

GENERAL SYSTEMS BULLETIN

VOLUME XXXI, 2002

THE INTERNATIONAL SOCIETY FOR THE SYSTEMS SCIENCES

<http://www.iss.org/iss/>

Michael C. Jackson, President
University of Hull Business School
University of Hull
Hull, UK HU6 7RX
email: m.c.jackson@hull.ac.uk

Bela A. Banathy, VP Administration
38 Seca Place
Salinas, CA 93908 USA
Email: babanathy@worldnet.att.net
Tel: 1-831-375-7614

Carl Slawski, Secretary
11622 Rabaul Drive
Cypress, CA 90630-5539
Email: cslawski@juno.com

Jennifer Wilby, Editor
59 Browning Road, Pocklington,
York, YO42 2GN, UK
Email: jmwilby@dial.pipex.com
Tel: +44 1759 302718

TABLE OF CONTENTS

OFFICERS AND UNITS OF THE ISSS	3
SECTION ONE: EDITORIALS, PAPERS, AND CORRESPONDENCE	
Developing Advanced Systems Thinking, L.M. Rasmussen	5
Critical Systems Thinking and Knowledge Management, F. Gao and Y. Nakamori	11
Summary of the Principles of Hierarchy Theory, S.N. Salthe	13
A Systemic Analysis of Security, H. Burkhardt	18
A Development in Systems Science, J. Korn	20
The Transformation of Imaginary into Real Information and Connection to Quantum Mechanics (QM), V.S. Lerner	23
A Viewpoint, J. McIntyre	27
SECTION TWO: MEETINGS, CONFERENCES AND ANNOUNCEMENTS	
ISSS 2002 46th ISSS Meeting in Shanghai, China, Call for Papers	29
ISSS Individual SIG Calls for Papers	35
Other Meetings and Conferences	38
ISSS 2003 47th ISSS Meeting in Crete, Greece, Call for Papers	41
SECTION THREE: SOCIETY ANNOUNCEMENTS AND REPORTS	
Notice of Membership Meetings in China, August 2002	45

Call for Nominations	45
Living Systems SIG Report	46
Minutes for Meetings of Board, Council and Membership, 2001	46
Financial Report, Treasurer, 2001	49
Financial Report from Asilomar Conference, 2001	51
 SECTION FOUR: MEMBERS BULLETIN BOARD	
Conference Report, ISSS 2001, Bulgaria distributed Site	53
Conference Report, 2001, von Bertalanffy Conference	57
JASS Call for Papers	60
The John Warfield Collection	60
Request for Information	61
New and Forthcoming Publications	61
 SECTION FIVE: MEMBERSHIP DIRECTORY	
Members, addresses, emails	67

OFFICERS AND UNITS OF THE
INTERNATIONAL SOCIETY FOR THE SYSTEMS SCIENCES (ISSS)

ISSS BOARD OF DIRECTORS

M. C. (Mike) JACKSON, President, July 2001
University of Hull, Hull, UK.

ALEXANDER N. CHRISTAKIS, President-Elect, July 2001
CWA Ltd, Paoli, Pennsylvania, USA

HAROLD NELSON, Past-President
Advanced Design Institute, Seattle, WA, USA

YONG PIL RHEE, Chairman, Board of Trustees
Seoul National University, Seoul, Korea

BELA A. BANATHY, VP Administration
International Systems Institute and
Saybrook Graduate School, San Francisco, CA, USA

C. LYNN JENKS, Treasurer and VP Funds
International Systems Institute and
Saybrook Graduate School, San Francisco, CA, USA

ZHU ZHICHANG, VP for Membership and Conferences
University of Hull, Hull, UK.

ENRIQUE B. HERRSCHER, VP for Communications and Systems
Education
CAPSIS, Buenos Aires, Argentina

CARL SLAWSKI, Secretary and VP for Protocol
California State University, Long Beach, CA, USA

JENNIFER WILBY, VP for Research and Publications
University of York, York, UK

PAST PRESIDENTS: (Council of Distinguished Advisors)

1956 Origin of the Society
1957 Kenneth Boulding (also '58)
1959 Charles McClelland ('60, '61)
1962 Ross Ashby ('63, '64)
1965 Anatol Rapoport*
1966 Peter J. Caws*
1967 John M. Milsum
1968 Milton Rubin
1969 Lawrence Slobodkin
1970 Bertram Gross
1971 Stafford Beer*
1972 Margaret Mead
1973 James G. Miller *

1974 Gordon Pask
1975 Sjell Samuelson*
1976 Heinz von Foerster
1977 Sir Geoffrey Vickers
1978 Richard Ericson
1979 Brian Gaines*
1980 Robert Rosen
1981 George Klir*
1983 Karl Deutsch
1984 Bela H. Banathy*
1985 John Dillon*
1986 Peter B. Checkland*
1987 Russell L. Ackoff

1988 Ilya Prigogine*
1989 C. West Churchman*
1990 Len Troncale*
1991 Howard T. Odum*
1992 Ian I. Mitroff*
1993 Hal Linstone*
1994 J.D.R. de Raadt*
1995 Ervin Laszlo*
1996 Yong Pil Rhee*
1997 G.A. Swanson*
1998 Bela A. Banathy*
1999 Peter A. Corning*
2000 Harold Nelson*
* Denotes Board of Trustees

ISSS COUNCIL

The Council consists of the chairpersons of Special Integration Groups, all elected officers and directors of the Society, all past presidents whose membership is current, and presidents of all sub-regional chapters.

CHAPTERS AND NATIONAL DIVISIONS

1. Argentina (ND)
Charles Francois

2. Australia (ND)
William Hutchinson

3. Canada, Eastern (C,D)
H. Ken Burkhardt

4. California, Los Angeles (C)
Carl Slawski

5. Far West Region (C)
John van Gigch

6. Southern Region (C)
Janet K. Allen

7. France, Paris (ND)
Pierre Auger

8. Italy, Milan (C)
Gianfranco Minati

9. Japan (ND)
Kazunari Ishidi

10. Korea, Seoul (ND)
Yong Pil Rhee

11. Minnesota (C)
Curt McNamara

12. North European Region (R)
Kjell Samuelson

13. Poland (C)
Mieczyslaw Bazewicz

14. Saybrook Institute (C)
Arne Collen

15. Sweden (C)
Donald de Raadt

**SPECIAL INTEGRATION GROUPS
SIG CHAIRS and LIAISON OFFICERS**

Business/Industrial Systems Applications (1)
Enrique Herrscher
ehersch@ideamail.com.ar

Hierarchy Theory (2)
Jennifer Wilby jmwilby@dial.pipex.com

Duality Theory (3)
Vitaly Dubrovsky
dubrovvj@clarkson.edu

Systems Philosophy & Systems Ethics (4)
Sytse Strijbos strijbos@cs.vu.nl

Informatics and Communication Systems (6)
Kjell Samuelson

Systems Modeling and Simulation (7)
Robert Orchard orchard@acm.org

Futurism and Systems Change (8)
Curt McNamara
curt@scribmail.com

Systems Studies of Climate Change (10)
Fred Bernard Wood, Sr.
csiri@igc.apc.org

Thermodynamics and Systems Theory (11)
Eli Berniker bernicke@plu.edu

Meta-Modeling and Systems Epistemology (12)
Curt McNamara
curt@scribmail.com

Systems Psychology & Psychiatry (13)
Robert A. Orchard orchard@acm.org

Systems Approaches to Intelligence (14)
James L. Snell
jsnell@acm.org

Information Systems Design & Information
Technology (16)
Bela A. Banathy
babanathy@worldnet.att.net

Research Towards General Theories of
Systems (17)
Helmut Burkhardt
burkhardt@acs.ryerson.ca

Medical and Health Systems (19)
Gyuri Jaros
gjaros@med.asyd.edu.au

Living Systems Analysis (20)
Kwon, Hyuk Kihl
khyukihl@hanmir.com

Designing Educational Systems (21)
Patrick Jenlink
pjenlink@sfasu.edu

Processes and Human Processes (22)
Hector Sabelli
hsabelli@rpslmc.edu

Spirituality and Systems (23)
Charles Smith
miunuddin@msn.com

Human Systems Enquiry (24)
Arne Collen
acollen@saybrook.edu

Critical Systems Theory and Practice (26)
Ken Udas kenudas@acm.org

Evolutionary Learning Community (29)
Kathia & Alexander Laszlo
syntony.quest@usa.net

Evolution and Complexity (30)
Larry Edwards ledwards@sasq.net

Applied Systems and Development (31)
Dennis Finlayson
dfinlayson@lincoln.ac.uk

The Ecosystem Approach (NESH) (32)
Nina-Marie Lister
nmlister@acs.ryerson.ca

What is Life/Living (33)
John J. Kineman jjk@ngde.noaa.gov

Women and Children (34)
Anne Nelson
nelsongroup@worldnet.att.net

Systems Specific Technology (35)
Vadim Kvitash
kvitash@hotmail.com

LIAISON OFFICERS

American Association for the Advancement of Science, AAAS
Section K (Social, Economic, and Political Science)
(Open)
Section L (History and Philosophy of Science)
C.W. Churchman, U.C. Berkeley
Section M (Engineering)
Kazuhiko Kawamura, Vanderbilt University
Section Q (Education)
Howard Thorsheim, St. Olaf College
International Programs,
Dan Radell, Winston-Salem State University

UNESCO
Bela H. Banathy
IIASA (United Nations) (Int'l Institute for Applied Systems Analysis)
Istvan Kiss
American Academy of Management, (AAM)
Joe Litterer, Univ. of Massachusetts
European Operational Research Society (EURO)
Peter Pruzan, Univ. of Copenhagen

SECTION ONE

EDITORIALS, PAPERS AND CORRESPONDENCE

DEVELOPING ADVANCED SYSTEMS THINKING

Evolutionary Design as a Means for Developing Ourselves and Our Society

Lynn M. Rasmussen

lynnras@maui.net

This paper is based on the work that received the 2001 Sir Geoffrey Vickers Memorial Award for best student paper at the 2001 ISSS Annual Meeting.

In the 2001 issue of the ISSS Bulletin, Gianfranco Minati, Maria Pietronilla Penna, and Eliano Pessa (and I hope they forgive my interpretation) describe ethics as a set of rules able to induce the emergence of social systems. Emergence in social systems occurs as a result of the herding activity toward collectively-held ethics. In Bela Banathy's (1996, 1998) work with evolutionary design and evolutionary guidance systems, Len Duhl's Healthy Cities, and Kathia and Alexander Lazslo's (1999) evolutionary learning communities, people consciously create social systems oriented toward collectively-articulated, ethically-oriented envisioning of a better world.

According to the hierarchical theories of developmental psychologists, the shift from the control and containment of the flow of people, information, and ideas of traditional social structures to the free flow of people, information, and ideas toward collectively-held, clearly articulated aspirations indicates a shift to a higher level of interpersonal, intrapersonal, and cognitive ordering of reality (Kegan, 1994; Richards & Commons, 1990; Wilber, 2000).

Robert Kegan (1994) describes traditional, in-control, top-down management style as an indicator of a particular way of ordering reality, a level of cognitive, interpersonal, and intrapersonal development. Mutual reciprocity as a basis for interpersonal relationships and internally-generated visions that are independent of the expectations of the environment indicate a lack of understanding of the interrelatedness and embeddedness of systems.

A higher level of reasoning is indicated when leadership "provides a context in which all interested parties, including the leader, can together create a vision, mission or purpose they can collectively uphold" (Kegan, 1994, p.322). Vision is never complete and always up for revisioning. Difference is valued and required; absolutes are rejected. Conflict is believed to result from an incomplete self and an indicator for further visioning of self. This leadership style indicates the ability to cognitively order reality from a trans-system view that is dialectical, post-ideological, and comfortable with paradox and contradiction. Systems thinking at this level has been found in less than 2% of the adult population, regardless of economic status and educational level (Kegan, 1994).

This paper describes *how* this activity, evolutionary design and the herding or "swarming" toward consciously-created, ethically-based purpose, develops the cognitive, interpersonal, intrapersonal, and ethical capacity of people to order reality in terms of systems and how it expands their capacity to apply and understand systemic processes in their work and in their world.

The Experience of Paia Youth Council, Inc.

Four years ago, we, the board members, staff, and youth, of a small community-based youth center, redesigned our system in the following steps:

1. We created an idealized image of Paia Youth Council, Inc. (PYC) in nine dimensions through a series of meetings with staff, youth and board members.
2. Our aspirations or purposes for governance, social action, economics, esthetics, ethics, health and wellness, education, scientific knowledge, and technology , combined with our philosophy, became a guidance system for youth center activities.
3. The purposes were used to design activities, projects, and events. The executive director began to ask, “How does this project affect our health?” “Will the way we do this develop friendships? Will it be fun for all of us?” “Will this help the youth develop economic skills?”
4. We discovered the guidance system formed a simple and intuitive way to interact, plan, and assess actions.
5. We began to evolve as a system and as individuals.

Shifts within PYC occurred over the eighteen months following the design of the evolutionary design system. These are shown on the table on the next page.

Board and staff meetings became dynamic and creative. Enrollment increased, the staff was energized, and the activities were youth driven and had more meaning and depth. The youth were learning more, the community was more proactive, and the families more involved.

We were thinking differently. PYC’s boundaries were clearly defined by the purposes rather than by the hierarchical structures of the organization. We saw how we were an embedded part of the community and yet leaders within it. PYC shifted from running from structure to function to carrying out purposes to running from purpose, then carrying out functions which resulted in a structure. No longer were we trying to “fix” people or community; we were imagining new ways of living and then designing ways to bring the images to life. Positive feedback as a means for development replaced the negative feedback processes which were the means for maintaining order.

Through the process of evolutionary design and of “swarming” toward collectively-held purposes, we had shifted from a mechanically-oriented, problem-oriented approach to an ethically-oriented, upbeat, possibilities-oriented approach. I began to observe and ask what was going on within design to have such a profound effect on us, the participants in the design process. Drawing on developmental psychology, counseling psychology, and education, I identified the following practices.

Prior to Design	After Design	18 months after Design
<p><u>System Environment:</u></p> <ul style="list-style-type: none"> •“We help the community” •Youth as community problems •Boundaries defined by program and site 	<ul style="list-style-type: none"> •“We are the community. We have to be the change we want to see.” •Youth as community members •Boundaries defined by purposes and are “fuzzy” 	<ul style="list-style-type: none"> •“We learn from the community and become leaders when we stand by our values and purposes.” •Youth as assets and leaders •Focused inward on the youth & coevolving with community
<p><u>System Structures & Functions</u></p> <ul style="list-style-type: none"> •PYC’s structure determined staff functions and purposes •Job descriptions define jobs •Hierarchical structure from board to recreational assistants 	<ul style="list-style-type: none"> •Purposes guided functions and with some adjustments made to structure •Job descriptions constantly redefined to fit changing functions •Youth are in the center of the chart with staff circling them and the board overseeing the whole. 	<ul style="list-style-type: none"> •Purposes guide functions and structure. •Job descriptions abandoned for time management plans that focus on purposes. •Youth are in the center with staff leading and mentoring and the board as community support.
<p><u>System Processes</u></p> <ul style="list-style-type: none"> •Planning based on assumptions about youth centers •Assessments are quantitative and conform to funding requirements •Motivation from individual initiative •“We need more money, qualified people, a better building to do the job.” •Focus on fixing problems and the past—negative feedback processes 	<ul style="list-style-type: none"> •Planning involves designing creatively toward purposes •Assessments based on how activities address purposes •Motivation from collectively-held purposes •“We can improve our work right now with what we have •Focus on the future and achieving purposes—use of both negative and positive feedback processes 	<ul style="list-style-type: none"> •Continual design replaces planning •Assessment as a continual design process •Motivation from the design process itself •“Problems and concerns are indicators of incomplete design.” •Focus on continual design—positive feedback processes

Practices within the Evolutionary Design Process

Four practices arising from a systems view of the world can be identified within the process of evolutionary design: mindfulness, constructivist education, the development of ethical expertise and moral reasoning, and the principles of psychology of mind or health realization.

Mindfulness. Evolutionary design is a “mindful” exploration of possibilities and actions. Langer (1989) describes “mindfulness” as a process that transcends the limitations of the more mechanical view of intelligence and that provides an alternative view of human capacity. Intelligence is a linear process from problem to resolution completed as rapidly as possible. It defines the optimal fit between individual and

environment. Mindfulness considers several perspectives from which any situation may be viewed. It is a process of stepping back from problems and solutions and viewing them as novel. Intelligence involves an expert's perspective that focuses on stable categories, while mindfulness involves the actor's ability to experience control through shifting perspectives. Intelligence is a means of achieving desired outcomes, while mindfulness is a process through which meaning is given to outcomes. Intelligence uses facts and skills in contexts that are sometimes perceived as novel while mindfulness appreciates the fluidity of knowledge and recognizes the advantages and disadvantages of knowledge and skills (Langer, 1989). Evolutionary design is a mindful process of learning that efficiently and effectively teaches more than simply content—It develops a consciousness of the fluid nature of thought and results in open exploration and innovation.

Constructivist education. While two general approaches to education, instructionism vs. constructivism, are at the center of current educational reform (Kohn, A., 1999; Marlow & Page, 1998), evolutionary design demonstrates the power of the constructivist view. The mechanical, rote, controlled format of instructionist education contrasts with the more systemic, exploratory, emancipatory format of constructivist education. In constructivist education, the learner is discovering the complexities of information and selecting information. In instructionist formats, the learner is primarily repeating information. In constructivist education, the learner is organizing meaning, rather than simply accepting what is taught. In constructivist education, the learner discovers a variety of points of view regarding the same subject from a variety of sources, while in instructionist education the teacher is the primary source of information. In instructionist formats, the learner given planned, fragmented information organized in consecutive, controlled order, while in constructivist education the learner's relationship with the material is entrepreneurial, contextual, and creative, arising from the learner's experiences. (Kohn, A., 1999; Marlow & Page, 1998).

Evolutionary design is the process of constructing knowledge through personal and collective exploration. Teachers and students are no longer a necessary delineation. We are all experts of our own experience. We require expertise in each area of purpose. We all learn from one another.

Moral Reasoning and Ethical Expertise. PYC's new evolutionary design processes resulted in a leap in moral reasoning that can be described in the terms of Kohlberg's (Kohlberg & Ryncarz, 1990) hierarchical theory of moral reasoning. Before the design of its guidance system, PYC reasoned from Kohlberg's fifth stage of moral reasoning. Staff members had different values and legal points of view and they worked independently on projects to avoid conflict. Diverse points of view conflicted and they were difficult to integrate. Individuals had their own values and rights, their own aspirations, and believed in their expression. Responses to youth behavior were personal responses that were based on individual points of view of the legal system, the needs of youth and community, and individual interpretation of laws and rules.

Eighteen months following design of the EGS, PYC is guided by its idealized image that is grounded by universal ethical principles—clearly Kohlberg's sixth stage of moral reasoning (Kohlberg & Ryncarz, 1990). Universal ethical principles are the basis for the dimensions of purpose and provide the basis for decision-making for those at PYC. Equality of human rights and respect of individuals is indicated by the flattening of the hierarchical structure and the respect of, and need for, diverse points of view. Modeling and response to the youth is now grounded in a higher level of moral reasoning reflected in the EGS.

Gilligan's (1990) emphasis on the development of caring and responsibility rather than simply intellectual moral reasoning is reflected in the process of evolutionary design. PYC's design processes put people directly into the dialectic of relationship: the interaction with others, the dialectic between PYC's idealistic, ethical aspirations and the individual's and group's perceived reality. In the exploration of purpose, particularly the inclusion of the esthetic, the people of the system connect with and learn from one another through what they value, with their dreams and ideal images, and their common purposes.

But moral reasoning and the emphasis on care and responsibility do not fully describe the process of ethical development that occurs at PYC. Systems theorist Francisco Varela (1999), in his interpretation of the teachings of Confucian scholar, Mencius, describes the development of ethical expertise. This development can be seen in terms of the experience of design at PYC:

1. At the beginning, the process of creating an evolutionary guidance system that consists of the ideal image of the system in nine dimensions of purpose sets up a series of ethical standards that people begin to apply to specific situations. The way is not clear, not defined, and must be explored.
2. At the next level, interactions, plans, and assessments are consciously viewed in terms of ethical ideals, PYC's guidance system. Direct attention is given to ethical consideration of actions through the application of the guidance system to actions.
3. At the third level, habitual responses are transcended for creative, innovative, and direct responses to daily concerns. All actions are ethical actions and the guiding purposes are integrated into all actions and decisions.

The evolutionary guidance system and the process of design provide a field for the exploration and development of ethical expertise of the system's people.

Psychology of Mind and the Design Experience. Cognitive therapy takes a mechanistic approach—breaking thought processes into parts, identifying the problem thoughts, and then “fixing” the thoughts (Beck, 1979). Psychology of Mind (POM) recognizes that thought is transitory and mood-based. POM transcends the focus on thought and focuses instead on the raising the immediate feeling, moods, emotions that create thought. When the focus is on an ideal image that creates higher mood states, thinking and actions flow toward the ideal. POM operates on a positive feedback process while cognitive therapy operates primarily on negative feedback processes. POM represents an advanced systems understanding that transcends the limitations of the mechanical world view.

In the process of design, in the dialectic between the ideal and reality, and in the complexity of multiple viewpoints and input, we begin to see the separate realities of people and the illusiveness of thought. We begin to see that “the way the world is” is subjective, changeable, easily deconstructed, but the world can be reconstructed in any way the people of the system want to construct it. The orientation toward the ideal promotes uplifting, expansive feelings, raising our ability to think clearly and creatively. The system moves in the right direction when it moves toward the highest ethical ideals and it tends to have problems when it gets “off track.” Awareness fluctuates, opening in the higher mood states created when one works toward one's highest aspirations and closing when one is not going in the direction of one's aspirations. In evolutionary design affect is used as an internal and systemic guidance system that signals the need to revisit the system's purposes.

Evolutionary Design as an Integral Transformative Process

Robert Kegan (1996) points out that for the social support for higher levels of adult development, the “curriculum” is in development and the qualifications for expertise are suspect. Evolutionary design

transcends our traditional systems and provides a means for us to organize ourselves, educate ourselves, and ethically and psychologically develop ourselves.

Ken Wilber (2000) calls for an “integrative transformative practice” that “attempts to exercise all of the basic waves of human beings—physical, emotional, mental, and spiritual—in self, culture, and nature,” that supports people in the move from one “wave” of development to the next, from whatever “wave” or level they begin. In the process of evolutionary design, the full spectrum of our lives as individuals, as a group, and as a part of a global environment is guided by our idealized images of governance, social action, health, scientific knowledge, technology, esthetics, economics, ethics, and education.

Evolutionary design is an “integral transformative process” that is simple and intuitive. It is “built in” to our natures. People can join in from whatever “level of development” they are operating. We need all perspectives in design. We are free to design our own systems, to swarm toward collectively-held ideals, and to develop our own capacity to reason and to act in a complex, rapidly-changing world.

References

- Banathy, B. (1996). *Designing Social Systems in a Changing World*, Plenum Press, New York, NY.
- Banathy, B. (1998). “Evolution Guided by Design: A Systems Perspective.” *Systems Research*, 15, 1-11.
- Beck, A. (1979). *Cognitive Therapy and the Emotional Disorders*, Penguin Books, New York, NY.
- Gilligan, C. (1988). “Remapping the Moral Domain: New Images of Self in Relationship” in *Mapping the Moral Domain: A Contribution of Women’s Thinking to Psychological Thinking to Psychological Theory and Education*, (C. Gilligan, J.V. Ward, & J.M. Taylor, ed.), Harvard University Press, Cambridge, MA.
- Kegan, R. (1994). *In Over Our Heads: The Mental Demands of Modern Life*, Harvard University Press, Cambridge, MA.
- Kohlberg, L. and Ryncarz, R. (1990). “Beyond Justice Reasoning: Moral Development and Consideration of a Seventh Stage,” (Alexander, C., Druker, S. and Langer, E., eds.), Oxford University Press, New York, NY.
- Kohn, A. (1999). *Schools Our Children Deserve: Moving Beyond Traditional Classrooms and Tougher Standards*, Houghton Mifflin Company, New York, NY.
- Langer, E. (1997). *The Power of Mindful Learning*. Addison-Wesley, Reading, MA.
- Langer, E. (1989). *Mindfulness*. Addison-Wesley, Reading, MA.
- Laszlo, A. and Laszlo, K. (1999). “Systems Thinking, Learning Communities, and Educational Change,” Keynote speech, Learning Mellenium 99 Conference, San Francisco, CA. <http://home.earthlink.net/~aklaszlo/syntonyquest/Pages/keynote.html>
- Marlowe, B. and Page, M. (1998). *Creating and Sustaining the Constructivist Classroom*, Corwin, Thousand Oaks, CA.
- Minati, Gianfranco, Maria Pietronilla Penna, and Eliano Pessa (2001). “The Concept of Emergence in Systemics,” *General Systems Bulletin*, Vol. XXX.
- Pransky, G. (1998). *The Renaissance of Psychology*, Sulzburger & Graham Publishing, New York, NY.

- Richards, F. and Commons, M. (1990). "Postformal Cognitive-Developmental Theory and Research: A Review of Its Current Status," in *Higher Stages of Human Development: Perspectives on Adult Growth*, (Alexander, C., Druker, S. and Langer, E., eds.), Oxford University Press, New York, NY.
- Suarez, R., Mills, R., and Stewart, D. (1987). *Sanity, Insanity, and Common Sense: The Groundbreaking New Approach to Happiness*, Fawcett Columbine, New York, NY.
- Varela, F. (1999). *Ethical Know-How: Action, Wisdom, and Cognition*, Stanford University Press, Palo Alto, CA.
- Wilber, K. (2000). *A Theory of Everything*, Shambhala, Boston, MA.

Critical Systems Thinking and Knowledge Management

Fei Gao; Yoshiteru Nakamori

School of Knowledge Science, JAIST, Japan

fgao@jaist.ac.jp

The study initiates to utilize the influential systems theory – critical system thinking (CST) and total systems intervention (TSI) in the study on knowledge management to tackle the increasing complexity of knowledge systems and management process.

Knowledge science is a new multi-discipline deeply rooted in old traditions such as philosophy, systems science, etc., but its structure encompasses all traditional disciplines and professions. Knowledge management at the heart of the discipline as the most important and attractive arena for both academia and practitioners draws considerable attention from other disciplines, which make the study rich and multifaceted, but more complex and complicated to be mastered. In the past thirty years business related knowledge has grown more and more to dominate other socio-economic factors and become one of the most important elements in economic development. What is more, in characteristics, essence, and function, knowledge is totally different from the other traditional production factors like capital, materials, or equipment. Traditional approaches and ways of thinking for managing production factors ceased to be effective in tackling knowledge. Knowledge systems and knowledge management call for a new approach and thinking to tackle the complexity. CST as meta-systems methodology coupled with practical support system tool - TSI, does not only help combine the variety of systems and approaches into clear-cut and operational frameworks in managing knowledge systems but also provide a forceful insight for promising research on knowledge management itself.

Flood and Jackson's CST, resting upon Habermas's theory of human interests as mediated through the system of systems methodologies (SOSM), presented a wide lens which enable systems thinking to embrace the variety of methodologies, methods and models now available to be used in a coherent manner to promote successful intervention in complex organizational and societal problem situations at both the theoretical and methodological levels. CST consist of five pillars labeled as critical awareness, social awareness, dedication to human emancipation, complementarism at the theoretical level, and complementarism at the methodological level. The three phases in TSI are creativity, choice and implementation. In these central principles it is unique that critical awareness incorporates social awareness and complementarism. The social awareness reminds researchers to rethink their research objects, the ways of thinking, models, approaches, and tools employed critically, reiteratively and consciously; the complementarism allows researchers to build their own toolkit into an SOSM, which

can be problem-oriented or purpose-oriented. Both of them provide a useful insight on studies on knowledge management. The corresponding TSI offers a potential way of planning, designing, problem solving, and evaluation in knowledge management.

Knowledge is a diverse concept and can be interpreted into different things with regard to different contexts and disciplines. Personal knowledge is what one knows and the faculty by which one understands. It includes two parts: one is the whole things one knows like fact (often in the form of data and information), ideas, experience, expertise, and learning; another is the faculty one own like skills, ability, and intelligence. Knowledge derived from study, experience, or instruction and gained through perception and discovery. To organization in parallel, knowledge is what the organization 'knows' and what by which the organization create and apply its knowledge into service and products. In this sense, a high-tech enterprise owns systematically organized facts or theory like scientific and technical knowledge, experiences and expertise like managerial theory and approaches, plain facts like information and data about its own and its environment like market, as well as their inter-synthesis. Another part of organizational knowledge or the soft part of organization's ability of creating and applying knowledge is defined as corporate culture, beliefs, values, and norms due to their being the crucial factors for sharing, creating and applying knowledge among employees.

The different aspects of knowledge are obtained through different ways (like rational, logic, mind deduction by reasoning, empirical induction from sensory experiences, or their synthesis) and evaluated with different standards (like justification, falsification, advancement, new, applicability, performance, objective, simplicity, accuracy and reliability), of different characteristics. If the lens of critical systems thinking and total systems intervention was used, the different aspects of knowledge can be observed as a whole system with different subsystems. For those subsystems different approaches developed from various fields are naturally used for dealing with them. Consequently, the SOSM approaches or the toolkit for knowledge management can be developed.

In practice, knowledge management could be viewed as two different processes: managing knowledge as substance, and knowledge as process, which is metaphorized as 'managing' cookbook and cooking. High quality cookbook is the manual, however, the economic value of the knowledge embedded in it can only be realized through really cooking, i.e., operating. Enterprises need both 'cookbook' or 'knowledge system' and 'cooking' process or 'operating', which smoothes the whole processes for transferring knowledge from product innovation, production into final goods or service.

Knowledge management to practitioner in enterprises means managing knowledge systems and knowledge process. In knowledge intensive organizations, considering all activities carried out by knowledge workers who are also the medium for storing knowledge, managing knowledge workers becomes the main task for knowledge management. Knowledge management does not mean directly dealing with detailed knowledge, instead, to organize, support, and motivate knowledge workers to contribute their own knowledge by combining any available existing knowledge for the organizational end. In this sense, methodology for knowledge management in organizations is imperative.

We attempted to establish the organic relations between modern systems theory and knowledge management. The research would provide managers, consultants, and decision-makers with alternative thinking and powerful tools for knowledge management in organization.

Summary of the Principles of Hierarchy Theory

S.N. Salthe

Hierarchy theory has two known forms: (a) the scalar hierarchy (including a synchronic map of the command hierarchy) and (b) the specification hierarchy (including a diachronic model of the trajectory of a given command). The Linnaean hierarchy in biological systematics has this form.

General Properties

In both of these forms, when used to model systems, higher levels control (regulate, interpret, harness) lower levels, whose behaviors are made possible by properties generated at still lower levels. So, higher levels provide boundary conditions on the behaviors of lower levels—behaviors initiated by still lower level configurations. (It is important to realize that few users of hierarchical forms would insist that particular levels exist in actuality. Levels are discerned from hierarchical analysis, aimed at constructing (discovering) Nature's "joints" with respect to given projects.)

- (a) To use the scalar hierarchy we need to stipulate some focal level, as well as a lower and a higher, making up a basic triadic system—as, e.g., when the behavior of living cells is initiated by chemical events, and controlled by organismic events. (This reflects the putative way in which levels would have evolved, by interpolation between primal highest and lowest ones.) The three level form insures stability because with it in place (a third level always anchoring relations between the other two), the focal level cannot be reduced either upward or downward by assimilation into a contiguous level. Here we should note that this hierarchy has been invoked to explain how the world manages to be as stable as it is.
- (b) In the specification hierarchy the highest relevant level is always the one in focus, with all the lower levels of the hierarchy providing cumulative initiating conditions simultaneously upon it. (This reflects the fact that this hierarchy is implicitly developmental, with the levels being viewed as having emerged consecutively from the lowest, or most general, up—as with, e.g., biology emerging from chemistry, both historically and at any given moment.) The two-level form is unstable, allowing new levels to emerge at the top of the hierarchy. Use of this form provides us a model of how change has been possible in the world.

Hierarchical analysis is always driven by a given problem or project.

Formal Relations between Levels

- (a) The scalar hierarchy is one of parts nested within wholes, as, e.g., [... [species [population [organism [gene [...]]]]]], where [higher level [focal level [lower level]]]. The logic reflects Russell's logical types. In principle the levels just keep going, receding at both ends from the focal level. (It may be noted that this structure probably is rooted in our visual experiences.) If the parts are functional in some given analysis, they are referred to as components, if not they are constituents. As one goes down the hierarchy, the relative number of constituents per level increases.
- (b) The specification hierarchy is one of classes and subclasses, as e.g., {material world {biological world {social world } }}, where {lower level(s) { highest level}}. The focus of analysis is always highest level, which is the innermost level of the hierarchy. The logic reflects Ryle's categories.

Style of Growth of the Hierarchy

- (a) The scalar hierarchy adds levels by interpolation between existing levels. In this way the system must be an expanding one. Therefore, an assumption required for use of this hierarchy is the Big Bang (or other expanding system). The actual process of formation of a level would involve the cohesion

of entities out of lower level units guided by higher level boundary conditions. This process is little understood since this hierarchy has largely been used for synchronic analyses.

- (b) In the specification hierarchy new levels would emerge from the current highest one. So this system too can grow — but not in space. Growth here is by the accumulation of informational constraints, modeled as a process of refinement by way of adding subclasses.

Criteria

- (a) In the scalar hierarchy components at different levels differ in size roughly by orders of magnitude. This hierarchy is an extensional or quantitative construct.
- (b) Levels in the specification hierarchy mark the qualitative differences of different realms of being, as in ‘physical realm’ versus ‘biological realm’. It is an intensional construct, open at the top (the innermost level is unbounded above, and so free to give rise to ever higher levels).

Complexity

- (a) The scalar hierarchy provides a model of extensional complexity, the sign of which is nonlinear and chaotic dynamics, allowed by the fact that at any locale at any level in this hierarchy there could be a mixture of different kinds of information (relations, variables, constants of different kinds, attractors) which are not governed by a single overall structure.
- (b) The specification hierarchy embodies intensional complexity, which characterizes a system to the degree that it is susceptible to many different kinds of analyses.

Dynamical Relations

- (a) The scale hierarchy represents a single moment in space, so its dynamics represent homeostasis, not change. Large scale moments “contain” many small scale moments. It is often suggested that scalar levels fundamentally signal rate differences rather than component size differences. We may note that the two most often go together. The problem appears in cases that are said to be non-nested, where, e.g., a much slower rate in a component of a cycle would regulate the rate of the entire cycle. It would be rare, however, for such rates to differ by orders of magnitude, and so many of these examples are likely not hierarchical at all. If we allowed mere size differences rather than scale differences to be the criterion, then the constraint of nestedness would be lifted. In any case: Because of the order of magnitude differences between levels in the scale hierarchy, dynamics at different levels do not directly interact or exchange energy, but transact by way of mutual constraint (i.e., via informational connections). The levels are screened off from each other dynamically and (more or less) adiabatically. Because of this, informational exchanges between levels are intransitive, requiring interpretation at the boundaries between levels. So, if focal level dynamics are represented by variables in an equation, then the results of dynamics at contiguous levels are represented by (nonrecursive) constants. Higher scale dynamics are so slow with respect to the focal level, that the current value of their momentary result appears relatively unchanging at the focal level. Cumulated results of lower scale dynamics also appear relatively unchanging at the focal level, as it takes a very long time in lower scale moments to effect a change detectable at the focal level — these points are the essence of ‘screening off’. Note that, because of these relations, thermodynamic equilibria would be more rapidly achieved the lower the scalar level, delivering an adiabatic principle relating to screening off. While change of any kind (development, acceleration, diffusion) is more rapid at lower levels, absolute translational motion is more rapid at higher levels (it would not, of course, be detected by lower level constituents, and so tends to be irrelevant in this hierarchy). Related to these matters, we should note that metabolic rates and development are much faster in smaller dissipative structures (including organisms), and their natural life spans are shorter. One sometimes sees the

term heterarchy, posed in opposition to the scale hierarchy because of supposed failures of actual systems to conform to hierarchical constraints. One needs to recall here again that hierarchy is a conceptual construction, an analytical tool, and use of it does not imply that the world itself is actually hierarchically organized. It does seem to be in many ways, but to suppose that this is the sole principle needed in understanding the world would be naive. It is one tool among many. But often this opposition is based merely on faulty understanding. For example, the tides are affected (partially controlled) by gravitational effects associated with the moon; yet the oceans are not nested inside the moon. As in classical thermodynamics, it is important to see the whole system correctly. The oceans are nested, along with the earth itself, within the solar system, and from the hierarchical point of view, these effects on the tides emanate from the solar system, not merely from the moon. (Demurrer: As we descend in applications through the realm of fundamental particles, it may be that many of these rules would break down [via nonlocality, etc.]. Hierarchical constructs model events in the material world, defined as the realm of friction and lag in the affairs of chemical elements and their compositions.)

- (b) Dynamics in the specification hierarchy are entrained by development, which is modeled as a process of refinement of a class or category. It is important to note that this process is open-ended in the sense that there could be many coordinate subclasses of a given class. That is, the potentials arising within any class form a tree. So, {physical realm { material realm { biological realm } }}, or {mammal { primate { human } } } each follow just one branch of a tree. Rylean categories can branch into new distinctions (and this forms a link with the scalar hierarchy because this would give rise to new logical types). Evolution (unpredictable change) is one \rightarrow many, and so we can picture organic evolution using the Linnaean hierarchy. The fact that formally this is a two-level hierarchy makes it susceptible to change, because, without the anchoring provided by a third level, it can logically be reduced to a single level. How is its direction into new subclasses insured (giving rise to the hierarchy)? In the material world by the fact that information, once in place (or once having had an effect), marks a system irrevocably. If a system continues to exist, it must march forward if it changes. (Since change in the material world is entrained by the Second Law of thermodynamics, we have here another link between hierarchies because the Second Law is a result of the universal expansion being too fast to allow global equilibration. As noted above, this expansion is what affords the interpolation of new scalar levels.) So, development of a specification hierarchy requires a two-level basic form. Yet these hierarchies involve more than just two levels. Why do not the more general levels prevent change, as by the weight of their accumulated information? Here we are led to note another aspect of development, which is perfectly general. The amount of change required to launch a new level is ever smaller as the hierarchy develops — refinements are just that. The more general levels do exert their influence; biology is a kind of chemistry, and humans are a kind of mammal. The key to understanding this situation is that in the specification hierarchy informational relations between levels are transitive. This means that there are functionally just two levels at work anywhere in the hierarchy —and new levels may branch off anywhere in the hierarchy, potentially giving rise to collections of coordinate classes.

Informational Relations and Semiotics

- (a) As noted above, informational relations between scalar levels are intransitive. The levels are screened off from each other dynamically, and influence each other only indirectly, via informational constraints. But signals moving from one level to another are transformed at boundaries between the levels. When this is not the case, as when a signal from a higher level occasionally transits to a much lower level, that level suffers damage (as when an organism is hit by lightning, or, going the other way, if a given cell affects the whole organism, this could only be by way of the likes of cancer)

— we can recall again the idea that scalar levels deliver stability to a system, via the screening off effect. The interpolation of a new level between two others can be viewed as involving the appearance of a capability at the uppermost level (via fluctuation, self-organization and/or selection) for making a significant (to it) interpretation of events at the lowermost level of the three. The upper level effectively disposes — facilitates cohesion among — some of what the lower level proposes. This requires energetic screening off between levels. As the arena of the upper level's interpretants, the new level acts as a filter or buffer between upper and lower. This allows us to see levels succeeding each other by a classification procedure whereby topological difference information is converted to (coheres as) typological distinction information in an essentially top-down procedure.

- (b) In the specification hierarchy the lower levels also make possible the emergence of a new realm, in an epigenetic process. And here too the process is top-down, but in a different sense, involving finality. Thus, as organism sociality implies biology, and biology implies chemistry, so, because this is a process of refinement, only a very narrow set of possibilities could imply organism sociality. That is, chemistry could give rise to many kinds of supersystems, biology to fewer, and sociality to even fewer as the epigenetic system develops. Developments (in distinction from evolution) are always entrained by final causes, and approach them asymptotically with each emergence of a new realm. Involved here, as in all developments, is the process of senescence, a condition of information overload (recall that information in this hierarchy is transitive across levels), leading to overconnectivity, leading in turn to functional underconnectivity, leading in its turn to inflexibility and habit driven responses (loss of requisite variety), leading ultimately to loss of adaptability (inability to produce interpretants of novel situations).

The following sources emphasize the historically important, logically basic, and recent references that seem to me to bring in new departures. *References starred deal with the specification hierarchy, either exclusively or along with the scale hierarchy.

References

- Allen, T.F.H. and T.B. Starr, 1982. *Hierarchy: Perspectives For Ecological Complexity*. University of Chicago Press.
- *Aronson, L.R., 1984. Levels of integration and organization: a reevaluation of the evolutionary scale. In G. Greenberg and E. Tobach, (eds.) *Behavioral Evolution and Integrative Levels*. Erlbaum.
- Auger, P., 1989. *Dynamics and Thermodynamics in Hierarchically Organized Systems*. Pergamon Press.
- Bertalanffy, L. von, 1968. *General System Theory: Foundations, Development, Applications*. (see especially the Introduction) George Braziller.
- Bonabeau, E., M. Dorigo and G. Theraulaz, 1999. *Swarm Intelligence: From Natural to Artificial Systems*. Oxford University Press.
- Campbell, D.T., 1974. 'Downward causation' in hierarchically organized biological systems. IN F.J. Ayala and T. Dobzhansky (eds.) *Studies in the Philosophy of Biology*. University of California Press.
- Collier, J., 1989. Supervenience and reduction in biological hierarchies. *Canadian Journal of Philosophy* 14: 209-234. Conrad, M., 1983. *Adaptability: The Significance of Variability from molecule to ecosystem*. Plenum Press.
- * Feibleman, J.K., 1954. Theory of integrative levels. *British Journal for the Philosophy of Science* 5: 59-66.

- * Jolley, J.L., 1973. *The Fabric of Knowledge: A Study of the Relations Between Ideas*. Barnes and Noble.
- Kolasa, J. and S.T.A. Pickett, 1989. Ecological systems and the concept of biological organization. *Proceedings of the National Academy of Sciences* 86: 8837-8841.
- Lemke, J.L., 2000. Opening up closure: semiotics across scales. In J.L.R. Chandler and G. Van de Vijver (eds.) *Closure: Emergent Organizations and Their Dynamics*. *Annals of the New York Academy of Sciences*, Volume 901: 100-111.
- Mahner, M. and M. Bunge, 1997. *Foundations of Biophilosophy*. Springer-Verlag (pp. 177-180.)
- Mandelbrot, B., 1983. *The Practical Geometry of Nature*. W.H. Freeman & Co. Maurer, B.A., 1999. *Untangling Ecological Complexity: The Macroscopic Perspective*. University of Chicago Press.
- Morrison, P. and P. Morrison, 1982. *Powers of Ten*. Scientific American Books.
- Nicolis, J.S., 1986. *Dynamics of Hierarchical Systems: An Evolutionary Approach*. Springer-Verlag.
- Odum, H.T., and E.C. Odum, 2000. *Modeling For All Scales: An Introduction to System Simulation*. Academic Press.
- Pattee, H.H., 1973. The physical basis and origin of hierarchical control. IN H.H. Pattee (ed.) *Hierarchy Theory: The Challenge of Complex Systems*. George Braziller.
- Petterson, M., 1996. *Complexity and Evolution*. Cambridge University Press.
- * Polanyi, M., 1968. Life's irreducible structure. *Science* 160: 1308-1312.
- * Sabelli, H.C. and L. Carlson-Sabelli, 1989. Biological priority and psychological supremacy: a new integrative program derived from process theory. *American Journal of Psychiatry* 146: 1541-1551.
- * Salthe, S.N., 1985. *Evolving Hierarchical Systems: Their Structure and Representation*. Columbia University Press.
- * Salthe, S.N., 1988. Notes toward a formal history of the levels concept. In. G. Greenberg and E. Tobach (eds.) *Evolution of Social Behavior and Integrative Levels*. Erlbaum.
- * Salthe, S.N., 1991. Two forms of hierarchy theory in Western discourses. *International Journal of General Systems* 18: 251-264.
- * Salthe, S.N., 1993. *Development and Evolution: Complexity and Change in Biology*. MIT Press.
- Simon, H.A., 1962. The architecture of complexity. *Proceedings of the American Philosophical Society* 106: 467-482.
- * Sommers, F., 1963. Types and ontology. *Philosophical Review* 72: 327-363.
- Soodak, H. and A. Iberall, 1978. Homeokinetics: a physical science for complex systems. *Science* 201: 579-582.
- Weiss, P.A., 1971. The basic concept of hierarchic systems. In: P. Weiss (ed.) *Hierarchically Organized Systems in Theory and Practice*. Hafner.
- Woodger, J.H., 1929. *Biological Principles: A Critical Study*. Harcourt. Zhirmunsky, A.V. and V.I. Kuzmin, 1988. *Critical Levels in the Development of Natural Systems*. Springer-Verlag.

A Systemic Analysis of Security

Helmut Burkhardt

Adjunct Professor of Physics, Ryerson University
350 Victoria Street, Toronto ON Canada M5B 2K3

Security requires the satisfaction of basic human needs. Satisfaction of the basic needs is a precondition sine qua non for life, and for peace on this planet. The psychologist Abraham Maslow established a hierarchy of human needs [1]. In a scientific perspective, the two most basic needs in Maslow's list are the material resources, and our body's integrity. The material resources are the physiological requirements for life: clean air, water, and healthy food. The structural integrity requires protection from physical, chemical, or biological injury to our health. As long as life is sustained, we are able to pursue the quest for satisfaction of higher, spiritual needs.

Nations have similar security requirements. Satisfaction of material needs from a sustainable, healthy ecosystem, and protection from harm in peaceful existence without violence are fundamental for the well being of nations. A few thoughts on traditional, and on timely means to obtain security are offered here.

In principle, security can be achieved in two ways.

1. Security derived from successful competition: Historically, sovereign entities in a competitive conflict interact with each other according to the law of force. In the struggle for survival, the combatants tend to ignore whatever rudimentary, international rules of war exist, and revert to chaotic interaction according to the law of the jungle, where might is right, and only the fittest, or the lucky ones have a chance to survive. Peace and disarmament are unlikely events in this mode of international relations.
2. Security derived from cooperation: Security inside a nation, or inside an alliance of nations is achieved by willing submission of all members to the rule of mutually agreed-upon law. A constabulary backs the law enforcement within an alliance when necessary. Civility of international relations, world peace, and disarmament are more likely to be achieved when humankind forms an effective alliance, and all nations accept the rule of global law, which limits their sovereignty.

Up to now, nations have been relying on superior military strength to achieve security. This attitude is reflected in the saying: 'If you want peace, prepare for war'. Apart from the merely physical force, there exist psychological factors of strength such as motivation, and intelligence; the use of weapons, and of disinformation generates a technical and communication dimension to strength; — in this sense, to quote a Judeo-Christian story, David was 'stronger' than Goliath. Forming alliances with others adds a social component to strength. Clearly, military strength is a multidimensional, and complex concept that is hard to quantify; therefore, in order to feel secure one had to have a substantial military advantage over the opponent, and that fuelled vicious arms races in the past.

In the second half of the 20th century, the effort of military blocks to achieve security through strength reached a point where it became absurd. Two powerful blocks of nations, the Warsaw Pact, and the North Atlantic Treaty Organization were competing for world dominance by trying to outgun, or outsmart the other. The strength of weapons, the number of weapons available, the speed, and the accuracy of the delivery systems were advanced immensely. The overall improvement factor of weapon systems during this 'cold war' period outpaced by far the progress of defensive measures. The defense against such destructive power became impossible, and the two blocks were paralyzed by the firm knowledge of mutual assured destruction.

Today, the cold war is over, but the idea of security through military strength still exists. The complexity of the war system has increase by fragmentation of political power. In addition to the devastating capability of readily available weapons, the vulnerability of our civilization has increased. The high density of our settlements, and the exploitation close to the limits of the life-supporting capacity of the ecosystem has created a fragile state of the world. In this situation the strength of military blocks, of some individual nations, and even of terrorist organizations is such as to create an unacceptable degree of insecurity. Nuclear weapons are still on trigger alert, and all of humanity is in great danger of perishing by the decision of a sick mind, or even by a technical or human error. In this situation, military strength is far from offering security; on the contrary, it is self-destructive, suicidal, and it is no longer a rational policy option.

Therefore, the only rational, and humane security policy is based on cooperation. The world community of nations must to establish the global rule of law. This is a logical next step in the historical process of the evolution of humankind. An Irish proverb sums it up: “It is in the shelter of each other that the people live”. Alliances, started with clans, evolved via city-states, to nations, and to continental unions; the United Nations are a good beginning for a global alliance. The UN must now be given the authority, and the means needed for creating a secure, just and sustainable world. As we have municipal police forces, provincial or state police, and national police, the community of all nations must create a global constabulary. A police force is quite different from an army; it is constrained by law, it is benevolent by design, and only as strong as necessary to bring malevolent fringe actors to justice before an international tribunal, or the International Criminal Court once that is ratified. Thus, the basic need for individual and national security becomes an ‘internal’ challenge of a worldwide alliance. A reformed United Nations with a rapid reaction force at its disposal could deliver this cooperative mode of global security.

Now is the time to abolish the power-based security notion of sovereign nations; force based security is detrimental to ethical conduct in international relations. Sovereignty means not being subjugated to any rules. Therefore, each sovereign nation is potentially a ‘rogue’ nation. Power corrupts, and often the strongest succumb to the temptation. We can observe that both, strong and weak nations disregard international rules, and violate human rights for the sake of security, and often worse, for the sake of profane, commercial advantages. Noam Chomsky [2] gives a long list of examples of state terrorism committed by the powerful United States of America in recent years.

Clearly, it is the mandate of the world community of law-abiding nations to find and punish all violators of international law. Rogue nations, terrorist organizations, and individual helpers of heinous crimes such as the ones on September 11, 2001 in New York and Washington. Serving justice is not an act of war. A desirable course of action for the victims of international terrorism is to appeal to the UN for Justice, and to create together with all nations a “global police force”. The conversion of the national military forces from instruments of war into a law-abiding global police would supply humankind with an effective instrument in preventing international crimes, while preserving peace between nations.

1. Abraham Maslow, hierarchy of needs, <http://www.wynja.com/personality/needs.html>
2. Noam Chomsky, “The New War Against Terror”, The Technology and Culture Forum at MIT, October 18, 2001. www.zmag.org/GlobalWatch/chomskymit.htm .

A Development in Systems Science
J Korn, Visiting Fellow
London School of Economics, London, UK
e-mail : janos999@btinternet.com

To introduce an additional development into the current subject matter of systems science, we need to begin with one of the many definitions of ‘system’ which promises a scope for development. In fact the existence of so many definitions and interpretations indicates a need for clarification. Thus, we take it that a ‘system’ is ‘set of objects with relations between the objects’.

By the term ‘object’ we mean a bounded part of the world which we perceive through the senses as separated from the rest. An object is a ‘whole’ parts of which are held together or formed according to an organising principle so as to fit the object into a ‘class’, a notion which covers all ‘concrete’ objects: natural, artificial, energy and information as symbols once the latter two are embodied in a medium. For example, a ‘pencil’ is a perceived concrete object parts of which are organised so as to enable marks to be made on paper with a normal hand and, thus, to fit into the class of objects ‘capable of making marks with a normal hand. Also, selected ‘letters’ from the alphabet can be seen as organised into an object classed as ‘word’ which we recognise when written down or spoken.

From concrete objects we can proceed to the notion of ‘theoretical object’ which is described by an infinite number of statements of the ‘subject-predicate’ kind a few of which emerge when such an object plays a part in a situation or scenario. Such statements are ‘situation-dependent’ and play an important role in conventional science. The expressive power of natural language is increased by the invention of ‘abstract’ objects which capture features and activities of concrete objects such as ‘courage’, ‘arrival’ etc. The notion of ‘relation’ refers to the way one object is connected to another. There are relations between objects, concrete and abstract, such as ‘John is (the father of) Mary’, ‘the engine (propels) the car’, ‘happiness is (more important than) beauty’, or between symbols such as ‘3 (+) 2 (=) 5’.

A ‘set’ is a collection of objects with a common property or characteristic which is used to define membership of the set. Accordingly, we can express the definition above

$$\text{system} = \{\text{objects} \mid \text{objects are related}\} \quad 1.$$

in words, a system is a set of objects such that the objects are related.

Eq.1. gives us a collection of objects and their common characteristic : they are related. Their property of being related separates them from the rest of the universe. Thus, the definition appears to equate the concept of ‘system’ with that of ‘set’ which is not the case. For example, ‘the names of capital cities of Europe’ may be written as

$$\text{system} = \{\text{cities} \mid \text{capital, in Europe}\} \quad 2.$$

where the system is a set of cities such that they are capitals and in Europe which satisfies the criterion of set but not that of system according to eq.1. since the ‘cities’ are not related. We can write their names down in any order.

In order to introduce relations, we now say that ‘the names of capital cities of Europe are arranged in order of the size of their population’. Then we can write

$$\text{system} = \{\text{cities} \mid \text{capital, in Europe and arranged....}\} \quad 3.$$

where the system is a set of cities such that they are capitals, in Europe and arranged according to a principle. The relation itself is given by the differences in the numbers of populations. Eq.3. satisfies eq.1.

On the basis of this brief discussion, we can say that :

1. The set of objects of a given class with situation-dependent properties forming a system, is a finite set,
2. Membership of the set separates the system from the rest of the universe, a system is a bounded collection of objects,
3. Members of the set are arranged or organised by a relation generating principle i.e. ‘...related so as : to exhibit a feature or property, to function in a certain way etc. or **to bring about a change**’,
4. The relations connecting members of the set need to be made explicit.

Accordingly, we modify eq.1. to

$$\text{systems} = \{\text{objects} \mid \text{objects of a given class with situation-dependent properties related so as to produce an outcome}\} \quad 4.$$

The formulation of the appropriate *general, empirical notions and a suitable symbolism* to translate these points into an operational framework forms the basis for a development in systems science.

Any part of the world can be viewed as set of related objects, the domain of development is, thus, extensive. It embraces natural, technical, living including human situations or scenarios with social, economic, political, manufacturing etc aspects. Human/living components of scenarios/situations have tenuous relations, with predominantly qualitative properties, they are subject to uncertainties and exhibit will, caprices, mood changes, ambitions and so on. Yet the development of a suitable theory should be predictive, expressed in operational terms and should point towards product and systems design.

Mathematics is, thus, not a suitable symbolism to cope with the needs of the domain. Natural language, the other abstract symbolism used by people, with its complexities, metaphors etc needs to be processed so as to lead into an inferential structure based on one- and two-place sentences capable of carrying aspects of mathematics. In such sentences derived from a *story* by linguistic analysis, *nouns denote classes of theoretical objects* and *verbs describe their relations*. The introduction of *qualifiers* of these terms, the situation-dependent properties, together with the inferential structure of pseudo-predicate logic leads to the possibility of prediction of outcomes. Verbs are classified into : ‘**stative**’ which designate time invariant states of affairs and ‘**dynamic**’ which describe activity with time variation leading to change. Accordingly, we have two subsets of eqs.1.and 4.,first,

$$\text{stative system} = \{\text{objects} \mid \text{class of objects with situation dependent properties related so as to exhibit a feature/function... in themselves}\} \quad 5.$$

in words, a stative system is a set of objects such that they are so related/arranged as to exhibit *time invariant features or properties*. These features may come about as a result of chance or that of purposive activity. The relations are described by stative verbs..

The second,

dynamic system = {objects | class of objects with situation-dependent properties
related so as to produce change of a property *in another object* } 6.

in words, a dynamic system is a set of objects such that they are so related/arranged as to produce *change of features in another object*. These features may be regarded as product of chance or that of purposive activity. The relations are described by dynamic verbs designating power or influence interactions with subordinate clauses referring to energy or information.

Discussion

1. We have distinguished between two kinds of systems. First, systems in which relations are generated by a principle which calls for a *feature, function* and are described by *stative* verbs and those with a call for a *change in a changing object* and with relations described by *dynamic* verbs.
2. The two kinds of systems described by eqs.5. and 6. can occur separately or together. For example, we can say ‘Librarian arranged books in order of increasing height on the shelves’ where ‘Librarian arranged books’ is the dynamic system operating purposively which changes ‘books’ from an initial state of being mixed up into a final state of being in order of increasing height.
3. Objects as system components can be concrete as well as abstract. Thus, we can speak of a ‘stative system of a set of numbers such that the numbers are even with a difference of four between any two arranged in increasing order’. Similarly, in case of a dynamic system we can say ‘desperation urged the soldiers to fight on’ in which ‘desperation’ is an abstract noun.
4. A dynamic verb designates activity or *interaction* initiated by an object called ‘agent’ and affects other objects, ‘librarian’ and ‘books’, respectively as expressed by case grammar. Skilled physical activity involves transfer of *energy* and *information*, both through a *medium* and use of *artefacts*, together called the *generalised product*.
5. A dynamic system does not exist for its own sake. A dynamic verb implies causation leading to a *change of state* carried by objects, a point missing in eq.1. and is the reason for existence and operation of such a system. Thus, ‘Librarian arranged books’ leads to a change of state of ‘books’ which is implied in eq.6. Current systems thinking concentrates on ‘systems’ alone and disregards *the notion of change from an initial to a final state caused by a dynamic system supported or hindered by environmental objects*.
6. Eqs.5. and 6. divide the ‘systems problem’ into two parts : a set of related objects and their outcome. In a stative system a feature, function etc. are outcome, a dynamic system produces a change in a changing object. When a system is given and its outcome is in question we have an *analysis type of problem*. When its outcome is specified and the system required to create the outcome through the intervention of a product is in question, we have a *design type of problem*.
7. *Linguistic modelling of situations based on a story in natural language, is offered as the development* for consideration as a method for analysis and product/ system design. It is a rigorous method yet can handle scenarios with soft components with their associated uncertainties, variety and diversity. However, is still needs in depth debate, application to more substantial problems and software support.

8. People have been analysing and designing human activity scenarios for a long time with eminent success, or failure, and competence. Debate may be needed about what systems theory can add to what is already done in practice.
9. We have discussed that a ‘system’ is an aggregation of objects with the ‘job’ of producing **changes** as new properties arising from the aggregation itself. ‘Emergent’ is the term used to describe such properties. The proposed development is intended as an analytical machinery to reveal the consequences of such a view.

The Transformation of Imaginary Into Real Information and Connection to Quantum Mechanics (QM)

Vladimir S. Lerner
13603 Marina Pointe Drive, Suite C-608,
Marina Del Rye, CA 90292
vslerner@yahoo.com

The structuring of random information into an information dynamic network IN [1], with a zone of imaginary and real information, opens the possibility for their mutual transformation (as a mind into a matter, and vice versa).

The IN model has 6-levels of hierarchy: statistical microlevel, quantum dynamic level, classical dynamic macrolevel of macrotrajectories, hierarchical cooperative network of macrostructures, second stochastic level as a result of chaotic dynamics, and the optimal code accumulated the IN hierarchy, dynamics, and geometry [1,2].

A reality for the existence of a quantum *state* (not a wave) exposes itself only at the moment of cooperation when an elementary *system* arises, and the couplet state can be memorized. According to the example [1], the macromodel’ poor imaginary initial eigenvalues $\lambda_{1,2}(\pm jt_*)$ can be transformed into

the real eigenvalues using the transformation $T = -\frac{\exp(\pm jt)}{2 - \exp(\pm jt)}$, carried by the imaginary control’s

feed-back $v = -2x_j(t_o)$, applied at some initial moment t_o . This transformation can be considered as a

special conformal reflection of the line $\pm j$ into the shape $w(z) = \frac{az + b}{cz + d}$ at $z = \exp(\pm jt)$, $a=1, b=0, c=-$

$1, d=2$ with the invariant points $z_1 = 0, z_2 = 1, w(z = 0) = 0, w(z = 1) = 1$. Such a reflection transforms

the $\pm j$ lines of an Euclid’s geometry into the curved lines on the Riemann’s shape $w(z)$. The angle

between a pair of curves at each point z is transformed into an equal angle (by its value and the marking course direction) between the curves in the shape $w(z)$. That leads to transformation of the initial parallel

pair of lines $\pm j$ into the intersecting curves on the Riemann’s shape $w(z)$. Following the connection

to QM, each of these eigenvalues $\pm j$ corresponds the pair of wave functions $\psi_1 = \exp(jt), \psi_2 = \exp(-jt)$.

The property of being the harmonic wave functions is invariant under conformal mapping. Because of

that, the transformation $T(T_1, T_2)$ creates a pair of transformed wave functions $\varphi_1 = -\frac{\psi_1}{2 - \psi_1},$

$\varphi_2 = -\frac{\psi_2}{2 - \psi_2}$, which can actually intersect on the Riemann's shape $w(z)$. A set of imaginary events, described by the wave functions, have a non observed probabilistic tendency $P = |\varphi_1 + \varphi_2|^2$ that is transformed into a real observed event at a point of their intersection. This point defines the start of the real time and space coordinates when physical information can arise from the initial distribution of imaginary information. The transformation is actually applied at the initial imaginary moment $t_o = jt_* = 0$ from which we can consider a positive jt_*^+ or a negative jt_*^- imaginary time course. The positive time direction symbolizes coming up to a real time start, when at $t_*^+ = \pi/3$ both initial imaginary eigenvalues acquire the real value $\text{Re } \lambda_{1,2} = \alpha_{1,2} = 0.547$, and $\text{Im } \lambda_{1,2} = 0$. At $jt_*^\pm = \ln 2$, the transformation acquires an unlimited negative value $T \rightarrow -\infty$. At a small δ -vicinity of $jt_*^\pm = \ln 2 \pm \delta$, the transformation acquires a jump-wise form, which determines the generation of an unlimited influx of both negentropy $\Delta S = jt_* T(jt_*)$ and the negentropy production $H(jt_*)$. The observed real time-space point (t_*^+, l_*^+) defines the set of real events with the real eigenvalues and physical information starting within the R^+ zone, while the set $(jt_*^\pm = 0, \text{Im } \lambda_{i,2} = \pm j)$ defines the R^- zone with imaginary information production. That means, the R^- zone with a poor imaginary entropy production $H_o^\circ = \pm j$ is able to generate the infinite negentropy production at $t_*^+ = -j \ln 2$, which, at the coming up real time $t_*^+ = \pi/3 (\approx 1.048)$, leads to starting the real entropy production $H_s = 0.547$, the real time course $t_s > 0$, and the real space with a starting space point l_s . This result is a consequence of the conformal reflection of the initial imaginary information on the curved shape, where the imaginary information is transformed into the real information. The transformation could even be performed by an imaginary observer during an imaginary time.

The question is: can a real information be transformed into a material substance?

The real information starts at $t_s > 0$, and the real substance is associated with the real mass [1]. The information mass is generated during a total increment of real time t'_Σ and a speed c_o : $m_\Sigma = 4t'_\Sigma c_o / \pi$ in the process of the macrostate's cooperation, acting as the macrosystem's cooperative characteristic. Therefore the cooperative information mass can arise only after the real time starts at $0 < t_s \leq t'$, where t' is a moment of the initiative cooperation of two or more macrostates. As soon as this cooperation creates the real mass, it is associated with the corresponding energy e_Σ and a material substance.

What kind of information forces arise at the border of imaginary and real zones?

Let's apply the formula [1] for the gradient of information force $gradX = \frac{\partial X}{\partial \bar{x}}$ in the direction to the normal to the surface $S(\bar{x})$ for the eigenvector \bar{x} . Using the transformation $T\bar{x} = \bar{l}$, we may consider the gradient in the direction of spatial coordinate \bar{l} for an appropriate normal $\bar{l}(\frac{\partial X}{\partial \bar{l}})$:

$$\text{grad}X = \frac{\partial X}{T \partial \bar{x}} = T^{-1} \frac{\partial X}{\partial \bar{l}} = -T^{-1} F_l, \text{ where } -\frac{\partial X}{\partial \bar{l}} = F_l.$$

Considering the interacting cooperative forces acting within the imaginary X^- and real X^+ zones accordingly, we have $\text{grad}X = -2X^+X^-$ and

$$F_l^- = 2T^{-1}X^-X^+(a), \text{ if } X^- \text{ acts on } X^+, \text{ or } F_l^+ = 2T^{-1}X^+X^-(b), \text{ if } X^+ \text{ attracts } X^-.$$

As we will see, the situations could be different depending on which direction the border is crossed (from the imaginary zone to the real zone or the vice versa). Using the formulas[1]:

$$X^- = (b^-)^{-1} \dot{x}^-, X^+ = (b^+)^{-1} \dot{x}^+, \dot{x}^- = j\beta^- x^-, \dot{x}^+ = \alpha^+ x^+, b^- = j\pi h / 4ct^-, b^+ = \pi / 4ct^+,$$

after their substitution into (a) and taking the mathematical expectation, we get

$$F_l^- = 2T^{-1} \frac{(4ct^- / j\pi h)(4ct^+ / \pi)(j\beta^- t^-)(\alpha^+ t^+)}{t^- t^+} M[x^- x^+],$$

where the transformation $T = M[x^- x^+]$ [1], the invariants $\beta^- t^- = \mathbf{b}'_o$, $\alpha^+ t^+ = \mathbf{a}_o$, $t^+ = t^- / h$, and the time discrete intervals are (t^-, t^+) , which can be expressed through the corresponding distances (l^-, l^+) and the linear speed c : $t^- = l^- / c$, $t^+ = l^+ / c$.

The interacting information masses: $m^- = jh(b^-)^{-1}$, $m^+ = (b^+)^{-1}$ are located supposedly at the equal distances of $l^- = l^-_o / 2$ for the determination of F_l^- , or $l^+ = l^+_o / 2$ for the calculation of F_l^+ . By substituting all of the expressions, we receive the formula of information force, acting on the border of imaginary and real information zones that is able to attract a real information mass m^+ by an imaginary

information mass m^- , which are separated by the distance l^-_o : $F_l^- = G_l^- \frac{m^- m^+}{(l^-_o)^2}$, with the information

constant $G_l^- = 8c^2 \mathbf{b}'_o \mathbf{a}_o$, defined by the macrosystemic invariants. Considering the information force, attracting an imaginary information mass m^- by a real information mass m^+ , we get the analogous formula

$$F_l^+ = G_l^+ \frac{m^- m^+}{(l^+_o)^2}, \text{ with the corresponding information constant } G_l^+ = \frac{8c^2}{h^2} \mathbf{b}'_o \mathbf{a}_o.$$

The ratio of $G_l^- / G_l^+ = h^2$, where at the border $h \rightarrow 0$, A minimal admissible uncertainty [1] is $h_o = 0.0072$. Therefore the information attraction, acting from the imaginary zone is in $\cong 5.184 \bullet 10^{-5}$ times weaker than the attraction, acting from the real zone (at other equal conditions). The invariant \mathbf{a} can be defined through the QM wave functions [3] at each discrete interval τ by the relations $\mathbf{a} = \ln P$, $P = (\varphi(\tau) * \varphi(\tau))$, where $\mathbf{a}_o = F(\mathbf{a})$ [1].

This establishes the connection between the information cooperative forces and the QM.

Let's compare the information attraction, acting *within* the real zone, and the information attraction acting *from* the real zone on an imaginary information mass.

The information constant within the real zone is $G_l = 8c^2 \mathbf{a}_o$ and the ratio of $G_l^+ / G_l = \mathbf{b}'_o = \gamma \mathbf{b}_o$, where at the border, the minimal admissible $\gamma_o \cong 0.007148$ and $\mathbf{b}_o \cong \ln 2$ [1].

Thus the ratio is evaluated by $G_l^+ / G_l \cong 4.955 \bullet 10^{-3}$. This means, the attraction of an imaginary mass at the border is approximately in five thousand times weaker than the attraction of real mass acting within the real zone.

The above results estimate the information “difficulties” of crossing the barrier between the real and imaginary information in the process of their mutual transformation.

The zone's border carries a hidden information resistance to such transformations, which are not a symmetrical. The nonsymmetry of crossing the border depends on the square of the parameter of uncertainty h^2 . The information resistance arises even within the real zone in the process of applying the optimal control $v = -2x(\tau)$ [2], which overcomes an inertia of current macromovement $x(\tau)$ by inverting this movement at each discrete moment τ . At this moment, the control generates the elementary quantity of real information \mathbf{a}_o which is necessary in overcoming the resistance of a real macromovement. The control that can overcome an inertia of the imaginary macromovement should carry the elementary quantity of information \mathbf{b}'_o . The “needle” control, which is a component of cooperative process [1-3], is formed by applying the mutual optimal control, adjoining two of the macromovements while each of them controls the other [1].

The controls, overcoming the resistance, renovate the macrosystem's states creating new information. The creation is a result of the control's execution of the optimal criteria, expressed by the initial information functional [3] as a macrosystem's “desire-motivation” to maximize the delivered information by the macrostate's renovation.

References

- [1] Lerner V., S.1999. *Information Systems Analysis and Modeling: An Informational Macrodynamics Approach*, Kluwer Academic Publishers, Boston/Dordrecht/London
- [2] Lerner V.S. 2001. Information Functional Mechanism of Cyclic Functioning, *Journal of Biology Systems*, **9** pp. 1-24.
- [3] Lerner V.S. 2001. The Information System Macrofunctional and Physical Analogies, *Systems Analysis-Modeling-Simulation*, **41**, pp.45-106.

A Viewpoint

Dr Janet McIntyre, Senior Lecturer
Flinders Institute of Public Policy, Flinders University, Australia
janet.mcintyre@flinders.edu.au

The events of September the 11th are a wake up call about the vulnerability of our current world. Unless we decide to co-create solutions we face a bleak return to the dark ages, or worse. We are one species (at the moment) and we live on one planet, without any other viable options. Perhaps speciation may occur, if the divides between the have's and have not's continue to widen. The very notion of what it means to be human is within our own hands. Transpeciation (through biotechnology, nanotechnology, cyborgism, for instance) is less unlikely than it was in the past. The implications of reworking the web of life and extending it are indeed awesome. The concepts of 'life', 'being human', 'the state', 'the market', 'citizenship', 'human rights', 'animal rights' and our responsibility as human beings need to be reconsidered vary carefully so that a socially and environmentally just world can be gained and retained for future generations. Our survival as a species (on this planet) is our choice. As Banathy (1996, 2000) has stressed, we are at a turning point in our history. We can either develop designs interactively (op cit), or we can continue to use the thought patterns and designs that have brought us to this dark place. We all have the potential to light this darkness through humility and through co-created designs that are mindful of the sacredness and the complexity of the web of life.

Global Citizenship and Social Movements: creating transcultural webs of meaning for the new Millenium (2000, published by Harwood)

Key words: construction, socio-environmental, problems, tools, transcultural understanding, compassion

The following published essay is based on varied experiences as a researcher and as a university and community educator, facilitator and planner in a wide range of contexts. The focus of my development work: theoretical, practical and applied has been to understand the way in which social problems are constructed by different interest groups. So much energy is focused on solving problems, without agreement on the nature of the problem. The way reality is constructed is based on our assumptions and values. The first goal is to convince the reader that inclusive thinking that traces common webs of meaning across the separate frameworks of cultural and social values can be taught by means of thinking tools. People can be educated to work with ideas and assumptions rather than within the boundaries of a prescribed orthodoxy. The second goal is to argue that tools for thinking and communicating can help us to rework the categories that limit our thinking by forging transcultural webs of meaning. Webs are created as a result of a belief that by virtue of our common humanity and common environment we need to co-create our futures. Mapping the different perceptions of the interest groups and ascertaining the reasons why people think in particular ways is the first step for working together. By using a range of thinking tools we can help interest groups to think beyond frameworks of meaning and instead to think in terms of links, overlaps and webs. This could enhance the likelihood that people will choose "pooling, linking and allying" (to use Moss Kanter's, 1998 term in a broader sense) to solve problems. Such an approach makes more sense in terms of our long-term survival as human beings on this planet. By using group work skills together with problem-solving techniques, common ground can be created, provided the socio-political and economic contexts in which we work are clearly understood and the political will to co-operate exists or is created as a result of a realization that we share one environment and that human beings share similar needs because biologically we are "of one body". The processes involved encompass more than merely sharing information and building alliances. It also involves helping interest groups to abandon the notion of closed frameworks for understanding.

The recent experience of working in the arid zone of Central Australia, Alice Springs highlights the need to find sustainable development solutions. Alice Springs is a borderlands of cultures. The First Australians are concentrated in this urban centre and the cultural diversity is heightened by large numbers of international and local travellers and immigrants from European and Asian countries. The First Australians no longer restricted by government wardships or missions have started to resume moving across the land as they did prior to colonisation. This movement between urban areas and 'country' along with land title must also be considered as an indigenous *social movement*. These responses provide a challenge and a response to their status as the most marginalised of all Australians (Coulehan, 1998).

The effects of colonisation on Aboriginal people are still visible in terms of all social health indicators, for instance: the highest incarceration rates, unemployment rates, morbidity and mortality rates. Poor diet, extensive use of alcohol and risk taking behaviour is associated with a sense of having little personal control over their lives.¹ The notion of being a nation within a nation is however a powerful reply to this sense of being second class citizens. Their sense of national identity is built upon a sense of the sustainability of the environment through living in harmony within a fragile arid zone. The liberative potential of this concept of nationality lies in the potential to contribute to the social movement for an ecologically sustainable future. The lack of effective communication across cultures underlines the need for transcultural thinking tools which can facilitate mutual understanding and assist in developing a shared political will based on a belief that all cultural maps have creative potential. By learning to consider the way in which cultural maps can overlap, extend and complement one another problem solving can be made easier. Ecological and humanistic thinking is required for solving some of the toughest challenges in the next millennium.

The world we live in today has two opposing dynamics: globalisation of the economy and an approach to social change based on a sense of shared interests, which lead to wide-ranging social movements. Biologically, human beings have in common one environment and shared human needs. Political and economic common denominators are increasingly recognised. Simultaneously, a strong tendency exists to splinter off from a shared sense of global interests, to fragment into nation states and for political parties to step back in time to a bounded set of ethnocentric and / or nationalistic policies. These paradoxical characteristics need to be addressed. Without co-operation and the recognition of common goals we are doomed to conflict and the waste of human and natural resources, therefore competition is harmful and irrational, rather than rational economic behaviour. It is argued that the closest we can get to truth is through dialogue. But paradoxically, a celebration of diversity cannot silence the one ultimate truth; namely that human beings are systemically linked, to one another and to their ecosystem.

This acknowledgement of our interlinked reality does not mean that the rich and powerful should have the right to pit nature versus the rights of people, particularly those who are less economically powerful in terms of current standards. Ecological thinking is about solving problems through understanding systemically rather than apportioning blame to 'the other'. No matter how we construct our lives as individuals, and no matter how we choose to celebrate our diversity by means of separate identities, we cannot as rational beings deny the reality of our sharedness, in terms of biology and ecology if we wish to survive. Cultural diversity is a result of the interaction of people living in different parts of the ecosystem and adapting to their environments. This lived experience is the heritage of years of cultural learning by trial and error.

Nations as categories emphasise categorical differences and have led to competition between groups. The ability to survive in the long term is based on our potential ability to think collectively rather than

competitively in terms of environmental or national spaces or class spaces. In this respect the Hobbesian notion that “nature is red in tooth and claw” is only half-true, because human competitive instincts have been successfully shaped through philosophical development to appreciate the benefits of democracy, even if democracies in their current forms only achieve partial justice. This shift in thinking does not require altruism; merely a rational mind that recognises the advantages of mutual survival as opposed to mutual annihilation based on ‘us’ versus ‘them’. Possession of superior technology according to Colinveaux (1980) in his work “The fates of nations” has throughout history led to the ability to conquer others and thus to ensure the survival of the group at the expense of ‘the other’. Technological development has progressed to the level where we have developed a ‘Risk society’ (Beck 1992) in which there can be no winners. Technology can however be used creatively for the development of transcultural webs of understanding for the mutual benefit of people and the environment. Computer technology and social movements can make this possible if we assume that we have more to gain by co-operating. In chapters 4 - 6 this argument is developed.

A Critical and Ecological Humanism strives through the vehicle of paradigm dialogue to remove the ‘false consciousness’ rooted in the heritage of binary oppositional logic. This essay explores the liberative potential of Hegelian dialectics in order to rediscover the wisdom of holistic thinking without denying the pervasive existence of binary oppositional discourses that can be argued to be a source of social, political and economic adversity. If we see the links across phenomena instead of organising phenomena in boxed categories, we are able to think in terms of affiliation, rather than competition. The ontological assumptions of this work are both humanistic and ecosystemic. The vehicle for creating and recognising links is paradigm dialogue in order to create a language that recognises both common denominators and diversity.

Thinking tools help to shift thinking away from simplistic structures and models to thinking that traces contours across paradigms. Whereas categories alienate and are divisive, webs affiliate and create a sense of shared meaning. Paradigm dialogue is liberative and can heal rifts by closing the spaces through recognition of the links, which bind people together in one ecosystem. This is a revised version of humanism, one that places people within ecosystems, rather than above ecosystems. An Ecological and Critical Humanism (EcoHumanism) is a rational, ethical and political response to the real dangers facing human beings within their ecosystem. Critical is used in the sense of reflexive, dialectical, creative and exploratory.

Compassion for the ‘other’ cannot be taught as a competency, but we can be made aware through reflexive thinking that the closest we can ever get to a shared truth and sustainable social justice is through listening to and striving to understand the other. By virtue of our shared humanity and our shared environment, we are systemically linked. We need to understand that by seeing the links across social and environmental phenomena we can begin to move away from the sort of thinking which splits and separates phenomena into categories (Flood 1998: 96). Logically however, if we think in adversarial terms then tools for destruction make sense until we realise that we can never create a boundary between ourselves and ‘the other’ as winners and losers, because we are bound together in one ecosystem.

Ultimately systems are only as strong as their weakest sections; we are indeed bound together. The effects of exploitation, pollution and poverty cannot be quarantined as Beck (1992) has emphasised in Risk Society. The technology to create life (human, animal and plant), to create artificial worlds, to travel through space and potentially colonise other systems and the technology to destroy our own ecosystem are no longer science fiction but an awful reality. We can co-create or destroy at our own risk.

Critical Systemic Praxis: Participatory Design for a Global Age (forthcoming)

Keywords: Globalization, citizenship, research ethics, power, knowledge frameworks, governance, managerialism, control, critical systemic thinking practice and outcomes, interdisciplinary approaches to welfare and development, healthy settings. The global age is systemic and digital and this has implications for the way we educate future practitioners in the human services. Designing for the future requires an ability to think critically and reflexively and to operate in terms of systems, not compartments. This has implications for organisational management, governance, as well as social and environmental policy. Communication styles need to be open and flexible so as to represent and take into account multiple meanings. Internationally, globalization has been paradoxically translated into colonization, economic rationalist development, nationalism and closure born of a fear of the implications of globalization and global markets for the least powerful countries, regions and interest groups. Social problems in terms of the economic rationalist approach are increasingly individualized and citizenship models emphasize the responsibility of individuals and families.

The book develops a systemic approach to public policy issues. Examples of public policy praxis are used throughout to exemplify theory. Policy suggestions are made that have been drawn (in part) from the Healthy Settings/Cities Movement (HCM) that has enjoyed widespread support internationally. This integrated approach is ideally suited to addressing the socio-economic and environmental issues identified by means of qualitative and quantitative indicators of local need. The book demonstrates the value of critical systemic thinking and practice and although the details refer to a particular place and time, this holistic praxis could be of relevance elsewhere. My rationale for writing the monograph is to address poverty, defined in terms of exclusion from participation in the fabric of community life (that is vital for wellbeing) and even more importantly from acting as design participants for their future.

I realise that to some systemic thinking is authoritarian, or potentially so. But critical soft systems thinking doesn't need to be! It can also play a really useful role as it takes cognizance of (all) the sciences as well as personal knowledge and lived experience. But most importantly it also maintains the belief in rational enlightenment. The value of 'sweeping in' (as per Checkland) and acknowledging other narratives is considered a means of testing ideas through falsification (as per Popper) using respectful dialogue (as per Habermas) amongst diverse viewpoints. Dialogue that is inclusive of diversity is the jump lead of creativity and an essential aspect of democracy. CSP attempts to avoid the dangers of the worst versions of postmodernism and modernism through applying ecohumanistic principles that are mindful of weaving webs of understanding across self, other and the environment.

A specific case study is used to demonstrate critical systems praxis. Examples stress the value of creating links across sectors and disciplines in order to enhance health, education and employment opportunities for all citizens, but also those who are striving for recognition and self determination.

References

ABS National Aboriginal and Torres Strait Islander Survey, 1997

The NT Government Health Policy , NT Website on Public Health

Northern Terr. Health Outcomes-Morbidity and Mortality 1979-1991, in Public Health NT website.

Australian Bureau of Statistics (1997) The Health and welfare of Australia's Aboriginal and Torres Strait Islander Peoples Report NO 4704.0.

SECTION TWO

MEETINGS, CONFERENCES AND ANNOUNCEMENTS

**2002 ISSS Annual Meeting and Conference
THE 46TH ANNUAL MEETING
INTERNATIONAL SOCIETY FOR THE SYSTEMS SCIENCES**

**General Call for Papers
Conference web-site: www.iss.org**

**2nd – 6th August 2002
Shanghai International Conference Center
Shanghai, P.R. China**

Cohosts: The Chinese Society for Systems Science (CSSS)
Systems Engineering Society of China
International Federation for Systems Research
Chinese Society for Soft Science

Sponsors: National Natural Science Foundation of China
Shanghai Jiao Tong University Management School

Joint Chairpersons

Professor Jackson, Michael m.c.jackson@hull.ac.uk President ISSS
Professor Wu, Jie President CSSS

Honorary Chairpersons

Professor Cheng, Siwei, Head, Dept. of Management, National Natural Science Foundation of China
Professor Song, Jian, President, Chinese Academy of Engineering

Proramme and Organizing Committee

Dr. Banathy, Bela babanathy@worldnet.att.net
Professor Chen, Jian
Professor Cheng, Zhong
Mrs Gibbs, Doreen D.E.Gibbs@hull.ac.uk
Professor Gu, Jifa
Professor Kong, Deyong
Professor Li, Deyang
Professor Li, Houqiang
Dr. Murray, Peter P.J.Murray@hull.ac.uk
Professor Wang, Huanchen

Professor Wang, Fanghua
Professor Wu, Chongfeng
Ms Wilby, Jennifer jmwilby@dial.pipex.com
Dr. Yolles, Maurice m.yolles@ntlworld.com
Professor Yu, Jingyuan
Dr. Zhu, Zhichang Z.Zhu@hull.ac.uk

Special Guest Speaker – The Ludwig von Bertalanffy lecture
Professor John Warfield

Deadlines

Deadline for abstracts is April 15th, 2002, however this is also the paper deadline.
Acceptance Notices will be sent when abstracts have been reviewed.

All abstracts, in electronic format, are to be sent to:
Doreen Gibbs, D.E.Gibbs@hull.ac.uk

If email is not possible they may be sent to:
Chair, Professor Mike Jackson
University of Hull Business School
University of Hull
Cottingham Road
Hull, HU6 7RX
England
Phone: +44 1482 466309
Fax: +44 1482 466096

Deadline for final papers is April 15th, 2002. Because of additional time needed to process the proceedings for China, this deadline will not slip.

Individuals are limited to two papers. Submissions(s) must be in both hard copy (printed) and 3.5" floppy diskette in a commonly used word processing program. All final papers to be sent to:

Ms. Jennifer Wilby, 59 Browning Road, Pocklington, York, YO42 2GN, UK
Ms. Wilby may be contacted at jmwilby@dial.pipex.com Tel. +44 1759 302718

Registration Forms and Payment

The Registration Form, see attached at the end of this document, and full payment must accompany abstracts. The payment will be refunded if the abstract is not accepted.

Abstracts

The abstract should give an overview of your main theses, methods by which you plan to support your ideas and, if appropriate, a description of the case studies you plan to present.

Abstracts can be a full page in length, figures may be included, but do not go over the one page limit. Use the paper style guidelines for abstract style. Abstracts do not need to be submitted on disc. For presentations at the distributed site abstracts must be submitted to Dr Bela Banathy. If relevant, state in

which SIG it is to be considered for inclusion. Faxed abstracts will be accepted only under special circumstances. Abstracts should be submitted by February 15th, 2002.

The abstracts will be reviewed and the acceptance of papers will be based on the reviews.

Submission of Papers

Papers are to be submitted in the specified computer format on disc. Please follow the paper style guidelines as presented at the end of this call for papers. Individuals are limited to two papers. Papers presented at the distributed site will be included in published proceedings from the main site on one CD ROM therefore all papers submitted to distributed site must follow the same time schedule for submitting abstracts and final papers utilizing the same style guidelines as those submitted to the main site.

If your paper is intended for a specific SIG, please submit it both to Jennifer Wilby and the appropriate SIG chair. Jennifer Wilby must receive both hard and disc copies of your paper by April 15th, 2002. The SIG chair may only require a hard copy.

Paper Editing

After submission, papers may be edited. Jennifer Wilby and Janet Allen will be the general editors, but they will co-opt experts in different areas for assistance. We will attempt to forward your paper to you after editing for your approval, but that may not always be possible.

The Vickers Award

A plaque and check for \$500 will be awarded for the best student paper. Although the advisor may be a co-author on the paper, it is understood that this award is meant to recognize student accomplishment and the paper should reflect principally the work of the student. Please indicate at the time of paper submission if your paper is to be considered for the Vickers' award and certify that this work was performed while you were a student. (You may have since received your degree.)

Distributed Site

A distributed site for the annual conference is being planned for in the USA. Depending on available technology, plenary sessions may be video streamed. Other means of sharing sessions will be utilized as needed. Papers presented at the distributed site will be included in published proceedings.

For the USA distributed site contact:

Dr. Bela Banathy,
babanathy@worldnet.att.net

Conference Theme

Systems Thinking : Managing Complexity and Change

The conference theme has been chosen to direct attention to four very important aspects of systems thinking: The use of a transdisciplinary approach, in practice, to deal with problem situations involving complexity and change.

Complexity and change are frequently identified as the two most significant (and obviously interrelated) features of twenty-first century operations, organizations, communities and societies, and their environments. The systems community, and the ISSS in particular, sees systems thinking as the most effective response to these features, especially in terms of our ability to manage them in order to achieve sustainable improvement. The 46th Annual Meeting of the ISSS, to be held in Shanghai, China, is devoted to the use of systems thinking to manage complexity and change in the full knowledge that the scale, differentiation and multiple interdependencies found in Chinese society, together with its dynamism and current state of transition, pose the most severe challenges to the capabilities of systems thinking.

Systems thinking promotes holism as its primary intellectual strategy for handling complexity. Instead of analysing complex systems by breaking them down into their parts, it advocates studying them as ‘wholes’ using concepts such as boundary, emergency, hierarchy, communication and control. These core systems ideas can also be employed to construct systems methodologies and methods for treating problems caused by organizational and societal complexity in a systemic manner.

Systems thinking has been fascinated by the tensions between stability and change, and has embraced a process philosophy in order to grasp the way systems develop over time. It advocates studying them as ‘wholes’ changing according to their own internal dynamics and in interrelationship with their environments. To this end it employs concepts such as positive and negative feedback, relationships, input and output, thesis, anti-thesis and synthesis, chaos and dissipative structures. Again, these central ideas can be incorporated in systems methodologies and methods to provide guidelines for productive intervention in change processes.

In learning about complexity and change, and how to cope with them in beneficial ways, the ISSS has long advocated transdisciplinarity. This was indeed the common feature of the four aims of the Society for General System Research (the forerunner of ISSS) as stated by its founders in 1954. Concepts, laws and models developed in particular fields were to be investigated to see if they could be properly transferred to other areas of concern which were less well developed, theoretically speaking. The problems of the twenty-first century, associated with complexity and change, demand the identification and general transmission of such concepts, laws and models in whatever field they were originally developed in order to enhance our capacity to bring possible solutions to the fore. Systems thinking remains the best hope that this can be achieved.

Finally the use of the word ‘managing’, in the conference theme, suggests that we are interested in the practical application of systems ideas. It can be convincingly argued that the greatest success of systems thinking in recent years has been its ability to translate theoretical notions into the practical domain through the use of systems methodologies, models and methods. The further refinement of these methodologies, models and methods, together with consideration of how we can use them in combination to tackle the multi-faceted problem situations we face, will be very much to the fore in this conference.

Please bring, to the conference in Shanghai, systems thinking which is based upon a transdisciplinary approach and which is practically relevant so that we can together learn how to confront the challenges posed by complexity and change.

Integration of Theme and Sub-Themes

Papers which integrate the conference theme and sub-themes listed below are especially invited.

Ongoing ISSS Sub-themes in Systems Science

As always we are interested in any papers dealing with general systems topics as well including focus on the economy, business and industry, information systems design and information technology, medical and health systems, psychology and psychiatry, systems design in education, system studies of climate change, systems approaches to intelligence, and applied systems and development; and the systems approaches of duality theory, futurism and systems change, thermodynamics and systems theory, spirituality and systems, critical systems theory and practice, evolutionary learning community, hierarchy theory, systems philosophy and systems ethics, systems modeling and simulation, meta-modeling and systems epistemology, research towards general theories of systems, living systems analysis, processes and human processes, human systems inquiry, and evolution and complexity. See the call for papers from individual SIG (Special Integration Group) chairs below.

ISSS Special Integration Group's (SIG) Call for Papers:

Information Systems Design	Bela Banathy babanathy@worldnet.att.net
Hierarchy Theory	Jennifer Wilby jmwilby@dial.pipex.com
Human Systems Enquiry	Arne Collen acollen@saybrook.edu
Duality Theory	Vitaly Dubrovsky dubrovvj@clarkson.edu
Evolutionary Learning Community	Alexander and Kathia Lazlo Syntony.quest@usa.net
Applied Systems and Development	Denis Finlayson dfinlayson@lincoln.ac.uk
Women and Children in Community Systems	Anne Nelson nelsongroup@worldnet.att.net
Systems Applications to Business and Industry	Enrique Herrscher Ehersch@ideamail.com.ar
Critical Systems Thinking	Mike C. Jackson M.C.Jackson@hull.ac.uk

Papers are also specially invited for the following streams/sessions/round tables:

Foundations of Information Science	Bela Banathy babanathy@worldnet.att.net
Failure and Complexity	Peter Corning iscs@aol.com
Creative and Destructive Processes	Hector Sabelli hsabelli@rpslmc.edu

Aging and Health from a Systemic Perspective	Hector Sabelli hsabelli@rpslmc.edu
Complexity and Financial Systems	Shouyang Wang sywang@iss02.iss.ac.cn or swang@iss04.iss.ac.cn
Complexity and Management	Xuefeng Song sxfeng@cumt.edu.cn
Market and State Power	Janet McIntyre j.mcintyre@octa4.net.au
Knowledge Science and Management	Yoshiteru Nakamori nakamori@jaist.ac.jp
Systems Methodology East and West	Zhichang Zhu z.zhu@hull.ac.uk
Systems Science and Engineering in China	Jifa Gu jfgu@jaist.ac.uk
Systems Practice	Peter Murray p.j.murray@hull.ac.uk
Systems Education	Enrique Herrscher Ehersch@ideamail.com.ar
Systems Change	Maurice Yolles m.yolles@ntlworld.com

Other sessions are in the process of being developed by Bill Hutchinson, Tom Mandel, Peter Allen and Yong Pil Rhee. The following additional paper streams are being developed by Chinese colleagues:

- The Complexity of Socio-economic, Ecological, Life, and Cognitive Systems
- New Methods and Approaches in the Study of Socio-economic Systems
- Complex Systems Approach in Management Science — Applications of System Sciences in Management
- System Sciences in Globalization - Regional, National, and International Issues
- System Sciences in Knowledge-based Economy - Evolution of Intelligent System, Economy of Intelligence, Production Mode of Intelligence Work and Its Impact on the Future
- The Strong Mechanism of Socio-economic System Evolution - Self-organization and Sustainable Development
- Financial Complexity - Risk Identification, Early Warning, and Control
- Systems Issues in Social Change, Conflict, and Cooperation
- Systems Issues in Industry, Business, and Enterprise
- Philosophical and Semantic Issues in System Sciences, Non-linear Science and Complexity

Suggestions for additional sessions are most welcome – contact D.E. Gibbs at d.e.gibbs@hull.ac.uk

Registration Fees

Members	\$295
Non Members	\$380

Please see Registration Form at <http://www.iss.org> for additional reductions and categories.

Meals and Accommodation

Tea and coffee are included in the registration fee but other meals and accommodation are to be accounted for separately.

Delegates may wish to contact their local travel agents for any special packages that may be available to Shanghai at the time of the Conference.

ISSS 2002 Paper Style Guidelines

Please refer to the web pages at <http://www.issss.org> under the call for papers for this conference for the style guidelines and a template to be used in creating papers for the conference proceedings.

DEADLINE FOR FORMATTED PAPERS IS APRIL 15, 2002. SUBMISSIONS AFTER THIS DATE WILL NOT BE INCLUDED IN THE CONFERENCE PROCEEDINGS.

Submit Papers To:

Jennifer Wilby
Phone: +44-1759-302718
E-mail: jmwilby@dial.pipex.com

Mailing address:

Jennifer Wilby
59 Browning Road
Pocklington
York YO42 2GN
England

Non-conformity Of Submissions

Paper submissions that do not conform to these guidelines WILL be returned to the author(s) for re-submission before the Proceedings deadline. Revised papers must be re-submitted in both a hard copy and a diskette, or an electronic version, that are clearly labeled "revised".

NOTE: Do not send your full-length paper and diskette to the Conference Organizer. Papers must be submitted to Jennifer Wilby. You may send copies of the paper, if requested by them, to your SIG Chair, panel Chair or co-host contact person.

Audio-visual Requirements

Overhead projectors will be provided for all paper/symposium panels. If you have more specialized audio-visual needs, please notify the local organizers when you submit your registration. It may not be possible to respond to last-minute requests.

**IASTED International Conference
Modelling and Simulation
(MS 2002)
May 13-15, 2002
Marina Del Rey, CA, USA**

The IASTED International Conference on Modelling and Simulation will be held May 13-15, 2002, in the ocean front city of Marina del Rey. This conference provides an opportunity for prominent specialists, researchers, and engineers throughout the world to share their latest research in the use of modelling and simulation. MS 2002 will consist of two symposia:

1. Modelling and Simulation Methodologies
2. Environmental Modelling and Simulation

The scope of the MS 2002 symposia will include the following main areas: Modelling and Simulation, Methodologies, Modelling Methodologies, Tools and Techniques, Applications, Environmental Modelling and Simulation, Air Modelling and Simulation, Ecosystems Modelling and Simulation, Environmental Management Modelling, Hydrological Modelling and Simulation, Energy and Power System Modelling

This conference will be held in conjunction with the 6th IASTED International Conference on Power and Energy Systems (PES 2002) <<http://www.iasted.com/conferences/2002/marina/pes.htm>> .

IMPORTANT DEADLINES

Submissions due January 15 , 2002

Notification of acceptance February 15, 2002

Registrations and camera-ready manuscripts due April 1 , 2002

TECHNICAL COMMITTEE

If you are interested in joining one of the IASTED Technical Committees relevant to this conference, please submit your name, address, phone, fax, email, areas of specialty, a list of your most recent publications, and a brief CV by email to calgary@iasted.com.

SESSION ORGANIZER AND CHAIR

Vladimir S. Lerner, Dr.Sc., Professor

13603 Marina Pointe Drive #C-608

Marina del Rey, CA

USA 90292

Phone: +1-310-822-6279

email: vslerner@yahoo.com

SESSION DESCRIPTION

Please see website at <http://www.iasted.org/conferences/2002/marina/ss-353c.htm>

**Third Interdisciplinary Conference on The Evolution of World Order:
From Knowledge to Sound Policy and Action
May 30 - June 2, 2002
Ryerson University, Toronto, Ontario, Canada**

The purpose of this event is to develop a wide-angle, systemic view of the world, covering the full spectrum of ecological, social, and individual issues. We intend to integrate the knowledge of many disciplines to design rational and humane solutions to problems of the highest priority. The expected outcomes are a set of sound policy options, and recommendations for global and for local action. We invite individuals from all sectors of society to create working groups, or to participate in existing ones, and to contribute papers to the conference on the following themes, or related topics.

Working Groups, Abstracts, Papers, Registration

- * Please join one or more of the electronic working groups, and local round tables listed on the website.
- * Please submit an abstract for individual papers as soon as possible, and the paper before April 30, 2002.
- * Conference registration is open now, and will be closed, when 120 participants are registered.
- * A registration form, and more information is available on the conference website.
- * Contact: Helmut (Ken) Burkhardt, Ryerson University, 350 Victoria Street, Toronto, Ontario, Canada, M5B 2K3, Tel. 416-979-5000x7246, Fax: 416-979-5064, Email: burkhard@ryerson.ca ,
- * Website (in development): www.ryerson.ca/~woc .

**6th WSEAS Multiconference CSCC
Rethymnon Beach, Rethymnon, Crete Island, Greece
July 7-14, 2002
manolis7@wseas.org
<http://www.wseas.org/conferences/2002/crete>**

Composed by:

- 1) 6th WSEAS Conference on CIRCUITS,
- 2) 6th WSEAS Conference on SYSTEMS,
- 3) 6th WSEAS Conference on COMMUNICATIONS,
- 4) 6th WSEAS Conference on COMPUTERS,
- 5) 2nd WSEAS Conference on SOFTWARE AND HARDWARE ENGINEERING (organized by Prof. O.Panfilov)
- 6) 2nd WSEAS Conference on SIGNAL PROCESSING,
COMPUTATIONAL GEOMETRY AND VISION,
(organized by Prof. G.Antoniou)
- 7) 4th WSEAS Conference on SCIENTIFIC COMPUTATION AND SOFT COMPUTING
(organized by Prof. V.Mladenov)

DEADLINE FOR PAPER SUBMISSION: FEBRUARY 5, 2002

NOTIFICATION OF ACCEPTANCE: MARCH 5, 2002

**The 6th World Multi Conference
Systemics, Cybernetics And Informatics SCI 2002
July 14 - 18, 2002
Sheraton World
Orlando , Florida, USA
<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

Please see the conference web page: <http://www.iiis.org/sci2002/>, and fill the respective form. If for any reason you are not able to access the page mentioned above, please, try the following page:
<http://www.iiisci.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:

ncallaos@callaos.com
ncallaos@aol.com
callaos@telcel.net.ve

DEADLINES

January 23, 2002: Submission of extended abstracts (500-1500 words) or paper drafts (2000-5000 words).

January 23, 2002: Invited session proposals.

February 20, 2002: Acceptance notifications.

April 10, 2002: Submission of camera-ready papers: hard copies and electronic versions.

8th International Conference
The International Society for the Study of European Ideas (ISSEI)
Aberystwyth, Wales
July 22-27, 2002

This is a unique opportunity for colleagues to participate in and attend an exciting international conference—we expect up to 800 delegates from all the world. Germaine Greer will present the major keynote lecture. All papers presented at the conference will be published on CD COM.

The conference is multi-disciplinary, and addresses the central topic, European Culture in a Changing World: Between Nationalism and Globalism

<http://www.aber.ac.uk/tfts/issei2002/workshops.html>

To indicate your interest in organising a workshop, please contact me by using the submission form provided on the website, or send by email to Dr. Daniel Meyer-Dinkgräfe, or by Fax to 01970 622831.

ISSS 2003
Iraklion, Crete, Greece
July 7-11, 2003
Conscious Evolution Of Humanity: Using Systems Thinking To Construct
Agoras Of The Global Village

The conference theme has been chosen to focus attention on: (a) the challenge facing humanity as it transforms from “evolutionary consciousness” to “conscious evolution,” and (b) the role systems thinking must play in constructing 21st Century Agoras in the context of globalization.

Globalization is being described by many as an emerging new system of world order that has accelerated following the end of the Cold War order in 1989. Systems thinking must make clear what is being eliminated and what constructed by globalization. We must rise to the challenge of democratizing the processes of conscious evolution to ensure that globalization empowers all peoples and not just elites.

Dialogue is essential for understanding cultures and subcultures in the emerging global village. Boundary-spanning dialogue across disciplines and civilizations, if conducted wisely, can generate democratic agreement on the courses we must pursue to create agoras and avoid Big Brother. Thus, the

ability to engage in dialogue becomes one of the most fundamental and most needed human capabilities. Dialogue becomes a central component of any model of conscious evolution.

Dialogue was practiced very effectively in the agoras of Ancient Greece, like the one in Athens. The agoras were public spaces where people congregated and deliberated on their issues. If we want to democratize the emerging global village, we must provide agora-like “places where people can engage in meaningful dialogue.

ISSS (www.ISSS.org) has long advocated “transdisciplinarity.” This was indeed the common feature of the four aims of the Society for General System Research (the forerunner of ISSS) as stated by its founders in 1954. Concepts, laws and models developed in particular fields were to be investigated to see if they could be properly transferred to emerging phenomena which were less well conceptualized. The challenges of the 21st Century, associated with conscious evolution and globalization, demand the identification and general transmission of such concepts, laws and models in whatever field they were originally developed in order to enhance humanity’s capacity to design the 21st Century Agoras. Systems thinking remains the best hope for this to be achieved.

ISSS 2003 will engage participants in earnest discussion and structured dialogue on topics such as the following:

- Defining what a democratic global discussion might look like (agora as process)
- Describing what a global village achieved by an effective global discussion might look like (agora as product)
- Exploring how local discussions as processes and agoras as product might come about
- Making explicit what thinking globally and acting locally means for individuals and groups within ISSS
- Fashioning ISSS into a model functioning agora
- Deciding how ISSS can become organized for influencing the course of globalization
- Discovering how to enhance the practice of boundary-spanning dialogue across disciplines and civilizations.

Conference Committee

Aleco Christakis, Aleco@CWALtd.com (Co-Chair)

Ken Bausch, ken@montagu.org (Co-Chair)

Evelyn Andreewsky, andreews@ext.jussieu.fr

Nikitas Assimakopoulos, assinik@unipi.gr

Oguz Babouroglu, baburoglu@sabanciuniv.edu

Surinder Batra, cimi@nde.vsnl.net.in

Sabrina Brahms, sabejams@pacbell.net

Diane Conaway, Diane@CWALtd.com

Ali Granmayeh, aligranmayeh@hotmail.com

Aretousa Ieronimaki, aretusa@her.forthnet.gr

Richard Jung, Richard.Jung@post.harvard.edu

Laura Harris, lharris@unm.edu

George Kokkinis, gkokkini@ebh.gr

Kathia Castro Laszlo, kathia@syntonyquest.org

Larry Magliocca, Magliocca.1@osu.edu

Gianfranco Minati, gianfranco.minati@iol.it
Nikos Paritsis, paritsis@med.uch.gr
Karen Sanders, sandersk12@aol.com
Eva Stavrakaki, kesan@her.forthnet.gr
Reynaldo Trevino, rtrevino@presidencia.gob.mx
Ioanna Tsivacou, itsi@aegean.gr

Conference Objectives

- To work towards making ISSS a living model of a Society capable of appreciating and practicing “conscious evolution;”
- To explore and identify the role of systems thinking in the context of the emerging phenomenon of globalization;
- To identify action steps in the pathway of constructing the agoras of the global village;
- To enhance the praxis of boundary-spanning dialogue across disciplines and civilizations.

SECTION THREE

SOCIETY ANNOUNCEMENTS AND REPORTS

NOTICE OF MEETINGS

At the Shanghai, 2002, meeting the society gives notice that there will be the following membership forums:

**The Board of Directors meeting
The Board of Trustees meeting
The General AGM for the Society
The ISSS Council**

CALL FOR NOMINATIONS 2002

The following offices must be filled for terms beginning at the 2002 Annual Meeting of the Society:

President-elect
VP for Membership and Conferences
Secretary and VP for Protocol
VP for Research and Publications

All members of ISSS are hereby requested to send nominations for the office of President-elect, Secretary and VP for Protocol, and VP for Research and Publications.

All members of the Council are hereby requested to send nominations for the office of VP for Membership and Conferences.

All members of the Board of Trustees are hereby requested to send nominations for the office of Board of Trustees Representative.

Nominations should be sent to:
Dr. Harold G. Nelson
Past-president and Chair of Nominating Committee
2442 NW Market St., #112
Seattle, WA 98107, USA
Nelsongroup@worldnet.att.net

Section 4.6 of the Bylaws describes the positions. Please read that section carefully and nominate individuals you believe will perform the duties well.

LIVING SYSTEMS SIG

A new LSA SIG chair was elected during the 2001 ISSS conference in Asilomar. Professor Kwon, hyuk kihl, Phd of Chungbuk national University, Korea is the new SIG chair. He was nominated by Dr. Yong Pil Rhee. His address is 48 Gaeshin-dong Heungduk-gu Chongju Chungbuk 361-763, Korea. His phone numbers are +82-43-261-2711 and 019-322-1995(Mobile) and his E-mail is khyukihl@hanmir.com.

Thank you for your support of the SIG during my term as the chair and hope you continue your support of the SIG and can make it to Shanghai for the forty sixth meeting of the ISSS.

Respectfully,
James R. Simms

Minutes of ISSS Board of Directors Asilomar, Curlew meeting room, Wednesday July 11, 2001

Present: Harold Nelson (President), Michael Jackson (President-Elect), Bela A. Banathy, Jr., (VP for Administration), Lynn Jenks (VP for Finance), Carl Slawski (Secretary and VP for Protocol), Jennifer Wilby (VP for Publications). Absent: Peter Corning (Past President), Magdalena Kalaidjieva (VP for Membership and Conferences).

Called to order: c. 5:30 p.m.

1. Financial Report: See two-page attachment on "2001 Financial Reports."
A 15 month Certificate of Deposit was opened for \$30,000-.
There was also a 60-day liquid account opened with a total balance as of today of \$46,000- (including the above mentioned \$30,000-).
The expenses of sending the yearbook for 1990-1997, for subscriptions in arrears, will have to be covered, or alternately, the cost of sending the libraries a refund, if requested. [M. Jackson will be receiving a copy of the budget in two months before a further motion of approval via e-mail conference of the Board and Council membership.]
Motion to approve the budget passed by 6-0-0.
There are 452 worldwide members currently paid.
2. Elections of officers: The counting of the ballots for president-elect will be delayed in order to allow sufficient time from the mailing until the counting. Wilby moved that we wait 45 days from June 10 before counting the ballots.
Motion carried 6-0-0.
Nominee for Vice President for Memberships and Conferences: The name of Zhichang Zhu was put forward since he is designated as organizer for the forthcoming annual meeting in Shanghai. This nomination will be voted upon by the Council tomorrow (7/12/01).
3. Michael Jackson, the new ISSS president reported on the site selection, Tom Ji University in Shanghai, for the 2002 annual meeting. The possibility of making money for the Society at the

conference, room charges (at 3 levels), and the hope for 100 attendees from North America and Europe. Backup sites, in case of possible cancellation, might be Asilomar, CSU—Monterey Bay campus or the Naval Post-Graduate School in Monterey, though adjacent lodging is expensive. Hull, UK or Canada could be explored, as least as a distributed site. Bulgaria is being considered for main site in 2004, and in the meantime as a distributed site. Peru could also be a distributed site. Germany is another potential meeting site, perhaps at the University of Osnabrueck, Lower Saxony by 2004 with the assistance of Eberhard Umbach. Three possible groups from South Africa are interested (but not in Stellenbosch). It was noted that there are about 100 attendees this year at Asilomar.

The choice of venue will be the prerogative of the Board of Directors, not the incoming president. Mike Jackson in collaboration with the VP for Conferences will send out a Request for Invitations for conference sites.

4. Harold Nelson will select the papers for the 2001 Yearbook (issue of Systems Research and Behavioral Sciences).
5. The possibilities for media coverage for conferences was suggested by Laszlo. Preparation of press releases would be desirable. There were no objections or roadblocks to this, only the willingness, time and energy of the members to initiate this practice.
It was suggested that the web site become more interactive. A possibility would be for registration to be handled via credit card.
It was agreed by consensus that the Vickers Award not be split between two or more candidates, but given to only one recipient per year.
Ways to bring in youth into conference participation was discussed, to introduce the notion of intergenerational cooperation and responsibility.
6. Financial Structure for VP for Administration: According to Lynn Jenks, guidelines are that two signatures are required for any significant transaction.

Meeting adjourned 6:22 p.m. These minutes have not yet been approved.
Submitted by Carl Slawski, Secretary

**Minutes of the ISSS COUNCIL Meeting, Asilomar
Thursday, July 12, 2001, Chapel Building**

Called to Order 5:20 p.m. Approximately fifteen members in attendance.

1. Election of VP for Conferences. A ballot has been circulated to all voting members. The name of Zhichang Zhu was submitted. This procedure received unanimous approval of the attending Council members.
2. Kvitash proposed a new SIG, System Specific Technology (alternately known as Belascopy). The usual procedure was invoked, i.e. obtaining 12 signatures and submitting it to the VP for Administration for approval. All SIG chairs were urged to promote communication and quality of participation between all members.

3. Another SIG, entitled National Development, was proposed by Jae Yu responding to the crisis in developing countries and areas of poverty around the world. Presently Dennis Finlayson is the chair of the working subgroup.
4. All were reminded that each SIG chair or a designated representative must attend each annual Council meeting.
5. The idea of promoting youth participation, publication in the Proceedings, Bulletin, etc., and student representatives was brought up, along with the need for interdisciplinary, intercultural and ntergenerational participation. A budget for local press and university outreach near the annual meeting sites should be considered.
It was suggested that two new “chapters” rather than SIG’s be initiated by those most concerned: 1) Worldwide Youth chapter, and 2) a Student chapter. Initiative will be left to those most concerned to get signatures and petition the VP for Administration.
The issue of a single Vickers award, not a split award was considered. There was no objection. Management of a web site for meetings and conferences. The need for high quality of information, regular maintenance of the site, and responsiveness of the web master to the Board, especially to the President and the VP for Administration and the VP for Conferences were stressed. In the interim, a new web site was instituted for this purpose, www.issc-conference.org. There was no objection to this motion. The VP for Administration will proceed on this initiative.
7. Meeting adjourned at 6:22 p.m. These minutes have not yet been approved.

Submitted by Carl Slawski, Secretary

**Minutes of the Membership Meeting of the ISSS, Asilomar
Friday, July 13, 2001.**

Present: Approximately 23 members plus stragglers. Mike Jackson chaired the meeting.
Called to order: 10:40 a.m.

1. Bela A Banathy, Jr., described the budget as healthy, now with a surplus.
2. A motion from the floor expressed deep gratitude to the working team members that made the ISSS recovery from recent problems possible, and for the work to bring the Society back financial viability and to an increasing number of members. The motion passed unanimously, by acclamation.
3. Announcement: Ballots for new officers, President, and VP for Membership and Conferences will not be counted until 45 days after June 10, to give enough time from the mailing to the returning of the ballots.
4. Announcement: Nomination by the current President of the VP for Membership and Conferences, Z. Zhu, was accepted by the Board of Directors.
5. Youth and Student chapters will be formed based on receipt by the VP for Administration of 12 signatures for each chapter, the usual manner prescribed by the bylaws.
6. Comments: Vitality of the Society depends on members’ promotion of its membership to our contacts and media. Suggestions were made to promote web site activity for SIG’s, chapters, etc. A recommendation was made to promote collaboration between systems study centers, as well as promoting community in general.

7. Pertinent to the previous discussion, a member recommended “Participation Works: 21 Processes for the 21st Century,” published by the New Economics Foundation and downloadable from the web. It contains a directory and summary of methods and tools. Each entry is about a page and half long and includes a brief description, some information about the circumstances where it is most appropriate, plus contact information and sometimes a list of one or two particulars. Such an information bank could be provided by persons in the Society who use the tools and methodologies to contribute entries. or they could submit information on what tools they use to a common web site. Contact allenna@attglobal.net(?).

Meeting adjourned 11:07 a.m. These minutes have not yet been approved.
Submitted by Carl Slawski, Secretary

ISSS-2001 FINANCIAL REPORTS Cash Flows Through December 31

Beginning Cash Balance Jan 1	\$784.63
RECEIPTS	
January	\$13,852.40 includes \$10,000 transferred from ISSS 2000 account
February	\$36,528.61 includes \$32,435.61 transferred from ISSS 2000 account
March	\$4,323.30
April	\$6,471.20
May	\$630.00
June	\$6,505.32
July	\$2,241.85
August	\$727.10
September	\$287.01
November	\$160.00
December	\$4,749.43
Intererst	\$1,044.39
Total Receipts	\$77,520.61
Cash Available	\$78,305.24
\$31,044.39 held in interest bearing account	

DISBURSEMENTS

Bank fees: January	\$10.00
February	\$10.00
March	\$118.15
April	\$76.62
May	\$117.92
June	\$17.92
July	\$123.15
August	\$68.13
September	\$7.25
October	\$3.21
November	\$33.38

Checks:

Date	Check#	Amount	Description
26-Jan	1001	\$3,155.00	John Wiley & Sons
6-Feb	1002	\$70.00	Network Solutions (web-site)
6-Feb	1003	\$327.11	Bank Credit card Terminal
6-Feb	1004	\$400.00	Mail Box etc. PO Box rental
12-Feb	1005	\$1,160.00	John Wiley & Sons
12-Feb	1006	\$1,440.00	Plenum Publishing Corp
12-Feb	1007	\$684.00	Imprint Academic
27-Feb	1008	\$60.95	Postmaster
1-Mar	1009	\$73.56	Office Depot
9-Mar	1010	\$108.80	Postmaster
12-Mar	1011	\$85.00	John Little (refund)
19-Mar	1012	\$20.00	Tenn. Secretary of State
30-Mar	1013	\$136.80	Imprint Academic
30-Mar	1014	\$740.00	John Wiley & Sons
30-Mar	1015	\$305.00	Plenum Publishing Corp
13-Apr	1016	\$59.88	Office Depot
20-Apr	1017	\$33.57	Tenn. Tech. Univ.
27-Apr	1018	\$1,355.00	John Wiley & Sons
1-May	1019	\$195.00	Plenum Publishing Corp
1-May	1020	\$45.60	Imprint Academic
10-Jun	1021	\$655.00	John Wiley & Sons
10-Jun	1022	\$255.00	Plenum Publishing Corp
10-Jun	1023	\$91.20	Imprint Academic
11-Jun	1024	\$342.00	Postmaster
11-Jun	1025	\$48.94	Office Depot
5-Jul	1026	\$117.67	Office Depot
5-Jul	1027	\$9,724.33	ISSS at Asilomar
2-Aug	1028	\$92.20	Imprint Academic
2-Aug	1029	\$165.00	Plenum Publishing Corp
2-Aug	1030	\$555.00	John Wiley & Sons
27-Sep	1031	\$210.00	John Wiley & Sons
6-Nov	1032	\$110.00	Plenum Publishing Corp
6-Nov	1033	\$105.00	John Wiley & Sons
15-Nov	1034	\$378.24	Office Depot
16-Nov	1035	\$243.35	Postmaster
20-Nov	1036	\$294.96	Postmaster
9-Dec	1037	\$19.23	Office Depot
Total Disbursements		\$24,448.12	

Balance Dec. 31 \$53,857.12

Notes

Office Expenses: (through Dec 31)	\$1,662.48
Journal Subscriptions: (to Dec 31)	\$22,700.64
Other Expenses: (through Dec 31)	\$85.00

ISSS 2001 Annual Meeting Budget

EXPENDITURES	Proposed	Actual
Printing, Copying, Publication	1000	
Postage (3 mailings)	800	99.16
CD-Rom Proceedings	6000	4519.21
Abstracts Book	3000	3000
Program Publication	800	700
Plaques	100	35.29
Vickers Award	500	500
Supplies and Secretarial	1500	1134.87
AV, copying, etc.	5000	2097.71
Facilities, Coffee and snacks	3100	5450.48
Web-site, net, etc.		1411.25
Support for Bertalanffy Lecture	1200	1160.91
Assistance to Developing Nations	1750	
Bank Charges & Adjustments		559.90
Total Conference Expenses	\$24,750	\$20,668.79
Total Deposits		24,850.95
Loan from ISSS Corp		(2,400.00)
Membership Fees Collected		(1,740.00)
Total Conference Income		\$20,710.95
	Surplus	\$42.16

Note: the actual surplus amount was \$42.16 remaining in the ISSS 2001 account plus \$2241.85 from credit card transactions that were posted directly into the ISSS corporate account after the conference in July. Consequently, **the total surplus was \$2284.01**

SECTION FOUR

MEMBERS BULLETIN BOARD

Conference Report
Bulgarian Society for Systems Research
45th Annual Meeting of the ISSS'2001 – Distributed Site Sofia

The Distributed Site Sofia conference of the 45th Annual Meeting of the International Society for the Systems Sciences (ISSS)'2001 was simultaneously held July 9th – 12th. It was a first event of the kind for Bulgaria specially dedicated to the 100th anniversary of Ludwig von Bertalanffy . Bulgarian scientists working in some of the fields of the systems sciences have taken part in and contributed to various events of the global systems sciences community. Host institution was the Institute of Control and Systems Research of the Bulgarian Academy of Sciences (ICSR BAS), co-organizer was the Union of Scientists of Bulgaria (USB).

The Schedule and Welcome Addresses

July the 9th was a day of informal contacts among the participants and informing about the distributed-site-method for international simultaneous events. Past President of the ISSS Prof. G.A. Swanson held a discourse in the late afternoon on the goals, visions, principles, engagement in society and education, organizational structures and ways of interaction within the ISSS, on the flexibility of the special integration groups (SIGs) – a unique form following the development of research fields, etc. It is time for implementing ideas in real life, time for self-organization of living systems under the accelerating pace of technological development. As the meridian difference between the host site at Asilomar, Ca USA and Sofia is 10 hours, the on-line teleconferencing was practically not applicable, streaming and email Q&A were recommended. The ISSS web site with the Book of Abstracts of the 45th Annual Meeting were available to all participants and guests, thanks to the support of the IFSR – a modern computer for internet access was sponsored recently for the bibliographic database project.

Dr. Magdalena A. Kalaidjieva, Chair of the Sofia Distributed Site Organizing Committee, officially opened the sessions at 10 a.m. on July 10th. The participants were welcomed by ISSS Past President Prof. G.A. Swanson. He emphasized the interdisciplinary essence and international experience of the ISSS in response to the modern needs of the human society, described some ideas and projects, pointed to solutions in recent globalization, universalization or crises. Prof. Dr. sc. Chavdar Roumenin, director of the host institution – the ICSR, welcomed the conference and laid emphasis on the value of such conferences for the economic and social development of the host countries. International conferences with distributed sites like this one have not only local, but also regional and European impact and global applied values. Prof. Dr. sc. Nikolai Genov, Deputy President of the co-organizing professional scientific organization – SUB, welcomed the initiative for coordinating such a conference and made an in depth evaluation of the narrow connectedness of the systems sciences with the social sciences and especially with sociology. He stressed the synergetic effect of the common and coordinated work of international and interdisciplinary teams of scholars and experts. Prof. Dr. sc. Yachko Ivanov, corresponding member of the BAS and Chair of the Division for natural, mathematical and technical sciences of the General Assembly of BAS and Chief Editor of Journal of BAS, welcomed the conference and spoke about the

responsibility of the scientific world community for the development of the human society. Prof. Dr. sc. Alexander Neikov welcomed the conference on behalf of the Technical University Sofia.

Local Importance of Systems Thinking and Systems Sciences and the Sofia Satellite Conference Focuses

The crisis in the human society – economic, ecological or ethnic – results from the delay in development of the system of values and the conscience, because still a great part of it affix to reductionism, i.e. to analysis of only parts of processes, systems, etc. The Science brings forward social development – and this means its great responsibility. The goals of the ISSS give a picture of the concept “to serve” in a very essential for Bulgaria and the region, a way which is not yet globally understood or accepted thoroughly.

Systems sciences fulfill the difficult task to find in systems similarities of knowledge, of solutions to investigated problems and achieved results from one scientific domain with one or more from others and hence support the transfer of the similar for the purpose of solving problems in the systems of the recipient domains. This activity is the more necessary, because systems research and the high skill mathematical tools for control applications are extremely labour intensive – an area with long range successes of Bulgarian and regional scientists, with accents in economic, social, biological and medical systems, i.e. in living systems

Prof. G.A. Swanson, an outstanding scholar for living systems, supported our initiative for a satellite conference with his personal participation. Moreover, he created a centre of attention and drew other world experts with great experience to it. Prof. Dr. Rudolf Starkemann is, besides active member of ISSS, an established member of the Technical Committee for Supplementary Ways of Improving International Stability of the International Federation for Automatic Control (TC SWIIS of IFAC). Both contributed especially to the local focus of the satellite conference in Sofia. Their engagement was activated by the high quality contributions of Bulgarian scientists throughout many years in a wide scope of specific systems and their applications with proven effect, and by mutual contributions to stability and sustainable development in applied fields of knowledge. Their engagement was encouraged by the will of the Bulgarian society to join the developed countries and peoples. Prof. Dr. Bela A. Banathy, ISSS Past President and VP for Administration, showed the way to our endeavours for a successful distributed site meeting:

“...This is an important next step in our efforts to strengthen the community of systems scientists and practitioners in your region of the world. I trust that these developments will continue in the coming years. This 2001 meeting in Sofia is particularly significant in that you have a Past President and (Past) VP for Administration, G.A. Swanson, as well as a long time distinguished ISSS member Rudolf Starkemann participating in the meeting. This level of participation is a strong indication of the level of commitment that ISSS is making in support of your efforts. I do hope that the schedule for the meeting will allow the maximum possible time for your distinguished guests to interact with our colleagues in Bulgaria. This level of interaction is more important and more significant than any internet-based communications links that we will be able to establish between your site and Asilomar. At this point I think that the communications links are secondary. You should certainly not expend or risk any of your personal resources on such arrangements. As a backup plan, we can exchange video-tapes of selected presentations, using some overnight carrier service.”

“Intelligence at higher levels of living systems” by M.Kalaidjieva and G.A. Swanson, “Modelling and effect of anticipation and perseverance in human behaviour” by R. Starkemann, “Transformation

analysis and challenges of the development” by A. Athanassov, “The information system as important influencing factor for competitiveness in the agriculture” by E. Vidinova and A. Athanassov were the main papers ranging from highly theoretical to distinctive applied. A Day of the Open Doors of the ISSS and Its 45th Annual Meeting with a roundtable attracted guests from Sofia and Varna. The guests presented their research topics, projects and ideas for new contacts, and contributed to the discussion. “Syllogistic Calculator: Problems and Development and Scientific Language for the Purposes of Education” by Vladimir Panev, doctoral student from Varna was one of the personal presentations. Many questions concerned the methods of collaboration and intellectual exchange in the ISSS, the methods and life cycle of the SIGs, the main principles of international commitment, commented the Poster # 1 “Self-Guided Evolution of society: The Challenge: The Self-Guided Evolution of the ISSS” by Bela H. Banathy from the Saybrook Graduate School and the International Systems Institute, etc.

The Satellite Conference, the Conference Distributed Site and the Conferencing by Correspondence – Methodological Overview

Let me add some words about the form of scientific communication applied. The traditional form for science and scientists to overcome geographical distances by mail has existed for thousands of years, but has become significant only since the Renaissance, since the accelerated modern development of science and arts. The ancient scientific schools develop to scientific communities, and later the geographically spread out scientists – to communities living at various locations. Hence, the scientific professional title Corresponding Member of the ... Academy. The emergence of organized forms are both top-down looking for joint efforts and bottom-up searching partners and co-authors for a (new) research field, the interactions are flexibly fusing general hierarchies and increasingly networked. One of the procedures is the “conference by correspondence”, e.g. Prof. Dr. Len Troncale (President of the ISSS 1988 – 1989) suggested one on a narrow defined topic – on hierarchies and their application – for the period 1984 – 1986 to the members of the SGST (renamed to ISSS 1987 in Budapest). The results of the distributed discussion were very interesting, both in form and contents. The transfer of the Internet to civil use is a considerable factor to a dynamic and rewarding method. The late Bulgarian Academy Member Prof. Dr. sc. Kiril Serafimoff had contributed to this development since the early 1980-ies both as an outstanding scientist, as founder and experienced organizer of the World Association on “Cosmos and Philosophy” and long time participant in NASA (USA) research projects.

Bela A. Banathy, Chair of the SIG Information Systems Design and Information Technology, Professor for computer science, President of the ISSS in 1998 – 1999, organizes simultaneously to Asilomar a distributed site at Lima, Peru, in 2000 there are three sites, in 2001 – five. He names them “distributed” in analogy to ‘distributed knowledge’, ‘distributed database’. This attribute relegates the otherwise emphasized importance between host site – the main one, and the remote ones. It is a notion with far focused content in time. At the beginning was the exchange of video tapes with plenary papers sent by express mail and followed by Q&A emails. The Sofia decision to name it ‘satellite conference’ resulted from the position that it is the first of its kind regionally and aims to develop.

Recent multi media computer accessories not only allow scientists to meet despite financial difficulties, engagements in time or else, they erase the psychological barriers promoting globalization. The Media Player quality seems satisfactory. The multi media contact is so near to the physical one, but cheaper, that a large number of methods of scientific communication, of information and knowledge exchange, of interacting, of privacy, of psychological sensitiveness of highly educated persons, of educational commitment to the ‘new comers’ and the young generation have to be reread. During the organizational period of ISSS Sofia Distributed Site 6 – 8 local announcements with discussions were made for the

academic authorities, for synchronizing technical, organizational and methodological efforts, but in all refining the methodology for human systems in science. Following features of distributed conferencing were systematized:

- a) Theme of the conference – common for all geographic sites.
- b) Programme Committee – common for all geographic sites.
- c) Deadlines for abstracts and final papers – common for all geographic sites.
- d) Proceedings volume – common for all geographic sites.
- e) Reviewers lists – common for all geographic sites, topics and SIGs. Those for topics of local interest should be included into the joint one.
- f) Programme, schedule and topics or SIGs – common for all geographic sites. Topics of local interest should be included in the joint programme coining, in order to allow a global response before deadlines.
- g) Time period of meeting(s) – common for all geographic sites, simultaneous with regard to meridian time. Flexible methods needed in compliance.
- h) Webpage of the conference – common for all geographic sites, linked to the subpages of the distributed sites, be they autonomous on a sever chosen by the local Chair, or on the host site server, or on the server of the local host institutions.
- i) The process of ‘reading’ the papers, Q&A, i.e. the availability of multi media records of presentations, comments, Qs & As, should last several months after the physical end of the conference and may evolve in new contacts, projects, SIGs, future conference topics or a conference theme.
- j) Organizing Committees – separate for each (distributed) site. The Chair carries personally all financial responsibility, may contract local institutions to host the distributed site, to sponsor it or may contract the ISSS, if necessary on special conditions exceeding the competence of the general Bylaws of the ISSS.

Essential accent of the ISSS Satellite Conference Sofia was to reveal local potential and interest in systems science, to introduce the distributed conferencing in a way, which would prevent the establishment of psychological barriers in a country on the way of transition still existing in and struggling with poverty and strongly reduced research financing, to create a systems sciences community, to test the possibilities of interaction between distributed sites under economically different conditions and to enhance methodology of distributed conferencing in science and arts.

Dr. Magdalena A. Kalaidjieva
Ph. D., Associate Professor, ICSR BAS
Past VP for Membership and Conferences of the ISSS

Conference Report
An International Conference on Systems Thinking Globally Concerned BAC 2001
November 1-4, 2001
Technische Universität Wien, Vienna, Austria

A culmination of actions carried out in order to celebrate the 100th Anniversary of Karl Ludwig von Bertalanffy's Birthday. The Conference was the culmination of exchanges of views about seven main subjects, that were assumed could be considered some of the main Bertalanffy's concerns, which due to various causes have become very urgent questions to deal with - at the dawn of the 3rd millennium.

The main original intention was to recognize once again that Bertalanffy, more than three decades ago, identified some sources of the causality that has generated numerous and always larger problems which altogether, in the year 2001, are clearly recognized as the worst crisis ever faced by humankind. Today, it is already urgently indispensable to create, in our magnificent but also incongruous homosphere, radically new cultural circumstances and social conditions for helping all humans, one way or another but humanely, to create in every society a New Image of Man and Woman that may propitiate the gradual integration of a very new HUMANELY minded Anthropology. This new conception of man is necessary because most humans are increasingly facing the danger of being decerebralized through all kinds of technologies invented in order to convert masses of people into happy automatons that will 'behave' in the ways prescribed by the industrial-military-political establishment as if it were the scientific culmination of many different kinds of empiric actions, carried out during the last civilizing millennia, in order to use the common people as slaves, serfs, servants, lackeys, workers, soldiers,... human resources for building one civilization after another that had unexpectedly collapsed.

This New IMAGE is needed for encouraging everywhere the emergence of humans learning to individually develop their personalities - in accordance with ethical, ethological, biological and ecological criteria - for building a WAY FORWARD for humankind towards the Creation of a Sustainable Society. From now onward, this is the main challenge for humans who voluntarily accept to play a responsible role on the Earth, willing to learn to be conscious enough of the terrestrial possibilities that make possible to design, implement and maintain human purposes, and to be sufficiently aware not only of the fact that these possibilities are not granted forever, but firstly for recognizing the growing tragedy that is causing the impact of civilizing actions on the Ecosphere, where it is located the Biosphere that until today, but certainly not tomorrow, has supported the anarchistic aggrandizement and nonsensical expansion of one homosphere where billions of human resources are employed for sustaining a civilized way of life that has become, during the 20th century, frankly unsustainable, due mainly to the growing number of people living in miserable conditions.

The possible collapse of the whole civilization will unavoidably become soon a real perspective, unless humans reverse the trends of the prevailing civilization through a very new Entrepreneurship Spirit that may emerge from Business based on Bertalanffy's General Systems Weltanschauung; complemented by public services engaged in rebuilding a new homosphere where decision makers and common people must cooperatively and effectively contribute to deal with the global problems: unemployment, emigration, misery, hunger, starvation, drug-addiction, modern slavery, sexual abuse of children and women, transplantation of organs of people that were condemned to death... which altogether are the causes of a very quick disruption of civilizing requirements. and degeneration of the dynamical features of intended civilizing processes.

The crisis that humankind faces at present, which is de facto the extreme degradation of the human conditions engendered by the colonization that started 500 centuries ago has been very seriously aggravated in this year 2001 by the reaction of some gentlemen (comprised ladies and dames who keep supporting the men's performances) that have decided to use the super-modernized warfare in order to eliminate all the terrorists who presumably have made up their mind in order to re-create the conditions for a ritual purification of patriarchal societies. The warfare that has determined the sanguinary course of the whole civilization from its very beginnings continues being the stimuli that increases the depravity of modern strategists searching how to develop new and more effective chemical, biological, nuclear,... weapons for destroying the enemies of the human society, but these enemies are already inside the human society. Peace Research as a particular application of general systems thinking is the option that may widen the views of responsible scholars in their search to comprehend the dynamics of conflicts, aggressiveness and eventually wars in order to cooperatively cope with them.

What Else after BAC 2001

The core of BAC emerged from: "...this is a question not just of abstract theory and specialities in the Ivory Tower of academic science. Rather, it is part of a far wider question: that science, and a science of and for man in particular, has become deeply problematic in our days" ["Robots, Men and Minds. Toward a New Image of Man" Bertalanffy 1967] supported by an argument of Mark Davidson, who accepted the challenge of assembling the Bertalanffy's insights in a conceptual biography. "...I decided to make the commitment when I discovered that Bertalanffy had espoused a single standard of morality, which is a viewpoint I find irresistibly appealing because it is extremely rare and (to my mind) absolutely necessary if humanity is to survive." ["Uncommon Sense. The Life and Thought of Ludwig von Bertalanffy", 1983]

It was a forum for traditional presentation of papers, and also for the debate of issues related to some of Bertalanffy's controversial concerns, which unavoidably were chosen 29 years after his disappearance. It allowed the participants to start exchanging views about the support that Bertalanffy's thoughts and the Bertalanffian "Systems Thinking" may provide for coping with the seriously troubled evolvement of the human society, which Bertalanffy forecasted in the 1960s. Evidently, almost nothing was done for preventing this evolvement because his warnings were ignored.

As a confrontation between recognized and contradictory interpretations of what the Bertalanffy's heritage is, it was relatively successful because gradually most participants considered necessary to evaluate the merits of his work and the validity of his interpretations and appraisals.

At present it seems indispensable to originate, in our magnificent but incongruous homosphere, radically new cultural circumstances and social conditions for helping humans everywhere to create on their own a New Image of Man and Woman. This concept may propitiate the emergence of a new HUMANELY minded Anthropology dealing with "...the preservation of man as human". An urgent task because since the 1960s, many humans have been decerebralized through technologies that aim at converting masses into happy automatons behaving in the way prescribed by the industrial-military-political establishment. Mass media has become the most effective technological achievement for this conversion. This automaton is the scientific culmination of previous empiric and heuristic actions executed along millennia, for making more reliable the use of common people as slaves, serfs, servants, lackeys, workers, soldiers,... human resources needed for building every civilization, without being identified in each case why the previous one(s) had collapsed, neither why often conquerors and colonizers, with soldiers and emigrants, definitely engaged themselves in destroying human cultures.

Today, evidently what every human needs to have continuously in mind is the need of organizing his/her individual emergence learning to develop his/her personality - according to ethical, ethological, biological and ecological criteria - for gradually and effectively building the WAY FORWARD required for the development of the human species. A way toward the Creation of a Sustainable Society; the main challenge for humans willing to play a responsible role on Earth: the unique planet available for human life in the universe. Humans cannot longer ignore the tragedy caused by the anarchistic aggrandizement and nonsensical expansion of one homosphere composed by billions of human resources employed for sustaining a civilized way of life that has become frankly unsustainable, due to the growing number of people living in miserable conditions. The perspective is catastrophic because, in addition, the biosphere is gradually but seriously disrupted and the ecosphere is inconveniently disturbed. This knowledge should motivate every individual to learn to be increasingly conscious of terrestrial circumstances - those that make possible the accomplishment of human purposes - and to be sufficiently aware that these circumstances are not granted forever.

Thinking optimistically, it seems still possible to reverse the trends of this civilization through a very new Entrepreneurship Spirit that might emerge from Business based on General Systems Weltanschauung. New business attitudes, complemented by responsible public services, altogether engaged in building a new homosphere. A human world where decision makers and common people may cooperatively and effectively contribute to deal with the global problems: unemployment, emigration, misery, hunger, starvation, drug-addiction, modern slavery, sexual abuse of children and women, criminality, corruption, cynicism, unfair and illegal trade,...

But an immediate problem to deal with has been caused by the resurrection of the spirit of warfare that has determined the sanguinary course of the whole civilization from its very beginnings. It is now a growing stimulus that increases the depravity of modern strategists in creating and improving more effective chemical, biological, nuclear,... weapons for destroying the enemies of the human society, who are already parts of the human society. Peace Research as a particular concern is the option for widening the views of responsible scholars in searching to comprehend the dynamics of conflicts, aggressiveness and wars for effectively coping with them.

Peaceful ways of settling conflicts among humans, generation of humanitarian attitudes in business for creating circumstances needed for a sustainable society are three essential concerns of future generations. Humans must necessarily encourage on their own to coherently develop their individualities. These four subjects must be tackled with the Top-down approach (Bertalanffian Systems Thinking) composed by:

- W/Holism: thinking for clearly seeing the forest before they dealing with one or another tree; for grasping the meaning of a tree before handling one of the leaves or a flower or a fruit; recognizing that wholes and parts are moulded into an inseparable multilevelled continuum.
- Perspectivism: getting closer to the 'absolute truth' of every aspect of the reality, though obviously not all the diverse perspectives of every aspect are necessarily valid. Besides, among those that are relatively acceptable, none is more authentic than any other.
- General Systems Theory - a Methodological Maxim: learning to be supported by an ideological paradigm. It encourages co-operation and the influence of collectives on individuals and vice versa, for determining new forms of thinking and acting that aim at emphasizing ecological, ethological, biological and ethical criteria, for advancing the harmonious evolvement of bio-diversity and cultural diversity: Unity through Diversity.

Respectfully submitted, elohimjl

Journal of Applied Systems Studies
Methodologies and Applications for Systems Approaches
[JASS]
<http://www.unipi.gr/jass/>

JASS announces that the Special Issue on:

“Living, Evolutionary and Tailorable Information Systems: Development Issues and Advanced Applications” has been scheduled.

“Living systems” is a core research area in the Systems Sciences and has been applied in disciplines ranging from biology to manufacturing and economics. It is only recently, however, that the living aspect has been applied to Information Systems (IS) and that dynamic concepts such as evolution and tailorability have been researched. In timely fashion, this special issue explores approaches to information systems development that promote the ongoing design of systems and/or defer the design process. It is increasingly recognised that business organisations are emergent, in the face of change driven by technology, globalisation, deregulation, acquisition and merger, customer relationship management and the like.

If you are interested in the above special issue title AND for the current issues, please visit JASS web site. For submission of papers consult the “Aims & Scope” of JASS.

The “John N. Warfield” Collection

Not long ago I donated most of the 33-year accumulation of my research work to the Fenwick Library of the George Mason University, Fairfax, Virginia. It is my hope that there might be two or three scholars on the planet that would find it interesting and study some of it, perhaps to extend it or to apply it to resolving complexity in organizations large and small. It is located at this web site:

<http://www.gmu.edu/library/specialcollections/warfield.htm>

My perspective on this work is that it emphasizes the use of thought about thought (which I call second-order thought) and thought about behavior (especially behavioral pathologies, which limit what we as humans can do, even when we try our hardest, but which can be overcome by use of methods that are designed with that purpose in mind).

I have also constructed a web site that portrays people who have taken an interest in my work and, in several cases either extended it or applied it to real-world applications to resolve complexity in organizations. Also included there are deceased “honorary members” whose work I used as a significant part of the base for my own work. I am sorry to say that I do not have photographs of representatives of the human sciences (except for Foucault and Francois), because (as far as I know) no one has taken the trouble to collect and post them. The University of St. Andrews, in Scotland, has done a beautiful job of that for the mathematical and natural philosophy areas. The web site holding the “John N. Warfield” collection is at:

<http://communities.msn.com/IMCommunity/PhotoAlbum>

I apologize for using this forum to mention this work, but I do not have any publicity machine, and I do feel that people on this forum either have or may develop an interest in complexity and/or design of systems. I believe also that von Bertalanffy would have found it worth scanning.

Over the years, I have responded to many questions about this work, and I hope to be able to continue to do so, for those that take a serious interest in it.

John Warfield

Request for Information

An Antioch University Graduate student (ISSS member) in Whole Systems Design is collecting one-or-two-paragraph (i.e. short) statements from the Systems community which address the following topic: “A systemic approach to the ****incubation**** of humane sustainable cultural change.” Since many of us, to some degree, consider ourselves agents of change, what are the workshops, experiences, insights, lessons, that have been personally most nurturing/sustaining for you during these difficult times? What have you **DONE** or **EXPERIENCED** which gave you strength, increased your store of wisdom, and/or raised your sense of purpose, your usefulness/effectiveness to a new level? Not looking for theories, or philosophy so much as the **DOINGNESS** and **RELATIONSHIPS** of systems thinkers as change agents. Please reply by e-mail, to nvlangley@bainbridge.net

Nicole V. Langley

Graduate Program in Whole Systems Design

Antioch University Seattle

New Publications

A Method and Software for Designing Viable Social Systems

J. D. R. de Raadt

This companion book to “Redesign and Management of Communities in Crisis” explains step-by-step the multi-modal systems method and includes hands-on tutorial exercises. The presentation is fully integrated with SmCube, a software package developed to analyse and design social systems. This has two benefits. Firstly, SmCube assists the systems designer apply the method. Secondly, SmCube is also a learning tool: it helps new users understand the multi-modal systems method and methodology. Used together, the two books and software provide excellent analytical and design tools for managers, community leaders and corporate planners. They may also be used as class material for courses in social systems design.

ISBN: 1-58112-658-1; US \$25.95; paperback; 210 pp. Order from:

www.upublish.com/books/deraadt2.htm

SmCube ` Software for Designing Viable Social Systems

J. D. R. de Raadt

SmCube has been especially developed for the application of the multi-modal systems method to communities and organisations. It helps you examine threats to the viability of any social system and to design a set of responses to counteract these threats. SmCube is built on relational database technology, which provides it with great flexibility and power to store, manipulate and link a large amount of qualitative data. Since it is fully integrated to the multi-modal systems method, it uses the same symbols

and other modelling conventions in the literature. Its many functions are organised around three major activities:

1. Data handling. SmCube can store and manipulate both textual and graphic data.
2. Analysis. This includes a simple analysis that allows the organisation of data according to a specified classification and a multiple analysis that includes a model and a matrix of associations between a variety of factors essential to viability.
3. Design. Create of a set of interrelated operations to counteract threats to the viability of a social system. SmCube is a valuable tool for managers and leaders of communities and organisations and can be employed in analytical and creative tasks such as corporate planning, scenario building, organisational design and management of change. SmCube was developed with support from the Swedish Defence Forces and has been applied in community project evaluations associated with the European Commission.

For information and downloading of a demonstration version, visit www.mssinstitute.com

Registration: Student version \$25; Business/institutional \$500

Register at www.reg.net

The Universe and Beyond; Establishing the Age of a Corporation; and Lexicon Avenue

Daniel Hershey, Professor of Chemical Engineering at the University of Cincinnati has three new books out in 2001 (Basal Books). These are: *The Universe and Beyond*; *Establishing the Age of a Corporation*; and *Lexicon Avenue* (a small dictionary of words from *The New York Times*, *The New Yorker*, and *William Buckley*). Other recent books he has written include: *Entropy, Infinity, and God*; and *Diagnosing an Organizational Bureaucracy*. Dr. Hershey teaches his own material in *Aging Systems I, II, and III* at the University of Cincinnati. He writes on aging, evolving systems (lifespan and factors affecting it), for humans, corporations, and the universe). To do this for humans, Dr. Hershey measures the basal metabolic rate and the metabolic response to exercise, using his patented *Metabolism Hat Calorimeter* (to help analyze obesity, weight loss, and to establish fitness and longevity). For corporations, he studies the factors which affect their efficiency, lifecycles, and longevity. These factors include overlapping activities, geometry of the table of organization, interactions which bypass the bosses, the center of gravity of power and its distribution, and informational entropy. Dr. Hershey is also President of Basal-Tech, Inc., and President of the Foundation for the Study of Aging Systems. He has received Fulbright Fellowships, Tau Beta Pi teaching awards, a clinical research award, and a short story writing award. He is the author of eleven books and has edited two others. For more details, contact him by e-mail / Daniel.Hershey@uc.edu/ or visit his web site /www.basaltech.com/

Operational Research and Environmental Management: A New Agenda

Gerald Midgley and Martin Reynolds

This book reports the outcomes of a research project, funded by the Operational Research Society, into the current state and future potential of operational research (OR) in the field of environmental planning and management. It was published in August 2001 by the Operational Research Society, Birmingham, UK. It is 160 pages in length and costs £15.

The authors start by presenting a review of the literature on the interface between OR and environmental management. Three generic themes repeatedly recur: (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.

The book then goes on to use interview data to show how people in the public sector, business organisations and pressure groups are currently understanding and dealing with these generic themes. The views of OR practitioners are also explored.

Next, three very different case studies are provided of good OR practice in environmental planning and management. Each case study is evaluated according to how the OR methods enable people to deal with complexity and uncertainty, multiple values and political effects.

The book then ends with the outputs from a series of planning workshops where OR practitioners came together to discuss how OR can improve its contribution to environmental planning and management. An agenda for future activities was developed in these workshops, and this is presented. Recommendations are also made for how a critical mass of OR practitioners can be organised and supported so that they can bring about the required changes.

To obtain a copy of this book, please send your credit card details, or a cheque for £15.00 (made payable to the Operational Research Society) to: The Operational Research Society, Seymour House, 12 Edward Street, Birmingham, B1 2RX, UK. e-mail@orsoc.org.uk Tel: +44(0)121 233 9300. Fax: +44(0)121 233 0321. Please mention the title of the book when ordering. The ISBN number of the book is 0-903440-23-7.

Intervention: Philosophy, Methodology and Practice

Gerald Midgley

Director, Centre for Systems Studies, Business School, University of Hull, Hull, UK

This book aims to rethink systemic intervention to enhance its relevance for supporting social change in the 21st Century. Section One focuses on the *philosophy* of systemic intervention; Section Two on *methodology*; and Section Three on *practice*. Throughout the book, arguments are provided for why philosophy, methodology and practice *all* have a role to play in our thinking about systemic intervention.

Section One introduces the notion of *systems philosophy*, concentrating on the preoccupation of systems thinkers with undertaking ‘holistic’ or ‘comprehensive’ analyses. Of course, there is no such thing as a genuinely comprehensive analysis, so the defining feature of systems thinking is reflection on the *boundaries* of inclusion and exclusion. A new path is mapped out for the development of systems philosophy which dissolves the supposedly ‘fundamental’ dualism between subject and object that is commonly found in the philosophy of science.

Section Two of the book then goes on to examine the methodological consequences of taking this new approach. First, the concept of *intervention* is introduced. This is defined as purposeful action by an agent to create change, and is contrasted with observation. It is argued that observation, as undertaken in science, should actually be seen as a ‘special case’ of intervention, not as distinct from it. Next, the systems philosophy outlined in Section One is related to the methodology of intervention, and it is suggested that ‘systemic intervention’ is purposeful action by an agent to create change *in relation to reflection on boundaries*. This leads to the exposition of a theory of ‘boundary critique’, which deepens our understanding of what it means to reflect on boundaries in the context of intervention. Each of the following are discussed as part of this theory: the relationship between boundary and value judgements; the extension of the concept of boundary judgement to encompass concerns about how things *ought* to be (as well as what actually exists); the importance of wide-spread stakeholder participation in systemic

intervention; and the need for agents to deal with the marginalisation of particular issues and stakeholders within social contexts.

Then the case is made for theoretical pluralism. This follows on logically from the theory of boundary critique because every theory is based on either implicit or explicit assumptions about the appropriate boundaries for analysis. Therefore, if it is possible to explore and use a variety of different boundaries during intervention, it is also possible to draw upon a variety of different theories. Of course, if *theoretical* pluralism is possible, and if different theories can be linked into different methodologies and methods, then *methodological* pluralism must be possible too. An argument for methodological pluralism is presented, and the emphasis is placed on the value of this in terms of optimising flexibility and responsiveness to stakeholder concerns during intervention. A review of intervention methods and methodologies is also provided.

Finally, Section Three of this book starts with some background to the author's own intervention practice in Community Operational Research (dealing with problematic issues in community contexts). Four examples of systemic intervention are provided, each of which is used to illustrate a different aspect of the methodology outlined in Section Two. The book then ends with an invitation to the reader to begin to practice systemic intervention and contribute to its further development. ISBN: 0-306-46488-8 / No. of Pages: 447 / November 2000 / \$40.00 / £28.00 / NLG95.00 For other titles in the 'Contemporary Systems Thinking' series, see URL: <http://www.wkap.nl/series.htm/CSTH>

Forthcoming Publications

Systems Thinking, Volumes I to IV (edited by Gerald Midgley)

Gerald Midgley (Centre for Systems Studies, University of Hull, UK) has been awarded a contract by Sage Publications to edit a four-volume set of books on systems thinking (to be published in hardback in 2002). Volume I will be on Systems Science, Cybernetics and Complexity; Volume II will cover Systems Modelling; Volume III will be on Soft Systems Thinking; and Volume IV will cover Critical Systems Thinking and Pluralism.

The purpose of this set of edited readings is to bring together classic and contemporary writings across the whole breadth of the systems field. Some of the most influential theoretical papers will be included, as well as applications in domains as diverse as global environmental modelling, urban and community development, the management of organisations, and family therapy.

Key critiques of the leading writers will also be included, allowing the reader to see how and why paradigm breaks took place. It was these breaks that led to the extraordinary diversification of systems theory and practice, leaving us today with an incredible resource of theories and methodologies for holistic analysis and systemic intervention. It will be an important task for systems thinkers in the first half of the 21st Century to make sense of this diversity, and harness it in the service of social and ecological change for a sustainable, just and peaceful world. If we are successful, this will be an important and beautiful gift for future generations. Therefore, the time is right for the production of a multi-volume set that, for the first time, assembles key aspects of the diversity of systems thinking and practice in one place, ready for the task ahead.

Volume I will demonstrate the initial mission of the systems enterprise: to produce a general theory that could unify the scientific disciplines. It will also include highly influential theoretical work on natural and social systems, cybernetics and complexity science. Many of these works have had a substantial impact across the sciences, and continue to do so to this day. Because of the breadth of work that needs to be represented, spanning the whole of the 20th Century, Volume I will be slightly larger than the other three.

Volume II will shift attention to how the theories presented in Volume I have been used to inform methodologies and methods for practical systems modelling. A wide variety of applications will be represented, including global environmental planning, the management of organisations, and therapeutic interventions with families.

Volume III will then document a paradigm shift from the theories and methodologies presented in Volumes I and II, which mostly take for granted that systems are real-world entities, to a new view of systems as personal or social constructs. In this view, which has been called “soft systems thinking”, the systems perspective is conceived as a useful way of seeing that can help people manage complex situations, but reality itself cannot be known. Practical examples of the application of soft systems thinking will be included.

Volume IV will then present two strands of contemporary systems thinking. First, there is the work of those who have been critical of all previous systems approaches on the grounds that they do not address the complexities of power relations. These authors have produced some interesting alternative perspectives. Second, Volume IV will present some initial attempts to draw upon the strongest work in all the various systems perspectives to create a more flexible and dynamic systems practice that is capable of supporting sustainable improvement for the benefit of future generations.

It will be vitally important for the credibility of this project that the job of assembling the papers is done in consultation with people from across the spectrum of the systems movement. While Gerald Midgley will take responsibility for editing the four-volume series, he will consult with around thirty distinguished writers in systems to gather their views on what should be included.

Sage Publications have scheduled this four-volume set for publication in late 2002. It will be aimed primarily at libraries. The ISBN of the book is 0-7619-4959-3. The price is £495.00, or £445.00 for pre-publication orders. Thus, if you place a pre-publication order, you can get a discount of £50.00. For more information, contact Gladys Calix Ferguson. Fax: +44 (0)207 374 8741.

E-mail: gladys.calixferguson@sagepub.co.uk

