

Why should we
visualize things?

Obvious

See things

Communicate

Why visualize

Think better/
faster/broader

Discover new
knowledges

Innovative



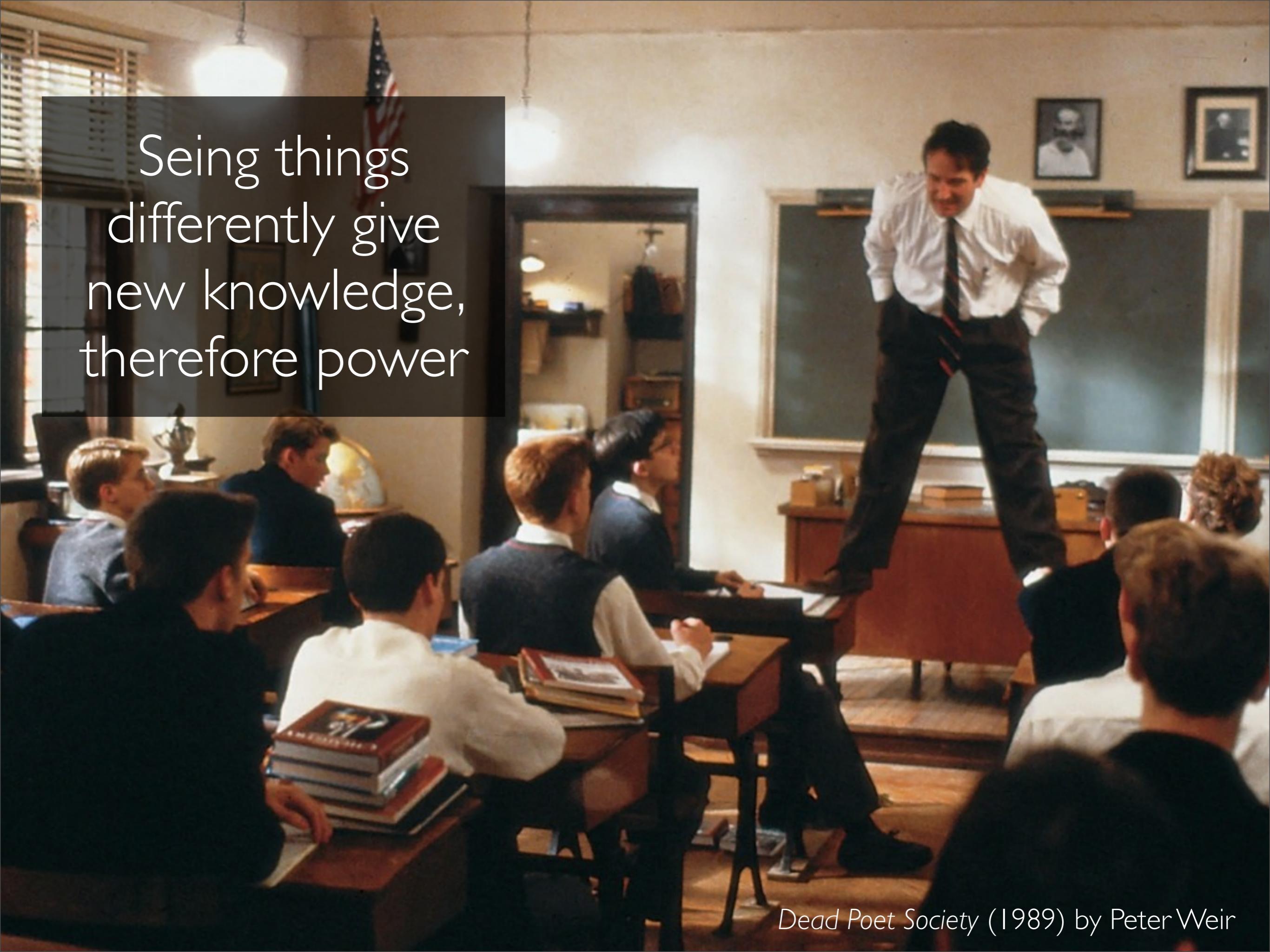
See things



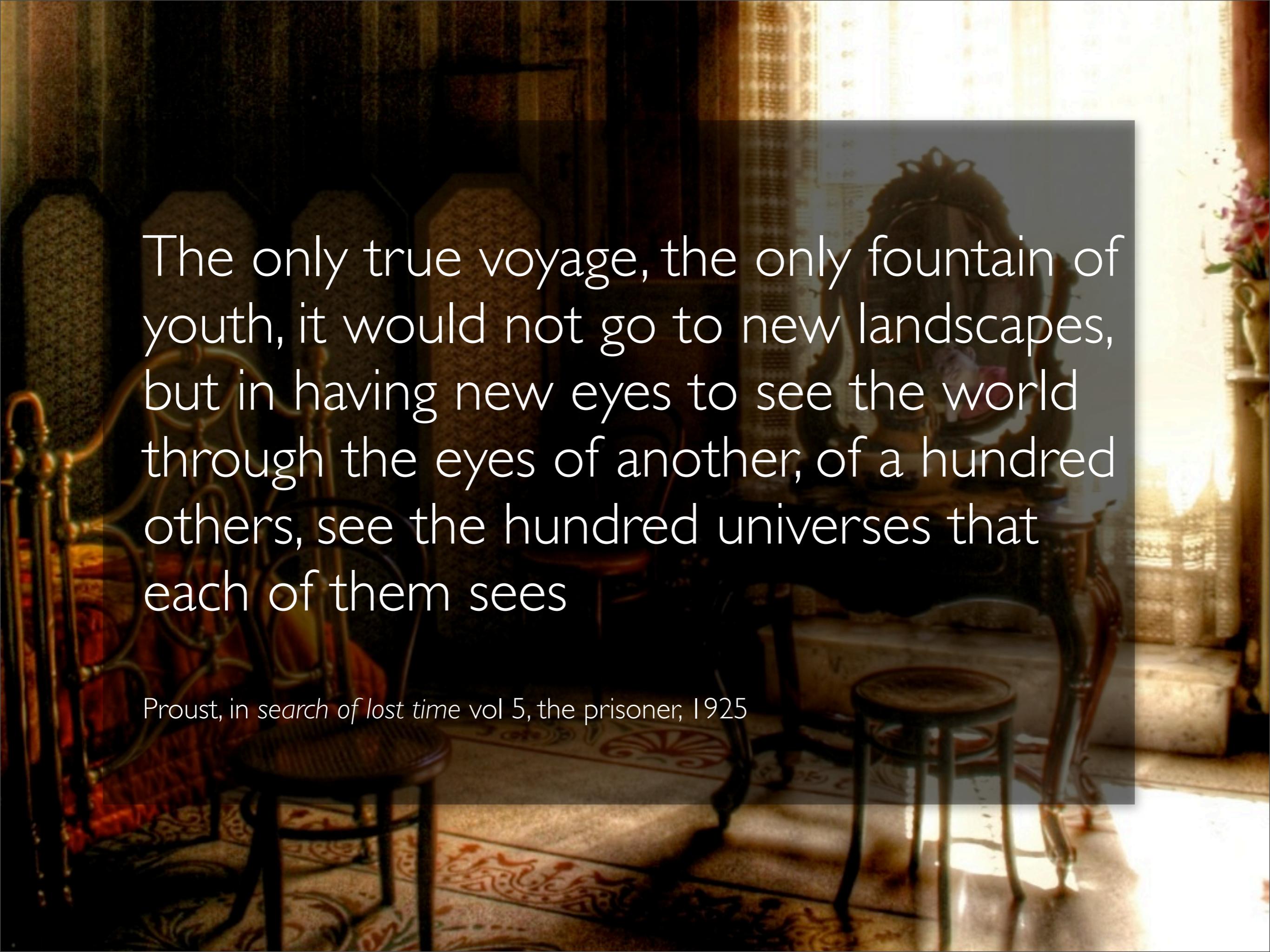
Visualization: A
power to see
~~weird~~ things

The Sixth Sense (1999) by Night Shyamalan

Seeing things
differently give
new knowledge,
therefore power



Dead Poet Society (1989) by Peter Weir

A dark, atmospheric photograph of a library interior. In the foreground, a small wooden stool with a decorative patterned cloth draped over it sits on a carpet. Behind it, a large armchair with a similar patterned cloth is partially visible. In the background, tall bookshelves filled with books reach towards the ceiling. A single beam of light from a window on the right side illuminates the scene, creating strong shadows and highlights.

The only true voyage, the only fountain of youth, it would not go to new landscapes, but in having new eyes to see the world through the eyes of another; of a hundred others, see the hundred universes that each of them sees

Proust, *in search of lost time* vol 5, the prisoner, 1925

I got it, it sounds great,
but how does it work?

To see things is helpful, but why

biological process / characteristics / functions

The writing / visualizing dilemma

The beautiful / useful dilemma

you had my
curiosity but now
you got my attention



Communicate



A picture is worth a thousand words



Discovered by Mathieu Jacomy ;)

Well a good one that is...

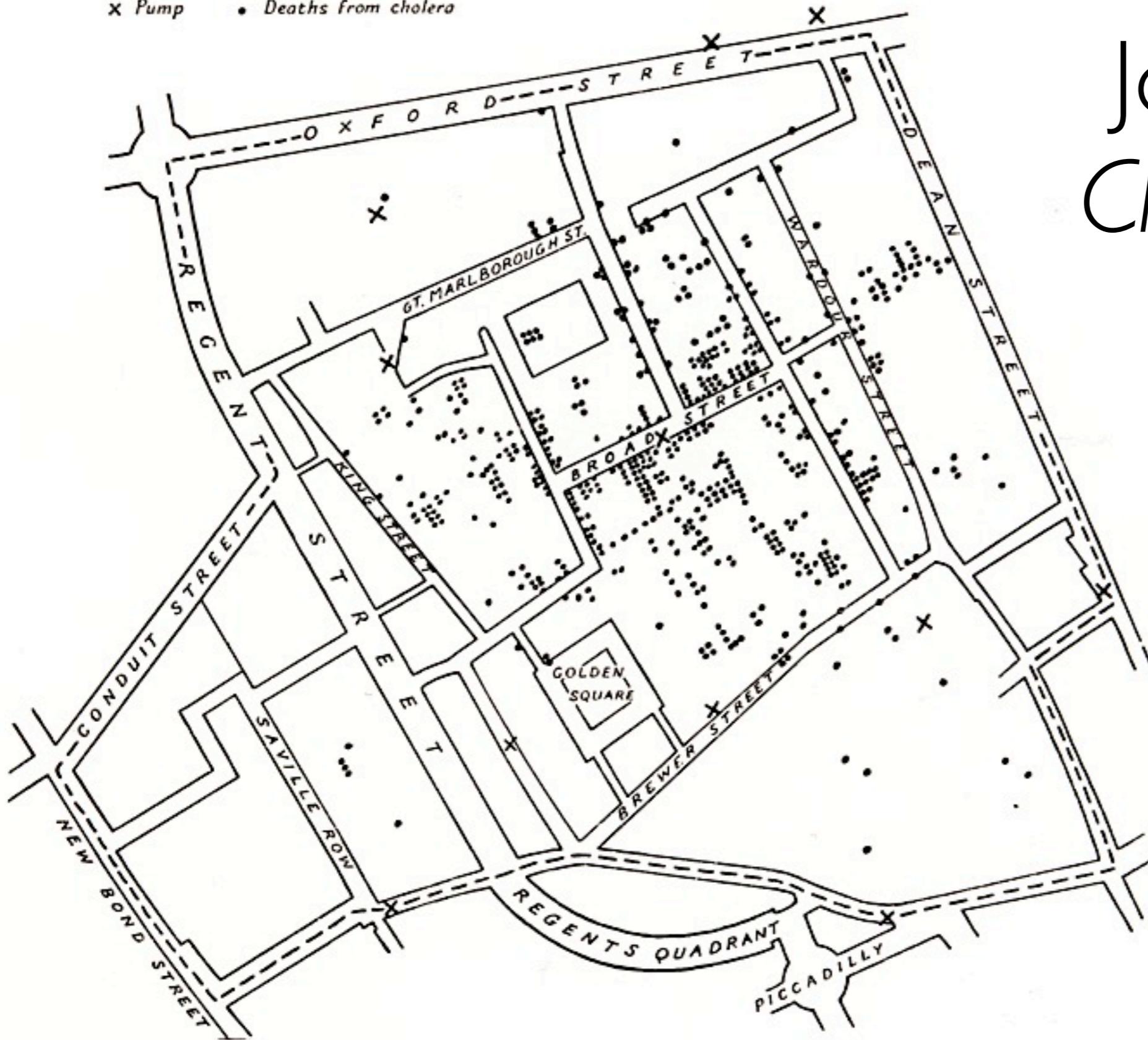
Think better/
faster/broader



50 0 50 100 150 200
Yards

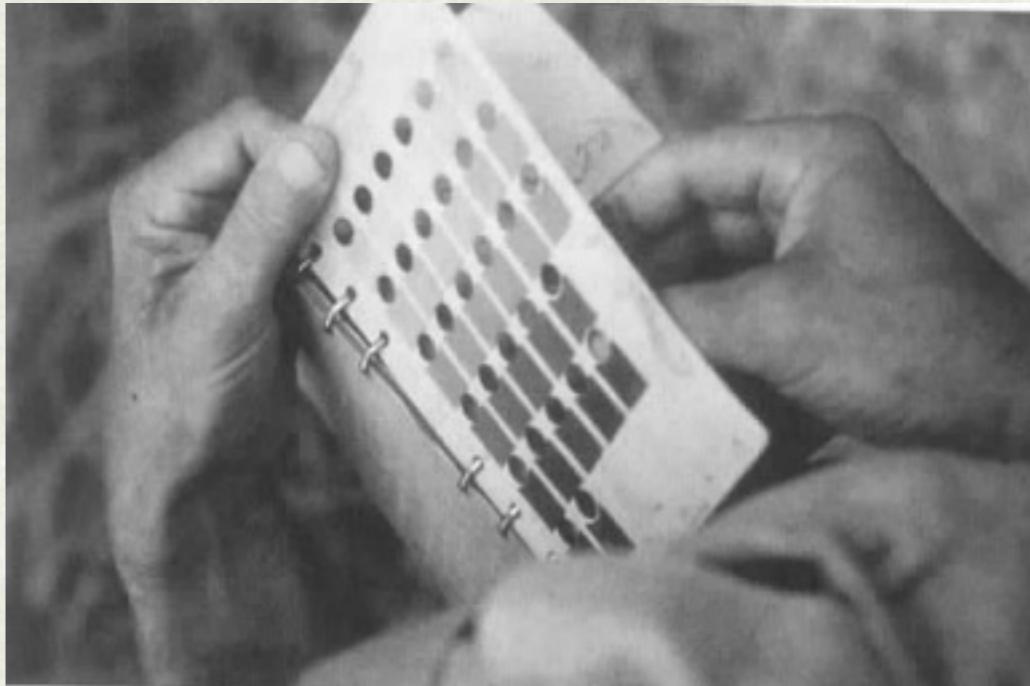
X Pump

• Deaths from cholera



John Snow
Cholera map
1854

Pedologist of Boavista



Circulating Reference

Sampling the Soil in the Amazon Forest

The only way to understand the reality of science studies is to follow what science studies does best, that is, paying close attention to the details of scientific practice. Once we have described this practice from up close as other anthropologists do when they go off to live among foreign tribes, we will be able to raise again the classic question that the philosophy of science attempted to solve without the help of an empirical grounding: how do we pack the world into words? To begin with I have chosen a discipline, soil science, and a situation, a field trip in the Amazon, that will not require too much previous knowledge. As we examine in detail the practices that produce information about a state of affairs, it should become clear how very unrealistic most of the philosophical discussions about realism have been.

The old settlement started from a gap between words and the world, and then tried to construct a tiny footbridge over this chasm through a risky correspondence between what were understood as totally different ontological domains—language and nature. I want to show that there is neither correspondence, nor gaps, nor even two distinct ontological domains, but an entirely different phenomenon: circulating reference*. To capture it, we need to slow our pace a bit and set aside all our time-saving abstractions. With the help of my camera, I will attempt to bring some sort of order to the jungle of scientific practice. Let us turn now to the first freeze-frame of this photo-philosophical montage. If a picture is worth a thousand words, a map, as we shall see, can be worth a whole forest.

On the left in Figure 2.1 is a large savanna. On the right abruptly be-



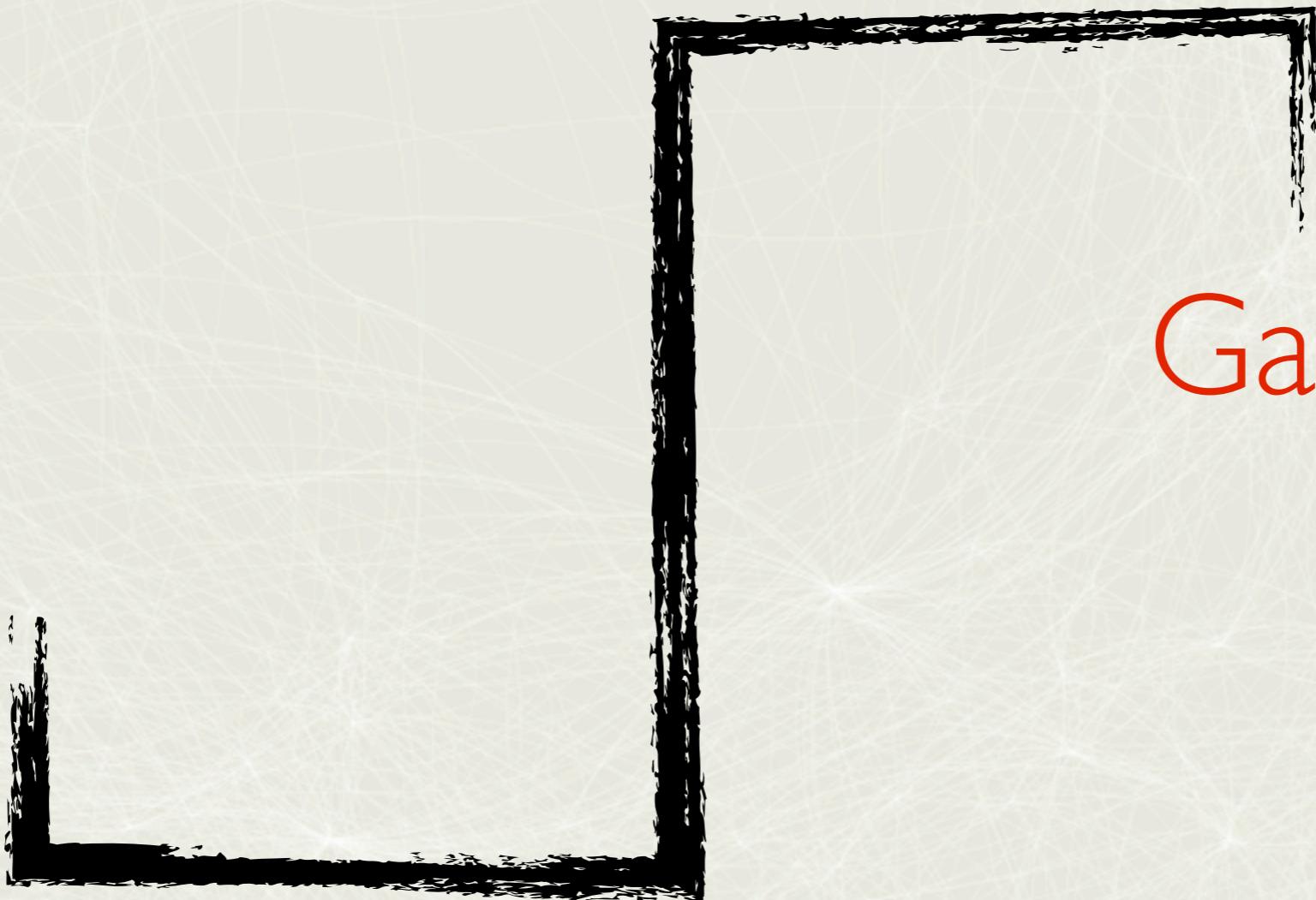
Figure 2.1

gins the outskirts of a dense forest. One side is dry and empty, the other wet and teeming with life, and though it may look as if local inhabitants have created this edge, no one has ever cultivated these lands and no line has traced the border, which extends for hundreds of kilometers. Although the savanna serves as a pasture for some landowners' cattle, its limit is the natural edge of the forest, not a man-made boundary.

Little figures lost in the landscape, pushed off to the side as in a painting by Poussin, point at interesting phenomena with their fingers and pens. The first character, pointing at some trees and plants, is Edileusa Setta-Silva. She is Brazilian. She lives in this region, teaching botany at the small university in the little town of Boa Vista, the capital of the Amazonian province of Roraima. Just to her right another person looks on attentively, smiling at what Edileusa is showing him. Armand Chauvel is from France. He has been sent on this trip by ORSTOM, the research institute of the French former colonial empire, the "agency for the development of cooperative scientific research."

Armand is not a botanist but a pedologist (pedology is one of the

Form



Matter

Gap

problem



Scientific
objectivation

Reduction

Amplification





Discover new knowledges

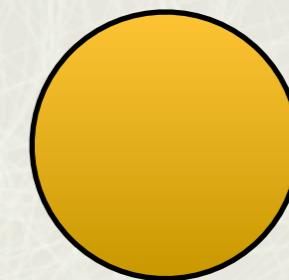
Données
abstraites



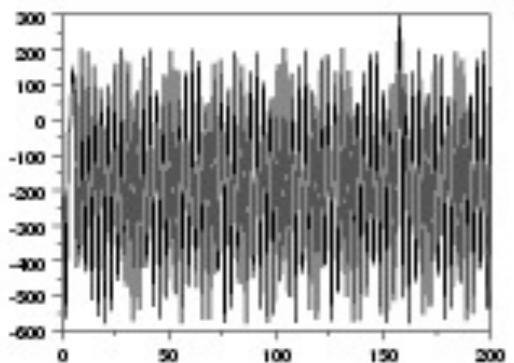
Représentation



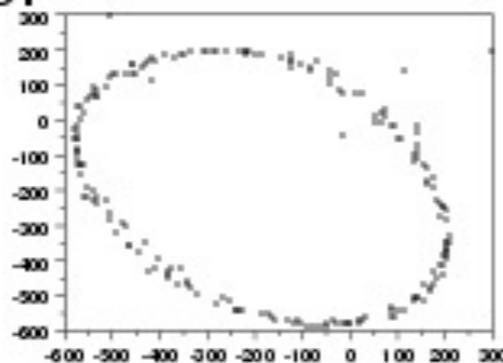
Exploration
dynamique



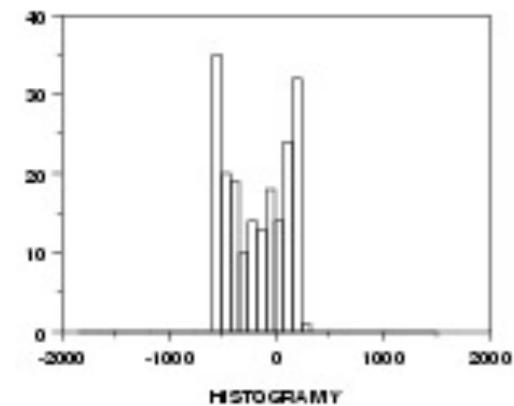
4-PLOT



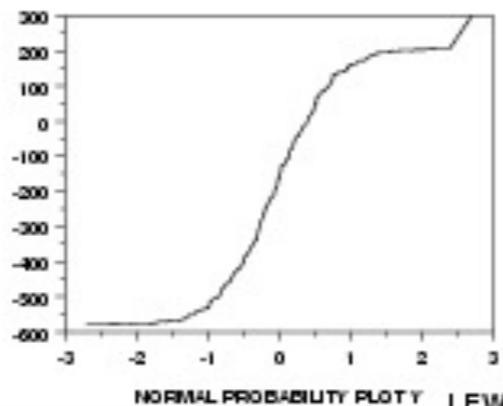
RUN SEQUENCE PLOT Y



LAG PLOT Y

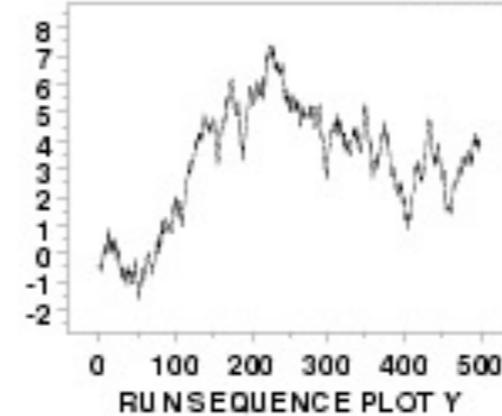


HISTOGRAM Y

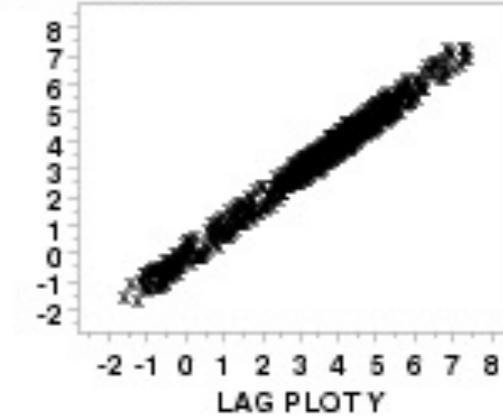


NORMAL PROBABILITY PLOT Y LEW.DAT

Random Walk: 4-Plot

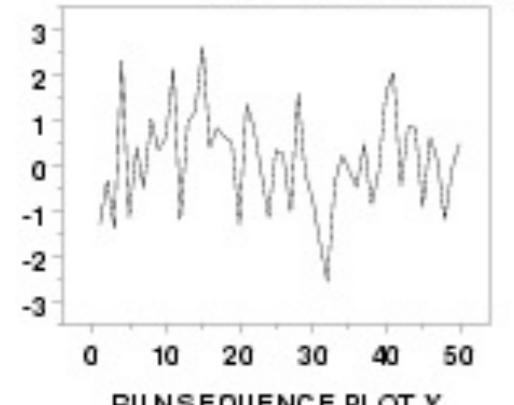


RUN SEQUENCE PLOT Y

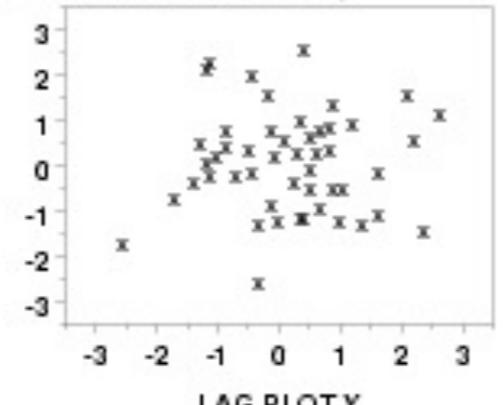


LAG PLOT Y

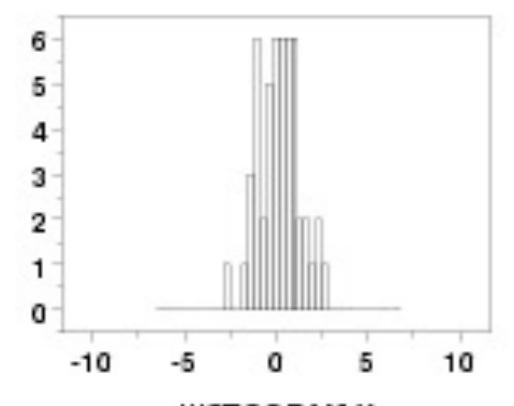
Normal Random Numbers: 4-Plot



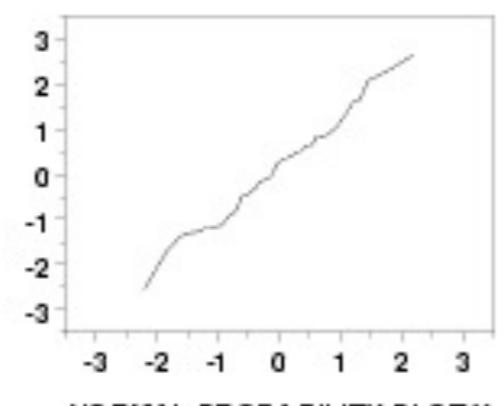
RUNSEQUENCE PLOT Y



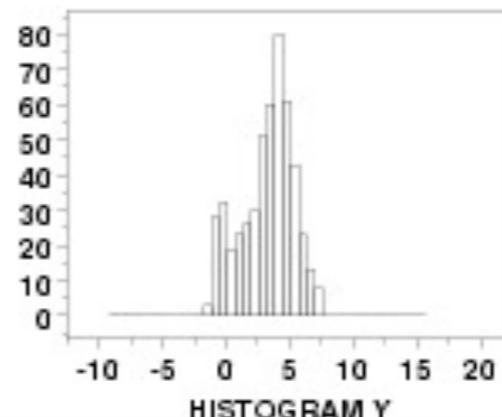
LAG PLOT Y



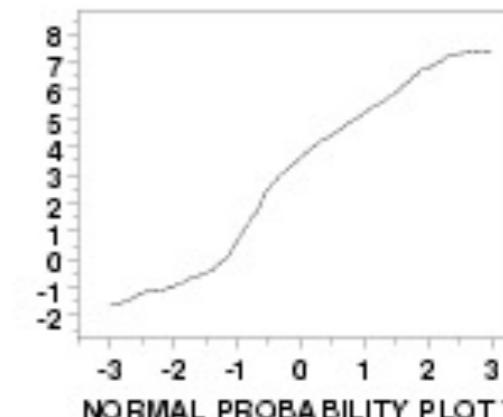
HISTOGRAM Y



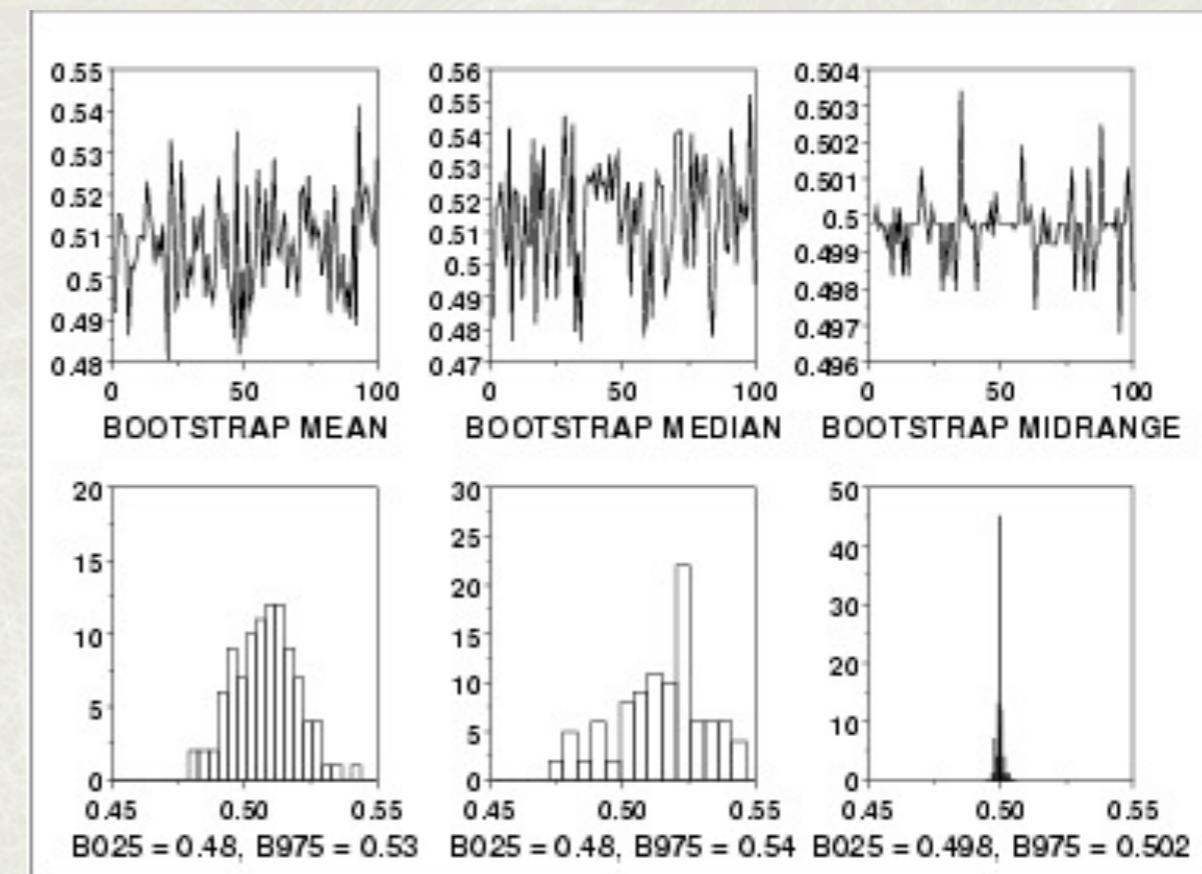
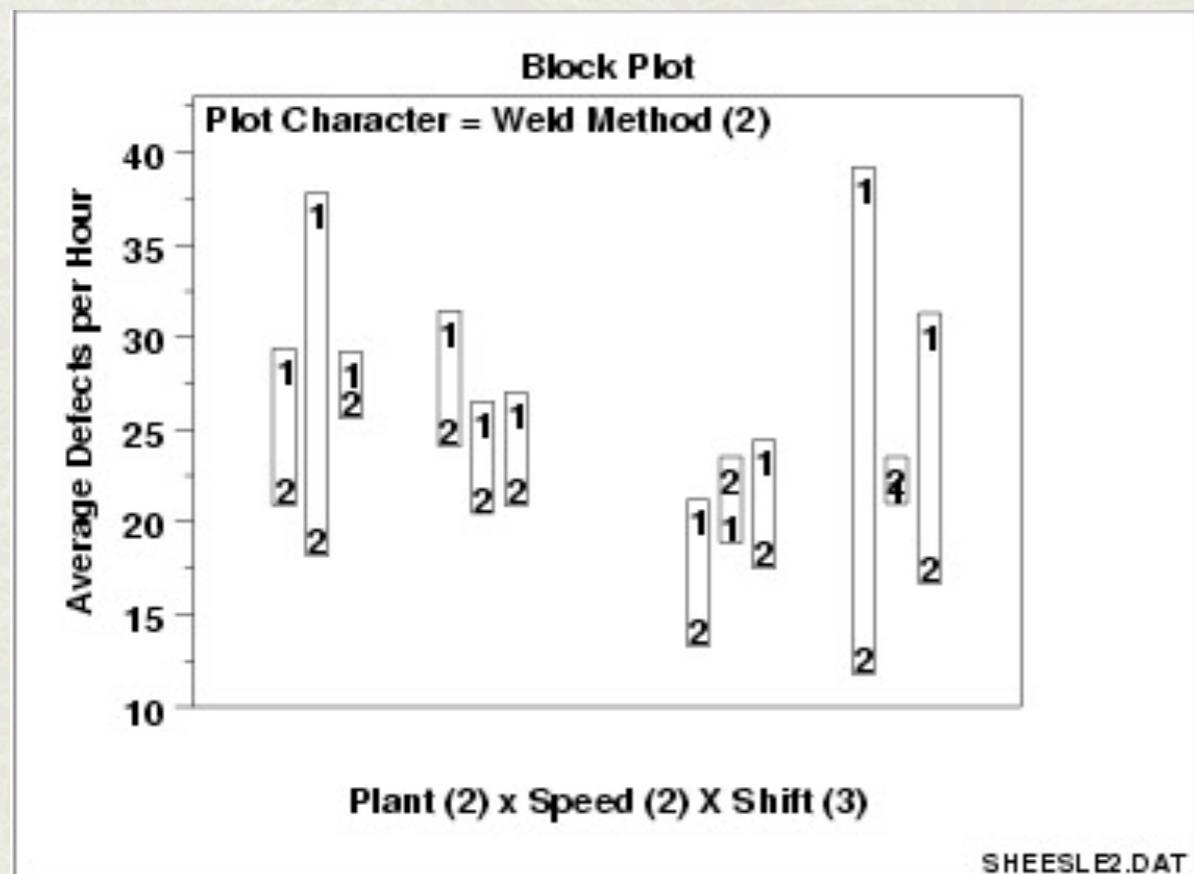
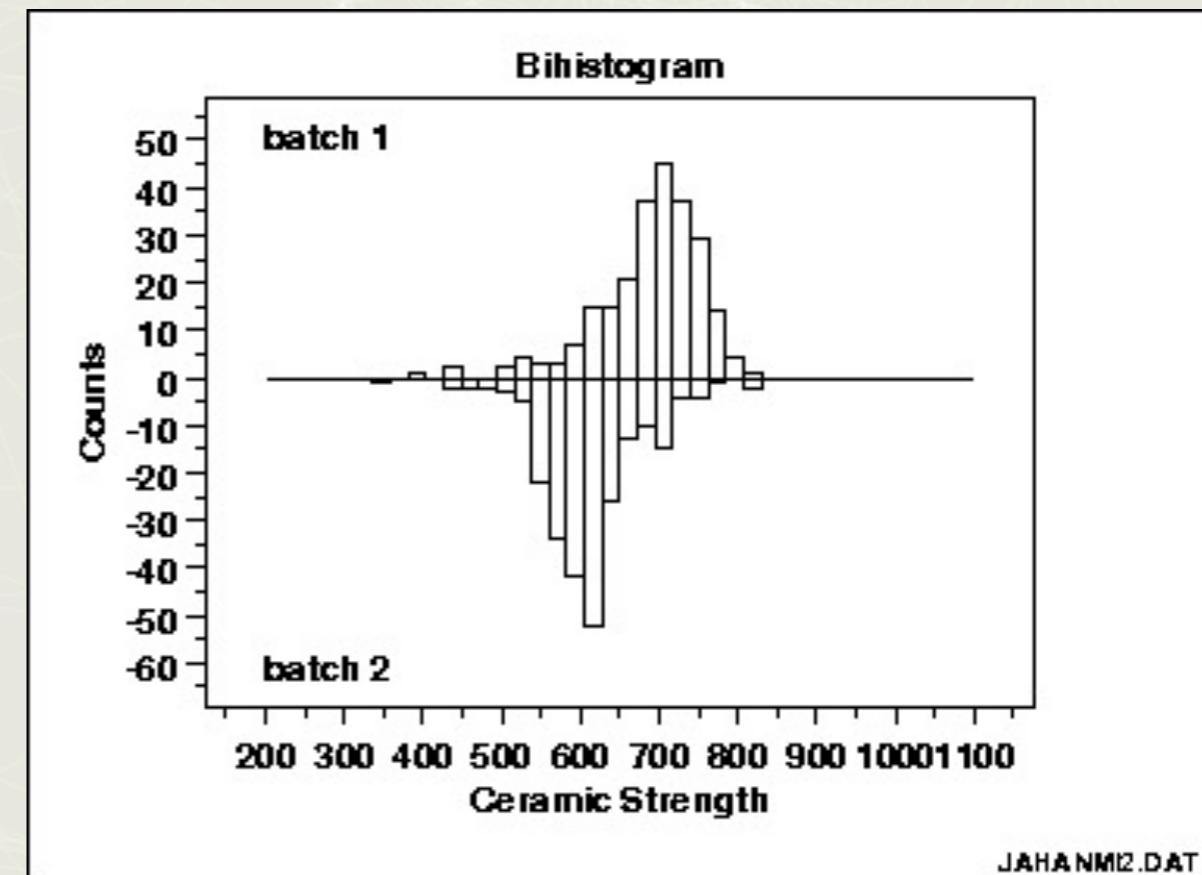
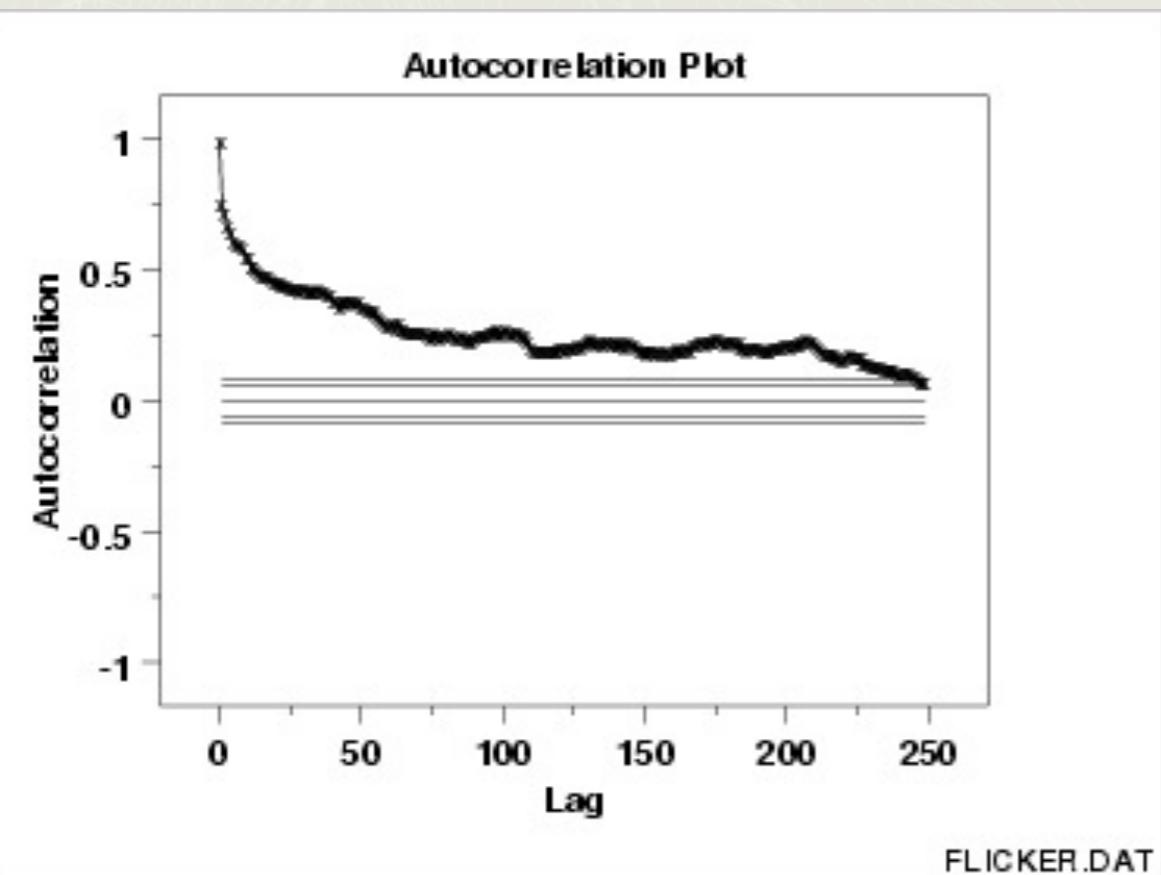
NORMAL PROBABILITY PLOT Y

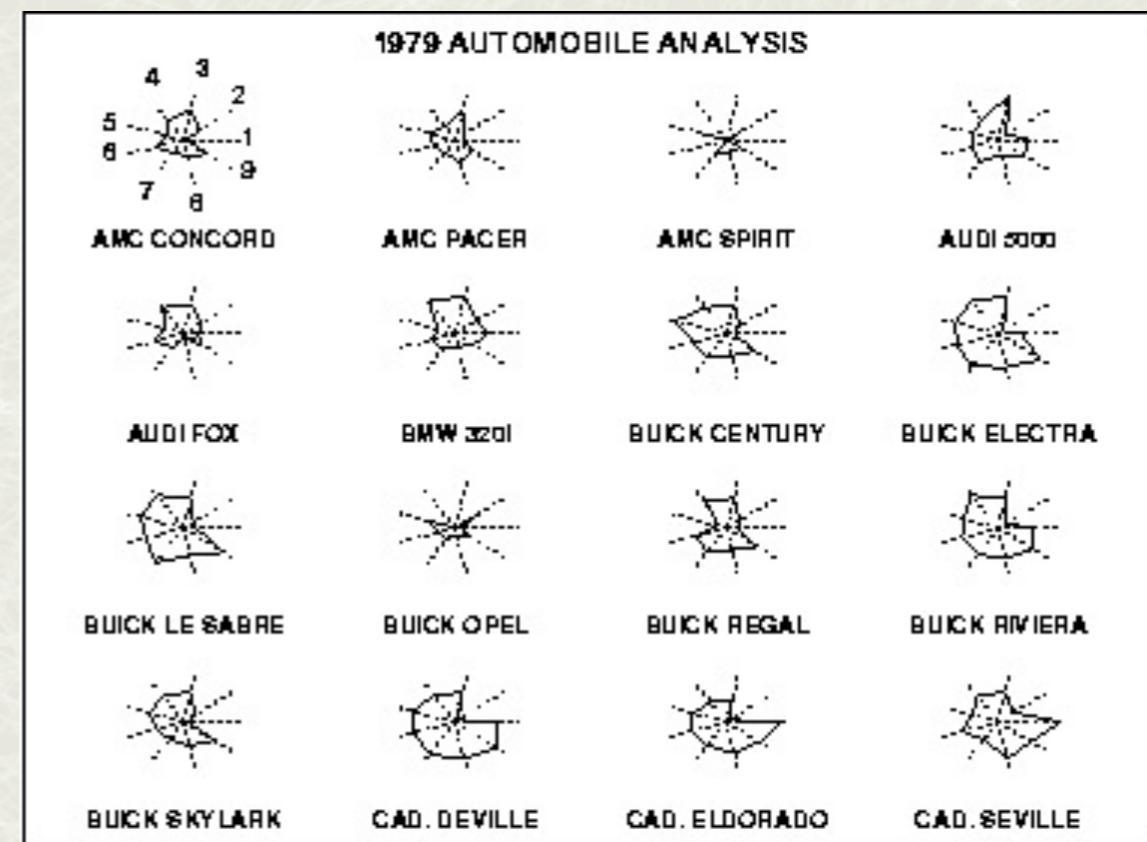
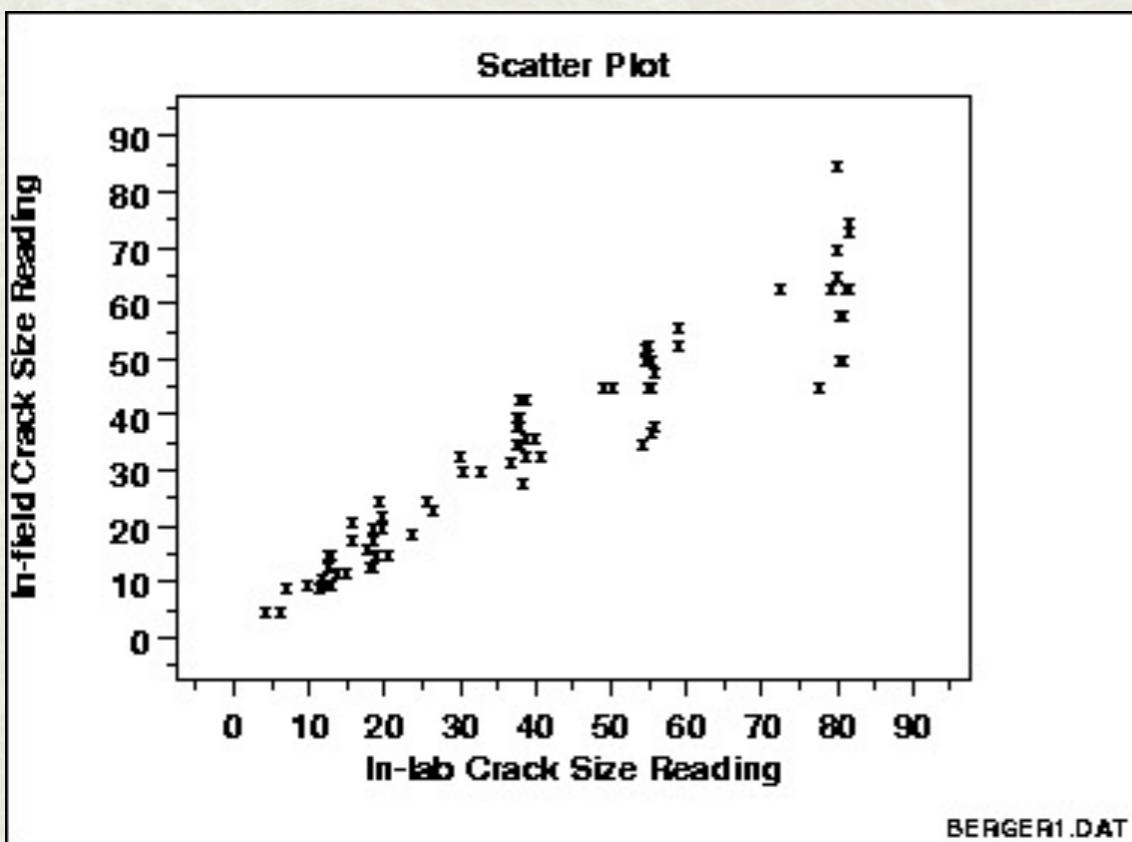
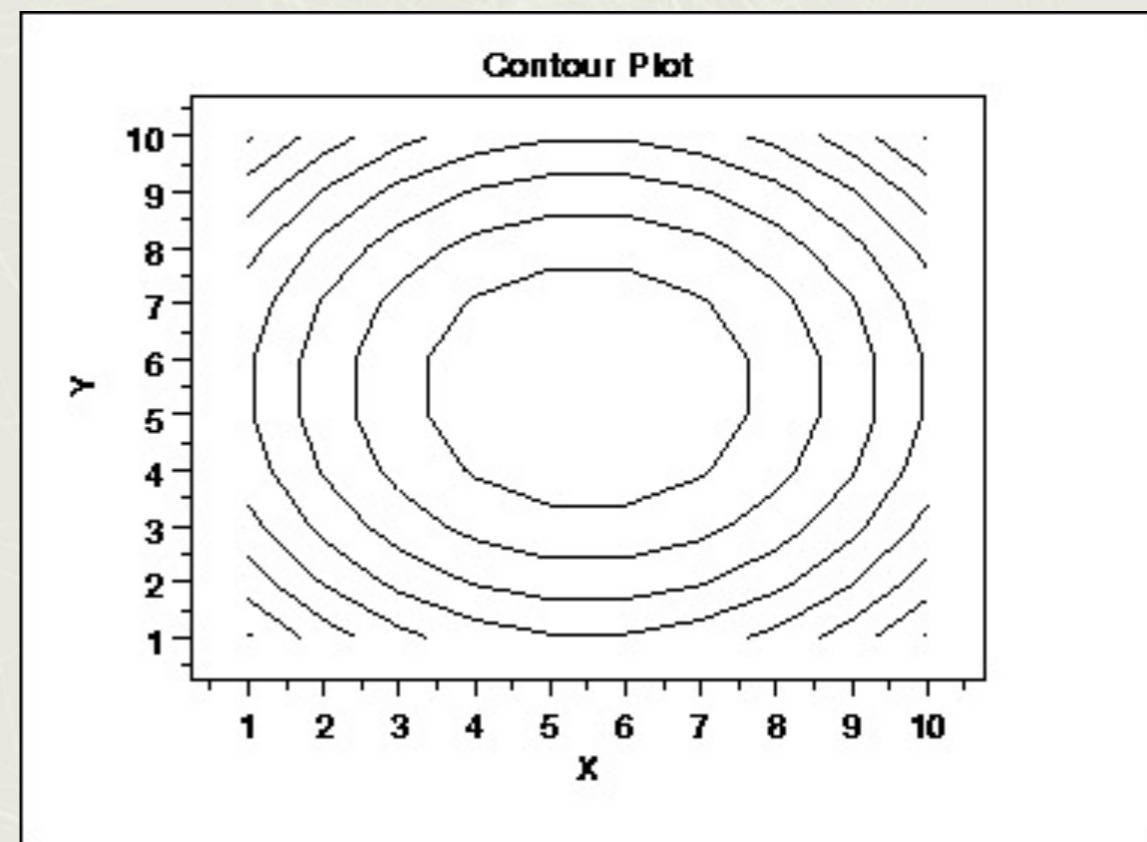
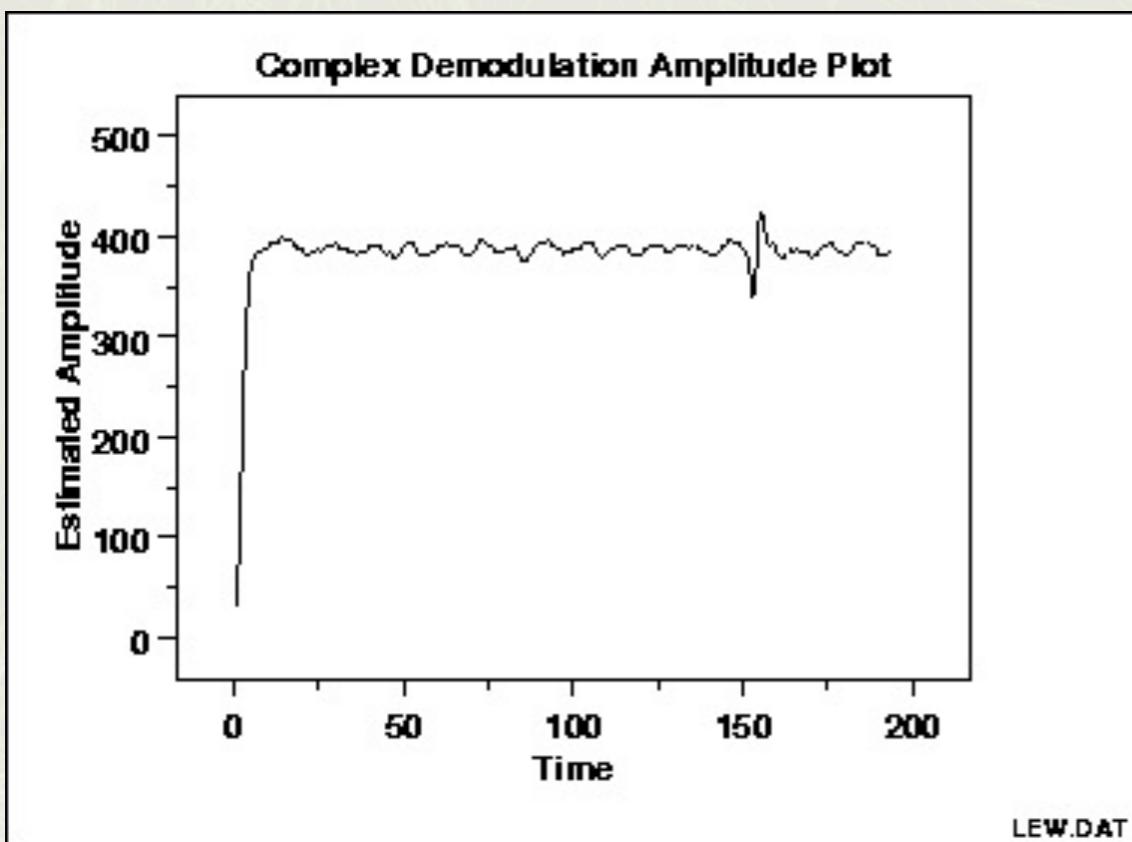


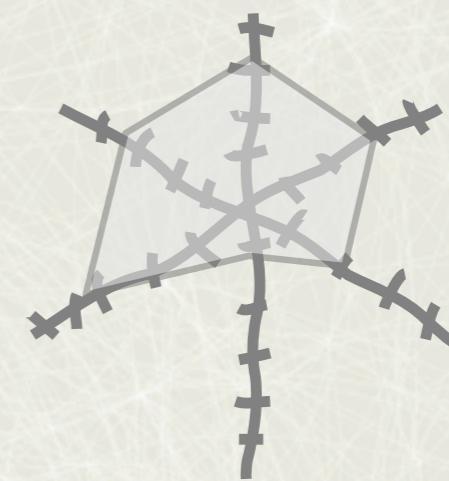
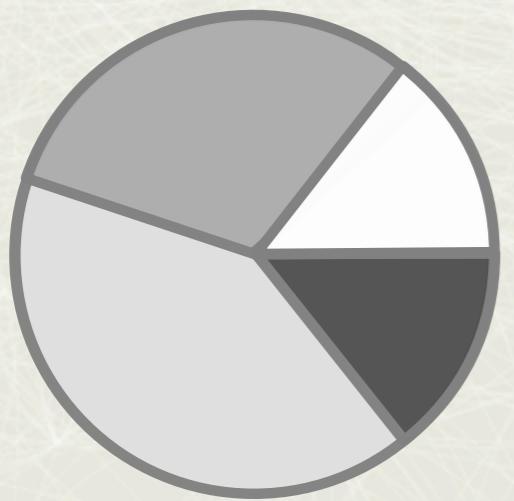
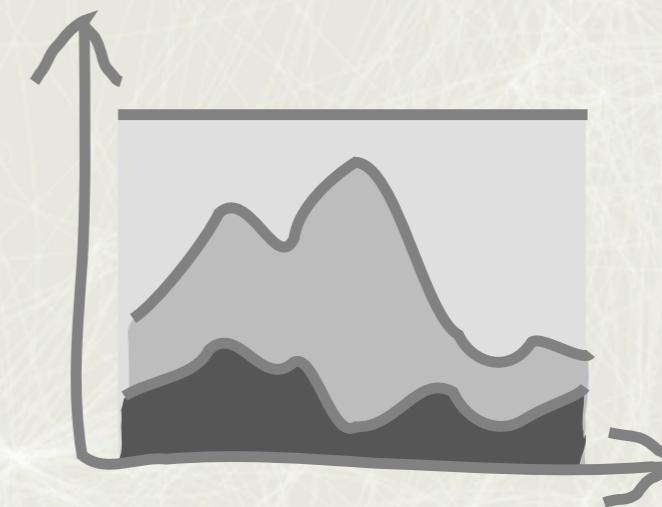
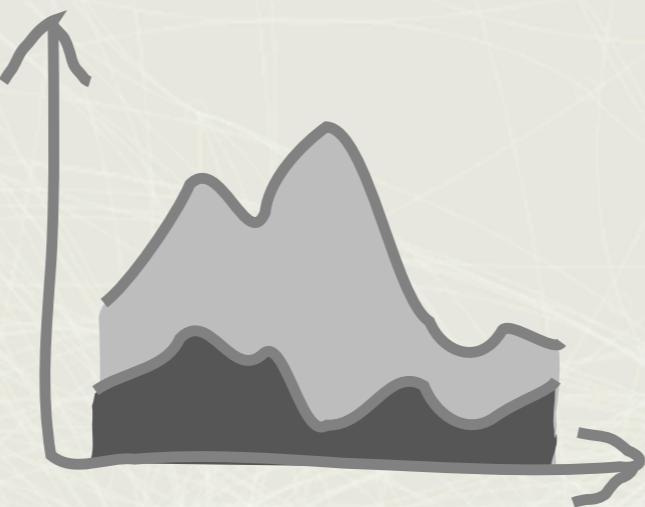
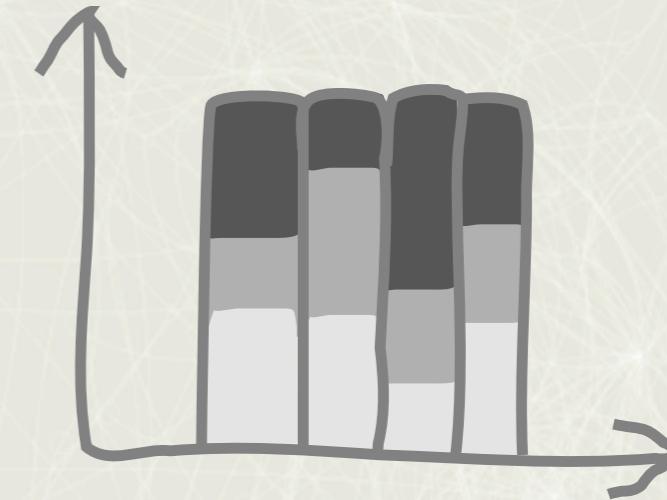
HISTOGRAM Y



NORMAL PROBABILITY PLOT Y

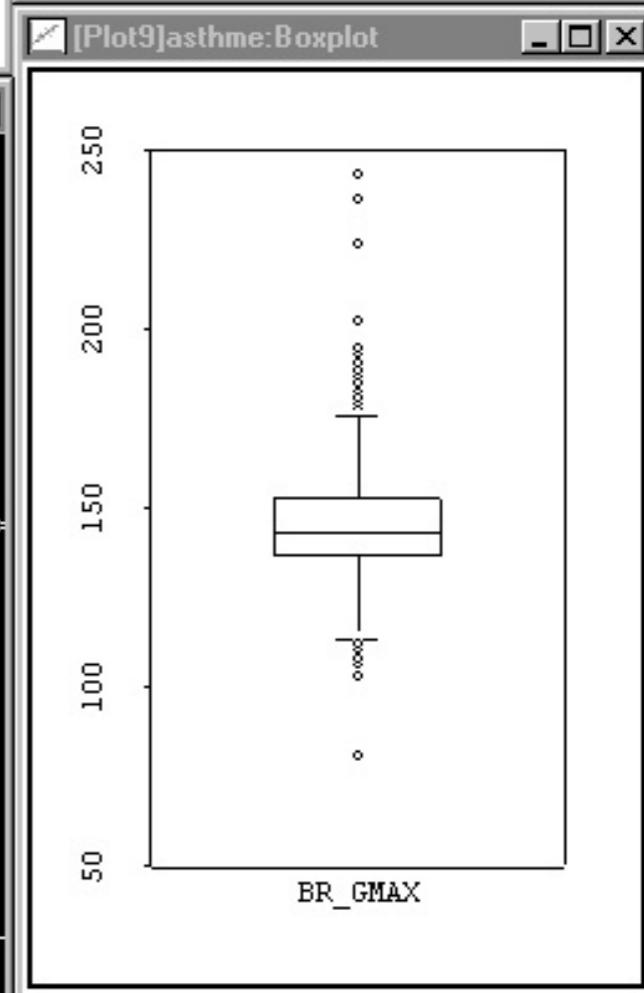
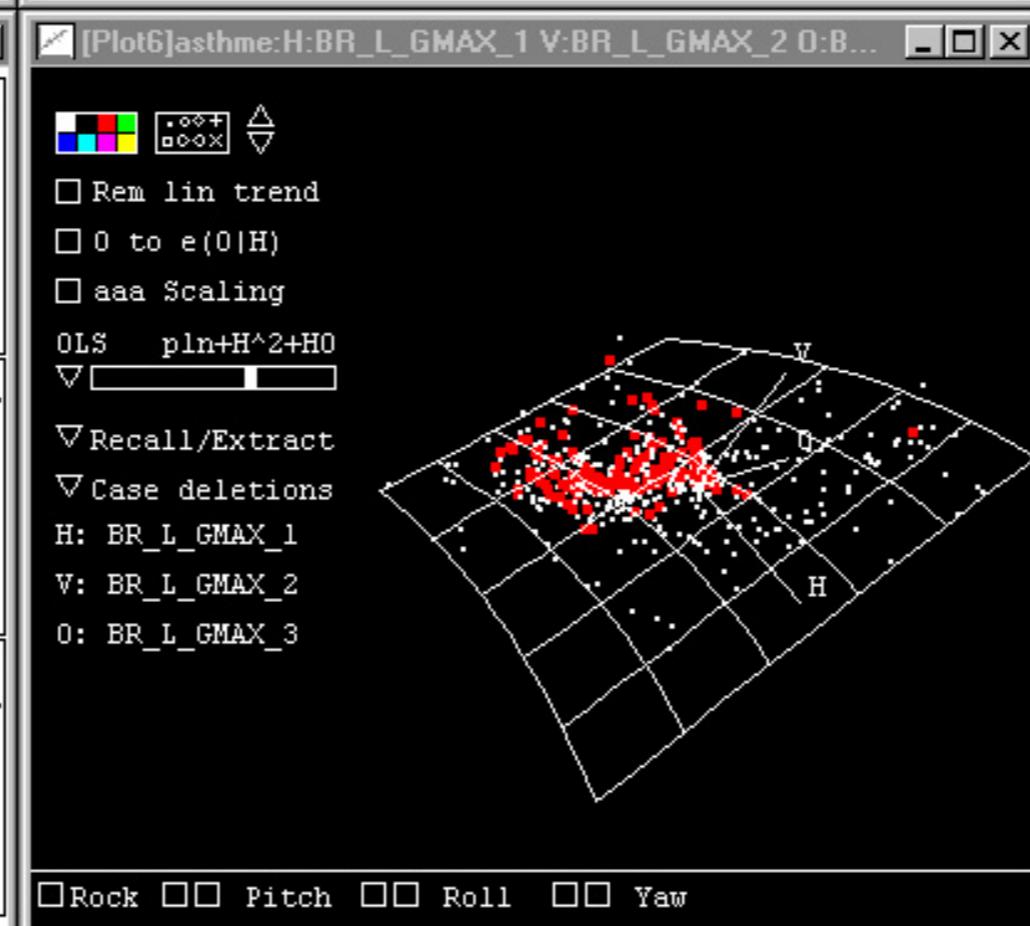
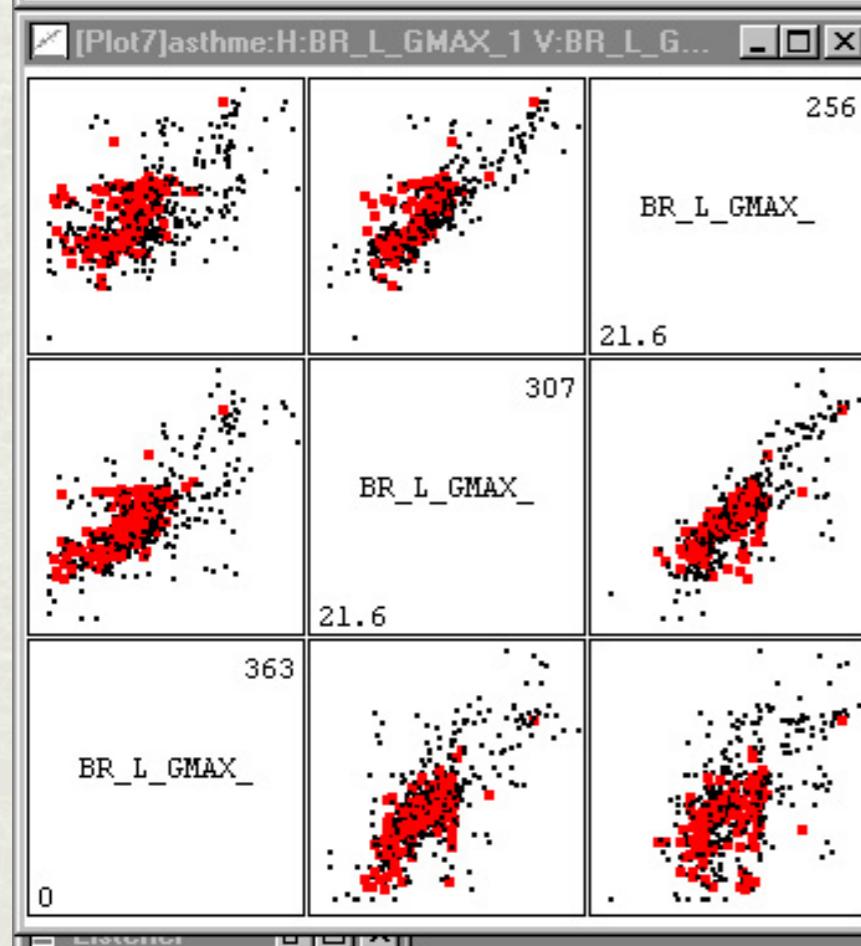
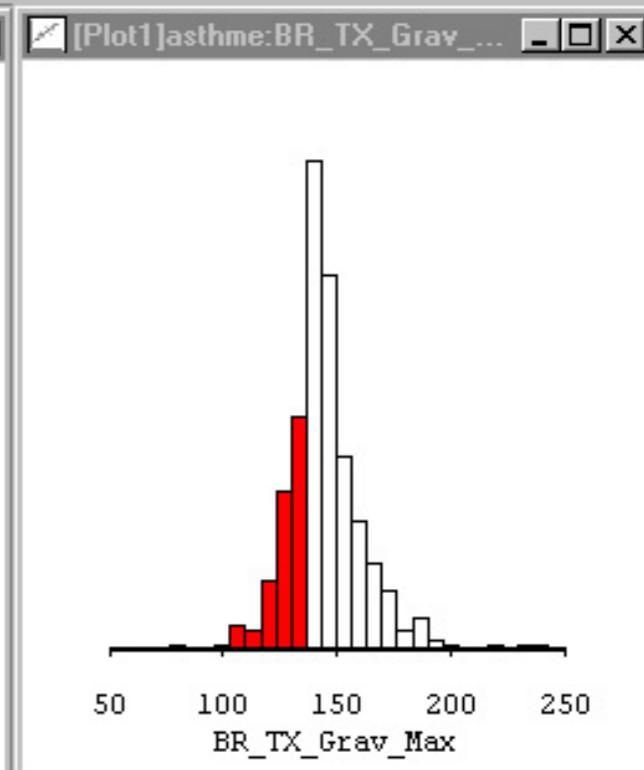
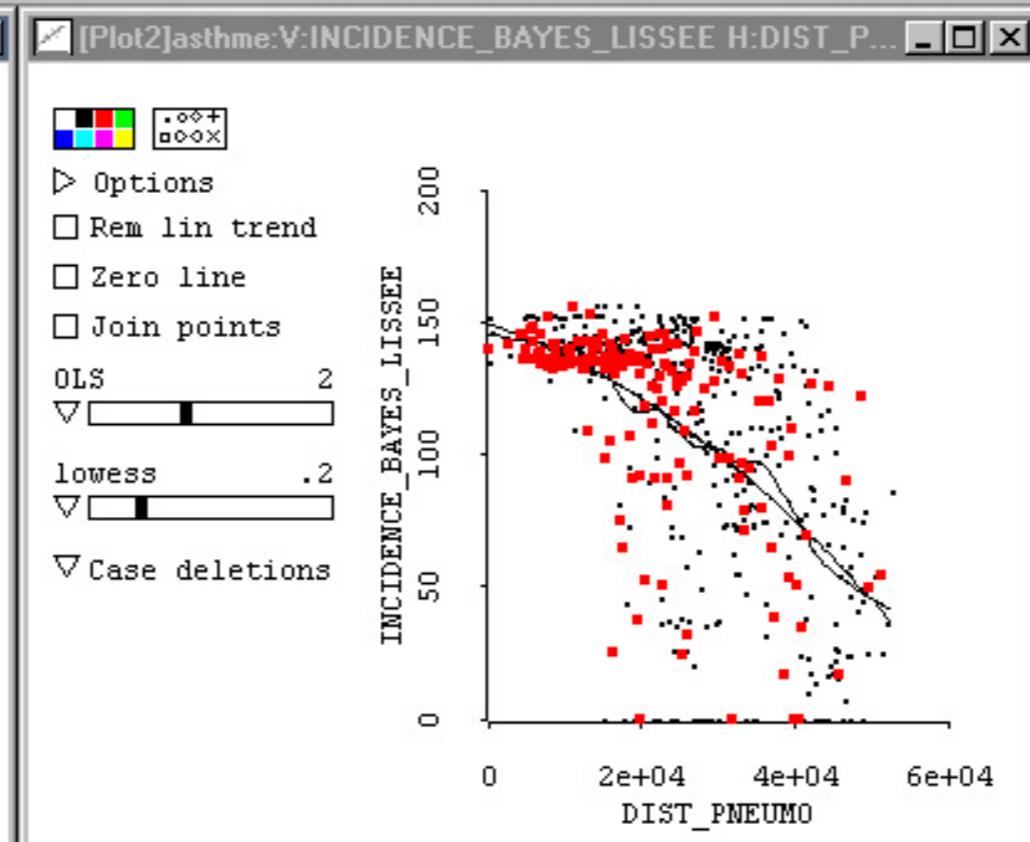
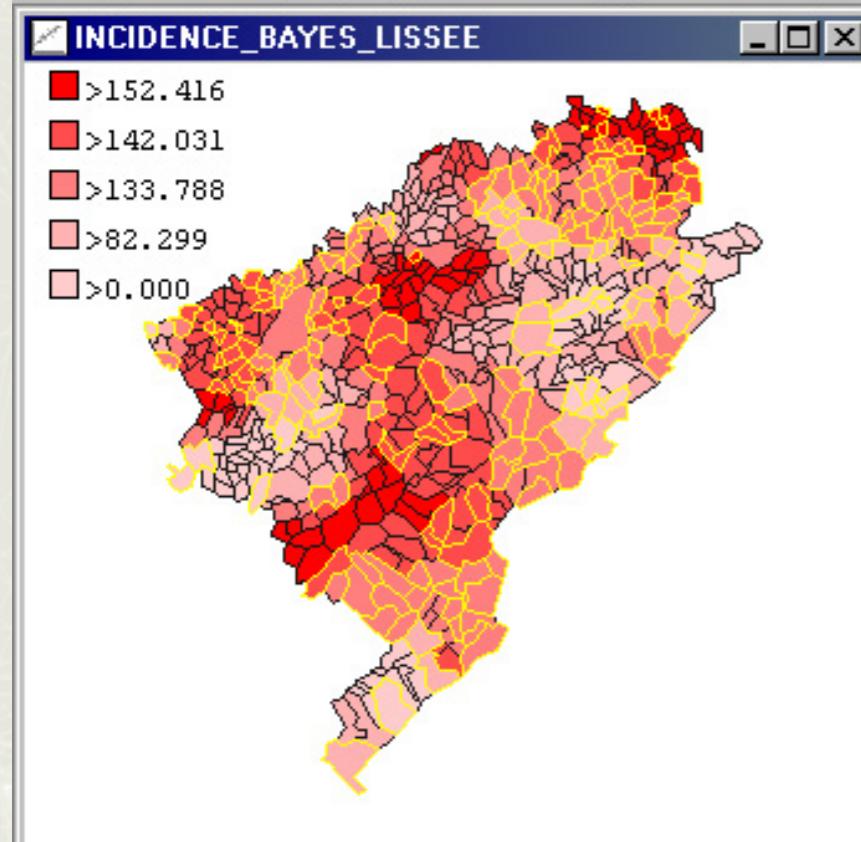






XLISP-STAT

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Races

Year	Office	Total V...	Winner
2000	potus	4232711	Gore, Al (DEM)
2000	usSEN	4170685	Stabenow, D
2000	rep01	290569	Stupak, Bart
2000	rep02	289925	Hoekstra, Peter (REP)
2000	rep03	276263	Ehlers, Vernon (REP)

Counties

County	Votes	Results
Lenawee	38481	

State Map

Selected Candidate...

Candidate	Percent
Abraham, Spence	52.2
Stabenow, Debbie	46.6
Abel, Matthew R.	1.2

Coordination Lens

Counties

County	Votes	Percent
Livingston	14974	
Luce	2495	
Mackinac	30811	
Macomb	11078	
Manistee	28662	
Marquette	12844	
Mason		

Map

SelectCounty

SelectCounty

SelectCounty

SelectCounty

SelectCounty

Abraham, Spence

Party	Candidate	Votes	Percent
DEM	Stabenow, Debbie	206152	49.44%
REP	Abraham, Spence	199793	47.90%
GRN	Abel, Matthew R.	37342	0.90%

Results for Selected Candidates and Counties

County	Party	Candidate	Votes	Percent
Alger	GRN	Abel, Matthew R.	53	01.26%
Alger	REP	Abraham, Spence	2113	50.18%
Alger	DEM	Stabenow, Debbie	1978	46.97%
Chippewa	GRN	Abel, Matthew R.	116	00.82%
Chippewa	REP	Abraham, Spence	7849	55.72%
Chippewa	DEM	Stabenow, Debbie	5899	41.88%
Luce	GRN	Abel, Matthew R.	23	00.92%
Luce	REP	Abraham, Spence	1497	60.00%
Luce	DEM	Stabenow, Debbie	935	37.47%
Mackinac	GRN	Abel, Matthew R.	59	01.01%
Mackinac	REP	Abraham, Spence	3390	58.12%
Mackinac	DEM	Stabenow, Debbie	2298	39.40%
Marquette	GRN	Abel, Matthew R.	447	0.53%
Marquette	REP	Abraham, Spence	13575	47.36%

Votes v. County

Votes v. County

Untitled

Meta

Meta 2

