

GENERAL SYSTEMS BULLETIN
VOLUME XXXIII, 2004

THE INTERNATIONAL SOCIETY FOR THE SYSTEMS SCIENCES
<http://www.iss.org>

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SECTION ONE

EDITORIALS, PAPERS AND CORRESPONDENCE

INCOMING PRESIDENTIAL ADDRESS

FIFTY YEARS OF SYSTEMS SCIENCE

Kenneth D. Bailey

International Society for the systems Sciences

47th Annual Meeting

Crete, Greece

July 11, 2003

INTRODUCTION

The theme that I have chosen for the 2004 Meeting is “Fifty Years of Systems Science: Honoring Tradition, Embracing the Future.” There are two sub-themes of “Integration”, and “Continuity”. Today I want to briefly discuss the goals and challenges of ISSS. The founders presented one primary goal and four corollaries. I will list them as five original goals, and will also suggest five additional goals for your consideration. I will also list 10 challenges to contemporary systems science.

THE GOALS OF THE FOUNDERS

The goals of the founders are taken from Hammond (2003, p. 247). The primary goal was:

1. “To encourage the development of theoretical systems which are applicable to more than one of the traditional departments of knowledge”, with principal aims as follows:
2. To investigate the isomorphy of concepts, laws, and models in various fields, and to help in useful transfers from one field to another.
3. To encourage the development of adequate theoretical models in areas which lack them.
4. To eliminate the duplication of theoretical efforts in different fields.
5. To promote the unity of science through improving the communication among specialists.

I would suggest that all five original goals remain relevant, and should be retained.

ADDITIONAL CONTEMPORARY GOALS

In the interest of continuity (one of the themes of the 48th ISSS conference), I want to add five additional contemporary goals, fully recognizing that some of these may appear as extensions or clarifications of the original goals presented by the founders. These additional goals are:

1. To provide broader models which may help to remove anomalies in areas that are presently paralyzed by hyper-specialization.
2. To provide a common framework for the comparative analyses (both synchronic and diachronic) of different fields.
3. To specifically emphasize the study of nonlinear relationships and interactions, especially in fields that are overly descriptive or predominantly linear. Here the emphasis should be on the relationships among variables, rather than merely on the variables themselves (an emphasis that

often predominates in overly narrow models).

4. To stress generic systems concepts such as boundary, order, energy, entropy, equilibrium, emergence, holism, and information, that are common concerns of many fields, and to suggest standard terms and measures for such concepts (Bailey, 1984, 1990, 1994, 2001).
5. To combat tendencies for piecemeal analysis or simplistic reduction by stressing holistic, unitary, perhaps emergent) measures of systems state that are designed to preclude analysis solely of a single portion of a system, or of a single level of a system hierarchy. Examples are: system entropy, system integration, and system equilibrium.

CONTEMPORARY CHALLENGES TO THE SYSTEMS APPROACH

The founders were aware of the many challenges facing them in their new endeavor. For example, James Grier Miller told me that the Chicago group faced challenges in choosing appropriate terminology. One major problem was the lack of standardized terminology that could be used across disciplines. For example, when Miller began studying systems theory, even the standard term of boundary (that we take for granted today) was not uniformly accepted, but instead different disciplines used a wide variety of terms such as border, perimeter, membrane, semi-permeable membrane, dividing line, etc.

The Chicago group did not know whether to use specialized terms derived from a single discipline and to attempt to generalize these to other disciplines, or whether to coin entirely new and original terms. These new terms would have the advantage of being free of any bias or prior meanings, but they would have the disadvantage of being unfamiliar to everyone.

Today we face so many challenges that we must list them along with our goals. This list is not meant to be exhaustive, but only to initiate discussion. Among the challenges that we face in achieving the 10 goals listed above are the following.

1. The first challenge we face as systems scientists is of course the extreme degree of specialization, or even hyper-specialization, found in the world today. A particular challenge lies in the fact that this specialization has become routine and normal to many people. But while the current degree of specialization may seem normal to some, to me it signals fragmentation, possibly to the point of system failure in some cases. Many of the hyper-specialized non-systems models in use today in various fields are so narrow, partial, incomplete, or piecemeal, that they probably could not stand careful critical analysis. Unfortunately, overly-narrow models are so familiar and so widely accepted that they are seldom challenged. They are not critically examined or compared with systems models. If they were, the systems model might often prove to be superior, and thus the clear model of choice.
2. Our second challenge is an academic reward system that is based on specialization. Pressure to publish for promotion often leads scholars to publish articles instead of books, and short books instead of long books. Quick and short publications often are inadequate to develop the complex analyses that modern systems theory demands.
3. The third related challenge is that funding sources may favor neat empirical research over complex (and often abstract) systems analyses.
4. Our fourth challenge is that systems theory may still face charges of determinism from critics who fear that an overarching approach robs the individual actor of his or her free will, or decision-making ability. Scholars seeking to develop models that offer individual "empowerment" may fear that concepts such as feedback or equilibrium will hinder their goals. Consider, for example, a complex theory like Miller's (1978) Living Systems Theory. This approach encompasses not

only eight hierarchical levels, but also 20 critical subsystems with names like input transducer, decoder, channel and net, etc. Such a comprehensive and complex theory may alienate some people, and make them feel unimportant, or like a small cog in a large machine.

5. The fifth challenge to systems science comes from specialists who fear that the autonomy or identity of their discipline is threatened by systems theory. Some such individuals may feel obligated to defend their “turf” by criticizing systems theory. They may feel that a successful systems theory, even if it did not subsume their approach, might make it appear small in comparison to the larger systems model, and thus perhaps less important.
6. The sixth challenge to the systems approach is from certain disciplines that feel superior to other disciplines, or that regard their own specialty as more important, more sophisticated, or more adequately developed than others. They may feel that a broad systems approach may result in a lowest-common-denominator model that can result in a *de facto* simplistic reductionism or dilution of their approach. In other words, they fear that integration with weaker disciplines will either weaken their approach, or will mask its achievements, thus diminishing the visibility of their approach. If their approach were to be weakened through amalgamation in a larger systems approach, this might even lead them to experience a loss of academic power and prestige.
7. Challenge number 7 is a converse corollary to number 6. It says that disciplines that are currently at the top of the academic pecking order may fear that the inclusion of weaker disciplines into a unified system approach may enable these weaker disciplines to become scientific “free riders”, meaning that they can unfairly gain an aura of scientific respectability that they do not deserve, and have not earned through the internal development of their own discipline.
8. The eighth challenge is that some scholars still may feel intimidated by the systems approach. Even worse, they do not even know what General Systems Theory (GST) is. I have had Ph.D. s ask me what systems theory is. Other academics seem to have some familiarity with the systems approach, and actually might feel quite favorably towards it, but do not feel competent to make a contribution. They may be willing to attend a systems session, but are unwilling to present a paper in the session. Fellow travelers are common.
9. The ninth challenge is that some scholars are simply unable or unwilling to obtain the background in multiple disciplines that is often required for true trans-disciplinary research. Seasoned systems scholars may forget how challenging and even intimidating this approach can be to neophytes. Some potential systems scholars may feel that it is more difficult to learn systems science than to master a specialized narrow discipline. As a result, our students are often older than students in specialized disciplines.
10. The tenth and last challenge is internal. We often seem unsure of our own systems identity, as evidenced by the fact that we have variously referred to our Society within the last 50 years as “General Systems Theory”, “General Systems Research”, and “Systems Science”. In addition, there are a plethora of other terms to describe the various interests of our members, including systems dynamics, systems analysis, systems modeling, cybernetics, complexity theory, and many others. The point is not that we all must (or even should) share the same systems identity, but only that each of us should be as sure as we can be of our own identity, thus enabling us to communicate it effectively to our colleagues as well as to non-systems scholars.

CONCLUSION

When reading the statements of the founders, I see only hope and optimism, coupled with a strong desire for scientific unity. Surely a focus on scientific unity is now more needed than ever before in light of the recent “Science Wars”. It is surely ironic that while information on the science wars can be gained almost instantaneously, simply by entering the words “Science Wars” into any Internet search engine, the results from entering the words “Scientific Unity” into a search engine are much more problematic (see Bailey, 1999, 2001).

I am concerned that hyper-specialization will lead to intellectual fragmentation, or even scholarly paralysis. As my mentor James Grier Miller said, we do not expect everyone in the University to become a systems theorist, nor do we seek the end of specialization. What is needed is for perhaps three percent of scholars to become systems theorists in order to link the specialties, as the founders envisioned.

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NATURAL PHILOSOPHY IN THE TWENTY-FIRST CENTURY

S.N. Salthe

It creates an intelligible myth about the world and its generation, based in scientific facts. It works on the «Big Picture» — our Western creation myth. It was eclipsed at the beginning of the Twentieth Century by increasing concern with using science in the service of controlling or predicting natural phenomena. It is, as it was in the German branch of the tradition in the Nineteenth Century, developmental, and can be modeled as the specification hierarchy:

{physical world -> { material world -> { biological world -> {sociopolitical world -> {individual consciousness } } } }.

Like systems science, it looks for universal patterns. The central pattern, postulated as being universal, is the canonical developmental trajectory: {immature -> { mature -> { senescent } }}, discriminated by using the most general kinds of measurements — information theoretical and thermodynamic (combined under "infodynamics").

It is materialist, but not mechanistic, most especially because the world and everything in it is to some degree vague. The canonical developmental pattern in this context is: { vague -> { { {increasingly definite } } } }.

It recognizes its own antithesis (Internalism), which is viewed as an attempt to model the generative situation, which would be primal for any system. This situation — a continuity — is one of pure suchness, where a necessary next move is impinged upon by various habits, external forces and

affordances, none of which are distinguished separately within a holistic urge to move on (to, for example as seen from outside) seek equilibrium and internal consistency, which are never reached).

It is thoroughly based in Big Bang cosmology, whence the Second Law of thermodynamics has a central role. Things exist, therefore the Universe is not at equilibrium. The Big Bang is the main, germinal fact of the world. Because of its continuing accelerating expansion, the resulting cooling has given rise to the sequence: energy -> matter -> mass -> form -> organization, as order has increased along with disorder, afforded initially by local strong forces, then by gravitation, followed by selection and then by intentional activities. The overall system is becoming increasingly distant from thermodynamic equilibrium since the Universal expansion is accelerating. As the above sequence occurred, the universal tendency to equilibrate became more urgent, making the Second Law of thermodynamics ever stronger, so that it now taxes the above tendencies to the extent that they are done rapidly. In order to mediate the new forms afforded by continuing universal expansion, roughly as much energy now needs to be expended entropically, creating disorder, as can be harnessed for constructive work.

It uses the Aristotelian complex causal analysis, including finality. This involves the synchronic pair: material cause / formal cause and the diachronic pair: efficient cause / final cause. The accelerating expansion of the Big Bang is the overall generative efficient cause, the Second Law is the general final cause of all events (because behavior and construction result as consequences of the tendency for energy gradients to become dissipated), while material causes come from the stickiness of matter, its tendency to be marked, and its finiteness. Formal causes are carried by universal patterns like the canonical developmental trajectory, habits, laws and tendencies, which mediate possibilities proposed by material causes when effected (pushed, triggered, enabled) by efficient causes.

It is consistent with Peircean semiotic. The internalist situation represents Firstness. Material collisions, friction, drag and delay (affording records and memory), selective conditioning, selection, and entrainment are all modes and consequences of Secondness, while universal patterns (like the canonical developmental trajectory) and finalisms (like the Second Law) represent Thirdnesses.

TASK FOR SYSTEMS SCIENCE

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Communication and representation of parts of the real and imaginary world i.e. construction of models, are important means of helping living and, in particular, human beings to navigate through and to make sense of the immense variety and diversity of their surrounding. *Natural language* is by far the most widely used symbolism for communication and representation. Other representations like signs and conventional science (CS) are based on natural language.

CS is driven by curiosity and as such strives for giving explanations of observed occurrence of phenomena and events. CS looks at a tangible object and extracts *quantifiable properties* groups of which are then used for describing the object. This leads to relations preferably mathematical, of more/less complexity. Each group is generated by a different *point of view*, mechanics, electricity etc. CS is thus compartmentalised, prefers to deal with a single object, poor in dynamic theories, unwilling to become involved in purposive phenomena and is rooted in the idea of *repeatability* of occurrence of phenomena. Early workers in systems science (SS) rejected CS in its *entirety* which

with hindsight, was a mistake. CS encourages search for general, fundamental notions and uses 'property' as a means of exposing conjectures to experience.

SS should also be developed from natural language as it reflects the systemic structure of parts of the world as 'related objects' called 'systems' and enables the use of *qualitative property*. We have *static systems* like a 'rock formation' or a 'chair'. We describe these by simple sentences with *stative verbs* of the subject/predicate form: 'Large, rugged rock supports the smaller, round rock' and so on or for a 'chair': 'Horizontal, timber platform rests on four, metal rods', 'Back support is firmly embedded in the platform' and so on. We can formulate sentences until we can perceive and name an *organised whole* with an *emergent property* which could indicate *use*: 'Chair is to sit on by a person of normal build'.

We also have *dynamic systems*: 'Fast and tough cheetah chases persistently the nimble antelope' or 'Worker soldiers with care two, square metal plates'. Each sentence consists of a *dynamic verb* connecting an *initiating object* or agent to one or more *affected constituents* *qualified* by adjectives and adverbs. Groups of sentences of the *same object* can be constructed following *points of view*. We are interested in *performance* as the states of objects progress in time and in the degree of *certainty of outcome* of the whole which emerges as the result of activity.

We have outlined *systems thinking* about parts of the world or the *horizontal view* of dynamic and static systems. The latter had also been ignored by early workers. The interest of SS is driven by *utility* of systems or aggregates which are assembled of parts until used or until become capable of producing an outcome as a *physical or mental state* as a result of power/energy or influence/information *interactions* between parts. Each part in turn may be seen to comprise other related parts and so on indefinitely, a hierarchy or the *vertical view*.

Systems practice is the application of analytical equipment to the evaluation of factors involved in use, performance and production of outcome. Interest of SS has shifted considerably towards human activity situations described as a *story, sentences, scenes and scenarios* like a play or a film. The performance of human constituents are strongly influenced by emotions, prejudices, bias, will and caprices which limit *repeatability* which is a basis for predicting outcomes by theoretical structures.

Perhaps the lack of symbolic, theoretical structures with suitable *manipulative power* (mathematics or processed natural language) or the desire to improve, prompted workers in SS to shift their attention towards design, problem solving or intervention of/into scenarios with strong involvement of human activity. However, the methods currently used are somewhat speculative with weak procedures and without appreciable theoretical basis. The outline of a procedure suggested here is:

1. Construction of a *story* in natural language of a part of the world consisting of stative and/or dynamic sentences. Stative sentences describe ideas, plans like a party manifesto, a scheme or objectives. Dynamic sentences represent *action* intended to show how these are to be carried out.
2. Linguistic *complexities* and sentences with *abstract terms* are dealt with by linguistic analysis until a formalised, *homogeneous language* emerges which can be represented as a *semantic diagram* showing the outcomes of the story explicitly.
3. We have reached current states of affairs of objects with outcomes which are assessed, debated whether satisfactory or new, *envisaged outcomes* as objectives are desirable.
4. *Requirements* for properties of agents and interaction are deduced from *changing and quiescent properties* with medium selected with regard for *environmental objects* like stakeholders. The

new story describes a desired state of affairs and can be represented as a semantic diagram with the ensuing analysis and investigation of impact.

Details of the procedure can vary but it always advocates not *blind change but change according to requirements*. SS is seen as pervasive, indivisible and empirical, currently it is fragmented. A task for SS is to become occupied with questions of use, performance, production of outcomes and design of systems with *human and/or other components* through involvement of formalised natural language as the analytical means firmly rooted in branches of existing knowledge. Such approach can : Produce concepts that can be related to experience and Aid integration.

A SYSTEMIC ANALYSIS OF SECURITY

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Security of an individual can be defined as the satisfaction of basic human needs, which is a condition sine qua non for life. The psychologist Abraham Maslow established a hierarchy of human needs (Maslow, web). The two most basic needs in Maslow's list are the matter-energy resources, and the body's health and integrity. The major physiological requirements for life are clean air, water, and healthy food. The structural integrity requires shelter and protection from physical, chemical, or biological injury to our body. Only when the basic necessities of life are achieved, can the quest for higher, spiritual needs be addressed.

Nations, and other social entities have similar security requirements. Satisfaction of material needs, and structural integrity are fundamental for the well being of nations.

Structural integrity can be maintained in several ways.

National security derived from superior strength

Traditionally, sovereign entities in conflict applied the law of force. The mind frame was: 'If you want peace, prepare for war'. Unfortunately, in the struggle for survival, the combatants tend to ignore even rudimentary, international rules, and revert to chaotic interaction according to the law of the jungle. In this scenario might makes right, and the fittest, or the lucky ones have a chance of securing survival. Peace and disarmament are unlikely events in this mode of international relations.

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 enforces the law within a nation or within an alliance when necessary. When the rule of law is established in the worldwide community of nations, civility, non-violent international relations, world peace, and disarmament can be achieved.

The nature of modern weapons necessitates cooperative security

Military strength is a multidimensional, and complex concept, which is not easy to measure. 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 of the complex concept of strength; in this complex sense of strength, David was stronger than Goliath. Forming alliances with others adds a social dimension to strength. It is clear, that the complex multidimensional concept of military strength is difficult to quantify, and therefore, in order to feel secure, nations or blocks 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 vying for security through world dominance, trying to outgun, or outsmart the other. The strength and number of weapons, the speed, the accuracy, and the sophistication 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 has ended, but unfortunately, the idea of security through military strength still exists. The complexity of the war system has even increase by fragmentation of political power. In addition to the devastating power of readily available weapons, the vulnerability of our civilization has increased. Nuclear power stations, for example, cannot be defended against an attack by nuclear suitcase bombs. The high density of our settlements, the need for long distance transfer of information, energy and materials, make technology based civilization vulnerable. In addition, the exploitation close to the sustainable limits of the life-supporting ecosystem has created a fragile state of the world. In this vulnerable state the military might of blocks, nations, and even of terrorist organizations is such as to create an unacceptable degree of insecurity. Nuclear weapons are still on trigger alert, and human civilization is in danger of perishing by the decision of a sick mind, or even by a technical or human error. Unconstraint application of military strength is far from offering security, on the contrary, it is self-destructive, suicidal, and it is no longer a rational policy option.

Sound Security Policy

Today, the only rational, and humane security policy is based on cooperation. An Irish proverb says: "It is in the shelter of each other that people live". The world community of nations must establish the global rule of law. This is a logical next step in the historical process of the evolution of humankind's political structures, which started with tribes, and evolved via city-states, to nations, to continental unions, and to a global union of all nations: the United Nations. However, the UN needs change, it needs the authority, and sufficient means to enforce international law. As we have municipal, provincial or state, and national police forces, the global community of nations needs a global constabulary. A police force is quite different from an army; it is constraint by the law, benevolent by design, and only as strong as necessary to bring malevolent fringe actors to justice before the International Courts. Thus, the basic need for individual and national security becomes an internal challenge of a worldwide union of nations.

It is now the time to abolish the power-based security notion of nations; the present notion of sovereignty of nations is detrimental to the ethical conduct of international relations. Sovereignty means not being subjugated to any rules. Therefore, each sovereign nation is potentially a 'rogue' nation that ignores international rules. Power corrupts, and often the strongest succumb to the temptation. We have observed in recent years that democratic nations disregard international rules, violate human rights, and even plan and execute preventive wars for the sake of 'homeland security'. Some nations may even do these things for the sake of profane, commercial advantages. Noam Chomsky (2001) gives a long list of examples of terrorism committed by the most powerful Nations.

Clearly, it is the mandate of the world community of law-abiding nations to find, and to bring to justice the perpetrators of heinous crimes such as the one on September 11, 2001 in New York and Washington, or to bring to and end the disgraceful violence and brutality in the Middle East. Serving justice is not an act of war. A proper course of action for the victims of wars of aggression, or international terrorism is to enable the United Nations to enforce global laws, and to protect threatened nations. The national armies must be converted from instruments of war, into multilateral, continental, and global, law-abiding police forces, which can protect human individuals and nations from international crimes, and keep the peace between nations. This route to security is recommended for all so called sovereign nations.

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INFORMATION MODEL OF COOPERATIVE SOCIAL BEHAVIOR

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Mutual relations between an organization and an individual are crucial for understanding an individual's role in a society (Glance, 1993). Important objective consists of developing a formal systemic model that embraces both the regularities of collective behavior and the activities of a free individual will. The model's formalization and generalization can be reached by the information description of variety of interacted sources independent of their nature, including the sources' virtual connection, even though their space-time locations do not coincide (Lerner, 1999). Information represents a common and universal substance, participated in a diversity of physical or virtual interactions, including various forms of social and economic interactions (Lerner, 1993).

The regularities of collective dynamics and the mathematical evaluation of a complex individual's behavior in a collective environment are studied by building the information systemic model, based on Informational Macrodynamics (IMD) (Lerner, 1993, 1999, 2003). The found formalized systemic information mechanisms of cooperation, self-control, adaptation, and evolution, represent a general attribute of a social system.

An individual is modeled by a random element as a *state*, operating at the model's microlevel, or in an external model's environment. An organization is modeled by the *hierarchical structure* of information dynamic and space distributed *network* (IN). The model communicates with the environment at the *o*-window, which opens a gate for a potential influence of randomness on cooperative behavior of both the element and organization. An individual may affect the cooperation as an existing element of an organization's microlevel, or through its external actions as a new element not belonging to the organization. In both cases, the individual's influence depends on the states' information contribution at the gate.

The model works as a discrete filter, selecting the most probable states that deliver a maximum amount of information. Both these qualities satisfy to the IMD minimax principle that *selects* the informative element for assembling with the fixed macroelement.

The selected macrostates can be assembled for cooperation with the macrostate, fixed by the control at the moment, preceding the cooperation. Before that, all macro- and microstates (states) within the gate *compete* for subsequent selection and cooperation with the above fixed macrostates. After the cooperation, the element becomes a part of the organization's cooperative dynamics during each segment of optimal trajectory until a new σ -window opens an influence of current competing states. The formal systemic information mechanisms define the main *conditions* for an individual cooperative behavior and the defection from cooperation.

Only the element, located within or at the border of the current information gate, can be involved into cooperation with an organization, or can affect the cooperation. The elements, located out of the current gate, do not have such an option. The elements at the gate would be selected automatically by the fulfillment of the following sequence of the requirements: deliver the quantity of information close to the system's invariant **a**; provide a local stability at this **a**; deliver the highest information speed, associated with a minimal information loss, which satisfies to the model's resonance conditions of assembling; deliver a maximal probability regarding other elements, agreeable with the above requirements.

Any element's deviation from this restriction will diminish its ability for cooperation. The element's involvement into the cooperative behavior is accompanied by the compensation of the organization's derivations. Both the compensation and the involvement are performed by the organization's controls, whose functions can also be carried by the special ordered *hierarchy of the organization's processes*, satisfying the model's restrictions. If the deviations are limited by the restrictions, they can be compensated by the organization's robustness. If the deviations are not limited by this condition, but still are *admissible*, satisfying to the model's limitations, they can be compensated within the organization's *adaptive potential*. The compensating adaptive feedback that extends the threshold gate contributes to involvement in the cooperation more competing elements. Another compensating adaptive feedback that reduces the threshold gate, resulting from the threshold's nonsymmetry, leads to narrowing the gate, which can turn some of the competing elements out of the gate. The adaptation can also modify the initial organization structure by changing the macroelement's number and the IN dimension. Such modifications can also be created by the evolution of an organization, or by various communications such as transmitting the optimal code of hierarchical organization. If the deviations are not admissible by both the model's robustness and adaptivity, they can destroy the organization's structure. Such an element carries a destructive information. An organization self-protection might include a restriction on maximal perturbations or additional mechanisms of filtering. Changing the threshold's invariant is possible by creating a new system-organization, if an element is able to organize its own subsystem-triplet structure, enables self-organization.

The triplet's IN hierarchy is the *optimal* structure of an organization.

The element, violating of these requirements, has the following options: defect the system by own will, change the location; turn out by the system's organization as being uncompetitive; disturb and possibly compromise the cooperation by delivering an extensive uncertainty.

The individual's cooperation with an organization contributes to its quantity and quality of benefits receiving from the organization. The longer the element stays with the organization and the higher

its location in the organization hierarchy, the more quantity and quality benefit the element gains compared to the initial contributions. The optimal cooperative dynamics are highly effective and beneficial for *both* the individual and the organization.

The information restrictions on production and consumption are found.

An individual's free *will* just *motivate* the cooperation, but only the *organization performs* it by the control (or superimposing process) actions. The considered results bring the formal systemic model of the regularities of collective macrodynamics and the mathematical evaluation of a complex individual's behavior in a collective environment. It's shown that the information functions of these mechanisms and limitations exist at the level of *common systemic regularities* independently of the specifics of an individual and an organization.

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Decentralization and Integration: Two Contrasting Vectors Which Promise Efficient Knowledge Management in Complex Organizations

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Globalization, technological development, and the wide use of means of communication have created a high dynamic of technological and social development (Capelli, 2000) which demand a situation of continuing change to which the organizational system much adapt. The principle means which the organizational system has at its disposal for adapting to such a dynamic environment is knowledge management. However, studies point to the organization's increasing difficulty to cope with effective knowledge management. Managers find it hard to make a successful integration of their workers' abilities with the quantity of knowledge amassed, in order to propose effective solutions for the business challenges. As a result, we find that the managers themselves contribute to the delays in applying the solutions required for standing up to the competition and for renewing the organization (Alvesson, 2001). Wood (2002) maintains that the process of transmitting information among workers in an organization of the 21st century doesn't match the dynamic reality. This process demands time, willingness, and far-reaching social activity, and neither makes the

development of innovativeness possible, nor the immediate realization of the worker's personal knowledge directly as the need arises (Ganesh and Bhatt, 2002).

The Complex Systems model can be a theoretical paradigm on the basis of which an organization can maximize its ability to provide immediate solutions by exploiting the information already at its workers' disposal (Zimmerman and Hurst, 1993). It can do so through the establishment of integration processes, which include: information transfer, constant updating, and the sharing of functional information among workers (Hameland and Pralahad, 1994). The Complex Systems model is based on a decentralized array of organizational fractals, which are independent sub-systems, operating autonomously in response to the demands emanating from the environment. The system's effectiveness is based on each fractal's having the ability to perform its mission independently. On the other hand, the system is obliged to involve itself in a constant process of integration, through the transfer of relevant information, which activates the system's parts, depending on that information's degree of functionality for the other fractals (Dooley, 2002).

This study dealt with the issue of the ties between the characteristics of the organizational structure and its ability to maintain effective knowledge management processes. These ties were examined with the help of interviews and observations, in order to create a practicable model, which would enable us to develop complex organizations which manage its organizational knowledge and the personal knowledge of its workers with maximum efficiency.

The Research Method

In order to determine if there was an emulatable model of an organization which was functioning as an efficient complex system, we used as research instruments the semi-structured interview and participative observation (Wolcott, 1990). We performed observations in three privately owned organizations, and in three governmental and municipal organizations. Between two and four observations of one hour each were carried out in each organization. Similarly, ten workers and managers were interviewed in each of the six organizations. In all, 42 workers and 18 managers were interviewed.

The interviews and observation topics were conducted and analyzed according to five criteria which were found to be valid as a basis of managers' and workers' knowledge management processes (Von Krogh, Ichijo, and Nonaka, 2000). Each criterion had an interview question and an observation relevant to the organization as a system, a second question related to the processes in the organization, and the third question related to the individual as a sub-system.

The criteria and their corresponding questions were:

1. Focusing on goals and on Core Competence: an agreed definition of foci of system activities having the potential for future growth. The questions were as follows:
 - a. The organization as a system – Can we identify the organization's business concept and strategy?
 - b. Processes in the organization – How are the organization's goals determined?
 - c. The worker as fractal – What is the specific task of the worker/manager, and how is it tied to the organization's central mission?
2. Surrounding Influence: Relevant matching of the organizational response to external events. The questions were as follows:
 - a. The organization as a system – Is it possible to describe the organization's strategies for coping with changes in the environment?
 - b. Processes in the organization – What is the process for providing a solution to the client's demand?

- c. The worker as a fractal – Does the worker/manager have the possibility of providing an immediate, independent solution to the demand of an external or internal client?
- 3. Recycling flow effect and aggregative fractals. The questions were as follows:
 - a. The organization as a system – Do independent work processes exist (responsibility for planning and action) for workers and managers?
 - b. Processes in the organization – Is there a process for updating colleagues and managers about central projects and decisions?
 - c. The worker as fractal – Is the worker/manager updated as to what is being done in the organization? Is s/he updated as to its activities?
- 4. The synchronization and referral of resources, updates and matching of the organization's abilities as a system to respond to quick changes in a given environment. The questions were as follows:
 - a. The organization as a system – Are resources needed in the organization available?
 - b. Processes in the organization – What is the method of resource distribution in the organization? Does this method allow for ongoing activity?
 - c. The worker as fractal – Does the worker/manager have enough resources to do his job?
- 5. Personal development and individual specialization of every worker (as a fractal and as having expert knowledge). The questions were as follows:
 - a. The organization as a system – Does the organization develop, preserve, and use its workers' knowledge? Is new knowledge generated?
 - b. Processes in the organization – Are there instruction processes, specialization, and worker development in the organization?
 - c. The worker as fractal – What is the worker/manager's specialization in the organization? To what extent is s/he able to preserve and develop his or her specialty and abilities?

Findings

Coping with the challenges of the environment

Several findings emerged from the analysis of the five criteria, and the tie between the behavior of the organization, as a complex system, and its ability to carry out processes of effective information management. In the course of the research it turned out that in different organizations there is an awareness of the changes which occur in their environments, and to the immediate influence they have on the organization. The level of awareness differs from manager to manager, and from organization to organization. Nonetheless, the higher the degree of awareness of changes taking place in the environment, the greater the level of legitimization which managers gave to their workers' taking responsibility for personal decisions, and merging them with the organization's tasks. In those organizations we were able to see clear knowledge development processes, knowledge dissemination, and the inherent involving of workers in the processes of working and decision making. In the organizations in which there was active awareness of the need for coping constantly and intensively with the changes there was a need to use every worker's abilities in every case where there was call for immediate solutions. This awareness raised the demand for workers who are able to cope with change and frequent decision making. Every worker who solved a problem independently raised anew his managers' awareness of his contribution to the organization, and to his strengthening of the organization's ability to cope efficiently with the frequent, changing demands emerging from the organization's business environment.

Control and Performance

The managers' and the workers' reports tended to present the managers as having a need to control the organizational processes, to carry out integration among the workers, to set system priorities, to distribute resources, and to decide on the availability of those resources to the workers. Workers, on

the other hand, were presented as the “performers” of the relevant organizational processes. The managers’ expectations of the workers were that they should try to respond to changes in the environment, to take responsibility for performing a specific process, and to provide the managers with an active updating of information. Still, the more that an organization functioned as an adaptive, complex system, the more foggy were these expectations.

Updating

This important point, of personal responsibility to keep up to date, was raised not infrequently. The more that the organization functioned as an adaptive complex system, the more the worker was expected to carry out a process of information absorbing, both vertically and horizontally. This was the case from the organizational/business perspective, as it was from the professional aspect. The worker was expected to update himself from every source available, not only from the stream of information coming from above him in the organization (from the managers), or from any of the organization’s knowledge-distribution mechanisms.

Discussion and Conclusions

The findings of this study correspond to what has been reported in the literature. However’ it adds an aspect overlooked by the literature. Years ago Eisenstadt (1996) as well as Bell (1976) have already determined that there is a need for a balance between an entire system’s process of adaptation to changes occurring in the environment, and the ability of every individual or group in the organization as a sub-system to provide focused answers to the challenges which come from those changes (Dooley, 2000). Their conclusion and the results of our study allow us to say that organizational awareness is one of the gateways to the path of changing an organization to a complex system. In Zimmerman’s opinion (1992), organizations which function as complex systems are capable of carrying on a constant process of adaptation to the changes which characterize the chaotic phenomena in the entire organization’s business environment. Every worker, as a fractal, is expected to synchronize himself with the organizational system, and to enable the organization to adapt, to respond, and to give effective system-wide and local answers to an environment characterized by rapid, dynamic changes (Roos and Oliver, 1998). An organization built as a complex system will be able to respond more quickly and in a more focused manner to its environment, with the help of the fractals of which it is composed - the workers and managers. The workers, according to this conception, are a sub-system itself, and they must be able to access the necessary resources and information (= knowledge workers) (Coffman, 1997), in order to make decisions and provide quick, appropriate solutions which fit the organization’s core abilities (Hameland and Pralahad, 1994).

However, on top of what has been reported up to now in the literature, the findings of the current research show that organizations, in which is found a process of having workers begin to assume responsibility, are more aware of the workers’ ability to generate immediate and independent solutions to problems. In a situation where workers assume responsibility, the system initiates a process of direct and independent compensation for each worker. Each worker is compensated according to his or her contribution to the updating of the knowledge of the organization, and to the integration which s/he furthers with other workers. We found that from this point it is a short distance to a systemic organizational application of a process of developing and distributing knowledge, with the cooperation of every one of the workers. Knowledge sharing is thenceforth carried out independently and immediately by any one of the supervisors or managers.

These results, hence, strengthened the case for the existence of two contrasting vectors in complex systems. These, supposedly conflicting, vectors encourage the generation and use of knowledge by both workers and managers. On the one hand, there is a constant need to synchronize activities and

resources—an action perceived to be the responsibility of the managers. On the other hand, the use of resources for the immediate solution of problems was perceived as necessary by every worker. We found that organizations which acted according to the principle of integration of complex systems were expected, on one hand, to create quick solutions which were appropriate to a dynamic environment with chaotic characteristics. On the other, we found that an environment demanding the performance of non-routine and non-specifiable tasks required a different type of activity, which is essentially local and immediate on the part of every worker as a sub-system (Robertson, 1995). How, if that is so, can they create independent activity alongside the integration of the relevant sub-systems? It seems that, at least so far as we can see from this study, that in the situation of the decentralized style of management, the degree of responsibility, which the worker as a sub-system takes upon himself, rises as part of his self-development and is the component that is providing solutions for the organization.

In the organizations we examined we were able to see parallel messages and achievements of the worker. On one hand, he is expected to proceed with the feeling that he is supposed to wait for information to flow to him. On the other hand, however, the system expects him to try to feel, to recognize, and to respond to the same environmental changes with which the organization is coping. On one hand, the organization is sending the message that it is its job to supply information, but on the other hand, there is no significance to the information at the system's disposal without the ability to update it at the right time, and to pass it along to the right people, together with instructions on how to actualize that which is important in the knowledge gleaned from the information. There is evidently a strong connection between the organization's ability to manage knowledge, and the ability of each worker, as a sub-system, to apply those processes. In the words of one of the managers in a technological organization: "The hope is that every worker will function as a business unit."

These results point out that, to a certain degree, there is a method of working in a complex organization which can promise its efficiency in generating knowledge and distributing it for the benefit of the organization. The most efficient method is when each fractal in the organization functions independently in its specific realm of action, and, at the same time, that fractal also cooperates with other fractals to produce the desired solution. Effective exploitation of the knowledge depends on the worker's responsibility to keep up to date, and to update the organization, while presenting solutions which are focused on adapting to the changing and competitive environment (Alvesson, 2001).

To sum up, the chances of a complex organization to manage knowledge efficiently is tied to the degree of awareness of every sub-system to see itself as responsible for the creation of the organization's knowledge, and for its distribution to the other sub-systems and managers. This method of knowledge management is seen today as the advantage held by the leading complex organizations. More and more managers and workers, however, are beginning to see it as a must.

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SECTION TWO

MEETINGS AND CONFERENCES

**THE 48TH ANNUAL MEETING
INTERNATIONAL SOCIETY FOR THE SYSTEMS SCIENCES**

**ASILOMAR CONFERENCE CENTER
ASILOMAR, PACIFIC GROVE (MONTEREY), CALIFORNIA
JULY 4-9, 2004**

**CONFERENCE THEME: FIFTY YEARS OF SYSTEMS SCIENCE: HONORING
TRADITION, EMBRACING THE FUTURE**

This year we are celebrating our fiftieth anniversary. The original “Society for the Advancement of General Systems Theory” was formed under the auspices of the AAAS, and first met a half-century ago, in 1954. In 1956 the “Society for General Systems Research” was founded, with the name later changing to the “International Society for General Systems Research”, and finally to the present name, the “International Society for the Systems Sciences”. The 2004 conference has two sub-themes: “Integration” or unity, and “Continuity”. It is appropriate that our meeting honors our first half-century with an emphasis on the principle of integration and the search for cross-disciplinary commonalities that was so strongly embraced by the founders. The founders emphasized their desire to promote the unity of science at the very first meeting which took place in December, 1954 in Berkeley, California, just to the north of our meeting in Asilomar.

The integrative focus of the founders will be complemented with a focus on continuity, as manifested in our reflection on the future role of the Society. The sub-theme of integration will focus upon the contributions of the natural sciences, mathematics, social sciences, and humanities in the development of ISSS. Our glimpse into the future will stress the second sub-theme of continuity by focusing upon ways for the future to build upon the past. One focus will be on the integration of quantitative and qualitative approaches to systems science. We will also continue the task begun at the 41st Annual Meeting at Seoul in 1997 of forging a new paradigm that can help to integrate natural and social systems.

Papers are particularly invited which focus on the theme of honoring our past, combined with a look ahead toward the future. We seek to use our past 50 years of achievement as a firm foundation for the next 50 years of growth in our Society.

Organizing Committee Chair: Dr. Kenneth D. Bailey, ISSS President; kbailey@soc.ucla.edu

Program Committee Chair: Dr. Arne Collen, ISSS Vice President for Membership and Conferences; arnecollen@saybrook.edu

ISSS Business Office: Ms. Jennifer Wilby, ISSS Vice President for Administration; isssoffice@dsl.pipex.com

DEADLINES

Abstract Deadlines

The deadline for the submission of abstracts is FEBRUARY 15, 2004. If you have problems with this deadline, please contact Arne Collen immediately.

Acceptance notices will be sent by March 1, 2004. All abstracts, in electronic form, are to be sent to Dr. Arne Collen at arnecollen@saybrook.edu. It is preferable that abstracts be sent as an attachment in some commonly used word-processing program like Microsoft Word, but submission of a manuscript typed in the body of the E-mail is also permissible. If E-mail is not possible, the abstracts may be mailed to Dr. Arne Collen, POB 430, Walnut Creek, CA 94597, USA.

The abstract should give an overview of your main point, the 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, and can include figures, but please do not exceed the one-page limit. Use the paper-style guidelines for abstract style. If you know a SIG that you would like to present your paper in, please write the SIG name on your abstract (see SIG Calls below), but please do not send the same abstract to more than one SIG. All abstracts will be reviewed, and the acceptance of papers will be based on the reviews.

Registration Form, Housing Form, and Payment Deadline

The conference registration form, Asilomar housing form, and full payment are also due on FEBRUARY 15, 2004. The payment will be refunded if the abstract is not accepted.

Please send forms and payment to:

Ms. Jennifer Wilby, 47 Southfield Road, Pocklington, York YO42 2XE, UK

Ms. Wilby is ISSS VP for Administration. Her contact information is listed below.

Paper Deadlines

The deadline for the submission of full papers is APRIL 15, 2004. Please send papers to

Ms. Jennifer Wilby, 47 Southfield Road, Pocklington, York YO42 2XE, UK

Ms. Wilby may be contacted at isssoffice@dsl.pipex.com Tel. +44 1759 302718

Individuals are limited to two papers. Please submit one hard copy (printed) and one 3.5" floppy diskette in a commonly used word processing program. Papers must follow the paper-style guidelines presented at the end of this call for papers. Individuals are limited to two papers. If your paper is intended for a specific SIG, please submit it both to Jennifer Wilby and the appropriate SIG chair. Do not send the same paper to more than one SIG. The SIG chair may only require a hard copy.

PAPER EDITING

The official proceedings of the ISSS 48th Annual Meeting will be published on a CD ROM. The editors of the proceedings are Jennifer Wilby and Janet Allen.

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. If you have received your degree, please certify that this work was performed while you were still a student.

INDIVIDUAL SIG CALLS

Systems Applications in Business and Industry

Authors are welcomed to share their papers and wisdom on Systems Applications in Business and Industry in Singerian Inquiry sessions at the 2004 ISSS meeting in Asilomar.

The SABI sessions at Asilomar 2004 will follow the approach that proved successful at Crete 2003. The agenda not only allows each author to relate the research that he or she has recently conducted, but to also share in the development of new knowledge by drawing on the wisdom across all participants. A Singerian Inquiry, as described by C. West Churchman in *The Design of Inquiring Systems*, is a systemic approach that features both multiple perspectives, and the «sweeping in» of new knowledge. Authors and attendees at the Crete 2003 sessions reported great satisfaction in this lightly structured, free flowing approach to conversation.

Prior to the meeting,

Authors may discuss with the SIG chair, David Ing (mailto:sabi@systemicbusiness.org) about the potential contribution in content under consideration. >> Authors submit abstracts. Abstracts are posted on a web site for review by all. Preliminary discussions about clustering ideas into sessions are facilitated online through web forums/conferences.

Authors submit papers. Papers are clustered into session of three to five papers. Preliminary discussions about ideas are facilitated online through web forums/discussions.

At the meeting,

each session, each author is permitted up to five minutes to present the key ideas of their papers. For the remainder of the 90-to-120 minute session, an open discussion on common themes and differences between the papers gradually reveals more details about each author's thinking. Non-authors are welcomed to ask clarifying questions and contribute additional ideas, later in the session. After the meeting, digests are posted on the Internet, and audio recordings may be available on CD-R. The artifacts from Crete 2003 are available at <http://systemicbusiness.org/digests/sabi2003>.

Authors who require more than five minutes to present their papers should not designate their papers for the SABI stream. The chairs of the streams on Organizational Transformation and Social Change, Human Systems Inquiry and Evolutionary Development aim to work together to appropriate place papers, and work through scheduling challenges.

Interested author may contact the SABI SIG Chair, David Ing (mailto:sabi@systemicbusiness.org) for more information.

When submitting an abstract, please ensure that it is flagged specifically for the SABI stream.

Hierarchy Theory

Jennifer Wilby, 47 Southfield Road, Pocklington, York, YO42 2XE, UK. +44 (0)1759 302718
Email: issjmw@dsl.pipex.com

The Hierarchy Theory SIG invites papers relating to the study of hierarchical structures and their relationships in theory and practice. Hierarchy theory views systems as a set of ordered levels with a governing-governed relationship between the levels wherein the hierarchical levels are the sub-units of the whole system of interest. Further, the levels within the hierarchy are defined by the scale

of observation chosen by the researcher (observer) and exploring this process of choice of scale is also of interest within the SIG.

Abstracts are invited from all fields of research whether natural or social systems, and research or practice. In addition, this year it would be interesting to hear from people willing to participate in discussion sessions on the principles and practice of hierarchy, and input is welcomed as to what form these sessions should take.

Systems Modelling and Simulation

On the 50th anniversary of ISSS (SGSR) the systems modelling and simulation SIG calls for papers continuous with our founders objectives. We seek papers on system models, modeling principles and simulation which investigate or exemplify structural similarities and isomorphies across different fields of study. Ideally the concepts and principles involved will be applicable to all disciplines. Triadic perspectives are especially sought.

abstracts may be sent to: ProfDr Robert A Orchard, Institute for Advanced Systems, PO Box 640, Indian Rocks Beach, Florida 33785 orchard@acm.org

Systems Psychology and Psychiatry

A call for papers is made to various disciplines; Jungian psychology, Gestalt psychotherapy, transactional Analysis and other schools of psychology, psychotherapy and psychiatry, systemicNLP, medicine, social work, systems and corporate psychology.

In honor of the 50th anniversary ISSS (SGSR) and the founders, papers are invited which emphasize, elaborate and show similarities and isomorphies among concepts, principles and methodologies. Triadic perspectives or templates such as parent/adult/child of transactional analysis are especially invited.

Abstracts may be sent to: Prof. Dr Robert A Orchard, Institute for Advanced Systems, PO Box 640, Indian Rocks Beach, Florida 33785, USA orchard@acm.org

Living Systems Analysis

The missions of the Living Systems Analysis (LSA) Special Integration Group (SIG) are the development and application of living systems theory and science. LSA is one of the oldest and continuously operating SIGs in the society. Much has been accomplished in the development and application of living systems theory and science. Miller's living systems theory provides the basis for much of the living systems analysis associated with the SIG. Also, the principles of a living systems science, equivalent to those of the other natural sciences, have been developed.

We invite you to submit papers that are related to the conference theme, fifty years of systems science, and to living systems theory and science. Papers based on Miller's theory are requested as a tribute to Jim and Jessie Miller.

Papers linking living systems theory to other science and bodies of theory (e.g., biology, physics, chemistry, hierarchy theory, duality theory, accounting theory, economics, behavioral theories) are encouraged. We are especially interested in papers that help unify the sciences and that treat basic principles and theories. Development of relationships between the concepts of information in biology and in the information sciences is of particular interest.

We are making an effort in the paper solicitation process to extend the area of living systems science further than it has been in the past. It is felt that an even greater range of papers would help improve the meeting. Thus we are making a special plea for papers which would extend living systems science.

For further information, please contact: James R. Simms jrsimms@juno.com

Human Systems Inquiry

HUMAN SYSTEMS INQUIRY is a central emphasis in those Systems Sciences directly concerned with human beings. We invite you to contribute a paper relevant to systems inquiry that helps our annual event to actualize the conference theme. Any paper that can make that connection will be considered.

The purpose of the HSI SIG is to provide an arena for ISSS members to present, exchange information, learn, and discuss: 1) ideas and viewpoints concerning issues in systems methods and methodologies relevant to human beings and the human condition; 2) applications of systems ideas to systems practice in human contexts; 3) innovations in systems methodology; and 4) systemic case studies conducted in, with, or by human activity systems. Any one or more of these purposes may be related to the conference theme.

For consideration, submit your abstract of 300 words maximum that includes at least one sentence relating the paper overall directly to the conference theme, and at least one sentence that connects your paper to any one or more of the four SIG focus areas stated above.

For further information, please contact: Arne Collen acollen@saybrook.edu
Saybrook Graduate School

Metamodeling & Systems Epistemology

“ETHICS According to C.W. Churchman: Lessons to Design a Better World.”

We will explore our mentor C.W. Churchman’s writings to find inspiration concerning how to design a world where morality prevails. We will explore Churchman’s work (and that of his disciples) for answers to explore the two related subjects:

“The Role of Government and a Nation’s Morality,” and,
“Approaches on How to Solve So-Called ‘Extraordinary Problems’”.

First, we need to answer whether the notion of a “Nation’s Morality” can be defined. Then, the entire set of laws must be culled for clues on how a nation treats its people. Naturally, one must look at the laws that are enforced and those which are not for a more accurate indication of what is considered “moral.” How a country cares for its sick people, its unemployed, its environment, its minorities, its disabled and disadvantaged, its convicted criminals, how it deals with issues such as the death penalty and euthanasia, how it treats its enemies and its friends etc—they all tell a great deal about the daily values and norms that a country as a whole respects and practices.

A country’s social contract or social context is also telling. By social contract we mean the laws and customs that bind the family, the community, the government and the various sectors of its population as they go about in their daily lives. Governments change and times change, thus we must ask whether there are some immutable moral principles which remain unchanged over time and which reflect the morality and values of a nation, regardless of its politics, the ideology of the party in power etc. In Churchman’s terminology, ‘Extraordinary Problems’ are those problems which cannot be solved by the methods of ‘normal science.’ They include most of the unsolved social agenda discussed above. Because these problems transcend national borders, we will entertain papers which discuss international attempts to solve them.

To participants in the SIG Session(s): You are invited to address any of the subjects already discussed by C.W. Churchman and extend his ideas to apply them to the ethical problems besetting society in the 21st Century. The best papers will form the basis for a book which will be published as a Book of Readings tentatively entitled:

“Churchman’s Ethics: Essays To Solve The ‘Extraordinary Problems’ Of The 21st Century.”
(Editor: John P. van Gigh)

When completed and edited, the book should provide a comprehensive picture of Churchman 's ethical norms. It will pertain to a new book series entitled Churchman's Legacy and Related Works to be published by Kluwer/Plenum.

We hope that many of you will answer this CALL FOR PAPERS so that your will be read at the Conference and later it will be represented in the Book of Readings. The book will reflect how West influenced your ideas on the subject. It goes without saying that the book will feature as many authors as papers to be included therein. For more information on the Book of Readings contact the SIG Chair.

Submit your proposed paper according to the conference schedule to the Chair John van Gigch at: vang@sonic.net

Evolutionary Learning Community

We cordially invite you to join us at the 48th annual meeting of the International Society for the Systems Sciences (ISSS). Specifically, we hope you will consider contributing a paper and/or a poster for presentation in the Evolutionary Development SIG (Special Integration Group) that it is our pleasure to co-chair. This will be the sixth year of productive meetings as an intact line of inquiry, the first four under the name of the Evolutionary Learning Community SIG, and last year as the ED SIG. We will continue to focus our efforts on issues of timely relevance to which ELCs may best be dedicated.

The theme of this year's conference is: «Fifty Years of Systems Science,» in celebration of the organization of the precursor of ISSS in 1954. The two subthemes are «Integration» and «Continuity». These themes provide exiting platforms to catalyze the collective explorations of the ED SIG.

Inquiry in the area of Evolutionary Development involves revision of development notions and strategies, from a systemic and evolutionary perspective, in order to integrate the often isolated areas of human, economic, social, and sustainable development. Doing more with less, promoting living simply and meaningfully, and creating a sustainable economy where present and future human needs can be met without compromising the natural environment are some of the concrete objectives of Evolutionary Development. Evolutionary Learning Communities, as learning environments where people can learn together about the interconnected nature of our world, the ecological impact of our individual and collective choices, and the joy of finding a meaningful way to contribute to the emergence of sustainable and evolutionary futures, are the social units where Evolutionary Development can be set in motion for the ongoing self-organization of human societies in syntony with the planetary life support systems upon which they depend.

We invite both theoretical analyses relating to the principles and constructs of Evolutionary Development as well as presentation of explorations and practical applications that foster Evolutionary Development. This SIG welcomes treatment of themes that include, but are not limited to, consideration of the following topic areas:

- Human, social, and natural capital
- Self-directed sustainable development
- Community empowerment and participatory/anticipatory democracy
- Socio-ecological competence and the evolution of consciousness
- Design of ELCs as evolutionary guidance systems
- Evolutionary Systems Design as praxis
- Syntony as an organizing force in societal evolution

The ED SIG will be run as follows: During the conference itself, no formal paper presentations will be made, even though acceptance of both abstracts and full papers and/or posters is required. In order

to be congruent with the general theme of the conference and the specific focus of our inquiry, our sessions will be conducted as learning conversations. Participants will engage first in a generative conversation in which they will have the opportunity to share the core ideas of their work with each other. After the group has attained a basic collective cognitive map of the research and constructs represented in the room, we will move into a strategic conversation to identify areas of synergy, create new knowledge and insights, and propose further collaborations.

By way of background information in preparation for this event, we urge you to visit the historical webpages of the ELC SIG. Since this coming year's ED SIG is a descendent of the previous ELC SIG, the statements of goals, purpose, and history, as well as of topics, format, and focus all bear directly on the spirit of engagement in which the ED SIG will meet at Asilomar. The URL to visit is as follows:

<http://issss.org/sigs/sig29elc.htm>

Of course, if there is anything we can help clarify for you with respect to the above, please do get in touch with us. All of our contact information follows immediately after our «signature,» below.

For further information, please contact: Alexander & Kathia Laszlo

Co-Chairs, ISSS ED SIG

U.S.A.: 1761 Vallejo Street, Suite 302, San Francisco, CA 94123

Mexico: Cardenal 1310, San Andres - El Barrial, Santiago NL 67300

Phone/Fax: ++415/346.1547 (USA) Cell: +++811/006.3021 (Mex)

mailto:info@SyntonyQuest.org <> <http://www.SyntonyQuest.org>

What is Life/Living

Chair: John Kineman

Co-Chair: Ron Cottam

The WILL SIG has existed now for 5 years and many diverse papers have been contributed on the general theme of «what is life?» It is a good time now to consider the ISSS sub-themes of «integration» and «continuity.»

We invite papers for the 5th WILL meeting and 48th ISSS meeting that attempt an integration of views or theories about life. Papers that reference previous WILL SIG papers presented at the 1999-2003 ISSS annual meetings will be especially welcome. Those papers are available on CD-ROM from ISSS and have been distributed to members.

Additionally, papers dealing with the epistemology of integrated science will be welcome. It is one thing to ask for papers integrating previous papers, but another to know how to go about it. The history of science, mostly the physical sciences, has many famous examples of theory integration, and indeed integration of assumptions and worldviews, as in Thomas Khun's theory of scientific revolutions. An analysis of world view integration, citing several philosophical traditions, can be seen, for example, at: http://www.nexial.org/bmi/autevol/ghw_epi.htm. In that example, there are two possible results of scientific progress: a unified view of nature, or a «family» of irreconcilable views and theories.

Today we have very little integration within the sciences, and yet a strong call for new integrated science methods. There can be no greater need for integration than with regard to the question of life, for as long the related disciplines remain fragmented, any theory of life will be suspect.

The continuity of science has also been an important aspect of scientific epistemology. While many foundations for theory are possible, the scientific enterprise attempts to explore them methodically,

moving from one set of assumptions to logical successors, rather than random leaps. Is it perhaps time for life theorists to attempt something in the epistemology of science that is analogous to practices that drove physics to such great success? While this is tempting, it is also apparent that such an effort will almost certainly be based differently than physics. More and more, it seems that physics must be treated as a sub-set of a larger reality, and life must be associated with that larger reality. If this is so, it may be impossible to get to a foundation theory of life from today's physical or mechanical concepts alone. Physics itself may enlarge its scope, but even so, is it not possible that life theorists have much to contribute to that expansion now? So, we will review papers submitted in regard to these themes, looking for valid attempts at integration across disciplinary views and continuity of thought through the history of relevant disciplines. We anticipate having paper and poster sessions, as well as panel discussion. A separate meeting on producing a 5-year synthesis volume is also a possibility. Paper abstracts should be submitted according to ISSS instructions, AND TO BOTH OF THE FOLLOWING:

John J. Kineman

jjk@nexial.org

John.J.Kineman@noaa.gov

and

Ron Cottam

ricottam@etro.vub.ac.be

Women and Children in Community Systems

Papers are invited that identify themes and research interests which account for the perspectives, interests and needs of children and women in social systems. More than half of the world's population is women. Children are the future. Both groups are affected by different systems constructs, with formal and informal needs to have representation in the community or social system in which they live. Papers that apply systems thinking and understanding to family systems, community systems and other social systems as related to the development of 'service' systems are always welcome. A special invitation is extended to those who would like to present papers on the sub themes of 'integration and continuity' as they apply to women and children in community systems. Papers are invited from anyone who is interested in developing scholarship focusing on this area of study.

For further information, please contact: Anne Nelson Chair, Women and Children in Community Systems 2442 N.W. Market St. #112 Seattle, WA 98107

Systems Specific Technology

The great promise of General Systems Theory and Systems Sciences has not yet been fully realized. Currently, we are still mostly ruminating about the initial concepts of the von Bertalanffy and have not yet progressed to the level of a complete scientific theory with its own language, and its own specific tools and technologies.

The purpose of the Systems-Specific Technology SIG of ISSS is to be instrumental in development of systems-specific tools/technologies and their pragmatic application across the boundaries of different sciences. These tools and technologies are expected to push the limits of perception, cognition, communication, and dramatically enhance human creativity, heuristic potential and transform Systems Science to a level of a truly exact science.

We invite ISSS members to contribute to the inaugural Systems-Specific Technology Session. This Session will explore the following areas of Systems Sciences:

1. Defining Systems-Specific Technology
2. Concepts and Methodologies for Developing, Constructing and Testing Different Types of Systems-Specific Technology

3. Established and Under Development Systems-Specific Tools

For further information, please contact: Vadim I. Kvitash, M.D., Ph.D., 2299 Post Street, Suite 306, San Francisco, CA 94115, USA. E-mail: Kvitash@hotmail.com.

Spirituality and Systems

Statement of Purpose: This Special Integration Group is devoted to open inquiry about spirituality and systems, about the awakening of consciousness and its relationship to the human systems in which we live and function.

Our SIG continues to touch upon many aspects of the vast subject of spirituality. We have emphasized exchange and dialogue, and this has brought very really positive interaction. Such dialogue is central to the spirit of this year's ISSS conference, celebrating 50 years of the ISSS and the themes of integration and continuity.

Keeping with the broad scope of the SIG, papers on all topics related to the larger field of spirituality and systems are also welcomed. One example of a topic that is related to the larger field of spirituality and systems and, therefore appeals to people working in other SIGs would be "the use of paradoxes in spiritual awakening, psychotherapy and human systems management".

We again look forward to a rewarding session this year.

Tetsunori Koizumi and Charles Smith, Co-chairs

Papers should be submitted as per instructions at <http://www.issss.org/sigcall.htm>. Please submit two copies, one to Tetsunori Koizumi at koizumi@world.ryukoku.ac.jp, and one to Charles Smith at muinuddin@verizon.net.

Applied Systems and Development

«The multiple perspectives on international relations»

Responding to our concern on globalization in the contexts of intercultural organisations, we propose the multiple perspectives on international relations. The multiple perspectives in the development of multicultural organisations are necessary in today's global economy.

To submit an abstract please send to Dennis Finlayson at dfinlayson@btopenworld.com or Jae Yu at 9070yu@hanmail.net

Organisational Transformation and Social Change

One interest of this SIG is seeing organisations as social communities, thereby allowing for a convergence between management systems/cybernetic theory and sociology. Another concerns the change imperative for autonomous organisations in a complex world (more on this can be found at: <http://www.intellectbooks.com/journals/otsc.htm>). Abstracts are therefore invited from all fields of organisational or social systems research and/or practice.

Professor Maurice Yolles, Liverpool John Moores University, 98 Mount Pleasant, Liverpool L3 5UZ, UK. Email: m.yolles@livjm.ac.uk, and David Ing <daviding@ca.ibm.com>

ISSS EXPLORATORY GROUPS

Foundation of Information Science

The Foundation of Information Science SIG calls for papers in the broad sense of the topic, but this year especially also under the theme below. A new rationality: Can informational thinking carry us beyond the Enlightenment rationality or do we need semiotics also?

European culture stands in a watershed when it comes to make the final step into a knowledge culture. Either we can stay with our understanding of knowledge and rationality that we developed through

the Renaissance and made central to our civilization and culture in the Enlightenment or we can deepen the foundation into human embodiment and life world practice.

From the Greeks we inherited the idea of a well-ordered and mathematically beautiful Cosmos, which we - for instance Galileo - build the foundation of the new mechanical physics on. It is the belief that rationality and the order of the world fits through the divine order of logic and mathematics. As Prigogine show then from Laplace and forward the belief was founded that the physical world you be explained in one mathematical formula. - a "world formula". This was what Laplace took out of the Enlightenment thinking- That is one of the reasons that Russell and Whitehead tried to unite them logic and mathematics in their Principia- and that Gödels incompleteness proof was such a chock. Physics has continued the search for the world formula. Steven Hawking is one of the most well known exponents for it. The paradigm has «spilled over» into the search for the genetic algorithms and artificial intelligence. As Lakoff has shown then it has created a myth of abstract un-embodied intelligence as the highest goal of knowledge (The Greeks considered mathematics to be divine and the heavenly bodies to move in perfect circle and classical physics hoped to find exact, deterministic context free eternal laws of nature). This has lead to a worship of computers as been the ideal of intelligence, of religious ideas of our future possibility of "going over" into the Internet and leave there forever as pure intelligences, plus the belief that robots can be intelligent in the same way as humans. The most famous example is "Data" in the Star Trek movies and in the last on (Enigma) his intelligence is transferred to another robot some days before he is destructed on a mission.

This idea of intelligence and knowledge based on the Turing machine has carried us a long way. It is now called the information processing paradigm of cognitive science. Its usefulness has run out for the modern complicated problems and systems we have to deal with. One of them is of course the human-computer interaction and how to integrate the computer, Internet and robots in our culture in a way that support human development and do not destruct the centre of Western culture, which is its respect for the uniqueness and rights of the individual human being.

We need to know more about the relation between human meaningful information and the meaningless algorithmic processing of information. We need to much know more about human embodied information. How embodied and un-embodied information differ, and we need to know more about the interaction between culture and embodied knowledge.

Knowledge seems to be both in the body, in the mind and in the conscious use of language. These three levels seem to interact. Human knowledge is embodied and is therefore rooted I our evolution and genetic make up and our ecological interactions preserving our body and its procreation. But Second order cybernetics, autopoiesis and triadic semiotics seems to be some of the tools that can help us make better models of signification, cognition and communication.

For further information, please contact: Søren Brier, sbr.lpf@cbs.dk, Copenhagen Business School sbr.lpf@cbs.dk.

Telephone (+45)3815 2208.

Address: Copenhagen Business School, department of Management, Politics and Philosophy, Blågårdsgade 23 B, room 326. DK-2200 Copenhagen N.

Primer Group

Primer can be a noun - the name of a presentation of elementary principles, or it could be a verb - to prime. The Primer Group at ISSS is trying to do both - to inform the community of the systemic fundamental principles, both philosophical (general) and Scientific (particulars), and to inspire mutual-inter-action of the systemic kind.

We began in 1995 inspired by Bela H Banathy, and included a synopsis of his knowledge in our writings on the Web. (1996 ISSS Proceedings) It is sad to have lost Bela, who has returned to from whence he came. But in a sense he is still with us just as much.

As a tribute to the great man, the Primer SIG will publish papers on Bela's viewpoint in hopes of giving us his «lens» through which we can perhaps glimpse at what he saw.

It is preferred that the papers be submitted in three phases,

A) a sentence outlining the «focus» of the paper. The traditional abstract could be included as an elaborative-explanation of the focus-sentence.

B) An essay. Two pages approximately. This is what will be published on the web.

C) A Problematique. The Problematique or Demosophia presentation will be incorporated in the final publication. This methodology was used at Crete and is being used by NSF/Project 2061 in their publications. (A Problematique/Demosophia is systemic-rigorously-philosophical/scientific, professionally constructed «poster.»)

For further information, please contact: Tom Mandel Thommandel@aol.com

Emergence in Complex, Cognitive, Social, and Biological Systems (*)

The systems movement emerges from the activity of many systems societies, associations, research centers, intellectuals and scientists engaged in multi-, inter- and trans-disciplinary activities. This SIG is based on contributions to systems thinking by the so-called hard sciences and to them by systems thinking as well as originally introduced by Ludwig von Bertalanffy (theoretical biologist and mathematician), by other founders of ISSS, and past ISSS Presidents (presented in the Luminaries of the ISSS web page <http://www.iss.org/luminary.htm>). ISSS has had a Nobel Prize winner in chemistry, Ilya Prigogine, as its President and many thinkers as contributors like Herbert Simon Nobel prize in economics making fundamental multi-disciplinary contributions in Artificial Intelligence, Cognitive Psychology, Management, philosophy of science, and complex systems and Herman Haken introducing Synergetics in Physics (laser theory) and having applications in many fields from sociology, economics, computers architectures to Decoding Facial Expressions of Emotion to mention a few.

It is important to honor this tradition already established in ISSS. We have noticed that in recent years the focus has been too unbalanced towards the social sciences only, neglecting contributions from hard sciences, such as physics, chemistry, biology, ecology, mathematics, information sciences, engineering, cognitive sciences, linguistics, artificial intelligence, and artificial life.

Many different specific, disciplinary ideas, approaches, methodologies and theories may be listed as contributions of hard sciences to systems thinking.

We invite you, as scientist and researcher submitting a contribution or as attendant interesting in learning contributions from science, to join the 48th annual meeting of the International Society for the Systems Sciences (ISSS). The theme of the conference is: «Fifty Years of Systems Science: Honoring tradition, embracing the future,» in celebration of the founding of the Society for General Systems Research (SGSR) in 1954. Contributions from hard sciences played a very important role in the story of systems thinking and in the story of SGSR/ISSS.

We propose to deal in this section with a very crucial, current issues at the focus of many scientific researches, publications and conferences. The theme of emergence. This theme is dealt by many disciplines, coping with a crucial issue for systems thinking: the process of transformation of configurations of elements into systems displaying characteristics different from ones of components: in this process it's crucial (and controversial) the role of the observer. Many different aspects of this process are of great interest for disciplinary scientists and systems researchers, such as:

- representing,
- modeling,
- simulating,
- theoretical issues on,

- managing,
- measuring,
- experimental activities on,
- keeping,
- emergence.

The honoring and the embracing mentioned in the title cannot take place without considering different disciplinary approaches to the theme of emergence around which is in progress the designing of the future of systems thinking itself.

This SIG welcomes papers to be presented and discussed in the above mentioned areas from different disciplines, like the ones listed above. This SIG particularly welcomes contributions explicitly showing their systemic meaning and relevance for systems thinking.

We invite to pay particular attention to references to be used to help non-expert attendants to deepen the introduced contributions. “Multi-dimensional” references, that’s suggested for readers and attendants having specific interests and backgrounds are welcomed.

Depending on the contributions we would like to organize a concluding panel discussing the ideas and approaches introduced.

The SIG is expected to be not a closed session for experts only, nor to have the purpose to divulgate. The SIG will have a committee to refer the submitted papers. We look for making available crucial concepts and approaches scholarly presented to systems researchers through appropriate representations, descriptions, examples by avoiding metaphors and considering that (excerpt from <http://www.iss.org/lumprig.htm>): one may speak of a case of “inter-disciplinarity” when one discipline is able to represent by using its own “idiom:”, i.e., language, the problems, descriptions, models and solutions of another (e.g., the term equilibrium as used in Physics, Psychology, Economics, Biology, and Music).

(*) I’m using the same title of the Proceedings of the 2001 Conference of the Italian Systems Society www.airs.it <<http://www.airs.it>> :

Co-Futura: Modeling & Fostering Emergence in Self, Organizations & Governance

Papers are welcome on the themes developed in the CO-FUTURA group which is in the process of organising as a SIG (see OBJECTIVE below), with a special focus on the 2004 ISSS conference themes, especially that of ‘integrating qualitative and quantitative approaches to systems science,’ namely:

1. systemic modeling of emergence (new consciousness paradigm, complex cognitive dynamics, collective cognition, intentional emergence, new modes of governance, ecological inter-influences, dynamics of innovation, non-local dynamics of interconnexion.)
2. devising systems practices to foster emergence and change in companies, groups, and Self (knowledge management, organizational learning, participatory decision-making, communities of practice, visioning, self-development, coaching, creativity.)
3. Phenomenology and experience of consciousness (a-rational and intuitive knowledge, altered states of consciousness, interconnexion, synchronicities.)

The Special Integration Group CO-FUTURA focuses on the systemic modeling of the process of intentional emergence and on devising practical approaches to foster emergence and change both at the individual and the collective levels. The objective is, through systems thinking, to bridge the gap between modelization and practice/experience, and thus to participate in the emergence of the new consciousness paradigm in science and society.

The new paradigm focuses more and more on consciousness and the individual (1st person perspective), and is intent in bringing significant changes in the world. Its pregnant feature is to move beyond the materialistic and reductionistic credo, and to open a new perspective: Beyond Scientism: science is not the only real knowledge. Beyond Reductionism: the whole system shows novel properties. Beyond Determinism: cause-effect is not the sole interaction between processes/systems. Beyond the Newtonian paradigm: to understand reality as only matter-energy is to forget the consciousness dimension. Beyond Rationalism: logic is not the only cognitive mode.

The process of emergence may happen through self-organization, that is the dynamical interaction of complex processes or systems, leading to bifurcations and the emergence of new global orders. It may also - in individuals or in groups - be steered by intentions and values.

In Self: creation of meaning, emergence in knowing and valuing, states of consciousness, peak experiences, holistic world-vision, and leaps in consciousness. The focus is to foster one's own conscious and spiritual evolution, by understanding and modeling states of consciousness, a-rational and intuitive knowledge, emergent spiritual and ecological understanding.

In organizations and societies: understanding and modeling the dynamics of co-creation of shared meaning and values, new modes of cooperation and dialogue, synergistic emergence, organizational learning, knowledge management, conflict resolution, and collective consciousness. The aim is to devise frameworks and methodologies to foster the conscious cooperative evolution of groups and the emergence of multicultural societies.

In governance: New modes and styles of governance will be discussed and envisioned (such as participatory democracy, federations, multiparty instances), implying a true real-time participatory process in decision-making at both holistic and practical levels (selection of goals, values, and roadmaps), so that the elected representatives may remain in sync with changes and leaps in the social body.

The systemic modeling of emergent meaningful processes may be based on systems, chaos theory, or neural nets, in order to formalize such processes as: emergence of ideas, the dynamics of discovery and innovation, Koestler's aha! experience, insight, the state of flow, the cultural creative (Paul Ray), synchronicities, non-local dynamics of interconnexion, distant non-linguistic communication, psychological and societal network dynamics (such as team-building, dialogue groups, the collective unconscious), the creation of novel cognitive organization in the individual (such as trance state, illumination, creative thrust, etc.) and in a cognitive collectivity (i.e. the internet), the dynamics of anticipation, the process of visioning and co-creating the future, communities of practice, the co-creation and testing of new models of governance.

For further information please contact Dr Christine Hardy at 101515.2411@compuserve.com
Submit abstracts to Dr Hardy and the conference organisers.

ISSS 2004
PAPER STYLE GUIDELINES

DEADLINE FOR FORMATTED PAPERS IS APRIL 15, 2004. SUBMISSIONS AFTER THIS DATE WILL NOT BE INCLUDED IN THE CONFERENCE PROCEEDINGS.

SUBMIT PAPERS TO:
JENNIFER WILBY
Phone: +44-1759-302718
E-mail: isssoffice@dsl.pipex.com

Mailing address:

Jennifer Wilby
47 Southfield Road
Pocklington
York YO42 2XE England

Please use regular airmail and avoid use of any courier service such as FedEx, DHL etc. If these carriers are used, any customs charges will be billed to the paper author.

PREPARATION, LENGTH AND PRINTING

A printed (hard) copy of all papers must be submitted along with an electronic submission on a 3.5" diskette. Alternatively a printed copy may be submitted by regular mail and the electronic version submitted by E-mail – please be sure that you note this on both submissions. However, if papers are submitted by E-mail, they should be sent as attached files with a description in the body of the message as to what word processing package has been used to create them.

The printed copy of the paper will be used for review and to ensure correct layout. A copy should also be sent to your panel chair IF YOU KNOW WHO THIS WILL BE.

Insert page numbers on the electronic version in the footer of each page beginning with page number 1, centered, in 12 point regular type (not bold).

Insert headers on the top of each page, centered in 12 point bold type using a shortened version of your paper title. Headers should not exceed one line.

Disks can be either IBM or Macintosh format; the files should be saved in a recognised word-processing program. Artwork and tables should be pasted into the document. Do NOT float the graphics over text. Send a paper copy of all artwork and tables with the paper so that layout can be checked.

The length of the paper should not exceed 20 pages, including title/summary page and references. Do not start a new page after the title and abstract. Pages must be single-spaced. Type on one side only.

Template File

If you would prefer to start your paper using a Word template file, please email isssoffice@dsl.pipex.com for a copy of the file. USE THE TEMPLATE for correct layout and styles. In the template file you will find the following styles. Send any questions about the template or

individual styles by email to the address above. AN EXAMPLE PAPER FOR STYLE WILL BE PLACED ON THE WEBSITE SHORTLY.

Style name	Description
Papertitle	title of the paper
Author	name of author
Address	address of author, may run to several lines
Heading 1	first level headings, including abstract and reference headings
Heading 2	second level heading
Heading 3	third level heading
Bodytext	regular paragraphs
Bulletindent	bulleted lists of paragraphs
Figuretitle	placed under a figure
Tabletitle	placed before the table
Reference	reference entry, hanging indent

Please enter a short running title in the header at the top of each page, except the first.

ABSTRACT AND KEYWORDS

Two lines below the title and affiliation, type the heading “ABSTRACT” and then after one line space, start a brief abstract as the first paragraph of the paper. You may use your program abstract or a suitable alternative.

At the end of the summary, skip a line and then type «Keywords:» (underlined and followed by a colon) followed by up to five (5) words that describe the focus and contribution of the paper. The summary should follow the title, author’s name, and mailing address on the first page. Skip two lines and then begin the body of the paper (after an Introduction heading, if needed) immediately after the summary. Do not begin a new page.

Figure captions should be typed directly below the figure, in bold 12 point type, upper and lower (title) case and centered.

Table captions should be flush left above the table. Tables should be included in the manuscript proper and referred to in the text as «Table X. Description of Table.»

EQUATION NUMBERS

When numbering equations, enclose numbers in brackets [] and place them flush with the right-hand margin. Refer to them in the text as «Equation [x]».

REFERENCES

List bibliographic references at the end of the paper under the major heading «References». List authors alphabetically by the first letter of the first author’s last name. References should be identified in the text of the paper by typing the corresponding name and year in parenthesis. If a page number is included, it should be set as (author, year, page number). DO NOT NUMBER REFERENCES, they must be alphabetical and unnumbered.

There should be no extra line spaces between references.

Book titles and names of journals should be printed in italics, not underlined. The format for the reference section should be as follows:

Author, A. (1991). Title of Book., XYZ Press, Place of Publication.

Author, B., and Author, A. (1995). Title of Paper, Journal., 3(1):1-20.

Author, C., Author, A., Author, B. and Jones, G. (1996). Title of Paper, in Title of Book, (E. Editor, ed.), XYZ Press, Place of Publication.

For multiple publications in the same year by the same author:

Bauthor, B., and Aauthor, A. (1995a). Title of PaperA, Journal. 3(1):1-20.

Bauthor, B., and Aauthor, A. (1995b). Title of PaperB, Journal. 16(4):25-50.

NON-CONFORMITY OF SUBMISSIONS

Paper submissions that do not use the template and conform to these guidelines WILL be returned to the author(s) for correction.

OTHER CONFERENCES

**10th Annual International Conference on
Industry, Engineering, and Management Systems (IEMS 2004)
March 15-17, 2004
Cocoa Beach, Florida**

We are pleased to invite you to the 10th Annual International Conference on Industry, Engineering, and Management Systems (IEMS 2004). This year's conference is scheduled for March 15-17, 2004 at the Holiday Inn Oceanfront Hotel in beautiful Cocoa Beach, Florida. In celebration of our 10th anniversary, we are planning a great program for all of our attendees. Please join us for another intellectually-stimulating conference and enjoy the relaxing coastal environment of Florida. Please check out our conference website, designed by our infamous Program Chair, Al Petrosky, for the conference Call for Papers, registration information, and other related conference information.
<http://www.csustan.edu/market/petrosky/iems2004.html>
<<http://www.csustan.edu/market/petrosky/iems2004.html>>

**The 3rd International Conference on Systems Thinking in Management (ICSTM 2004)
«Transforming Organizations to Achieve Sustainable Success»
Featuring a celebration of over 50 years of contributions to management sciences by
Russell L. Ackoff
May 19 - 21, 2004
Philadelphia, Pennsylvania, USA**

Co-hosts:

Ackoff Center for Advancement of Systems Approaches (ACASA), University of Pennsylvania
Association for Enterprise Integration (AFEI)

For further information, please visit www.icstm.org <<http://www.icstm.org/>>

14th Annual International Conference
The Society for Chaos Theory in Psychology & Life Sciences
Milwaukee, WI, USA
July 15-18, 2004

For conference details and call for papers go to
<http://www.societyforchaostheory.org/conf2004/cfp.html>

Fourth Interdisciplinary Conference on The Evolution of World Order
Appropriate Political Structures, and Security Through Global Laws:
Steps to Full Spectrum Justice, Peace, and Ecological Integrity
Ryerson University, Toronto
October 14-16, 2004

This interdisciplinary conference is to address global issues. We shall explore the state of the world, and the processes that change it. Round tables and Internet discussion groups are part of the conference. Problems of high priority will be selected, and recommendations for implementing changes will be presented to political actors.

A sustainable civilization rests on two pillars: renewable resources, and social peace. Resource scarcity, and social injustice are the root causes of conflicts. The nature and scope of weapons at the disposal of humans today make the traditional violent conflict resolution through war suicidal. It is accepted by most that a nuclear war could lead to the catastrophic collapse of civilization. Therefore, the law of force needs to be replaced by the force of law. The conference will search for means to remove the root causes of conflict, and explore appropriate methods of conflict resolution by the extension of the rule of law beyond the nation to continents and the entire globe. We shall search for means to implement Article 1 of the United Nations Constitution: «to take effective collective measures for the prevention and removal of threats to the peace».

Social systems are capable of change. The design of appropriate political structures, and of nested sets of laws should follow the basic design principles of rationality, beauty, simplicity, and functionality. A full spectrum of ecological, political, economic, social, and human laws of global scope, as well as the enforcement of these by a multilateral constabulary are necessary to keep the social peace, and preserve the environmental integrity of this planet.

Some suggested themes are:

Scientific ethics, common values in the religions of the world.

Appropriate political structures, UN reform, and continental unions.

Guarding the global commons: a UN multilateral rapid reaction force

UN taxes for the use of outer space, the atmosphere, the oceans, and Polar Regions.

National sovereignty, and its limitations by continental and global rules.

Ecological Impact through human population, consumption, and technology

The role of governments, religions, art, education, the media, science, technology, civil societies, and corporations in implementing a sustainable civilization.

For More Details Contact: Helmut Burkhardt, Ryerson University, 350 Victoria Street, Toronto, Ontario, Canada, M5B 2K3

Tel. 416-979-5000x7246, Fax: 416-979-5064, Email: burkhard@ryerson.ca

SECTION THREE

MEMBERS' REPORTS

CALL FOR NOMINATIONS

The following offices must be filled for terms beginning at the 2004 Annual Meeting of the Society:

President Elect
VP for Research and Publications
VP for Membership and Conferences
Treasurer and VP for Funds
Secretary and VP for Protocol
Representative from Trustees

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

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.

Please send nominations by March 1, 2004.

Nominations should be sent to:
ISSS Office
Jennifer Wilby
47 Southfield Road
Pocklington, York YO42 2XE England
Fax: (44) (0)1759 302718
isssoffice@dsl.pipex.com

NOTICE OF UPCOMING ISSS MEETINGS

The annual membership, council and board meetings will be held during the annual conference at Asilomar, Pacific Grove, California USA during the week of 4 July to 9 July 2004.

**ISSS BOARD MEETING
JULY 10, 2003
CRETA MARIS CONFERENCE CENTER, CRETE, GREECE**

ISSS President Alexander Christakis, Chair, called the meeting to order at 2:50pm.

Board Members Present: Kenneth D. Bailey, Aleco Christakis, Enrique Hersscher (Joined at 3:50pm), Maurice Yolles, Larry Magliocca, Karen Sanders and Jennifer Wilby (Joined at 3:50pm).

2004 ISSS Conference

President-Elect Kenneth D. Bailey reported on plans for the 2004 conference. It was noted that since ISSS is an international society, it is expected to seek variation in venues. Professor Bailey announced that the 48th Annual Meeting would be held July 4-9, 2004 in Asilomar, California, USA. The theme of the meeting is "FIFTY YEARS OF SYSTEMS SCIENCE: HONORING TRADITION, EMBRACING THE FUTURE. The Board discussed the 2004 conference, and noted that it had been previously approved by the Board.

Elections

Kenneth Bailey made a motion to nominate Dr. Arne Collen as the Vice President for Membership and Conferences. The motion was seconded by Larry Magliocca. The motion passed unanimously, and was referred to ISSS Council for election.

2005 ISSS Conference

The venue for the 49th Annual Meeting in 2005 was discussed briefly, but no site recommendations were made. There was some sentiment that the 2005 meeting should not be in the United States. The motion was made by Dr. Christakis and seconded by Dr. Bailey that the 2005 meeting be held outside of the United States. The motion passed unanimously.

ISSS Yearbook

The yearbook was discussed. President Christakis announced that he had agreed to be Editor of the next edition of the Yearbook, to be published within a year.

SPECIAL INTEGRATION GROUPS

Dr. Maurice Yolles presented a report on the SIGs. The ISSS official web site, and the amount and nature of information that is currently available on the Internet concerning the SIGs and officers was also discussed.

Web-based Interaction

President Christakis noted the difficulty of promoting interactive dialogue with ISSS members. A motion was made by Dr. Yolles and seconded by Dr. Christakis that ISSS allocate resources to facilitate web-based interaction with members. Jennifer Wilby noted that the web site currently had interactive capabilities for members. A second motion regarding web-based resources was then forthcoming. President Christakis moved (seconded Magliocca) that Maurice Yolles, Vice President for Research and Publications, and Jennifer Wilby, In-coming Vice President for Administration, take leadership responsibility to take action for enhancing resources. They were directed to author a one-page proposal to ISSS concerning the allocation of resources to facilitate web-based interaction among ISSS members.

New Business

The first item of new business was presented by Vice President Yolles. He asked the Board to study ways that the SIGs can be made more visible. Specifically, "How can the SIGs effectively increase

the visibility of individual researchers and their contributions, and how can the CVs of these researchers be presented to the membership?"

The second item of new business was the discussion of the recent election of ISSS officers. The motion was made by Dr. Herrscher, and seconded by Dr. Yolles, that future ISSS elections must reveal to each candidate, prior to the election, the identities of all the other candidates in the election.

Adjournment

With no further business, the meeting was adjourned at 4:05pm. Respectively submitted by Kenneth D. Bailey.

ISSS Council Meeting July 10 2003 Creta Maris Conference, Hersonissos, Crete

Kenneth Bailey chaired the meeting and called the meeting to order. Council Members Present: Kenneth Bailey, Aleco Christakis, Arne Collen, Dennis Finlayson, Enrique Herrscher, David Ing, Alexander Laszlo, Kethia Laszlo, Larry Magliocca, Janet McIntyre, Donna, Jasper Taekke, Jennifer Wilby and Maurice Yolles.

Elections

Elections for new officers are currently in progress and will be reported by email to all members on completion. Kenneth Bailey proposed Arne Collen for the position of VP for Membership and Conferences for the year 2003-2004 at the ISSS Council meeting. This was seconded by Alexander Laszlo. The motion was approved unanimously.

Financial Report

The financial statements will be published in detail in the Bulletin. There is \$30,000+ in an interest bearing account in the USA. There is an additional \$20,000 in cash. The society is therefore healthy financially and solvent. It was discussed at Board and Council that some of these finances should be allocated to structural changes and simplification of the society's website. People have to be able to sign up for membership online.

Conferences

The 2004 conference will be held at Asilomar in 2004, July 4 to 9th, under the direction of Kenneth Bailey and Arne Collen. It was reported that the Board had passed a motion by Aleco Christakis that the 2005 meeting should not be held in the USA. Enrique Herrscher proposed a regional meeting in July 2004 with a partial overlap with Asilomar for the Latin America Agora. ISSS will be asked for support in finance and effort. This was seconded by Kathia Laszlo. Dennis Finlayson offered himself as a British-based support person for this meeting. All regions of Council would be encouraged to send one person to this meeting as a means of financial support. Then members could travel on to the Asilomar meeting and report outcomes to the full conference. Arne Collen expressed concern that this might split loyalties as to which conference site to attend but Enrique said this would not compete with the main meeting. Janet McIntyre asked that we should expand our options to be more flexible in types of venue. Alexander expressed agreement with this sentiment. Dennis Finlayson asked if there were any other proposals for venues. There was then unanimous approval for Enrique's motion.

An invitation letter was read out from Augustin Delgado from the Instituto Politecnico Nacional in Mexico (Cancun) for the 2005 conference. After much discussion it was agreed that this will be investigated further with the newly elected President-Elect as to whether this would be a feasible site to organise at. Kathia and Alexander Laszlo, Roxanna Cardenas and Enrique Herrscher will talk

further about the proposal and possibilities for the main meeting being in Mexico or South America in 2005. Australia and Hong Kong are also possible future venues, but neither of these have sent official invites.

SIGs

Work is progressing on the website through conversation with SIG chairs led by Maurice Yolles. The workshops at this conference critiqued the current set up and want more interaction. Transparency is an issue that Maurice and the SIG chairs are discussing. A working committee with budget to be agreed has been established by the Board to work on the webpages. Maurice Yolles has been designated responsibility on behalf of the Board as VP for Research and Publications for the website project. Maurice is to work with all those involved and interested in the website.

Any Other Business

None. The meeting was then adjourned.

ISSS Membership Meeting July 11 2003 Creta Maris Conference, Hersonissos, Crete

Kenneth Bailey chaired the meeting and called the meeting to order at 1:00 P.M.

Elections

Elections for new officers are currently in progress and will be reported by email to all members on completion. The membership was advised that Arne Collen was elected to the position of VP for Membership and Conferences for the year 2003-2004 at the ISSS Council meeting.

Financial Report

The financial statements will be published in detail in the Bulletin. There is \$30,000+ in an interest bearing account in the USA. There is an additional \$20,000 in cash. The society is therefore healthy financially and solvent. It was discussed at Board and Council that some of these finances should be allocated to structural changes and simplification of the society's website. People have to be able to sign up for membership online.

Conferences

The 2004 conference will be held at Asilomar in 2004, July 4 to 9th, under the direction of Kenneth Bailey and Arne Collen. It was noted that there is a World Multi Systems conference in July in Florida that we should think about and perhaps not conflict with those dates. It was also suggested that we could work with other conference groups such as WMSC or UKSS since this year had worked well coordinating with RC-51. It was also raised as to the possibility of meeting with AAAS again. No further action was proposed however.

The 2005 conference has been suggested to be held in South America and Board and Council have received a letter of invitation from Mexico (Cancun).

Membership Issues

Continuity: It was suggested that if we want continuity then we should have a continuity of presidential themes as well. Also school curriculums are changing and ISSS should have some impact in this area also.

Elections need to happen earlier so that the announcements of new Board members can be made at the conference membership and Council meetings as stated in the bylaws.

SIGs

Work is progressing on the website through conversation with SIG chairs led by Maurice Yolles. The workshops at this conference critiqued the current set up and want more interaction. A working committee with budget to be agreed has been established by the Board to work on the webpages. The new pages will have to satisfy both administrative and interactive discussion functions.

Any Other Business

Allena Leonard asked who she should send copies of the Team Syntegration workshop reports. Copies should be sent to Jennifer Wilby, VP Administration for recordkeeping, Kenneth Bailey, and to Maurice Yolles for putting onto the webpages. Allena also commented that ISSS needs to be clear about its social mission in its identity and either at next year’s meeting or before, there should be some work in this area.

There was a motion, proposed and seconded that the Membership thanks Aleco Christakis for the organisation of this year’s presidency and conference. The motion passed unanimously.

There was a motion, proposed and seconded that the Membership support Kenneth Bailey for the organisation of this next year’s presidency and 2005 conference. The motion passed unanimously.

There was a motion, proposed and seconded that the Membership thanks Bela Banathy Jr for all of his work in the organisation and administration for ISSS as VP for Administration. The motion passed unanimously. With no further business, the meeting was adjourned at 1:40 p.m.

**ISSS-2003 FINANCIAL REPORTS
(Cash Flows Through December 31)**

Beginning Cash Balance Jan 1	\$56,753.32
RECEIPTS	
January	\$3,495.20
February	\$1,264.31
March	\$1,209.00
April	\$0.00
May	\$2,585.80
June	\$695.00
July	\$0.00
August	\$226.00
September	\$3,411.39
October	\$0.00
November	\$0.00
December	\$2,246.92
Total	\$15,133.62
Interest	\$667.87
Cash Available	\$72,554.81
(\$32,951.94 held in interest bearing account)	

DISBURSEMENTS

Bank fees:

January	\$102.80
February	\$73.68
March	\$34.83
April	\$25.80
May	\$0.00
June	\$42.29
July	\$49.43
August	\$9.40
September	\$0.00
October	\$38.75
November	\$0.00
December	\$0.00
Total Fees	\$376.98

Checks:

Date	Check#	Amount	Description
01/02/2003	1089	19.26	Office Depot
01/03/2003	1090	301.67	Office Depot
01/06/2003	1091	74	Postmaster
01/08/2003	1092	74	Postmaster
01/16/2003	1093	600	Flemming Funch
03/02/2003	1094	1060	John Wiley
03/02/2003	1095	396	Plenum
03/02/2003	1096	50.4	Imprint Academic
03/04/2003	1097	146.84	Office Depot
03/06/2003	1098	14.25	Office Depot
03/07/2003	1099	1940.56	Kinkos
03/07/2003	1100	834.7	Postmaster
03/10/2003	1101	770	Postmaster
03/13/2003	1102	225	P. R. Bowker
03/14/2003	1103	308	Postmaster
03/29/2003	1104	23.6	Office Depot
04/10/2003	1105	20	Tennessee Sec. Of State
05/03/2003	1106	770	John Wiley
05/03/2003	1107	335	Plenum
05/03/2003	1108	201.6	Imprint Academic
05/05/2003	1109	125.7	Postmaster
05/21/2003	1110	2400	ISSS Conference
06/09/2003	1111	218.3	Office Depot
06/17/2003	1112	50.4	Imprint Academic
06/17/2003	1113	122	Plenum
06/17/2003	1114	340	John Wiley
06/24/2003	1115	156.61	Office Depot
06/24/2003	1116	117	Postmaster
07/21/2003	1117	74	Postmaster
08/06/2003	1118	400	UPS

09/10/2003	1119	430.2	Pinehust Techn.
09/28/2003	1120	135	John Wiley
10/21/2003	1121	323.02	Office Depot
12/01/2003	1122	370.33	Office Depot
12/02/2003	1123	786.24	Postmaster
12/08/2003	1124	255	John Wiley
12/08/2003	1125	121	Plenum
12/08/2003	1126	50.4	Imprint Academic
12/15/2003	1127	455	John Wiley
12/24/2003	1128	600	Flemming Funch
12/29/2003	1129	2340	John Wiley
12/29/2003	1130	131.2	Imprint Academic
12/29/2003	1131	183	Plenum
Total Disbursements		\$18,726.26	
(Total ISSS Corp. Disbursements		\$16,326.26)	
Notes			
Office Expenses:		\$3,285.13	
Bulletin Expenses:		\$4,037.95	
Journal Subscriptions		\$6,996.00	
Other Expenses		\$1,630.20	
Balance December 31		\$53,828.55	

**Constructing Agoras of the Global Village
A Brief Report on an Aspect of the 2003 Conference in Crete
Ken Bausch**

At last year's conference in Crete, many presenters dealt with the conference theme of constructing viable living communities (agoras) in an era of globalization. A number of those presenters subsequently contributed articles to a special double issue of the journal *World Futures* (January-February, 2004). Brief descriptions of their contributions are presented below.

Emilio Gonzalez-Diaz uses Luhmann's concepts of paradox and time to unravel the philosophical conundrums posed by the ideas of anti-globalization and conscious evolution. He provides a needed cautionary understanding that can help us avoid oversimplifying the task we have set ourselves.

Gianfranco Minati examines how elections in Western democracies have been reduced to the selection of political commodities from a predetermined list. He documents how moneyed interests frame the questions that establish the parameters of political and economic selection. In the resulting rigged politics, people who campaign on the basis of reasoned programs are at a distinct disadvantage because they work in the context of dominant metaphors developed and marketed by moneyed interests.

Ken Bausch frames the question of globalization in terms of the global hegemony of the United States. He observes that hegemony is a far-from-equilibrium condition that can be sustained only by maintaining harmony within the global system. Old hierarchic, domination practices cannot maintain stability because they overstrain the energies of the dominator. New web-based models of

organization offer a long-term global solution. The effective way to spread web-based solutions is through effective dialogue.

Richard Bawden describes how academics at Hawkesbury Agricultural College have committed themselves for a quarter of a century to public discourse about the nature and scope of the development of rural Australia. They have employed systems theories and practices within an experimental pedagogy and an ethos of deliberative democracy. The results wrought by their persistence, intelligence, and democratic spirit teach us what can be accomplished if we apply ourselves.

Yiannis Laouris describes a ten-year bi-communal effort to build peace in war-torn Cyprus, which is still divided by a no-fire zone between Turkish and Greek Cypriots thirty years after the cease-fire that stopped military hostilities. Starting in 1992, a Bi-communal Steering Committee began to work toward rapprochement between their conflicting societies. They made great initial progress using Interactive Management in separate meetings and an occasional joint meeting in the neutral zone between 1994 and 1997. Then in December 1997, the Turkish and Greek sectors were sealed to communication, and years of peace-building were in jeopardy. The peace activists out of necessity devised an electronic peace portal for which they had neither the relevant technology nor the requisite funds. They were successful and are still at work.

Richard Arias-Hernandez and Ernesto Lleras in separate papers present the philosophy behind Colombia's Learning Communities and how they are formed. Arias-Hernandez explains the destructive results for schools of trying to use and interpret information technology in the imported, mainstream paradigm. He describes how Colombia's learning communities came to understand technology and develop it in accordance with their needs. Lleras describes how dialogical learning communities have transformed labor relations that have been marked by patterns of discrimination that oscillate between the extremes of forceful domination and paternalism. These communities have developed self-reliant enterprises and cooperative organizations.

Alexander Laszlo and Kathia Castro Laszlo explore the concept of evolutionary advantage that is emerging as a sustainable and profitable business strategy. Strategic Evolutionary Advantage redefines success. It fosters organizational change and reinforces harmonic relations in marketplace and society. This strategy is well adapted to the organizational dynamics of our time and provides a model component for a livable and prosperous future.

The first article in the series above, on paradoxes, presents philosophical clarifications and limitations for agora-building activities. The next two, on buying consensus and hegemony, present systemic weaknesses in present-day politics and economics. The following four describe long-term dialogic interventions in the fields of agriculture, peace-building, technology, and community development. The last article visualizes a possible and sustainable future that we can strive for.

We all know that unstructured conversations on complex problems often lead to peripheral sidetracks, interminable debate, and death in a whimper without accomplishing much of substance. The following articles present an array of methods that enable real and effective dialogue. They deal with agora-building situations from simple to complex.

Heiner Benking, Farah Lenser, and Sherryl Stalinski analyze the difficulties faced in trying to dialogue across geographical and cultural boundaries. They examine two effective and relatively simple methods for bringing awareness and consciousness into a group of strangers: Open Space and

Magic Roundtables. These methods work by themselves in situations where mutual understanding is the goal and as icebreakers in situations that demand planning and concerted action.

Stuart Umpleby, Tatiana Medvedeva, and Alisa Oyler explain Technology of Participation, the world's most widely used participatory decision-making and strategic planning method. They describe how this method was introduced into training sessions with the faculties of two Russian universities, which had authoritarian traditions, and how the method was received. They discuss the importance of participatory methods for organizations in Russia and other transitional economies.

Angela Espinosa discusses two outstanding contributions of the late, renowned Stafford Beer: the Viable Systems Model (VSM) and Team Syntegrity (TS). VSM provides a metalanguage that enables organizations to evaluate their viability and increase their ability to adapt. TS increases people's abilities to interact in mutually strengthening ways. Together VSM and TS offer a toolbox for building evolutionary learning networks.

Finally, Roxana Cardenas and Carmen Moreno reflect upon their participative planning experiences in cities and communities in Latin America. They evaluate their success in designing regional development plans based upon the shared vision of their constituent communities. They describe their use of Interactive Management and the Critical Heuristics of Werner Ulrich.

Using methods like these, we can generate islands of effective democracy. On a globe where all of us are enmeshed in systemic and chaotic webs, what we do in Dubuque, affects a lecture in Tehran. Information about successful change drives rapid evolution. Successful agora projects—a university program in Russia, a peace-building program in Cyprus, Communities of Learning in Columbia, successful regional development projects in Latin America, a dynamic global Indigenous movement—catch the attention of people enmeshed in circumstances similar to these. They model healthy behavior for the world and spread the contagion of hope.

These authors and other practitioners who are interested in constructing agoras formed an informal group in Crete that maintains sporadic communication. The future of this group is as yet undecided.

Thousand Oaks Regional Meeting, July 8, 2003

Our regional "distributed site" meeting took place in Thousand Oaks during the single full day of Monday, July 7, with six participants, four presenting papers. We began at 9:15 a.m., ending about 6:15 p.m. Presenters were Sue Gabriele (of Santa Clarita, CA), Chris Alsten (of San Diego), Len Troncale (from Pomona), Carl Slawski (the local Thousand Oaks host). Other attendees were Ted Ferguson (of Santa Clarita, CA), and Jim D. Cline (of Glendale). Others who showed interest could not get a work release or had airline ticket problems, or because of other commitments, did not attend, including John Kineman (of Boulder Colorado), Paul Palmquist (of West L.A.), Curt McNamara (of Minneapolis), John Van Gigch (of Sebastopol, CA), and Hector Sabelli (of Chicago).

We began about 9:15 a.m. with two minutes of energy meditation to join our energies with other ISSS members in Crete. Then Sue Gabriele led us through "The Co-Operated Roundtable," two minutes of sharing by each in answer to the questions: What situations or projects did you leave behind to be here? What could increase your energy and hope in the coming day's endeavor, or in your work back home?

From 10:22 until 10 50, Chris Alsten, environmental psychologist, began our formal interaction with a Power Point presentation on his proposal and enterprise, "A Natural Patent- System for Biodiversity Preservation and Cognitive Restructuring of the Humanity/Nature Paradigm." Extensive discussion followed on his entrepreneurial training ideas, semantic reframing to better market complex ideas, government grant work, and alternatives to the tax system for participating in use of natural resources. Contact him at NaturalPatent@aol.com, or cralsten@aol.com.

From 11:40 a.m. until 12:45 p.m., Len Troncale gave us his Power Point presentation on "Systems Pathology", including his proposal for a new SIG of that title. He reminded us of his 64 linkage propositions, and how they might be used to advance general theory. He is available for further participation, seeking volunteers to sign his petition to form the systems pathology SIG at ltroncale@csupomona.edu. In addition, Len contributed his usual well informed anecdotal review of the inside history of the ISSS from its inception, not to mention his experience this year with open heart surgery, and his coming Sabbatical work on his many long term systemic theory projects.

We had a leisurely lunch at a Japanese restaurant in Newbury Park.

From c. 3:00 p.m. until 3:40, Carl Slawski summarized his paper, "Eco-Emancipatory Synergizing: Alternatives to War." Discussion followed on the meaning of war, especially to youth, motivations for such things as "suicide bombing", the importance of "meaning" as a guide to positive personal and joint action, including for the benefit of the earth,s environment. Suggestions were made about types of hyperlink software that might be used to present extremely complex and interrelated theories that bear on the initiation of war, failed diplomacy, global hegemony, preventing war, due process, dealing with lying persons of brutal and evil intent. Contact at cslawski@juno.com, or see web site at <http://mapsandstars.homestead.com> <<http://mapsandstars.homestead.com/>> .

From 4:40 until 5:35 p.m., Sue Gabriele reported the results of her work on "THE ROUNDTABLE, TO ACCELERATE LEARNING, HARMONY-BUILDING, AND DEMOCRATIZATION FROM WITHIN THE SOCIAL SYSTEM," an approach to large group interaction, based on her data collection and discussion facilitation of primary school classes. She can be reached for further details, abstract, etc., at sgabriele@gemslearning.com.

Before all departed for home, about 7:00 p.m., we all walked together up the hillside a couple hundred yards to get a better view of the Conejo Valley, and looked in the direction of the Pacific Ocean 20 miles away. We look forward to preparations in the fall for next July's Asilomar meetings under incoming President Ken Bailey.

Submitted by host, Carl Slawski of Thousand Oaks, CA, USA

SECTION FOUR

MEMBERS' BULLETIN BOARD

EMPLOYMENT

We want to encourage qualified individuals to consider a new Assistant/Associate Professor faculty position in Technology Education here at the University of Cincinnati. We are especially interested in recent outstanding doctoral students and faculty who are two or three years out of their graduate studies, but find limited research and publishing opportunities at their current institutions. Requirements include an earned doctorate with a specialization in instructional technology or equivalent; (2) evidence of scholarship, a current record of research and scholarly publications, an ability to secure funding for research; and (3) successful college level teaching experience, including experience working with public schools. A complete job description is listed at the University of Cincinnati, Human Resources web page:

<http://www.uc.edu/jobs/jobdetail.asp?jobid=921>

What's Cincinnati like? It's sort of like Hometown U.S.A. Its many diverse neighborhoods maintain their own sense of community and character. And, it's sort of like New York or Chicago — with Broadway shows, great theater, ballet, opera, symphony and museums. You could liken it to St. Louis, with its major league sports, German immigrant influence, huge park, outdoor entertainment, zoo and conservatory. Or perhaps you'll think of San Francisco when you first drive up to Mt. Adams. It's home to dozens of festivals from juried art shows to Oktoberfest, Tall Stacks to the granddaddy of all fireworks events, Riverfest. Not too big, not too small— Cincinnati is one of the top 10 great places to live and work (Fortune Magazine). We provide excellent benefits for faculty and their families, including good medical benefits, on-campus childcare, free tuition for yourself and family, and a good state retirement system.

Please encourage qualified individuals to send a letter of application (including position control # 23UC9155) along with a current vita, transcripts, and three letters of recommendation to: Dr. Chester Laine Search Committee Chair, Instructional Technology
Division of Teacher Education
College of Education, Criminal Justice, and Human Services
University of Cincinnati
PO Box 210002
Cincinnati, OH 45221-0002
E-mail contact: chet.laine@uc.edu

MEMBERS' MOVES

Gerald Midgley and Wendy Gregory (previously in the Centre for Systems Studies, University of Hull, UK) have moved to the Institute of Environmental Science and Research (ESR), Christchurch, New Zealand. ESR is a government research institute, and Gerald and Wendy are leading a new program with the label STARSS. This stands for Systems Thinking, Action Research and Social Science. In addition to working on projects that cut across the usual disciplinary divide between the "natural" and "social" sciences (e.g., systemic action research around issues of water quality and the recycling of sewage), Gerald and Wendy are working with others at ESR to develop an overarching research agenda. The themes of this are methodology and methods for sustainable community development; reflective practice; inter-disciplinarity; bi-cultural research; modes of participation; and joined-up thinking and action. Systems research is threaded throughout this agenda.

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NEW BOOKS

Variation Principle in Informational Macrodynamics

Vladimir S. Lerner

THE KLUWER INTERNATIONAL SERIES IN ENGINEERING AND COMPUTERSCIENCE
Hardbound ISBN: 1-4020-7465-4 Date: May 2003 Pages: 280 pp.
EURO 140.00 / USD 127.00 / GBP 88.00

Informational Macrodynamics (IMD) combines both the information description of the interacted information flows initiated by different data sources, and the information systemic approach, which unify the distinct interdisciplinary modeling concepts for a variety of objects of different natures. The IMD formalism builds a bridge between the mathematical modeling and systemic formalism with the world of information and information technologies to reveal the common information regularities of a variety of modeling objects with a final goal to expose a specific information code for each object.

The Variation Principle In Informational Macrodynamics (VP) introduces the process' integral information measure, which has a distinctive difference from traditional information approaches that use an entropy function. The VP's minimax mathematical mechanisms formalize the regularities of the cooperative informational dynamics, connecting randomness and regularities, stochastic and determinism, reversibility and irreversibility, symmetry and nonsymmetry, stability and instability, regular and chaotic dynamics, thermodynamics and informational dynamics, time-reversible and time-irreversible processes, reveals the information dynamic mechanisms of evolution and development. The mathematical formalisms and methods, implemented in the forms of computer models, algorithms and programs, provide new general tools for Information Systems' Modeling in such areas as biology, intelligent systems, computer and information technology, including communications, data modeling and data management.

Variation Principle In Informational Macrodynamics, with its examples and applications, will meet the needs of a professional audience composed of researchers and practitioners in industry, as well as graduate-level students in computer science, mathematics and engineering.

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The Design Way

Harold G. Nelson & Erik Stolterman

Educational Technology Publications, Inc.

May 2003

ISBN 0-87778-305-5

\$59.95

1-800-952-BOOK

This book explores the idea of design as the ongoing genesis of the real world—the seminal process of world creation. The authors make the case for design as both the oldest form of human intention—the one that defines us as being human—and design as one of the emerging approaches to creative human inquiry and innovative action, superbly suited to facilitating intentional change in an unpredictable, complex and dynamic world. Design is presented as an intrinsic process that people are continually engaged in and have used throughout time. Explained as a form of strategic intent, design is presented as disparate from problem solving. Rather, it is presented as a tradition of reflective inquiry and practical action; distinct from science and art, built on its own foundations, with its own fundamentals and located within its own metaphysical domains. Design is treated as a means of creating both the material and immaterial world. The book is a composition of ideas that creates an image of design, designers and designing as an integration of imagination, systemic reasoning and pragmatic action with applications in business, government, and the professions. The book provides a starting point for the acquisition of personal and organizational design competence. The authors introduce the challenges of design learning and education with an eye to the development of design character.

The Science of Synthesis: Exploring the Social Implications of General Systems Theory

Debra Hammond

Debra Hammond's *The Science of Synthesis* explores the development of general systems theory and the individuals who gathered together around that idea to form the Society for General Systems Research. In examining the life and work of the SGSR's five founding members—Ludwig von Bertalanffy, Kenneth Boulding, Ralph Gerard, James Grier Miller, and Anatol Rapoport—Hammond traces the emergence of systems ideas across a broad range of disciplines in the mid-twentieth century. A metaphor and a framework, the systems concept as articulated by its earliest proponents highlights relationship and interconnectedness among the biological, ecological, social, psychological, and technological dimensions of our increasingly complex lives. Seeking to transcend the reductionism and mechanism of classical science—which they saw as limited by its focus on the discrete, component parts of reality—the general systems community hoped to complement this analytic approach with a more holistic approach. As one of many systems traditions, the general systems group was specifically interested in fostering collaboration and integration between different disciplinary perspectives.

«Most of the world's problems today are either caused or exacerbated by the inability of our political and corporate leaders to think systemically - in terms of relationships, patterns, and context. Debra Hammond's well-written account of the history of systems thinking in the social sciences brings much-needed clarification to a chapter of twentieth-century intellectual history that is surprisingly little known. The issues discussed by the author are highly relevant to human well-being in our globally interconnected world.» — Fritjof Capra, author of *The Web of Life* and *The Hidden Connections*

Nature's Magic: Synergy in Evolution and the Fate of Humankind

Peter Corning

Available from Cambridge University Press <http://us.cambridge.org>
Also available at www.amazon.com

In *Nature's Magic* Peter Corning advances a bold new vision of the evolutionary process - from the Big Bang to the 21st century. Corning proposes that synergy is not only a ubiquitous phenomenon in the natural world but it is also a wellspring of creativity and the «driver» of the broad evolutionary trend toward increased complexity, in nature and human societies alike. In contrast with the many theories of emergence or complexity that rely on some underlying force or «law,» the «Synergism Hypothesis,» as Corning calls it, is in essence an economic (or «bioeconomic») theory of biological complexity; it is fully consistent with mainstream evolutionary biology. Among the many important insights that are provided by this new paradigm is a scenario in which Corning proposes that the human species in effect invented itself; synergistic behavioral and technological innovations were the «pacemakers» of our biological evolution. Synergy has also played a key role in the evolution of complex modern societies, he concludes. The final chapter addresses our current challenges and future prospects.

Applied General Systems Research on Organizations

Shingo Takahashi, Kyoichi Kijima, Ryo Sato (Eds.)

192 pages, Hard Cover, Springer Verlag

EUR 79.95-; US\$109.00-

ISBN:4-431-20118-1

The increasingly complex nature of organizations and the dynamic behavior found therein prompted the authors to produce this book, tackling the problem of modeling those behaviors to unify the myriad organizational issues that are directly relevant to modern society. They have taken a twofold approach to the task, first using the organizational cybernetic model framework to examine the systemic properties relevant to organizations, then augmenting that model with the addition of agent-based modeling and evolutionary economics. The framework uses one of the most fundamental models in mathematical systems theory, while the enrichment of that model leads us to a point where we can effectively analyze complex problems in social and organizational systems. With each chapter being written by the foremost researcher in the field, the book is underpinned by the most solid of foundations.

OTHER ANNOUNCEMENTS

NEW YEAR UPDATE FOR EVOLUTION SAYS UNSELFISH TEACHER NOT SELFISH GENE IS THE KEY

Detailed information on the SUNY Press book, The General Evolution Research Group and membership, The Darwin Project and brief bios for Council members, The Center for Partnership Studies, discovery of Darwin's lost theory, and biography, books, and scientific background for Dr.Loye can be quickly accessed on www.thedarwinproject.com .

Are we going backward or forward in evolution?

Along with terrorists and bigger and better bombs is teaching an outdated PseudoDarwinian paradigm for science also driving our species toward extinction? Can using systems science to expand and update a horse and buggy theory of human evolution to meet the rocket speed needs of the 21st century help end environmental devastation, wars, terrorism, nuclear overkill, and put us back on track toward the better future?

These questions are explored in a new book published by the State University Press of New York (SUNY Press), second largest in the U.S. Titled The Great Adventure: Toward a Fully Human Theory of Evolution, the book is the result of a collaboration of eleven members of ISSS and The General Evolution Research Group, or GERG, an advanced research group composed of European and Asian as well as U.S. scientists and educators.

Education and Fifteen Levels for Human Evolution Hailed in the Foreword by internationally known psychologist Mihaly Csikszentmihalyi for themes "likely to be among the central ones of any new world-view," instead of the traditional scientific and popular focus only on cosmic and biological evolution The Great Adventure explores 15 levels for the "tree" of human evolution including educational evolution. In addition to our "roots" in cosmic, chemical, and biological evolution, the book probes the evolution of the brain as the "trunk" for the tree branching out into cultural, social, political, economic, educational, and technological evolution at the human level.

"Rather than the current popular emphasis on selfish genes," Great Adventure editor and ISSS member David Loye notes, "a careful reading of The Descent of Man makes it clear that for Darwin the chief agent advancing human evolution is the unselfish teacher."

At the top for the 15 levels, in keeping with the thrust for systems science since the pioneering of Von Bertalanffy, Miller, and Boulding, is the need for an expanded educational emphasis on evolutionary action—or how do we advance rather than lag disastrously behind or even go backward in human evolution.

Discovery of Darwin's Lost Theory

A startling feature of the book is the report of its editor and GERG co-founder, psychologist and systems scientist David Loye, of the discovery of a lost completion for Darwin's theory of evolution. In long ignored but basic writings, Darwin anticipates the humanistic psychology of Abraham Maslow, the biology of love, even chaos theory and many other comparatively recent but similarly ignored discoveries of brain research, psychology, and nonlinear systems science. A former member of the Princeton and UCLA School of Medicine faculties, in an introductory chapter Dr. Loye notes that in *The Descent of Man* Darwin writes only twice of "survival of the fittest." But contrary to the emphasis for science, all levels of education, and the media throughout the 20th century, in *Descent* Darwin writes 95 times of love, 92 times of moral sensitivity, and 200 times of brain and mind as prime drivers for evolution at our species level.

"What we know now," Loye says, "is there were two halves to Darwin's theory – the familiar "survival of the fittest" first half, based on the past and the prehuman, subhuman and inhuman, and the lost second half, expressing the great positive surge into the future of human evolution. One of the great tragedies of the 20th century was how, in blind and lock step innocence, we teachers were required to teach only the first half."

In the Introduction to *The Great Adventure*, which summarizes the contributions of both systems science and humanistic psychology, Loye proposes an alliance between the two fields to "kick start" the necessary expanding and updating of evolution theory to meet the increasingly urgent requirements of the 21st century.

The Darwin Project and Council

To shift the emphasis in science, education, and the media away from fixation on the "first half" Darwinism of "survival of the fittest" and selfishness above all to the new prosocial or humanistic completion for Darwin's "top half," a new organization with a Council composed of 50 leading American, European, and Asian scientists and educators has been formed.

Among Council members for The Darwin Project are former presidents for ISSS Ervin Laszlo and Aleco Christakis; former president of the Association for Humanistic Psychology Stanley Krippner; leading progressive educators Nel Noddings of Stanford, Ron Miller of Goddard College, and former chancellor of the University of Massachusetts David Scott; two of the world's greatest living brain scientists, Paul McLean and Karl Pribram; psychologists Mihaly Csikszentmihalyi and Allan Combs; chaos theorist Ralph Abraham, cultural historian Riane Eisler; and Hans Kung, developer of the Global Ethic endorsed by 100 leaders of the world's religions during the World Parliament of Religions.

New Distance Learning Courses and Website

Using *The Great Adventure* as a text book and for general readership, The Darwin Project plans to launch distance learning and on campus courses in new evolution studies aimed at building the "full spectrum, action-oriented," or fully human theory of evolution the book outlines. "Here, because of its global spread, we especially hope to enlist ISSS members with strong interests in evolution as teachers for these studies," Loye says.

To globally interlink everyone interested in the hopeful new prospects for Darwin's lost theory and the advanced modern scientific studies that affirm and expand it, a new website (www.thedarwinproject.com) is being launched by The Darwin Project.

In addition to free downloads of sample chapters of *The Great Adventure* and other books, www.thedarwinproject.com will provide full information on the new distance learning and on campus evolution studies, an online library and book store, and links to other websites, organizations and publications actively working to re-open the way to a better future.

From the Foreword by Mihaly Csikszentmihalyi: "...the themes introduced by the authors are likely to be among the central ones of any new world-view. . . David Loye's central insight, which motivates this book, is in my opinion right on the money. The organizing principle of the new faith—a faith of human beings about human beings—is evolution itself. Not the traditionally taught evolutionary scenario dominated by competition and selfishness, but an understanding closer to the original Darwinian one that sees cooperation and transcendence of the self as the most exciting parts of the story."

A BREAKTHROUGH IN ETHICAL ARTIFICIAL INTELLIGENCE

John E. LaMuth - M. S.

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<http://www.ethicalvalues.com>

Announcing the newly issued U.S. patent concerning ethical artificial intelligence entitled: Inductive Inference Affective Language Analyzer Simulating Artificial Intelligence (patent No. 6,587,846) by inventor/author John E. LaMuth M. S. As implied in its title, this innovation is the 1st affective language analyzer incorporating ethical/motivational terms, serving in the role of interactive computer interface. It enables a computer to reason and speak in an ethical fashion, serving in roles specifying sound human judgement: such as public relations or security functions. This innovation is formally based on a multi-level hierarchy of the traditional groupings of virtues, values, and ideals, collectively arranged as subsets within a hierarchy of metaperspectives - as partially depicted below.

Glory—Prudence Honor—Justice
Providence—Faith Liberty—Hope
Grace—Beauty Free-will—Truth
Tranquility--Ecstasy Equality—Bliss

Dignity—Temperance Integrity—Fortitude
Civility—Charity Austerity—Decency
Magnanim.—Goodness Equanimity—Wisdom
Love—Joy Peace—Harmony

The systematic organization underlying this ethical hierarchy allows for extreme efficiency in programming, eliminating much of the associated redundancy, providing a precise determination of motivational parameters at issue during a given verbal interchange. This AI platform is organized as a tandem-nested expert system, composed of a primary affective-language analyzer overseen by a master control-unit (that coordinates the verbal interactions over real time). Through an elaborate matching procedure, the precise motivational parameters are accurately determined (defined as the passive-monitoring mode). This basic determination, in turn, serves as the basis for a response

repertoire tailored to the computer (the true AI simulation mode). This innovation is completely novel in its ability to simulate emotionally charged language: an achievement that has previously eluded AI researchers due to the lack of an adequate model of motivation in general. As such, it represents a pure language simulation, effectively bypassing many of the limitations plaguing current robotic research. Affiliated potential applications extend to the roles of switchboard/receptionist and personal assistant/companion (in a time-share mode). Although only a cursory outline of applications is possible for this (90 page) patent, a more detailed treatment is posted at: www.ethicalvalues.com The direct US Patent link is found at: <http://patft.uspto.gov/netacgi/nph-Parser?patentnumber=6587846>