

A **Q**uest for what drives **P**atterns

An epistemological approach to the underlying structure of Patterns

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Outline: At a glance

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Way to 1st MensorePLOP

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Good Old PLOPs

- Conferences
 - Hillside U.S.A : PLoP, ChillPLOP, SugarLoafPLOP, AsianPLOP
 - Hillside Europe: EuroPLOP, VikingPLOP
 - Some were melted into air: KoalaPLOP, MensorePLOP
- Typical Cycles:
 - 2-3: ChillPLOP, 5: EuroPLOP, 9: PLoP,

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Some note worthy Traditions

- Community of trust
 - Shepherding, shepherd pool
 - Shepherding lecture
- Organizational Patterns
 - Generative manner

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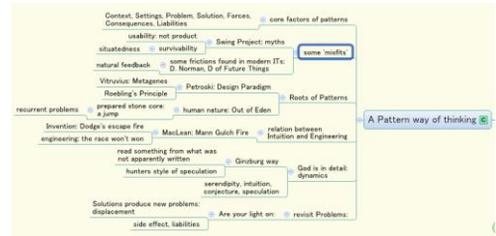
jPLoP: a study group existed in Japan

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MensorePLOP

- The Conference itself ended successfully
 - However, a bitter sweet memories

A Pattern way of thinking



Patterns and pattern languages

- Some characteristics good patterns exhibit
 - Balanced pair of problem and solution
 - Forces give shape the solution
 - Liabilities avoid unnecessary expectation
 - See more details in A pattern language for pattern writing: **Mandatory Elements Present**
 - See also: The Language of Shepherding by Neil

Primary elements of Patternization

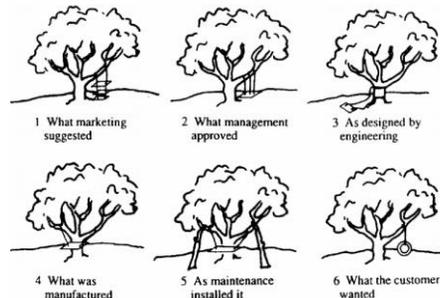
- Problem
- Solution
- Context
- Forces
 - Recommended elements:
 - Consequences
 - Liabilities

Sensibility for Misfits

- A pattern way of thinking help us to be more sensible to misfits

– Example: *A Swing Project*

A swing project



A swing project: misfits

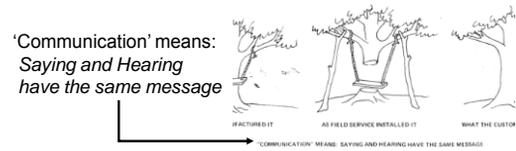
- What is the problem ?
 - Just saying that 'user wants a *product (swing)*'
 - A product \Rightarrow a Swing \Rightarrow solution, *really* ?
 - Must focus on what problem user wants to overcome rather than specifying a *product*
 - Whose problem ?
- Also no Forces (or Context) mentioned
 - What happens after heavily rain ?
 - Is it okay when bees nesting ?
- In reality, 'what user wants' is usually not obvious
 - and etc.

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Origin of SwingProject Cartoon

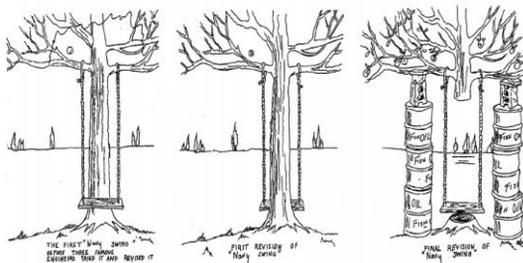
- Simply warned the importance of communication
 - No 'requirements' aspect suggested
 - Circa 60-70's, from TQM context



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SwingProject: variations



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Quest for meanings of the elements

- Context/Forces/Liabilities:
 - Applicability, limitation, and expectation management aspects
- Problem and Solution:
 - Can we solve it ?
 - What is the problem really ?
- Solution must be an Enabler
 - Help people to overcome their brittleness
 - Amplify their ability \Rightarrow survivability

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Roots of Patterns

- Patternization has been utilized in several disciplines
 - Let consult the experts
 - Engineering Field in general: Petroski
 - Design Paradigms: Case histories of error and judgment in engineering
 - Ancient architecture: Vitruvius
 - The Ten Books on Architecture

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Vitruvius: Machines (in Chap. 2)

- Chersiphron was asked:
 - Transport the shaft of the column
 - Given the immensity of their weight
 - And the softness of the rural road
 - And not trusting in carts for fear their wheels bogged down
 - Solution:
 - Fitted together and secured four wooden planks with two crosspieces of same length as the column shaft
 - Set between them
 - And set iron pivots like dowels, in lead at the ends of planks
 - And installed wooden frames at the pivots to contain them

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Chersiphron's pattern

- Secure following aspects:
 - Primary concerns:
 - Go
 - Drive (control)
 - Stop
 - Forces:
 - As mentioned in prev. page

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Chersiphron's pattern



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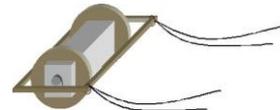
Metagenes's case

- Metagenes (son of Chersiphron) was asked:
 - Transport the epistyle blocks
 - Adapted the method for transporting the column shafts
 - To bringing in the epistyles
 - Solution:
 - Made wheels of about twelve feet in diameter
 - And enclosed the epistyles in the centers of the wheels
 - And setting pins and bearings into their ends according to the same principle
 - Thus the four-digit timbers were drawn by the oxen, the pins turned the wheels,
 - And the epistyle enclosed in the wheels as if they were axles

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Metagenes's pattern



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Paconius's adaptation

- Paconius contracted:
 - Transport the base of colossal
 - The base was twelve feet long, eight feet wide, and six feet high
 - Solution:
 - Make a machine by the same principles but another type
 - Made wheels of about fifteen feet in diameter
 - And enclosed the ends of the stone in these wheels
 - And all around the stone he fitted two-digit battens, extending from wheel to wheel all around, the space between the battens was scarcely a foot
 - And wrapped the rope around the battens and once oxen had been hitched up, to pull the rope

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Paconius's failure

- The rope turned the wheels:
 - But it could not pull along the road in a straight line, it continually veered one side
 - Thus it was necessary to set the apparatus straight again
 - And in leading oxen back and forth



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Vitruvius: Lessons learnt

- No matter how the problem varies, some characteristics of the method (solution) must be preserved
 - we can call this: patterns

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Petroski:

- John Roebing's principle
 - Roebing's repeated success in suspension bridge design can all be attributed not to his coping his own safe design
 - For he simply did not do that,
 - But to his constant and explicit concern with the *avoidance of failure*, as a guiding principle in design
 - » Design paradigms, P.138
 - He looked at the failure as found or fortuitous experiments that reveal what most needed attention in designing against failure
 - » Ibid., P.128

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Petroski

- To learn from the mistakes of others what constitutes lack of judgment
- Thus by inference to increase their own judgment
 - Ibid., p.123
- We can all learn a sense of good design and judgment from the legacy that masters like John Roebing have left for us
 - Ibid., p.142
- Lessons learnt:
 - To avoid failures, we must carefully pursue the details of Context, and Forces
 - Details matter
 - Inference is the needed ability

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Roots of patterns

- In crude terms, blades are knapped or struck off a prepared stone core just as flakes are
 - But the exact way this is done results in a longer, slimmer flake
 - Leaving behind a prismatic core from which numerous further blades can be knapped
 - Out of Eden: The peopling of the world, by Stephen Oppenheimer, p.101

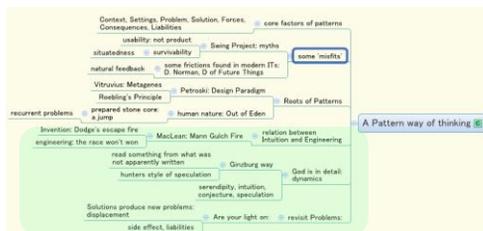
Prepared core (middle Paleolithic, Middle stone age):
Cores are prepared before flakes are removed and then shaped



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Patterns, Serendipity, and Conjecture



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Mann Gulch Fire

- *Young Men and Fire*
 - by Norman MacLean, 1993, University of Chicago Press
- Two aspects came together
 - Invention of *escape fire* → pattern ?
 - A foreman, Wag Dodge did
 - Applying modern engineering methods to give shed light on the very moment of the tragedy

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Mann Gulch Fire

- The Mann Gulch fire, which overran 16 firefighters in 1949
- They were smokejumpers who had parachuted near the fire on August 5, 1949.
 - While they were moving to a safer location, the fire blocked their route.
- Three survived, the foreman who ignited *an escape fire*
 - into which he tried to move his crew, and two firefighters who found a route to safety.
 - Considerable controversy has centered around the probable behavior of the fire and the actions of the crew members and their foreman.
- In 1979, some 38 years after the Mann Gulch fire,
 - author Norman Maclean contacted the Intermountain Fire Sciences Laboratory (IFSL) to help clarify the fire's behavior for a book he was writing about the tragedy
 - His research uncovered conflicting stories of how the fire had overran the firefighters.

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Dodge's Invention

- Lit escape fire: as Solution
 - Context:
 - A wildfire rapidly approaching very close to their back behind
 - Problem:
 - Escape from the fire to survive
 - Forces:
 - At the north side of Mann Gulch
 - Vegetation pattern of the north side is, of the plains, with smaller trees and dense grasses
 - No one ever did (except native Americans)
 - Consequences:
 - Suspicion arose against the escape fire ignited by the crew foreman overtake his own crew ?

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Engineering Method Applied

- Objectives:
 - Use the results of our research to help explain the complicated interactions of fuels, weather, and topography that produced such a tragedy
- Result:
 - **Mann Gulch Fire: A Race That Couldn't Be Won**
 - Author: **RICHARD C. ROTHERMEL** is a research physical scientist stationed at the Intermountain Fire Sciences Laboratory in Missoula, MT.
 - www.fs.fed.us/rm/pubs_int/int_gtr299.pdf

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Engineering Method Applied

- Questions must be clarified were:
 - How did the fire, which was burning on a ridge when the crew landed, get below them at the mouth of the gulch?
 - What was their position relative to the fire as it progressed?
 - Why couldn't they escape?
 - Did the escape fire ignited by the crew foreman overtake his own crew?

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The Truth of the Very Moment

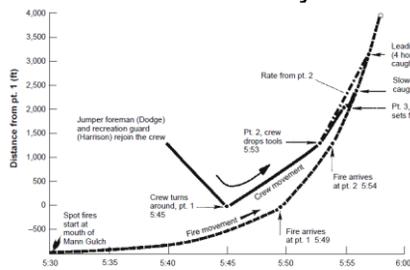


Figure 2—Distance and time graph of the estimated positions of the crew and the fire. Distances are estimated from the crew's turnaround at point (pt.) 1. The slopes of the lines indicate the rate of movement, the steeper the line, the faster the rate.

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Mann Gulch Fire: Lessons Leant

- 'Escape fire' became a norm
 - Context, and Forces are strictly settled
- The result paper appeared 1992
 - Forty-three years after the Tragedy
- Invention exists first,
 - then Engineering follows
 - eventually, Science begins to tell the Story of Nature
 - by H. Petroski

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Ginsburg's way

- God is in the detail - A. Warburg
- Clues, Myths, and the Historical Method
 - by Carlo Ginsburg,
 - 1989, the Johns Hopkins University Press
- Behind the presumptive or divinatory paradigm we perceive what may be the oldest act in the intellectual history of the human race
 - The hunter squatting on the ground, studying the tracks of his quarry

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Clues, and Historical Method

- A common epistemological way (model or paradigm) found in three different disciplines
 - In Art historians: Known as 'Morellian method'
 - 'our inadvertent little gestures reveal our character far more authentically than any formal posture that we may carefully prepare' -- in Edger Wind (p.97)
 - A Detective: Sherlock Holmes, by Arthur C. Doyle
 - a detective, who discovers the perpetrator of a crime (or the artist behind a painting) on the basis of evidence that is imperceptible to most people. (p.98)
 - Psychoanalysis: Freud's 'The Moses of Michelangelo'
 - '... Laid stress on the significance of minor details, of things like the drawing of the finger-nails, of the lobe of an ear, ... it seems to me that his method of inquiry is closely related to the technique of psycho-analysis.' (p.99)

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Traces:

- Symptoms
 - In the case of Freud
- Clues
 - In the case of Sherlock Holmes
- Pictorial marks
 - In the case of Morelli
- Roots of above semiotics
 - The rich storehouses of knowledge has been passed down by hunters over the generations
 - The hunter would have been the first 'to tell a story' because he alone was able to read, in the silent, nearly imperceptible tracks left by his prey, a coherent sequence of events

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Presumptive Paradigm

- Consequently, we can speak of a presumptive or divinatory paradigms
 - directed, depending on the forms of knowledge, toward the past, present, or future (p.104)
- For the Future:
 - Divination in a strict sense
- For the Past, the Present, and the Future:
 - Medical semiotics in its twofold aspect
 - Diagnostics and prognostics
- For the Past:
 - Jurisprudence

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Design and Serendipity

- Serendipity:
 - Tossed by Horace Walpole in 1754
 - inspired by 'The story of the sons of King Serendippo'
 - or 'Zadig' by Voltaire
- Design relies:
 - Conjecture
 - Abduction
 - Intuition
 - Speculation
 - Inference
 - Reasoning
 - and etc.

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A paradigm

- Depending on:
 - Context
 - Venatic
 - Divinatory
 - Conjectural
 - Semiotic
- All refer to a common epistemological model
 - Expressed through various disciplines that are frequently linked by borrowed methods or key terms

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A pattern way of thinking is:

- Yet another new form of method (or discipline) which stands upon the common epistemological model

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Patterns and pattern languages

- Pattern, intuition, conjecture, serendipity
 - Design, engineering, invention
 - Young Men and Fire, by N. MacLean
 - Less than an hour after the jump, 13 smokejumpers dead and 3 survived, from Mann Gulch fire, on August 5, 1949
 - The foreman W. Dodge's invention: Lit escape fire, to survive from the 'burn up'
 - Hunted by these deaths for forty years, author himself dedicated his life-long efforts to put back together the scattered pieces of the tragedy
 - Survivability is crucial,
 - Easy-way-out nowadays, we are disabled
 - Profession, product, disabling our survivability,
 - Compatibility, ITs both weakened our ability
 - A liability exist
- Template, liability
 - Value of thinking about liability

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Liabilities

Disabling Professions:
Ivan Illich's argument

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Liabilities



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Disabling Professions

- Ivan Illich
 - 1977, Marion Boyars Publishers
 - Technological progress (p.33)
 - Enslaving illusion conceptualizes technological progress as a kind of engineering product licensing more professional domination
 - This delusion says that tools, in order to become more efficient in the pursuit of a specific purpose, inevitably become more complex and inscrutable
 - Therefore, they necessarily require special operators who are highly trained and who alone can be securely trusted
 - The Opposite is true, and ought to occur
 - As techniques multiply and become more specific, their use often requires less complex judgments and skill

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Freedom and disablings

- Survivability is crucial
 - Easy-way-out nowadays, we are disabled
 - Profession, and product, tend to disabling our survivability
 - Compatibility, and ITs both weakened our ability
 - A liability exist
 - cf. Navigation system
 - Convenient, but your topographical ability has been weakened

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Illich's arguments

- Lessons learnt:
 - Treat a value-system, or a world view we obeying, as a parametric manner
 - Again, sometime the opposite is true
 - Professionalism also has its own liabilities
 - And also the implication suggests:
 - Any solution has its own liabilities
 - Emergence of the side effects, or consequences of the problem displacement may be delayed, but it will occur
 - cf. Consider Fukushima's case

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Meta Rules

- Tautological but useful:
 - No rule but has exception
 - One won't fit all
 - Gödel's incompleteness theorem
 - Libenter homines id quod volunt credunt
 - Men are nearly always willing to believe what they wish by J. Caesar

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Epilogue

It is a common experience to see an individual who has concentrated all of his efforts on a single branch of study, and who has spent all his life on it, think that this field is, by far, more important than all others, and to see him inclined to make application of its specialty to matters wholly foreign to it.

This may be the due to the weakness of our nature, which prompts us to take an inordinate delight in ourselves and in our own pursuits.

Thought I am afraid of delivering false judgment on all subjects, I am particularly afraid of advancing erroneous views on eloquence.

- "On the Study Methods of Our Time," Giambattista Vico

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