Questions?

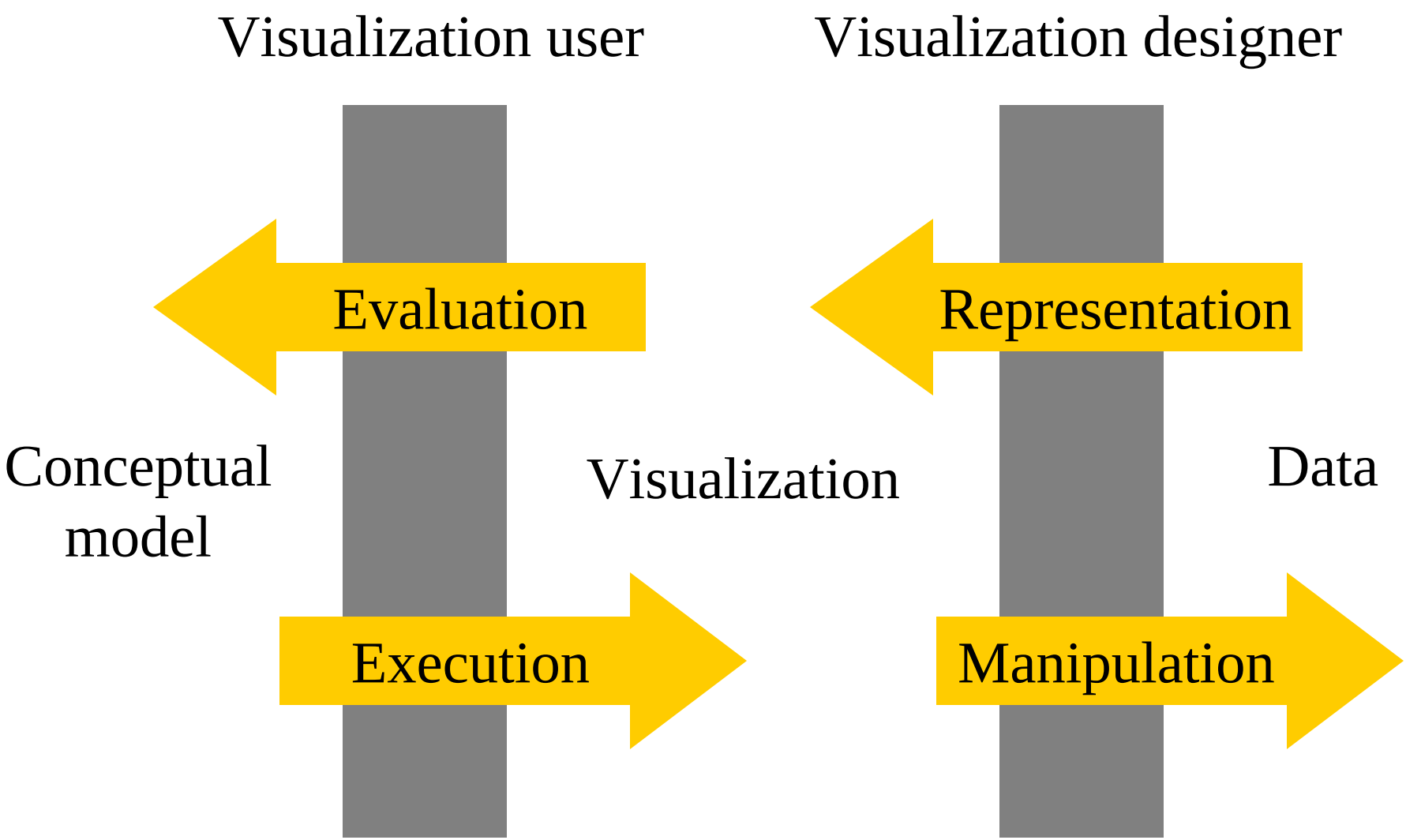
- Project #3

Information visualization

- Data presentation
  - Emphasis the important aspects
  - Tone down irreverent aspects
  - Avoid distortions

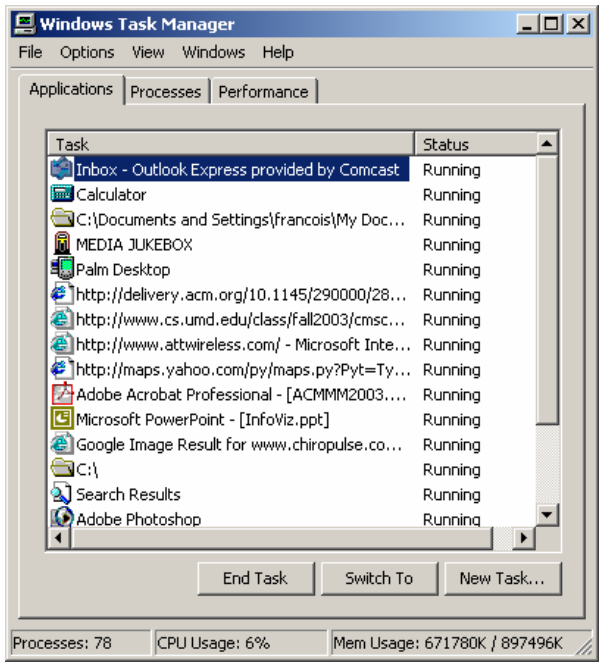
- Discovery
  - Understand trends
  - Figure out underlying principles
  - Avoid distortions
  - Iterative process

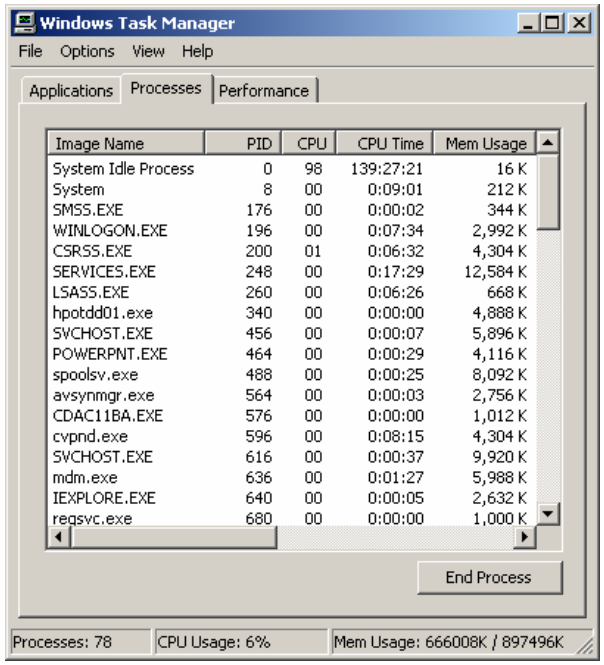
Visualization: a double gulf?

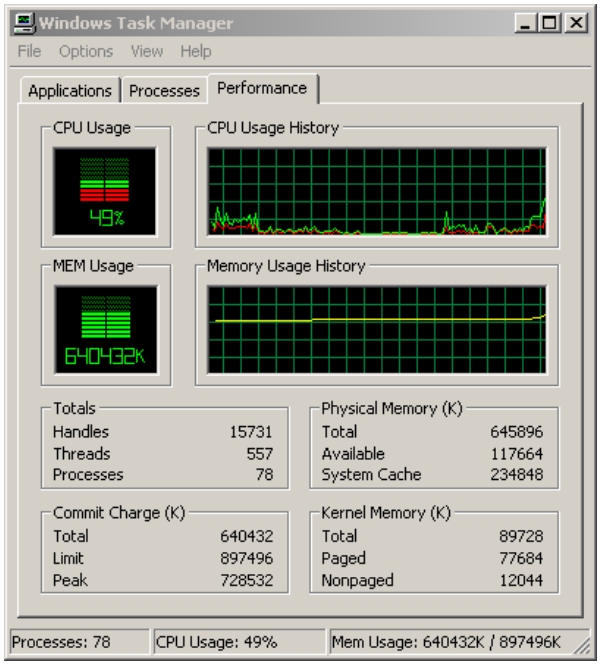


Goal directed

- The best visualization depend on the task
  - System performance meter



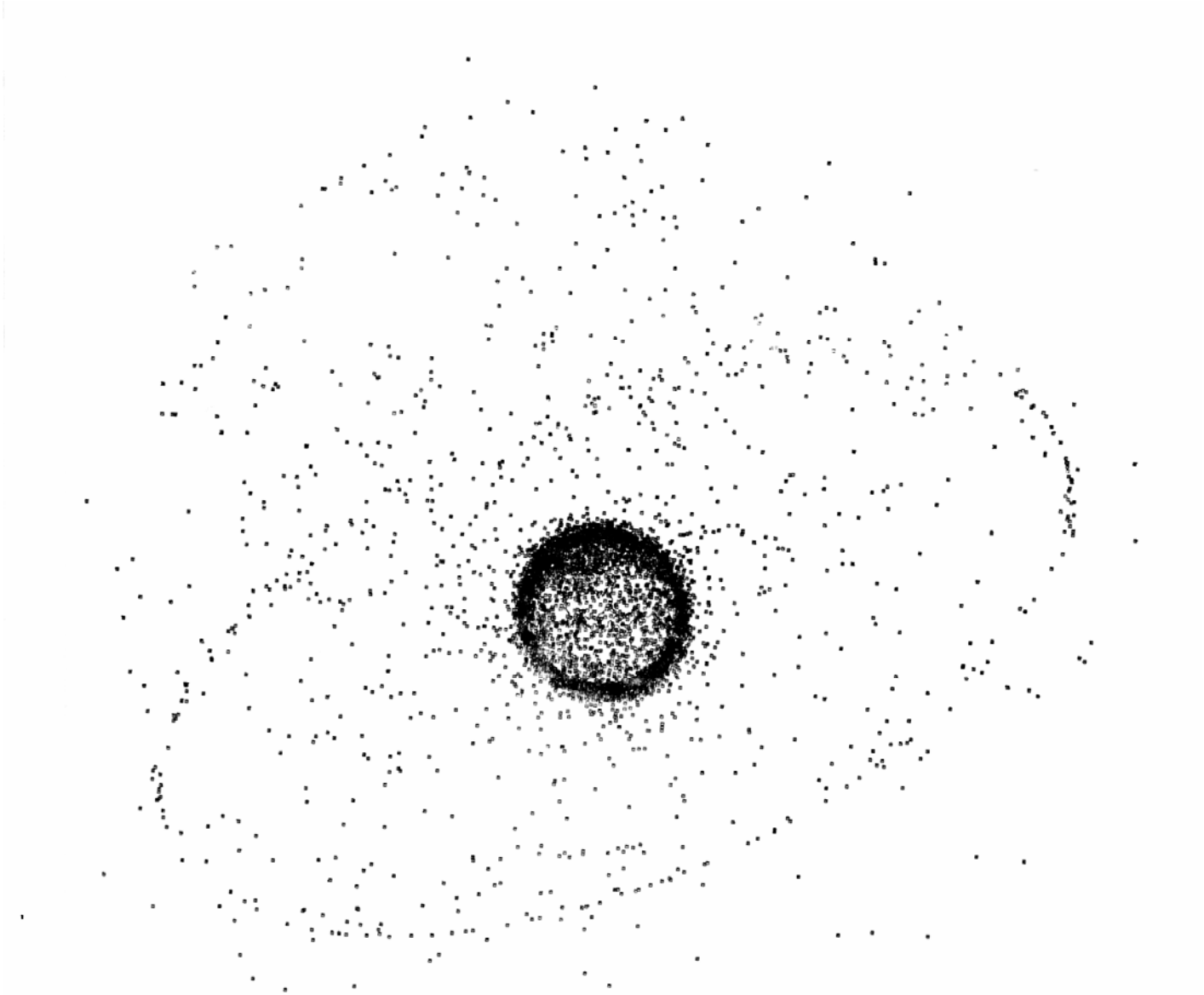




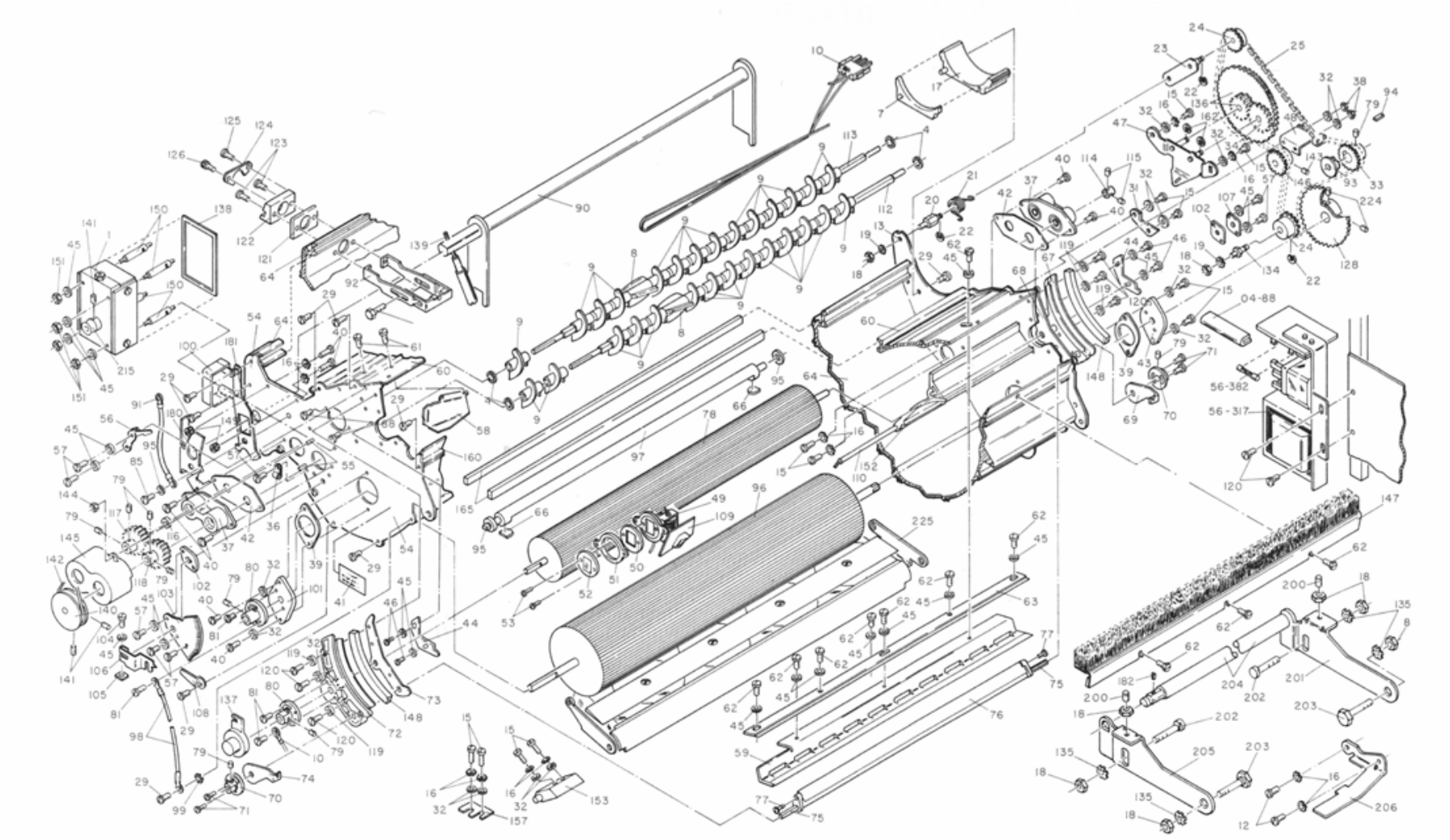
Tufte’s classification

- “Envisioning Information” book
  - Micro/Macro reading
    - *Showing individual data points and identifying patterns*
  - Layering and separation
    - *Relating information structure*
  - Small multiple
    - *Comparing several alternatives*
  - Color
    - *Using color to identify sub-structures*
  - Narration of space and time
    - *Telling a story*

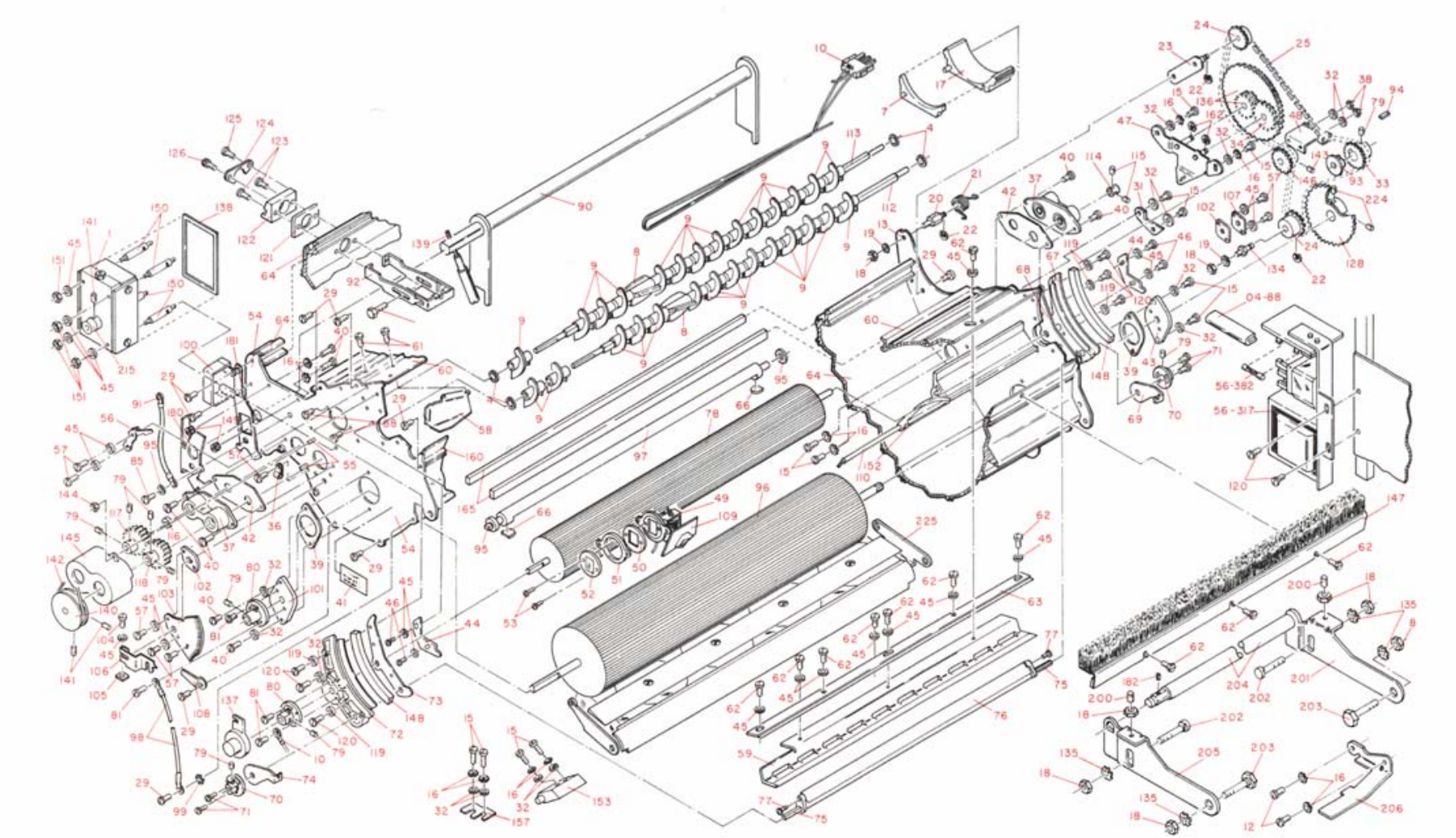
Macro-Micro reading: 7000 satellites



Layering and separation: assembly



Layering and separation: assembly



Layering and separation: table

- Train schedule
  - Setting the emphasis on the data not the table

Train No.	3701	XM 3301	3801	A 67	3 3803
New York, N.Y.	A.M. 12.10	A.M. 12.40	A.M. 1.30	A.M. 3.52	A.M. 4.50
Newark, N.J. P	12.24	12.55	1.44	4.07	5.04
North Elizabeth	....	....	....	....	....
Elizabeth	12.31	1.03	1.51	....	5.11
Linden	12.36	....	1.56	....	5.16
North Rahway	....	....	....	....	....
Rahway	12.40	1.11	2.00	....	5.20
Metro Park (Iselin)	12.44	....	2.04	4.26	5.24
Metuchen	12.48	....	2.08	....	5.28
Edison	12.51	....	2.11	....	....
New Brunswick	12.55	....	2.15	....	5.35
Jersey Avenue	1.02	....	2.18	....	....
Princeton Jct. S	....	....	2.31	....	5.50
Trenton, N.J.	....	....	2.42	4.58	6.03

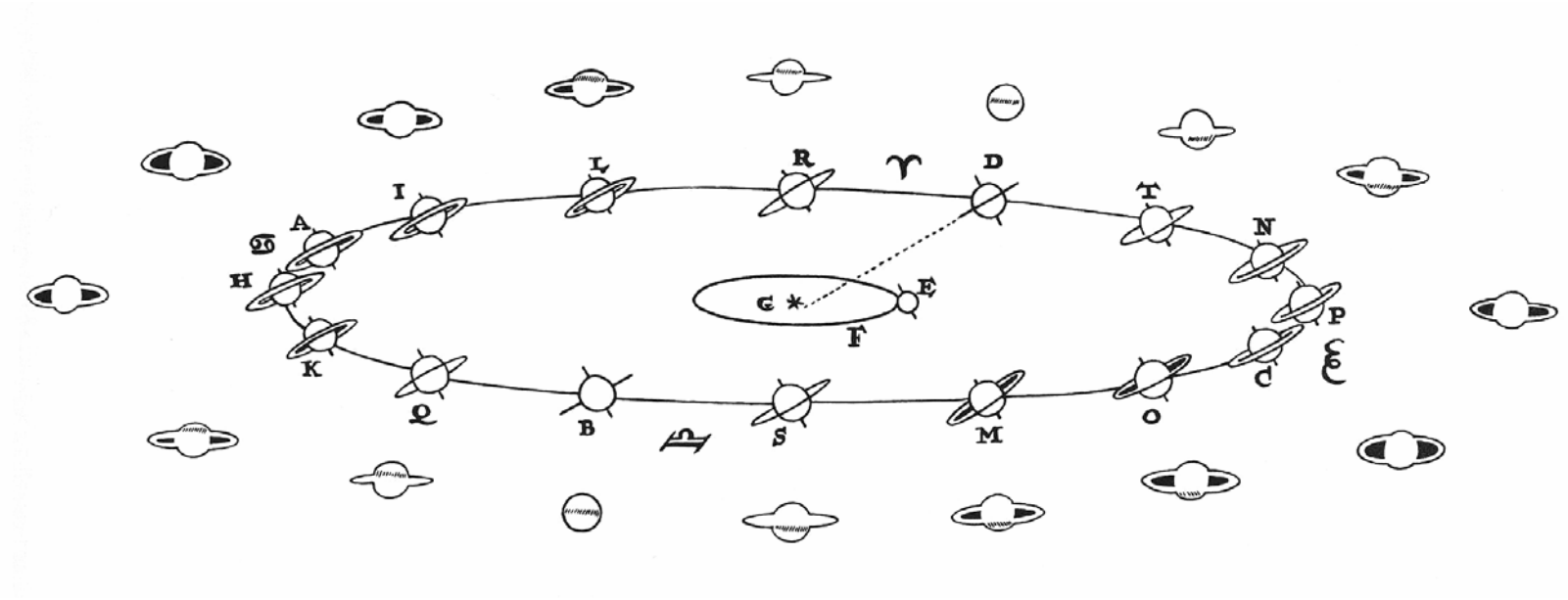
	am				
New York, NY	12.10	12.40	1.30	3.52	4.50
Newark, NJ P	12.24	12.55	1.44	4.07	5.04
North Elizabeth					
Elizabeth	12.31	1.03	1.51	. .	5.11
Linden	12.36	. .	1.56	. .	5.16
North Rahway					
Rahway	12.40	1.11	2.00	. .	5.20
Metro Park (Iselin)	12.44		2.04	4.26	5.24
Metuchen	12.48		2.08	. .	5.28
Edison	12.51		2.11	. .	. .
New Brunswick	12.55		2.15	. .	5.35
Jersey Avenue	1.02		2.18	. .	. .
Princeton Junction S			2.31	. .	5.50
Trenton, NJ			2.42	4.58	6.03
TRAIN NUMBER	3701	3301	3801	67	3803
NOTES		XM		➡	3

Layering and separation: map

- VFR chart
  - Layering by type of use

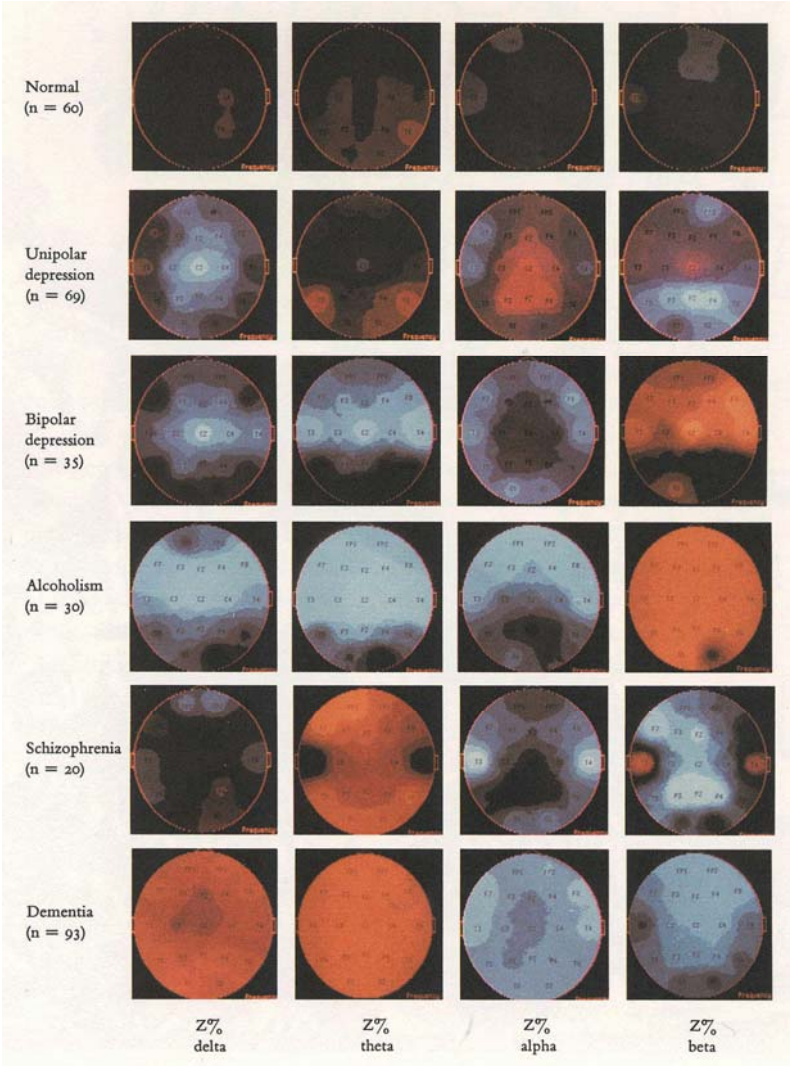
Small multiples

- Saturn and its satellites



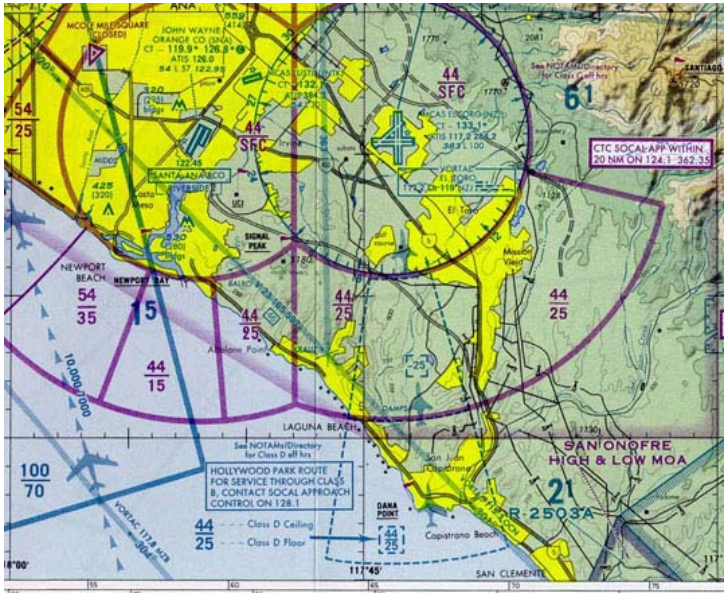
Small multiples

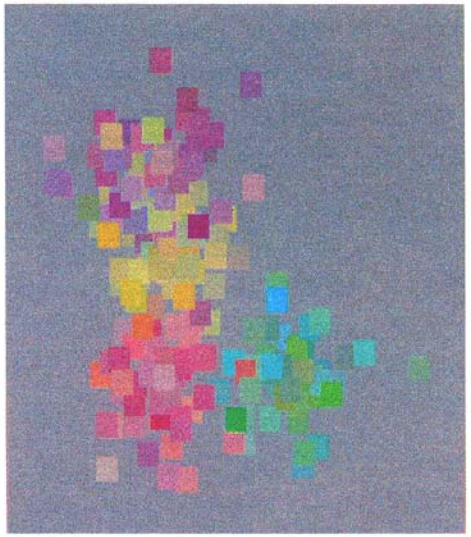
- Brain electrical activity

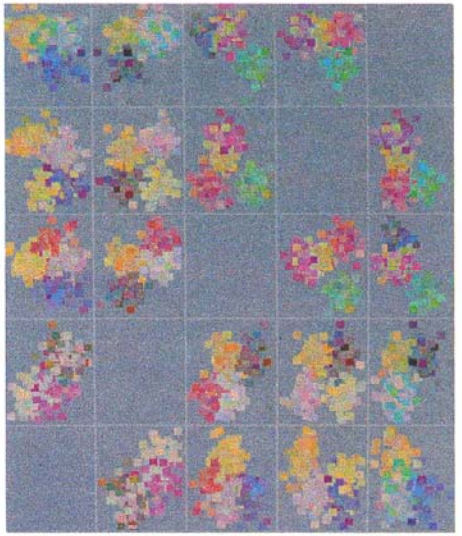


Color

- Used to identify and/or distinguish sub-group

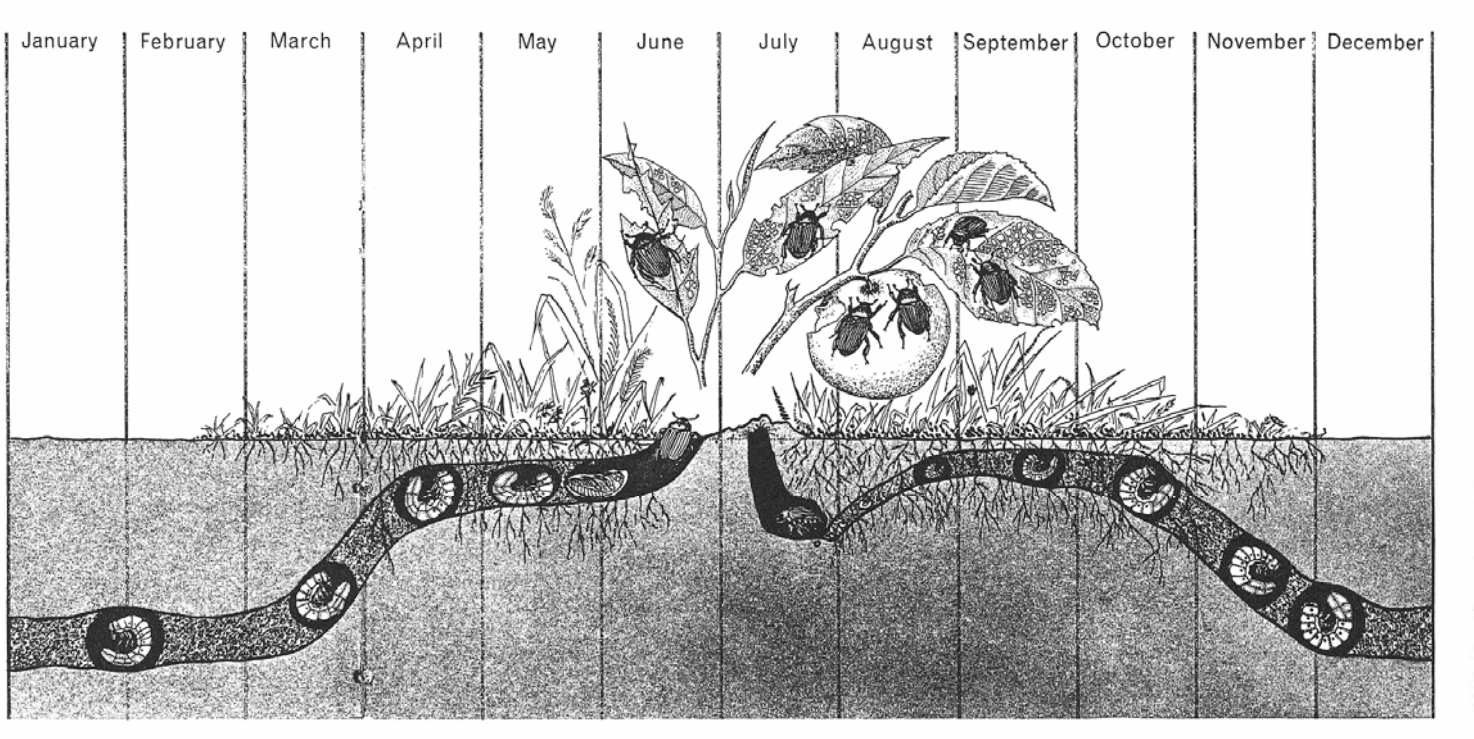




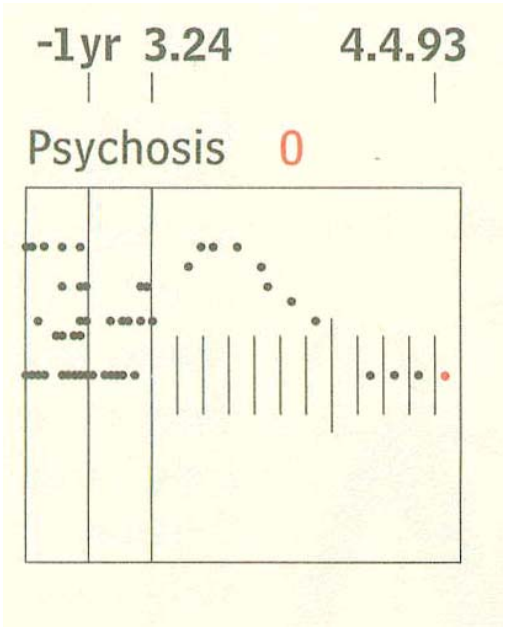


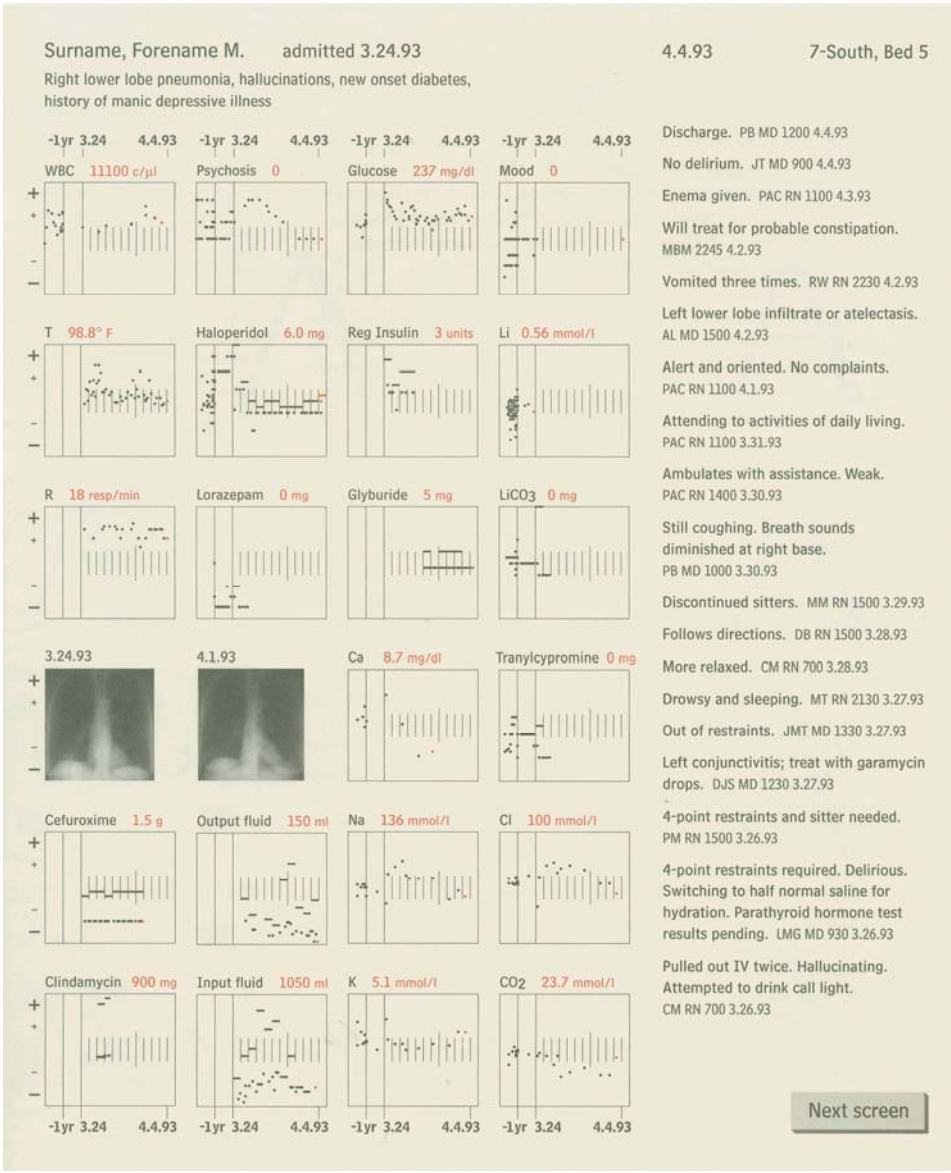
Narrative of space and time

- Japanese beetle life cycle

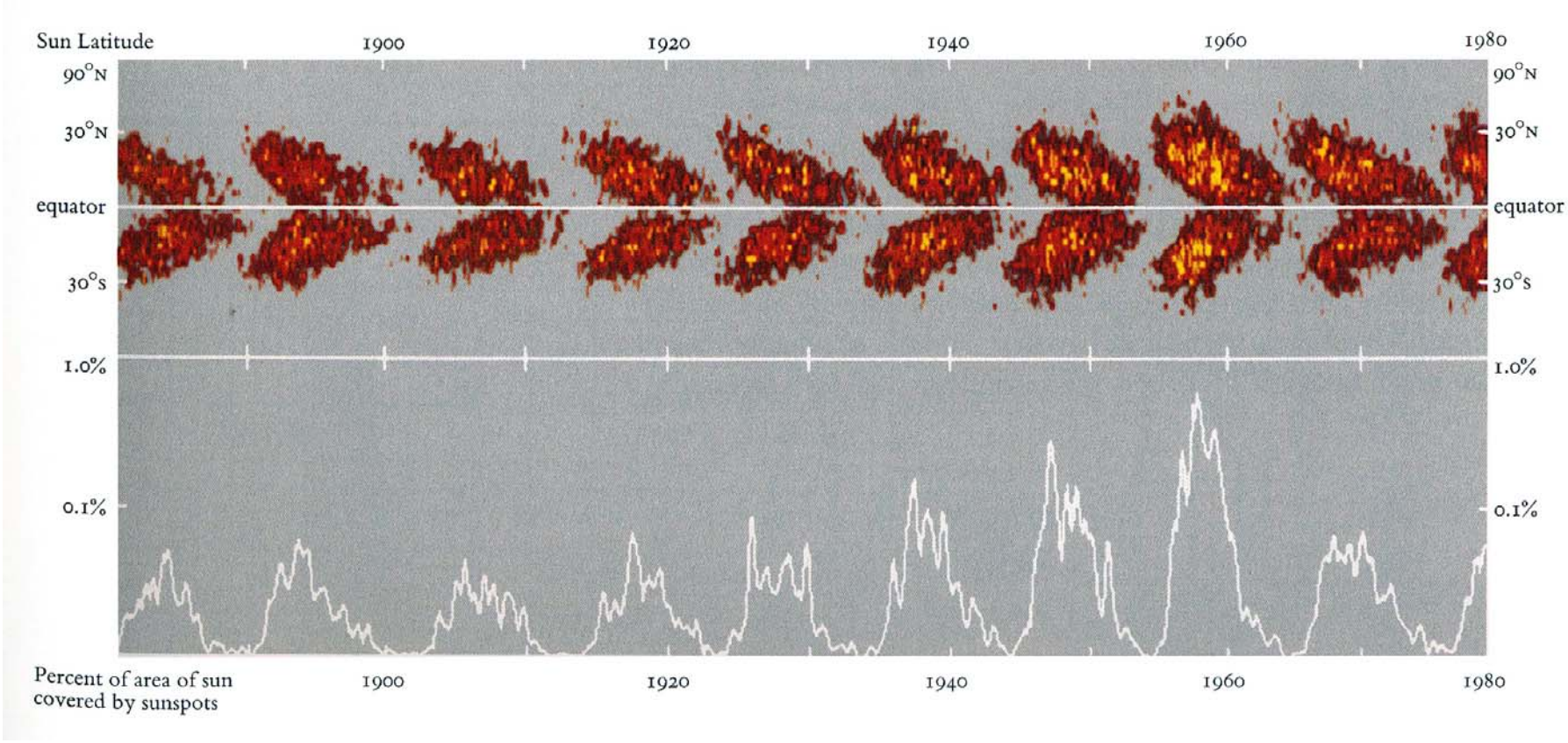


Example: Medical data





Example: sunspots



Visualization Exercise

- Pick one of the following problems:
  - Explain the phase of the moon;
  - Visualize the pattern of traffic on the beltway;
  - Explain how Apollo 11 got to the moon;
- Establish the objective of your visualization
- Design your visualization accordingly