1.5 Greatest Engineering Achievements of the 20th Century

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Preview

- In the previous sequence, the *moon landing* mission was presented as a case for inspiring engineering work.

- In this sequence, 20 breakthrough engineering achievements will be discussed.

Greatest Engineering Achievements of the 20th Century

1. Electrification
2. Automobile
3. Airplane
4. Water Supply & Distribution
5. Electronics
6. Radio and Television
7. Agricultural Mechanization
8. Computers
9. Telephone
10. Air-conditioning & Refrigeration
11. Highways
12. Spacecraft
13. Internet
14. Imaging
15. Household Appliances
16. Health Technologies
17. Petrochemical Technologies
18. Laser and Fiber Optics
19. Nuclear Technologies
20. High-Performance Materials

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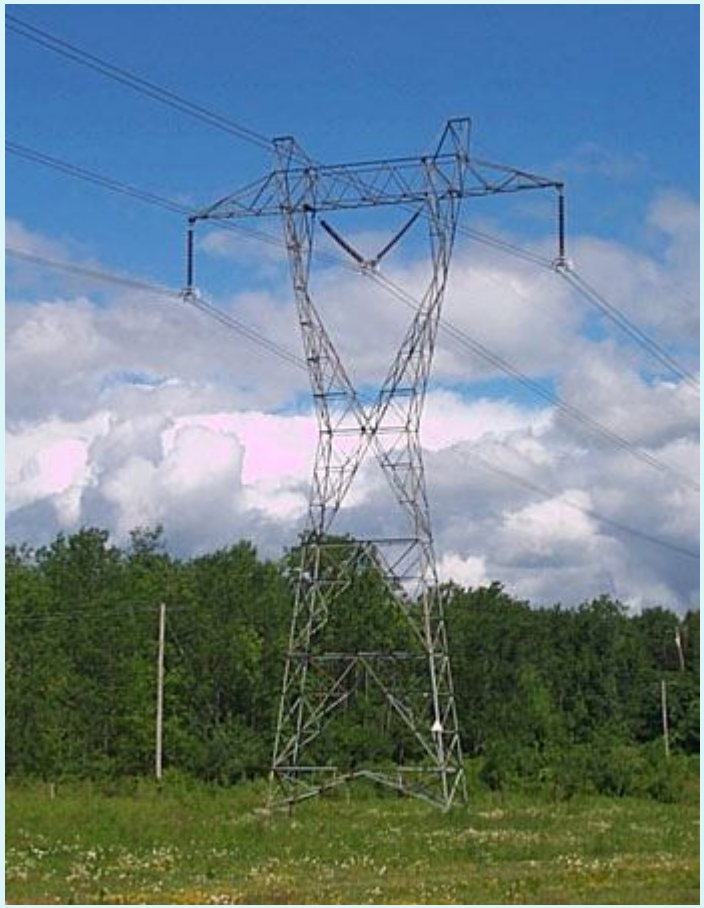
1. Electrification

- Power is available nowadays from coal, oil, winds and waters. All transformed into electricity.

- Electricity keeps the factories, telecommunications, home appliances, and many other equipments running.



2. Automobiles

- Although invented in the 19th century, automobiles became widely used in the 20th century.
- Automobiles were fine-tuned for mass production.
- Automobile transportation changed notions of place, distance, and time.

3. Airplane

- Advances in aeronautical engineering improved the safety and comfort across all the continents and oceans .

- Flying has become relatively common for millions of people where commercial flights carry passengers halfway around the world.

4. Water Supply and Distribution

- As the populations grew, water was in great demand.

- Scientists and engineers worked on making the water safe to drink, distributing it within communities, and guarding the waterways against pollution

5. Electronics

- The transistor was invented in 1948 at Bell Telephone labs. This invention launched a revolution in electronics.
- The transistor led to electronic devices that have altered every aspect of daily life.

6. Radio and Television

- Radio and television resulted in major changes to social life.

- They opened the paths to bring distant events to people around the world.

7. Agricultural Mechanism

- The revolution in agriculture brought about by mechanization improved the irrigation system, planting, harvesting, and reaping.

- *Precision agriculture* became the practice.

8. Computers

- Computers are used for word processing, storage, business planning, and engineering design among many other applications.

- Programmable electronic devices have become an integral part of modern societies as some call this *the Computer Age*.

9. Telephone

- Innovations in the 20th century expanded the telephone's reach across the world.

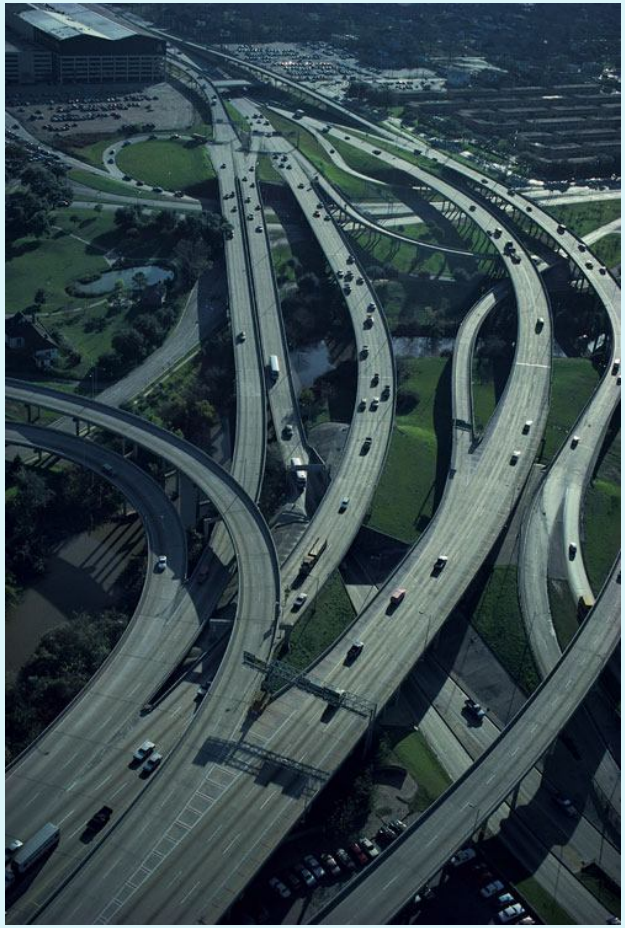
- Nowadays, more than billion people around the world use cellular technology to talk and deliver information.

10. Air-Conditioning & Refrigeration

- The refrigerator has became an indispensable feature of every modern home.
- Systems that involve the exchange of hot for cool air by way of a circulating refrigerant was first used in the industry.
- Nowadays it used in houses.

11. Highways

- A reliable network of roads, bridges, and tunnels is fundamental to any country's economic and social progress.



12. Spacecraft

- Space exploration was launched when the first spacecraft *Sputnik* orbited the earth.

- Space satellites provide valuable information about the weather, enhance telecommunications, and navigate systems that allow us to pinpoint where we are.

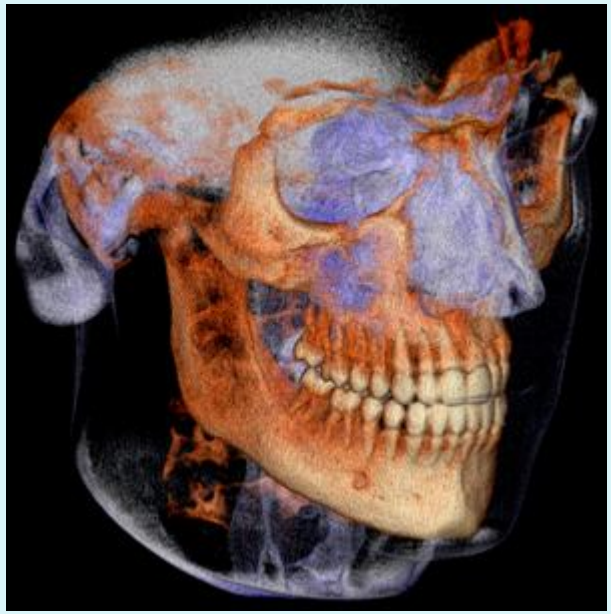
13. Internet

- The network was originally developed by the military to help scientists share information.
- Now the World Wide Web is open to everyone.
- The Internet has transformed the way we conduct research and communicate.

14. Imaging

- Microscopes, cameras, and the discovery of X rays led to the development of picture-making devices.

- Images are used by the military, medical, meteorological, and computer communities.



15. Household Appliances

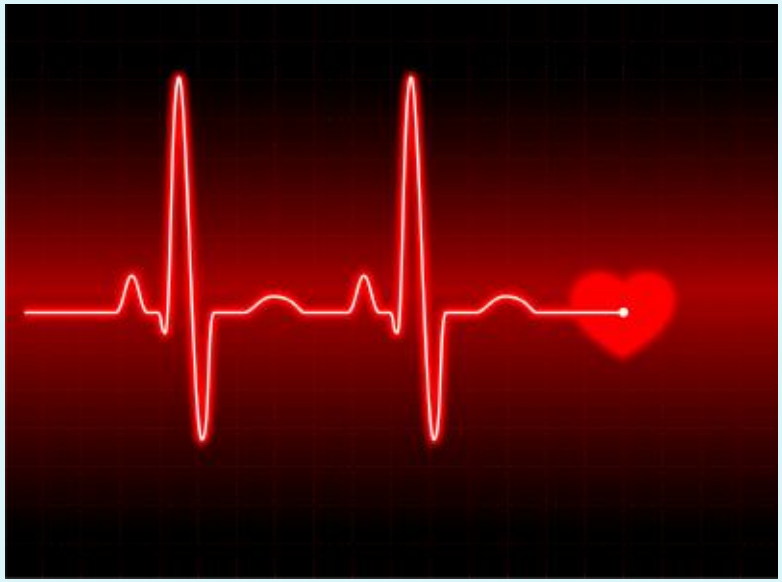
- With a push of a button meals are prepared, dishes are cleaned, and clothes are washed.

- Electric stoves, vacuum cleaners, washers, dryers, and dishwashers are used in all homes.

16. Health Technologies

- Advances in diagnosis, pharmaceuticals and medical devices have resulted in improving the health and life expectancy.

- These included: the development of CAT and MRI scans, artificial and transplanted organs, and antibiotics.



17. Petroleum Technologies

- Petroleum became the fuel of the century that ran automobiles, aircrafts and industrial machines.
- Byproducts of crude oil were discovered.
- Internal combustion engines run best on gasoline.

18. Laser and Fiber Optics

- The combination of optics and electronics has been essential to telecommunications.

- Fiber-optic cable carry data across the country and around the world using high-frequency laser signals

19. Nuclear Technologies

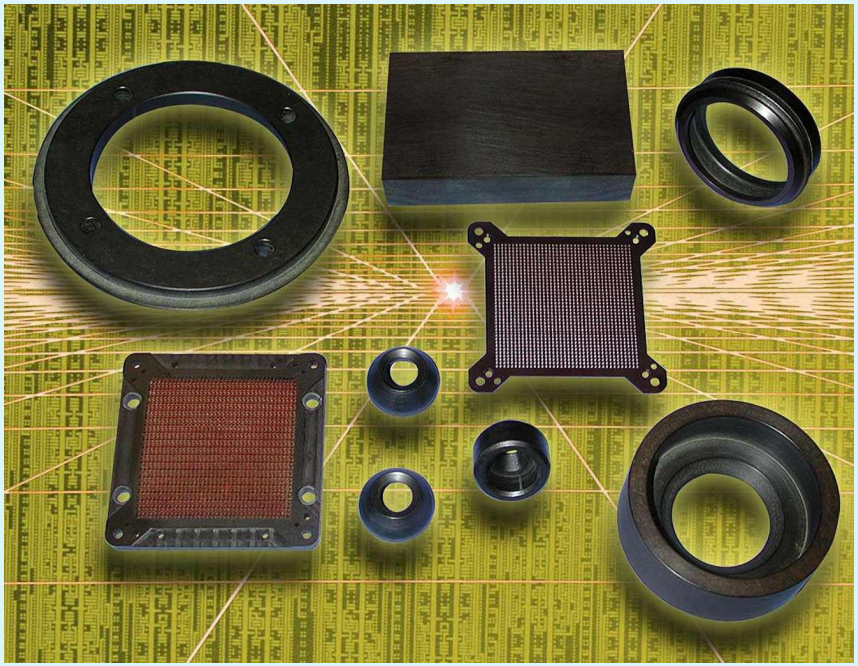
- The atom's elementary building blocks (the electron, proton, and neutron) were mapped and nuclear fusion was discovered.

- This powerful source of energy generates clean, low-cost electricity.

20. High Performance Materials

- In the beginning of the century, steel was produced in large quantities and used in many structures.

- Engineers developed new and improved materials for automobiles, sporting goods, skyscrapers, clothing, and computers.



Conclusion

- In this sequence, 20 great engineering achievements of the 20th century were presented.

- This concludes the 1st session of the course which included 5 sequences:
  - Definition and history
  - Engineering disciplines
  - Successful engineering skills
  - Moon landing
  - Greatest engineering achievements

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