

# History of Tramways in France

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# Introduction

- **At the time of OMNIBUS**
  - **The invention of tramways**
  - **Emergence of cars**
- **Golden age and destruction of tramways**
- **Reintroduction of tramways**
  - **Projects in 2013**
- **Conclusion: Place of the tramways in future urban transport systems**

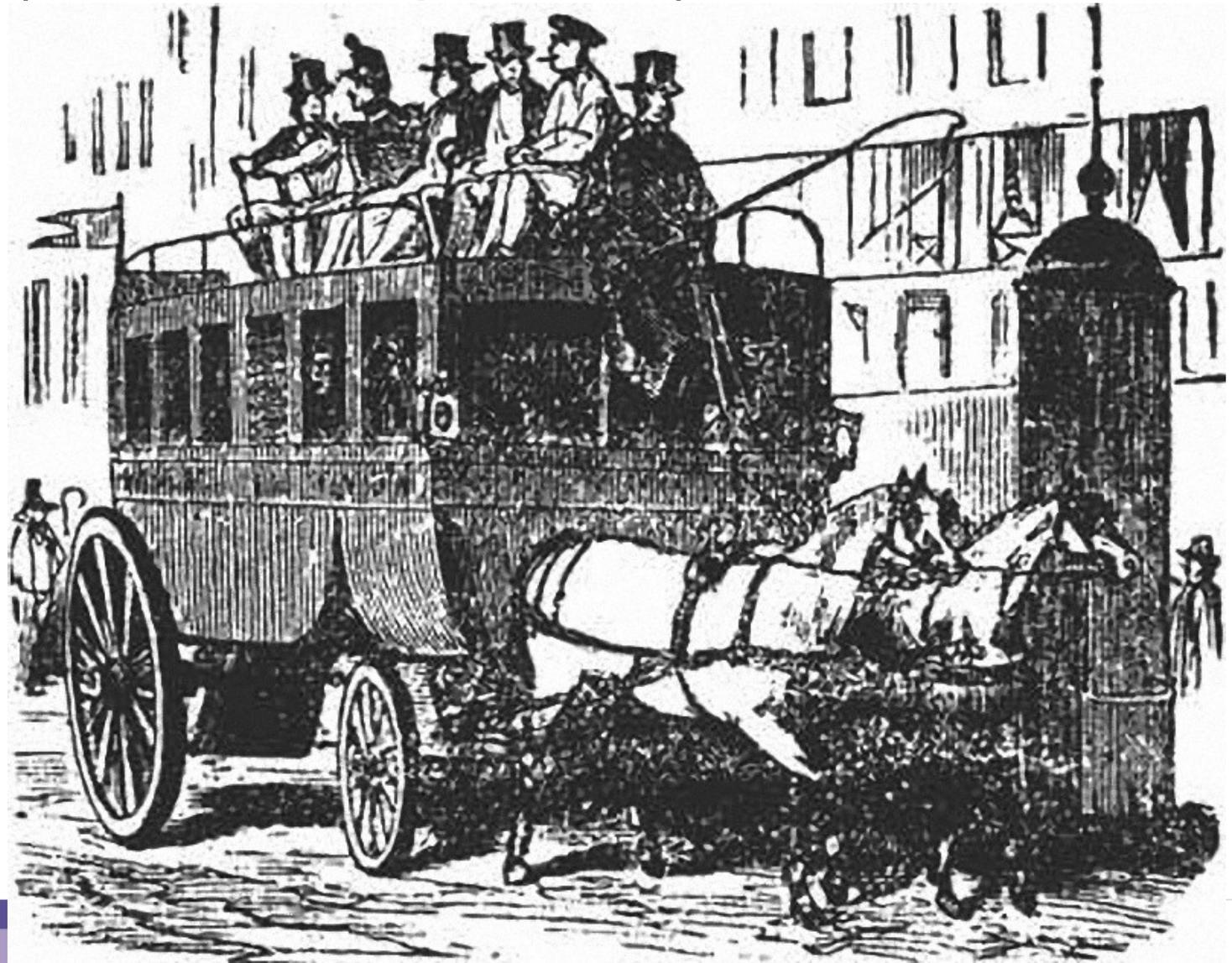
# At the time of OMNIBUS

Public transport of people was made in 19th century by carriages with horses (OMNIBUS, « transport for all »)

1826 : Nantes

1828: Paris

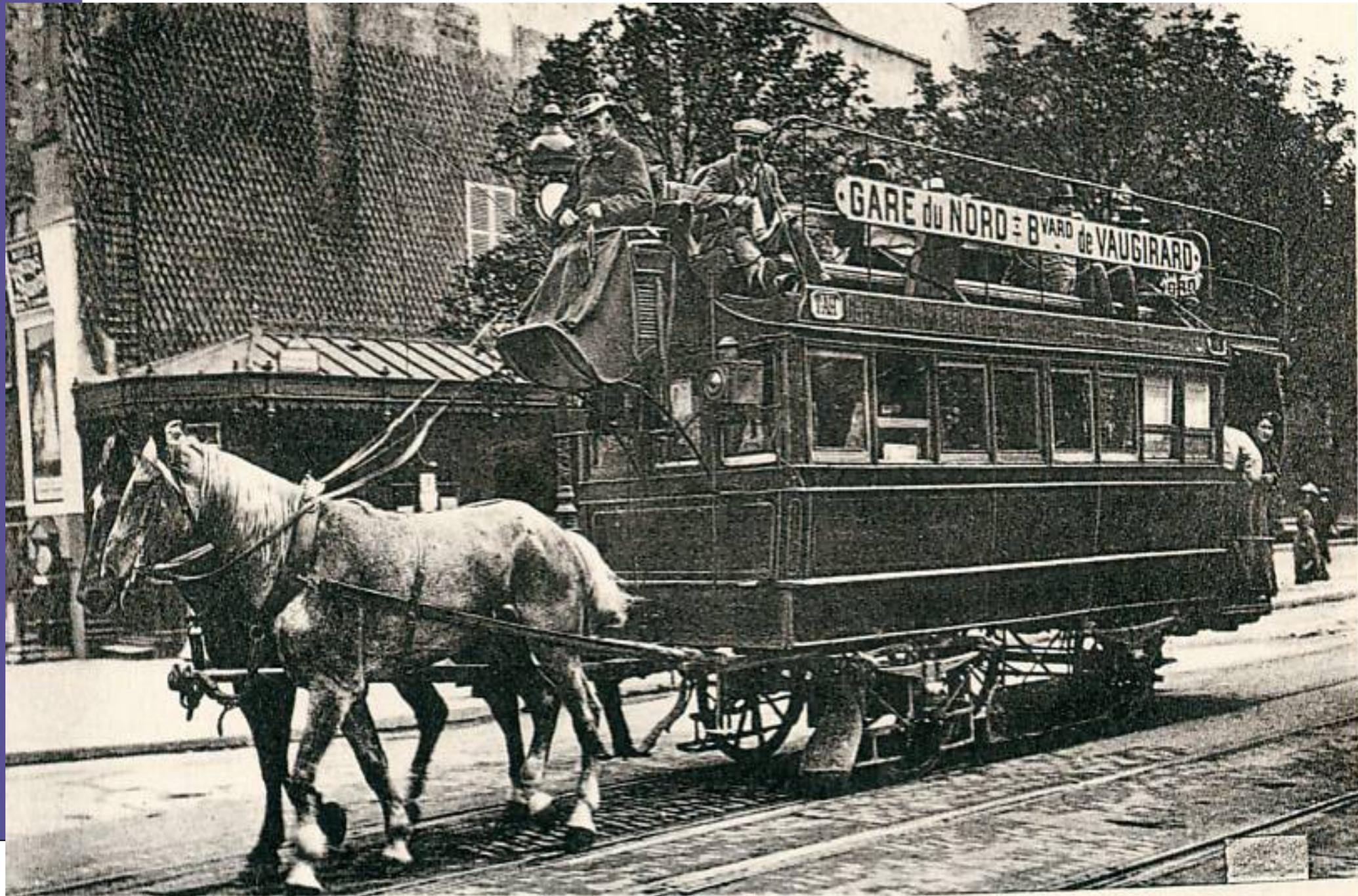
15 passengers



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# Advantages of rail street cars

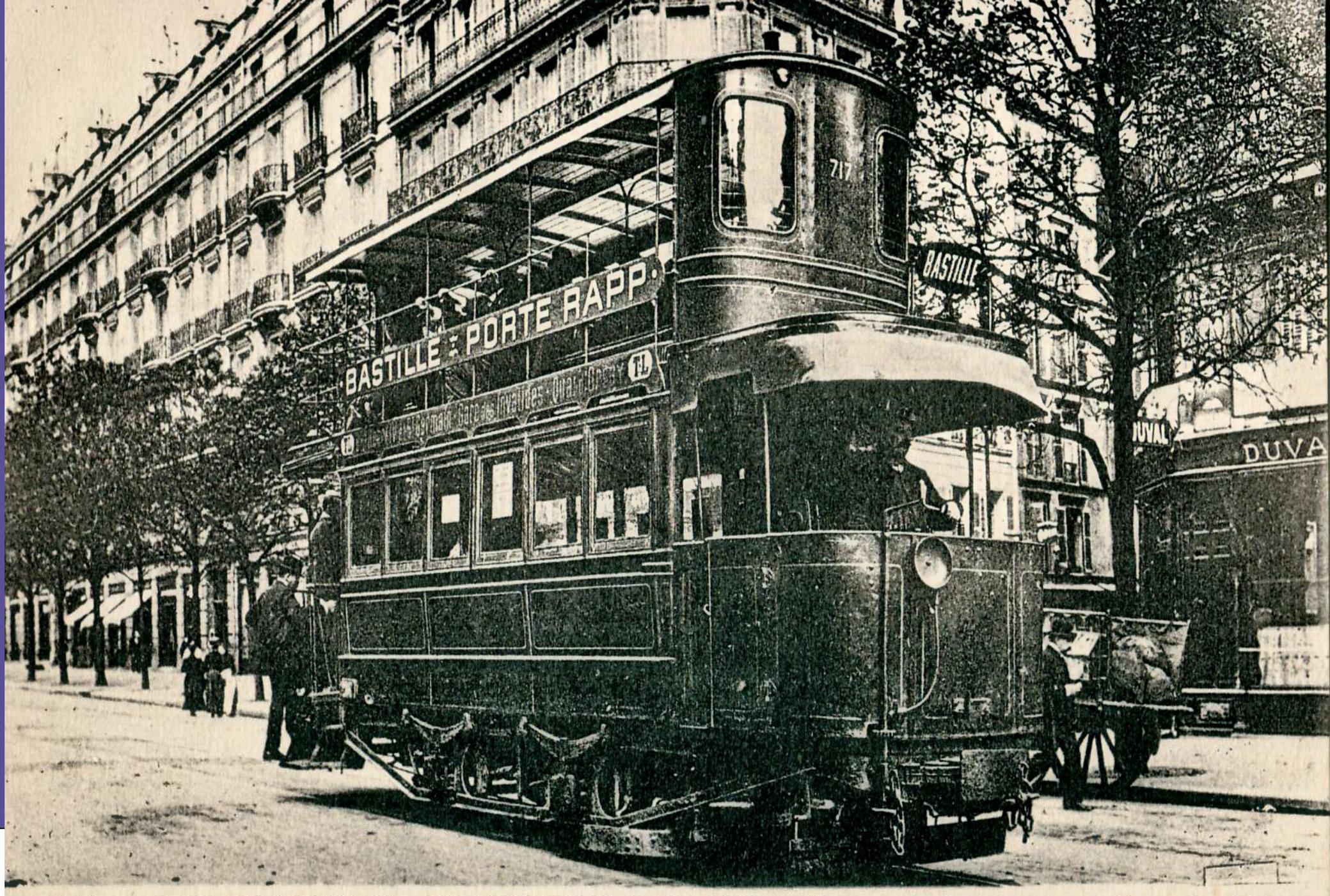
- **Low rolling resistance of metal wheels on iron or steel rails : TRAMWAY**
- **Better use of the effort of animals: higher capacity, comfort and commercial speed**
- **Alphonse LOUBAT, a French entrepreneur in USA for vine production, invented a “flat rail” to be embedded in the road. Used in Broadway from 1853, promoted in France as “American Railway”**
- **48 people: 18 inside, 24 on the top, 6 on the platform (for smoking... )**



2148 - LES MOYENS DE TRANSPORT A PARIS - Tramway à traction animale  
(Cie Générale des Omnibus)

# Progress in Motorization

- In 1860, there were 742 omnibus in Paris (47 lines, 146 millions of passengers)
- In 1889, 350 tramways with horses( 26 lines, 16000 horses, 97 millions of passengers) and 149 “mechanical” tramways, (10 lignes, 37 millions of passengers)
- Steam, Pneumatic engines, Electricity (with or without embarked batteries)
- Large experience of operation of cars with horses and lower requirements on infrastructures can explain that the last omnibus with horses stopped in 1913



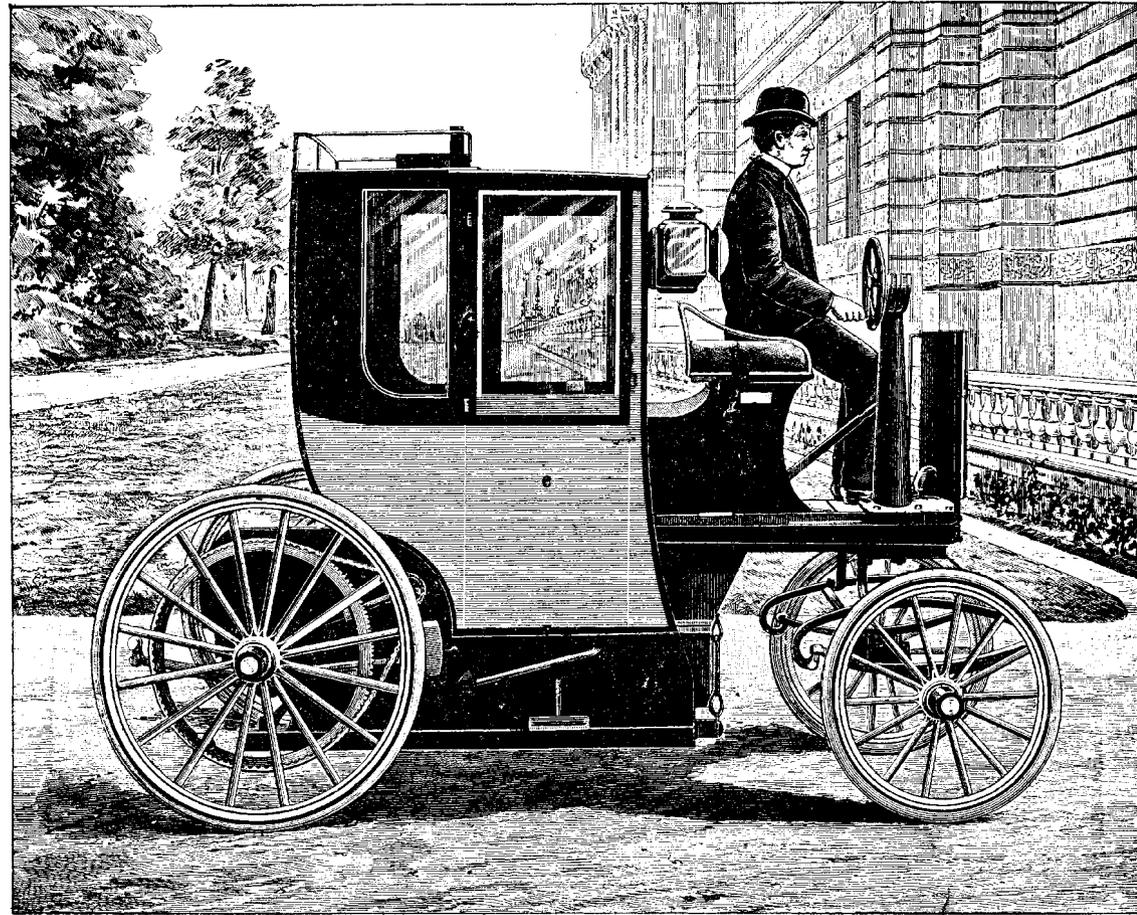
**Steam powered tramway in Paris (1890)**



**Tramway with pneumatic engine in Paris (1900)**

# At the same time...

- **Automobile was invented in 1769 ( a mobile steam engine)**
- **In 1895: 350 units with internal combustion engines in France, 75 in Germany, 80 in USA**
- **In UK and USA, such a vehicle was preceded by a man holding a red flag, to avoid uncontrolled reactions of scared horses (Locomotive Act, 1865, removed in 1898)**



# The golden age and rapid destruction of French tramways

- In 1925, the 128 lines of Paris (1111 km) were used by 720 millions of passengers. A city like Strasbourg (170 000 inhabitants) had 234 km of tramway lines in 1930.
- But the competition of metro and buses reduced the profits for the private companies, whose tariffs were limited. They merge (1924) and the network was modernised.
- Tramways were replaced by auto-buses from 1930 to 1937. Buses were easier to operate, in a context with few congestion, with no cost for infrastructures. Higher speed limits (buses 45km/h, tramways 20km/h)

# The reintroduction of modern tramways in French cities

- In 1980s , the public transport was in crisis: reduction of commercial speed and ridership due to congestion, difficulties to finance new lines of metros in middle size cities
- A law on public transport, passed in 1981, created a new resource for local authorities to finance the cost of public transport systems.
- Modern tramways were reintroduced in Nantes (1985), Grenoble (1987), Rouen and Strasbourg (1994) with high success
- In 2009, 17 cities had 407 km of tramway lines. In 2015, they will be 27 with 750 km.

# Projects of public transport on reserved lanes in 2013

- To reduce energy consumption and CO2 emissions in cities, 3 calls for proposals were launched by French Ministry of transport in 2009, 2011 and 2013. The idea is to subsidize the best projects proposed by local authorities.
- 128 projects were chosen in 2009 and 2011 (extensions of metro lines, 367 km of tramways, 606 km of Bus lines with high level of service, one cable car)
- The call of 2013 received more than 100 proposals, now under study before decision. Services of mobility were proposed (ticketing, passenger's information)

# Conclusions: Place of the tramways in future urban transport systems

- **Guided systems like tramways advantages:**
  - Higher speed, especially if priorities are organised at crossroads
  - Reduction of width of lanes, meaning increase of the capacity of the supporting infrastructures
  - Visibility in the city and easy to use
- **Complements between heavy systems (metro/trains) and buses on reserved lanes or in the traffic.**
- **Insertions of tramways takes time, they are middle- long term projects**

# Thank you !

