

# *Society for Chaos Theory in Psychology & Life Sciences*

## NEWSLETTER

Kevin Dooley, Ph.D., President; Robert Porter, Ph.D., Editor; Stephen Guastello, Ph.D., Publisher  
Vol. 9 No. 2, January, 2002

## **Beautiful Pacific Northwest Site Chosen SUMMER CONFERENCE IN PORTLAND AUGUST 2 - 4, 2002**

*Also*

**Dick Bird Elected Society President  
SCTPLS EUROMEET Announced for February, 2003, in Vienna, Austria**

### **SOCIETY IS PORTLAND BOUND Twelfth Annual Conference Portland, Oregon, August 2 to 4, 2002**

According to Steve Guastello and Keven Dooley, the formal arrangements for the Summer Conference are well underway in Portland, OR, and more information is becoming available every day. The Call for Papers will be published on the Society website ([www.societyforchaostheory.org](http://www.societyforchaostheory.org)), on CHAOPSYC, and will be mailed to all members.

### **PRESIDENT'S MESSAGE**

These are interesting times for us. A colleague of mine in organizational communication got a letter from a Washington, D.C. think-tank, inviting scholars to meet for 3 days to discuss how theories of communication could be used to understand how to make (i.e. terrorist) organizations dysfunctional. Behind this "twist" is the more general message: that's interesting, but what can you **do** for us?

The world of nonlinear dynamics and complexity science has entered that stage now. The fad is over, for the most part, and if these concepts have any chance of hanging around and making a difference, they must begin to diffuse beyond the "freaks" at the front end of the adoption curve (i.e., us). I think this is beginning to happen, but it's hard to tell from the inside. When I look at literature from other social science disciplines outside of psychology, the answer is mixed. In sociology and communication, the ideas seem to have gained fairly strong acceptance. Even if the language of chaos and complexity is not explicit, the concepts are prevalent and significant. Especially

strong is the use of the concepts of emergence and self-organization. Dynamics are discussed, but longitudinal studies are only beginning to appear. In the disciplines of political science and journalism, however, these concepts are nowhere to be found (except for the game theoreticians). In business research, chaos and complexity have gotten the attention of organizational behaviorists, but not many others.

How does a science successfully get adopted? According to Everett Rogers, it must diffuse beyond the "change agents" into the general populace. In our case, this means the "typical" academics and practitioners must accept it—those who rarely if ever venture outside of their domains. Who is going to make this happen? It must be us—we must be the change agents. Diffusion of innovation research shows that the majority of people will adopt a technology if it practically makes a difference. I return to my initial question: that's interesting, but what can you **do** for us? Chaos and complexity must be demonstrated to be of value in solving the problems that academics and practitioners want and need solved. We have demonstrated "coolness"—now it's time to demonstrate value. Not a bad new year's resolution....

### **Kevin Dooley**

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**CALL FOR PAPERS IN THIS NEWSLETTER  
INSTRUCTIONS FOR AUTHORS**

## DICK BIRD ELECTED PRESIDENT

The officers and trustees of the Society for Chaos Theory in Psychology & Life Sciences, reported that DICK BIRD has been elected President-Elect of SCTPLS. Dick is a Professor of Psychology at Northumbria University, Newcastle upon Tyne, England. As a candidate he emphasized international aspects of SCTPLS and the application of Chaos Theory to matters of world-wide importance. His first action as President-Elect will be to organize the program for the Annual Conference in Portland, Oregon, August 2-4, 2002. He will officially take over as President on Sept. 1, 2002. We all look forward to an exciting and productive year ahead.

## SCTPLS EUROMEET ANNOUNCED International Conference Scheduled Society-Sponsored Conference in Vienna in 2003

As a result of a motion approved at the 2001 SCTPLS business meeting in Madison, President Dooley appointed a Conference Committee consisting of Bob Porter (Conference Chair, Karl Toifl, Vice-Chair and Local Arrangements Committee Chair, and President-Elect Dick Bird, Vice-Chair and Conference General Secretary) to arrange a Society-sponsored meeting highlighting international perspectives on nonlinear science in psychology and the life science. The conference would be held in addition to the regular USA conference, held in mid-summer, and will include submitted and invited papers as well as symposia.

"We are a Society with international scope", said Bob Porter, "and we hope this conference will not only provide a focus on important European work but will also foster increased interaction among researchers world-wide."

A February date and a Vienna location were chosen because of lower costs of USA-European travel and availability of inexpensive accommodations. Vienna will also be at the height of its winter cultural season and, in addition, the meeting can coordinate with MATHCON to be held immediately prior to the SCTPLS meeting.

The conference is loosely scheduled for February, 2003 at the moment. Bob reports that the formation of an internationally representative Program Committee is nearly complete, and that the first formal announcement and first call for papers for the conference will appear within a few months.

## ASU Professors Analyze Coverage Of September 11 Attacks

(Arizona State University Press Release) The research of a team of Arizona State University professors concerning word associations is shedding light on a controversy about news agency Reuters' decision to exclude certain "emotive" words like "terrorism" from its coverage of September 11 events. Professors Steve Corman and Kevin Dooley are using a new text analysis technology they invented called Centering Resonance Analysis (CRA) to study media coverage of the September 11th attacks. The analysis shows that the word choice controversy may be more

imagined than real. The technology and analysis may be viewed at <http://locks.asu.edu/terror/http://locks.asu.edu/terror/>. Reuters has come under criticism for its policy concerning how it uses the word "terrorist" in its stories, including coverage of the Taliban, the al-Qaida network and Osama bin Laden. Specifically, the policy is to avoid use of "emotive" words like "terrorist" unless they are part of a quote or are attributable to a third party. House Republican Conference Chairman J.C. Watts (R-Okla.) is among many criticizing Reuters for its policy. He has asked the agency to reconsider, saying, "I fail to see how this noun is not an accurate portrayal of the aggressors who committed the acts of violence witnessed by the entire world last month." CRA technology shows that "terrorist" is an important part of Reuters coverage, however.

"Even if Reuters is strictly implementing their policy, it may make no difference to the reader. In our research we found that the word 'terrorist' was very influential in helping the overall text make sense," Dooley added. This means the word links many different concepts together, despite Reuters' restricted use of it. "That's what's ironic," explained Corman. "Reuters has not significantly de-emphasized the word 'terrorist,' so their critics are attacking them for something they haven't done." Corman and Dooley drew their conclusions after analyzing Reuters coverage of the Sept. 11 attacks using CRA. The technique turns words in a story into a mathematical network. The network can be analyzed to identify complex patterns between words. In Reuters' stories, "terrorist" is an important part of these complex webs. "The words 'bin Laden' and 'terrorist' were found together in only a few cases. But bin Laden was repeatedly linked to words like militant, extremist, mastermind, guerilla, exile and suspect," said Dooley, "and the events being reported are consistently described as terrorist attacks." Corman concluded, "So you don't have to call bin Laden a terrorist to put him in the semantic space where that connection gets made. If people perceive the events as a terrorist attack, and Bin Laden is perceived to be the perpetrator of the attack, then bin Laden will be perceived as a terrorist." Their analysis was based on 692 stories released by Reuters concerning the September 11 attacks, from September 11 to September 30, 2001. [Editor's note: Dr. Steve Corman is Professor at Hugh Downs School of Human Communication College of Public Programs: [Steve.Corman@asu.edu](mailto:Steve.Corman@asu.edu). Dr. Kevin Dooley is SCTPLS President and Professor of Management and Industrial Engineering College of Business and College of Engineering and Applied Sciences: [Kevin.Dooley@asu.edu](mailto:Kevin.Dooley@asu.edu)]



Above: School of Salmon, by Sophie, Grade 5. From the "Salmon Symposium", Riverdale Grade School, Riverdale, Oregon.



strong Allende supporter, he was forced to flee the country with his family. First he went to Costa Rica, then the United States, he conducted research at the University of Colorado, as Assistant Professor at the Medical School. Later Varela traveled to New York, where he was centered in the Brain Research Laboratories at NYU's Medical School. Between 1980 and 1985 Varela returned to Chile, making his final move to Paris in 1986. Eventually Varela became Director of the Centre Nationale de Recherche Scientifique, a position he held until his death.

Over the course of his professional life, Varela's work and ideas have had widespread influence in many diverse fields, including dynamical systems theory, neuroscience, cybernetics, theoretical immunology, artificial life, theoretical biology, cognitive science and consciousness studies. Many of Varela's most important ideas from the 1970s anticipated critical sea changes in the 1990s.

Of special interest to psychology, Varela extended his ideas about autopoiesis to the biological bases of cognition as well. He helped transform the popular model of cognition from an input-output information processing system to a functionally closed, autonomous system that is composed of invariant patterns of activity in neuronal ensembles. Varela began to refer to his perspective as 'embodied' or 'enactive cognition' (see Varela, Thompson & Rosch, 1991). As most recently formulated (see Thompson & Varela, in press) and rephrased (Marks-Tarlow et al, under review), enactive cognition includes the following three elements:

1. Embodiment: The human mind is not confined within the head, but extends throughout and even beyond the living body to encompass the world outside of the organism's physiological boundaries;

2. Emergence: human cognition emerges through self-organized processes that span and interconnect the brain, body and environment in reciprocal loops of causation. In addition to the 'upwards' causation of personal consciousness by neural and somatic activity, there is the 'downwards' causation of neural and somatic activity by the person as an active, conscious agent;

3. Self-Other Co-Determination: because open boundaries exist at all levels, which include the social, the individual human mind does not emerge in isolation, but instead is embedded within an interpersonal context. Through ongoing, dynamic interaction, self and other create one another at the most fundamental levels.

This view of cognitive autonomous functioning places the body, physical environs and even the interpersonal environment all within the purview of subjectivity. Both of the current authors have been greatly influenced by this perspective. Martinez places the notion of embodiment under the even broader umbrella of culture. He studies how structural coupling to the environment occurs within a cultural context, that includes one's systems of beliefs about illness and its cure and how these beliefs affect biology. Martinez corresponded several times with Varela via email, between June and February 2001, until a couple of months before Varela's death. They discussed Varela's book in progress that he was coauthoring with his colleague and friend Evan Thompson. The intriguing title *Lived Body: Why the Mind Is Not in the Head* addresses more comprehensively the non-locality concept of cognition that Varela had begun to articulate in his previous book, *The Embodied Mind* (with E. Thomson and E. Rosch, 1992).

Martinez (2001) notes that his own model of coemergent causality evolved from Varela's embodied cognition and his inclusion of both upward and downward causality in neurophenomenology research. While the model of coemergent causality embraces the linearly upward and downward causalities, Martinez argues that there is also a non-linear and non-local communication within a field of bioinformation that seeks maximum contextual relevance where cause is both sequential as well as simultaneous (See Institute of Biocognitive Psychology at [www.Biocognitive.com](http://www.Biocognitive.com))

Martinez credits Varela's Buddhist conceptualizations for expanding his theory of biocognition from emergence to coemergence causality. At the personal level, Varela had been an avid student of Tibetan Buddhist meditation and philosophy since the 1970s. Along with his personal practice, Varela also became active organizationally, for example with the Mind and Life Institute, where he helped to organize private meetings between the Dalai Lama and Western scientists (see Varela, 1997). Varela was able brilliantly to combine his personal experience with Buddhist thought and his vast knowledge of cognitive science to introduce an operational language of Buddhist psychology that could be discoursed in the field of neurophenomenology. Although Buddhist psychology has heuristic value in the study of consciousness, before Varela's contribution, it lacked the non-linear terminology that could appeal to complexity theorists.

Philosophically, Varela believed that scientific research needs to be rounded out by first person, phenomenological accounts of human experience. Professionally Varela strove to integrate epistemological and spiritual strands into his work. This is evident in his active support and involvement of a number of interdisciplinary groups devoted to the study of consciousness. Varela was on the faculty of the Naropa Institute and was a Fellow of the Association for the Scientific Study of Consciousness. He was on the Editorial Advisory Board of the *Journal of Consciousness Studies* and helped to found a new journal, *Phenomenology and the Cognitive Sciences*, where he would have served as Consulting Editor.

Varela was an insatiably curious fellow. He was an amazingly prolific researcher and writer who welcomed collaboration throughout his career. His publications (details can be viewed at [www.ccr.jussieu.fr/varela/varela/index.html](http://www.ccr.jussieu.fr/varela/varela/index.html)) include over 45 pages of articles and books to his credit. The following is a smattering of topics related to psychology, neuroscience and nonlinear dynamics: *optics in the compound of the honeybee, the arithmetic of closure, perceptual framing and cortical alpha rhythms, non-Hebbian synaptic learning rules, experimental epistemology, nonlinear neural networks, cognitive networks, structural coupling of simple cellular automata, auto-immunity and networks of immunity, chaos as self-renewal, cognitive maps, neuronal synchrony, depression as dynamical disease, neurophenomenology of time consciousness, neurodynamics of retention, entropy maps, steps to a science of interbeing, structural dynamics of awareness.*

In the early 1990s Varela contracted Hepatitis C and had been battling with liver failure ever since. He received a liver transplant in 1998 and contended gracefully and productively with declining health until he died. During their communications, Martinez eagerly asked Varela about the progress of his book and not once did Varela use his illness as an excuse for the

delays. Instead, he courageously expressed optimism about completing the book as soon as he was able, very poignantly reflecting his Buddhist serenity in the face of death.

In Varela's early work, *A Calculus of Self-Reference*, he chose the icon of the Uroboros to symbolize his third term, reentry. The Uroboros appears in myth worldwide to represent eternal and time bound cycles of self-fertilization, regeneration and renewal. Varela himself completed a full circle that demonstrated reentry when he self-referentially applied his own ideas to the final examination of his life. There is both a poignant and tragic feel to this piece as Varela senses immanent death and studies the paradoxical phenomenology of his own illness and fragmenting consciousness (Varela, 2001).

Varela's longtime collaborator and friend, Evan Thompson, visited Varela just before he died. Like Martinez, he also reports (Thompson, 2001) feeling deeply touched by "the serenity, kindness, and intelligence he continued to radiate," describing Varela as calm and at peace when he died with his family at his side. Varela is survived by his wife, Amy, their son Gabriel, a former wife, Leonor, their daughters Alejandra and Leonor, and a son Javier. Many will sorely miss him but, just as the Uroboros that he so ominously chose for his icon, his contributions will breathe life to a new generation of non-linear thought.

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### REPORTS FROM THE CUSP

*Editor's Note: Short research articles, book reviews, and other items of interest are solicited from all members for consideration for publication in* **REPORTS FROM THE CUSP**. *Articles are reviewed by the editor and those selected may be edited for length. Ordinarily, only one item will appear per newsletter. Contributions are always welcome.*

## Safety in Complex Systems

By Stephen Guastello, Marquette University

The World Congress on Safety in Modern Technical Systems was held in Saarbrücken, Germany, on September 12-14, 2001. There were approximately 80 presentations during those days and about 350 people in attendance altogether. The presentations were organized into five groupings: Production, Transportation, Information Technology, Medicine, and Ethics. Prof. Dr-Ing. Jürgen Althoff organized the conference on behalf of the TÜV-Saarland Foundation. The Foundation has been providing technology-related services to industry since 1871.

Although there was only one presentation explicitly on nonlinear dynamics (in the transportation section, see below), it was very clear that the majority of the participants were grappling with the outcomes of complex systems. There were many hallway discussions on this theme, along with some memorable thoughts of relevance to NDS scientists.

As technologies evolve, they involve more complex human interactions and higher degree of potential energy (in the physical sense). The complexity of human interaction engenders mode errors: The system may perform many functions automatically and thus involve fewer humans. The humans, however, must keep track of the state of the system and its recent history; some control actions by the humans are permissible during some states of operation, but not in others. As an example, a plane crash occurred when, on a foggy night, the air traffic controller forgot that she positioned a plane on a particular runway, then ordered another plane to land right on top of it.

### Production

Industrial robots perform their tasks quickly and accurately, but ultimately require human controllers to keep them functioning effectively. In the last decade there were several reports of robot arms that fatally crushed workers against building structures when they swung into position suddenly. The general solution was to build safe operation areas for the human controllers who could control the system from a reasonably safe distance. Although some parts of the problem are solved in this fashion, the remote control solution does not address the potential for injury to other humans that might be in the work area and not visible to the controller.

According to speaker Carl F. Gethmann, the proper approach for accident analysis and prevention is to ask the question, "How did it happen?" rather than, "How could you?" The human may have made the error that appeared to be the cause of the accident, but combinations of system design and policies of management made the error possible. Although psychology has played an important role in system safety and efficiency for more than 50 years, it must now play a more aggressive role in system design. "Psychology is more than repairing the errors of engineers," according to Gethmann.

### Transportation

The transportation track was strongly affected by the events of Sept. 11, just a day before the start of the conference. Many of the scheduled participants worked for airlines, airports, or government agencies and had to turn around and go back to work. The uncanny timing of the conference added an eerie glow

to some of the discussions, but most people understood that if they had anything relevant to contribute to world events, this was the time and place for doing so.

Barry Kirwan observed that the landscape of safety and risks in the transportation industry was changing due to increased volume, increased competition, and changing relationships between various forms of air, marine, rail, and highway transportation systems. It is necessary to imagine more complex accident scenarios that transcend the more traditional localized boundaries among transportation systems and subsystems. For instance, the safety analysis of a flight should begin with flight planning, and not simply when the airplane pushes off from the flight gate. Delays in one part of the system, especially following an accident, may produce unplanned difficulties for passengers, pilots, and air traffic controllers. He writes, “[A] fire at an airport causing shutdown at the airport will divert many aircraft and cause chaos in the skies. The effects of a major airport closure will be felt all over Europe, and the ATM system will take hours to stabilize. [...] The whole system will come under severe strain. Furthermore, many passengers will have to find alternative transportation [...], placing strain on other transportation sections and increasing risk on those sectors. This can be called *risk export*, and will probably become more important as a concept as transportation systems become more inter-connected and integrated” (2001, p. 329, footnotes deleted).

Another class of problems is related to the privatization of transportation organizations in Europe. Large transportation units have been split up among several private owners, each with their own myopic safety concerns. In the case of marine transportation, H. Hormann remarked, “[P]rocedures relevant to safety are not limited to the onboard activities. The performance of the operator’s shore base and possibly his offices in outports is likewise decisive” (2001, p. 364). Additionally, it has become increasingly difficult to attract young people to seafaring occupations; the pool of available employees thus consists of increasing numbers of marginalized workers. There is an increased need for education, training, and the definition of new careers in marine transportation.

The nonlinear dynamics presentation centered on the cusp catastrophe model occupational accidents. Its history includes applications in factory production, ground transportation, and health care. Similar concepts for asymmetry and bifurcation variables have been identified in each context. Asymmetry variables pertain to hazard levels and hazard exposures. Bifurcation variables are mostly stress-related, and constitute “cognitive load” on the operator. Accidents occur when an operator in a hazardous background commits an error that can be traced to high loads. Both groups of variables fall under the purview of safety management; the greatest benefit of the model, besides its statistical prediction, is its explanation regarding how risk elements work together to produce an unwanted outcome. The model, which may be familiar to many *Newsletter* readers appears in Fig. 1 below (from Guastello, 1995, p. 219; 2001, p. 317).

### Information Technology

Many *Newsletter* readers have been attacked by waves of viruses, worms, and Trojan horses, especially in the wake of 9/11 if not before. Klaus Brunnstein explained a fundamental problem: The Internet, IP protocol, and hypertext markup

language, “were developed for free exchange of information without *any* reference to requirements of security (confidentiality, integrity, availability) and safety (functional behavior, timeliness, persistency)” (2001, p. 585). As a result, the contemporary users for e-commerce and other applications have had to plug numerous and potentially severe leaks.



Fig. 1. Catastrophe model of the accident process.

Furthermore, what you see is *not* what you get. The fundamental sources of dysfunction originate and persist because they are not visible to the user. In his summary remarks at the end of the Congress, Bernhard Wilpert reported several growing problems that were identified by the speakers in this section of the program:

Fatal crashes of planes and automobiles can be perpetrated with automatic navigation systems that produce incorrect interpretations of data. Software is becoming available that will debug contradictions in software that produce such events.

Autonomous agents in market packages might be infiltrated and mimicked by criminal agents. Similarly, criminal agents have developed mobile code that can crack the security of checking accounts and other banking activities.

Firewalls might not provide intended security. Espionageurs have been occasionally successful in reversing critical elements of firewall systems.

Limitations might be placed on the use of cookies. Cookies are bits of code inserted to a user’s system when the user visits certain commercial web sites. Cookies provide information to the system about the user’s past visits, and may be used to tailor subsequent transactions with that user.

In the latest wave of security breeches, cyberterrorists have been blackmailing banks, or at least taking them hostage at a distance by barraging them with the phony “requests for information.” The senders are seldom interested in the information; rather the goal is to tie up the bank personnel’s time with endless time-consuming distractions. German sources report

that cyberterrorists of this variety are being trained in the People's Republic of China.

## Medicine

Biosafety programs are largely borrowed from other safety areas. These need to be redeveloped for biotechnology applications. Critical settings include but are not limited to the following issues.

According to a 1997 study cited by Christian Zinn, 3.5% of patients in German hospitals contracted infections that are traceable to the overprescription of antibiotics. Current prescription practices have led several strains of resistant bacteria, and patients can contract more than one pathogen in this fashion. The estimated health care costs required to remedy these secondary illnesses is EU 11.5 billion (roughly US\$9 billion) per year, and problem is thought to be growing.

Electronic storage of medical documents goes through a complex process of handling, labeling, and encoding. The benefit of electronic patient records is that the original documents are not subject loss in transit between one physician and another, and it is possible for multiple diagnoses to be made at a distance, especially where specialized expertise is thinly distributed. On the other hand, a study of incorrect handling and labeling of data records showed that 90% of records contained errors. Perhaps the most critical error was the report of an amputation performed to the wrong leg of the patient.

The third major area for biotechnological hazards involves genetic products. Even before we consider whether the production of particular genetic products will have positive or deleterious effects on the ecosystem, there are potential problems in the laboratories and production plants themselves with the handling of materials, according to Peter Czermak. New materials may produce specialized risks, and it does not help matters that the current regulations regarding the award for patents on genetic materials do not interface with safety standards, as Michael Baram noted.

*[Editor's Note: Steve is the Society's Journal editor and is a frequently consulted expert on safety and accidents. He was recently feature on local Milwaukee news commenting on the aircraft accident in NYC which occurred shortly after the 9/11 attack. We thought this summary and commentary article would be a timely reminder of the role of nonlinear science in the understanding of events that have significant impact on us all.]*

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## Winter Chaos 2002 Conference News

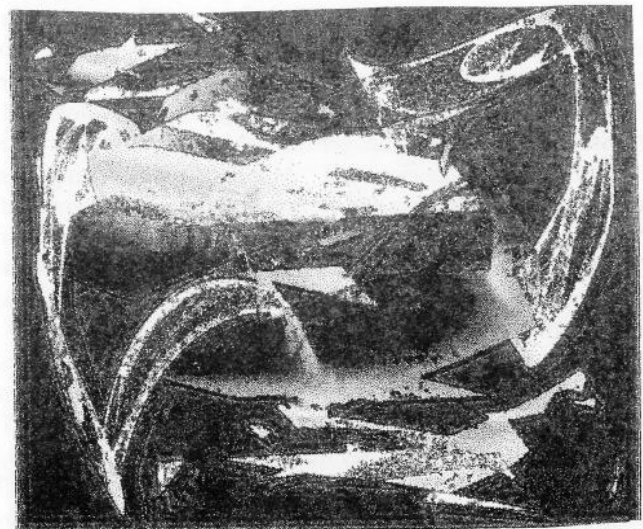
Blueberry Brain Institute

Fred Abraham, Special Correspondent

Fred Abraham, Conference organizer, reports that Michael Conforti has agreed to be the speaker at the opening dinner, on Feb 8, 2002, at the Blueberry Brain Institute's 10th Annual Winter Chaos Conference in Brattleboro Vt [[www.blueberry-brain.org/winterchaos/wc2002.html](http://www.blueberry-brain.org/winterchaos/wc2002.html)]. Fred writes that Michael is a world class authority with his own Jungian lineage and following. He has an international reputation and international conferences (the Assisi Conferences; [www.assisiconferences.com](http://www.assisiconferences.com)) focused on the theme of his lineage which is that of the confluence of mind and matter, a topic of great importance to Jung. He has explored the new sciences and archetypal psychology, and how chaos theory might help understand them. He is the author of *Psyche & Matter*. He is brilliant, witty, and enormously accessible and friendly.

His topic will not only be on these matters, but will also address one of the other theme topics of conference, terrorism. Frank Mosca will also be giving a talk on the psychodynamics of terrorism at the conference, and we will be having a round table on terrorism that will include security experts.

Joel Henkel, a physicist/philosopher will be leading a round table on the mind/matter/reality issue. Jeffrey Goldstein will be leading another major roundtable discussion on Emergence. Other major topics include Homelessness, School Reform, Ontology in an Infinite Universe, and the Future of Dynamics.



## ANNOUNCEMENTS

The 6th International Conference on Complex Systems (CS02) Complexity with Agent-based Modeling Chuo University, Tokyo, Japan September 9-12, 2002 This conference will be held simultaneously in cooperation with the <http://dcdns3.tamacc.chuo-u.ac.jp> which is virtually organized by Akio Matsumoto. This conference will feature the further standardization of numerical methods in all fields of application of nonlinear chaotic dynamics, and the appearance of new applications of discrete chaotic dynamics in evolutionary economics, experimental economics, and econophysics. The Call for Papers and other information is available on the web site.



Information and Call for Papers for The International Society for Political Psychology ISPP). ISPP is a worldwide organisation of researchers and practitioners working at the interface of political science and psychology but also includes other related disciplines. The 2002 Annual meeting will be in Berlin, July 16-19, at the Hotel Intercontinental, and the convention theme is Language of politics, language of citizenship, language of culture. Papers from any relevant discipline are welcome, on this theme or on any theme in political psychology, from any relevant discipline. We are particularly keen to welcome new people who can bring cutting-edge perspectives from their field, to this growing interdisciplinary area. The Conference format includes papers, interactive papers (posters), roundtables, workshops, salons (discussion around a film, video documentary, or other thematic material). Submission deadline: January 31, 2002. The President of ISPP for 2002 is Helen Haste, University of Bath, England For further information about ISPP and the 2002 convention, see the website: <http://ispp.org/ISPP/meet.html>



CALL FOR PAPERS THE 6th WORLD MULTI CONFERENCE ON SYSTEMICS, CYBERNETICS AND INFORMATICS SCI 2002 July 14 - 18, 2002 Orlando, Florida, USA Sheraton World <http://www.iiis.org/sci2002/> Honorary Presidents: Bela Banathy, Stafford Beer and George Klir Program Committee Chair: William Lesso General Chair: Nagib Callaos Organizing Committee Chair: Belkis Sanchez MAJOR THEMES \* Information Systems Development \* Information Systems Management \* Management Information Systems \* Virtual Engineering \* Mobile/Wireless Computing \* Communication Systems and Networks \* Emergent Computation \* Image, Acoustic, Speech and Signal Processing \* Computing Techniques \* Human Information Systems \* Education and Information Systems \* Control Systems \* Economic and Financial Systems \* SCI in Biology and Medicine \* SCI in Psychology, Cognition and Spirituality \* Conceptual Infrastructure of SCI \* Natural Resources \* Human Resources \* Globalization, Development and Emerging Economies \* SCI in Art. Interested readers may access the conference web page: <http://www.iiis.org/sci2002/>, and fill the respective form. If by any reasons you are not able to access the page mentioned above,

please, try the following page: <http://www.iiis.org/sci2002/>. If you have any problems linking to the conference web pages, or you need to send or receive additional information, contact the General Chair Professor Nagib Callaos to: [ncallaos@callaos.com](mailto:ncallaos@callaos.com) [ncallaos@aol.com](mailto:ncallaos@aol.com) [callaos@telcel.net.vt](mailto:callaos@telcel.net.vt)



16th European Simulation Multiconference Darmstadt, Germany June 3-5, 2002 CALL FOR PAPERS MODELLING AND SIMULATION 2002 : Methodology and Tools Artificial Intelligence and Neural Networks; High Performance and Large Scale Computing; Verification, Validation and Accreditation; Economics and Operations Research; Complex Systems Modelling Education and Gaming; Simulation in Environment, Biology, Ecology and Medicine; NEW Analytical and Stochastic Modelling Techniques ; NEW Simulation Applications in Industry ; NEW Tutorials; Student Papers, Poster Sessions. For latest information see: <http://biomath.rug.ac.be/~scs/conf/esm2002/> The ESM'2002 is the international conference concerned with state of the art technology in modelling and simulation. Philippe Geril, Society for Computer Simulation, European SCS Europe, Ghent University, Coupure Links 653, B-9000 Ghent, Belgium -- Philippe Geril Tel: +32.9.233.77.90 SCS Europe Fax: +32.9.223.49.41 E-mail: [Philippe.Geril@rug.ac.be](mailto:Philippe.Geril@rug.ac.be) URL: <http://hobbes.rug.ac.be/~scs> Belgium URL: <http://biomath.rug.ac.be/~scs>

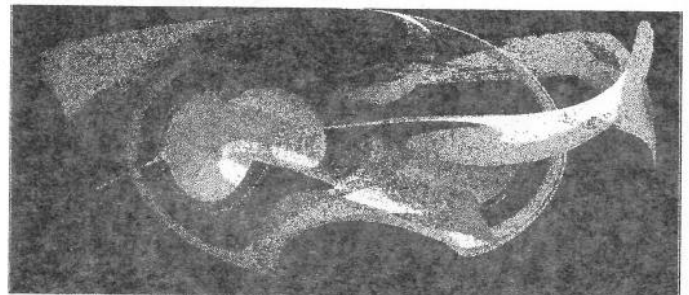


Prof. Dr. Günter Schiepek writes to announce the 10<sup>th</sup> „HERBST – ACADEMY“ IN SPRING OF 2002. It is scheduled to be held from June 6<sup>th</sup> to 8<sup>th</sup>, 2002 in the Conference Center “Kloster Seon/Bavaria”. Conference language will be English. Presentation of posters will be reserved abundant time, which is why we encourage authors to consider presentation of results in the poster form. Deadline is December 31, 2001, so, please, submit your contribution (title and abstract, approx. 10 lines) as well as your conference announcement to [gschiepek.fksh@t-online.de](mailto:gschiepek.fksh@t-online.de) or Prof. Dr. Günter Schiepek, Universitätsklinikum der RWTH Aachen, Klinik für Psychosomatik und psychotherapeutische Medizin, Pauwelsstr. 30, D-52074 Aachen. Fon: +49 241 80 89 821, Fax: +49 241 88 88 422

More informations on the conference may be found at:

[www.wu-wien.ac.at/inst/ivm/herbstakademie.htm](http://www.wu-wien.ac.at/inst/ivm/herbstakademie.htm)

The conference center is placed on a peninsula situated at the Lake of Seon. This former monastery is an island of tranquility and hospitality for training and cultural events in the picturesque Chiemgau (Bavaria, half way between Munich and Salzburg) ([www.kloster-seon.de](http://www.kloster-seon.de)).





## NEWS FROM MEMBERS

A new book by Society President Kevin Dooley and colleagues has received the award for Best Book of 2000-2001 from the Organizational Communication Division of the National Communication Association. The book, *Organizational Change and Innovation Processes: Theory and Methods for Research*, by Poole, M., Van de Ven, A., Dooley, K., and M. Holmes, was published in 2000 by Oxford Press, and is available via many booksellers



Long time member Prof. Dr. Franco Orsucci's new book, *Changing Mind*, will be published by World Scientific Publishing in the "Studies in nonlinear phenomena in life sciences" series, and it will be available by mid 2002. The contents of *Changing Mind* includes emerging forms, from human individuals to linguistic interactions; the multiplex subject: informational, symbolic, iconic, intentional, biological; historical backgrounds; modeling and simulating emergence; evolution, involution, co-evolution and cooperation; mind, language and a new psychopathology; and many other topics of interest to theorists and practitioners in nonlinear, dynamic systems.



A member correspondent, J. Scott Jordan reports a successful recent symposium sponsored by the Chicago Area Sigma Xi Chapters (CASX). The conference, Exploring Human Consciousness, was held at the Illinois Institute of Technology Life Sciences on Saturday, December 1, 2001. Topics included "The Race for Consciousness-And the Need for a Yellow Flag" by Dr. J. Scott Jordan; "Direct Recordings from the Human Cortex: A Test of the Temporal Binding Hypothesis," by Dr. Vernon Towle; "Consciousness in Relationship to the Theoretical Perspectives of Robert Rosen" by Dr. Carol Herzenberg; "Follow-up to a BBC Interview: Is Hal Conscious?" by Dr. James Mattea; "Survival of the Fittest: The Inevitability of Consciousness" by Ms Rachael Haas; "Consciousness, Evolution, and Religion" by Dr. Ralph Lee. For more information visit:

<CASX@LISTSERVER.SIGMAXI.ORG>



Ken Bausch's new book, *The Emerging Consensus in Social Systems Theory* (published by Kluwer) received a glowing review by David Ing of IBM Advanced Business Institute: "Ken Bausch presents a masterful synthesis of social theory in a systemic framework. The breadth and depth of his understanding of social theory and systemic theory is impressive...The choices are straight forward: invest a few years trolling the philosophy, sociology, and systemic theory sections in the library; or read the perspective offered in *The Emerging Consensus in Social Systems Theory*."

Ken is the CEO/Research Director of Ashley Montagu

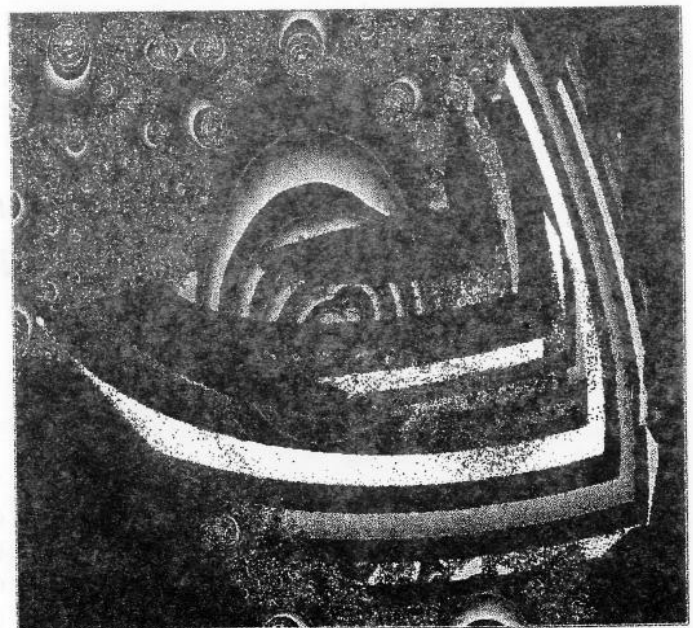
Institute [www.montagu.org](http://www.montagu.org), [info@montagu.org](mailto:info@montagu.org), which is based in Los Angeles. The Institute furthers the work of its namesake with activities including action planning with inner-city neighborhood groups, evaluation of programs in terms of the emotional health (EQ) that they generate, and the Montagu Altruistic Love Profile (MALP). Ken also reports that he will be co-chairing, with Aleco Christakis, the 2003 conference of ISSS, which will be held in Crete. You can reach Ken at <[kenbausch@MEDIAONE.NET](mailto:kenbausch@MEDIAONE.NET)>



Ben Goertzel reports that his new book, *Creating Internet Intelligence* has been published by Kluwer and is available from Amazon. Extracted from the Amazon description: "Creating Internet Intelligence is an interdisciplinary treatise exploring the hypothesis that global computer and communication networks will one day evolve into an autonomous intelligent system, and making specific recommendations as to what engineers and scientists can do today to encourage and shape this evolution...The book should be of interest to computer scientists, philosophers, and social scientists, and more generally to anyone concerned about the nature of the mind, or the evolution of computer and Internet technology and its effect on human life. Ben can be reached at [ben@GOERTZEL.ORG](mailto:ben@GOERTZEL.ORG).



Stephen Guastello reports that his new book, *Managing Emergent Phenomena: Nonlinear Dynamics in Work Organizations* has been published by Lawrence Erlbaum Associates, and is available from all the usual sources. For more information, see Nonlinear Dynamical Bookshelf in this issue of the *Newsletter*.



FRACTALS THIS ISSUE BY J. C. SPOTT

# CALL FOR PAPERS

## 12<sup>th</sup> Annual International Conference The Society For Chaos Theory in Psychology & Life Sciences

**Portland, OR, USA**  
**August 1- 4, 2002**

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An invitation is extended to all interested scholars to submit abstracts reporting work involving chaos theory, fractals, nonlinear dynamics, complexity, and related principles. Submissions are solicited in research, theory, and application in any of the psychological and life sciences sub-disciplines. Areas represented at recent conferences have included neuroscience,

biology, medical research, economics, sociology, anthropology, physics, political science, psychology, organizations and management, education, art, philosophy, and literature. The program will include single papers, symposia, and roundtable or other special sessions. Subject matter may be theoretical or applied, and may be empirically or methodologically oriented.

### THIS YEAR'S CONFERENCE SPECIAL FOCUS

#### *Chaos and Complexity in a Changing World*

---- Dick Bird, President Elect, Conference Coordinator, SCTPLS, [dick.bird@unn.ac.uk](mailto:dick.bird@unn.ac.uk) ----

We are planning sessions on the above special focus, and we encourage submissions around this theme. We seek to understand and analyze the changes taking place in the world, especially those following the tragic events of September 11th 2001, and to point up the relevance of chaos and complexity science to the emerging world order. Terrorism and its concomitants have presented a challenge to our established conceptualizations of the world, a challenge that we believe chaos theory and related disciplines can help to answer. The task of understanding will involve many perspectives including psychological, social, economic and organizational issues. Analysis may take many forms: political science, financial modeling, the psychology of extremism and the social organization of terror among them. Pertinent research issues

include the modeling of belief systems, communication, social organization, management structures and methodological issues such as data acquisition, validity and analysis.

Alongside this special focus we will as usual be welcoming contributions in all other broad areas of research and practice in chaos science.

Following our success in previous years, the conference will also have two to three guest speakers (soon to be named.) We also strongly encourage collections of individuals to propose symposia that combine individual presentations with group and roundtable discussion.

*We shall be honoring :*

***Walter J. Freeman***

*for his outstanding contributions to chaos theory, to neurophysiology, and to psychology.*

### BRIEF OVERVIEW OF CONFERENCE SCHEDULE

*Note extra day, Thursday, has been added this year as voted by members.*

|                     |  |
|---------------------|--|
| August 1 (Thursday) | Workshops; Registration.                                 |
| August 2 (Friday)   | Conference Day 1, Opening Ceremonies;<br>Plenary Address |
| August 3 (Saturday) | Conference Day 2, Banquet.                               |
| August 4 (Sunday)   | Conference Day 3, Business Meeting, Workshops            |

## FRIDAY, May 3, 2002 SUBMISSION DEADLINE FOR ABSTRACTS

### INSTRUCTIONS FOR SUBMISSION OF ABSTRACTS

Submissions should include the title of the presentation, the names and affiliations of all authors, and a SHORT abstract (150 –250 words).

All abstracts **MUST** be submitted in publishable, *electronic form*, either as ASCII email enclosures or as WORD or WORDPERFECT attachments. Please facilitate review of your abstract by observing the following:

1. **DO NOT include diagrams, graphics, or special fonts, as these cannot be printed in the program.**
2. **If you are using WORD or WORDPERFECT, PLEASE AVOID submissions with hard carriage returns at the end of lines in the body of the abstract (We will have to remove them manually, one at a time!).** Use returns *only* at paragraph breaks.
3. **INCLUDE your address, phone/fax number, and email address for notification regarding the status of your submission.**
4. **PLEASE INCLUDE** notation of any special audio or visual needs. Standard overhead projectors will be available. Unusual equipment is difficult and expensive to obtain, so review your needs carefully.
5. **PLEASE USE** the sample, below, as a guide.
6. **PLEASE avoid special formatting, extensive reference lists, etc.** ALL abstracts will be converted to the form and format shown in the sample before they are published on the web site and in the Conference Program.
7. **PLEASE**, for Symposia or Roundtables, identify ALL scheduled speakers. The abstract for these events may be up to 500 words and should reflect the content of EACH the speaker's contribution.
8. **PLEASE**, remember that single papers allotted time will be, in total, **30 minutes**, and Symposia and Roundtables will be limited to **90 minutes**. Please plan presentations accordingly. *Note: Our meetings have been growing in submissions. Times will be shortened, if necessary, to accommodate excess, on-time submissions. Late submissions will NOT be accepted.*

### SAMPLE ABSTRACT SUBMISSION

TITLE: Applications of "chaos theory" in the study of really interesting stuff.

AUTHORS & AFFILIATIONS: A. Tractor, Department of Interesting Stuff University of Everything, City, Country, Postal Code. And L. Sighcle, Department of Related Stuff, Research Place, City, Country, Postal Code.

ABSTRACT: We report results of a two-year study of the fluctuations in several interesting variables. Of particular interest are the relation between several of the variables and several of the others. Our analysis suggests that the relation of variables may be understood as reflecting the operation of a nonlinear, complex system. Several suggestions about the dynamics of this system as well as implications for further study will be discussed. (Research supported, in part, by the National Institute of Interesting Stuff).

CONTACT INFORMATION Lymet Sighcle, Ph.D., Department of Related Stuff, Research Place City/State, Country, Postal Code. Voice phone: 999-999-9999, Ext. 99; email: lsighcle@researchplace.com

AUDIO VISUAL NEEDS: VHS Videotape

## SUBMISSION DEADLINE

The **deadline** for submission of abstracts is:

**Friday, May 3, 2002.**

SUBMIT ABSTRACTS, ELECTRONICALLY, TO:

[dick.bird@unn.ac.uk](mailto:dick.bird@unn.ac.uk)

**Please Remember** that your abstract can be most easily and accurately processed if you send them in plain text, or WORD, or WORDPERFECT formats, without special formatting and without carriage returns in the body of the abstract. PLEASE see Instructions, and SAMPLE ABSTRACT above.

- You will be notified when your abstract is received. Responses regarding abstracts *acceptance* will be made via email on or before May 17, 2002. If you are not notified by May 17, or if you have any questions, please contact Dick Bird at above email address.
- A list of accepted Abstract Titles and Presenters is scheduled to be available on the SCTPLS webpage by May 24.
- A Schedule of Presentation days and times, with Abstracts, will be available on the SCTPLS webpage by June 9. A printed program will be distributed at the conference.
- **IMPORTANT: ALL authors of accepted abstracts are expected to complete their registration by July 1, 2002. Authors who fail to do so will be deleted from the program in order to reflect more accurately actual attendance and presentation.**
- REGISTRATION MATERIAL WILL BE INCLUDED IN THE NEXT (April) NEWSLETTER and will be available on the Society Webpage.
- The SCTPLS webpage is located at: <http://www.societyforchaostheory.org>

### LOCATION AND ACCOMMODATIONS

The 12<sup>th</sup> annual international conference of the Society for Chaos Theory in Psychology & Life Sciences will be held at Portland State University, Portland, Oregon (USA). The Smith Conference Center is a focal point of the campus. Lodging for the conference has been arranged with the DAYS INN, which is located at a brisk walk from campus. Comfortable rooms will start at \$89 and include access to indoor and outdoor swimming pools.

### REGISTRATION FEES

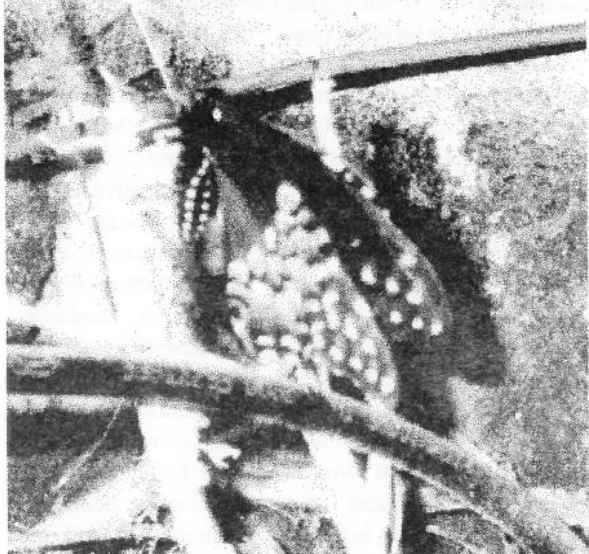
The early registration fees for this conference will be US \$145 for regular members, \$100 for students, and \$200 for non-members until July 8, 2002. After July 8, the on-site registration rates of \$170/125/225 will apply.

The banquet dinner on Saturday August 3 and refreshments during the conference are included with your registration.

### PUBLICATION OPPORTUNITY

All presenting conferees are further invited to prepare their papers for review and possible publication in the Society's research journal *Nonlinear Dynamics, Psychology, and Life Sciences*. NDPLS is peer-reviewed and abstracted in PsycInfo (Psychological Abstracts), Medline (Index Medicus), and JEL/Econlit. Regarding format, NDPLS uses American Psychological Association (APA) style. A concise style guide is available on the SCTPLS web site; click JOURNAL on the home page, then Instructions for Authors. All SCTPLS members received NDPLS as a benefit of membership.

# Nonlinear Dynamical Bookshelf



**Above: Taming of the Butterfly-2**  
Photograph series by Stephen and Andrea Guastello



**Taming of the Butterfly - 3**

**Banerjee, S. & Verghese, G. C. (Eds.) (2001). *Nonlinear phenomena in power electronics: Bifurcations, chaos, control, and applications*. New York: Wiley. ISBN:0-780-35383-8 480p.** Every electronics application from cell phones to calculators to computers requires power. Often the battery supplying this power is the largest single section of the product and the behavior of the energy follows a chaotic or nonlinear pattern. Great strides have been made in the last decade in the comprehension inherently nonlinear field of power electronics. Until now, no single text has exhibited the foundations of these nonlinear phenomena and their applications in a fashion suited to the power electronics engineer rather than the research specialist. Most modern practical engineering techniques are linear, which makes the nonlinear dynamics of these phenomena difficult to predict and analyze. This invaluable edition will provide the reader with the most recent advances, theoretical approaches, and tools required for the comprehension and analysis of major nonlinear phenomena in a well-defined scope. -*Publisher*

**Casti, J. L. (2001). *Five more golden rules: Knots, codes, chaos, and other great theories of 20th-century mathematics*. New York: Wiley. ISBN:0-471-39528-5, 272p.** Critical Praise for Five Golden Rules "Five Golden Rules is caviar for the inquiring reader. Casti's gift is to be able to let the nonmathematical reader share in his understanding of the beauty of a good theory." -*Christian Science Monitor*. "Casti is One of the great science writers of the 1990s. His new book ranges into

exotic fields such as game theory (which played a role in the Cuban Missile Crisis) and topology (which explains how to turn a doughnut into a coffee cup, or vice versa). If you'd like to have fun while giving your brain a first-class workout, then check this book out." -*San Francisco Examiner* "I urge every reader of *New Scientist* to get this book." -*New Scientist*. "This book has meat! It is solid fare, food for thought. . Casti's Five Golden Rules makes math less forbidding and much more interesting." -*Hartford Courant*. "With this volume, Casti has done more than his share of the professional duty of mathematicians. It is one more brick to be used in the construction of a mathematics that is cherished by all people." -*Journal of Recreational Mathematics*. "An excellent exposition of five of the most interesting mathematical theories of the twentieth century that are still undergoing significant study." -*Library Journal*.

**Day, G. S., & Schoemaker, P. J. H. (Eds.) (2000). *Wharton on managing emerging technologies*. New York: Wiley. ISBN: 0-471-36121-6 460p.** Emerging technologies such as the Internet and biotechnology have the potential to create new industries and transform existing ones. Incumbent firms, despite their superior resources, often lose out to smaller rivals in developing emerging technologies. Why do these incumbents have so much difficulty with disruptive technologies? How can they anticipate and overcome their handicaps? The editors contend that managing emerging technologies represents a "different game," requiring a different set of management skills,

frameworks, and strategies than those used by established firms to manage existing technologies. In this book, experts from diverse fields examine key issues such as: Common pitfalls and potential solutions for incumbent firms in managing emerging Technologies; Strategies for assessing the potential of new markets and designing technologies to take advantage of market "lumpiness"; The need for scenario planning and "disciplined imagination" to develop strategies under uncertainty; The limits of patents in protecting gains from technology, and the use of lead time and other strategies; The power of innovative financial strategies and the use of real options in making investments; Using alliances and new organizational forms; Developing a "customized workplace". – *Publisher*

**De Landa, M. (2000). A thousand years of nonlinear history. Cambridge, MA: MIT Press.** ISBN 0-942299-32-9. 333p. Following in the wake of his groundbreaking *War in the Age of Intelligent Machines*, Manuel De Landa presents a radical synthesis of historical development over the last one thousand years. More than a simple expository history, *A Thousand Years of Nonlinear History* sketches the outlines of a renewed materialist philosophy of history in the tradition of Fernand Braudel, Gilles Deleuze, and Felix Guattari, while also engaging the critical new understanding of material processes derived from the sciences of dynamics. Working against prevailing attitudes that see history as an arena of texts, discourses, ideologies, and *metaphors* De Landa traces the concrete movements and interplay of matter and energy through human populations in the last millennium.

De Landa attacks three domains that have given shape to human societies: economics, biology, and linguistics. In every case, what one sees is the self-directed processes of matter and energy interacting with the whim and will of *human* history itself to form a panoramic vision of the West free of rigid teleology and naive notions of progress, and even more important, free of any deterministic source of its urban, institutions and technological forms. Rather, the source all concrete forms in the West's history are shown to derive from internal morphogenetic capabilities that lie within the flow of matter-energy itself. – *Publisher*.

**Goriely, A. (2001). Integrability and nonintegrability of dynamical systems. Singapore: World Scientific.** This invaluable book examines qualitative and quantitative methods for nonlinear differential equations, as well as integrability and nonintegrability theory. Starting from the idea of a constant motion for simple systems of differential equations, it investigates the essence of integrability, its geometrical relevance and dynamics consequences. Integrability theory is approached from different perspectives, first in terms of differential algebra, then in terms of complex time singularities and finally from the viewpoint of phase geometry (for both Hamiltonian and non-Hamiltonian systems). As generic systems of differential equations cannot be exactly solved, the book reviews the different notions of nonintegrability and shows how to prove the nonexistence of exact solutions or a constant of motion. Finally integrability theory is linked to dynamical systems theory by showing how the property of complete integrability, partial integrability or nonintegrability can be related to regular and irregular dynamics in phase space. – *Publisher*

**Goertzel, B. (2002). Creating internet intelligence. Boston: Kluwer.** For book description, see "News from Members, p. 9.

**Guastello, S. J. (2002). Managing emergent phenomena: Nonlinear dynamics in work organizations. Mahwah, NJ: Lawrence Erlbaum Associates.** 391p + xii. ISBN 0-8058-3163-0. Nonlinear dynamical systems research has succeeded in producing an extensive and growing theory of organizational behavior and group dynamics. The substantive theory is decidedly driven psychological perspectives. **Chapter 1:** Scenes from the nonlinear house of panic. NDS has changed basic views of the nature of an organization. Chapter recounts some historical tales of self-organizing behavior during, and shortly after, the San Francisco earthquake of 1906. Mayor Eugene Schmitz is credited as a superb manager of chaos. **2:** Nonlinear dynamical systems theory; basic concepts as they apply to substantive topics. **3:** Structural equations; statistical techniques for testing NDS hypotheses. **4:** Organizational change and development; various models that have been proposed and tested, technology in organizational change, organizational consciousness. **5:** Nonlinear motivation theory; includes the butterfly catastrophe model of motivation in organizations, game theory, personnel selection for Air Force recruits, and flow experiences. **6:** Dynamical theory of creativity. **7:** Social networks. **8:** Work group coordination. **9:** Emergence of leadership. **10:** Work flows in hierarchies. **11:** Nonlinear economics; classical concepts, market behavior, unemployment and inflation, information economics, and the ecology of oceanic fishing harvests. **12:** Management and control of dynamical systems; ancient prediction techniques, psychology of prediction, control of chaos, catastrophic processes and complex dynamics, and the dynamics of emergency management. **Epilogue:** Whatever happened to everything? The conceptual and statistical utility of NDS models is just as strong as we once thought. **Appendix A:** Data analysis with structural equations. **Appendix B:** Island Commission game. References and indices. – *Author*

**Harari, R. (2001). La pulsion es turbulenta como el lenguaje: Ensayos de psicoanálisis caótico. Barcelona: Ediciones del Serbal.** ISBN: 84-7628-370-9. 145 p. [In Spanish]. A collection of essays on the impact of chaos concepts for the theory and practice of psychoanalysis. Topics include the expression of symptoms, organization of language in the psychoanalytic context, the contrast between concepts of causality drawn from Freudian theory and nonlinear dynamics, and the dynamics of anxiety based on extensive work by Lacan. Harari's recent work concerning Lacan's theory of anxiety is listed below in yet another new work by a Society author. – *Newsletter*.

**Harari, R. (2001). Lacan's seminar on "anxiety": An introduction. New York: Other Press.** ISBN 1-892746-36-0. [In English]. Explores one of the least examined aspects of Lacan's work, and one that has far reaching clinical and theoretical reverberations. In Lacanian terms, anxiety is not a symbolic phenomenon, but is situated at the border of the imaginary and the real: no longer reduced to the concept of ego, the very question of the birth of the subject is raised by the phenomenon of anxiety. This is a step that Harari's account will illuminate. The Seminar on Anxiety situates Lacan's expansion upon Freud's concepts about

anxiety with rigor, precision, and a wealth of clinical underpinnings. Has Harari states, it is a key to Lacan's teaching in terms of the ways that it has had an impact on analytical treatment. Various schools of thought pertaining to anxiety are also examined.  
– Adapted from back cover.

**Juarrero, A. (1999). Dynamics in action: Intentional behavior in a complex system. Cambridge: MIT Press.** ISBN 0-262-10081-9. 300p. A review of this book by R. W. Gibbs and G. C. Van Orden appears in *Human Development*, 2001. *From the publisher:* What is the difference between a wink and a blink? The answer is important not only to philosophers of mind, for significant moral and legal consequences rest on the distinction between voluntary and involuntary behavior. However, "action theory"--the branch of philosophy that has traditionally articulated the boundaries between action and non-action, and between voluntary and involuntary behavior--has been unable to account for the difference.

Alicia Juarrero argues that a mistaken, 350-year-old model of cause and explanation--one that takes all causes to be of the push-pull, efficient cause sort, and all explanation to be prooflike--underlies contemporary theories of action. Juarrero then proposes a new framework for conceptualizing causes based on complex adaptive systems. Thinking of causes as dynamical constraints makes bottom-up and top-down causal relations, including those involving intentional causes, suddenly tractable. A different logic for explaining actions--as historical narrative, not inference--follows if one adopts this novel approach to long-standing questions of action and responsibility.

**Lindsey, J. K. (2001). Nonlinear models in medicine. New York: Oxford.** Linear models dominate much of statistics, a legacy of pre-computer times. Nonlinear models have many advantages in modeling scientific data and only a few disadvantages. This book gives a general introduction to nonlinear models, comparing them to generalized linear models, describing data handling and formula definition, and summarizing the principal types of nonlinear regression formulae. Techniques for non-normal data are emphasized. The chapters that follow the introductory material provide detailed examples of applications in various areas of medicine: epidemiology, clinical trials, quality of life, pharmacokinetics, pharmacodynamics, assays and formulations, and molecular genetics. Appendices describe data handling and model formulae in more detail, ways of modeling dependencies in repeated measurements, and data for the exercises that appeal throughout the text. These data, together with libraries for the freely available software R, are available through the author's website. –*Publisher.*

**Locker, M. (2001). Noise-sustained patterns: Fluctuations and nonlinearities. Singapore: World Scientific.** c 220p. ISBN 981-02-4676-5. This book investigates the impact of noise upon the emergence and sustenance of patterns. The crucial role of nonlinearities is highlighted and expanded upon in the context of dynamical system frameworks. The author's familiarity with chaos theory, statistical physics and nonlinear science is reflected in the highly interdisciplinary character of the text." – *Publisher.*

**Lomi, A., & Larsen, E. R. (Eds.). (2001). Dynamics of organizations: Computational modeling and organizational theories. Cambridge, MA: MIT Press.** ISBN 0-262-62152-5. 352 p. An organization is more than the sum of its parts, and the individual components that function as a complex social system can be understood only by analyzing their collective behavior. This book shows how state-of-the-art simulation methods, including genetic algorithms, neural networks, and cellular automata, can be brought to bear on central problems of organizational theory related to the emergence, permanence, and dissolution of hierarchical macrostructures. The emphasis is on the application of a new generation of equation- and agent-based computational models that can help students of organizations to reformulate their basic research questions starting from assumption about how to link--rather than separate--different levels of organizational analysis. – *Publisher*

**McDonald, M. (2002). Predict market swings with technical analysis. New York: Wiley.** ISBN:0-471-20596-6. 288p. The experience of Wall Street investment manager and analyst Michael McDonald offers a new perspective on how to navigate the turbulent ups and downs of the markets. His innovative approach to the stock market teaches investors how to use new investment strategies intended to replace the "buy and hold forever" strategies of yesterday. McDonald discusses what a "trading range" market is—a roller-coaster ride in which the market will neither gain nor lose much ground—and guides readers through this market with his proven investment strategies. This book provides an understandable way to make sense of the unpredictable stock market, taking into account more complex theories, including chaos and contrarian approaches. Along with his expert advice, McDonald presents four investing paradoxes that will help investors make smarter decisions now and predict where the market is heading, using his proven theories. –*Publisher*

**Midgley, G., & Reynolds, M. (2001). Operational research and environmental management: A new agenda. Birmingham, UK: Operational Research Society.** ISBN 0-903440-23-7. 160 p. The authors begin with a review of the literature on the interface between OR and environmental management. Three generic themes repeatedly occur: (I) managing complexity and uncertainty; (ii), dealing with multiple and often conflicting values; and (iii) addressing political effects on people and things excluded from the concerns of planners. Three very different case studies are provided of good OR practices in environmental planning and management. The book ends with the outputs from a series of planning workshops on OR and environmental planning, along with an agenda for future activities. – *Author.*

**Moro, A. (2000). Dynamic antisymmetry. Cambridge, MA: MIT Press.** ISBN 0-262-63201-2. 148p. The central idea is that movement and phrase structure are not independent properties of grammar; more specifically, that movement is triggered by the geometry of phrase structure. Assuming minimalist framework, movement is traced back to the necessity for natural language to organize words in linear order at the interface with the perceptual-articulatory module. Andrea Moro uses this innovative perspective to analyze several empirical domains, focusing on small clauses, split wh-movement, and clitic constructions. In a final speculative chapter, he examines the general consequences for the design of

grammar implied by Dynamic Antisymmetry. The book is self-contained, with a synopsis of current theories of movement and a synthetic presentation of the theory of antisymmetry. An appendix presents the essentials of a unified theory of copular sentences, which plays a central role in the argument and has several important consequences for syntax, for example, for expletives and locality. -*Publisher*

**Peng, S-L. & Cao, K-F. (2001). Star products in one-dimensional symbolic dynamics. [Directions in Chaos Vol. 8]. Singapore: World Scientific.** c 300 p. ISBN 981-02-4673-0. For graduate students and researchers in nonlinear science and chaos. As most of the examples of difference equations and one-dimensional iterative systems that have appeared in NDPLS could be treated by the algebra covered by this book it could enhance the repertoire of techniques available in the life sciences. -*Robert A. M. Gregson.*

**Peters, E. E. (1999). Patterns in the dark: Complexity, risk and financial markets. New York: Wiley.** ISBN:0-471-23947-X. 240p. A rare book that offers an entirely new perspective on an issue of ongoing concern to investors: the unpredictability of financial markets. In this groundbreaking work, leading investment strategist and authority on chaos theory, Edgar Peters makes accessible ways of understanding market behavior that-until now-were known only to specialists. *Patterns in the Dark* draws on a broad range of human knowledge and experience to clarify the behavior of a system that now operates on a global, 24-hour, and thoroughly interconnected basis. Peters illuminates the complex operation of the marketplace by including keen observations drawn from science, mathematics, and artistic creation as well as economics. His models include the social visions of the Austrian economists, Darwinian ideas of evolution, the laws of physics, and the creative risks of the artist. His meditations on financial markets weigh the effects of limitations vs. rules, risks vs. uncertainty, and order vs. chaos. As a guide to a world marketplace that has become increasingly complex and uncertain, *Patterns in the Dark* offers the investor a rich source of insight, illumination, and wisdom. -*Publisher.*

**Rubinstein, M. F., & Sirtsternberg, I. P. (1999). The minding organization: Bring the future to the present and turn creative ideas into business solutions. New York: Wiley.** ISBN:0-471-34781-7. 224p. A few years ago, Cementos Mexicanos (Cemex), the world's third largest cement company, was struggling. More than two-thirds of their deliveries were late, customer complaints were numerous, and new orders were dwindling sharply. Then Cemex executives realized they needed to get a glimpse of the future. They saw themselves responding to customer needs as each need emerged. They visualized successful deliveries with orders placed only an hour in advance. Their entire organization became involved in the process of adapting to unplanned occurrences. By embracing the uncertainty and chaos of their business and a company-wide commitment to excellence, Cemex was completely transformed in a matter of months.

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**K. Sakai (2001). Nonlinear dynamics and chaos in agricultural systems. Amsterdam: Elsevier.** ISBN 0-444-50646-2. 220 p. This book provides an introduction to the analysis of chaos and chaos theory as it relates to agricultural science. With dear explanations of chaos theory and principles, the first part of the book offers some basic facts, the fundamental terminology, and the concepts of deterministic chaos. The second part of this volume contains rich applications of the theory as applied to real agricultural systems. Applications include a wide area such as alternate bearing in tree crops, weed control and tillage, nonlinear vibrations in agricultural tractors, and piglet pricing analysis. Readers will find useful tools for calculating the order, rules and theory behind complex phenomena observed in arable land.

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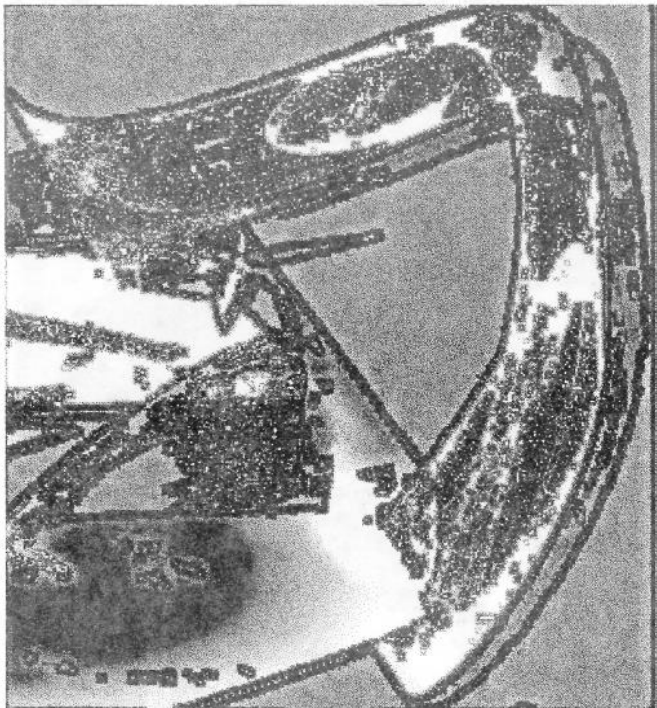
**Schuster, H-G. (1999). Handbook of chaos control: Foundations and applications. New York: Wiley.** ISBN:3-527-29436-8. 710 p. Chaos, that is irregular dynamical behavior, is ubiquitous in nature and occurs in a wide range of systems including lasers, fluids, etc., heart beats and brain waves. Before 1990 the emergence of chaos in a system was mostly considered as a nuisance because chaotic systems are hard to predict due to their sensitivity to small perturbations. After 1990 it became clear that this sensitive dependence offers the unique possibility to control these systems with a minimum of additional energy. This handbook provides a comprehensive up-to-date overview of the field. It starts with an introduction to chaos theory, and covers all known methods of chaos control from parametric feedback to neuronal networks. A large part of the handbook is devoted to applications which range from control of electronic circuits, the control of lasers and chemical plants up to "antichaos control" in biological systems which offers the possibility to avoid epileptic seizures. -*Publisher.*



**Veziina, J-F. (2001). Les hasards necessaires: La synchronicite dans les rencontres qui nous transforment. Quebec(?): Les Editions de L'Homme.** [In French]. In this book I explore the concept of synchronicity in the field of relationships (with other persons, books, movies) that emerge at the right timing in our lives and generate transformations. – *Author.*

**Vitiello, G. (2001). My double unveiled: The dissipative quantum model of brain. Philadelphia: John Benjamins.** ISBN 1-58811-076-1. 163 p + xvi. This introduction to the dissipative quantum model of brain and to its possible implications for consciousness studies is addressed to a broad interdisciplinary audience. Memory and consciousness are approached from the physicist's point of view focusing on the basic observation that the brain is an open system continuously interacting with its environment. The unavoidable dissipative character of the brain functioning turns out to be the root of the brain's large memory capacity and of other memory features such as memory association, memory confusion, duration of memory. The openness of the brain implies a formal picture of the world which is modeled on the same brain image: a sort of brain copy or "double" where world objectiveness and the brain implicit subjectivity are conjugated. Consciousness is seen to arise from the permanent dialog of the brain with its Double. The author gives a cross-over of the physics of elementary particles and condensed matter, and the brain's basic dynamics. This dynamic interplay makes for a "satisfying feeling of the unity of knowledge." – *Publisher.*

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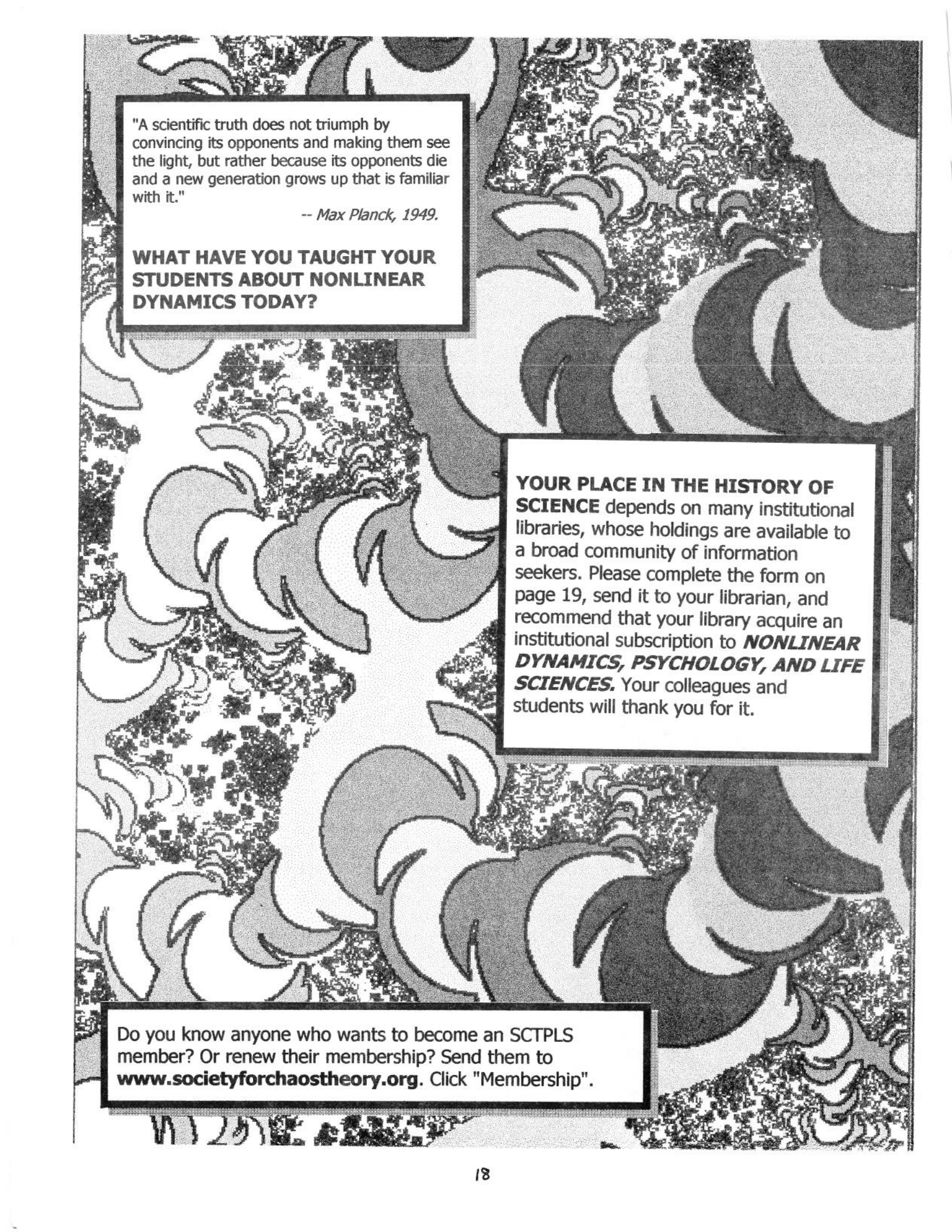
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## WONDERFUL WEBPAGE COMPLEXITY SCIENTISTS STUDY TERRORISM

Fred Abraham has compiled the Terrorism entries from *Complexity Digest* that appeared in the Item #19 slot each week since September 11. He hopes that the collection will catalyze some useful ideas, theories, and discussion for the Winter Chaos Conference and afterwards. The collection can be reached through his web site: [www.blueberry-brain-org/winterchaos/TerrorismComDig.html](http://www.blueberry-brain-org/winterchaos/TerrorismComDig.html). The entry for Sept. 25 (Issue 2001.39) runs as follows:

*ComDig Editor's note:* Scientists were not an exception when it came to offering support and help in the aftermath of the 9/11 terror attack. At a MIT workshop experts discussed the traditional weapons of mass destruction – nuclear, chemical, biological – but didn't have much to say about civilian airplanes and box cutters:

Researchers and antiterrorism experts held a hastily organized symposium here less than 36 hours after the suicide attacks on the World Trade Center and the Pentagon to discuss U S R&D efforts to defend against weapons of mass destruction. Last week's attacks have already set off a quiet scramble at federal labs across the country to beef up efforts ranging from new biological and chemical detection techniques to profiling the behavioral patterns of terrorist cliques. But some scientists are worried that a rattled public will expect too much from them. Reference: Antiterrorism Programs: The Unthinkable Becomes Real for a Horrified World, by Andrew Lawler, *Science*, 2001, 293, 2182-2185.



"A scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents die and a new generation grows up that is familiar with it."

-- Max Planck, 1949.

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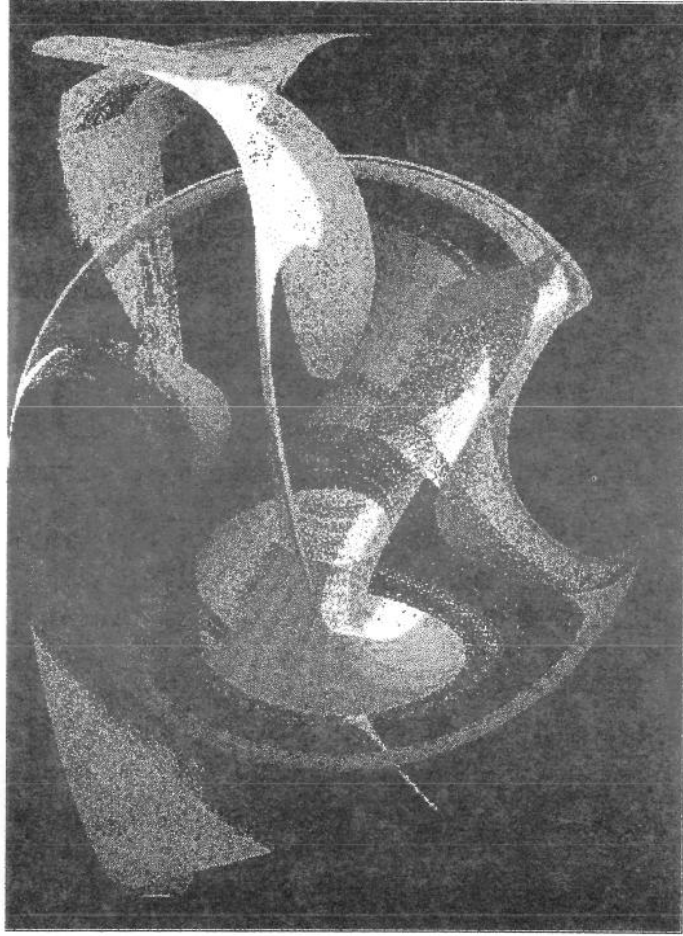
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