

— and the facilitation of network processes

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(*) Revised version of a presentation to the international symposium « The Dilemma Facing Humanity » (see description in inset below).



The Dilemma Facing Humanity

— theme of an international symposium on the environment held at Spokane (Washington, USA) on May 19-21 on the occasion of EXPO'74 (Two further symposia took place in the same series : Environmental accomplishments to date — a reason for hope (July 1974); Practical agenda for tomorrow — a holistic view (October 1974).

From the symposium programme : « Never before in human history has so much attention been paid to the interrelated problems of economic growth, energy, environment, and human potential. Despite the ever-increasing number of meetings and conferences, there is no agreement about the policies we should pursue or even directions we should try to develop. There can be no excuse for planning just another series of symposia unless they promise to illuminate the fundamental issues we confront. We need to begin to learn on an international basis why we are faced with such basic disagreements. This symposium is designed to demonstrate the deep differences of opinion which presently threaten effective policy-making both nationally and internationally. »

Presentations were made from six very different viewpoints. For each viewpoint, a presentation was made by a speaker from the national level and by an « international counterpart ». The viewpoints chosen were :

1. Mystic-religious viewpoint
 - William I Thompson, Director, Lindisfarne Association
 - Peter Caddy, Director, Finchorn Foundation
2. Economic Growth viewpoint
 - Anthony J Wiener, Chairman, Research Council, Hudson Institute
 - William Wallace, Senior Vice President, Olin Corporation
3. Preservationist viewpoint
 - David Brower, President, Friends of the Earth
 - Perez M Olindo, Director, Kenya National Parks
4. Limits to growth viewpoint
 - Robert Allen, Author
 - Mihajlo D Mesarovic, Director, Systems Research Center, Case Western Reserve University
5. Third World viewpoint
 - Raul Prebisch, Consultant to the UN/ECLA and to the OAS
 - Dom Moraes, Author (UN Fund for Population Activities)
6. Harmonizing approach viewpoint
 - Roger Hansen, Executive Director, Rocky Mountain Center on Environment
 - Anthony J. Judge, Assistant Secretary-General, Union of International Associations

(The above presentations are being published in book form. For details write to : Ms Sandra H. Cooper, Director, International Symposia, Jamestown Star Route, Boulder, Colorado 80302, USA.)

It is a great pleasure for me to be able to address this question of « harmonization » as it relates to man's apparent inability to come to grips with the breakdown and divergent viewpoints afflicting modern society. I am especially pleased that we are asked to look at these matters from a perceptual angle. There are few occasions on which this is possible. It is a beautiful topic; I only wish that I could do it justice.

Before sharing with you my perception of where we are and why we are there, I should like to clarify for you the position from which my understanding has been derived. I work at one intersection point of a number of transnational networks. The Union of International Associations (whose members are individuals — not organizations) was created back in 1907 in Brussels and functions as a clearinghouse for information on the network of over 3,000 international governmental and nongovernmental organizations of the non-profit variety (1). These organizations have every kind of objective and structure and we are constantly confronted with the problem of finding ways to use information networks to facilitate the interrelationship of these activities in a non-directive manner (2). In another network we are concerned with the interrelationship between key concepts which are the basis for international discourse for we are increasingly faced with a problem of conceptual babelism (3).

In a fourth activity, we have in our own way attempted to address the problem of harmonization as we perceive it. Together with Mankind 2000 (the transnational association which organized the first International Futures Research Conference) and the Center for Integrative Studies, we are currently engaged in a three-part project to produce a Yearbook of Worldwide Problems, Integrative Disciplines and Human Development. This attempts to interrelate the networks of perceived problems (3700 registered to date), the international organizations concerned with them (over 3000), the disciplines focusing on them (1100 to date), and the values which make them visible (500 to

date) (4). Through each successive edition of the yearbook, this then becomes a delphi-type exercise in harmonization. We hope to produce « maps » and « atlases » of these interlinking networks to render the current complexity more transparent.

Why are things going wrong ?

Now clearly there are many things going wrong. We have registered some 3,700 interlinked worldwide problems so far in our own work. It is not these which I am here to discuss however. Instead I want to talk bluntly about the problems which prevent us from coming to grips with the 3,700. I have a sample list of them on which I will comment briefly. They are in no particular order :

1) Organizations, interest groups (and even departments of the same organization) concerned with related issues find great difficulty in collaborating. And the more international, interdisciplinary, or intercultural they become, the more difficult it gets. Even the best organizations become the vehicles of personalities with empire-building tendencies. This alienates other bodies, however beneficial the empire and however charismatic the emperor and his entourage. Competition for very limited resources is the price we pay for such specialization.

2) Official bodies have great difficulty in collaborating with associations and groups particularly those which are of an informal or ad hoc nature. The situation is much worse outside North America. A closer look at these first two difficulties shows that we are faced with a form of inter-organizational discrimination which might appropriately be called « organizational apartheid » (5).

3) Programs are ill-conceived and do not match in complexity the problems on which they focus. The most tragic example of this is the United Nations Environment Program. For the first time the interdisciplinary nature of problems was explicitly recognized by governments at Stockholm and yet is completely ignored in the conception and organization of programs in Nairobi. Only problem categories are considered not problem networks. We do not know how to interrelate the skills and preoccupations of different disciplines. Inter-disciplinary discrimination is practiced to such a degree that it is possible to speak of a form of « conceptual apartheid ».

4) Because of the difficulties just mentioned, the inter-disciplinary network and the inter-organizational network are out of phase with the inter-problem network. Many organizations are simply charming memorials to pro-

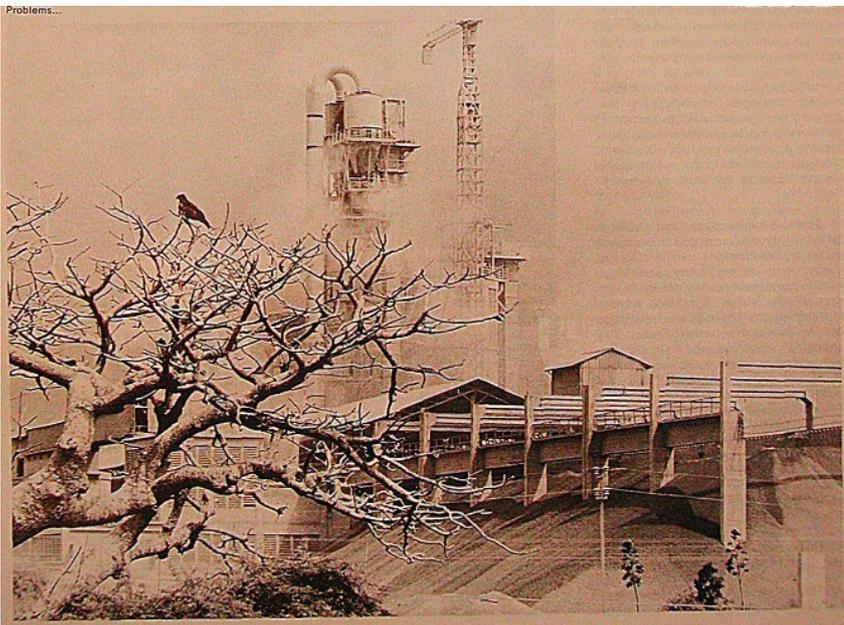
blems which no longer exist. Some of us are mainly engaged in building pyramids to our own memory (6).

5) It is no longer possible to coordinate adequately a network of organizations. The network is fragmented and oriented towards decentralization and peripheral autonomy. Despite the speed of modern communications, information content does not travel well. Its meanings get transformed and distorted as the message moves through the network. Organizational systems operate rather like spastic dinosaurs relative to the dynamism of the problem network which they should be facing (6).

6) International treaties, which are the objective of much international activity, are seldom ratified. When they come into force they are inadequately implemented, if at all. The various human rights conventions are the most tragic example. A recent study showed that only three per cent of United Nations and Specialized Agency resolutions created new activities (7).

7) Finally, people have turned away from the organizational systems which have failed them. They are frustrated by inaction or token action. They have watched UN Days. Years, and Decades come and go with little impact on the increasing magnitude of the problems. They are bombarded by organizational

Photo WHO/H. Nall



propaganda in a vain effort to mobilize them in support of particular perceptions of the key problems. A massive credibility gap has developed (8). There is no solidarity, no consensus, and no widespread notion of - we the peoples of this planet ». Most of us do not lose any sleep when 500,000 people are rendered homeless, massacred or die of starvation.

do we really sincerely believe that sufficient can be done in time with such constraints, in the light of the increasing synergism of problem networks and our performance over the past quarter-century ?

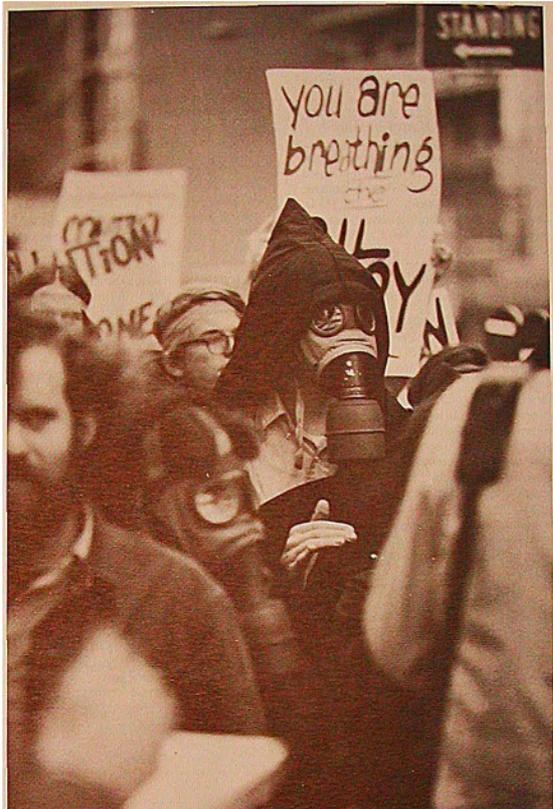
**Problem of Perception :
paradigms and parables**

It is not sufficient to reel off a list of problems as I have just done. We know about such problems and others like them. What we need is some perspective which can give us an overview of where we are which helps us to interrelate the various issues and organizations. A considerable step in this direction was taken with the Club of Rome's world dynamics exercise. However, whether one favors its conclusions or not, such models are based on one set of highly aggregated data on a limited number of problems. They do not give one a « gut feeling » for where we each are on the basis of our differing perceptions of the social condition and why we do not work together. They do not have a perceptual component.

I would like to share with you three models, analogies or metaphors (depending on how you wish to use them) which help me to understand the complexity of our current condition, our difficulty in coming to grips with it, and the obstacles to communicating priorities today.

1) Problem maps, atlases and globes :

How well have we mapped our current problem situation ? I would like to suggest that we are at the same stage in our problem mapping ability as we were in the Middle Ages with respect to mapping the physical characteristics of the surface of the Earth. The changing psycho-social significance and status of maps, since such early times, provide us with many clues for understanding our current situation. Just as the understanding in Europe of non-European continents was very limited at that time, so today there are only a few well known problem areas (in this case: population, food, peace, environment, etc.). Each such territory (the « feudal state ») is more or less poorly controlled by a few major organizations (the « cities ») with a few well-established communication links between them (the « roads »). The relations between these feudal states are the limit of our concern. The continents are only vaguely known (and said to be



... and the need for maps

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populated by mythical monsters). We are each happy with artistic or impressionistic two-dimensional maps, centred on our own organization justly conceived as being the prime mover in society as we perceive it. The significance of a three-dimensional problem globe escapes us - it might even be a heresy to suggest it.

Let us be frank. We are conceptual flat-earthlers.

Each of our organizations occupies different parts of this problem territory - faithful in each case to the local aristocracy, traditions, faiths and superstitions. Content as we are with sketchy local maps of our problem environment centred on our own major concerns, why should we care if our local maps do not mesh with those of neighbouring problem territories or with a general

map of the region ? Who needs to travel ? Only fools move off the beaten track.

Under such conditions one can understand the psychological and communication difficulties which make any general mobilization impossible. Communication frequently breaks down and moments of solidarity are soon forgotten. Warring between feudal territories is common. The state called « food », clashes with that called « population ». Alliances are formed and each state has imperialistic ambitions : « development » wants to incorporate « environments »; « environment » lays claim to the territory of « development ». Lacking maps, our assemblies of people from different problem territories are pathetic. The people from « heavily rainfall » areas cannot understand the constant harping on water by people from - de-

sert » areas; the people from « arctic » areas cannot relate meaningfully to those from « equatorial » regions,

The history of the evolution of our geographic perceptions, and the tools required to move us towards a global perception, indicate the kinds of difficulty which we have to face. We need local problem maps which mesh into global maps, so that each can see his place in any world problem strategy, and so that global decision making can relate to the tactical problems of groups as perceived in each community. We need « road maps » and problem « atlases » to help us to see and appreciate the relationships, distances and differences between problem territories.

2) Problem galaxy and universe : For those with more feeling for the inter-stellar and galactic dynamics portrayed in some schools of science fiction, another model is useful. It is suggested there that a time will come when many parts of the galaxy will be colonized from Earth, and that the Earth-centered galactic empire will finally break down into isolated planetary empires. As time goes by, such isolated cultures will come to forget their common origin, their common language, and any common cause they may have had. They will lose their understanding of the place of their planet in the galaxy or even in their planetary system.

I believe that in psycho-cultural terms we have already reached such a condition (9). Each planetary body here represents a problem territory or viewpoint for which differing styles or organization have been developed. Inter-planetary communications are poor to the point of non-existence. We have lost the art of inter-stellar travel and navigation. Local planetary politics are of much more significance. How can such a galactic non-system be mobilized against any menace, whether internal or external? We need a precise understanding of psycho-cultural relativity. We need the equivalent of faster-than-light travel.

3) Psycho-social ecosystem : For those who have more feel for the complexity of natural ecosystems and the nature of inter-specific interdependence and competition a further model is useful.

If the many species of the natural environment are each used as a model for a problem-oriented organization, or group, we get a new perspective on the functioning of organizational ecosystems. Just as species in the natural environment are embedded in complex food-chains, so organizations are embedded in complex information webs. (We have mapped neither to any extent.) Just as intercourse between species is non-fruitful, so interaction between many organizations is sterile. Nevertheless

the ecosystem does interlink the species and contains those species which attempt to take over the whole system. But which organizational species should we eliminate :

the crocodile, the rat, the shark, the wolf, the snake, the scorpion? Each has its place. Even the hawk and the dove, or the parasite and the scavenger. It is the dynamic interrelationship of such species which maintains the equilibrium of the ecosystem. How do we eliminate inequality and violence from such an ecosystem? Is the notion meaningful?

This model draws attention to the understanding which ecologists and environmentalists could provide for a more subtle comprehension of the psycho-social system. But experience shows unfortunately, that each discipline is especially blind to understanding how its own thinking can be applied to its own methods of organization, let alone the insight it can develop for others. Ecologists should consider the consequences for the psycho-social system if every organization concentrated on the same problem set. Complexity and variety are reduced - the system becomes considerably less stable. It loses « maturity » (10). We need a rich psycho-social gene pool. We need the variety which appears to be unharmonious (11).

Each of these three models (unions in different ways as a framework to contain a great deal of complexity and richness. They allow us to recognize unity in diversity without introducing the simplification which would reduce the - maturity » of the psycho-social system. We need some such perspective or context before charging ahead into different courses of action.

My point is that :

- If some organization wants to get excited about a particular issue, that's fine.
- If another organization wants to try to coordinate the action of a number of other groups covering issues seen (by it) to be related, that is fine too.
- If a coalition of groups wants to try to convince the world that one particular issue is the only issue, that also is fine.

This is how organizational species should function. But in pursuing such a course, we should not expect other groups and people to understand that enthusiasm or concern and to fall over themselves in their desire to join our bandwagon. (The same is true for disciplines or schools of thought and the matrices, paradigms or explanations in which they, often arrogantly, invite belief.) We need every variety of approach to the evolving problem network. How can we facilitate consensus formation and integrated action in such a complex social environment? How

can this be accomplished more rapidly?

Facultative Processes

It is my belief that we could by-pass all the well-documented obstacles to action. We could achieve this without the need to depend on massive reallocation of funds - which is improbable and if done in the current manner would bear the seeds of its own futility, despite for because of) much heavy-handed monolithic action.

We could achieve this without massive overnight changes to existing institutions and their interrelationships, which are also improbable - particularly since there is no consensus on the new structures required.

To do this we need new processes. Such processes must take into account the following :

1) The effective implementation of national monolithic policies, formulated and advocated by central elites, however benevolent and participative, is no longer feasible without dangerously decreasing the maturity of the psycho-social system. Such policies are « distorted » into new directions at each step towards the periphery by the people with power (and different priorities) at each such level (6).

2) The content of the new processes cannot be pre-determined. People and organizations have very different perceptions of what problems and actions they wish to focus on and with whom they wish to work. The process must facilitate the continual emergence of new values, new models, new forms of organizations, new perceptions of problems, and whatever action on them is possible by whatever organizations wish to act on them through whatever conditions are possible for whatever period they are viable.

As I see it there is a vast network of organizations and groups in our society, extending from the community level to the international level. They are of all kinds and have all sorts of concerns and links between them. We know almost nothing about this network as a network; we have only the vaguest indication concerning the number of bodies in it (23). (Even in the United States we do not know how many organizations and groups there are. There may be of the order of 1,000,000 however, including 30,000 environmental groups, and 360,000 churches, for example.) We do not know what this network could do if its processes were facilitated - it is an almost totally unexplored resource. In fact we do not even know how to think about networks, how they work, or their synergistic potential. The kinds of minimal, non-directive, low-resource action we could undertake to facilitate the network's actions against the problems perceived by different parts of it include the following :

1) Mapping the problem network. Identify its components and their interrelationships so that people and groups can move to where the meaningful action opportunities are for them. Why do the different UN agencies not publish statistics on organizations and groups ? (24) Why do they try to monopolize the action ? Detailed maps of the network should be as readily available as local road maps. People should be able to obtain problem atlases and problem globes. Information on the network can only be obtained and maintained effectively in people-oriented data banks (13) used by them : to produce computer-generated maps; for interactive graphic exploration of the networks (with a three-dimensional perspective); and for videotape programs surveying particular problem and organizational networks (14).

2) Design low-cost, supportive (« do-it-yourself ») computer software packages to be made widely available at the community and regional level :

- help people locate the parts of the network to which they could relate. (In effect this would constitute a much more powerful inter-disciplinary computerized yellow-pages for social activities.) Facilitate circulation and exchange of such data tapes at the local, state, national, regional and international levels, and provide suitable interfaces for technologically underdeveloped regions.

- provide administrative aids (e.g. subscriptions management) to groups and organizations and permit them to share mailing lists where possible.

3) Facilitative legislation (as is done to a considerable extent for business and industry). Belgium is still the only country which has facilitative legislation for international non-profit organizations (15). Little is done at the national and local level for non-profit organizations.

4) Subsidize post and telephone communications between social action organizations. (The WATS system in the USA is a useful precedent.)

5) Design facilitative environments where organizations and people can meet and interact informally to catalyze, wherever and whenever possible, the emergence of action programs and formal collaboration (16) :

- low-cost shared office facilities are one example, whether at the community, national or international level. (What is the appeal to business of the existing network of computer-linked World Trade Centres ?)

- multi-meetings or idea fairs, where sessions of many organizations run concurrently, are another. (Why does business make such frequent use of multi-stand trade fairs ?)

6) Develop a network vocabulary as a means of changing our atomistic perception (17). We need a rich set of (basically topological rather than systemic) concepts to give us a feel for networks as networks, rather than as organizations for problems) with relationships. Without such a holistic vocabulary and the organic strategies to which it can give rise, organizations can only act as fragmented components of an essentially spastic network, focusing on problems erroneously isolated from the network in which they are embedded.

7) Develop the concept of an auto-coordinated network strategy for networks or organizations, and the new kinds of information system and display to facilitate it.

These are just a few of the simple things we could do to enable this vast network to galvanize itself as it changes and evolves over time in response to new issues, insights and resources. Ad hoc organization crystallizes from it and dissolves back into it. Hierarchical organizations are embedded in it, hopefully to evolve into more adequate structures as confidence in the network develops (18). Such a network concept is the psycho-social equivalent of the planetary globe so frequently used as a symbol at international environment conferences.

What we need is to provide a means whereby a network strategy can evolve (19).

By developing and disseminating adequate maps of the network of organizations and the network of problems, the maximum amount of decentralized auto-coordination will occur with the minimum amount of structural violence.

Interrelationships

Problems, organizations, concepts and personal development are usually considered as though they were unrelated. But we have to have a more integrated conceptual structure in society before we can perceive the interrelationships between problems. We need both before we can attempt to interrelate organizational units to handle the interlinked problems. And in an important sense, our individual ability to tolerate and comprehend the complexity and dynamism of these interrelationships is directly related to our own degree of personal development. Furthermore, a general increase in integration in any of these four domains will tend to increase integration in the other three. Equally, progressive fragmentation in any of the domains will provoke disintegrative tendencies in the others (20).

A fundamental difficulty today is our predilection for simplistic hierarchical organization of the interrelationships between concepts, between organiza-

tions, and between problems. And yet we are constantly exposed to evidence that these hierarchies do not contain the complexity with which they have to deal.

Neither a hierarchical organization nor a hierarchy of concepts can handle a network of environmental problems without leaving many dangerous loose ends. It is rather like trying to use classical redcoat tactics to fight guerrillas. The redcoat military hierarchy is completely out-manoeuvred by the guerrilla network activity. To respond adequately to our current situation, we need to be able to evolve conceptual networks and organizational networks and we need to be able to understand how to use them and support them by adequate information networks. It is my belief that the concept of networks will replace that of hierarchies and simplistic systems. The network approach permits us to handle much greater complexity in the real world of incomplete information on incommensurable phenomena. (A link in a topological network is equivalent in some ways to pointing, which is the only communication technique left to a fragmented people whose languages contain no common or unambiguous elements. Repeated use of this primitive technique, when plotted as a network, may be the only remaining means of interlinking the multiplicity of referents to the satisfaction of all parties.) But at some future time the network notion will itself be replaced by the notion of fields. It is at this stage that we can get some convergence with the mystico-religious viewpoint (21). For the moment, however, the topological structure of networks is both meaningful in terms of information flows and other relationships (which can be facilitated by information systems and represented with a high degree of iconicity on graphics devices) and conceptually rich. Fields are conceptually rich but are as yet very difficult to handle, support or represent on information devices, except as psychological meaningful graphic art which we are as yet unable to marry to a scientifically meaningful data base. Networking is therefore the next step for our society. It bears the same potential relationship to the psycho-social world as use of the wheel has done to the physical world. Using the network concept as a foundation or scaffolding device, our ability to perceive, tolerate and prefer progressively higher degrees of order in the organizational, conceptual and problem environments is a reflection of our ability to complexify our perceptions of ourselves as individuals (or eventually as structured fields) in resonance with such environments.

In Conclusion

While I believe action to be feasible, and based on as yet untapped human

and organizational potential, I do not personally think that the right sort of action will take place. Each new organizational and conceptual insight will be distorted to its lowest level of applicability rather than developed to its highest.

The difficulty and potential value of achieving the kind of interdisciplinary synthesis needed at this time, and the relatively low priority accorded to it, is perhaps most analogous to that currently experienced in magneto hydrodynamics in building a suitable configuration of conditions to contain plasma for a sufficient time to permit controlled nuclear fusion reactions. Controlled fusion was easy in comparison, as is analysis compared to conceptual synthesis.

People are too locked into their own visions of the global psycho-social system and each man's vision serves as the basis for some other man's alienation. (And perhaps we do not fully understand the importance of this process as a means of preserving variety and stability in a society threatened by homogeneity and explosive change.) We could achieve a breakthrough, but we won't because we do not already have the technical knowledge or the facilities, but because we do not understand ourselves and the dynamics of how we interact in interdisciplinary, inter-organizational, and intercultural environments (such as this symposium). We lack a self-reflective awareness and we do not use sensitive individuals to give us feedback on the dynamics of our meetings. (And even if we could locate such people, and implement the procedure, do we seriously believe that we could or would change our actions constructively?) Our consensus formation difficulties in such settings are usually a reflection of our inadequacy as human beings (22).

There is of course a paradox in advocating the perception which I have attempted to clarify. It has the same status as other perceptions in the ecosystem of ideas even though it attempts to harmonize them. But when we have such paradoxes, I think we are on the right lines. We have had enough of what I would call «conceptual imperialism».

But if we did release the powerful forces in our society, necessary to master the problems we face, do we have the knowledge and understanding to control them?

Supposing, in the face of these crises, that we could tap the power of a fundamental psycho-social relationship, in the same way nuclear physics has enabled us to unleash the power bound into a fundamental physical relationship? I believe we could. But should we do so? And who is «we» in this network context?

References

(1) The organizations are described in the

computer-produced Yearbook of International Organizations. Brussels, Union of International Associations, 1974, 15th Edition, ca. 1100 pages.

(2) The network of organizations: a symbol for the 1970s. International Associations, 24. January 1972, p. 10-24. International organizations and the generation of the will to change - the information systems required. Brussels, Union of International Associations. 1970. 89 p. plus appendices. UAI Study Papers INF5, stenocited.

(3) Nature of organization in transnational networks. Journal of Voluntary Action Research, 1, 3, Summer 1972.

(4) Toward a concept inventory: suggestions for a computerized procedure (presented to Research Committee 1, 9th Congress, International Political Science Association, Montreal 1973).

(5) Conceptual gaps and confused distinctions; possible ambiguities in the translation of interrelated concepts. International Associations, 26, 3, p. 156-159 (see other article in this issue and the following.)

(6) World Problems and Human Development. Brussels, UAI, 1972. 37 p.

(7) News of the project is reported in a Newsletter which is incorporated into International Associations (Brussels, UAI, monthly, 1948).

(8) Organizational apartheid. Who needs whom in the Second United Nations Development Decade? International Associations, 21 October 1969, p. 451-456.

(9) Discrimination and fragmentation in the 1970s; an organized response to global crisis. International Associations, 23 January 1971, p. 28-48.

(10) Summary of the crises in interorganizational relationships at the international level. International Associations, 24 May 1972, p. 287-295.

(11) See Donald Schon. Beyond the Stable State: public and private learning in a changing society. London, Temple Smith, 1971.

(12) Chadwick F. Alger. Decision-making in the United Nations. In: Edwin H. Fedder (Ed.) The United Nations: problems and prospects. Center for International Studies. University of Missouri, 1971, p. 165-188.

(13) Mobilization for alienation vs. catalysis for participation: the critical choice for the United Nations system. International Associations, 25, August-September 1973, p. 407-412.

(14) «One of the gravest problems of our day is the lack of commitment to common symbols». Mary Douglas. Natural Symbols. London: Penguin Books, 1973, p. 11.

(15) P. Margaret. On certain unifying principles in ecology. In: A.S. Boughy (Ed.) Contemporary Readings in Ecology. Belmont, Dickenson, 1969. He suggests that it is possible with a definite spending of potential energy, organization and information, and requires

versely the lower the maturity of the system, the less the energy required to disrupt it.

Anything that keeps an eco-system oscillating for a «spastic», retains it in a state of low maturity. Hence the danger of simplistic reorganization of organizational, conceptual or value systems.

(16) See for example: Stafford Beer. Designing Freedom. Toronto, Canadian Broadcasting Corporation (1973).

(17) Information systems and Inter-organizational space. Annals of the American Academy of Political and Social Science, 393, January 1971, p. 47-64 (Special Issue on social development).

(18) Inter-organizational data and data bank design; the use of computergraphics to visualize social networks. In: Neal E. Cutler (Ed.) Emerging Peace as an Evolving Balance and International Studies. Beverly Hills, Sage Publications, forthcoming.

(19) Computer-aided visualization of psycho-social structures: peace as an evolving balance of conceptual and organizational relationships. (Paper presented to a symposium on value and knowledge requirements for peace of the American Association for the Advancement of Science Philadelphia, December 1971). 34 p., xeroxed. (ERIC ED060613)

(20) See: The Open Society of the Future; record of a seminar to reflect on the network

of international associations. Brussels,

(21) Union of International Associations, 1973.

(22) Inter-organizational relationships; in search of a new style in reference 15, pages 115-132.

(23) Networking: the need for a new concept. International Associations 26, 3, p. 170-173. Network-related concepts: a vocabulary adapted to social complexity and social process. (Paper presented to a symposium on the conceptual problems of international discourse, Paris, 1974). To be printed in International Associations.

(24) Wanted: new types of social entity. International Associations, 23, March 1971, (The role of the «potential association»), p. 148-152. (Matrix organization and organizational networks), p. 154-170.

(25) Transnational network of research-and-service-communities: a proposal for an organizational hybrid. In: Human Needs, New Societies, Supportive Technologies (Collected documents presented at the Rome Special World Conference on Futures Research, 1973). Rome: IAUDES, 1974. 5 vols.

(26) Principles of transnational action: an attempt at a set of guidelines. In reference 15, p. 104-114.

(27) From apartheid to schizophrenia: ecological ignorance and the logic of depersonalized separate development. International Associations, 23, February 1971, p. 89-102.

(28) Information on this convergence is given in articles in the periodicals: «Main Currents of Modern Thought» (New York, Foundation for Integrative Education and Fields within Fields (New York, World Institute Council)).

(29) Arthur Koestler, after organizing many such meetings, has recently produced a novel entitled: The Call Girls - to illustrate the interactional dynamics of interdisciplinary meetings. He concludes that such meetings are a reflection in microcosm of the difficulties we face in organizing inter-sectoral relationships in society. A similar experience is recorded in Worlds Apart, by Owen Barfield (New York, Basic Books).

(30) A more optimistic account of interdisciplinary relationships is given in M.C. Bateson. Our own Metaphor. (New York, Knopf).

(31) How is it that chemists and biologists can tolerate the level of complexity associated with over 1,000,000 distinct molecular compounds and plants and animals respectively, whereas those concerned with the psycho-social system can only tolerate less than 100 species of organization, problem, concept or value?

(32) Why is it that we have such a well developed ability to count people-units for statistical and economic policy purposes, but we cannot even see the need to count organizations and groups and their network relationships to help facilitate social development and the design of adequate social indicators? Thus the ILO Yearbook of International Labour Statistics has no information on trade unions. The UNESCO Statistical Yearbook has nothing on scientific and cultural groups (12).