



Maps

GC

Motivation: effective information transmission

- maps are informative all by themselves
 - where is it? how far away?
 - is b between a and c ?
- many subsorts
 - political, showing states, other political boundaries
 - topographical (elevation)
 - weather
 - almost any other kind of variable
 - * language, religion, ...
 - * interest in web pages
(see **notes** on class
www.let.rug.nl/~nerbonne/teach/gc.html)



Geographic Distributions

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Where is it? What's nearby?



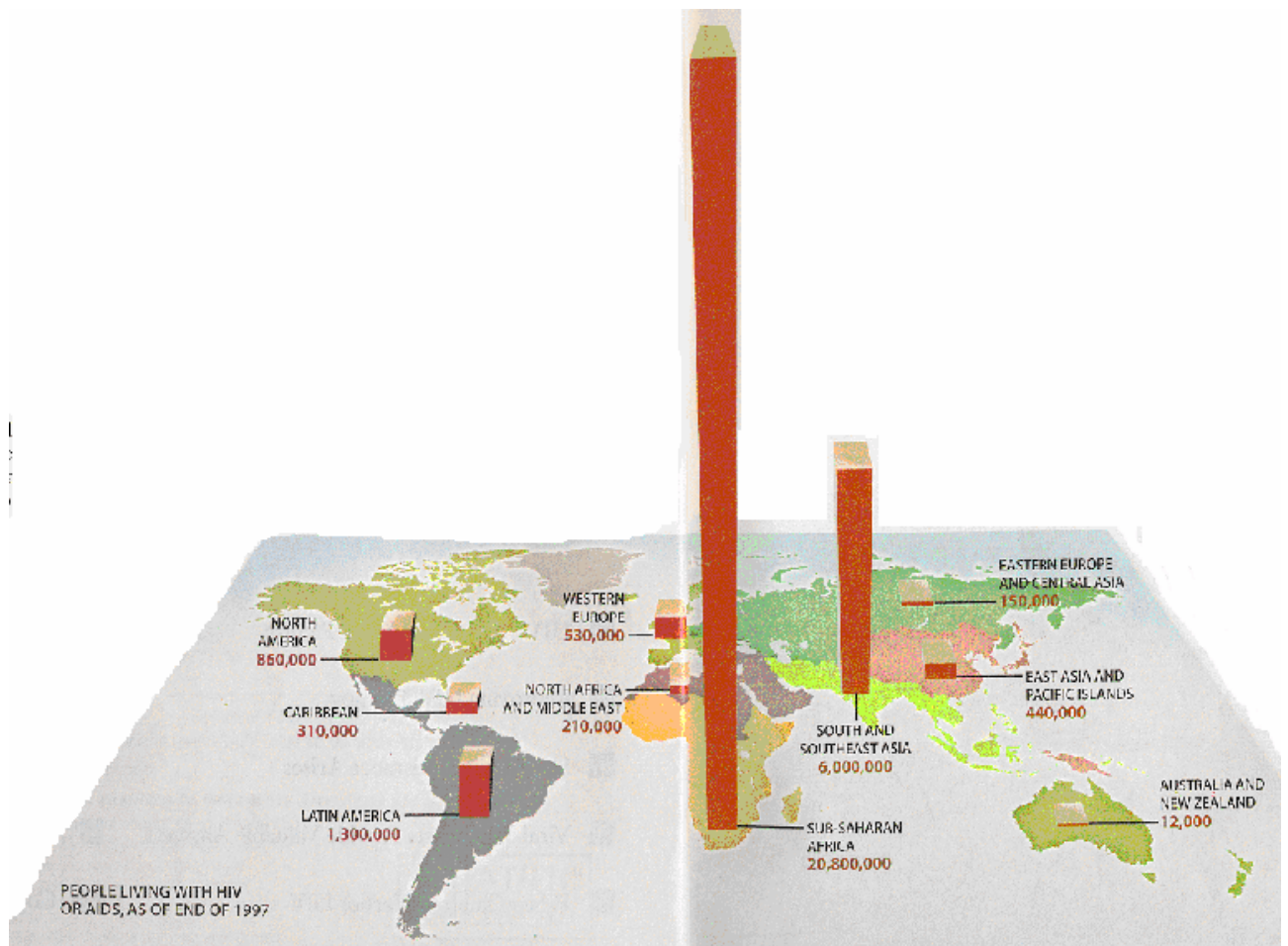
incidence of cholera in London, Snow (1854)



Frequency and Geography

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How much is where? —aids, 12/94



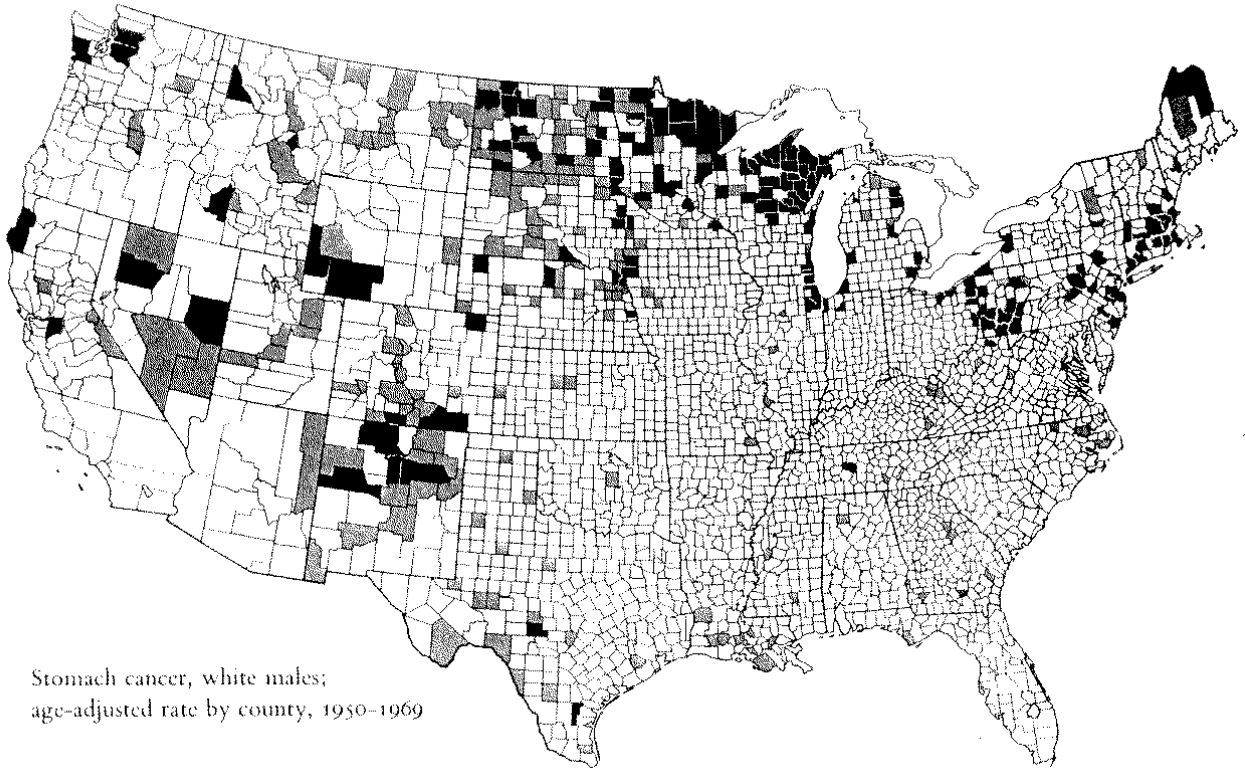
same rules for drawing histograms apply



Frequency and Geography

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How much is where? —cancer, 1991



Stomach cancer, white males;
age-adjusted rate by county, 1950-1969

Tufte's criteria for "graphical excellence"

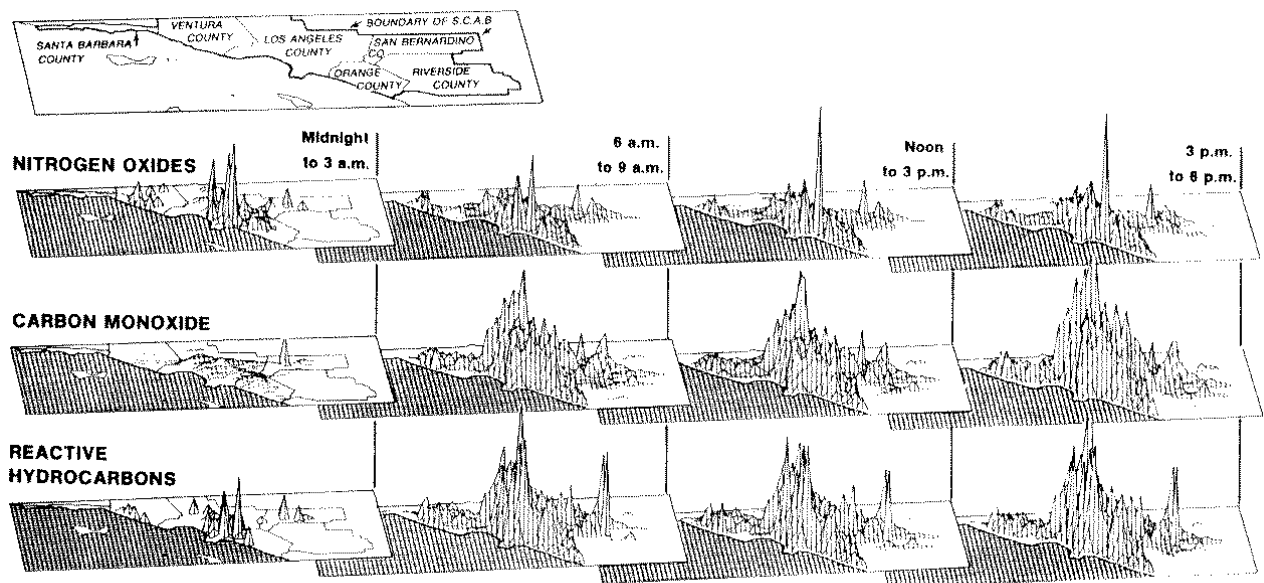
- present a lot of information in a little space
- serve a clear purpose
 - exploration
- encourage comparison of data



Time and Maps

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Sometimes multiple maps can be used to illustrate developments over time.



Each row represents the daily cycle of a different noxious gas.

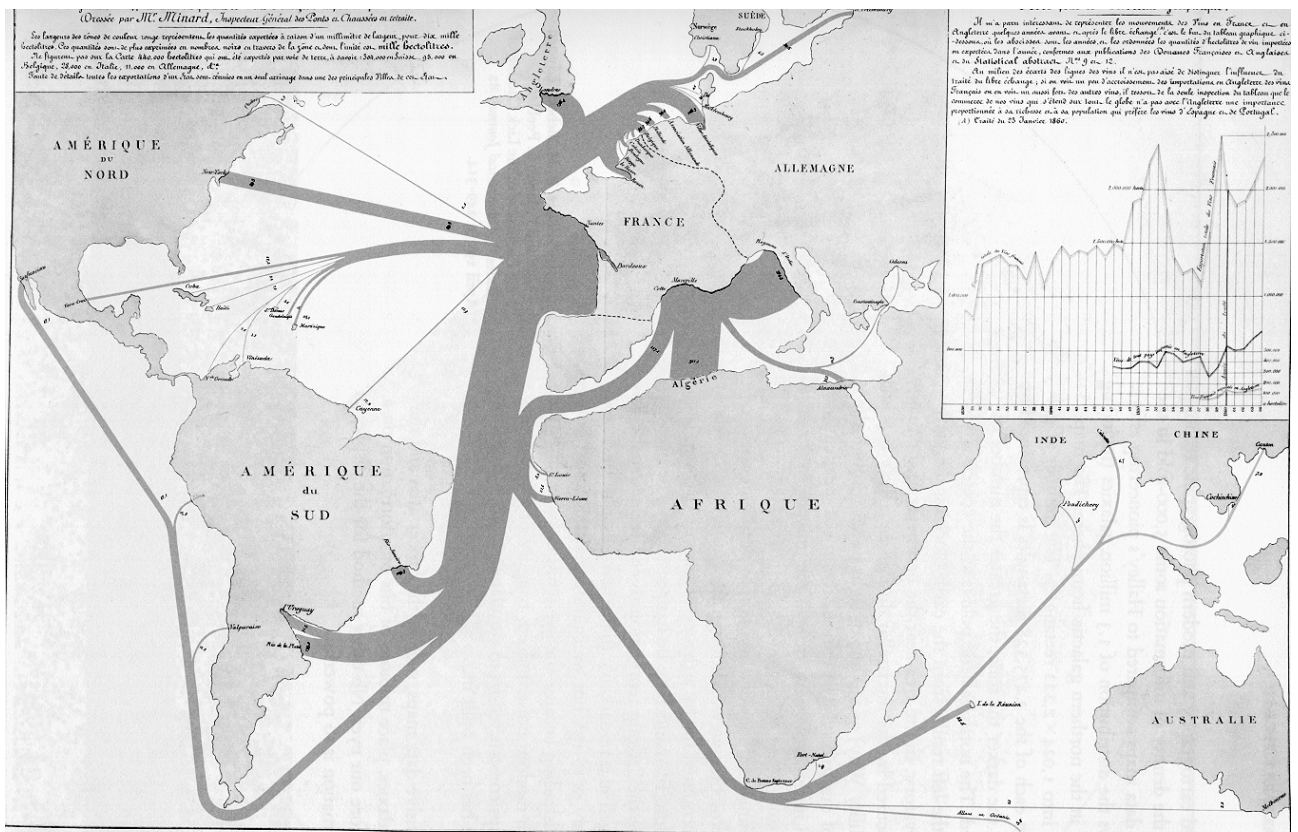
We instinctively start to compare horizontally (time) and vertically (different substances).



Trade

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How much to where? —French trade, 1864



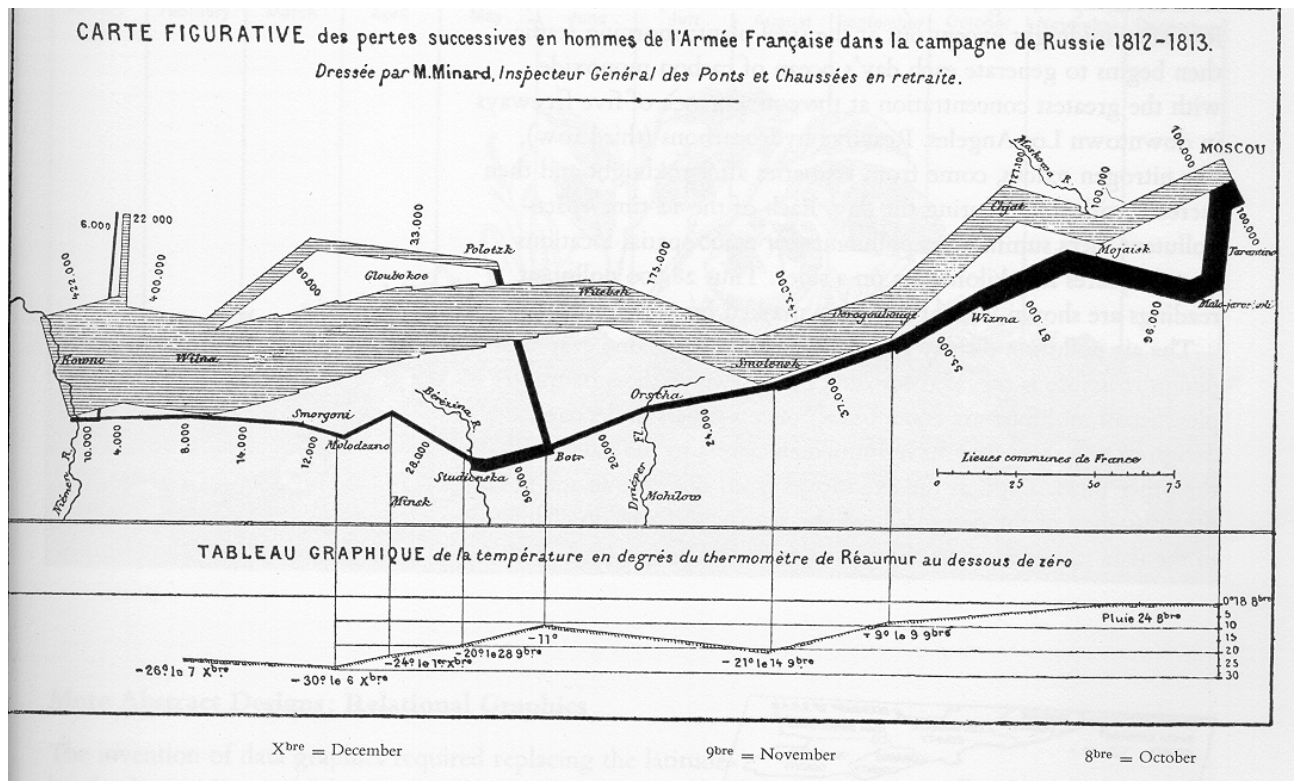
Charles Joseph Minard, *Tableaux Graphiques et Cartes Figuratives de M. Minard, 1845-1869*, a portfolio of his work held by the Bibliothèque de l'École Nationale des Ponts et Chaussées, Paris.



War

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How many, to where, when? —Napoleonic campaign, 1812-13



from Tufte, p.41 —note temperature!