

Passenger Rail Stations:

Component of station: tracks, platforms, connecting throughway (ramps, stairs, escalators), terminal building, parking, taxi and bus stops, etc.

Type of stations

- Through station: trains continue in the same direction
- Stub Station: (at end of line): trains may reverse directions

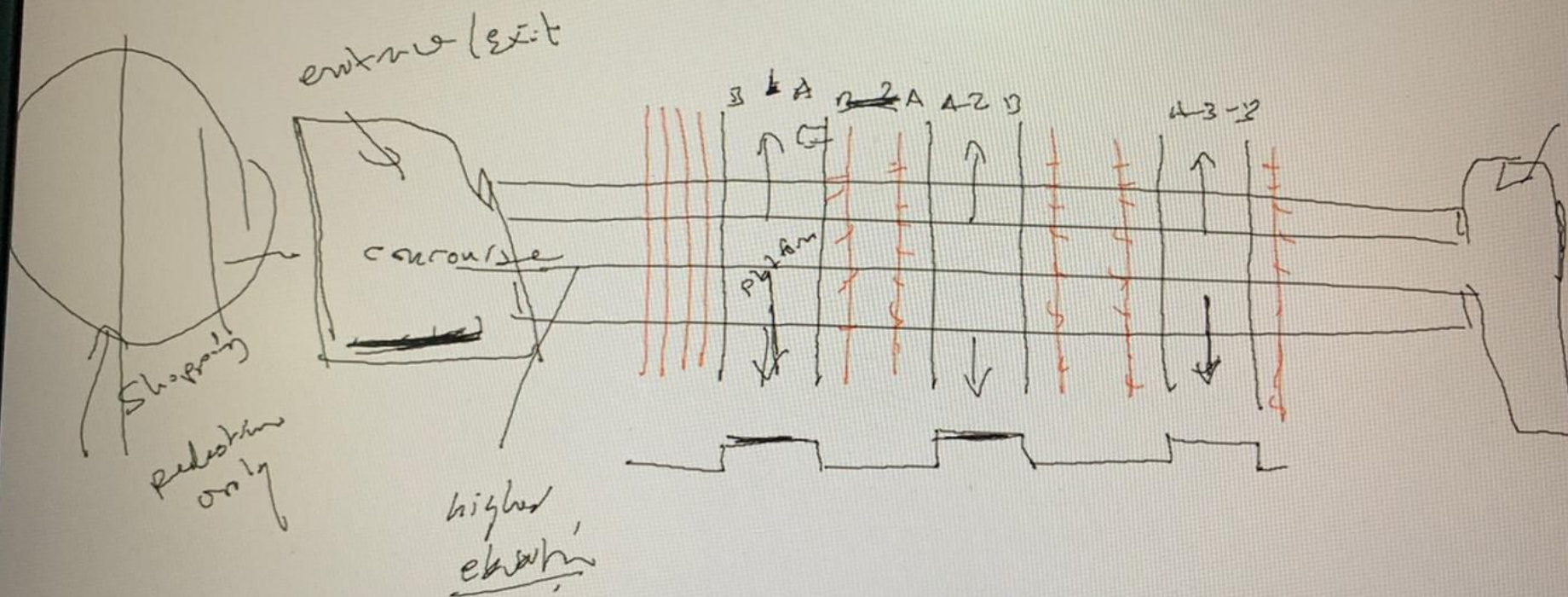
Single track: need one platform

2-tracks: need two platforms

4. tracks: needs grade separation

>4 tracks: need main terminal set up (two levels)

Railroad Passenger Terminal



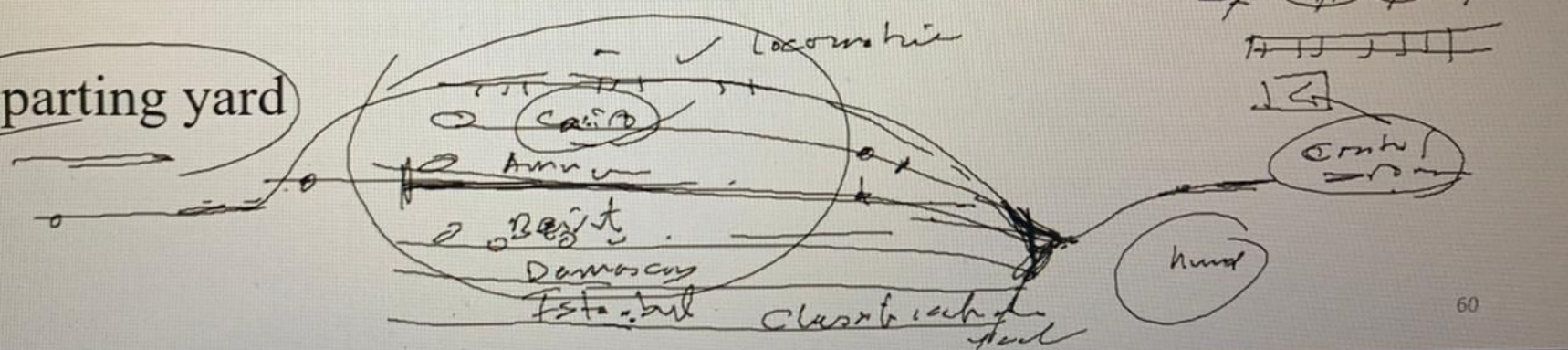
Platform width 2 – 4.5 m, f(passenger peak volume + platform/train length)

Urban metro usually have automatic fare collection, right hand passenger circulation

Freight Terminal (p. 496)

- Receiving yard
- Classification yard: distribution of freight car to different lines for different destinations (via gravity hump (calculated slopes), retarders, plus automatic classification via coding of car sides read by laser beams.

➤ Departing yard



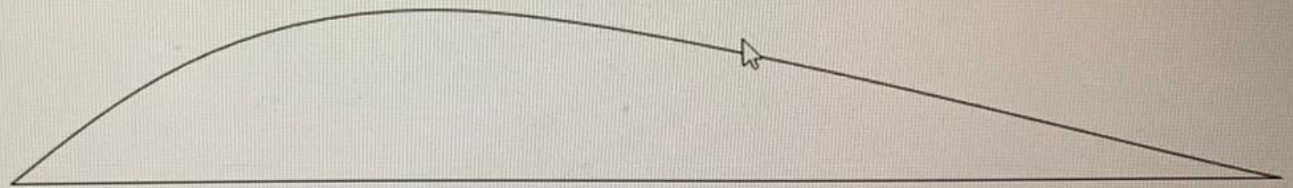
Lighter than air: balloons, gliders, blimps

Heavier than air:

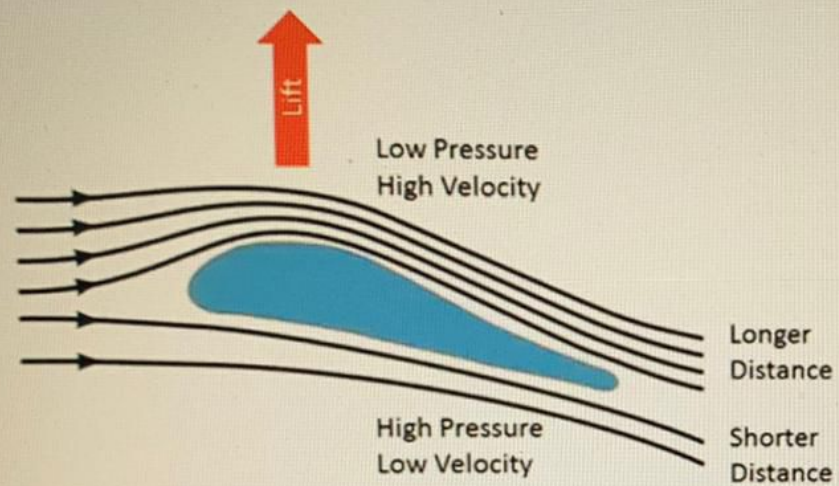
- 1903 : the Wright Brothers
- WWI:
- 1927 : 1st flight across the Atlantic
- WWII
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Bernoulli Principle: As the speed of fluids increase their density decrease

Wing design: upper wing distance is longer, thus for same time, speed is higher above wing thus less dense air which cause lift at a certain speed for each aircraft



Aerodynamic Lift – Explained by Bernoulli's Conservation of Energy Law



Also known as the "Longer Path" or "Equal Transit" Theory

