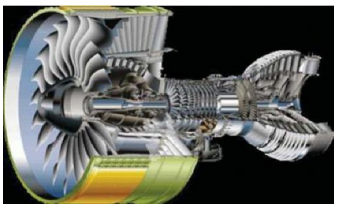
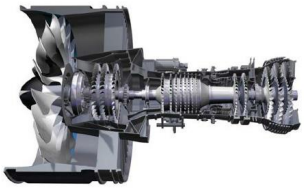

UNIVERSITY OF NAPLES ***FEDERICO II*** *1224 A.D.*

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The Space Shuttle and the Horse's Rear End

Say friend, did you know that the US Standard railroad gauge (distance between the rails) is 4 feet, 8 1/2 inches.

That's an exceedingly odd number. Why was that gauge used?

Because that's the way they built them in England, and the US railroads were built by English expatriates.

I see, but why did the English build them like that?

Because the first railway lines were built by the same people who built the pre-railroad tramways, and that's the gauge they used.

Well, why did they use that gauge in England?

Because the people who built the tramways used the same jigs and tools that they used for building wagons, which used that wheel spacing.

Okay! Why did their wagons use that odd wheel spacing?

Because, if they tried to use any other spacing the wagon wheels would break on some of the old, long distance roads. Because that's the spacing of the old wheel ruts.

So who built these old rutted roads?

The first long distance roads in Europe were built by Imperial Rome for the benefit of their legions. The Roman roads have been used ever since.

And the ruts?

The original ruts, which everyone else had to match for fear of destroying their wagons, were first made by the wheels of Roman war chariots. Since the chariots were made for or by Imperial Rome they were all alike in the matter of wheel spacing.

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Thus, we have the answer to the original question. **The United States standard railroad gauge of 4 feet, 8 1/2** inches derives from the original specification for an Imperial **Roman army war chariot**.

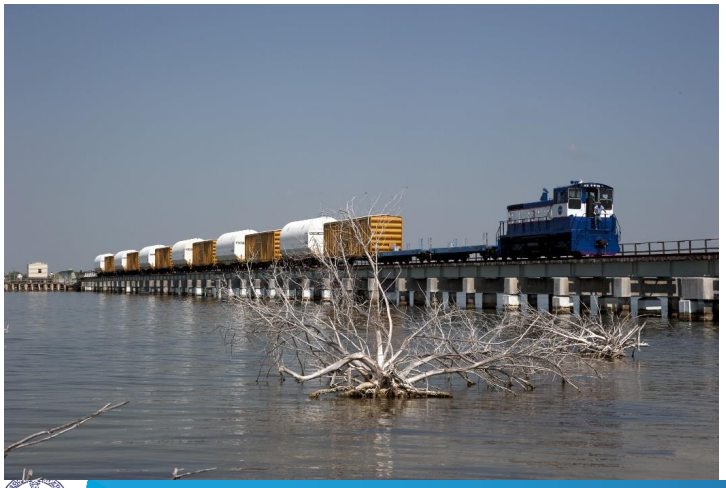
And the motto of the story is Specifications and **bureaucracies** live **forever**.

So, the next time you are handed a specification and wonder what horse's ass (*horse's ass definition*: a stupid and annoying person ovvero testa di c***o) came up with it, you may be exactly right. Because the Imperial **Roman chariots** were made to be just **wide** enough to accommodate the **back-ends** of two **war-horses**.

The Space Shuttle and the Horse's Rear End

So, just what does this have to do with the exploration of space?

Well, there's an interesting extension of the story about railroad gauge and horses' behinds. When we see a Space Shuttle sitting on the launch pad, there are two big booster rockets attached to the sides of the main fuel tank. These are the **solid rocket boosters**, or SRBs. The SRBs are made by Thiokol at a factory in **Utah**. The engineers who designed the SRBs might have preferred to make them a **bit fatter**, but the SRBs had to be shipped by train from the factory to the launch site.



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The railroad from the factory runs through a tunnel in the mountains. The SRBs had to fit through that tunnel. The tunnel is **slightly wider** than a railroad track, and **the railroad track is about as wide** as two horses' behinds.

So a major design feature of what is arguably the world's most advanced transportation system was **originally** determined by the width of a **ROMAN horse's ass**.