convey along the tram road 10 tons of bar-iron, from Penydarran iron-works, to where it joins the Glamorganshire Canal, upwards of 9 miles distance; and the weight of the load was soon increased from 10 to 15 tons, by about 70 persons riding on the trams. The principle of this new engine differs from all others, by disclaiming the use of condensing water; and discharges its steam in the open air, or applies it to the heating of fluids, as convenience may require. The expence of it does not exceed one-half of any other. It performs the journey without feeding the boilers, or using any water; and will travel with ease 5 miles an hour.

Two further Trevithick-designed locomotives were built in England in 1805 and 1808 but he found no commercial backers.



“

I thought I had showed to the public quite enough to recommend it to general use; but though a thing that promised to be so much consequence, has so far remained buried...

Richard Trevithick, April 26, 1812

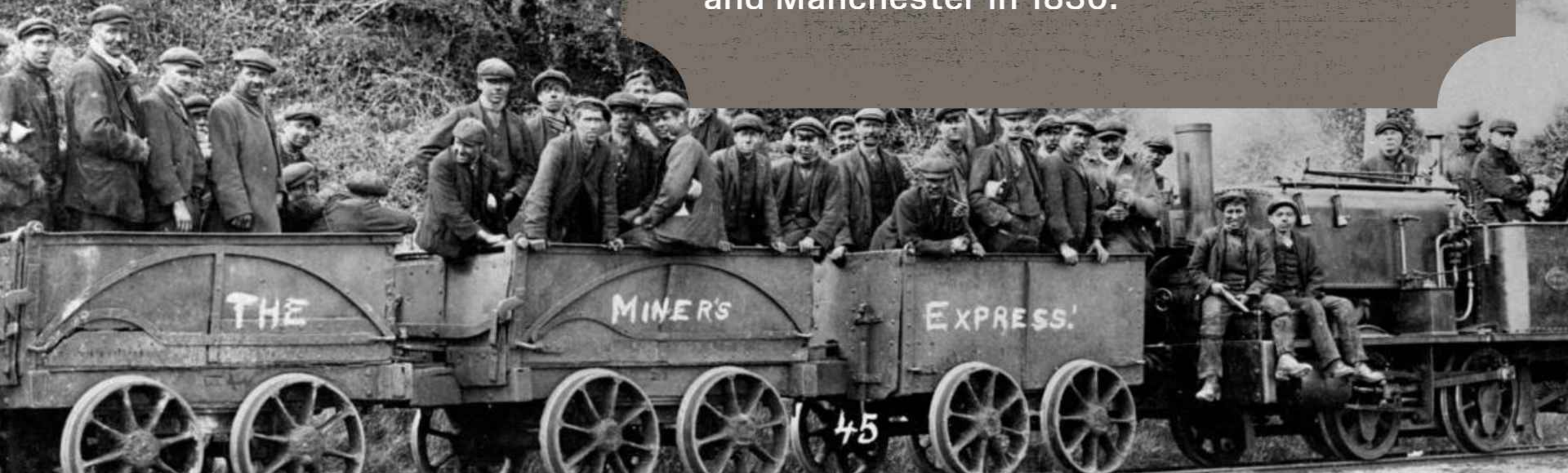
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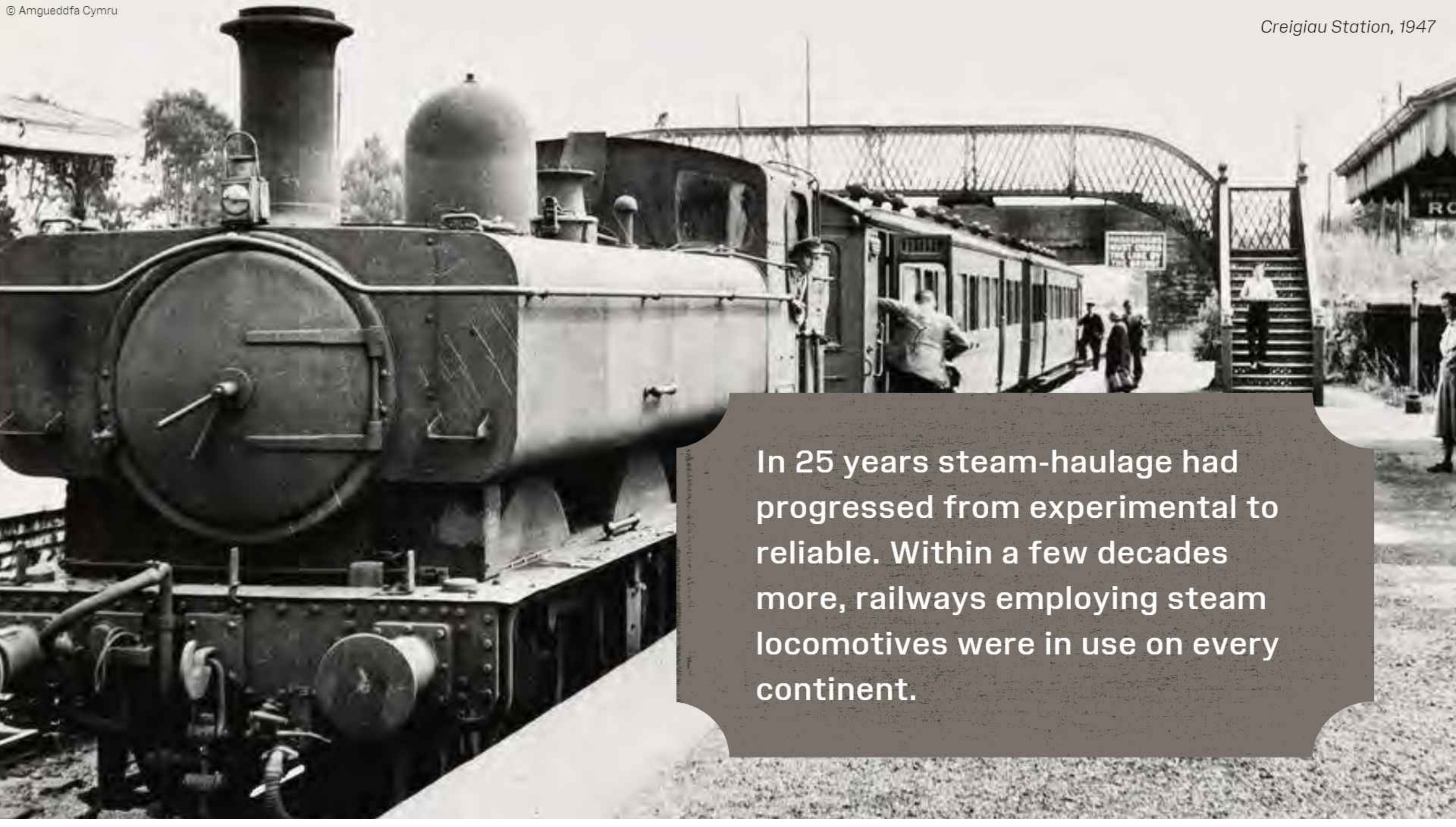
Despite Trevithick's failure to commercially develop his locomotives, a seed had been planted. Engineers in the North East of England, notably Timothy Hackworth and George Stephenson, built a succession of viable locomotives in the 1810s that reliably hauled coal wagons from collieries to shipping places.



'The Miner's Express', a train on the Saundersfoot Railway, about 1900

These developments enabled the Stockton & Darlington Railway to use steam locomotives from its opening in 1825, and lead to the first long distance steam-hauled railway opening between Liverpool and Manchester in 1830.





In 25 years steam-haulage had progressed from experimental to reliable. Within a few decades more, railways employing steam locomotives were in use on every continent.

A conjectural reconstruction of Richard Trevithick's pioneering Penydarren locomotive is displayed in the National Waterfront Museum at Swansea, where it is periodically demonstrated in-steam.



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found at...

museum.wales/learn/