THE HISTORY OF SURVEYING

DEFINITION OF SURVEYING

Surveying has been traditionally defined as the science and art of determining the relative positions of points above, on, or beneath the surface of the earth, or establishing such points.

THE EARLY DAYS OF SURVEYING

- **1400 B.C.**
  
  The Egyptians first used it to accurately divide land into plots for the purpose of taxation.

- **120 B.C.**

  Greeks developed the science of geometry and were using it for precise land division.
  Greeks developed the first piece of surveying equipment (Diopter).
  Greeks standardized procedures for conducting surveys.

THE EARLY DAYS OF SURVEYING

- **1800 A.D.** Beginning of the industrial revolution.

  The importance of "exact boundaries" and the demand for public improvements (i.e. railroads, canals, roads) brought surveying into a prominent position.
  More accurate instruments were developed.
  Science of Geodetic and Plane surveying were developed.

SURVEYING TODAY

Today surveying affects most everything in our daily lives. A few of the areas where surveying is being used are:

- To map the earth above and below the sea.
- Prepare navigational maps (land, air, sea).
- Establish boundaries of public and private lands.
- Develop data bases for natural resource management.
- Development of engineering data for

  Bridge construction.
  Roads.
  Buildings.
  Land development.

THE FIVE MAIN AREAS OF THE SURVEYOR'S WORK

- Research, analysis, and decision making.
- Field work [Data acquisition].
- Computing [Data processing].
- Mapping [Data representation].
THE TWO MAJOR METHODS OF SURVEYING

• GEODETIC SURVEYING
  Takes into account the theoretical shape of the earth.
  Generally high in accuracy, and cover large areas. (greater than 300 sq. mi.).

• PLANE SURVEYING
  Assumes that the survey area is a flat plane.
  Generally covers small areas (less than 300 sq. mi.).
  Most common method used.

TYPES OF SURVEYS

• Control surveys.
• Topographic.
• Land, Boundary and Cadastral surveys.
  Original surveys.
  Retracement surveys.
  Subdivision surveys.

• Hydrographic surveys.
• Route surveys.
• Construction surveys.
• As-build surveys.
• Mine surveys.

U.S. GOVERNMENT AGENCIES THAT SET SURVEYING STANDARDS

Accurate mapping cannot be done without good control. Networks for geodetic horizontal and vertical control are continually being extended and upgraded throughout the country.
• NATIONAL GEODETIC SURVEY (NGS)
• BUREAU OF LAND MANAGEMENT (BLM)
• THE U.S. GEOLOGICAL SURVEY (USGS)
• THE DEFENSE MAPPING AGENCY (DMA).
• U.S. ARMY CORPS OF ENGINEERS

WHERE SURVEYING IS GOING IN THE FUTURE

Surveying is in the early stages of a revolution in the way data is collected, stored, retrieved and shared.
• Computers are being used widely at all levels.
• Optical systems.
• Satellites are being used to record all type of physical data.

As comedian Steven Wright says:
A friend of mine once sent me a post card with a picture of the entire planet Earth taken from space. On
the back it said, "Wish you were here."