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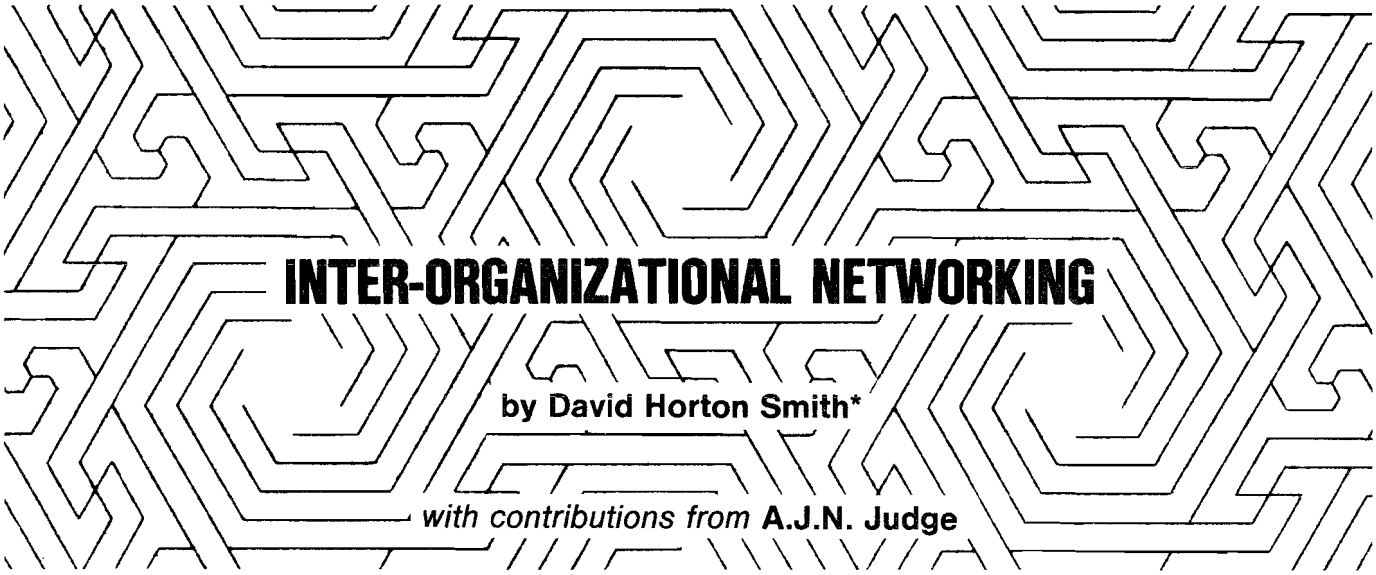

INTER-ORGANIZATIONAL NETWORKING

by David Horton Smith*

with contributions from **A.J.N. Judge**

Both social science literature and practical experience show that networking benefits the organizations themselves **and** advances their common goals. This paper will be dealing with Inter-Organizational Networks (know as ION s), their functioning and operations and the special characteristics of this style of cooperation (1).

What is a network ?

The term « network » is used to refer to any pattern of interrelationships among people or organizations where each is linked or connected to every other person or organization in the pattern, directly or indirectly.

There is a social science term which we will use here to represent these people or organizations in a network : « **node** ». This term allows us to talk about networks abstractly without specifying the type of participant, or the particular type of network, under consideration (e.g. TV stations, libraries, or organizations serving or working for the handicapped).

The **connections between nodes** in a network can be called by many names-branches, channels, relationships, linkages, etc. Here we will use the term « link » and define network as : **a pattern of links among nodes that are reachable from every other node.** Therefore, if a possible node has no **links** to a network, it is **not** part of that given network.

Networking is simply the process of helping to form, maintain, enhance or otherwise contribute to the existence and effective functioning of a network. Networking is **working** to help a network, rather than being passive or working to harm it (which we call anti-networking).

But these definitions are just the bare bones of networks and networking. The meat on the bones is a kind of spirit, tone or style of working together for a common goal or goals. Some of this style is captured by certain phrases and terms which are often said to characterize networks and networking : group consciousness, cooperative processes, seeking of group consensus in action, a whole that is greater than the sum of its parts, lateral and bilateral rather than vertical and hierarchical relationships, two-way communication, multi-directional flows of information and other resources, equality, accessibility, flexibility, responsiveness, synthesis of opposites and integration of differences in service of a common goal, sharing of some common values and objectives-prehaps even common biases.

How are networks different from other kinds of groups or systems ?

Networks can be thought of as loose kinds of coalitions whose **members** are groups. Networks represent a special kind of organizational form that can be contrasted with several **other** common organizational forms. The most common organizational form in the world is the **hierarchy**, where some person(s) or group(s) at the top controls the flow of information and resources and decisions to all the other persons and groups in the organization. Government agencies and business firms generally have the hierarchical form, as do most non-profit organizations. This structure works best when the organization has rather clear-cut goals which are more or less unchanging. The main difference between the hierarchical organization and a network is that **in networks** (especially in complete networks where every node can communicate with every other node directly) there is very extensive communication in all directions. There is no sense of top and middle and bottom as there is in the hierarchical organization. And further, **in networks** collective decision making makes use of inputs from all nodes, and a consensus is reached.

A second major alternative to the network form of organization is the **formal coalition or coordinating council** (federations, confederations, etc.) involving three or more members that have joined together formally in pursuit of some common goal or purpose. In a coalition there is more communication and consultation among the members than in the hierarchical organization and somewhat less power differentiation. However, there is still a top and a bottom, the leaders and the led, and decisions are made by a small proportion of the total membership and not by general consensus. They are usually more closed and exclusive than networks regarding the admission of new nodes; and they have more concern with formal bureaucratic structure.

In the **ideal, complete network** all nodes communicate with and know about the other nodes. When something useful to other nodes in the network is produced, discovered or obtained, any node can and will initiate the action involved in disseminating this resource to all other nodes – or perhaps only to those nodes that are known to be interested in the particular resource. There is no hierarchy at all in any formal sense, in the ideal network. Equality prevails in terms of power, and decisions are reached by consensus among all nodes, ideally. Nodes seek ways to cooperate with each other. The network is viewed as an evolving organism to which each node can and should contribute in order that the ultimate goals and objectives of the network can be achieved. The individual self interests of

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(1) In this paper, the term « network » is used exclusively to refer to ION s.

nodes are moderated to an extent, usually through negotiation and compromise, in order to avoid unnecessary duplication of activities. Through conscientious self-examination, the nodes of the network identify needs and gaps in current activities of the network as a whole and take action to fill in those gaps in the interests of the larger purposes of the network. As the external circumstances and needs change, the network adapts by making changes in the number and nature of its nodes and in their interactions with each other. When a network is no longer useful in terms of relevance to the problem or purpose for which it was formed, it fades away with relatively few tears, for there is no entrenched bureaucracy of the network itself to try to keep it going as an end in itself after it has outlived its usefulness.

What are the functions, advantages, and disadvantages of networks ?

Both hierarchies and formal coalitions have their functions, their advantages and disadvantages. But here we are concerned with the special values of, or problems with, networks. Here are a few of the **special functions of networks :**

Expressing and Working for Common Goals

- Expressing common concerns and shared values in order to foster change, protect shared ideas from distortion, or identify all problem solving options; translating these options into collective action.
- Using scarce resources cooperatively; becoming noncompetitive in order to accomplish shared goals. By-passing bureaucratic constraints or levels of authority in order to increase effectiveness.
- Sharing risks of innovation so that no single node risks its existence on an important or untried new approach or problem solution.
- Providing economies of scale (efficiency from larger volume of activity).
- Undertaking activities or programs that are too extensive for any single node or that would be impossible without cooperative « turf »-sharing (operating in the same domain of action).
- Supporting the growth and development of each node in the network; mutual self-enhancement rather than mutual conflict.

Providing Regular Communication Channels

- Providing a regular way of exchanging ideas, information and intuitions about a shared concern; spreading information or awareness about a valued concept; filtering the most useful information for a shared purpose out of vast amounts of information available; directing the right information to the right node (and ultimate user) at the right time.
- Opening up to public discussion, dialogue, and possible solution problems that are poorly dealt with in other organizational forms; providing alternative information flow within or among hierarchies, to unblock them and modify their functioning.
- Providing flexibility to deal with shared problems in an uncertain, ever-changing and very complex environment.
- Promoting rational and predictable relations among the nodes and between nodes and their respective organizational environments, thus decreasing the chaos of uncoordinated pluralism.
- Giving leaders direct access to leaders of other nodes who may be able to provide information or other resources that the given organization lacks. This is crucial since leaders are known to depend more on personal sources of information than on documents.

However, networks are not without their disadvantages also. Some of these **disadvantages of networks** that have been identified are :

- Difficulty in actually implementing ideal network principles because of the self interest of some of the nodes (tendency for organization leaders to believe that their **own** organization is the most important and necessary one to solve a particular problem).
- Possible loss of identity or operating « turf » (or domain) by particular nodes.
- Sheer costs of cooperation with other organizations – communication and other interaction costs; requirements of contributing resources to joint endeavors.
- Possible loss of some prestige, power or funding for a node if it joins the network.
- Tendency of nodes to be more concerned with a narrow piece of a large and complex problem than with achieving an overall, integrated solution to the larger problem (organizational « nearsightedness »).
- Unwillingness of some nodes to work with some leaders of other nodes; personality clashes among nodeleaders.
- Perception of one's own organization as being too big, powerful, wealthy, prestigious, etc. to need or be able to benefit from any kind of association with « lesser » organizations; organizational snobbery.

What is the nature of network links, or how do nodes relate ?

The essence of networking is not the nodes but the kinds of links that nodes can and do make with each other, the ways in which they relate to each other. Here are some of the major types of links that might be found among various nodes (2) :

Links Between Node Leaders

- Organization leaders gain indirect knowledge of other leaders and organizations, and then
- Meet frequently or speak often by phone.
- Offer advice, policy or program information on cases, problems, or particular situations being faced by other leaders.
- Serve on boards, committees, task-forces or other sub-groups of other nodes.
- Work jointly on policy making, planning and implementation of specific **joint** programs or projects among network nodes.
- Encourage their entire organization to improve its general effectiveness and cooperation with other network nodes, negotiating conflicts and dealing with the inclusion of new nodes as well as developing written agreements or clear mutual understanding regarding the sharing of **resources.**

Sharing of Node Resources

- Network nodes are on the mailing lists of other nodes to receive publications, and reciprocate by sharing their own publications.
- Nodes share, loan. borrow or exchange resources, such as meeting rooms, supplies, even personnel.
- Organizations within the network refer or schare their clients, users, cases, or problems with other nodes.

What organizations should be included in a network as nodes ?

Two considerations are important here. First, what are the scope and objectives of a given organization, and do they fit with the central concern of the network ? Second, given some general fit with the central concern of the network, is the particular organization likely to be a **cooperative and contributing** member of the network ? Unless the answer to both questions is « yes », there is little point in including the organization as a node. Networks are **not** « paper organizations ». Networks are joint ventures of cooperating organizations working actively together for a shared concern, values, and goals. **Networks are thus organizations in action together,** not just a list of organizations that looks good on paper. It is not always easy to tell which organizations really « belong » and will cooperate, however, and often some experimentation or trial and error is in order as a network gets started or as new potential network nodes appear. Openness to appropriate and cooperative new nodes is very important.

The best functioning networks involve organization nodes that not only share a common concern and are cooperative, but also are :

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(2) See footnote (a) following article.

- Compatible with each other in providing distinct but interlocking services, information, or other program activities; there is a kind of « organic fit » like pieces of a jig-saw puzzle.
- Open, frank, and accurate about the nature of their resources, programs, and activities in reality (vs. their aspirations).
- Able to offer something of value to other network node organizations, however small or unknown they may be as organizations.
- Realistic about the scope and importance of **their** activities as contrasted with other organizations in the same field of activity or concern.
- Led by friendly, trustworthy, non-contentious people who are concerned with getting a job done more than with « ego trips ».

How can networks deal with national, state and action levels ?

Networks can be formed at any level of territorial scope. Many international networks exist. Networks can be homogeneous in the territorial level of scope of their nodes (e.g., all international nodes or all local nodes), or they can be heterogeneous in territorial scope (i.e., some local, some state, some national, some international organizations).

There is no single « best » solution here. Networks are formed to fit the problem or need and to help solve and deal with it effectively. Some national or « state » level organizations can be more useful to a basically **international** network than certain international organizations. Or, some international organizations can be more useful to a basically national network than certain national organizations in that place. Usually the best mix can only be discovered by trial and error, guided by educated guesses of knowledgeable leaders and aided by strong outreach efforts to identify and attempt to include all nodes that might be helpful and willing to be part of the given network.

Networks can be operated so that some nodes are more tightly linked, more active in their cooperation and exchanges, than other nodes. This is particularly useful when the network as a whole includes organizations of different levels of territorial scope. Local networks with a given central concern (e.g., information or services for the handicapped) may be tightly linked among themselves in a given locality, but only loosely linked to other local networks, to the network of state nodes, and to national nodes. If true networking is occurring, international, national and state level nodes will not be cooperating solely with their own official or formal affiliates (e.g., branches, chapters) but with any local nodes of the network that can benefit from the cooperation. Similarly, local level nodes will not be cooperating solely with their **own** official, formal state or national organizations but also with any other higher level nodes that can benefit from the cooperation. For state level nodes the same is true in both directions, upwards to national and international nodes and downwards to local nodes. This is how networks break out of the usual box of hierarchical forms of organization – putting more value on helping get the job done at all levels than on protecting organizational « turfs » or domains.

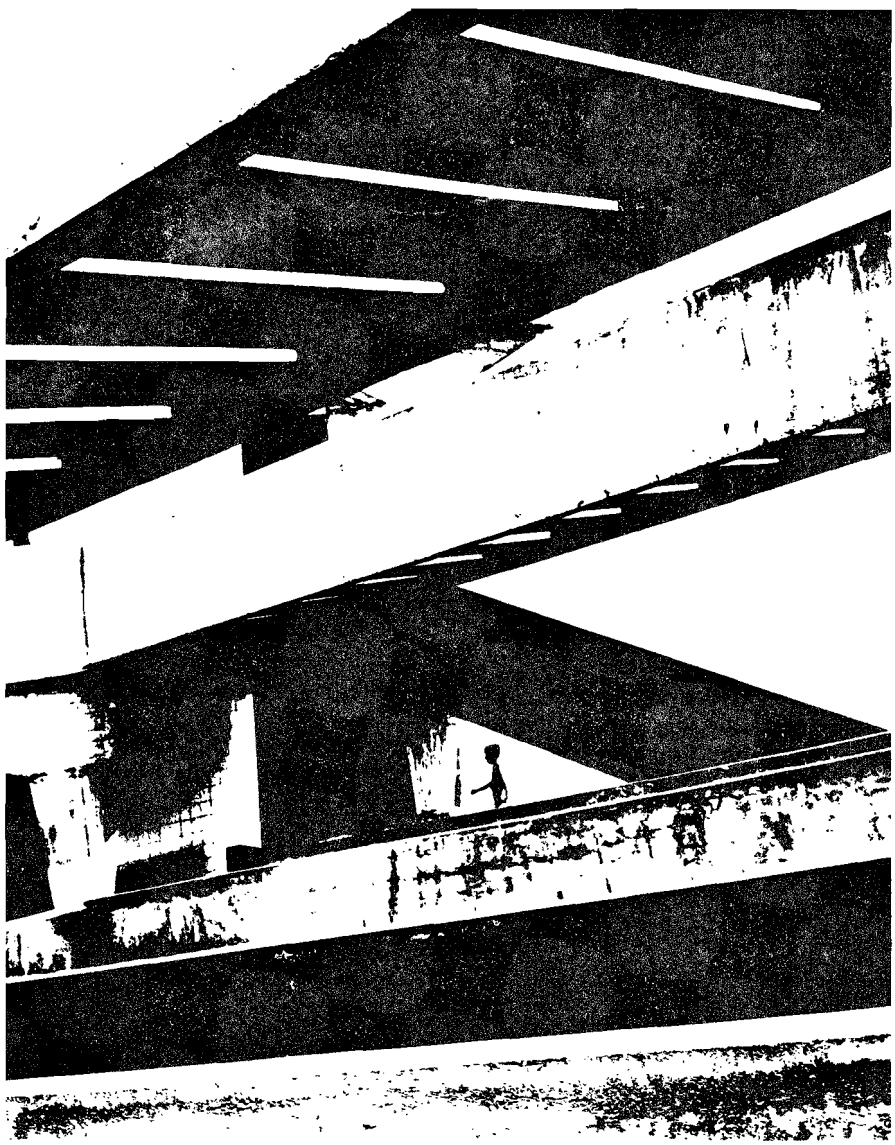
What conditions favor or hinder the development of networks ?

First of all, it is worth recognizing that voluntary agencies and associations in general cooperate a lot less than they **could,** even less than government agencies and businesses do on the whole. There is much that networks can do to foster co-operation among voluntary groups particularly, and with government agencies as well. Research has found all of the following factors tend to **favor** formation of networks, at least in some situations :

Organizations that are :

- Compatible in values and purposes.
- Compatible in clients or ultimate beneficiaries.
- Incomplete, weak, or inadequate to do the job alone-whatever the organizations' goals.
- Service providers to clients or to the public at large (e.g., through advocacy).
- Competitive with each other; having some existing overlap of programs or activities.
- Already to some extent cooperating or interacting with each other, though perhaps at low intensity.
- Able to give and get reliable information about each other (not just hopes and dreams).
- Physically close (though modern means of communication can overcome this) in their headquarters or secretariats.

Photo : Who



- Complex administrative structures, with more types of positions and more paid staff in general.
- Older, higher in prestige, higher in perceived effectiveness by others, more accountable for their actions, less independent of other organizations in their action, more formalized in terms of having written procedures and making more frequent and specific reports to other organizational levels, more clear in their definition of goals.
- Offering more kinds of services, have developed more new programs and more different sources of suggestions, have more present sources of pressure to develop or implement programs, and receive funding from more different sources.
- Led by persons who are aware of the potentials and alternatives available through networking and of a network's being more than the sum of its parts.
- Feel the need for cooperation with other organizations in both their organization's core **and** secondary areas of activity, and who perceive such cooperation to be feasible.

The lack or reversal of each of the foregoing conditions would constitute conditions that tend to **hinder** network formation.

How can interested organizations actually form a network ?

Social scientists working on a project for the U.S. Defense Civil Preparedness Agencies a few years ago prepared a series of « how-to-do-it » manuals for creating interorganizational coordination, which is basically what networking is all about (see the first item in the accompanying selective bibliography). Their proposed model for the steps to be followed seems to be the best available practical guide for setting up a network. We will only sketch the highlights of it here. Briefly, there are six major kinds of decisions involved, and several of these have several steps within them that need to be taken. All this begins with the assumption that there are some persons who are interested in forming a network (or closer interorganizational coordination) and willing to commit some of their time and organizational resources to help form a network around some central concern or problem.

- Determine the **objectives** of the intended network : What is to be achieved, or achieved better, through the network ?
- Define the **present situation** clearly :
  - What are the problems about which something needs to be done ? How are the various problems related ?
  - What is the geographical location or scope of the network to be ? Should it be limited to start with, or should all relevant territorial levels and locations be involved at once ?
  - What are the key organizations to be involved initially, chosen in terms of concern, cooperativeness, resources, etc. ?
- **Key organizations** must make their own decisions about networking :
  - How much commitment does a given key organization have to the central problem or concern of the intended network ?
  - How much commitment does a given key organization have to working **cooperatively** with others in solving the central problem of the intended network ?
  - Do the key organizations have a consensus on their willingness to work with each other all together in spite of possible antagonisms ?
- Representatives of key organizations must make some **interorganizational decisions** about the nature of the network itself :
  - What resources are needed from individual organizations in order for the network to become a reality ? From whom and to whom do these resources need to flow in order to « network » ?
  - Is there agreement on an informal network style of coordination rather than on a hierarchical or coordinating council type of coordination ?
  - What are the specific objectives of the network for the near, intermediate, and long term, given all of the foregoing ?
  - What is the plan of work and how does each key organization fit into this plan of work in terms of activities, resources, and timing ?
- Organizations and their leaders and staff **carry out the plans :**
  - Are the appropriate resources delivered by the designated key organizations at the right time (i.e., meeting deadlines) ?

- **Evaluate** the operation of the network regularly, and feed evaluation results back into future planning and action :
  - Is the network having the desired impact it was created for ?
  - Is networking worth the effort to those organizations involved, given alternative uses of time and other resources ?
  - What aspects of the network operation might be changed to improve its functioning and impact, its efficiency and cost-effectiveness ?
  - Is the full range of potential impacts of the network being taken into account (see the earlier section on Functions) ?

How can networks be changed once started ?

Networks have a tendency to change naturally over time, to evolve and make changes in the nodes and links involved. But here want to talk about how networks can be **consciously** changed and the different strategies involved. The following are the main possibilities, according to one source.

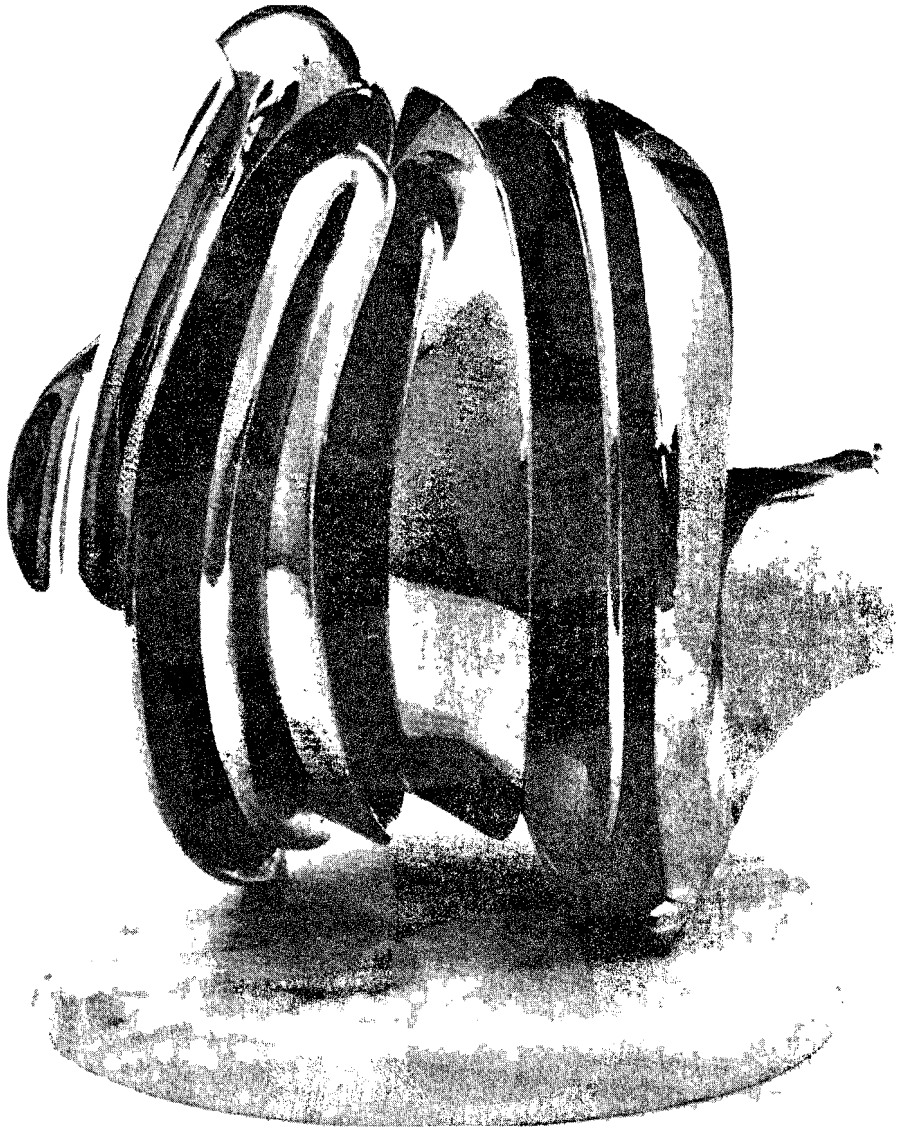
- **Cooperative strategies** – changes based on consensus of the nodes, possibly based on some planning, negotiations, and compromises worked out among some of the nodes; assumes that all nodes really have some power and influence on decisions, and that there is enough cooperative spirit to reach true consensus.
- **Disruptive strategies** – changes based on one or more nodes attempting to threaten the resource generating capacities of one or more other nodes, in order to bring about a change in the network desired by only a small minority of nodes, perhaps only one very powerful node; is essentially a violation of basic networking principles, and merits sanctioning by the rest of the network nodes; usually done covertly and denied.
- **Manipulative strategies** – changes based on purposeful alteration of the larger environment of the network, affecting the flow of resources to the network and the priorities of the network and its organizations (e.g., by changing the total volume of network resources or its channels of resources); again a violation of networking principles, usually done covertly and denied; constitutes a broader version of the disruptive strategy.
- **Authoritative strategies** – changes based on the demands or powerful influence of an organization within or outside the network that has the legitimate authority to wield such influence in terms of the larger society (e.g., a government agency, regulatory body, principal funding source); done overtly and admittedly, but still a violation of **networking** principles, even though legitimate in terms of the larger society.

In sum, the proper way to change networks consciously is to use the accepted consensus process and a cooperative strategy. Not every node or set of nodes, however, is likely to adhere to this approach. When any of the other approaches is used, it is the responsibility of the rest of the nodes of the network to resist such approaches and to sanction those responsible by reprimand or ostracism.

What are the important roles that need to be played in a network ?

This question gets us into a discussion of the internal structure and dynamics of networks. Since networks are such informal, changing, and variable forms of organization or coordination, it is impossible to do justice to the topic in the space available here. All we can do is to list briefly some of the major kinds of networker or networking roles that have been identified, as follows :

(1) value or goal generating and maintaining roles;
(2) research roles (what works and what does not and why);
(3) interpretative roles (interpreting network activity for outside specialists, for policy formulation, for the network constituency, etc.);
(4) information and communication roles (providing widely known and accessible communication channels and information systems for switching within the network);
(5) lookout roles (detecting and defining the nature of emerging network problems);
(6) emergency roles (rapidly mobilizing resources in response to network crises when no official body in the network has such responsibility);
(7) recruitment roles (seeking appropriate new nodes and support from outside sources);
(8) strategy and policy formulation roles (clarifying longterm problems and possible strategies for network action and change);



(9) broker and negotiator roles (helping create new links, settle conflicts, arrange compromises, linking given network to other networks);
(10) political action roles (influence external organizations to change policies or procedures that impede network functioning);
(11) network manager roles (overseeing without controlling the network, assuring the flows of information, the processes of referral, tracking and follow-up, and the provision of resources required for network operation);
(12) trainer and facilitator roles (orienting new nodes to nature of network; orient old nodes to new patterns of operation; facilitate growth of new or tighter subnetworks); and
(13) convenor roles (hosting meetings of network node representatives; facilitating electronic « meetings » by computer conferencing or conference telephone calls, etc.).

How can a network be made more likely to succeed (or fail) ?

To speak of the important roles within a network is only part of discussing what makes a network succeed or fail in having its intended impact. There are also important operating principles or guidelines that have been gleaned from experience with or research on networks. For nearly every one of these principles, pursuing it in one way helps a network succeed (and hence is part of networking) while pursuing it in the opposite way harms a network and makes it more likely to fail (and hence is part of **anti**-networking or sabotage). Because of their looseness, fluidity, and freedom, networks are like democracies in that « Eternal vigilance is the price of freedom ».

If nodes in the network do **not** take responsibility to make the network a success, and to stop or expel nodes that are anti-networking, then the network can only fail. It can only be what its members make it or permit it to become. Here are a few of the many, many principles that seem to make for network success (or failure, if turned around) :

- Insist at every opportunity that the central concern and purpose of the network be kept uppermost in mind in all network activity.
- Remind people and nodes at every opportunity that the network provides the benefits of legitimacy, additional or more effective use of resources, opportunities for organizational growth, as well as friendship and personal sharing opportunities.
- Communicate regularly to all nodes specific instances of perceived benefits and impacts of cooperation through the network, besides the foregoing general benefits.
- In the beginning, work for some clear, simple, feasible, and readily observable network goal and accomplish it successfully, informing all nodes and the public of this accomplishment quickly.
- Make sure that there is always some clear, **short-term,** feasible goal or goals that the network is working for as well as longer term and broader impact objectives; maintain a sense of both short-term and longterm goal clarity and momentum, without expecting miracles overnight or over-promising on accomplishments.
- Warn individual organizations against over-commitment to too much high intensity cooperation, given their present resources and state of development; avoid the « burn-out » syndrome of nodes.
- At the same time, insist on active commitment to cooperation with the network and some of its nodes to a significant degree.
- Keep all nodes in the network up-to-date on the precise nature, scope, activities, resources available, resources needed, and cooperative network activities of every other node through an annual directory and regular quaterly or bi-monthly updates.
- Insist that all nodes provide high quality information (accurate, reliable, unbiased) whenever they pass information to other nodes, particularly when reporting on their own organizations (as for the annual directory or updates).
- Continually press all nodes for clarification of their particular roles, functions, and constituencies with respect to people and groups outside the network as well as within it, and make sure all nodes are aware of these facts.
- Strive to identify and confront as quickly as possible any conflicts, confusion, duplication, antagonism, cheating, exploitation, sabotage or other networkharming activities of any nodes.
- Where problems arise, have established mechanisms for dealing with them according to their nature and severity (e.g., node consensus regarding expulsion of a node; a negotiating team for dealing with more minor conflicts, duplication, etc.).
- Insist on a participative, cooperative, consensus-seeking decision-making procedure for all decisions affecting the network as a whole; where in-person meetings or electronically aided meetings omit certain node representatives, the latter should be polled by mail or telephone in advance (if non-participation is foreseen) or after the meeting in order to include their inputs.
- Resist any tacit or explicit assumptions that larger or wealthier or more powerful and prestigious nodes have a right to greater influence in the network than the smallest, poorest node. Equality !
- Facilitate active participation in the network for weaker, poorer nodes by providing expense reimbursement for involvement, etc.
- Have a minimal secretariat of highly competent, professional, credible, concerned, experienced persons with positive personality characteristics and high interpersonal relations skills to facilitate the operations of the network and the performance of the necessary roles (see previous section) for optimal networking; give the secretariat a small budget and no powers of allocation of funds to nodes of the network without full network consensus.
- Insist on the necessity of binding agreements for the network, based on consensus decisions, but make it clear that network involvement does **not** imply acceptance or approval of **all** the values and activities of other nodes in the network.
- Develop and renew « network consciousness » and a sense of organizational and personal solidarity in pursuit of the shared network concern through orientation and training sessions for node representatives (and their principal staff colleagues), through in-person and electronically aided meetings as frequently as is feasible, through special network stationary and a network newsletter.
- Make it clear that unequal contributions and exchanges are to be accepted and expected, as well as unequal levels of cooperation.
- Encourage regular, constructive, mutual and self-criticism by nodes.
- Seek internal self reliance and multiple funding sources for network
- Encourage cooperative innovative projects too risky for single nodes.
- Seek optimal network size where there is minimal node function redundancy and the opportunity for each node to know all others.
- Discourage turnover of node representatives and network liaison staff, but orient newcomers to the network quickly and well. ■

FOOTNOTE :

A Selective list of information sources on networking methods.

(Document source listed as EDRS is the ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210 U.S.A. (MP-Microfiche, HC-Hard Copy).

(1) Creating Interorganizational Coordination : Project Report ; An Orientation ; Instructor's Guide. 3 Vols. Klonglan, Gerald E., et al. Final Reports Submitted to Defense Civil Preparedness Agency : Washington, D.C. May 1975. (9pp., 13pp., & 223pp.) Available from Dept. of Sociology and Anthropology. Iowa State University, Ames, Iowa 50011.

(2) *The Union of International Associations. Rue aux Laines 1, 1000 Brussels, Belgium.* Transnational Associations *a monthly periodical, formerly titled* International Associations, *has published many articles discussing networks, their nature, structure, dynamics, problems, modes of internal communications, etc. Issues No. 9, 10, and 11 for 1977 are particularly rich in such material, although there are also excellent and relevant articles in earlier issues (for instance, the article, « Principles of Transnational Action », in issue No. 3, 1973 of* International Associations*).*

(3) *Coordinating Human Services: A Sociological Study of an Interorganizational Network ». Research Series, No. 6. Benson, J. Kenneth, et al. Missouri Univ., Columbia, MO., Regional Rehabilitation Research Inst. (Sponsor: Social & Rehab. Serv., DHEW) 1973. (160pp.) Available from: U. of Missouri, Reg. Rehab. Research Inst., Columbia, MO. 65201.*

(4) *« The Development of Interagency Cooperation ». Aram, John D. and Stratton, William E. (Case Western Reserve U.),* Social Service Review, *1974, 48, 3, Sept. (412-21).*

(5) *« Issues and Patterns for Community Networking ». Goddu, Roland. N. England Program in Teacher Education, Durham, N.H. 1976. (13pp). (EDRS Price NF-S.83; HC-$1.67 plus postage).*

(6) *Communication and Interorganizational Relationships Among complex Organizations in Social Service Settings ». Wigana, Rolf T. Paper presented at the Annual Meeting of the International Communication Association, Portland, OR, April 1976. (81pp.) (EDRS Price MF-$.83, HC-$4.67 plus postage).*

(7) *Strategies for Expanded Interagency Linkages: Rehabilitation Implications ». Roessler, Richard and Mack, Greta. Rehabilitation Counseling Bulletin, 19, 1:344-51, Sept. 1975.*

(8) *« The Coalition Approach to Improved Services for Handicapped Children in the Baltimore Region. Final Report ». Wickey, Jane M., and Hartman, Barbara L. Models of Delivery Systems, Inc., Baltimore, MD; Regional Planning Council, Baltimore, MD. April 1976. (80pp.) EDRS Price MF-$0.83, HC-$4.67, plus postage.*

(9) *« Organizational Structure and Interorganizational Dynamics ». Aiken, Michael and Hage, Jerald. 1967. (36pp.) (EDRS Price MF-$0.76; HC-$1.95, plus postage).*

(10) *« Common Purposes as a Prerequisite for Networking ». Devaney, Kathleen. Far West Lab. for Educational Research & Development, San Francisco. April 1975. (9pp.) Paper presented at the American Educational Research Assoc. Annual Meeting, 1975. Best copy available. (EDRS Price MF-$0,75 HC-$1.58 plus postage).*

(11) *« Networking: A Survival Mechanism for Urban Superintendents ». Merrow, John, et al.* Phi Delta Kappan, *56, 4: 283-85, Dec. 1974.*

On facilitating networks for social change *

by Peter and Trudy Johnson-Lenz

Abstract

The problem of increasing societal variety is described.
A suggestion is made that social networks might serve as decentralized regulators of this variety. Examples of social networks serving in this capacity are given.
Methods are outlined for facilitating these networks by sharing information about the network and its members.
Facilitation at various levels of recursion is discussed .
Computerized conferencing is cited as a means for enhancing communication within geographically dispersed networks. Decentralized computer processing networks are mentioned as the logical hardware counterpart to support these social networks.

Our problem

We are living in times of incredible change. Scientific knowledge is doubling every ten years, individuals have increasing personal freedom in lifestyle, our technology brings us new advances and new side-effects, and rapid communications media show us problems and possibilities faster than we can assimilate them.
The increasing variety of problems and options is a blessing and a curse. The variety of new information available makes it more likely that we can find solutions to given problems — if we can find the right piece of information when we need it. The variety of personal options leads to increased freedom, but there is no strong trend toward increased responsibility to go with it. Often the governance and education systems seem to be out of phase with the changes, so their responses are not always appropriate to current situations. How can we cope with this variety ?

A cybernetic principle

One of the fundamental principles of cybernetics, Ashby's Law of Requisite Variety, states that the regulator or governor of a system must match the variety of that system in order to control it (1). Either the variety must be reduced or the regulator expanded until there is a balance.
What Ashby's Law says is that we have a choice. We can reduce the social variety by increasing government surveillance and control, by centralizing our decision-making processes even further, by limiting our personal and collective lives, and by restricting information and research. Many would resist such increased control and limitation, and force would be necessary to maintain it. On the other hand, we can increase the variety in our regulatory system by facilitating the free exchange of information, by involving more people in the decisions which affect them and in which they have an interest, by decentralizing institutions, by encouraging localism, and so on. Although more acceptable to most people, this approach must rely on distributed power and governance, and it requires more individual responsibility (instead of dependence on government) for it to work. The political problems and implications of such decentralization are not discussed here.

Sprouts from the grassroots

One promising trend toward increasing the variety of our regulatory systems is grassroots involvement. In many places, people are coming together in loosely organized groups to make sense of and help direct the course of change in their personal and community lives. There is a resurgence of neighborhood feeling and concern in many parts of the United States. Neighborhood associations are forming to participate in planning, to deliver services to residents, to provide social support, and to participate in local governance. There are also coalitions and alliances of neighborhood associations and other community self-help groups [2]-[7]. Citizen participation and involvement is becoming more prevalent, and is even mandated in some places. Interdisciplinary « invisible colleges » of scientists and professionals are forming to share ideas. There are many public interest and environmental groups which focus on issues they believe important and that goverment seems to ignore. There are also groups devoted to interpersonal support and personal growth [8].
The network concept is central to this trend. Many people devoted to alternatives and social change use the term network to describe their group and the relationships and flow of information within it. To them, it means a decentralized network with low centrality, where information passes quite freely among the members and is available to within the network. Furthermore, in this context the term generally includes the idea that power is shared, that decisions are made by all those affected, that economic and physical energy is available to all. In groups with a more collective orientation, there is a notable absence of hierarchical structure, and authority is often split to assure that the ideas of any one person do not dominate. Many people involved in social change and innovation proudly call themselves « networkers ». They are well practiced in the network arts : sharing information and leads to other people, helping bring people together who can mutually benefit, helping people find what they need [9].
Decentralized social change networks based in the grassroots constitute a promising beginning for a change in our governance system that has the potential for matching the variety of our time. They are especially powerful because they are grounded in people's personal lives and the friendship networks that make up our social fabric. They can begin to match the variety of problems, needs, resources, and conditions as their memberships and purposes change in response to the changing times. Being flexibly structured, they can respond more quickly than the more rigid social institutions of today [10]. If necessary, an entirely new network can emerge from the pieces of an old one. These networks can also target their responses to the appropriate places, with the appropriate levels of help. They can bring to bear many diverse talents. Being rooted in the people, they can bring local understanding to local problems which bureaucrats don't always share.

Facilitating networks

Because of limited communications channels within and among themselves, these networks cannot always respond

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* *Originally written for « Connections », the Bulletin of the International Network for Social Network Analysis.*
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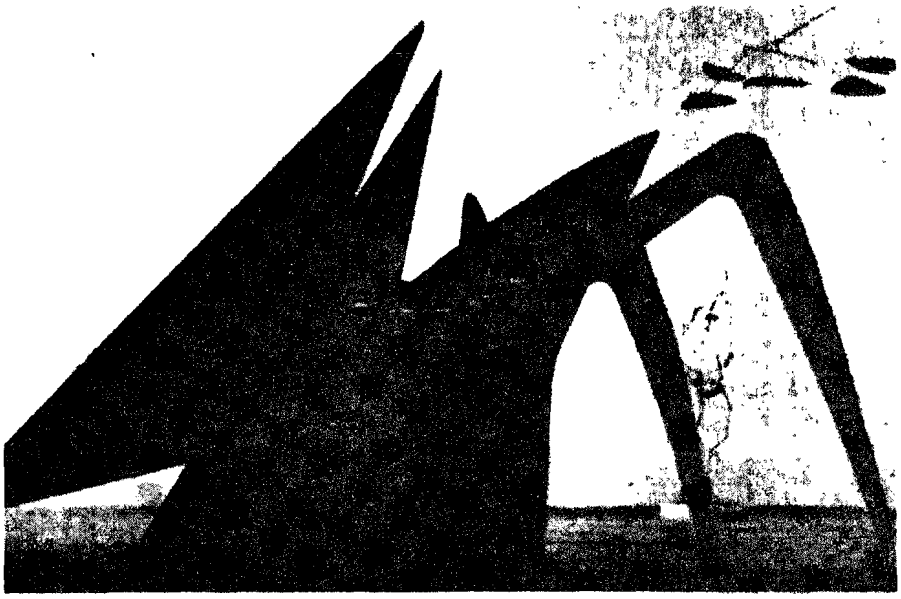
quickly and easily to problems and issues. Communication is often limited to sharing information through the mail, printed newsletters, and occasional telephone calls, whenever face-to-face meetings are not possible. This is a serious problem in geographically dispersed networks, such as the loosely organized Northwest Net. It includes perhaps a thousand people who are working on local food production and distribution, alternative and public access media, holistic health, land trusts, communications, and more in various subnetworks in Oregon, Washington, and Idaho. These networks are further hampered by the slowness of the natural word-of-mouth process by which people come into a network and find others with common interests. Such limitations make it difficult for these networks to evolve into a meta-network of issue-specific ad hoc groups emerging in response to issues and then fading away as the problems are solved.

If these networks are to develop further in the direction of regulating life on the planet, they must be **facilitated.** Their capacity to link members and to communicate with other networks must be enhanced. This is the motivation for our work, as well as the work of others interested in the birthing of new planetary regulatory systems. Our own work consists in using the tools of the communications era (computers, telecommunications, mathematical models and methods, etc.) to increase the ability of these networks to perceive problems, to link up into adhocracies for action, and to interconnect with other networks. Facilitating networks involves distributing information about the network to all its members. This information includes facts about members' skills, resources, needs, availability, attitudes, interests, and perceptions. It may also include information about the structure of the network. By sharing as much « access » information as possible within a network, individual members are empowered to form their own links with others, without having to rely on a central leader. By sharing information about members' perceptions, or « mental models, » it becomes easier for subgroups (or subnets) to form for discussion or action. The purpose of network facilitation is to increase the number of links among members and to decrease the degree of centrality of the network.

Facilitation through sharing information about people

Many of our projects have been based on building a file of information about people in the network, containing the names, addresses, telephone numbers, and some additional information about concerns and interests. This additional information may include both keyword descriptors and free-form textual material.



U.S.I.S. (Brussels)

Swaying mobile : Alexander Calder, The Guggenheim, New York

The International Network for Social Network Analysis (INSNA) directory we prepared is a good example of such a file [11]. Even in print form, this information allows INSNA members access to everyone else in the network. The keyword indices provide a way to locate others in the same discipline or geographic area, or those with similar interests. The INSNA directory is now available on a computer at the University of Toronto. The on-line file can also support more complex searches; for example, for people in Canada who are sociologists, and who are interested in support networks and methods for investigating them.

By adding more descriptors for each person, more refined searches become possible, including searches based on « profiles » or sets of characteristics. The development of keyword descriptors for people in a network should be done with the advice and consent of network members. There are serious problems with an open-ended list of keywords. First, if participants make up their own descriptors, duplicate keywords with slight variations often occur. For example, one might use « gardener », while another would say « gardening ». Second, synonyms or closely associated terms often appear as separate keywords, such as « women's studies », « women's movement », « feminist movement », and so on. An initial keyword list may be developed by a network organizer or facilitator, but network members should be asked if those keywords describe them adequately and what changes should be made. There should also be provisions for adding or modifying descriptors as the network changes.

Another way to bring people together in a network is to share information about members' points of view about given topics. Recent developments in modeling theory (including Interpretive Structural Modeling) have produced techniques for structuring the elements and relationships that make up a person's view of a topic into an integrated mental model [12]. Using directed graphs, a person's mental model can be expressed as a network of concepts. Rather than using ISM techniques which produce a single group model, we have chosen to ask each person questions about the elements and relationships he or she perceives and then to « cluster » the responses into patterns (using n-way tabulations to find exact pattern matches). Then the most frequent patterns of responses (that is, the most frequent « mental models ») are shared with network members. Not only does this tell members what points of view they and others hold, but it also provides an explicit opportunity for discussing points of difference. We generate the initial list of elements and the possible relationships among them with a small, diverse group of people familiar with the area or issue.

We recently used such techniques at the Oregon Information and Referral Idea Fair and Workshops. Before the Idea Fair, we generated some initial models of information and referral (I&R) and conducted a pilot test with a diverse group of people involved in community and social serive I&R. Then, at the Fair, following registration, we surveyed the participants, entered their responses into the computer, analyzed the results, and later shared with the participants the most frequent mental models of information and referral, showing not only what they felt about I&R, but

why [13]. By using such techniques we are sharing not only a specific interest or attitude, but we are also beginning to make explicit in broad terms the entire constellation of what a person thinks about a given area, so that everyone has a contexted picture of what others in the network think about a topic.

Facilitation through sharing information about networks

Another kind of information that can help people in a network is information about the network structure — who knows whom, who has worked with whom, etc. This sort of information is common to most social network analysts, but it is relatively new to social network practitioners. We believe that such data can be used to modify and extend existing social networks. For example, if one joins a network and knows a few people, he or she can use portions of the whole network data to find friends to introduce him or her to other interesting people in the network. Brokering can also be done more formally by people in the network who enjoy match-making. Information about other networks to which one belongs can also be shared in this manner, thus providing linkages among networks through node individuals. In our experience, most changes in social networks are accomplished through existing links; we have been introduced to most of our friends by other friends. Access to whole network data of this type can facilitate the natural process of network growth.

We are also participating in network communication and facilitation on EIES (Electronic Information Exchange System), a computerized conferencing system designed by Murray Turoff. This winter, some members of INSNA will be using EIES to participate in a network of social networkers convened by Linton Freeman. This network will share ideas and work as a geographically decentralized « invisible college », combining several academic disciplines in the discussion of social network analysis [13]-[15]. Whole network data has been collected on INSNA, and plans are being made to analyze this data to give a better picture of who its members are and how they interrelate. Similar plans are being made for studying the network structure of the social networks network on EIES, as well as of other EIES networks. What are the effects on the network structure of making that structure explicit to all the members ?

Will it stay the same or change, and how ?

Levels of facilitation

Facilitation must take place at several different levels of networks. First, it must happen at the level of each neighborhood and local community. We have designed and used a computer-based community information system to help organize our neighborhood for participation in a comprehensive land-use planning process. We began with a survey of our neighbors. From the survey results we developed the neighborhood's agenda for action and prepared lists of neighbors with similar concerns to serve on task forces and committees. The system was also used to form a telephone tree for communicating and responding to surprise moves from City Hall. The entire effort had a significant impact on political directions in the city [16]. In addition, the system could have been used to bring people together for social purposes, in common interest groups (e.g., gardening club, play reading group, etc.), or to exchange goods and / or services. However, the neighborhood association chose to emphasize political and planning issues rather than social organization.

We also helped a project get started in Portland, Oregon, where a neighborhood association is using a micro-computer in someone's basement to facilitate the exchange of skills and resources among neighbors [17].

Micro-computer hardware is becoming inexpensive enough ($600 and up) to enable interested neighborhoods and community groups to handle their own information needs without outside assistance. To make this happen, a variety of software packages and people willing to maintain and manage such projects are needed.

Second, facilitation must happen at larger levels of perspective — at the county, state, regional, and eventually national and global levels. At these levels there are several problems : providing communications channels for large numbers of geographically separate people, interlinking and interconnecting more local networks for large-scale action, and organizing large-scale complex problems so that the problem components and the relationships among them can be readily understood. At these larger levels of perspective, many networks and « networking » projects exist. Harry Stevens has been designing and testing techniques for « involvement through networking » for fifteen years. He is currently developing a Science Resource Network for the Massachusetts Legislature [18] and planning a legislative exchange experiment among state legislatures via notebooks and computerized conferencing. Last winter we participated in the design and development of a social process and computer system to support city- and state-wide issue dialogues in Washington State [19]-[20]. Issues were formulated and analyzed by citizen groups, who accessed the results through an interactive computer at meetings. These issue dialogues clarified not only who felt which ways about issues, but also why they felt those ways. This can be the basis for organizing into action groups and forming political coalitions. In Hawaii, the Hawaii Health Net links people interested in holistic health [21]. There is a state-wide technical skills bank in North Carolina, and a national skills bank is being developed by Patrick Saccomandi of the Independent Foundation [22]-[23]. On a global scale, Anthony Judge has used the network paradigm to express and interrelate perceived problems, the international organizations concerned with them, the disciplines focusing on them, and the values which make them visible [24]-[25].

Improved communication

Networks of people also share information about topics of common interest, goals, purposes, etc. Local networks can often do this in face-to-face meetings, but geographically dispersed networks must circulate textual and graphic material through the mail. This is slow and expensive, and truly « interactive » communication is impossible. One solution to this problem is computerized conferencing, which allows groups to communicate ideas, « meet », and make decisions, without the cost of travel and the inconvenience of bringing people to a central location at a given time [26]. Such conferencing is asynchronous, since material may be entered into or retrieved from the computer at different times, thus making rapid communication within a network possible at the convenience of each individual. We are aware of several groups of scientists, social scientists, and others interested in social change who are exploring some means of bringing together geographically dispersed people into networks to share ideas, make friendships, and work together. We are helping several of these groups find appropriate state-of-the-art communications systems to support their networking activities. At present, full computerized conferencing systems are not widely available to most networks, but they will be in the future. We feel that the potential for computerized communications systems to link people in dynamic, ever-changing, decentralized networks is virtually unlimited.

In a few more years, people at home will be able to have computer terminals hooked up to their family TV sets for a few hundred dollars. Already, experiments are being conducted with systems in England that will deliver textual information to subscribers' TV screens [27]. In Columbus, Ohio 100,000 homes are now wired for two-way cable TV, which began programming in December, 1977 [28].

Such communications systems begin to support the variety in society, but they also need to be structured so that the variety is regulated, rather than expanded into chaos.

Next : Decentralized computer networks

Most of the current experiments in social network facilitation using computers have been limited to using a central computer to store the directory for the network, to analyze the structure of a network, and to support computerized conferencing. Even though a single, central computer may be accessed through geographically distributed computer terminals, the current state-of-the-art involves centralizing the data in one place. This centralization has the same shortcoming we mentioned before : it tends to limit variety.

Recently, computer scientists have begun experimenting with « distributed processing networks ». Such a network is made up of many computers, themselves geographically distributed. The major advantages of such networks are that local processing can be done by a local computer, sensitive data can be kept in a local computer and thus protected, other computers can « help » in a problem when needed, and the activity of the entire network can be dynamically allocated to the current set of problems. Such a decentralized network has no central data base. The data is kept in bits and pieces in the distributed computers. A distributed processing network is the logical hardware counterpart to the social networks discussed above. Loving Grace Cybernetics is currently developing a distributed processing network that will serve as a « community memory » in the San Francisco area, containing information about community needs, services, resources, and so on [29].

Summary

Given the increasing variety in our society, it is necessary to find new mechanisms for coping with it and with rapid change. Either the regulatory systems need to be amplified, or the variety needs to be reduced. Networks of people coming together out of common interest and concern may serve as an adjunct to current regulatory systems to match the exploding variety. Such networks need to be organized and facilitated at various levels of recursion, beginning at the local level. Information about people's interests, mental models, abilities, concerns, values, and so forth needs to be shared within and among networks. Information about the network's structure can also be used to facilitate the development of new relationships within the network.

Geographically dispersed networks of people can be facilitated through new communications technologies, including computerized conferencing. In the future, decentralized computer networks will also play a part. These trends suggest new governance and educational structures that may help us preserve our freedoms, while bringing more individual responsibility to bear on new problems. ■

Photo U.S.I.S. Brussels

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D.C. 20007.

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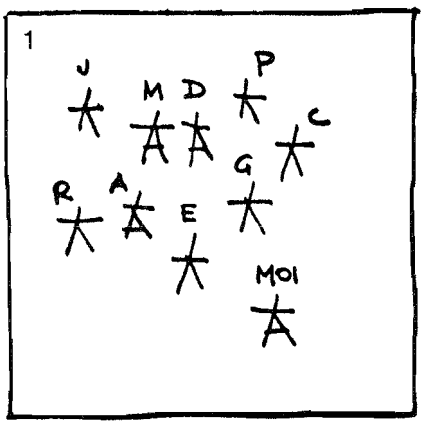
GROUPS and NETWORKS (*)

by Yona Friedman

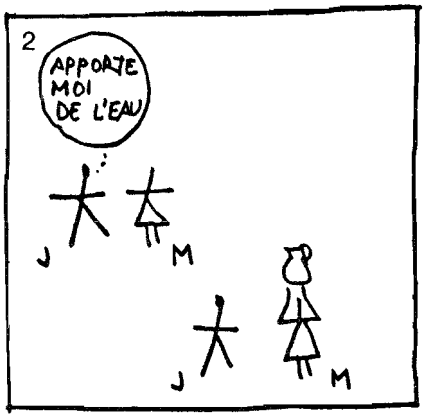
How to work in a *group* without being a leader and without being a slave
(see first text below each image, in roman type).

How a group can work with other groups in a network, *without coordinating them all and without being their slave*
(see second text below each image, in italic type).



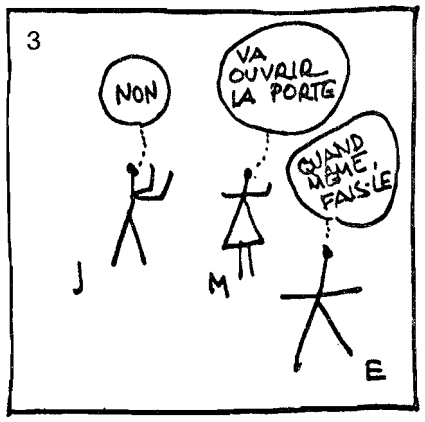
We form a group : John, Mary, Peter, Denise, Guy, Roger, Anne, Edgar and me.

The groups : J, M, P, D, G, R, A, E and M.O.I. together form an organization network.



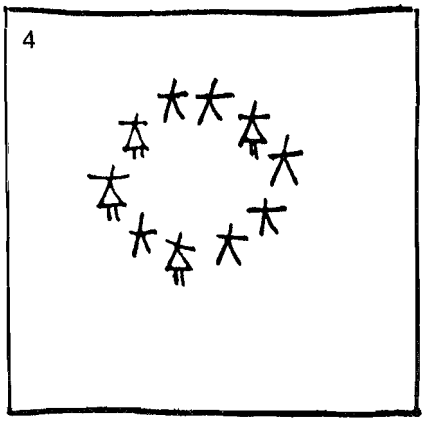
If John asks Mary to do something, she does it.

If the J-group asks the M-group to do something, it does it.



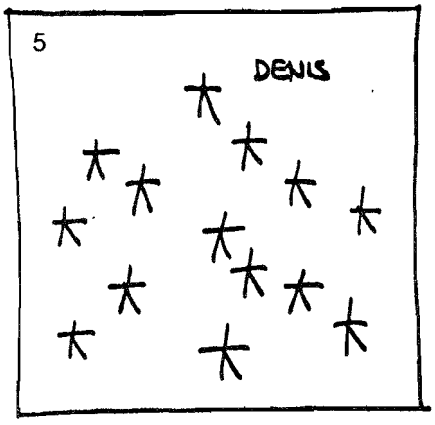
If Mary asks John something, he ignores her.
But if Edgar asks him, John runs to do what Edgar requested.

If the M-group asks the J-group to do something, the J-group does nothing.
But if the E-group asks the J-group to do it, it does it immediately.



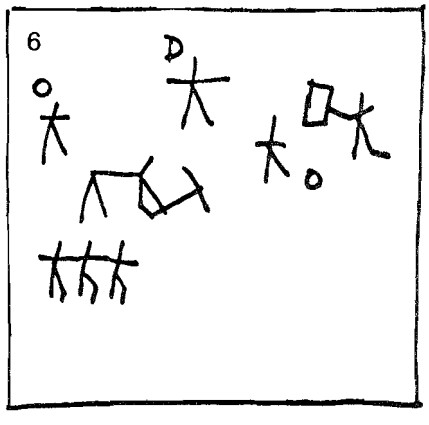
That is the way our group works.

That is the way our organization network works.



I know of another group, to which Denis belongs.
It is a group much larger than ours.
In that group it is Denis who gives the orders.

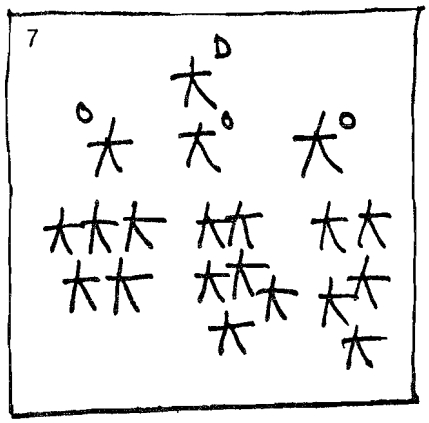
I know of another organization network to which the D.E.N.I.S. group belongs.
It is an organization network much larger than ours.
In that network it is the D.E.N.I.S. group which gives the orders.



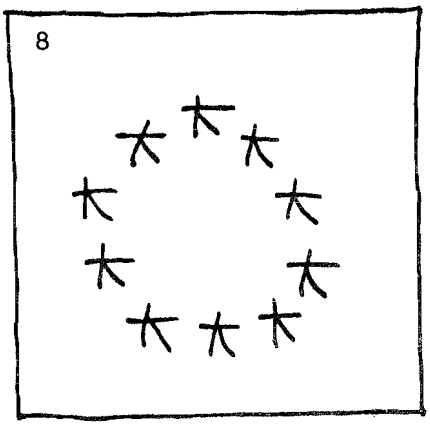
He gives various tasks to everyone and his officers (O) help him to supervise his group.
He has as many officers as our group has members.

The D-group allocates tasks to every other group in the network and the coordinating sub-organs (O) of the D-group help it to control the network.
The network has as many coordinating organs as our network has members.

(*) *Adapted from a French version, and applied to networks, by A.J.N. Judge.*

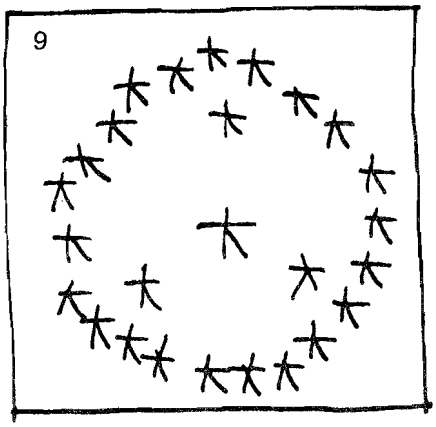


Denis gives orders to his officers, the officers give orders to the others, who, in their turn, are unable to give orders to anyone.
That is the way Denis'group works.
The D-group gives instructions to the coordinating organs, the coordinating organs give orders to other groups, who, in their turn, are unable to give orders to anyone.
That is the way the D-group's network works.



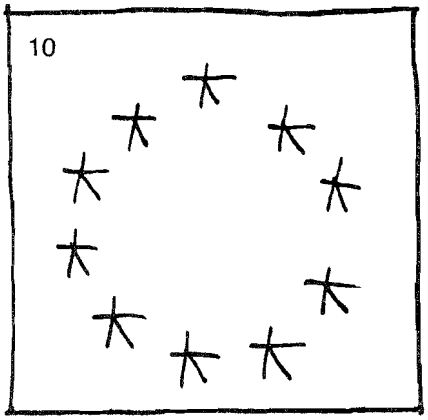
In our group, there is no leader.

In our organization network there is no leading group.



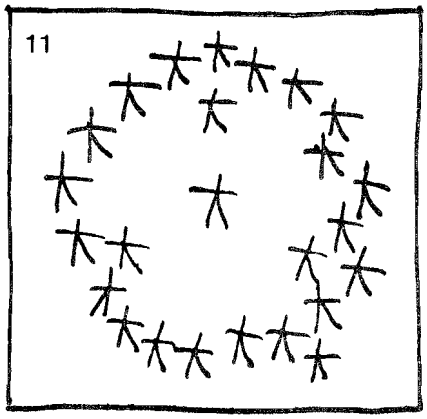
In Denis'group, Denis is the leader.

In the D-group's network, the D-group takes the lead.



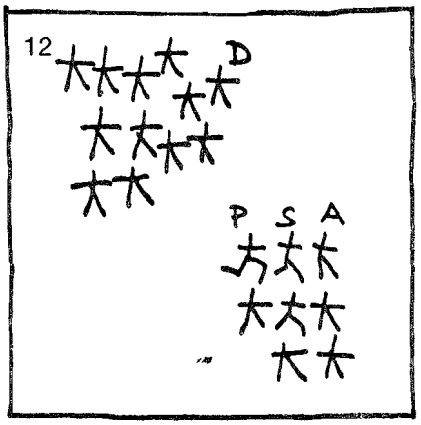
In our group there are few members.

In our organization network there are few member groups.

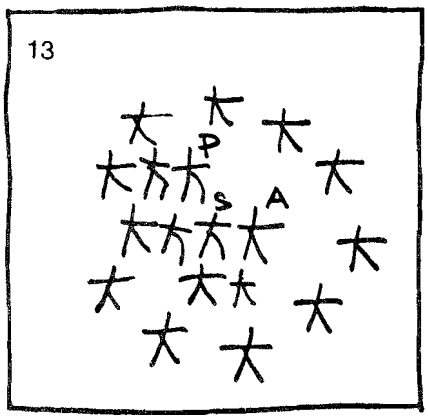


There are many members in Denis' group.

There are many members in the D-group's network.

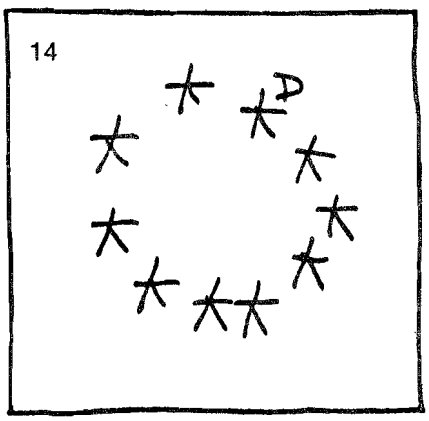


Patrick, Sophie, Andrew and half-a-dozen of their friends left the Denis group.
The P-group, S-group and A-group together with six other related groups left the D-group's network.

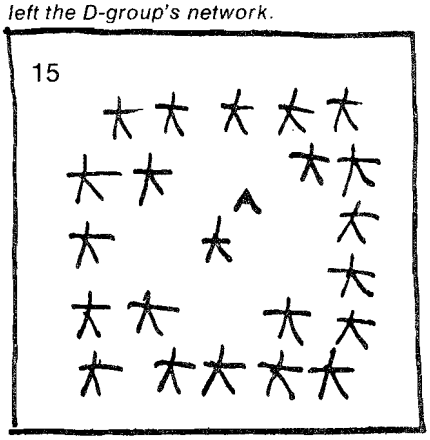


They joined our group.

They joined our organization network.



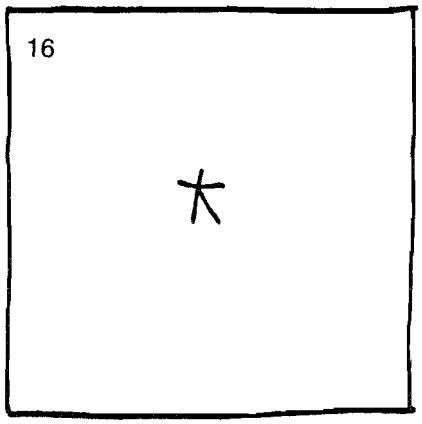
Since then, Denis' group has changed : they no longer have a leader and Denis is no longer more important than the others.
Since then, the D-group's network has changed : it no longer has a leading group and the D-group is no longer more important than the others.



However, our group now has a leader : Andrew.

However, our organization network now has a leader : the A-group.

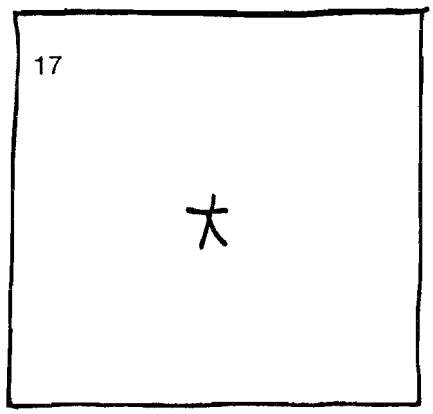
16



How can a group avoid having a leader ?

How can an organization network avoid having a leading group ?

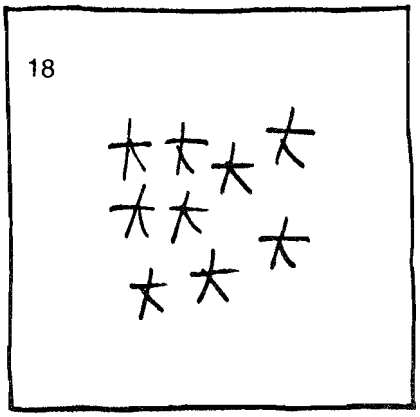
17



How can one become a leader ?

How can a group become the leader of a network ?

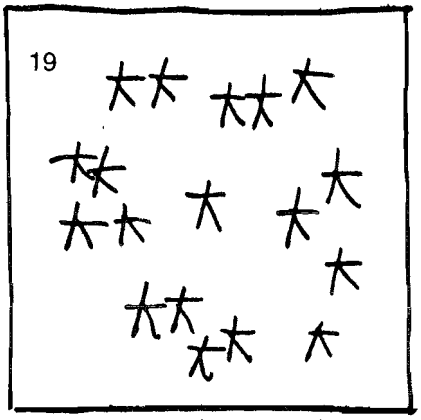
18



What will the others do in order not to have a leader ?

What will other groups do in order not to have a leading group in the network ?

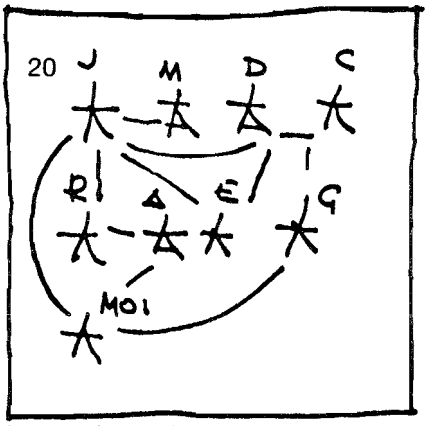
19



What will those who want a leader do to support him ?

What will the groups which want a leading group do to support one ?

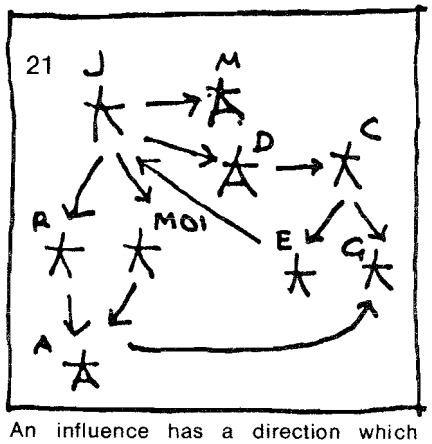
20



Let us take another look at our group. It consists of the individual group members linked together by a network of influences.

Let us take another look at our organization network.
It consists of the member groups linked together by a network of influences.

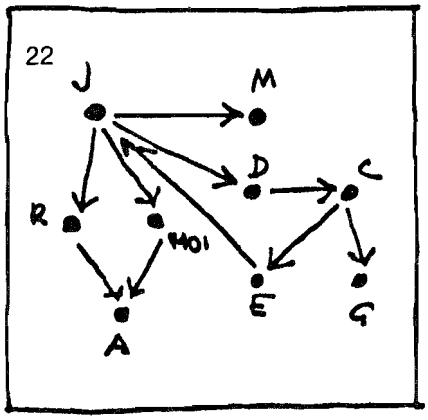
21



An influence has a direction which points towards the person who is influenced, namely to the person who « obeys » another.
We can indicate such an influence by an arrow.

An influence has a direction which points towards the group which is influenced, namely to the group which « obeys » another.
We can indicate such an influence by an arrow.

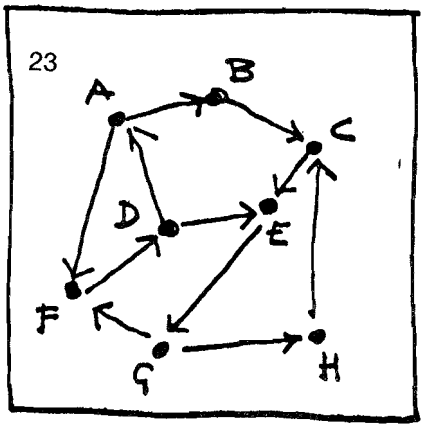
22



Each member of the group can be represented by a point labelled by name or some other sign.

Each group member of the organization network can be represented by a point labelled by its name or some other sign.

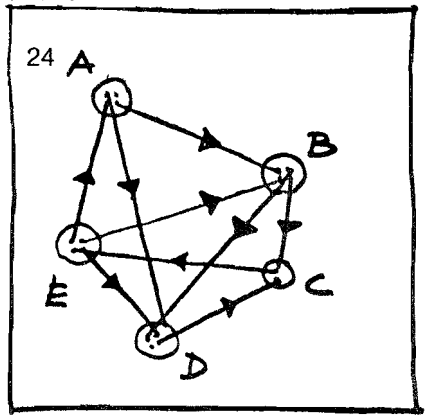
23



In this way a diagram composed of :
— points
— arrows
— labels
is the « map » of a group.

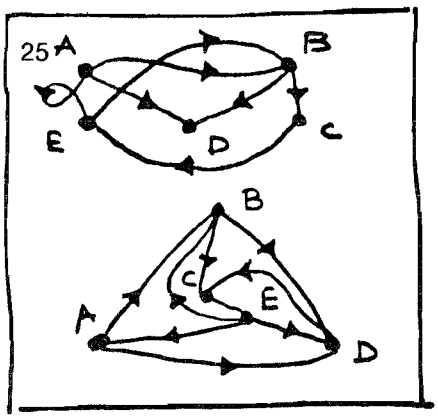
In this way a diagram composed of :
— points
— arrows
— lables
is the « map » of an organization network.

24



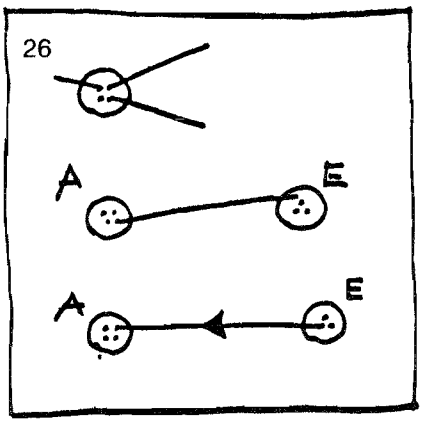
We could construct such a « group map » with the aid of :
— pieces of string
— paper arrows
— buttons

We could construct such an « organization network map » with the aid of :
— pieces of string
— paper arrows
— buttons

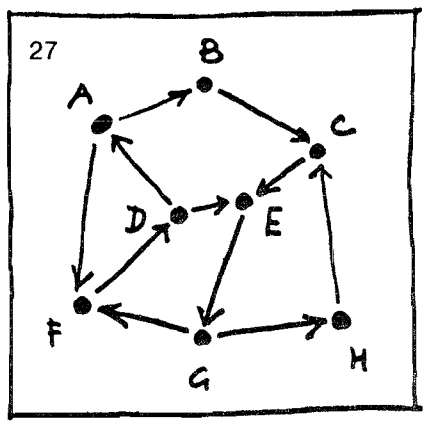


The **shape** of the « map » is not of interest to us.
What is important is the « scheme of links » in the group.

The shape of the « map » is not of interest to us.
What is important is the « scheme of links » in the organization network.

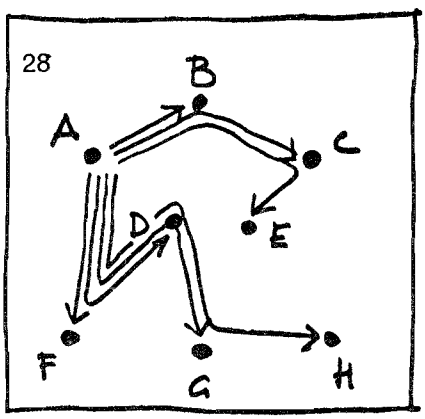


That is to say :
— **how many strings are linked to each button ?**
— **which two buttons are linked by the same string ?**
— **what directions do the paper arrows on each string point ?**



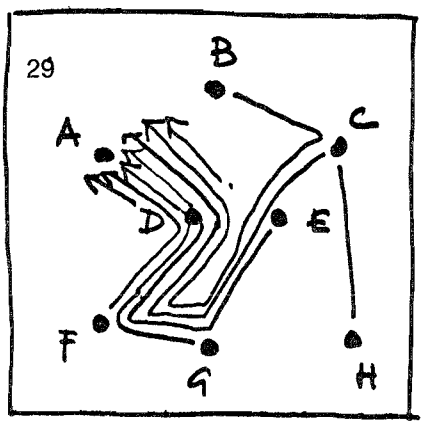
How can we tell the « status » of someone in the group ?
Suppose we want to know about Antony (A).

How can we tell the « status » of a group in the network ?
Suppose we want to know about the A-group.



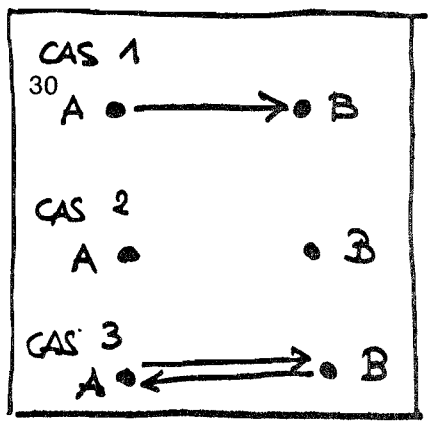
Well, Antony can influence all the others in the group, **provided** that Bernard, Charles, Fred, Daniel and George agree to transmit the influences from Antony, since only he has a direct influence on Bernard and Fred.

Well, the A-group can influence all the others in the network, **provided** *that the B-group, C-group, F-group, D-group and G-group*
agree to transmit the influences from the A-group, since only it has a direct influence on the B-group and the F-group.



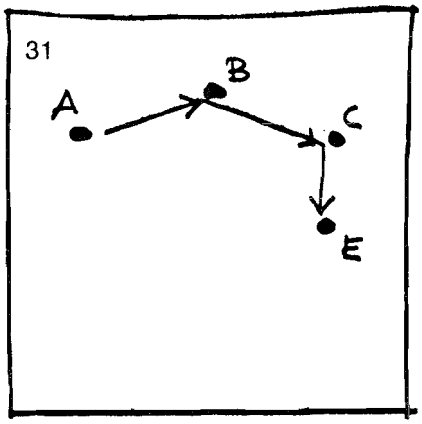
Antony may in his turn be influenced by everyone in his group **provided** that Daniel, Fred, George, Emil and Charles agree to transmit the influences.
Only Daniel has a direct influence on Antony.

The A-group may in its turn be influenced by every other group in the network **provided** *that the D-group, F-group, G-group, E-group and C-group agree to transmit the influences.*
Only the D-group has a direct influence on the A-group.



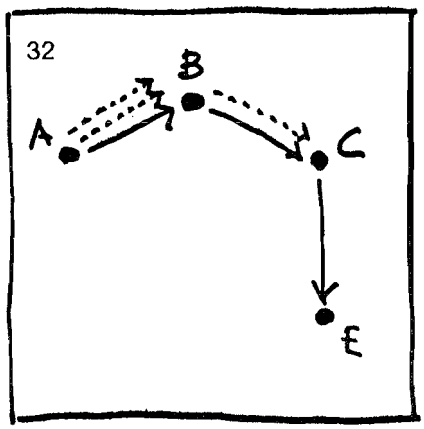
Note : We recognize « influence » by the fact that the person influenced changes his habitual pattern of activity.
e.g. A tells B to sit down.
Case 1. B sits down
Case 2. B does not sit down
Case 3. B is prepared to sit down if A will also do so.

Note : We recognize « influence » by the fact that the group influenced changes its habitual pattern of activity.
e.g.
A-group instructs B-group to come to a meeting.
Case 1. B-group comes to the meeting.
Case 2. B-group does not.
Case 3. B-group is prepared to come to the meeting if A-group will also do so.



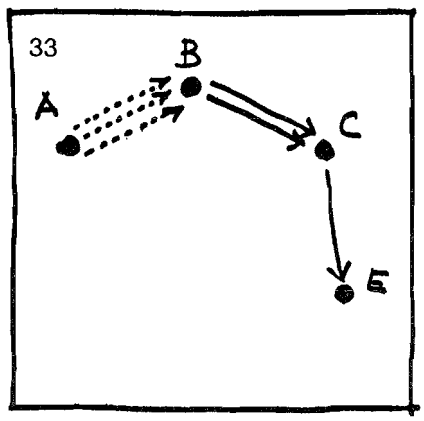
A large proportion of the influences can only reach someone in a group through others who act as intermediaries.
Here, to influence Edgar, Antony says something to Bert, who transmits it to Charles, who in turn passes it on to Edgar.

Here, to influence E-group, A-group communicates with B-group which contacts C-group, which, in turn communicates with E-group.



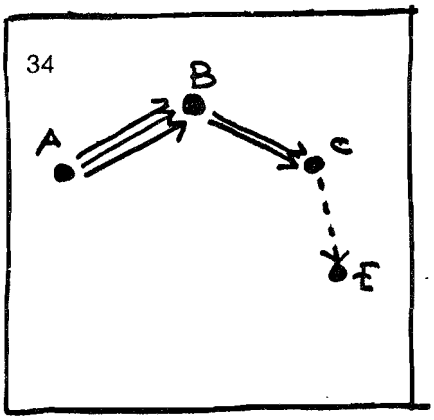
In transmitting the message from Antony to Charles, Bert slightly modified the meaning of it.

In transmitting the message from A-group to C-group, B-group slightly modified the meaning of it.

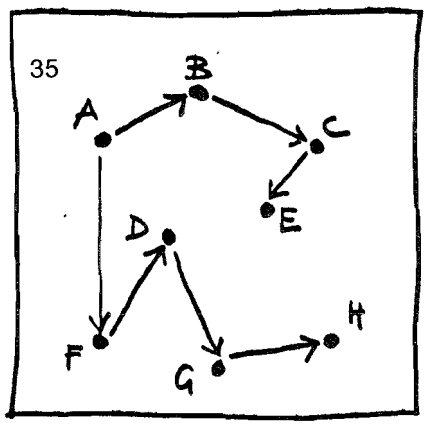


Charles, in passing on the message received from Bert (who received it from Antony), introduces a further modification. Edgar receives the modified message.

C-group, in passing on the information received from B-group (which received it from A-group), introduces a further modification. E-group receives the modified message.



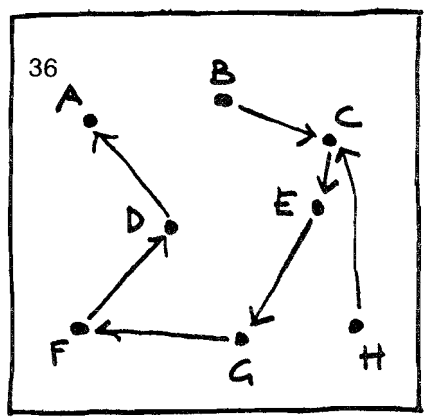
Each transmission of the message reduces the relationship to the original message.
Here, 3 transmissions only let $\frac{1}{3}$ of the original content through.



Let us look at the influence of Albert on the others in his group (see bold text).

Let us look at the influence of A-group on the other groups in its network (see bold text).

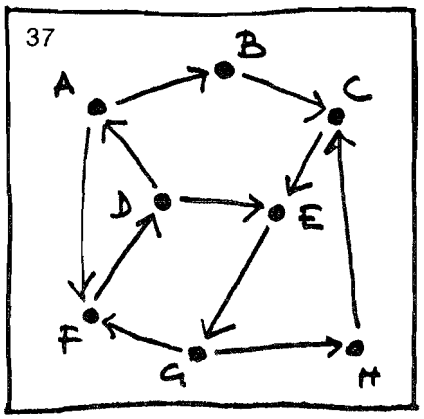
Direct influence on B and F
Half influence on C and D
Third influence on E and G
Quarter influence on H.
The total influence of A on the others is
$1 + 1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{3} + \frac{1}{3} + \frac{1}{4} = 3\frac{11}{12}$.



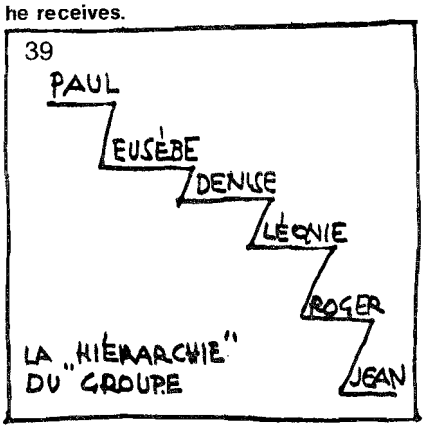
What about the influences to which Albert is exposed ? (see bold text).

What about the influences to which the A-group is subject in the network ? (see bold text).

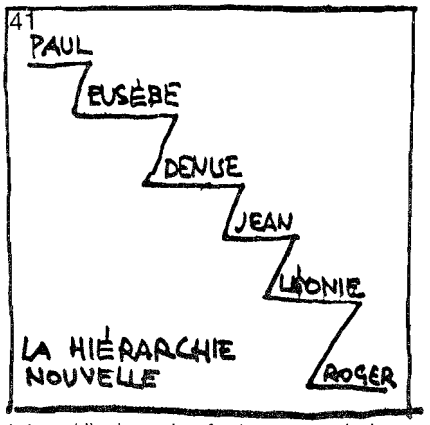
Direct influence from D
Half influence from F
Third influence from G
Quarter influence from E
Fifth influence from C
Sixth influence from B and H
The total influence on A by the others is :
$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{6} = 2\frac{37}{60}$.



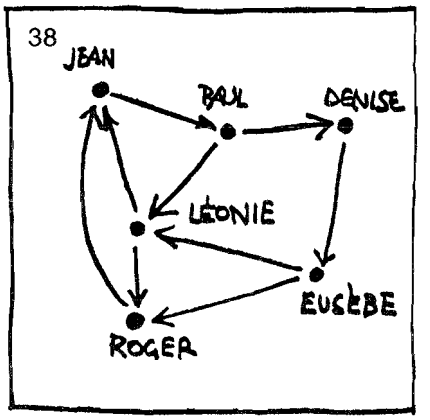
The « influence account » of Albert defines his « status » in the group (see bold text).
The « influence account » of A-group defines its status in the group (see bold text).
A exercises $3^{11}/_{12}$ influences.
A receives $2^{37}/_{60}$ influences.
A's « influence balance » shows that he exercises $1^{18}/_{60}$ influences more than he receives.

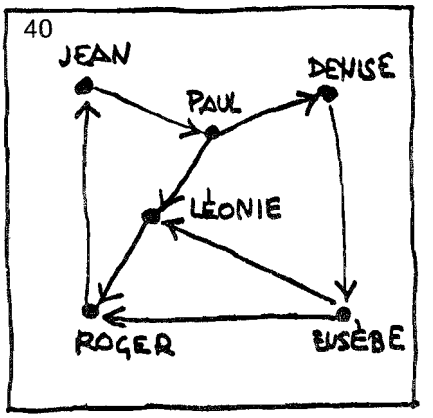


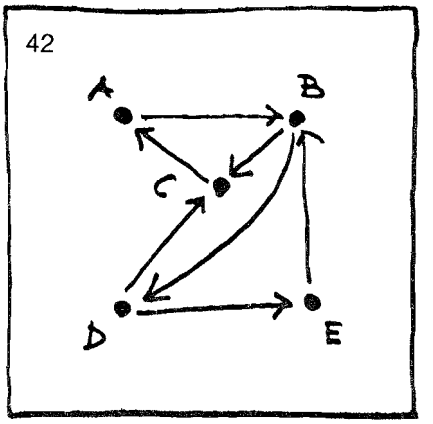
We can establish from the « influence balance » the hierarchical position of each person in Albert's group.
We can establish from the « influence balance » the hierarchical position of each group in the A-group's network.



John (J) has in fact succeeded in changing his position, but also that of the others; simply by resisting Lionel (L) John has **changed the structure of his group.**
The J-group has, in fact succeeded in changing its position, but also that of the others, simply by resisting the L-group (L).
The J-group has **changed the structure of its network.**







What are the « influence balances » in Albert's group ? (see bold text)
What are the « influence balances » in the A-group's network ?
(see bold text)

Influences arriving at

Influences leaving from	**J**	**P**	**D**	**L**	**E**	**R**
J	0	1	1/2	1/2	1/3	1/3
P	1/2	0	1	1	1/2	1/2
D	1/3	1/4	0	1/2	1	1/2
L	1	1/2	1/3	0	1/4	1
E	1/2	1/3	1/4	1	0	1
R	1	1/2	1/3	1/3	1/4	0

	Total from	**Influences to**	**Influences balances**
J	$2^{2}/_{3}$	$3^{1}/_{3}$	—1
P	$3^{1}/_{2}$	$2^{7}/_{12}$	$1^{1}/_{12}$
D	$2^{7}/_{12}$	$2^{5}/_{12}$	$^{2}/_{12}$
L	$3^{1}/_{12}$	$3^{1}/_{3}$	— $^{3}/_{12}$
E	$2^{7}/_{12}$	$2^{1}/_{3}$	$^{3}/_{12}$
R	$2^{5}/_{12}$	$3^{1}/_{13}$	$^{11}/_{12}$

Let us now suppose that J is discontented with his position in the hierarchy. In order to improve it, he will no longer let himself be influenced by L.
The new balance is given in bold text.

	J	**P**	**D**	**L**	**E**	**R**
J	0	1	1/2	1/2	1/3	1/3
P	1/3	0	1	1	1/2	1/2
D	1/3	1/4	0	1/2	1	1/2
L	1/2	1/3	1/4	0	1/5	1
E	1/2	1/3	1/4	1	0	1
R	1	1/2	1/3	1/3	1/4	0

Influence balances

$2^{2}/_{3} - 2^{2}/_{3} = 0$
$3^{1}/_{3} - 2^{5}/_{12} = {}^{11}/_{12}$
$2^{7}/_{12} - 2^{1}/_{3} = {}^{3}/_{12}$
$2^{17}/_{60} - 3^{1}/_{3} = 1^{3}/_{60}$
$2^{7}/_{12} - 2^{17}/_{60} = {}^{22}/_{60}$
$2^{5}/_{12} - 3^{1}/_{3} = {}^{11}/_{12}$

Let us take another look with another example, at how to establish :
— the **influence balance** and how to recognize
— the **position hierarchy.**
We draw up the influence table.
The table shows the « intensity » of influence reaching each member from every other member.

Influences reaching

Influences leaving	**A**	**B**	**C**	**D**	**E**
A	0	1	1/2	1/2	1/3
B	1/2	0	1	1	1/2
C	1	1/2	0	1/3	1/4
D	1/2	1/3	1	0	1
E	1/3	1	1/2	1/2	0

Total leaving	**reaching**	**Influence balance**
$2^{1}/_{3}$	— $2^{1}/_{3}$	0
3	— $2^{5}/_{6}$	$^{1}/_{6}$
$2^{1}/_{2}$	— 3	$^{11}/_{12}$
$2^{5}/_{6}$	— $2^{1}/_{3}$	$^{1}/_{2}$
$2^{1}/_{3}$	— $2^{1}/_{2}$	$^{3}/_{12}$

43 BALANCE DES INFLUENCES

A $2\frac{1}{3} - 2\frac{1}{3} = 0$

B $3 - 2\frac{5}{6} = \frac{1}{6}$

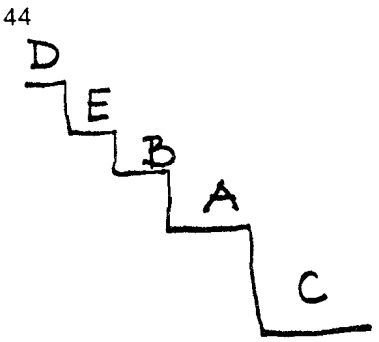
C $2\frac{1}{12} - 3 = -\frac{11}{12}$

D $2\frac{5}{6} - 2\frac{1}{3} = \frac{1}{2}$

E $2\frac{1}{3} - 2\frac{1}{12} = \frac{3}{12}$

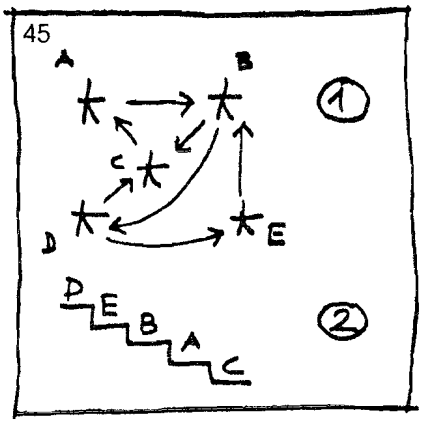
The influence balance is obtained by subtracting (for each member) the total number of influences received by the member from the total number of influences leaving the member.

44



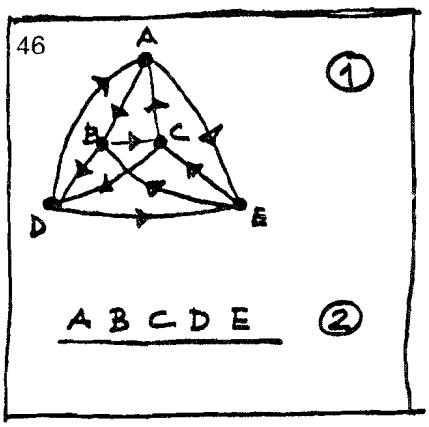
The hierarchy of social positions can be produced by ordering the members in the decreasing order of their influence balance.
Here is the hierarchy of the example. It shows us the relative social positions of the members.

45



The « map » of the member relationships (liaison scheme) shows the mathematical structure (1).
The hierarchy of social situation shows us the social structure (2). The social structure depends upon the mathematical structure.

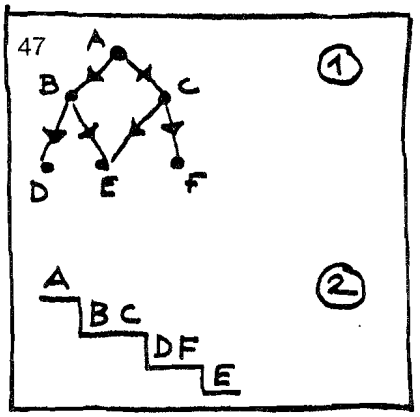
46



A group like this is an « egalitarian » group because the social situation of each person in the group is the same.

A network of groups like this is an « egalitarian » network because the social situation of each group in the network is the same.

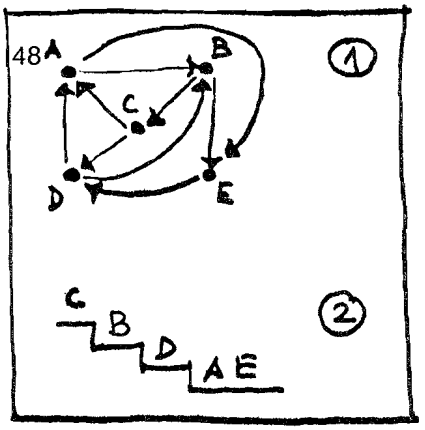
47



This group is **« hierarchically » oriented.**
The social situation of the members goes from high to low.

This network is **« hierarchically » oriented.**
The social situation of the members goes from high to low.

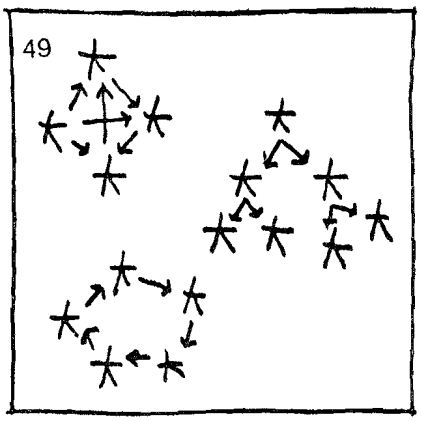
48



In this group the social positions are irregularly distributed.
Most human groups are like this.

In this network the social positions are irregularly distributed.
Most organization networks are like this.

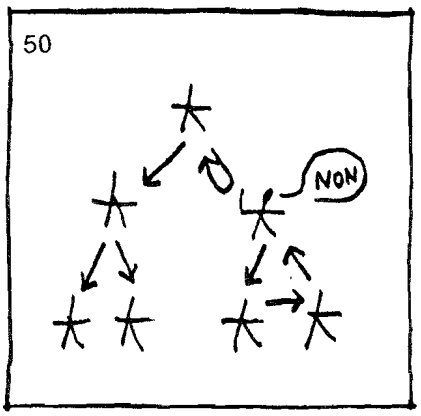
49



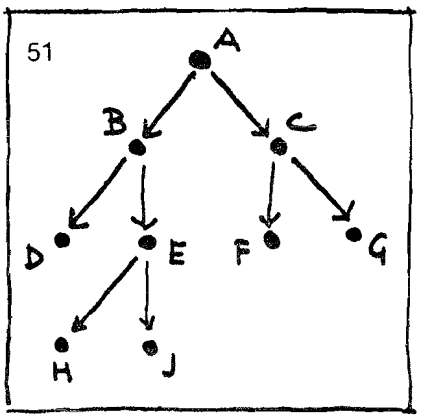
There are people who prefer egalitarian groups, others are at ease in hierachical groups, yet others try to belong to other types of groups.

There are groups which prefer to participate in egalitarian networks, others, prefer hierarchically, coordinated networks, yet others try to belong to other types of network.

50

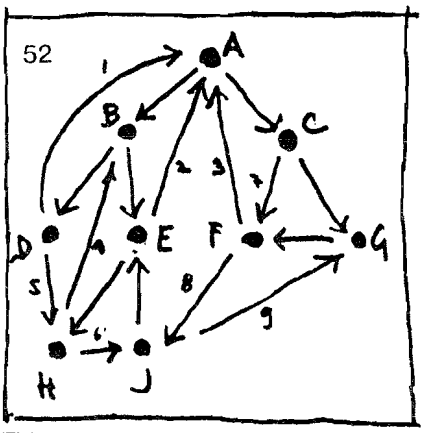


But the **social structure** of groups depends above all on the will of those who form them, provided they recognize the **mathematical structure** of their group because, by opening or closing themselves to different influences they can **transform the social structure.**
But the **social structure** *of organization networks depends above all on the will power of the groups which form them, provided they recognize the* **mathematical structure** *of their network - because by opening or closing themselves to different influences they can* **transform the social structure.**



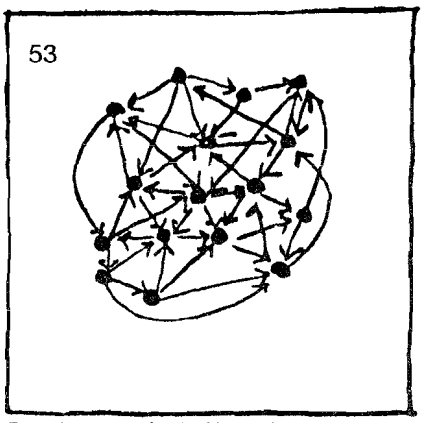
Here is a hierarchically oriented group.

Here is a hierarchically oriented network.

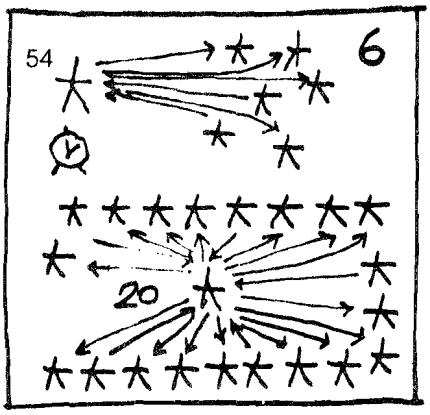


This group may be transformed into an egalitarian group if everyone wills it so - certain influences are « eliminated » and others are « added ».
The cooperation of the individuals, D,E,F, and G is all that is required.

The cooperation of the groups D, E, F, and G is all that is required.

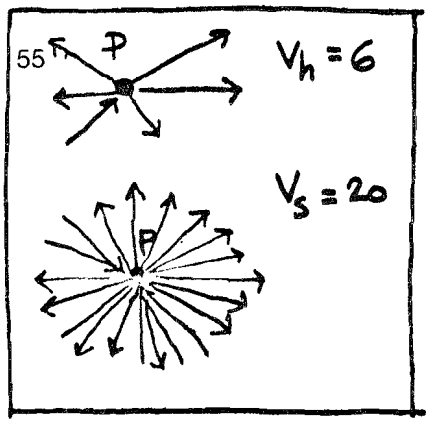


But be careful ! Not all groups are viable. There are **limits.** For example there is the limit which we call **« valency ».** This shows **how many** influences an individual can receive or exercise in a group in a given period.
But be careful ! Not all organization networks are viable. There are **limits.** *For example, there is the limit which we call* **« valency ».** *This shows* **how many** *influences a group can receive or exercise in a network in a given period.*

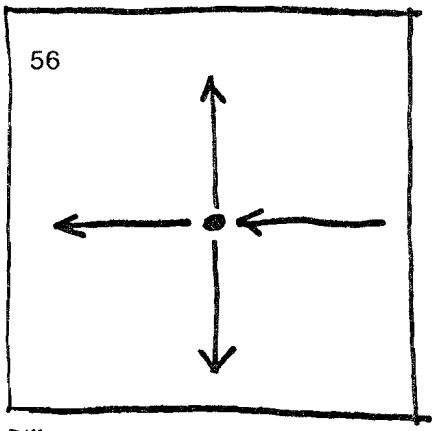


Peter can speak, discuss and influence 4 of his friends in 1 hour, but he cannot do it with 6. In one week, however, he could influence 20.

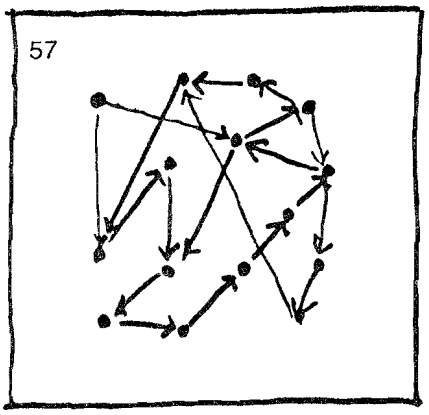
The P-group can communicate with and influence 4 of the other groups in the network in 1 hour, but it cannot do so with 6. In one week, however, it could influence 20 groups.



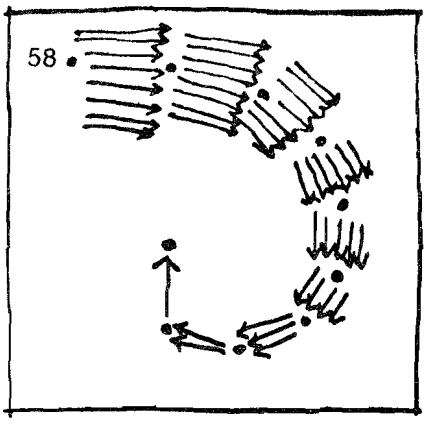
The « valency » of Peter is 6, if it is a question of the number of inter-personal decisions per **hour.**
His valency is 20, if it is a question of the number of decisions per **week.**
The « valency » of the P-group is 6, if it is a question of the number of inter-group decisions taken per **hour.**
Its valency is 20, if it is a question of the number of decisions per **week.**



Different people have different « valencies », with respect to their groups.
The simultaneous « valency » of a person (the number of other people with whom he can discuss at the same time) rarely exceeds 4.
Different groups have different « valencies » with respect to their networks. The simultaneous « valency » of a group (the number of other groups with whom it can interact at the same time) rarely exceeds « ? » (we don't know).

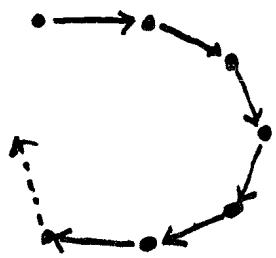


Another obstacle to the growth of a group is its **« transmission capacity ».**
Another obstacle to the growth of an organization network is its **« transmission capacity ».**



An influence transmitted by 10 intermediate persons only contains $1/10$ of the original influence sent out. This is too little.
An influence transmitted by 10 intermediate groups only contains $1/10$ *of the original influence sent out. This is too little.*

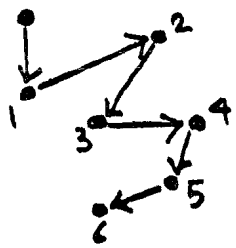
59



The influence « disappears » after it has gone through say, 6 transmissions.

The influence « disappears » after it has gone through, say 6 transmissions.

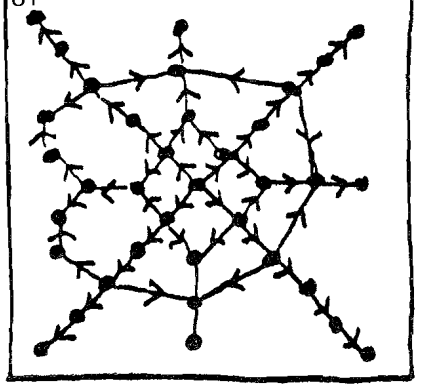
60



In this case, 6 is the « transmission capacity » of the man in the group.

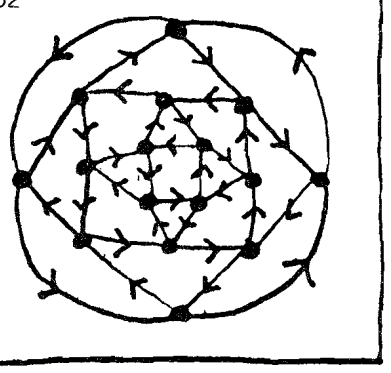
In this case, 6 is the « transmission capacity » of the group in the network.

61



If the human « valency » and the « transmission capacity » are natural limits, the size of human groups (egalitarian, hierarchical or others) also cannot exceed certain limits :
hence the notion of « critical group » size.
If the group « valency » and « transmission capacity » are natural limits, the size of organization networks (egalitarian, hierarchical or others) also cannot exceed certain limits :
hence the notion of « critical network » size.

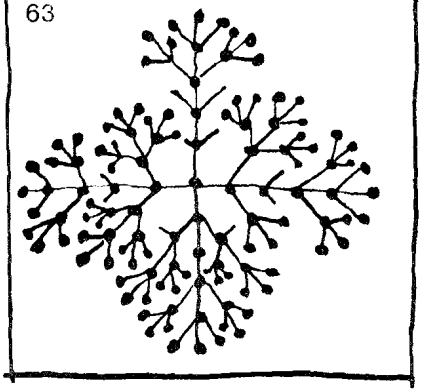
62



Here is the egalitarian critical group. (valency : 4, transmission capacity : 6). No egalitarian group composed of human beings (valency 4 transmission capacity 6) can have more than 16 members.

Here is the egalitarian critical network (valency 4, transmission capacity 6). No egalitarian network composed of human groups (valency 4, transmission capacity 6) can have more than 16 member groups.

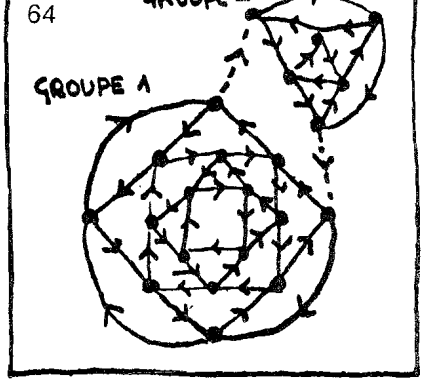
63



However, the hierarchical critical group can admit more than 900 individual members (the diagram is incomplete for lack of space).

However, the hierarchical critical network can admit more than 900 groups as members (the diagram is incomplete for lack of space).

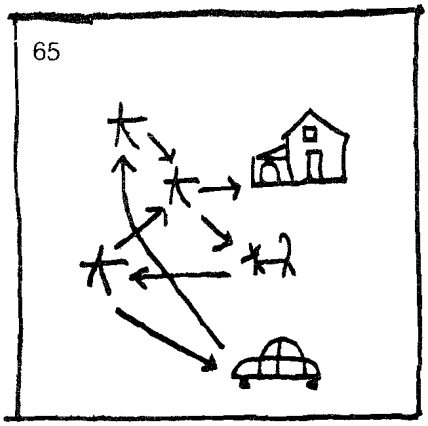
64



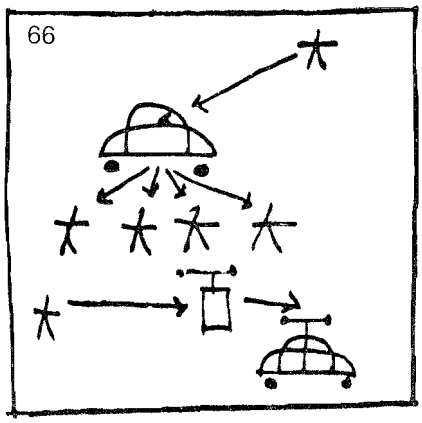
A group which exceeds the critical group size characteristic of a desired social structure, must either
1. keep its structure and split into two groups
or 2 change its structure.

A network which exceeds the critical network size characteristic of a desired social structure must either
1. keep its structure and split into two organization networks
or 2. change its structure.

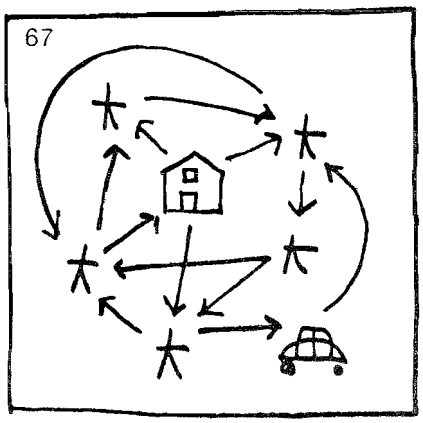
65



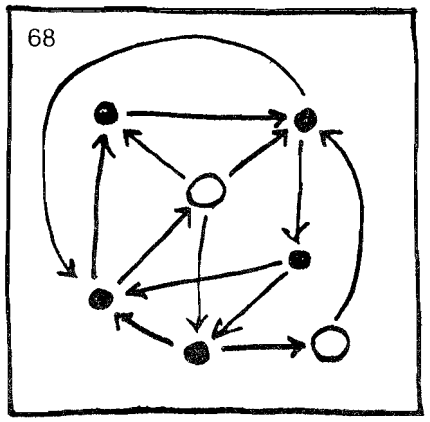
Groups often contain both persons and objects. We are easily influenced by a dog, a house, a car, etc. Here is an example.
Networks often contain groups and objects. We are easily influenced by a resolution, an urban complex or transportation system etc. Here is an example.



Objects also have their « valency » and their « transmission capacity » (because of the manner in which they are used, an automobile can only be driven by one person at a time, for example, whether by a driver or via radio).
Technological systems also have their « valency » and their « transmission capacity » (Because of the manner in which they are used. A transportation system can only used by a fixed maximum number of persons at one time, for example).

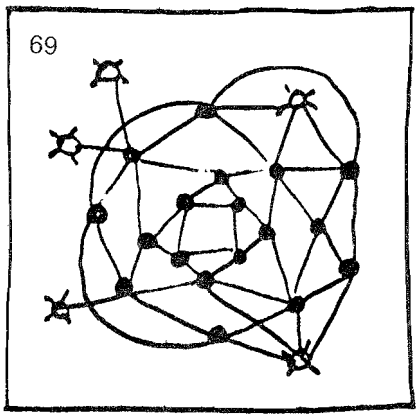


The involvement of a number of objects in a group may modify the critical size. Because of the number of objects in their possession, the members of this group can only make use of a fraction of their valency between themselves.
The involvement of technological systems in an organization network may modify the critical size. Because of the number of technological systems with which the groups interact, the members of the network can only make use of their interaction capacity among themselves.

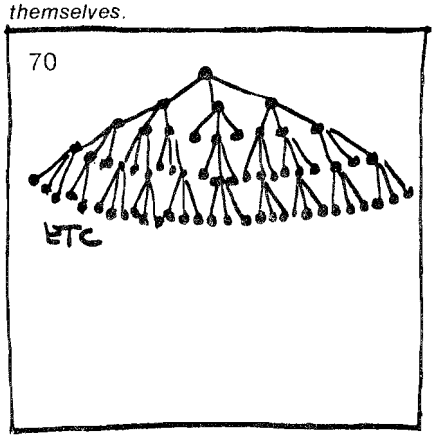


If you want the group to which you belong to function according to the social structure which you prefer then be careful of the critical group size and the objects which may modify it.

If your group wants the organization network to which it belongs to function according to the social structure which it prefers then be careful of the critical network size and the technological system which may modify it.

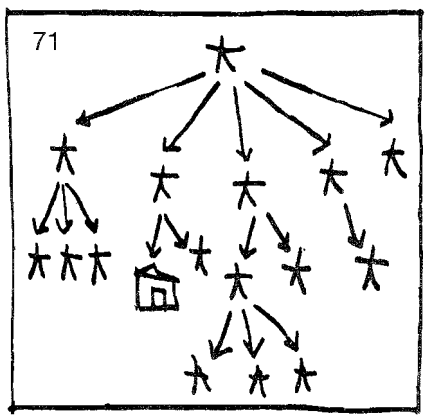


No-one can transform his own group into an egalitarian group if his group is too « big » (that is if it contains too many people and too many objects).
No group can transform its organization network into an egalitarian network if its network is too « large » (that is if it contains too many groups and too many technological systems).



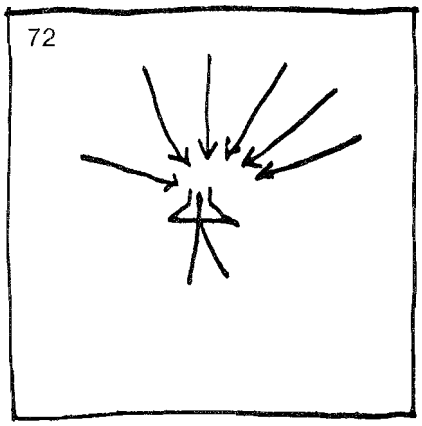
A hierachical group cannot grow without limits either.

A hierarchically coordinated network cannot grow without limits either.

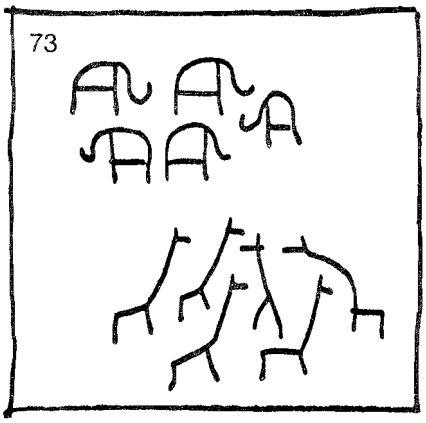


This is the reason for the disintegration of many groups, states, towns & societies.

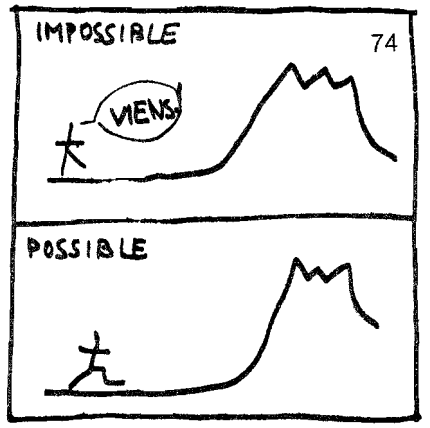
This is the reason for the disintegration of many organization networks, states, towns and societies.



Exceeding the critical group size introduces a malaise.
Exceeding the critical network size introduces a malaise.



Each animal species is characterized by its own critical group size.
(Because the « valency » and the « transmission capacity » are properties of all species and can only be changed very slowly.)



Our group life becomes much easier if we transform what may be changed and do not try to change what we cannot.

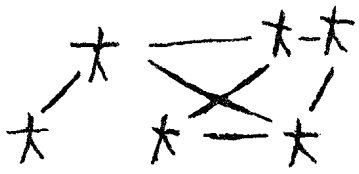
The Critical Group Size

... comment by the author of the previous article (*)

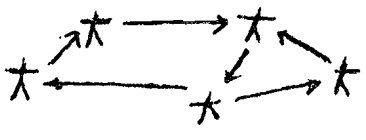
This paper concerns a till-now-unformulated social problem, which is significant enough, even for architects and planners, but which is really vital for any simple human being, like you and me. I mean the problem of the **critical group**.

Let us define the term, or better, let us give some preliminary explanations in order to elucidate the concept of this **critical group.**

I use the term **society** for any set of human individuals, in which there is at least one **link** between any individual and the rest of the set.



The **links** relating these individuals are **communications** taking place between them. A **communication** is observable only if it ends up by some **influence** being received by one of the individuals to whom this **link** is relating. The existence of such an **influence** is observable, because its reception involves some change in the behaviour (prior to the arrival of the **influence)** of the **influenced** individual. Thus an **influence** has a **direction,** and we will express it by an arrow which points towards the individual who receives the **influence.**



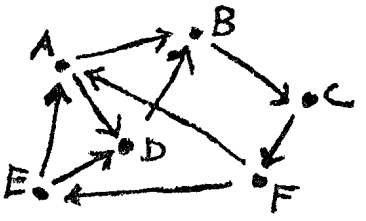
Thus a **society** wherein individuals are linked by **communications** (which result in observable **influences),** can be mapped by what the mathematician calls a **directed connected graph.** The structure of such a **society** will be thus mapped by certain structural characteristics of this graph.

The first such characteristic will be a parameter, which I call (as one name is as good as another) the **social situation** of a particular person. In order to obtain this parameter, I have to calculate the sum of all **influences** started by a particular person (whose **social situation** I want to obtain), and deduct from this sum the total of all **influences** he gets from all the other individuals belonging to the same **society. Social situation** will thus be the numerical balance of all **influences** concerning a given particular person belonging to a given **society.**

We have to note here, that — in practical terms — the **size** of an **influence** is not actually measurable. In order to set up such a calculation, we have to be satisfied with a count based on the simple statement of the existence (value 1) or of the non-existence (value 0) of an **influence** between any two given persons.

I have to add another limitation to this definition : any **influence** which is transmitted from one individual to another through an intermediate person, loses its original intensity (whatever it was) in inverse proportion to the number of necessary transmissions.

There is no difficulty in calculating all the **social situations** of all the members of a given **society :** the **social situation** of any individual member will be the sum of all influences starting from him towards all the other members of this society, and from this sum there will be deducted the sum of all influences coming to him from each of the others. Once these **social situation** parameters are drawn up for all members of the society, the effective **hierarchy** within the society becomes apparent.



Obviously enough, if any member leaves a society, the individual balances may shift. I will call these **shift values** the **dependencies** of all individual members upon the one leaving. The **dependency** function (the difference between a particular **social situation** calculated first before, then after the defection of a member of the society) indicates who is interested in keeping whom within a given society. It is thus possible to draw up a **table of allies.**

These two functions **(social situation and dependency)** clearly define the social structure within any group. Thus for example an **egalitarian** society would be any such social organization wherein all **social situations** belonging to all particular members would be practically the same, etc.

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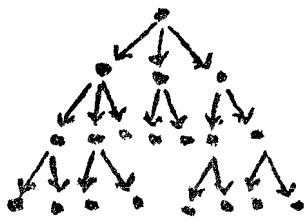
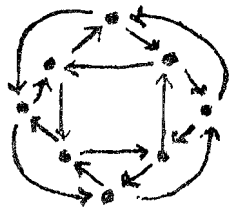
* Summary of a lecture delivered in London at the Summer Session '72 of the International Institute of Design.

The types of possible social structures, once this terminology is used, would belong in the main to three large **families : hierarchical** society, **egilitarian** society and **hybrid** society (this last one is the most common).

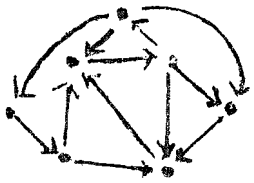
The following graphs show a typical example of each of these families :



hierarchical organization



egalitarian organization



hybrid organization

Now, as we have succeeded in defining **social structure** (in a very condensed way because the limited length of this paper does not allow discussion of many other aspects), we can look for a meaning for **critical group**.

As members of a society are human beings, they have some specific biologically determined characteristics which we have to take into consideration. The first of them is what I call **valency**, i.e. the largest number of communications a human being can handle during a given duration. We can illustrate **valency** for instance, by the example of a person who talks simultaneously on several phones : he can surely talk on two phones, perhaps on three, but surely is incapable of talking simultaneously on 12 phones.

A threshold number (for example four phones) can be defined experimentally : this threshold number shows human **valency.**

The second characteristic which is meaningful to our investigation is the one I call human **channel capacity** i.e. the characteristic error rate in message transmission. We hinted at this characteristic when we stated earlier that the intensity of a transmitted influence is less than the original one. I will express **channel capacity** also through a threshold number, which indicates the number of transmissions of a message through intermediate persons, at which number the original message completely loses its original content (it **disappears).**

Now, particular values of these two thresholds (**valency** and **channel capacity**) are biological characteristics of the human animal, and they have a regulating effect on possible social structures. For example, if I assume **valency** as 4 and **channel capacity** as 6 (i.e. a human could handle not more than 4 simultaneous communications, and a communication transmitted by more than 6 human intermediaries would **disappear**), then an **egalitarian** society containing more than 18 members could not function any more, and a **hierarchical** society of more than 973 particular members would break down.

I am using the name **critical group** for the largest human group a) which has a defined structure of whichever type;

b) wherein the number of **links** of each is less than the biologically defined **valency;**

c) wherein all communication path-lengths are less or equal to the threshold value defined by human **channel capacity.**

Otherwise expressed the **critical group** is the largest group containing individuals of one (or more) species which can still function according to some predefined social structure.

This definition implies that **critical groups** are essentially characteristic of a species, and this is invariable unless the species suffers biological mutation. It implies as well, that any attempt by individuals to organize themselves into groups with more members than allowed of by the **critical group size** corresponding to a social structure those individuals intend to construct, will be unsuccessful.

When the actual social organization outgrows the critical group size, thus creating a heavy communication overload for its own members, as a result individual members show phenomena of alienation, and the social organization begins to disintegrate.

I explained the problem of **critical groups** here only in a shorthand version. In reality, there are many human problems linked to it, and investigation about critical group size itself did not start until now. Personally, I consider that it is one of the most urgent topics to be investigated, and I do not believe social sciences, planning sciences, political tendencies or utopias can be meaningful until we know how many persons can agglomerate and assure for themselves a pattern of life (structure) of their own choice.

Technical note on critical group size

Description a social group (a set of individuals of the same species wherein each individual is related by at least one link - **influence** - to the set), having any structure whatsoever and being composed of individuals who have certain specific characteristics in common (i.e. **valency** - the maximum number of topics on which an individual of this species can fix his attention simultaneously; and **channel capacity** - the maximum number of transmissions of a message by individuals of this species which keeps the content of the message still understandable).

Such a social group cannot grow in size without limits. We use the term **critical group** for the largest group which has a defined structure and which is formed by individuats of a defined species and which can still function. Thus, for example, a **human egalitarian group** (valency - 4, channel capacity - 6, for example) cannot include more than 18 members, whereas a **human hierarchical group** could contain, with the same specific valency and channel capacity, something around 900 people

Critical group is thus a characteristic of a species and limits the size of structured organizations this species can form.

History : intuitively the problem was noted all through history. The phenomenon of the critical group was often stated with reference to the animal world, but surprisingly enough, never formulated strictly for human groups.

First statements : Yona Friedman **About the possibility of social utopias** (IEEE Congress, Mexico, 1971); Yona Friedman **On models of utopias and on social ecology** (Leonardo, Oxfort, 1971); Yona Friedman **Society - Environment** (CEA, Brussels, 1972).

Development : actual demographic growth and overdevelopment of communication media has favoured a group size larger than that of the critical group. The communication overload caused by this group size on the individual has provoked phenomena both of alienation and of disintegration (a tendency of these groups towards splitting up).

Significance : a very short term disintegration of actual social mechanisms (a process which stops automatically the catastrophic growth feared by the report of Prof Meadows for the Club of Rome).

Solutions : a society with **weak communications.** The only social organization where demographic growth does not result in outgrowing the numerical threshold represented by the **critical group** concept would be a society wherein the communication network would be a homogeneous n degree network, where n is smaller than the valency of the species, and wherein all communications having a path-length more than c (c : channel capacity) would be considered as non existent.

Related problems and their summarized descriptions : The phenomenon of the **critical group** can have tangible consequences in the fields of the following problems :

1) **Urban disintegration :** towns are actually largely outgrowing critical group sizes and in consequence they are considered by their inhabitants as **uninhabitable.**
Inhabitants either leave towns for smaller communities, or they form inward-orientated communities (ghettoes) within the existing towns.

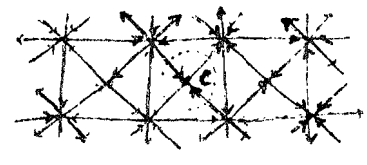
2) **Information pollution :** critical group size is a function of communication ability of the human animal, who (because of his limited absorption capacity for information) cannot assimilate, individually or in groups, the information mass submitted to him. Groups develop thus an internal **common information amount** and become hermetically closed to any other information. Because of the arbitrary selection of information to be included in this amount and because the remainder (the **unused** information) becomes inaccessible to this group this selected information mass becomes **polluted** (i.e. transformed into a sort of incoherent **superstition).**

3) **Family disintegration :** family groups today are under the **critical minimum size.** Family members prefer to belong to groups which are near to the critical maximum group size. As actual housing facilities do not admit cohabitation of such groups, the enforced cohabitation of the non-functioning family unit leads to insurmountable stress.

4) **Brakes effect on growth :** the catastrophic deadlines resulting from the expansion functions exposed in the Meadows report will probably never be reached, because they may be preceded by a general disintegration of the actual social and economic mechanism - both of them very much over the limiting size allowed for by the critical group theory. Thus, social disintegration could be considered as a **brake** protecting the world from the breakdowns predicted by the report of the Club of Rome.

5) **Decentralization :** the phenomenon of the critical group increases the probability of success for organizations based on small and completely autonomous groups.

6) **Society of weak communication :** a theoretical consequence of the **critical group theory** could be a decrease in communication. The biological factors of the critical group concept are based on the limited information assimilation capacity of human beings, and they imply that communications overload destroys the individual. A society based on **weak communication** between individuals or groups can adapt itself better to the progressive disintegration and the succeeding re-grouping of organizations actually over critical group size.

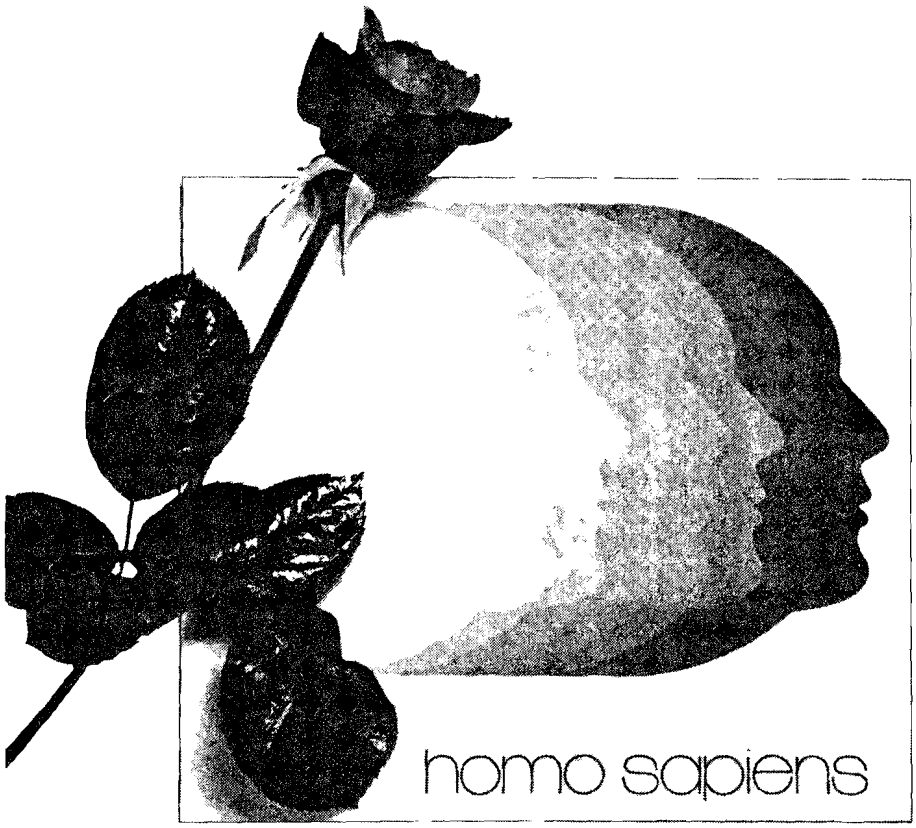


For example, if v = 8, c = 3, any person can be a (sub) - center of this society of weak communication whatever its size (in the example, C is a center).

7) **Decrease of media :** an implication of 5) and 6).

8) **Escape territories :** a long time moderator of social disintegration was the existence of **escape territories** i.e. territories where non-adapted individuals or groups could emigrate. Actual lack of escape territories makes social crisis more violent. In consequence, such territories should be created either artificially (for example, desert rehabilitation, floating islands etc.) or by weakening the communication network (which can promote formation of social **islands**).

— Yona Friedman



L'état humain... la dimension oubliée

Ce n'est pas souvent que l'on rencontre un cadeau idéal pour ses amis de par le monde qui s'intéressent à l'être humain, sa diversité et son besoin de liberté.
Ce petit livre est pourtant de valeur pour les adultes aussi bien que pour les enfants.
On y trouve, dans une série d'images excellentes, un nombre de rappels piquants et très amusants pour ceux d'entre nous qui sont obligés, par la nature de leur travail, de voir l'être humain à travers le medium déformant des organisations et de leurs programmes.
Les images (reproduites en format réduit sur ces pages) se trouvent sur une face de chaque page, permettant ainsi de les découper pour créer éventuellement un panneau d'exposition.
Les légendes sont reprises en français, anglais, allemand, italien, espagnol et suédois.
19 x 21 cm., 28 pages.

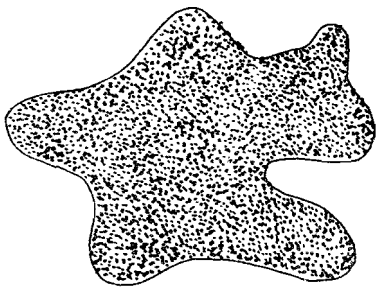
On being human... the forgotten dimension

It is not often that one finds an ideal gift for friends around the world interested in human beings, their variety, and their need for freedom.
This little book is, however, meaningful to both children and adults. It presents, in a series of excellent full-page images, a number of gentle and very amusing reminders to those of us who are obliged by the nature of our work to see man through the distorting medium of organizations and their programmes.
The images (reproduced in a reduced format on the accompanying pages) are on one side of the page only. They could therefore be cut out to make a good display.
The brief commentaries on each image are in English, French, German, Italian, Spanish and Swedish.
19 x 21 cm, 28 pages.

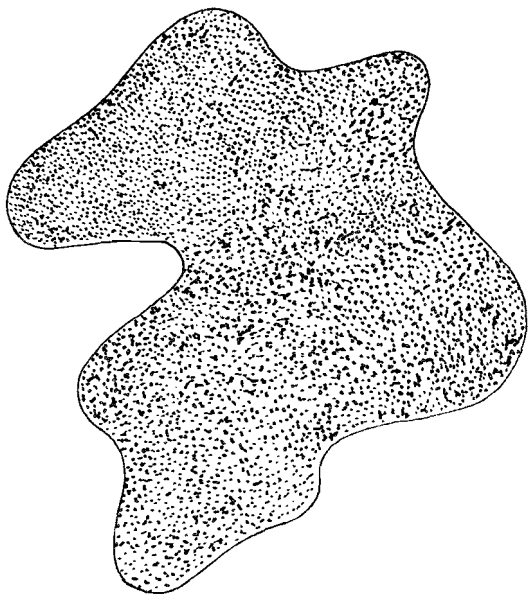
Obtainable from : Bokförlaget Corona AB,
Box 1074
S-22104 Lund, Sweden.

HUMAN ORGANISATIONS
LES ORGANISATIONS HUMAINES

The editors of International Associations are grateful to Bokförlaget Corona AB (see opposite page) for their kind permission to reproduce the images on the following pages and particularly for permission to modify the text to apply to **organizations** rather than to **human beings,** as in the book.

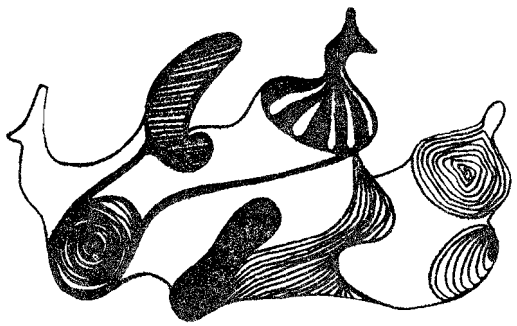


— groups and organizations are like irregular figures
— *les associations et groupements des hommes ressemblent à des figures irrégulières*

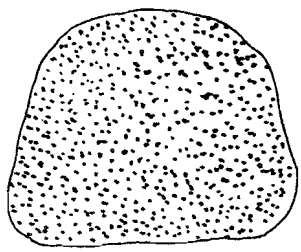


— some are big...
— *les uns sont grands...*

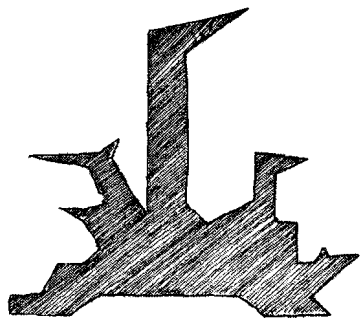
— ... others are small...
— *... les autres petits...*



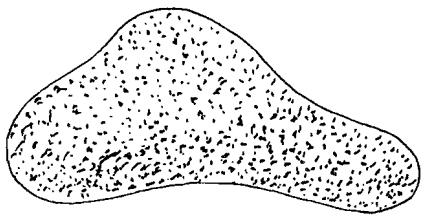
— somme are versatile, colourful, full of imagination...
— *quelques uns sont à facettes, hauts en couleur, pleins d'imagination...*



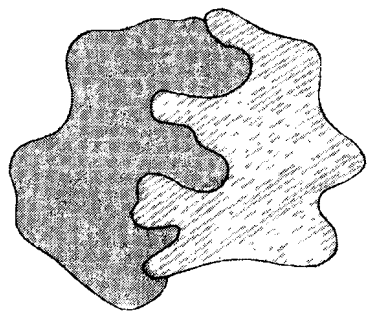
— ... others are simpler
— ... *d'autres plus simples*



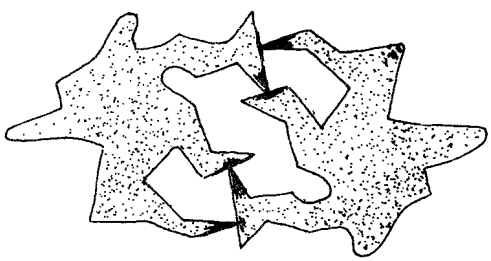
— some are hard and obstinate...
— *il y a des durs, des obstinés...*



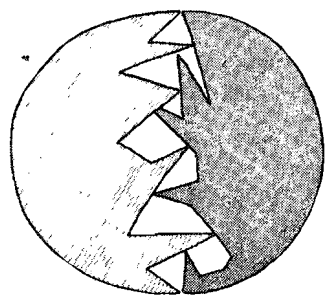
— ... others are solt and pliable
— ... *d'autres souples et malléables*



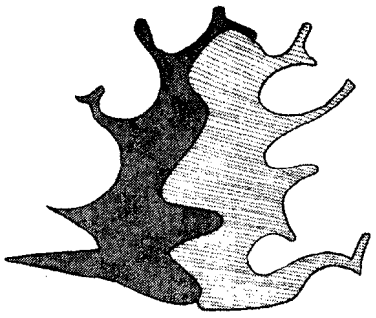
— some suit each other...
— *quelques-uns vont bien ensemble...*



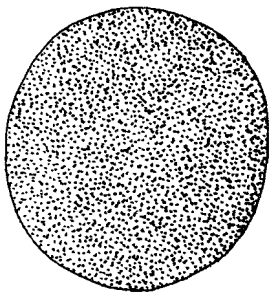
— ...others do not — even if they are alike — they hurt and offend each other
— *... d'autres s'accomodent mal — même s'ils se ressemblent — ils se heurtent et se blessent*



— some do not fit together — although they seem to...
— *quelques-uns semblent s'entendre — mais en réalité s'accomodent mal...*

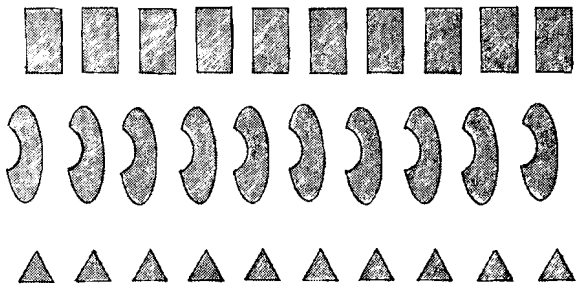


— ... others do not seem to fit — although they do
— *... d'autres semblent s'accomoder mal — mais en réalité s'entendent bien*



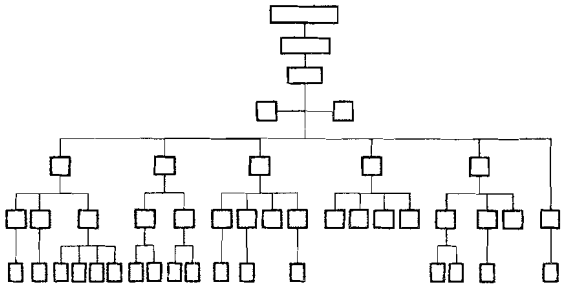
— most become polished — like pebbles on the beach
— *la plupart finissent polis et arrondis comme des galets*

— the human community is made up of a great variety of groups and organizations, which form a colourful pattern
— *la société est formée d'une grande diversité d'organisations qui peuvent se compléter*

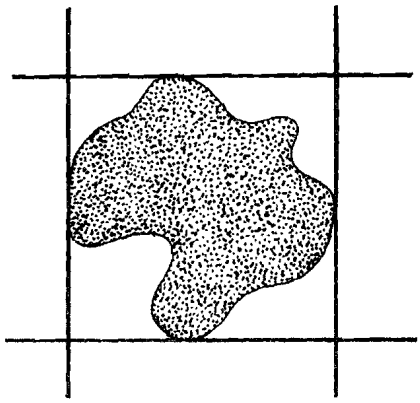


— although so different they are often looked upon as if they were alike and could be placed in a few simple categories
— *quoique différents on les croit similaires, et faciles à classer dans quelques catégories*

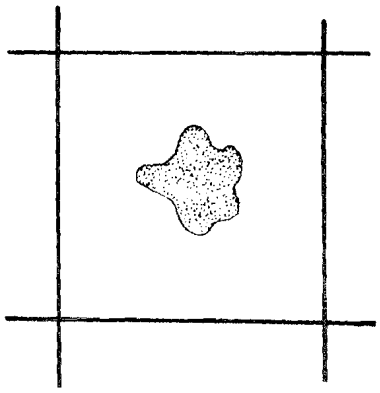
— nevertheless some are left over, and not necessarily the least important
— *bien qu'il y ait des laissés pour compte et pas nécessairement les moins importants*



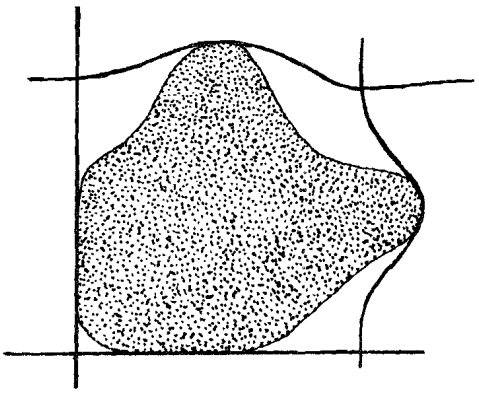
— a mobilized, centrally controlled network of organizations looks like this
— *un réseau d'organisations bien centralisé et mobilisé ressemble à ceci*



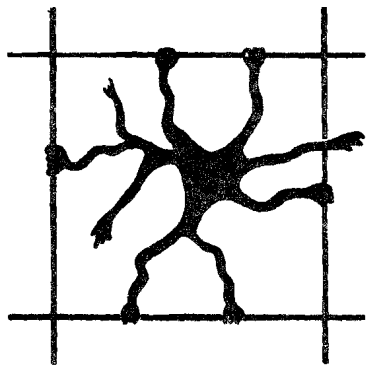
— here every organization has its field of competence
— *chaque organisation y a son domaine propre*



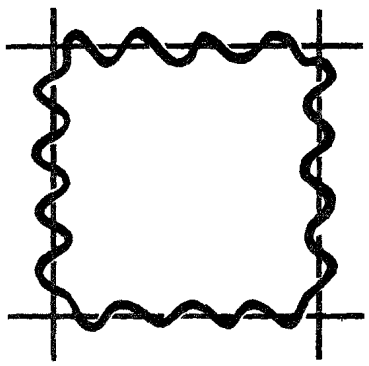
— some only effectively cover part of their field of competence
— *certaines s'en occupent mal*



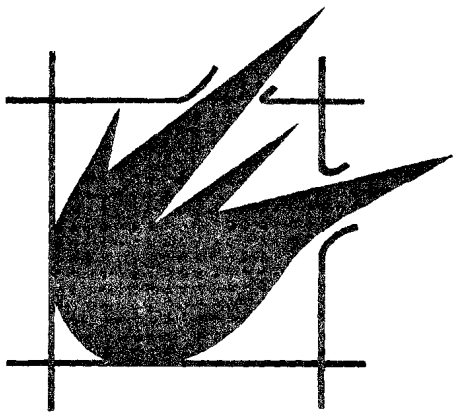
— others attempt to cover more — or think they can
— *d'autres essayent d'entreprendre plus, ou imaginent qu'ils le peuvent*



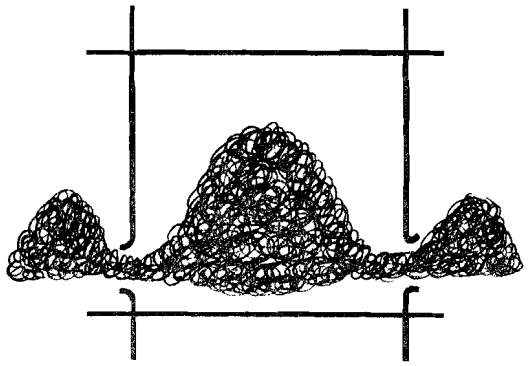
— some small bodies pretend to be big
— *certaines sont trop petites, mais font semblant d'être grandes*



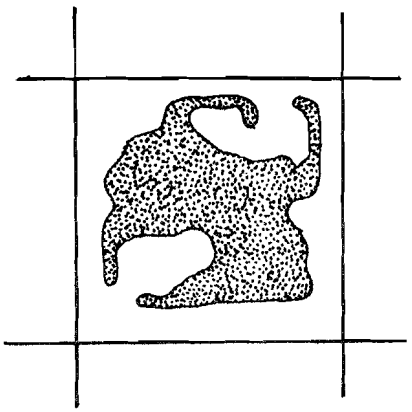
— some only attempt to protect the boundaries of their territory
— *certaines n'essayent que de protéger leur territoire*



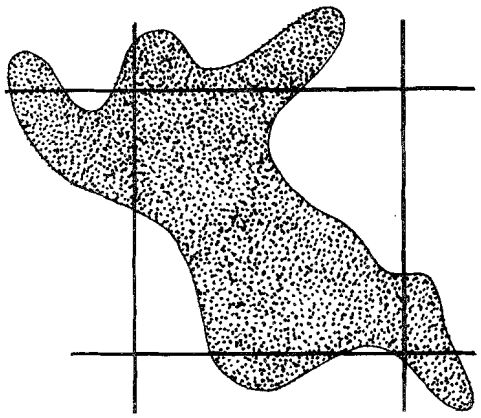
— some are bold
— *il y a des téméraires*



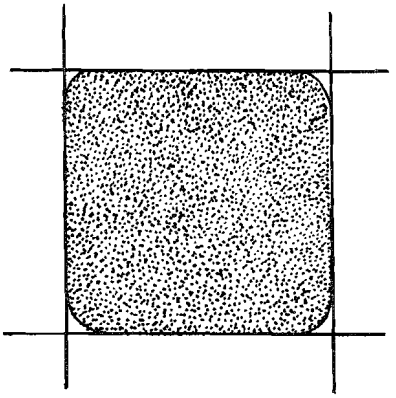
— others are cunning and devious
— *d'autres astucieux et malins*



— some know their limitations and move within a large margin of safety
— *il y en a qui reconnaissent leur limites, et se meuvent avec des grandes marges de sécurité*



— others ignore their limitations — lead their own lives
— *d'autres ignorent les cadres imposés — ils vivent leur propre vie*



— but if all groups and associations conformed to one set of rules and categories — if participation opportunities are closed to dynamic individuals and groups, and the organization network ceases to evolve as an adaptive, meaningful force for change
— *mais si tous les gropuscules et organisations se conformaient aux règles et aux catégories imposées — si les possibilités de participation étaient fermées aux êtres et groupements dynamiques, et que le réseau d'organisations cessât d'évoluer comme force de changement significatif alors...*

— what life is left in the community ?
— *qu'adviendra-t-il de la vie de la communauté ?*