The Public Fountains of the City of Dijon
by Henry Darcy
English Translation by Patricia Bobeck
Life of Henry Darcy

• 1803 - Born in Dijon
• 1817 - Father died
• 1821 - Entered Ecole Polytechnique
• 1823 - Entered Ecole des Ponts et Chaussées
• 1826 - Joined Corps des Ponts et Chaussées
Life of Henry Darcy

- 1827 - Appointed Engineer in Dijon
- 1828 - Married Henriette Carey
- 1832 - Gauged Rosoir Spring during drought
- 1834 - Proposed water supply system to city
- 1839-40 - Built aqueduct & water system
- 1843 - Proposed railroad route through Dijon
- 1845 - Supervised construction of Blaisy Tunnel
- 1848 - Chief Engineer of Dept. of Côte d’Or
Hotel de Vogüé, Darcy’s residence

Note the Burgundian style tile roof
Life of Henry Darcy

• 1848 - Revolution
• 1849 - Chief of Municipal Service in Paris, studied pipes
• 1851-2 - Consultant to Brussels
• 1852 - Studied macadam roads in England
• 1855 - Retired to Dijon, conducted Darcy’s Law experiments
• 1857 - Nominated to Academy of Sciences
• 1858 - Died in Paris
French Governments 1789-1870

• 1789  Revolution
• 1792  First Republic
• 1799 - 1804 Consulat
• 1804 - 1815 First Empire - Napoleon
• 1815 - 1830 Restoration - Louis XVIII - Charles X
• 1830 - 1848 Bourgeois Monarchy - Louis-Philippe
• 1848 - 1851 Second Republic
• 1852 - 1870 Second Empire - Napoleon III
The Public Fountains of the City of Dijon

- Published in 1856 as engineer’s guide for construction of a water supply system.
- 647 pages + 28 plate atlas.
- 4 Parts, 8 Appendices.
Darcy’s Philosophy of Water

• “As much as possible, one should favor the free drawing of water because it is necessary for public health. A city that cares for the interest of the poor class should not limit their water, just as daytime and light are not limited.” (p. 42)
Purpose of Fountains

• Abundant, pure, free water
  Domestic use: day and night
  Street washing
  Fire fighting
• Fountains 100 m apart
Part 1. Dijon’s Water Sources

Groundwater
  Springs - Appendix A
  Artesian Well

Surface water:
  Suzon Torrent
  Ouche River
Rosoir Spring (Part 1, Chap. 3)

- Jurassic Limestone
- 8,000 liters/min. (0.13 m³/s)
- Quality of Rosoir Spring water

Also: Dijon’s Previous Water Quality
Calculations for Dijon’s water supply
Choice of water supply
Artesian wells
Springs seekers - ancient and modern
Origin of springs
Darcy’s Calculation for Dijon’s Water Consumption

- 90 liters for domestic uses, garden watering, bathing, industrial establishments and fire fighting
- 60 liters for flushing gutters that run along sidewalks and watering of public streets with carts or hoses
- Total = 150 liters/person/day
- Consumption always tends to increase. (p. 42)
- Compares water usage of London and other cities
Part 2. Construction

• Aqueduct
  – 12.7 km long, masonry, 1 meter underground

• Distribution system - gravity-driven
  – Elevation difference: Spring - reservoir = 46 m
  – 2 reservoirs - 5500 cubic meters total capacity
  – Main artery across Dijon - 1 km long
  – 10 distributor pipes interconnected to form grid
  – 110 - 148 street fountains
Rosoir Spring
Porte Guillaume Reservoir
Entrance to Porte Guillaume Reservoir