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SUMMARY

Writing and fundamental research on scientific methods for understanding change in natural systems, a common foundation for the sciences through their common subject; sustainability research and design services.

EDUCATION

1964-68 **B.S. physics, math**: St. Lawrence University, projects in how experiments misbehave, minors in economics, fine art, athletics

1968-70 **Post Grad Study**: Stony Brook U. - Gödel's Incompleteness theorem; Columbia U. - topology; Columbia U. - Architecture

1971-73 **Masters in Architecture & Landscape**: University of Pennsylvania - theses in sustainable design and micro climate

INDEPENDENT STUDY

MICRO CLIMATE EVOLUTION 1976-79

Immersion in observing hourly re-evolution of air current networks of indoor climates. Assembled mobile climate lab for detailed 24 hr records of energy flows in buildings.

APPROPRIATE SYSTEMS TECHNOLOGY 1978-79

Design of solar collector delaying the onset of turbulence for a clean separation of hot air currents.

GENERAL THEORY OF COMPLEX OPEN SYSTEMS 1979 -

A scientific method for reconstructing developmental narratives for complex system changes in form; an "unhidden pattern of events" ,,,,,,·´-`·,,,,,, studying of the cellular "hubs and hives" structure of living networks and other "cybernetic body parts"; using gaps in models to point beyond theory to what systems are doing

ECONOMIC WHOLE SYSTEMS THEORY 1983 -

A whole system model for money choices embedded in a physical market system allowing physics theorems for growth in relation to learning response-time limits for people responding to environmental signals.

DERIVATIVE RECONSTRUCTION 1986 -

Mathematical methods for reading the emergence of systemic change and markers for finding the mechanisms involved. A general law of continuity derived from the conservation of energy, identifying the specific forms of complexity required to start or complete developmental processes.

PALEONTOLOGY: PUNCTUATED EQUILIBRIUM 1994 - 2006

Using new mathematical tests for systemicity identified dynamic systems in the evolutionary speciation event of a plankton, demonstrating clear repeated systemization and collapse in a punctuated evolutionary change.

CRIMINOLOGY: NATURAL SOCIAL SYSTEM COLLAPSE 2005-6

Study of the great American crime wave of the 1960-2000 period, and for New York City a distinct process of collapse in its crime culture in 1990

SUSTAINABILITY SCIENCE 2005 -

Developed various whole system metrics for more accurate reading of environmental signals of change, partnership methods for environmental learning & problem solving, looking beyond the problem to find complementary environmental solutions and understand the total effect.

PUBLICATION

Research Papers

- 2010-2 [Defining whole system EROI](#) - ASME-SE
- 2010-1 [Complex Systems](#) - article for Encyclopedia of the Earth
- 2009-2 [Why efficiency increases consumption](#) - for BioPhysical Economics conference, SUNY EFS 2009
- 2009-1 [TEA - Total Environmental Assessment](#) - prepared for ACLCA Oct 2009
- 2008-2 [Life's Hidden Resources for Learning](#), Cosmos & History issue on "What is Life"
- 2008-1 [A Continuity and Divergence Principle](#)
- 2007 [Flowing processes in a punctuated species change, G. pleisotumida to G. tumida, displaying feedback driven evolution, Abstract & Intro](#) - draft for journal 12! ...best so far -
- 1999-1 [Features of derivative continuity in shape](#), [[Abstract & Intro](#)] *International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI)*, for a special issue on invariants in pattern recognition, V13 No 8 1999 1181-1199
- 1995-1, [Reconstructing the Physical Continuity of Events](#), deriving the continuity of change from conservation laws
- 1985-2, [Unconditional Positive feedback in the economic system](#), *Proceedings*, Society for General Systems Research, Louisville KY
- 1985-1, [Directed Opportunity, Directed Impetus: New tools for investigating autonomous causation](#), *Proceedings*, Society for General Systems Research, Louisville KY
- 1983-1, [General Allocation Theory](#), a model of where all money goes.(2.3 meg scan)
- 1979-1, An Unhidden Pattern of Events [a book of essays]
- [Covers & contents](#), [Foreword](#), [An Unhidden Pattern of Events](#), Two Magical Farmers, Taking hold of Things to Come, An Appropriate Approach for Appropriate Technology, What Makes a Net Working, On Finding the Knack, [The Infinite Society](#),
- Natural Building Climate: [W.I.S.P.](#), Multi-Climate Building, Stage Sets for Personal Climate, Sneaky Invisible Things, Natural Orders of Convection, Building Climate Pathways, House Stories I
- 1978-2, Natural Orders in Convection, Int'l Soc. for Solar Energy Research
- 1978-1, [Air Current Networks](#), Rain Magazine, Portland; Int'l Soc. for Solar Energy Research
- 1977-1, [House Stories](#) - The daily evolutions of micro-climates inside homes