Gaspard Monge

The French Inventor of Descriptive Geometry

Born: 9 May 1746 in Beaune, Bourgogne, France
Died: 28 July 1818 in Paris, France

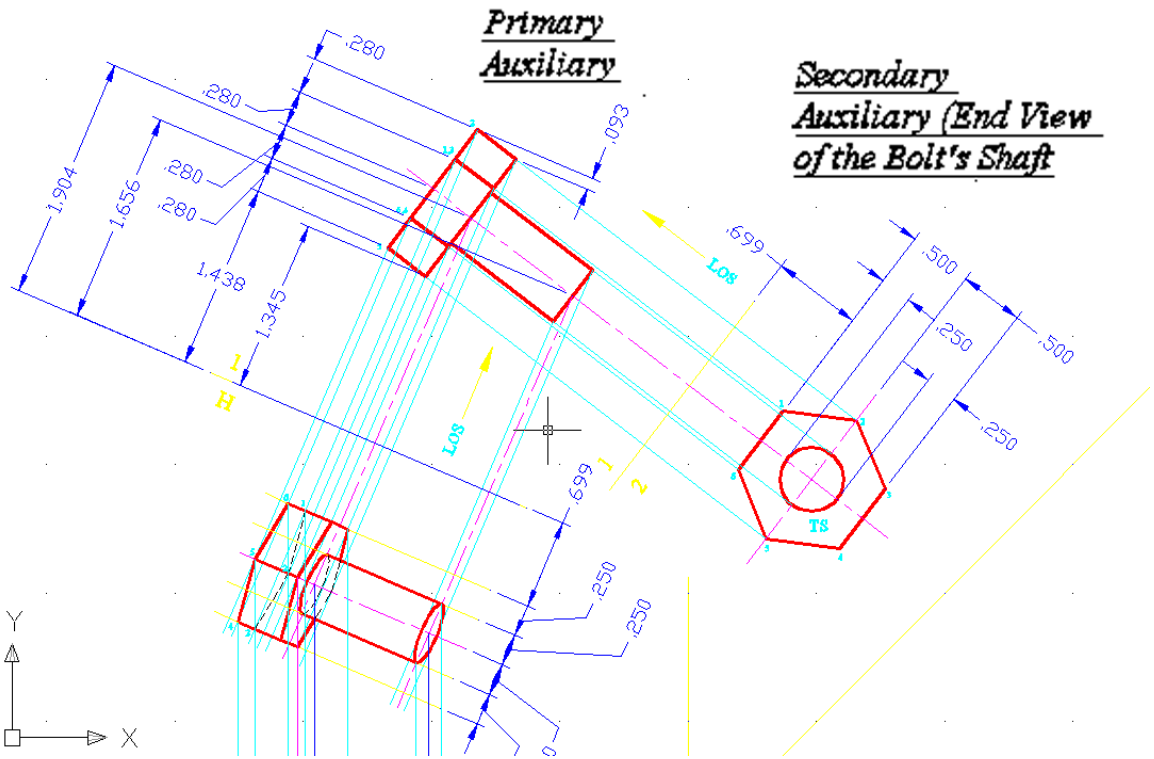
A Presentation
by Edward Locke

Tech 487-Seminar in Career Education
Winter 2006, CSULA

Gaspard Monge's Brilliant Life

- Born on 9 May 1746 in Beaune, Bourgogne, France, into a prosperous wine merchant's family.
- Attended the Oratorian College in Beaune (a school for young nobles run by priests). Learned humanities, history, mathematics, and the natural sciences.
- Attended Collège de la Trinité at Lyon in 1762. Taught a course in physics in 1763 at age 17. Completed education in 1764, and started a brilliant career as a scientist, educator and government administrator.
- Initiated the science of descriptive geometry (a great contribution to the field of engineering drafting and graphical calculations).
- Acquired the aristocratic title of the Comte de Péluse under Emperor Napoleon Bonaparte in 1808.
- Died on 28 July 1818, in Paris, France, at the age of 72.

Gaspard Monge's Invention of Descriptive Geometry



- Invented the methods while working on a fortification plan as a drafting/planner around 1765, at the École Royale du Génie at Mézières.
- Integrating geometrical and graphical techniques to represent 3D objects with 2D multi-view orthographic projection drawings.
- Used by engineers to determine design parameters (shortest distance, dihedral angles, etc).
- Taught in engineering drafting courses as the foundation of orthographic projection.

Gaspard Monge's Contribution to The Education of Descriptive Geometry

Teaching

- Taught descriptive geometry at prestigious schools in France he helped to found (École Polytechnique in 1794; École Normale in 1799, and others).

Publications

- Géométrie descriptive (1799; "Descriptive Geometry");
- Feuilles d'analyse appliquée à la géométrie (1801; "Analysis Applied to Geometry" on differential geometry);
- Application de l'algèbre à la géométrie (1805; "Applications of Algebra to Geometry");
- Application de l'analyse à la géométrie (1807; "Applications of Analysis to Geometry").

Gaspard Monge's
Contributions to Science & Technology

Mathematics

- Wrote thesis on analytic geometry and calculus: evolutes of double curves published on Journal Encyclopédique (1768-1769); calculus of variations, infinitesimal geometry, theory of partial and finite differential equations (1785); and combinatorics (1770-1771).

Chemistry

- Built a chemistry laboratory at the École Royale du Génie at Mézières and conducted research projects on: composition of iron, steel, and nitrous acid, capillary phenomena (1787); structure of Iceland spar; action of electricity sparks on carbon dioxide gas (1786).

Physics & Engineering

- Taught and conducted research on: double refraction; physiological optics (1789); hydrodynamics; meteorological phenomena (1788) at Académie des Sciences in Paris and other institutions.

Gaspard Monge As A Public Servant

Support for French Revolution

- Served at various government positions after the storming of the Bastille on 14 July 1789: Examiner of Naval Cadets (1783-1789); Minister of the Navy and Colonies (1792-1793); superintendent of various military projects (arms and explosives); member of the Committee of Weights and Measures (1791) at establishing the metric system.

Support for Napoleonis Wars

- Joined Napoleon’s expeditionary force (26 May 1798) and helped in the military conquests of Italy, Egypt, and Malta; and set up schools such as Institut d’Egypte in Cairo patterned after French models.
- Appointed as a Senator for Life on the Consulate by Napoleon and made the Comte de Péluse (1808).
- Fell into disgrace politically after the fall of the Napoleon regime (1814); expelled from the Institut de France (1816) under the restored monarchy of the Bourbons family. However, on his death (28 July 1818, in Paris, France), the students of the École Polytechnique paid tribute to him despite opposition from the French Government.