Minard’s flowmaps redrawn

Menno-Jan Kraak
Minard’s flowmaps redrawn

- Introduction
- Minard’s flowmaps
- Others and the flowmap
- Play with dimensions
- Play with time
- Crossing the Berezina River
- Conclusion

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Minard’s 1869 map: Hannibal and Napoleon
Tufte on Minard’s Map

• “possibly the best graphic ever made”

• “a narrative graphic of time and space which illustrates how multivariate complexity can be subtly integrated…

  …so that viewers are hardly aware that they are looking into a world of four or five dimensions”

[from Tufte, 1983]
http://www.edwardtufte.com/tufte/

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What if? and an explanation
Emigration
Coal transport
Ahead of his time: Minard’s flow maps 1861
Ahead of his time; Minard’s time series 1866
Ahead of his time: Minard’s linked views
Alternative’s based on Minard


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Alternative’s based on Minard
Alternative’s based on Minard
Alternative’s based on Minard
Alternative’s based on Minard
a) Time and geography

b) From time to geography

c) From geography to time
Soldiers and Battles

Major battles during Napoleon’s Russian Campaign

**First battle of Polotzk**
- Franco-Bavarian victory (St. Cyr) over Russians (Wittgenstein)
- Forces:
  - Franco-Bavarian: 30,000
  - Russians: 18,500
- Casualties:
  - Total Losses: 6,000
  - Deaths/Wounded: 6,000

**Second battle of Polotzk**
- Franco-Bavarian victory (St. Cyr) over Russians (Wittgenstein)
- Forces:
  - Franco-Bavarian: 23,000
  - Russians: 22,000
- Casualties:
  - Total Losses: 8,000
  - Deaths/Wounded: 12,000

**Map:**
- Key locations: Berezina, Moskva, Russian victory, French victory, Austrian victory, Prussia, Poland, Poland, Russia.
Troops in the map

Napoleon's Campaign in Russia

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Summer and winter time
Space time cube

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Troops in the Space-Time-Cube
Personal interest: Crossing the Berezina
The campaign of soldier G.J. Kraak
IX Corps (Victor)
12th Division (Partouneaux)
2nd Brigade (Blamont)
125th Line infantry regiment
1812 - 2012
Want to know more?

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Let’s make the world a better place with maps