



THE INTERNATIONAL NETWORK FOR SOCIAL NETWORK ANALYSIS

CONNECTIONS

Volume 1

(Winter, 1978)

Number 2

Contents

Network Notebook	2
On Facilitating Networks for Change--Peter and Trudy Johnson-Lenz	5
Meeting Calendar	12
Research Reports	14
Computer Programs	19
New Books	32
Thesis Summaries	34
Abstracts	39
Course Outline	60
Directory Changes	65
New Directory Listings	66

Advisory Committee

Janet Abu-Lughod, J.A. Barnes, Colin Bell, Stephen Berkowitz, Nancy Chapman, Tony Coxon, Bonnie Erickson, Claude Fischer, Linton Freeman, Harriet Friedmann, Gerald Gold, Mark Granovetter, Gudmund Hernes, S. Roxanne Hiltz, Leslie Howard, Peter & Trudy Johnson-Lenz, Charles Kadushin, Fred Katz, T. David Kemper, Edward Laumann, Joel Levine, J. Clyde Mitchell, Robert Mokken, Franz-Urban Pappi, Christopher Pickvance, Bengt Rundblad, Christopher Smith, Charles Tilly, David Todd, Herman Turk, Harrison C. White, Peter Willmott

NETWORK NOTEBOOK

Editorial Policy--A Note to Members (and Tenure Committees)

Some folks have wondered if the submissions to the Newsletter are refereed or if we take anything that comes along. This is particularly important to potential authors and to those who decide on the academic fates of our members.

The answer is YES, WE ARE REFEREED. Indeed, we have turned some articles down already as being either irrelevant or of low quality. Every single submission is closely scrutinized by the Editor; many are shown to Advisory Board members (or other knowledgeable folk) for their opinion.

On the other hand, our publishing criteria are different from that of the standard social science journal. We want an article to be interesting, useful and stimulating. If it is, we want it to get to you as soon as possible. Therefore, we are not particularly interested in publishing the perfectly polished article which has been revised three times over the course of two years. If it has something to say to our members, we want to publish it right away, flaws and all, and let our normally-vocal members comment on it.

So, send us your papers as your ideas emerge, and send us your comments on papers that appear here (or elsewhere).

Let 100 Networks Bloom!!!

Send us your:

Research Reports

Abstracts

Book Outlines

Computer Programs

Grant Proposals

Book Reviews

Course Outlines

Poems, Puns and Puzzles

But, please, no more than five pages each. We reserve the right to edit material in order to conserve space. If all goes well, the next two issues will come out in April and August.

(Continued on page 3)

CONNECTIONS: Bulletin of the International Network for Social Network Analysis.

Barry Wellman, Editor and Network Coordinator

Peter Carrington, Karin Moeller, Associate Coordinators

Barry Crump, Associate Editor

Editorial Assistants: Stephen Berkowitz, Livianna Mostacci, Y. Michael Bodemann, June Corman

Articles submitted for publication consideration should be prepared according to the American Journal of Sociology style (including footnotes and references.) CONNECTIONS authors are granted permission to republish their articles in revised form or as originally printed.

All CONNECTIONS and general INSNA correspondence should be addressed to:

Barry Wellman, INSNA; Centre for Urban and Community Studies; 150 St. George Street; University of Toronto; Toronto, Ontario, Canada M5S 1A1. Tel: (416)-978-5263. INSNA will accept subscriptions to the journal, SOCIAL NETWORKS, at a discount membership rate (see subscription form in the rear); all other queries about this journal should be sent to the Editor (Linton Freeman) or the publisher (Elsevier-Sequoia).

The support of the Centre for Urban and Community Studies and the Department of Sociology, University of Toronto for INSNA and CONNECTIONS is gratefully acknowledged.

Copyright (c) 1978 by Barry Wellman for INSNA. All rights reserved.

...Network Notebook, cont'd.

Parlex-Vous Reseaux?

As a truly international network, we shall publish articles in any language submitted, provided that we can obtain a competent referee who can read that language. At the present time, these languages definitely include: Chinese, Danish, Dutch, English, French, German, Hebrew, Italian, Japanese, Norwegian and Portuguese. Volunteer referees in other languages please communicate.

Having said that, we also feel compelled to say that almost all prospective authors will be better off if they can write in English. Virtually all of our membership can read English; many may not read any other language. Publication in other languages may be delayed, as we send out for referring. Finally, as we depend on volunteered typing for this Newsletter, we must ask that accepted articles in other languages be prepared in offset-ready form by the authors themselves.

Abstracts

One of the most important things the Network Newsletter can do is to speed up awareness of important developments. In this issue, you'll find abstracts and book outlines of works that have not even been published yet. We're a developing field; we can't afford to wait until an article has wended its way past referees, editors and printers. We want to know now, and not when we read someone else's footnote five years from now.

But to do this, we need your help. Get in the habit of sending us abstracts of articles you've just written, chapter outlines of your latest books. You'll be rewarded by the interest of a highly motivated readership.

We also need abstracts of already-published articles and books, so that people can stay up with what they have missed in preprints. This is especially important in network analysis, in which people in various disciplines are profiting from the work of folks not in their own fields, whose works they do not routinely encounter. We have asked a number of members to abstract articles and books for others in various areas (see Richard Alba's ethnicity abstracts in this issue). But this is not an exclusive club--WE WANT ABSTRACTS. If you outline an article, get in the habit of sending us a copy. Or go out and spend a few hours at the library, abstracting for us, and repay the services that the folks who've contributed to this Newsletter have done for you. Often, you can just photocopy the abstracts at the front of articles and fill in complete bibliographic information (American Journal of Sociology style please.)

How strict should we be in what is relevant? Should we only abstract those which have "network" in the title or cite Bott, Mitchell or White? Use a broad criterion. Trust your own instincts--if the work is useful for your own working kit of knowledge, chances are others will find it useful too.

. . .More Abstracts: Political Science

Elinor Ostrom (Political Science, Indian Univ., Bloomington, Ind. 47401, USA) writes to say that she will be abstract political science journals on a regular basis, with the first installment coming in the next issue (April?). She requests members send her relevant reprints or working papers.

SOCIAL NETWORKS: An International Journal of Structural Analysis

After prolonged, and sometimes heated, discussion, a new journal has been born, fittingly enough for the season, to a star in Bethlehem (Pennsylvania). Linton Freeman, the editor, sees Social Networks as a quarterly interdisciplinary and international journal, providing a common forum for representatives of anthropology, sociology, history, social psychology, political science, human geography, biology, economics, communications science, and other disciplines who share an interest in the study of the structure of human relations and associations. The journal will publish theoretical and substantive papers on social structure and methodological contributions to the study of social networks. Critical reviews of major theoretical or methodological approaches to the structural analysis of human behaviour, and reviews of recent books dealing with social networks and social structure will be welcome.

The editors state that "there are no restrictions on the kinds of papers that will be considered for publication. Acceptable papers may range from abstract formal mathematical derivations to concrete descriptive case studies of particular social networks. . . . The editorial criteria for acceptance will be based on the degree to which a paper makes a broad theoretical or methodological contribution to the study of social structure. The editors are therefore particularly interested in papers that attempt to uncover the processes by which social networks emerge, evolve and exhibit consequences for other aspects of human behavior." Papers written in English are preferred; "German and French papers should be accompanied by an English summary."

Interested authors should write the Editor, (Linton Freeman) or the Associate Editors (J. Clyde Mitchell and Rolf Zeigler) for information. All three are members of INSNA; their addresses will be found in the INSNA Directory. The journal itself is associated with INSNA, although it's editorial

(Continued on page 4)

...Network Notebook, cont'd.

policies are wholly independent and it has its own Editorial Board (most of whom are INSNA members).

THERE ARE SPECIAL, QUITE CHEAP SUBSCRIPTION RATES FOR INSNA MEMBERS. A SUBSCRIPTION FORM IS LOCATED AT THE REAR OF THIS NEWSLETTER.

Elsevier-Sequoia is the Publisher and has promised continuing support. It is our hope that the CONNECTIONS Newsletter and the new journal will perform supportive, complementary functions. The Newsletter will continue to provide "hot news" and current, informal information about research and theory.

March Toronto Conference

INSNA is co-sponsoring a "New Directions in Structural Conference" at the University of Toronto, March 16-18. A tentative program is located elsewhere in this Newsletter, and a registration form is at the rear. Among the participants are Maurice Godelier, Charles Tilly and Harrison White. The conference will be organized to allow for a maximum amount of informal discussion. All invited to come.

Uppsala Network Clustering

The World Congress of Sociology is meeting at Uppsala, Sweden, August 14-19, 1977. One session has been allocated by the organizing International Sociological Association to Social Network analysis. This is clearly inadequate, but through the kind auspices of our Swedish members, Åke Daun and Bengt Rundblad, Professor Anita Jacobson Widding has kindly allowed us to use a seminar room at the University of Uppsala's "Department of Ethnology, especially non-European Studies" (Etnologi, särskilt utomeuropeisk). Thus we now have the possibility of organizing a good many quality sessions, both broad and narrow in scope. (For purposes of impressing Deans, let's call this the "World Congress of Network Analysis").

As these facilities have only just recently been made available, our planning is at an early stage. Joel Levine (Math/Social Sciences Program, Dartmouth College, Hanover, N.H. 03755, USA; 603-646-3213) is the overall Program Coordinator: contact him if you want to organize any sort of session or if you want to give a paper. As it is quite late to be starting on such an enterprise, we urge prospective conferees to move expeditiously. (And to forestall a host of letters--No! We do not have any travel funds available. Canadian citizens may have some luck with the Ministry of External Affairs.)

Late News!: Bengt Rundblad has just agreed to work with Joel Levine as Co-Coordinator. Those interested in organizing papers and sessions who would like to coordinate with Bengt can reach him at: Department of Sociology, University of Gothenberg, Karl Johansgatan 27, S-41459, Gothenberg, Sweden. Tel: (031)-1248-50.

Networks of Computers, Organizations and People--A Request for Help

"We are starting several studies of computer use in organizations and are studying social networks of users--intraorganizationally and extra-organizationally. We are interested in receiving information about other studies which compare properties of such networks."

Rob Kling, Dept. of Information and Computer Science, Univ. of California, Irvine, CA, USA 92717

(continued on page 38)

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 government 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 all 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 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.

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 service 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 [14]-[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.

REFERENCES AND ACCESS INFORMATION

[1] W. Ross Ashby, Introduction to Cybernetics (London: Chapman & Hall, 4th imp. 1961), chap. 11.

[2] David Morris and Karl Hess, Neighborhood Power: The New Localism (Boston: Beacon Press, 1975). David Morris, Institute for Local Self-Reliance, 1717 18th St., N.W., Washington, D.C. 20009.

- [3] Milton Kotler, Neighborhood Government: The Local Foundations of Political Life (Indianapolis: Bobbs-Merrill, 1969). Milton Kotler, National Association of Neighborhoods, 1612 20th St., N.W., Washington, D.C. 20009.
- [4] Brian Livingston, "Neighborhoods and Communities," Cascade: Journal of the Northwest, May, 1977, pp. 4-7. Brian Livingston, Cascadian Regional Library, P.O. Box 1492, Eugene, Oregon 97401.
- [5] National Association of Neighborhoods, 1612 20th St., N.W., Washington, D.C. 20009.
- [6] National Self-Help Resource Center, 1800 Wisconsin Ave., N.W., Washington, D.C. 20007.
- [7] ACORN (Arkansas Community Organizers for Reform Now), 523 W. 15th, Little Rock, Arkansas 72202.
- [8] Interpersonal Support Network, 311 California St., Room 700, San Francisco, California 94104.
- [9] Steve Johnson, "Networks," Rainbook: Resources for Appropriate Technology (New York: Schocken Books, 1977), p. 70. Steve Johnson, 20950 S.W. Farmington Rd., Beaverton, Oregon 97005. RAIN--Journal of Appropriate Technology, 2270 N.W. Irving, Portland, Oregon 97210.
- [10] Byron Kennard, "Keep Watering the Grassroots," Environmental Action, July, 1977, pp. 12-14. Byron Kennard, Environmentalists for Full Employment, 1785 Massachusetts Ave., N.W., Washington, D.C. 20036.
- [11] "Membership Directory," Connections: Bulletin of the International Network for Social Network Analysis, I (Summer, 1977), pp. 3-20. INSNA, Barry Wellman, Principal Coordinator, c/o Centre for Urban and Community Studies, University of Toronto, 150 St. George St., Toronto, Ontario M5S 1A1, Canada.
- [12] John N. Warfield, Structuring Complex Systems (Battelle Memorial Institute Monograph No. 4; Columbus, Ohio: Battelle, 1974). John N. Warfield, Battelle Columbus Laboratories, 505 King Ave., Columbus, Ohio 43201.
- [13] Peter & Trudy Johnson-Lenz, "Conference Facilitation by Computer-Aided Sharing," Transnational Associations, XXIX (October, 1977), pp. 441-45. Peter & Trudy Johnson-Lenz, 695 Fifth St., Lake Oswego, Oregon 97034.
- [14] Linton C. Freeman, "Computer Conferencing and Productivity in Science," Transnational Associations, XXIX (October, 1977), pp. 434-35, 445. Linton Freeman, Dept. of Social Relations, Lehigh University, Price Hall, Bldg. 40, Bethlehem, Pennsylvania 18015.
- [15] Murray Turoff, James Whitescarver, and Starr Roxanne Hiltz, "Assisting 'Invisible Colleges' by EIES," Transnational Associations, XXIX (October, 1977), pp. 431-33. Murray Turoff and James Whitescarver, Computerized Conferencing and Communications Center, New Jersey Institute of Technology, 323 High St., Newark, New Jersey 07102. Starr Roxanne Hiltz, Dept. of Sociology and Anthropology, Upsala College, East Orange, New Jersey 07019.
- [16] Peter & Trudy Johnson-Lenz, "Description of a Neighborhood Information System" (unpublished manuscript), April, 1977.
- [17] APPLE, A Person-to Person Living Exchange, 817 N.W. 23rd Ave., Portland, Oregon 97210. The micro-computer is located at The Life Support Systems Group, Ltd., 2432 N.W. Johnson, Portland Oregon 97210.
- [18] Chandler Harrison Stevens, "Science Resource Network for Legislators and Citizens," Science and Public Policy, October, 1976, pp. 442-54. Harry Stevens, Participation Systems, Inc., 43 Myrtle Terrace, Winchester, Massachusetts 01890.
- [19] Peter & Trudy Johnson-Lenz, "Community Issues Dialogue Interactive/Batch Analysis and Report Processing: User's Guide and Technical Manual," 1977. (Prepared for the Community Issues Dialogue Project, under contract from Citizens Response (R), 200 Central Park South, New York, New York 10019, under contract from the Northwest Regional Foundation, P.O. Box 5296, Spokane, Washington 99205, under contract number H-2555 from the U.S. Department of Housing and Urban Development.)

- [20] Peter & Trudy Johnson-Lenz, "Graphing and Mapping Community Points of View" (unpublished manuscript), September, 1976.
- [21] Hawaii Health Net, Moiliili Community Center, 2535 S. King St., Honolulu, Hawaii 96814.
- [22] North Carolina Office of Citizen Participation, 401 N. Wilmington St., Raleigh, North Carolina 27601.
- [23] Independent Foundation, 1028 Connecticut Ave., N.W., Suite 618, Washington, D.C. 20036.
- [24] Yearbook of World Problems and Human Potential (Brussels: Union of International Associations and Mankind 2000, 1976). Anthony J.N. Judge, Union of International Associations, 1 rue aux Laines, 1000 Brussels, Belgium.
- [25] Anthony J.N. Judge, "The Harmony of Interaction--and the Facilitation of Network Processes," International Associations, XXVI (1974), pp. 538-543.
- [26] Murray Turoff and Starr Roxanne Hiltz, "Meeting Through Your Computer," IEEE Spectrum, May, 1977, pp. 58-64.
- [27] Nicholas Valéry, "Foot in the Door for the Home Computer," New Scientist, April 14, 1977, pp. 63-5.
- [28] "QUBE Fact Sheet," QUBE (Warner Cable Corporation), 930 Kinnear Rd., Columbus, Ohio 43212.
- [29] Loving Grace Cybernetics, 1807 Delaware St., Berkeley, California 94703.

MEETING CALENDAR

Fourth Annual Colloquium on Social Networks

Social Sciences and Linguistics Institute
University of Hawaii at Manoa
28-30 December 1977

TENTATIVE AGENDA

- "Thoughts on Peasant Mobility, Social Networks, and Rural Development in the Communes of Mainland China"
James W.K. Chan (Geography, Boston University)
- "Hawaiian and Saskatchewan Legislative Networks in the Flow of Capital Punishment Information"
David Chandler (Sociology, University of Hawaii)
- "The Relation of Stability Theory to Social Network Formation"
Robert Doktor (Management, University of Hawaii)
- "The Exchange Bases of Traditional Authority: A Network Interpretation"
Richard M. Emerson (Sociology, University of Washington)
- The Network Background for the New Journal, Social Networks
Linton C. Freeman (Sociology, Lehigh University)
- "Measuring Transitivity in Sociometric Networks"
Maureen Hallinan (Sociology, Stanford University)
- "Formal Mate Selection Networks in the United States"
Davor Jedlicka (Sociology, University of Georgia)
- "Out of the Social Network, or in Too Deep: Japanese Ways of Guidance"
Takie S. Lebra (Anthropology, University of Hawaii)
- "Political Networks and the Problem of Limited Access to Power"
Glenn D. Paige (Political Science, University of Hawaii)
- "A Reconsideration of Snowballing in the Social Networks Framework"
James A. Palmore (Sociology, University of Hawaii)
- "Clinical Applications of Social Network Concepts to Mental Health"
E. Mansell Pattison (Psychiatry, University of California, Irvine)
- "System Centrality in Social and Topologically-Related Networks"
Forrest R. Pitts (Geography, University of Hawaii)
- "Network Analysis Methods: Conceptual and Operational Approaches"
William D. Richards (Communication Studies, Simon Fraser University)
- "Coalition Development in Social Networks"
Melvin M. Sakurai (Sociology, University of Wisconsin)
- "Solidarity in Networks"
Michael Weinstein (Sociology, University of Hawaii)
- "Missing Links in the Delivery of Social Services: Exploring the Interface Between Social and Technical Networks"
Andrew N. White (Geography, University of Hawaii)

Colloquium: New Directions in Structural Analysis

March 16-18, 1978 - New College, University of Toronto

Sponsored by the Department of Sociology, New College and the Centre for Urban and Community Studies, University of Toronto, in association with INSNA.

Speakers will present informal papers. Discussion will follow sessions. All speakers and titles must be regarded as somewhat tentative at this time. A registration form is available on the last page of this Newsletter.

SESSIONS

Structural Historical Analysis. Chaired by June Corman

Speakers: Leo Johnson
Robert Brym, "Regional variations in ideology in Canada"
Stanley Ryerson
Charles Tilly

Discussants: Martin Klein
Richard Lee
Richard Roberts

...Calendar cont'd

The Structure of Non-Capitalist Modes of Production. Chaired by Karen Anderson

Speakers: Maurice Godelier, "Marxist and Structural Analysis"
F. Sixel, "Indians of Guatemala"
Adrien Tanner, "The Mistasne Cree"

Discussants: Michal Bodemann
Martin Klein
Richard Lee

Special Session

Harrison White, "Satisficing from Disequilibrium: New macroeconomic disequilibrium models reinterpreted at micro levels."

Networks and Ethnic Groups. Chaired by Liviana Mostacci

(Centre for Urban and Community Studies, Co-sponsor)

Speakers: Harry Herman, "Urban Ethnicity: Asset or Liability? Macedonians in the Toronto Restaurant Industry."
Gerry Gold, "Ethnicity, Race, Class and Network Among the Louisiana French."
Robin Ostow, "Kinship, Emigration, and the Reconstruction of Community: Rural Sardinians."

Discussant: Grace Anderson

Corporate Interlocks. Chaired by Peter Carrington

Speakers: T. Koenig, "A Network View of Political Contributions by the Corporate Elite."
Michael D. Ornstein, "Assessing the Meaning of Corporate Interlocks."
Stephen Berkowitz, et al., "Measuring Enterprise Structure and Corporate Power in Canada."

Rolf Wigand

Joel Levine, "Multidimensional Scaling of Real-World, Large Population Elite Data."

Urban Social Circles. Chaired by Barry Wellman

(Centre for Urban and Community Studies, Co-sponsor)

Speakers: Peter and Trudy Johnson-Lenz, "Facilitating Networks for Social Change"
Joseph Galaskiewicz, "The Social Organization of an Urban Neighbourhood: An Application of a Network Perspective."
Chris Pickvance, "Voluntary Associations and Social Networks."
John Alan Lee, "The Ecology of the Gay Community."
Barry Crump, "Social Circles in the City."

Discussant: Leslie Howard

Models of Structure and Process in Bounded Groups. Chaired by Bonnie H. Erickson

Speakers: Sam Leinhardt and Paul Holland, "The Use of Parametric Families for Social Network Data."
Patrick Doreian, "Some Dynamic Models of Small Group Interaction."
Stanley S. Wasserman, "Stochastic Modelling of Social Networks."

Networks and Attributes: Some New Approaches. Chaired by Bonnie H. Erickson

Speakers: H. Russell Bernard, "The Reverse Small World Method."
Harrison C. White, "New Work in Progress."

Discussant: Linton C. Freeman

A Proposed Dictionary of Network Analysis Terminology

Grace Anderson

We urgently need a dictionary of network terminology, for there is no standardization of terms within our discipline. It is therefore proposed that we compile one with your assistance in the near future. If you have published, or circulated (even in mimeograph format) any books, papers or articles, kindly sort out your definitions and send them in. They should be typed or printed on a 5"x 3" (12-1/2 x 7-1/2 cm) card as per the following examples:

CLOSE-KNIT

"I use the word 'close-knit' to describe a network in which there are many relationships among the component units... Strictly speaking, 'close-knit' should read 'close-knit relative to the networks of other research families.' "

Bott, Elizabeth. Family and Social Network: Roles, Norms and External Relationships in Ordinary Urban Families. New York: The Free Press, 1957,1971, p.59

INTENSITY

"The intensity of a link in a personal network refers to the degree to which individuals are prepared to honour obligations, or feel free to exercise the rights implied in their link to some other person."

Mitchell, J. Clyde, in J. Clyde Mitchell, ed., Social Networks in Urban Situations: Analyses of Personal Relationships in Central African Towns. Manchester, England: Manchester University Press, 1969, p.34.

On the reverse side of the card write:

Submitted by
(Your name and address)

Send your own definitions to:

Prof. Grace M. Anderson (Network Dictionary)
Department of Sociology & Anthropology,
Wilfrid Laurier University,
Waterloo, Ontario, Canada, N2L 3C5

The onus is upon you for inclusion of the terms, as you utilize them, in this dictionary. Overseas researchers should send their material by airmail.

*EACH DEFINITION IS TO BE WRITTEN ON A SEPARATE CARD

RESEARCH REPORTS

The Study of Interorganizational
Information Flow
(Reprinted by permission from
Systemsletter; Rolf Wigand, ed.)

Drs. Wolfgang Bick and Paul J. Muller, both with the Institute for Applied Social Research, University of Cologne (Greinstrasse 2, D-5000 Koln 41, West Germany) report about a long range project studying the interorganizational flow of information.

This study is part of a project on information systems and information behaviour which started in August 1975 and will be completed in January 1978. The central topic of the project is the representation of everyday life in formal organizations, especially the quality and validity of data collected by formal organizations (process-produced data). The project is divided into three problem areas: information behaviour in the networks of interpersonal relations, linkage of citizens with urban bureaucracies, and inter-organizational relationships.

Interorganizational information flows will be analyzed within the networks of institutions in the urban setting of Cologne. The texture of information flows is conceived as structured by sectors, linkage institutions and gate keepers; the web of institutions is conceptualized as partially integrated sectors, i.e. interlocked by linkage institutions.

... Research Reports, cont'd

In autumn 1976 a survey of municipal servants in Cologne was started and analyse their information behaviour and ways of collecting and validating informations received from citizens and other municipal agencies will be studied. The data will be analyzed by multidimensional scaling procedures, clustering algorithms, and network analysis. The multigraphs defined by the flows of different kinds of information will be analyzed by block models.

During the last months, Drs. Bick and Muller have conducted a secondary analysis of communication data among 64 municipal agencies broken down by some 250 subdivisions of the municipal administration of the city of Nurnberg. Some 4000 civil servants participated in the study which was originally planned for answering organizational problems. The interorganizational relationships have been analyzed by multidimensional scaling, cluster analysis and the network program SOCK. The hypothesis of the administrative network as a system of integrated zones of dense interactions was confirmed. The structural attributes of a system will be used for additional explanations of the quality of process-produced data.

Analysis of Social Networks

In 1977 a group of social scientists started a research project for the analysis of social networks supported by the Deutsche Forschungsgemeinschaft (German Research Foundation). The project is designed for a period of 5 years. Its general objective is to develop methods for the analysis of social networks and to show the applicability of the network approach to a wide range of substantive empirical problems. There are five working groups:

Aachen: Hubert Feger and collaborators, Rheinisch-West-falische Technische Hochschule Aachen
Kramerstr. 20/34,
D-5100 Aachen, W-Germany

Duisburg: Hans-J. Hummel and collaborators,
Gesamthochschule Duisburg
Lotharstr. 65
D-4100 Duisburg 1, W-Germany

Mannheim: Franz U. Pappi and collaborators,
Sentrum fur Umfragen, Methoden und
Analysen, D-6800 Mannheim,
B2,1, W-Germany

Vienna: Rolf Ziegler and collaborators
Universitat Wien
Alserstr. 33
A-1080 Wien, Austria

Wuppertal: Wolfgang Sodeur and collaborators,
Gesamthochschule Wuppertal
Max Horkheimerstr. 21
D-5600 Wuppertal 1, W-Germany

In the first year (1977) the group concentrated on the following topics:

- a) Theoretical concepts for network analysis
- b) Methods of data collection in network analysis
- c) Mathematical models and methods for network analysis
- d) Computer programs for network analysis
- e) Applications of network analysis in different research

Of course it was not possible to cover the whole field and to give a complete overview of what is going on in network research. The following list of working papers will give a more precise picture of what was actually done. These working papers contain the first results of an attempt to set up a trend-report on network analysis, which will be completed and updated in the coming years. Though English titles are given one must point out that all papers are written in German.

- ad a) Hummel, H.J.: Description and explanation of structures of voluntary interpersonal relations by means of the Davis-Holland-Leinhardt-models, Duisburg, September 1977.
- ad b) Bien, W.: Methods of data collection in small group research, Aachen, September 1977.
- ad c) Bien, W. and M. Lubber: Quantitative sociometry: Problems and methods, Aachen, September 1977.
- Feger, H.: The application of clique-detecting and cluster analytic methods for the analysis of social structures, Aachen, September 1977.
- Bien, W.: Multidimensional scaling, Aachen, September 1977.
- Guillot, G. and H. Feger: The statistical significance of cluster-analytic results, Aachen, September 1977.

...Research Reports, cont'd

- Kappelhoff, P.: Structural analysis of social networks by means of blockmodelling, Vienna, September 1977.
- Kappelhoff, P.: Market- and network approach for the analysis of power relations: collective decisions as exchange of control, Vienna, September 1977.
- Lubber, M.: The problem of asymmetric relations in the analysis of social relations. Aachen, September 1977.
- Ziegler, R.: Causal analysis of social networks, Vienna, September 1977.
- ad d) Bien, W.: Description of computer programs for multi-dimensional scaling, Aachen, September 1977
- Grabner, W. and P. Kappelhoff: Description of computer programs for the analysis of social networks I, Vienna, September 1977.
- Sodeur, W.: Description of computer programs for the analysis of social networks II, Wuppertal, September 1977.
- ad e) Pappi, F.U.: The network concept in community research, Mannheim, September 1977.
- Sodeur, W. and K. Echtherhagen: Influence- and diffusion-processes in social networks, Wuppertal, September 1977.
- Titscher, E.: Interlocking directorates, Vienna, September 1977.

In spring 1977 R. Ziegler visited several scholars engaged in network analysis in the United States and Canada. The report (in German) is also available as a working paper:

Ziegler, R.: New research developments in network analysis, Vienna, September 1977.

Another result of the work so far is the compilation of a bibliography of network literature including unpublished papers. For further information please contact W. Sodeur (Wuppertal). If you are interested in some of the working papers please write directly to the group concerned through the addresses given above.

3. Empirical research on social networks carried out this year includes:

Aachen: a study of "scaling and aggregation of sociometric data" focusing on the problem of inter-individual aggregation of individual social spaces and on the problem of asymmetry in sociometric data. The final objective is a mapping of open social structures into a metric space. Sociometric data from several small groups were collected by the method of paired comparison and form the basis for analysis.

Mannheim: a study of "contact patterns among the population of a community and the local elite", which tries to identify clique structures among the population based on similar contact patterns to elite members. The data are taken from the study of Altneustadt.

Vienna: an analysis of "clique formation, clique perception, and role structures" in school classes using data from German high school classes;

a study of "dynamic processes in friendship networks (secondary analysis of Coleman's Adolescent society-data).

Interest is focused on processes of selectivity and socialisation in friendship groups based on homogeneity of structures.

Wuppertal: a study of "influence processes in social networks" based on a model proposed by French in his "Formal theory of social power". The data are taken from a panel study of recruits in the German army.

Preliminary research reports for some of the projects (Aachen, Mannheim and Wuppertal) can be found in H.J. Hummell (ed.): Fourth International Conference: Application of Mathematical Models to the Analysis of Social Networks, Papers and Discussions, (forthcoming). Research on the above projects will be finished and reports will be made available early next year.

4. While continuing the work on the trend report mentioned above the research groups will start several new empirical studies:

Aachen: "Analysis of asymmetric relations in sociometric data". To find out whether there are real asymmetries in sociometric data, problems of reliability and scaling will be considered first. When real asymmetries are filtered out the next problem is how to analyze and to interpret them.

As part of the "study of community power" (see Mannheim) it is planned to get ordinal data for the relations between the elite members and to test new methods for the analysis of such sparse matrices of ordinal information.

...Research Reports, cont'd

"Development of structure in small groups". The central hypothesis to be tested in this study is that the development of social structures in small groups from open to closed systems can be explained in terms of the elimination theory of Tversky. To test this hypothesis data will be collected from two small groups which will be brought together for a whole week in a closed setting.

"Contact pattern of depressives". After developing an instrument designed to measure contact structures of depressives data will be collected for four groups: a group of clinical depressives, a group of physically ill patients, a group of depressives who are outpatients and a group of "normal" people. The analysis of the contact structures will include geometric representations of the structures and their comparison by means of PINDIS or other related methods.

Duisburg/Wuppertal: "Structural development and processes of information in a population of university students". The population to be explored in this study forms a relatively closed system of beginners in a specific branch separated from older students and from students of other branches. The expected rapid change in the personal networks will be studied by means of a panel of approximately 10 waves. Different patterns of change in the personal networks of the students with respect to parents and former friends will be mirrored in different positions in the newly developing network of the student community. Both aspects of development will be studied with regard to their importance for the diffusion of student related information and is expected to have consequences for behaviour related to studying.

Mannheim: "Stability and change in the power structure of a community". The study is planned as a replication of the Julich community study in 1971 by Laumann and Pappi in order to investigate stability and change in the power structure of this community. It is hypothesized that instrumental issues tend to stabilize the existing power structure, whereas expressive issues are potentially disruptive for the existing structure. Power and influence status is regarded as depending on power resources. The outcomes of specific issues will be analysed in terms of processes of resource exchange, partial exchange markets, different impact of specific resources and strategic usage of resources.

Vienna: "Networks of large corporations in the Federal Republic of Germany (FRG) and Austria". The study will investigate networks of relations between large production companies and financial institutions given by interlocking directorates and common ownership in the FRG and Austria. Structural features of the networks, e.g. overall density, clique structure and centrality of banks, will be determined and compared with related results for other nations. Aside from fundamental similarities differences based on divergent institutional frameworks of the countries, e.g. codetermination and multifunctional banks (Universalbanken) in the FRG and a high proportion of state-owned enterprises and banks in Austria are expected. Theoretical explanations, e.g. cooptation strategies for reducing the complexity of environments or "financial imperialism of banks", will also be considered.

If you want further information about one of the projects please contact the groups directly through the addresses given above.

Electronic Information Exchange by a Social Network:
Summary of Research Proposal.

Linton Freeman, Project Director

(Ed. Note: Project approved to start January, 1978)

It is proposed that 36-40 specialists in the study of social networks be afforded access to the system of electronic exchange. Social networks students, because they are geographically dispersed, and represent several disciplines, form a natural community for such an information exchange system. They are working on a diffuse set of problems that are just now coming to be recognized as interrelated. This area is one of the very few in all of social science that is currently vital and growing. Moreover, since this sort of computer based network is itself a natural object for study within the scope of their interests, these specialists are an ideal community to produce the sort of self-evaluation the Foundation wants in this program.

Thus, the proposed project has two main aims: (1) to establish a sense of community and enhance the productivity of specialists in the study of social networks, and (2) to make a collective contribution to solving problems in evaluating the impact of computer-based information exchange.

...Research Reports cont'd

The project will start with a face-to-face conference on evaluation and continue with a year-long computer conference focusing not only on evaluation but on methods, models and applications of the social networks perspective.

Arrangements are planned to facilitate the exchange of data, procedures for data analysis and bibliographic materials as well as conference papers and comments. Selected conference proceedings will be published and a final evaluation report will be generated by the entire community.

Helping Networks and Social Service Systems

The Faculty of Social Work, University of Toronto, has received a developmental grant from the University of approximately \$100,000 per year for a three year period. The grant is to be used to extend the Faculty's research capability beyond its present level through a collective effort by a variety of constituencies, and for the purpose of advancing professional knowledge about practice. The area selected for concerted study is the interface between helping networks and social service systems, with the expectation that professional modalities can be developed which will strengthen helping networks and move social workers into more preventive levels of intervention.

A range of research and demonstration projects are in the planning stage, under the general direction of Camille Lambert, Project Director. The studies are being developed by small collectives of inter-disciplinary faculty and doctoral students, and will provide a base on which future efforts can be built and attract external funding. The structure and function of networks are being studied as they exist among particular target groups, e.g., blue-collar workers in industry (Ray Thomlison, Margaret Doolan, Ralph Garber, Ernie Lightman), elderly living in urban environments (Albert Rose, Nate Markus, John Gandy), elderly in transition to nursing homes (Lilian Wells, Jean Dunlop, Caroline Singer); the aptitudes and perceptions of the help-seekers and help-givers in both natural and constructed networks are being examined (William Bourke, Win Herington, Norma Lang, Ben-Zion Shapiro, Edith Moore); and the relationships between organization networks and population networks are being studied (Don Bellamy, Allen Zweben, Eileen McIntyre, Joyce Cohen).

A Network of Network People?

Bruce M. Nickum, Social Relations Dept., Lehigh University,
Bethlehem, Pa. 18015, U.S.A.

I am doing a network study of network people. It is based on Crane's "Invisible College" and Mullins' chapter on the "Structuralists". Subjects were selected from Freeman's bibliography. Questionnaires were sent to 114 network people. They were asked a series of questions about the others in the sample, e.g., cite, communicate, student of, teacher of, etc. This data will be combined with citation data from ISI. I am looking at centrality, connectivity and hierarchy.

Work in Progress: News from Douglas White, University of California, Irvine

Applications of network analysis to multiple social relations is the subject of a three-year NSF grant with Douglas White and Lilyan Brudner of UCI, and Hugo Nutini (U PGH) as principal investigators. Field data of compadrazgo, kinship and economic ties is being collected from four Mexican communities, typically on interrelations among 2 to 400 couples per village, and involving about 30 types of compadrazgo. We are looking at process models of differential network formation, structural models of network and positional properties, and behavioral predictions from structural properties. We are developing and testing a network theory of community social structure.

In methodological work at UCI involving myself, John Boyd, Lee Sailer and others, we have been concerned with (1) loosening the algebraic approach to network structure to allow for statistical analysis or probabilistic measures of structural regularities (i.e., using the algebra of fuzzy relations), (2) reconceptualizing the problems of structural equivalence, network decomposition and algebraic representation of networks as developed by Lorrain and White, and developing more generalizable concepts and procedures based on structural relatedness and substitutability, (3) implementing our

... Research Reports cont'd

mathematical procedures for data analysis in the form of computer algorithms which will handle large and complex network datasets, and (4) providing simulation models of network processes for comparison with structural models.

We have developed a comprehensive network analysis methodology out of these concerns. It was used to design a package of APL programs with an interactive user interface for the network researcher. NETWORKER is the name of our interactive system, currently running on UCI's Xerox Sigma 7. The user can input multiple network matrices (relations) and attribute files on the nodes (node attributes), or generate relations and attributes via simulation. NETWORKER performs statistical and algebraic operations on these files in order to identify structural properties of the network, or simulate networks with such properties (see description in Computer Programs).

At the November AAA meetings in Houston, Brudner and I will give a paper on the progress of the network analysis of the Mexican compadrazgo data, John Jessen will give a paper on a comparison of our model with a network model based on predictions from node attributes, and Lee Sailer will give a paper on our reconceptualization of the structural equivalence problem and his algorithms for decomposition of network matrices via measures of structural relatedness and substitutability.

I have a paper in draft with John Boyd on our methodology and its application to Sampson's monastery network data. We have some interesting results which run counter to the commonly accepted transitivity model of structural bias in social networks. Our simulation models prove to be exceptionally useful in comparing the predictions of different models with empirical data.

COMPUTER PROGRAMS

A.S. Klovdahl and R.A. Omodei
Department of Sociology, The Australian National
University, Box 4, P.O., Canberra, A.C.T. 2600,
Australia

ANU-MICRONET. A set of programs for computing symmetric adjacency, reachability, symmetric reachability and distance matrices for smaller networks (n 85).

A social network may be viewed as a realization of a graph or a digraph, as is well-known. However, merely transforming raw network data into an adjacency matrix, a matrix indicating direct (one-step) links between network nodes, does not provide much useful information. Of more interest and potential usefulness are symmetric adjacency, reachability, symmetric reachability and distance matrices. The first of these indicates the nodes connected by a direct two-way link; the second indicates nodes connected by a path of any length, i.e. indirect as well as direct links; the third indicates pairs of nodes connected by a two-way link, direct or indirect; and the fourth gives the length of the shortest path between pairs of linked nodes in a network.

ANU-MICRONET, which is a Fortran V program written for the ANU's UNIVAC 1100/42 system, computes these matrices for networks with up to 85 nodes. It consists of a main program and four subroutines, which use approximately 60 blocks of core space. ANU-MICRONET also includes a program (DATAPREP) that checks the data (adjacency) matrix to be processed for illegal diagonal entries, and then outputs the data in a format that facilitates further checking prior to running it through the main program.

ANU-MACRONET. A set of programs for computing symmetric adjacency, reachability, and distance matrices for larger networks (n 600).

ANU-MACRONET is an elementary attempt to make it feasible to use some of the conceptual tools from graph theory to analyze data from moderately large networks, and thereby remove some of the problems of data analysis that in the past have made it difficult to even consider studying social networks in large populations. This set of programs, written in Fortran V for the ANU's UNIVAC 1100/42 system, computes symmetric adjacency, reachability, and distance matrices for networks with up to 600 nodes (and no more than 36,000 links). Program SYMMAIN, which uses about 100 blocks of core space (for a 600x600 network), computes the first of these matrices and RDMAIN, which uses about 90 blocks, computes the other two. Also included in ANU-MACRONET is a DATAPREP program for checking the input data before processing it through the other programs.

... Computer Programs, cont'd

Gregory H. Heil and Harrison C. White
Department of Computer Science, University of Toronto,
and Department of Sociology, Harvard University, respectively.

An Algorithm for Finding Simultaneous Homomorphic
Correspondences Between Graphs and Their Image Graphs

This paper concerns networks within human systems at the level of the group. We wish to abstract significant structural features from social networks. Each kind of observed tie in a population, reported as a square binary matrix, is compared with an image graph on a smaller set of nodes, called blocks. Correspondences between persons and blocks are found for which each image is the homomorphic image of that observed graph. An algorithm for this purpose is implemented in the APL language. The central construct is a four-dimensional array reporting conflicts, from all graphs, between each possible assignment of one person to a block and each possible assignment of another person. Results are given for a model on three blocks applied to observed graphs of eight types of tie among 18 persons.

Joel Levine
Mathematical Social Sciences/Sociology, Dartmouth
College, Hanover, N.H., U.S.A.

BARON: Basic Archive for Research on Social Networks

This paper describes a computer-based system, BARON, designed to facilitate research into the properties of large-scale social networks. The system is an effort to break through technical difficulties that have impeded substantive analyses of network data. Applied to corporate interlock data, for example, the system allows rapid and inexpensive access to the data on links among selected groups of corporations.

BARON includes (1) an efficient data management capacity and (2) a nascent data archive. The efficiency of the network data management capacity is based on BARON's "object by relation by object" data structure. The data archive presently includes contemporary data on corporate interlocks involving 797 major U.S. corporations and their 8623 directors plus historical data on corporate interlocks dating from 1872, 1875, and 1885.

Nancy F. Moxley and Robert L. Moxley
North Carolina Educational Computing Service and North
Carolina State University, respectively

SUB Documentation

SUB is a computer program for rank ordering all points within a social organization on "point centrality" regardless of whether or not they are all part of a single connected network. It was written in Fortran IV for the IBM 360/165.

SUB has been rewritten for the purposes of generalization before distribution. As used in the original research it was greatly expanded to handle specific idiosyncracies of the author's data. The areas which were removed contained such features as multiple data card formats and abilities to include or exclude linkages based on the date of the last social contact. A listing of the original program will be sent upon request but it was felt that these areas were too specific to the author's study to be of interest or utility for general distribution.

Documentation and listing will be sent upon request.

... Computer Programs, cont'd

Clive Payne, David Deans, J. Clyde Mitchell
Nuffield College, Oxford, England

A Computer Package for the Analysis of Social Networks

The aim of the project is to develop a portable computer package for the processing and analysis of social networks. Particular emphasis is placed on the provision of facilities which allow the network analyst to input his data in a variety of forms and to do basic matrix and logical operations on these data before proceeding to the analysis stage. Comprehensive facilities for manipulation, examination, storage and retrieval of the data are planned. The analysis procedures will include clique detection, hierarchical linkage clustering, block modelling and a variety of graph theoretic measures.

The package will have an SPSS-like control language and will be capable of extension to include further analytic procedures.

A final specification of the package will be available by the end of 1977. Further details from Clive Payne.

Douglas R. White and Lee Sailer
575 Social Science Tower, Univ. of California, Irvine, Irvine,
California 92717, U.S.A.

NETWORKER: An Interactive System in APL for Social Network Analysis and Simulation

NETWORKER lets the researcher input multiple relation and node-attribute data from empirical studies of social networks, perform statistical and algebraic operations to derive and test various models of the structural properties of the network and its component social positions, and generate via simulation process models of the network for comparison with the original data.

This paper examines the guiding philosophy of network analysis which underlies the construction of the NETWORKER user interface and algorithms, illustrates the applicability of the system to empirical datasets, and presents a summary of the operators and computational algorithms programmed to date and planned for the future.

Graph Definition and Analysis Package "GRADAP"

The inter-university project group GRADAP consists of J.U. Brouwer, R.J. Mokken, B. Niemoller, H. Schijf, C.J.A. Sprenger, W.H. van Hoboken, F.J.A.M. van Veen, C.J.G. van de Wijngaart (University of Amsterdam), J. Haan, F.N. Stokman (University of Groningen), A.J.A. Felling and Th.W.C.M. van de Weegen (Catholic University of Nijmegen).

The project group has written a first specification of the package (Specification, 1977). It contains definitions of form, content and functions of the tasks and features of the organized system of programs. The project group will revise and extend the specification regularly in order to incorporate new informatical and methodological elements, to be developed during the course of the project.

The objective of the GRADAP project is the development of a graph definition and analysis package: an organized set of programs with a standard data file, providing flexible graph entry possibilities and large opportunities for different graph representations, graph management and graph analysis. The package can be used as an appendix of SPSS (Statistical Package for the Social Sciences), enabling the researcher to transfer results of graph management and -analysis directly to SPSS and to submit SPSS-system files directly to the GRADAP system.

... Computer Programs, cont'd

1. Data and Files

In this section we first discuss the different elements of information to be handled by GRADAP, we then describe the organization of these information elements within the different files and finally we make some remarks on the input/output procedures to be implemented in GRADAP.

1.1 Data

Within GRADAP the total amount of information on a graph or network will be called a GRAPH. It will be stored on a GRADAP System File, or GSF for short. This GSF makes it possible to perform the data definition phase just once; subsequent GRADAP runs will use the stored information and may optionally modify it. Just one GRAPH may be submitted to GRADAP within a single run.

The data on a graph or network may be subdivided in a number of smaller parts: first we have information on the graph or network as a whole, such as the name of the GRAPH or its label (see Nie, 1975, "SPSS Manual" for definition), its creation date and time, and, eventually, so-called DOCUMENT information elements to be described below may be considered as information on the graph or network.

As mentioned before, a graph consists of a set of points and a set of relations or lines between these. To these points and lines sets of information may be assigned, i.e. attributes may be defined for points and/or lines. These will be referred to as pointinfo's and lineinfo's respectively. They may have either numerical or non-numerical (alphabetical) values. An example of a pointinfo may be the indegree of a point in a directed graph, whereas the head and tail of a line (the two terms taken as equivalent in undirected graphs) are examples of lineinfo's.

Besides the set of all points in the GRAPH, the user may define other non-trivial subsets of points and, analogously, besides the trivial subset of all lines in the GRAPH, subsets of lines may be defined. These sets are called pointsets and linesets, respectively. For example, we may have a pointset of all points representing firms, say, that form a l-clique, or a lineset consisting of all lines connecting points that belong to a given pointset. The information stored on these data-elements may be one of four types:

- a. analytical info - the information that is actually used in the different analytical procedures of GRADAP;
- b. identifying info - information that is used to identify the data-elements and to distinguish them from each other;
- c. administrative info - information that may influence the computations, but is not directly used in the analytical procedures;
- d. documentary info - information which only purpose it is to enhance the readability of the GRADAP output and/or to enable the user to remember what the data-elements stand for.

ad a: The values of the point and lineinfo's for the different points and lines form the analytical information of the GRAPH. They are referred to as point and linedata, respectively and are stored in the pointinfomatrix and the lineinfomatrix.

ad b: Identifying information consists of the identifiers or idents to be used within the GRADAP application language (see the next sections) to refer to the stored data-elements. The GRAPH, point and lineinfo's, and point and linesets are identified by means of a name (see Nie, 1975:30), respectively the graphname, the pointinfonames and lineinfonames, the pointsetnames and linesetnames. For points and lines the identification is more complicated. First of all they are identified by means of their sequence number or, respectively, pointnum and linenum (when n points/lines have been entered, the next one will get sequence n+1).

Furthermore, points may be identified by either a name or a label (pointname, pointlabel). This is not (yet) specified for the lines. Lines, however, may be identified by specifying the tail/head combination, using the idents defined for the two end-points. When no multiple lines exist between these endpoints, this combination uniquely determines the line. If, however, more than one line connects the two points, this whole set will be identified.

ad c: Administrative information includes the point and lineset defs (the point and lineset definitions, i.e. their lists of constituting elements) and the missing values and print formats of the point and lineinfo's (the latter indicate whether the info values are alphabetical or numerical and in the latter case the number of decimal digits to be printed).

... Computer Programs, cont'd

ad d: To enhance the readability of the printer-output, to help the user in remembering what the data-elements stand for and to document his GSF, the user of GRADAP is provided with the possibility of defining labels for his system file, for the point and lineinfo's (and their values) and for the point and linesets. Also DOCUMENT information may be added to the GRADAP system files, in the same way as in SPSS. The creation date and time of the GRAPH is another item of documentary information. When a point is identified by a name and a label is present, the label is also purely documentary.

Besides the above outlined information elements it may be possible that a matrix system will be added to the GSF, in order to have graph-analytical matrices such as adjacency matrices and points-pair measure matrices stored together with their descriptive information and "parental" raw-data matrix.

1.2 Files

1. GRADAP System File: As mentioned in the previous section the graph data will be stored in a GRADAP system file (GSF). Once defined and stored a GRAPH may be submitted to GRADAP in other runs for further analyses and/or modifications. The SAVE GRAPH instruction will cause the available graph information to be written on a write-only file, with the default logical file name SVGRAPH (analogous to the SPSS SAVE FILE procedure). In the same fashion the control statement GET GRAPH will instruct GRADAP to read in a complete GRAPH (as saved in a previous run) from a read-only file, with the default logical file name GTGRAPH.

2. SPSS System files: To enable the user to submit to or to extract from GRADAP SPSS system files with point or lineinfo matrices, GRADAP must be able to read and write SPSS system files. The point and lineinfo's will correspond to variables, the points and lines will correspond to cases while the point and linesets will correspond to subfiles.

3. Coded input files: Coded input to GRADAP will consist of the GRADAP control statements that specify the graph data in the definition phase or indicate the modifications to be made and instruct GRADAP for the different analytical procedures. These control statements will be described in the next sections. The graph data, when not specified in the control statements themselves, also constitute coded input to GRADAP. They need not necessarily reside on the control statement file INPUT, but may reside on another medium which is specified by an INPUT MEDIUM card (see section 3). All coded input must be card-image.

4. Coded output files: The coded output of GRADAP will consist of the run statistics and the results of the analyses on the printer file OUTPUT and possibly of coded card-image output data or matrices on an alternate output file, which will have the default logical file name BCDOUT. The data and/or matrices on the latter file may be used as input for GRADAP, SPSS, STAP or other programs or packages.

5. Scratch files: Besides the above described files which may be controlled by the user (as far as their existence outside the reach of GRADAP is concerned), GRADAP will internally use some scratch files for system data and intermediate results. These scratch files will have logical file names XXGRDn, where n is an integer from 1 to 6. They will be controlled by GRADAP and are returned to the operating system at run termination.

1.3 Input/Output

For the input/output software to be used in GRADAP, standard CDC software (Record Manager) should be used as far as possible. However, in order not to use too much IO-time, it may be necessary to use special IO procedures to read and write the GRADAP system files and scratch files. The same goes for the SPSS system files, which are not Record Manager files to start with. These so-called "owncode" procedures should be well documented in order to reduce the amount of work necessary to maintain, update or even transport the package to other installations.

The GRADAP system files will be binary files, as their main purpose is to store the graph data in an economic way for future access by GRADAP. Furthermore, the conversion involved in reading and writing of coded data will form a too large overhead unnecessary for the internal use of these files. Of course, the SPSS system files are also binary files.

2. System and Graph Definition

The control language of the application package GRADAP - the concept of application language is used here according to Van Hoboken and Niemoller (1976) - consists of control statement. In these statements all information can be defined, required for execution of the GRADAP system.

The control statements start with a control field (cols 1-15) and have so-called keyword expressions in the specification field (cols 16-80). The language elements are control-words, keywords, identifiers,

... Computer Programs, cont'd

labels, operators, values and delimiters.

For graphanalytic concepts the language has its own control-and keywords. We aim as much as possible at equivalences with the SPSS data analysis language.

The following principles can be defined. GRADAP control cards have the same format as SPSS control cards. Additionally some generally applicable control statements of SPSS will be adopted in GRADAP. In general corresponding keywords have the same function in GRADAP as in SPSS. Identical control statements always have exactly the same function and place in the GRADAP setup as in SPSS.

Just like in SPSS, the control statements of GRADAP can be distinguished in graph definition, graph analysis. GRADAP provides four different possibilities of data entry, each possibility having its own control cards. The four data entry possibilities are:

1. Data entry in freefield format, in which the points and lines are defined by constructs of numbers, names and/or labels. This kind of data entry is particularly suitable for:
 - a) blank graphs consisting of points and lines without associated information and with simple identification by means of numbers or names.
 - b) exploratory graphs of which size and structure should be investigated, especially in connection with an unknown number of "relevant" points and the related problem of point identification (the so-called open pointset).

The graph-defining language of Anthonisse (1973) was a very good starting point for this type of data entry.

2. data entry of an infomatrix graph, where pointinfo and/or lineinfo comprise a certain amount of data in the form of a rectangular datamatrix.
3. data entry of one or two SPSS system files containing the relevant information of points and lines.
4. data entry by means of the GRADAP System File (GSF).

GRADAP will contain several control statements for graph-and info-management enabling the user:

- to give new names to the points of a graph (RENAME POINTS)
- to reduce the point/lineinfo in the system graph (KEEP INFO/DELETE INFO)
- to entrance the readability of the printer-output (SET LABELS/INFO LABELS/VALUE LABELS)
- to assign missing values (MISSING VALUES)
- to select points and/or lines (SELECT IF/REJECT IF)
- to define new pointsets or linesets (DEFINE POINTSET/DEFINE LINESET)
- to delete pointsets and/or linesets (KEEP SETS/DELETE SETS)
- to draw a random sample of points and/or lines (SAMPLE)

Data-modification statements like COMPUTE, IF and COUNT will not be incorporated in GRADAP: the user should perform this data management and analysis on point or lineinfomatrix in SPSS via a system file interface or in other packages like OSIRIS with BCD-card image data transput.

A disturbing factor in the logic of the GRADAP setup is the fact that, like in SPSS, certain management tasks are performed by routines that are in fact modules like analytic procedures.

The GRADAP procedures can be distinguished in procedures for graph-and infomanagement, graph representation and graph analysis. Not all procedures are specified now. As far as graph analysis is concerned priority has been given to the analysis of simple directed and undirected graphs. This implies that the point/line info's and sets are primarily important for graph-and infomanagement on this moment. In the next two years GRADAP analytic procedures will be developed for multi-, valued- and signed graphs. Analysis of a (simple) graph very often involves a repeated analysis of different parts of that graph. A repeated analysis of different (partial sub-) graphs will be possible with certain RUN statements (RUN POINTSETS/RUN LINESETS/RUN INTERSET), comparable with the RUN SUBFILES control card of SPSS.

... Computer Programs, cont'd

In the specification the following graph-and info management procedures have been specified:

- condensation of points (CONDENSE IF)
- combination of lines (COMBINE IF)
- manipulation of the direction of certain lines in directed graphs (REVERSE IF)
- generation of new graphs by induction (INDUCE)
- sorting of lines according to certain lineinfo's (SORT LINES)

The following graph representation procedures have been specified:

- printed output of data and descriptive information (LIST GRAPHINFO), enabling the user to get all kinds of sorted lists (of points, lines, sets, etc.).
- listing of values of selected pointinfo's or lineinfo's for the first in points respectively lines in the system file (LIST POINTS/LIST LINES of LIST CASES in SPSS)
- points respectively lines with the desired info's written on a BCDOUT file (WRITE POINTS/WRITE LINES).

If GRADAP will be implimented on different co-puter systems (the first version of GRADAP will be made for the CDC), a procedure WRITE GRAPHINFO will be made available.

Until now, the following graph analytical procedures have been specified:

- CENTRALITY to compute centrality and connectedness indices for graphs as a whole as well as centrality indices for points in graphs;
- RUSH to compute the rush of points in the whole graphs or as a result of a flow from one set of points (see Anthonisse, 1971 and Anthonisse and Lageweg, 1975:30).
- SUBGRAPHS: a procedure for the detection of components, blocks, cliques, clans and clubs in a graph (see Mokken, 1977)
- REDUCE: a procedure to reduce the graph in an iterative process to the null-graph (i.e. the graph without elements) according to a specified criterion
- DISTANCE to produce a distance matrix and to write it to the alternate output file BCDOUT
- ADJACENCY to produce the adjacency matrix and to write it to the alternate output file BCDOUT
- INFO FREQS to get frequency tables of the point- and lineinfo's.

As we noted above, priority has been given to analytic procedures of simple (directed or undirected) graphs. In the near future other procedures will be specified for the analysis of multi-valued-and signed graphs.

References:

- Anthonisse, J.M. (1971). The rush in a directed graph, Amsterdam: Mathematical Centre, BN 9/71.
- Anthonisse, J.M. en Lageweg, B.J. (1975). Graphlib0: procedures to represent, generate and analyse graphs Amsterdam: Mathematical Centre BW 51/75.
- Helmers, H.M., R.J. Mokken, R.C. Plijter and F.N. Stokman in collaboration with Jac.M. Anthonisse (1975) Graven naar macht. Op zoek naar de kern van de Nederlandse economie, Amsterdam: Van Gennep.
- Hoboken, Willem H. van, and Kees Niemoller (1976). Package development. Some general remarks and a contribution to the further development of SPSS. Paper Joint Sessions ECPR, Louvain, April 1976, Amsterdam: University of Amsterdam.
- Mokken, R.J. (1977). Cliques, clubs and clans. Methoden en Data Nieuwsbrief (WS), 2, 34-51.
- Nie, Norman a.o. (1975). SPSS, Statistical Package for the Social Sciences, 2nd rev. edition, New York: McGraw-Hill.
- Specification, 1977. First Specification of the graph definition and analysis package "GRADAP". Publication 1 of the Interuniversity Projectgroup GRADAP (University of Amsterdam, University of Groningen, Catholic University of Nijmegen).
- Stokman, F.N. (1977). Roll calls and sponsorship. A methodological analysis of Third World group formation in the United Nations, Leiden: Sijthoff.

... Computer Programs, cont'd.

Richard Lesniak, Michael Yates and Gerald M. Goldhaber
and Dept. of Communication, SUNY-Buffalo, Buffalo, N.Y. 14260, U.S.A.
and William Richards, Simon Fraser Univ., Vancouver, B.C., Canada.

NEGOPY and NETPLOT, Program Characteristics

I. NETPLOT: OUTPUT DESCRIPTIONS

A. NETCHART (See Figure 1)

Netchart superimposes a formal organization structure chart over actual communication groupings. Actual output consists of a formal chart drawn as a set of rectangles each representing a functional unit and managerial level. Each functional unit and level is split into one rectangle for each network role (Isolate, Group Member, etc.). All rectangles are connected by formal reporting channel lines, linking each unit to its supervisor(s).

In order to maximize visual identification of each communication group, a unique color and hash lining is assigned to each communication group. Communication group 1 is identified by red hashing at a 45° line angle. Communication group 2 is assigned blue lines at 135° line angles, and so on. Each node is written in his respective unit by ordinal or by ordinal and name. In order to provide ease in black and white photocopying, identification of groups and network roles is written into each rectangle.

Charts which exceed the plotter page width are drawn in sections which may be overlaid to depict the complete organization. This process is user selected by specifying which portion of the organization is depicted on any one plotter page.

B. NETLINK

NETLINK uses output from NEGOPY to plot the relative positions of group members, liaisons and/or special nodes and the links which connect these nodes. It should be noted here that the output from NETLINK cannot replace NEGOPY output. Indeed, the decisions concerning which groups, liaisons or special nodes will be represented, as well as which link types will be used, can only be made on the basis of the results of NEGOPY.

The output of NETLINK takes two forms. First, groups in the network that are linked with each other via bridge or liaison links may be plotted along the circumference of a circle along with the liaison nodes which connect these groups. Bridge and liaison links are then drawn, connecting the appropriate node points along the circumference. It described, a list of special nodes which are of particular interest to the user may be plotted along the circumference with the group members and liaisons, and their connecting links with the rest of the nodes in the plot may be drawn. Additionally, the program provides the option of suppressing the plot of certain node types, so that groups may be plotted without liaisons or special nodes, liaisons and special nodes may be plotted without groups, etc.

The second form of output places special nodes in the center of a circle. The nodes which are linked with this special node are plotted along the circumference, and the appropriate linkages are drawn. This form of output, then, describes a wheel in which the special node is the hub and the nodes' links are spokes connecting the special node to nodes on the wheel's rim. The output may be modified by specifying that only certain types of special node links (within-group, between-group, liaison, etc.) be included in the analysis.

The limitations of the program involve the number of group, liaison or special nodes which may be plotted, due to spacing and legibility constraints. Using the largest available plotting surface, the greatest density of nodes, and the smallest character size for node labels, approximately five hundred nodes may be included in a single plot. A number of plots would be required to clearly portray a large system. Secondly, due to the amount of information which must be used by NETLINK, plotting large systems involves the use of a good deal of core memory, which increases turn-around time markedly. Finally, since plotting costs more than regular printer output, the user should make careful decisions concerning the number and type of plots required. Excessive use of the plotting programs presented here may prove to be a costly mistake if the user has not chosen the plots carefully on the basis of their unique information value.

... Computer Programs, cont'd.

II. NETPLOT: ALGORITHMS AND TECHNICAL REPORT

This section is intended to provide an overview of the algorithms, data structures and control sequences of NETPLOT.

A. Introduction

Unlike so called "canned" programs written in higher level languages intended for distribution to many computer sites, NETPLOT was developed with a particular subset of vendors in mind. Since NEGOPY, William Richards' Network Analysis Program, takes advantage of the Control Data Corporation's 60 bit central memory word for simulation of record types including pointer fields for linked lists. NETPLOT was designed for the same hardware. NETPLOT utilizes the linked list data structures created in NEGOPY. The list structures are written to the punched output file and are directly input into NETPLOT for further analysis.

B. NEGOPY Output

The list structures produced by NEGOPY contain almost all of the calculated information used in the network analysis program. They represent, in extremely compact form, all information concerning each node in the organization, each link for each node, and how nodes cluster into communication groups along with their assigned communication roles in the organization. The reader is referred to the Network Analysis Manual for descriptions of these roles. (See Richards, 1975). What is important here is an understanding of the list output of NEGOPY.

Four arrays named INDEX, GRID MEAN and LISTA contain the simulated linked lists of record types. INDEX is a general index to any information for any given node. It contains a pointer to the node's link structure (stored in LISTA), which communication group the node is assigned (if any), and fields containing his assigned network role. GRID is an index to each communication network grouping. Each communication network grouping is assigned an ordinal. One word in the GRID array is assigned to each grouping. GRID points to the first and last member of the group and contains the total number of nodes in the Group. LISTA contains one word assigned to each link for each node in the network. Each link points to the contactee, his group, the type of link and its strength. MEAN is not utilized in NETPLOT. The linked list structures of NEGOPY provide: 1) extremely compact storage of large quantities of information; 2) extremely swift traversal of each interlocking list using CDC FTN supported statement functions which allow the shifting and masking out of any field in any word; and 3) compact interprogram interface with a minimum of "card images" being transferred.

C. NETCHART Input

The first of the network plotter programs superimposes a formal organization structure diagram with the role and group assignments of NEGOPY. This process is accomplished by inputting of NEGOPY's INDEX and GRID arrays and a numerical description of the organization (LISTA is not needed in NETCHART).

Scalar-Function Codes

In order to nodes to be described in their formal organizational role, some form of code needs to be given to each node. The solution to this problem was not easily determined since no universal classification scheme is used to describe positions in an organization. Also adding to the problem are the many types of managerial structure which can be implemented in most organizations. The solution to this problem used in NETCHART is the Scalar-Function code. Each managerial and unit level in the organization is assigned a level ordinal called a scalar code. The code "1" is given to the highest level of management (President, Board of Directors, Chief Executive). Each subsequent lower level is assigned an integer ordinal which increases by one until the lowest level is assigned some code N. In addition, each functional unit is given a "function" code increasing from left to right which describes its placement on the formal organization chart. Every person in the organization is therefore assigned two numbers which will place him on the formal organization chart. A supervisor of one or more units is assigned the highest function code of the units for which he is responsible. These scalar-function codes provide a flexible means to describe organizations of any number of scalar levels and functional units. The scalar-function codes are stored in INDEX for us in identifying the node in the organization. The codes are input along with a name list for each and every node.

... Computer Programs, cont'd.

D. NETCHART Algorithms

NETCHART reads the NEGOPY list structures and control parameters from an environmental file named NEGOUT. The NETCHART control parameters are read in along with a FORTRAN format specifier for the namelist (if any). Next, the scalar-function codes are input for each node in the network along with his name, title or other textual information to be associated with the node. These codes are checked for legality and completeness. If any node has not been assigned a scalar-function code, the program activates the TRACE parameter and deactivates the DRAW control since an incomplete plot would surely result.

If all input requirements are properly satisfied, area calculations commence. Each unit is assembled by gathering those nodes who have identical scalar-function codes and communication network roles. A one pass search through INDEX creates pointers in GRID which allow the easy access of any particular unit by locating the first member in INDEX who satisfies the necessary requirements of the search. The list can then be traversed by finding the next node in any communication group who is pointed to by the last node in that group. Each unit is then ordered by communication network role. Once all units are identified, spacing in both horizontal and vertical dimensions is achieved by calculating the amount of area to be within all units, versus the amount of space between units (HPROP and VPROP are used to provide this ratio). Each unit rectangle is then assigned X and Y rectangular coordinates for its lower, left hand point. The remaining corners are calculated and stored in an array in labeled common. Once all rectangular coordinates are assigned, each rectangle is given an ordinal which is used for indexing later in the program.

Actual plotting begins by stepping through the array of coordinates of each rectangle and instructing the plotter to plot its perimeter. This is achieved by using a routine which plots straight lines given two point coordinates. Names and node ordinals are plotted and spaced within each rectangle. Finally, each unit rectangle is connected to its superior level. Connection is no trivial operation. Shared units and the supervision of several units by one node make this process complex. An input text is written to identify the chart. As each rectangle is plotted, an identifier, unique for each communication grouping, is superimposed over the rectangle to provide visual aid in recognition of each communication grouping.

E. NETCHART Output

Aside from the plotted organizational formal diagram with communication groupings and roles indicated, NETCHART also produces complete numerical descriptions of all calculations and plottings if in TRACE mode. This output is useful for debugging and for checking actual run precision. Also the numerical output can be used to convert the program to other off line plot devices such as a graphics terminal or page plotter.

NETCHART, like NEGOPY, used dynamic memory allocation for blank common to assure optimum execution times and minimal costs per plot. Memory allocation is handled by an assembly routine linked to the NOS operating system.

F. NETLINK Input

The second NETPLOT program produces plots of linkings between special nodes, groups and/or liaisons. Special nodes are defined as any node for which a complete link analysis is to be performed. Plots are produced with each group, node and/or liaison plotted on the circumference of a circle. Links are represented by lines connecting each node, group and/or liaison as per user request from input.

NETLINK utilizes the same list structures as NETCHART in addition to using LISTA, punched in the same NEGOPY output as INDEX and GRID. LISTA provides information regarding which nodes or groups are linked with various link types. Additionally, NETLINK expects a name list and format to be input if one is requested with a NAMWID control parameter.

G. NETLINK Algorithms

NETLINK begins much the same as NETCHART. The NEGOPY data structures are read in from NEGOUT. Next, user input determines which if any nodes, groups or liaisons are to be given attention on the plot. User input specifies any node numbers, group ordinals, liaison ordinals and/or special link types. A logic table is followed in the program to assure proper existence of data. For example: specifying no link types would cause the program to cease execution since no linkings could possibly be plotted. In any case, if some user error occurs, TRACE, the boolean tracing switch, is activated if not already activated.

After all control and run parameters have been successfully read, NETLINKS removes all unnecessary information from INDEX, GRID and LISTA (which reside in black common) and performs an elementary garbage

... Computer Programs, cont'd.

collection to compact storage. Control then passes to subroutines which calculate circle size and position for each node, group and liaison. Polar coordinates are stored in a general indexing array for each requested for analysis as well as for each group member.

Plotting begins by drawing each node of group on the circumference of the circle. If any special node is to be given key attention, it is placed in the center of the form. All links are drawn by traversing LISTA and indexing the polar coordinates of both line terminators. Polar coordinates are converted to rectangular coordinates at all times. The CalComp software package accepts only the rectangular set.

Finally, a title is written onto the plot. The complete process is continued for each special node by repositioning the plotter drum to a new origin and repeating the algorithm until all user requests are satisfied.

H. NETLINK Output

Aside from plotter output, NETLINK provides a complete numerical description of the plotting process onto output. This output closely resembles NETCHART output.

I. LIMITATIONS

Plotter packages usually present strict limitations. NETPLOT is no exception. Listed below are the run time limitations for each program:

1. NETCHART

Total number of nodes allowed	4095
Total number of links allowed	NA
Maximum scalar code	511
Maximum function code	511
Maximum number of Groupings	50
Maximum name width	20 characters
Maximum total plot size	24 by 34 in.

2. NETLINK

Maximum number of nodes	4095
Maximum number of groups	50
Maximum number of links	32767
Maximum name width	2- characters
Maximum diameter of circle	36 in.

Ronald Burt
Dept. of Sociology, Univ. of California,
Berkeley, Calif. 94720, U.S.A.

STRUCTURE:

A Computer Program Providing Basic Data for the Analysis
of Empirical Positions in a System of Actors

STRUCTURE is a computer package for conducting multiple network analyses on systems composed of up to 150 actors/positions interconnected by relations in up to 9 networks in a system. The purpose of the program is to implement the general conception of relational structure in a system as a social topology (Burt, 1976, 1977a, 1977b). Traditional sociometry and blockmodels are included features of the package. For each analysis, the program takes one or more networks of relations as input and produces the following output as requested:

1. Social/role distances among actors/positions (Burt, 1976, 1977a).
2. Hierarchical cluster analyses of the inter-actor/position distances using Johnson's (1967) two algorithms.

... Computer Programs, cont'd.

3. Means, standard deviations and correlations among distances to actors/positions for statistical-ly testing the structural equivalence of actors/positions (Burt, 1977a).
4. An (M+1,M+1) table of average relations among M sets of structurally equivalent actors/positions (Burt, 1976, 1977a). If binary sociometric choices are the input relations and there is no residual set of actors/positions, the average relations will be "densities" and the table will be a blockmodel as discussed in White et al. (1976).
5. Equilibrium relations in the system under alternative system stratification criteria (Burt, 1977b).
6. Moments and cluster analyses for social/role distances computed from the derived equilibrium relations.

If sociometric choice data are input, the program additionally produces the following output as requested:

7. Linkage relations as the shortest chain of choices through which each actor/position can reach each other actor/position (Harary et al., 1965: chp.5).
8. Normalized relations as the tendency for each actor/position to initiate interaction with every other actor/position (Burt, 1976:Appendix A).
9. Indices describing the form of relations defining each actor's empirical position (Lin, 1976: chp. 17; Burt, 1976:note 15).

In addition to printed output, card output is available for input to other packages such as SPSS (Nie et al., 1975) or LISREL (Joreskog and van Thillo, 1972) in order to statistically test structural hypotheses (Burt, 1977a).

STRUCTURE is written in an elementary style of FORTRAN IV with a profusion of comment cards. Access to an eigensystem routine is required in order to derive equilibrium relations. Currently, the EISPACK routine (Smith et al., 1976) is used as available on the CDC 6400 at the University of California, Berkeley. The program's core storage requirements depend upon the network analyses being performed. When set to analyze systems composed of 52 actors/positions in 3 networks, compilation and execution on the CDC 6400 requires 114000B words.

Although the program has been working satisfactorily for all the uses to which it has been put so far, no claim is made that it is free of error and no warranty is given as the accuracy of functioning of the program.

Copies of the program, manual and example data are available for the cost of duplication and mailing. Send a blank, 7-track tape of at least 125 feet and a check for \$20.00 to: Ronald S. Burt, Survey Research Center, University of California, Berkeley, CA 94720. The program source deck and example data analyzed in the program manual will be blocked one card per record in BCD characters and even parity.

Program Manual Table of Contents

Abstract

1. Redimensioning the Program	2
2. Input Data	2
2.1 Analysis Card	
2.2 Parameter Card	
2.2.1 General parameters	
2.2.2 Relation parameters	
2.2.3 Distance parameters	
2.2.3.1 computing distances and moments	
2.2.3.2 cluster analyzing distances	
2.2.3.3 locating cliques of actors/positions	
2.2.3.4 locating structurally equivalent actors/positions	
2.2.4 Equilibrium parameters	
2.3 Title Card	
2.4 Identification Cards	
2.5 Sociometric Input	
2.6 Relational Input	
2.7 Blockmodel Input	
2.8 Distance Input	
3. Output Data	12
3.1 Linkage Relations	
3.2 Normalized Relations	

... Computer Programs, cont'd.

- 3.3 Observed Relations in One or More Networks
- 3.4 Equilibrium Relations in One or More Networks
- 3.5 Distances Based on Observed Relations
- 3.6 Distances Based on Equilibrium Relations
- 3.7 Moments for Observed Distances
- 3.8 Moments for Equilibrium Distances
- 3.9 Indices
- 3.10 Estimating Card Output for an Analysis
- 4. Numerical Illustration 15
 - 4.1 Two Systems of Actors/Positions
 - 4.2 Sociometry and Clique Detection
 - 4.3 Continuous Distance Social Topologies
 - 4.4 Discrete Distance Social Topologies: Blockmodels
 - 4.5 Equilibrium Under the Independence Model
 - 4.6 Equilibrium if Stratification is Based on Observed Distances
 - 4.7 Equilibrium if Stratification is Based on Actor/Position Attributes
 - 4.8 Equilibrium Under the Interdependence Model
 - 4.9 Equilibrium, Multiple Networks and Constrained Exchange

References

- Appendix A: Example Output
- Appendix B: Running STRUCTURE on the CDC 6400 at Berkeley

References

Burt, R.S.
 1976 "Positions in networks." Social Forces 55:93-122
 1977a "Positions in multiple network systems, part one: a general conception of stratification and prestige in a system of actors cast as a social topology." Social Forces 56:106-131.
 1977b "Relational equilibrium in a social topology." Paper presented at the annual meetings of the American Sociological Association.

Harary, F., R.Z. Norman and D. Cartwright
 1965 Structural Models. New York: John Wiley.

Johnson, S.C.
 1967 "Hierarchical clustering schemes". Psychometrika 32:241-254.

Joreskog, K.G. and M. van Thillo
 1972 "LISREL: a general computer program for estimating a linear structural equation system involving multiple indicators of unmeasured variables." Research Bulletin RB-72-56. Princeton: Educational Testing Service.

Lin, N.
 1976 Foundations of Social Research. New York: McGraw-Hill.

Nie, N.H., C.H. Hull, J.G. Jenkins, K. Steinbrenner and D.H. Bent
 1975 SPSS: Statistical Package for the Social Sciences. New York: McGraw-Hill.

Smith, B.T., et al.
 1976 Matrix Eigensystem Routines: EISPACK Guide. New York: Springer-Verlag.

White, H.C., S.A. Boorman and R.L. Breiger
 1976 "Social structure from multiple networks. I. blockmodels of roles and positions." American Journal of Sociology 81:730-780.

Claude S. Fischer, Robert Max Jackson, C. Ann Stueve, Kathleen Gerson and Lynne McCallister Jones with Mark Baldassare, Networks and Places: Social Relations in the Urban Setting (New York: Free Press, 1977).

Table of Contents

1. Perspective on Community and Personal Relations
 2. Network Analysis and Urban Studies
 3. The Dimensions of Social Networks
 4. Social Structure and Process in Friendship Choice
 5. Personal Relations Across the Life-Cycle
 6. Residential Density, Household Crowding, and Social Networks
 7. Suburbanism and Localism
 8. Attachment to Place
 9. "Authentic Community": The Role of Place in Modern Life
 10. Comments on the History and Study of "Community"
-

The Network Nation: Human Communication Via Computer. Starr Roxanne Hiltz and Murray Turoff (Reading, Mass.: Addison-Wesley, forthcoming).

Chapter Outline

- I. The Nature of Computerized Conferencing
 1. An Overview: Computerized Conferencing and Related Technologies
 2. Development and Diversification in Computerized Conferencing
 3. Social-Psychological Processes in Computerized Conferencing Key Characteristics of C.C. Affecting Social Interaction/ A Communications System Morphology/The Efficiency Question/Psychological Differences: The Narrowing of Communication Channels/Available Channels of Communication and Queuing Processes in Computerized Conferencing/Computerized Conferencing as Several Different Communications Forms/Social Dynamics: The Impact of Computer-Mediation upon the Group Discussion and Decision Making Processes (Some Hypotheses)
- II. Potential Applications and Impacts of Computerized Conferencing
 4. Potential Imports of Computerized Conferencing upon Managerial and Staff Functions
 5. Computer-Mediated Communications and the Disadvantaged
 6. Public Use
 7. Science and Technology
 8. Research Applications and Opportunities
- III. The Technology and its Regulation
 9. Structural Communications
 10. The Human-Machine Interface: Design, Dilemmas and Opportunities
 11. Technology and Economics
 12. Policy and Regulation
 13. Projecting the Future: Societal Impacts of Computerized Conferencing. New Forms of Social Organization: The Electronic Tribe/New Values/Communicating rather than Commuting to Work/Effects on Social Stratification/Potential Negative Effects

... New Books, cont'd

Samuel Leinhardt, ed., Social Networks: A Developing Paradigm (New York: Academic Press, 1977).

Table of Contents

Part I: Sentiments and Attitudes

1. Fritz Heider, "Attitudes and Cognitive Organization"
2. Dorwin Cartwright and Frank Harary, "Structural balance: a generalization of Heider's theory"
3. James A. Davis, "Clustering and structural balance in graphs"
4. John R.P. French, Jr., "A formal theory of social power"
5. Paul W. Holland and Samuel Leinhardt, "Transitivity in structural models of small groups"
6. Francois Lorrain and Harrison C. White, "Structural equivalence of individuals in social networks"
7. Clinton B. DeSoto, "Learning a social structure"

Part II: Information, Interaction and Acquaintance

8. James Coleman, Elihu Katz and Herbert Menzel, "The diffusion of an innovation among physicians"
9. William Erbe, "Gregariousness, group membership, and the flow of information"
10. Herman Turk, "Interorganizational networks in urban society: Initial perspectives and comparative research"
11. Diana Crane, "Social structure of a group of scientists: A test of the 'invisible college' hypothesis"
12. Jeffrey Travers and Stanley Milgram, "An experimental study of the small world problem"
13. James A. Davis, "Structural balance, mechanical solidarity, and interpersonal relations"

Part III: Roles and Transactions

14. A.R. Radcliffe-Brown, "On social structure"
15. J.A. Barnes, "Class and committees in a Norwegian island parish"
16. Elizabeth Bott, "Urban families: Conjugal roles and social networks"
17. Adrian C. Mayer, "The significance of quasi-groups in the study of complex societies"
18. John Paul Boyd, "The algebra of group kinship"
19. Mark Granovetter, "The strength of weak ties"

Part IV. Methods

20. Frank Harary, "Graph theoretic methods in the management sciences"
21. Anatol Rapoport, "Contribution to the theory of random and biased nets"
22. Joel H. Levine, "The sphere of influence"
23. Edward O. Laumann and Franz Urban Pappi, "New directions in the study of community elites"

THESIS SUMMARIES

Industrialization and Community in Chotanagpur

Leslie Howard (Harvard University, Department of Sociology, April, 1974), Harvard Medical School, Laboratory of Social Psychiatry, 74 Fenwood Road, Boston, Mass. 02115, U.S.A.

This study is an examination of the interpersonal relationships of men differentially integrated into the factory economy of Ranchi, an industrializing city in the ethnically heterogeneous Chotanagpur Division of the north eastern Indian state of Bihar. The study deals with the relationship between urban industrial participation and interpersonal juxtaposition, interdependence, and community in a region historically noted for the presence of both collateral (tribal) and hierarchical (caste) forms of individual and ethnic interdependence.

The study addresses two kinds of theoretical issues -- one having to do with the relative applicability of alternative descriptive models of mobility and assimilation and the other dealing more generally with alternative understandings of the process of localized community formation. Both of these issues raise questions about the general applicability of aggregative, market imagery for the conceptualization of social processes.

The first issue arises out of the common ideal-typical descriptions of transition from "traditional" to "modern" or "industrial" social organization. Specifically, does induction into urban industrial participation of necessity entail an uprooting of the individual from his relational context and, more generally, from intense interpersonal relationships? Or, alternatively, is induction into such participation consistent with continuity of community involvements -- in terms of the categorical qualities shared within egocentric community networks, in terms of the intensity of the bonds constituting these networks, and in terms of the networks' specific personnel? Do "traditional" interpersonal ties in fact form the links through which new workers become involved in the "modern" sectors of industrializing societies; and, indeed, do such ties form the basis of community within these societies?

The second issue involves the basis of explanation for observed differences in the structures and compositions of the reported egocentric communities of persons differentially integrated into urban industrial society. Are the differences in reported egocentric networks -- in terms of shared qualities of linked persons, complexity of relationships, and fusion of different kinds of interpersonal involvement -- derivable from differences in individually held values? That is, are these differences parsimoniously understandable as aggregative effects of individual choice behavior differentially constrained by socialization into modern, cosmopolitan value orientations? Or, alternatively, are such differences in community structure for men differentially integrated into urban industrial society more directly derivable from differences in the structures of interdependence in which the communities are embedded? Are these differences most parsimoniously understandable as reflecting structural patterning of the juxtaposition, interdependence, and mutual communal involvement of differently located people?

These issues are addressed using sociometric reports from 227 of the respondents interviewed in and around Ranchi by the Harvard University Project on Socio-Cultural Aspects of Development (under the general directorship of Professor Alex Inkeles and under the guidance in India of Professor A.K. Singh). The respondent sample included cultivators, factory workers, and urban workers in small, non-factory settings; both Tribals and Caste Hindus; and both natal village residents and urban migrants. All respondents came from rural agriculturalist families.

The Harvard Project questionnaire provided background data on the respondents and information on their attitudes, perceptions, and values. A supplementary interview provided information on the work and neighborhood ties of these men; on the contacts through which they moved to Ranchi and/or entered urban employment; and on the composition, complexity, and interrelationships of their friendships, leisure companionships, and relationships used in meeting various environmental contingencies. Reported work and neighborhood juxtapositions ("situational ties") were used as samples of interpersonal juxtapositions resulting from the operation of labor and housing markets. Reported friendships, leisure companionships, and mediating relationships ("community ties") were used as samples of "voluntary" interpersonal bonds involving trust and understanding going beyond simple juxtaposition or exchange.

... Thesis Summaries, cont'd

Among the mobile respondents in this study, all of whom had successfully found positions within the urban industrial occupational structure, a continuity model of mobility and assimilation was found to describe the process of induction into urban industrial participation more adequately than did a more strictly market (uprooting) model. Geographically and occupationally mobile respondents typically retained and used at least some of their intense interpersonal ties in the process of mobility. Moreover, those respondents moving into the more highly remunerated and secure (factory) positions were distinguished from their less successful (non-factory) counterparts not by differences in the incidence of using personalistic mobility channels but by differences in the kinds of organizational settings into which these personalistic channels led.

Some "uprooting" effect, however, was found in the structures of the egocentric communities of mobile respondents. The immediate communities of urban migrants typically included a few long-standing, intense relationships transplanted into the urban context from earlier embeddedness in broader, rural communities. This "constriction" of egocentric community for first-generation urbanites resulted in an inhibition of relational specialization within these communities and in an inhibition of the kinds of relational intensity associated with embeddedness in broader networks of complex ties. Moreover, at least for those migrants going into factory employment, migration involved uprooting from rural interpersonal clientship structures and induction into structures of more impersonal, institutional dependency. Associated with this was greater intra-ethnic and collateral bonding among migrant than among natal village respondents.

The same contrast between interpersonal and institutional dependency distinguished the non-factory urban workers from the factory workers. Here, also, this contrast was associated with greater intra-ethnic and collateral "voluntary" bonding among the less interpersonally-dependent (factory) workers. But factory participation, unlike migration, was not associated with uprooting of immediate communities from broader structures of complex relationships; and, thus, rather than being associated with a constriction of egocentric communities, factory participation was associated with an elaboration of these community ties -- in terms of the intensity of particular relationships, in terms of relational specialization, and in terms of diversity of clique involvements. Except as it was associated with ethnic cleavages among workers' egocentric communities, factory participation, as opposed to urban non-factory participation, seemed to encourage the development of communal bonds among persons sharing similar positions, relative to productive resources, within broader structures of social interdependence.

The observed differences in the structure and composition of the egocentric communities of respondents differentially integrated into urban industrial society did not prove to be consistent with differences in values expressed by these respondents in response to conventional attitude questions or with the expectations of adult socialization theories about individual "value modernization" in response to urban industrial experience. Nor did "associational preferences" as measured by differences in compositions of "situational" and "community" ties conform to the verbally expressed values or to the expectations of the adult socialization theories. The observed differences in the structure and composition of egocentric communities were, however, consistent with the patterns to be expected on the basis of differences in the structures of interpersonal interdependence in which the respective respondents and their egocentric communities were located.

In general, the egocentric communities reported by the respondents in this study were more amenable to explanation in terms of enviroing macroscopic structures of interdependence than in terms of the aggregative effects of individual choice behavior on the basis of learned values.

... Thesis Summaries, cont'd.

Telemula: Aspects of the Micro-Organisation of Backwardness
in Central Sardinia

Y. Michael Bodemann, (Brandeis University, Department of Sociology, 1978) Dept. of Sociology, University of Toronto, Toronto, Ontario, Canada M5S 1A1

Over the past century, two elite groups have emerged in Telemula, a small, predominantly pastoral community in Central Sardinia. The earlier elite group which arose following the consolidation of the Italian state was linked to the church and prospered during the time of massive deforestation by foreign charcoal entrepreneurs (1890-1930). This group evolved from five separate families who, after 1875, had begun to cooperate economically and subsequently intermarried. For over fifty years and with few interruptions, this group controlled the community with the help of the church, the police and its kin ties in the village. Its power declined when the precondition of its rise, viz., primitive accumulation, had disappeared and when, through persistent intermarriage, it became isolated from the village at large.

The second elite group, supplanting the earlier one in the late 1950's, consists in its nucleus of three siblings from a poor local family. The rise of this group is attributed to the post-war commodity boom and the infusion of capital through the Cassa per il Mezzogiorno. This group, tied to the Democrazia Cristiana and regional and provincial bureaucracies, exerts control by means of a complex strategy of activating kin ties to distant kin, thereby reducing the strength of the political opposition in the village. This "familistic" political strategy undercuts stable ideological fronts and partly explains the temporary coalition of neo-fascists and communists in the village.

The paper furthermore discusses the transformation of the pre-capitalist kinship structure and changes in land ownership and rural economy over the past 150 years. Data used in the analysis are derived from several years of intensive ethnographic and archival work related to the community.

The Dynamics of Elite Structure: A Critique of
C. Wright Mills' "Power Elite" Model

Stephen Berkowitz, (Brandeis University, Department of Sociology, 1975)

This thesis examines the view of power in the United States which is presented in C. Wright Mills' book, The Power Elite. It reviews the debates between Mills and his critics and extracts their essential theoretical and substantive contentions. It then reduces Mills' argument to four central propositions and explores the roots of these in the classical tradition.

Using network analysis, the author then develops his own model of three distinct institutional stages in the evolution of privileged groups in the United States: "family compacts", "elites", and "upper classes". An historical account of the development of each of these stages is presented and the results obtained are compared to those derived from Mills.

The Transformation of Wheat Production in the Era of
the World Market, 1873-1935: A Global Analysis of Production and Exchange

Harriet Friedmann, (Dept. of Sociology, Harvard University, November, 1976) Dept. of Sociology, Erindale College, Univ. of Toronto, Mississauga, Ontario, Canada

The Intersection of Global Processes, 1873-1935
(Ed.'s note: Concluding subsection)

The emergence of the world wheat market and the commercial formations in labor and capital were intimately connected. Together the processes resulted in the formal and geographical reorganization of the production of wheat. The organization of labor and capital was national, and the importance of state actions in the migrations of both across juridical boundaries was correspondingly important. The movement of labor in particular within the commercial formation was inter-twined with the dynamics of

... Thesis Summaries, cont'd.

the world wheat market. As the world price emerged, the migration of labor operated to make it continually fall. Instead of acting as a corrective mechanism to adjust supply to demand, the world price simply reflected the continued increase in supply from the new areas. Moreover, the falling price affected peasant and capitalist production in old producing areas in such a way as to increase emigration and exacerbate the price fall. The movement of labor within the commercial formation displaced the corrective mechanism of the market in two ways: it helped to reduce the labor supply and raise wages throughout the juridical structures of old producing areas; and it increased the number of simple commodity producers in new areas.

Peasant production either succumbed to more efficient simple commodity production or reverted to a lower level of commodity production. Landless laborers in rural areas increasingly had the option of migrating to cities within their own or different juridical structures, or to the agricultural colonies in the new areas for which recruitment became widespread and intense. The actual options in a particular locale were closely connected with the local process of the transformation of agricultural production.

Whether or not other forms of wheat production emerged simultaneously, the fragmentation of peasant holdings into plots too small to provide subsistence and other obligations took on new significance as the movements of commodities and people changed. The maintenance of below-subsistence plots was increasingly possible as the income of the household could be supplemented by wages earned by its members. As Kautsky argued in The Agrarian Question in 1899, this supplement to the wage, in turn, allowed for considerable flexibility in the employment of labor-power by capital in all branches of production (Banaji, trans., 1975). Wolf (1969) has shown that a similar relation existed among the development of commercial agriculture, the formation of a class of wage laborers, and the fragmentation of subsistence plots in Puerto Rico. As we saw, allotments on capitalist wheat farms in England was an alternative to raising wages. Burawoy (1976) has shown a similar relation between below-subsistence agriculture and flexible wage labor for migrant laborers in contemporary southern Africa and the United States. To the extent that this pattern prevailed, migration to nearby employment was encouraged. It depended upon the opportunities for employment within the juridical structure, and thus the development of wage labor in all branches of production. This, in turn, depended upon the support the state was able to provide for the emergence and re-production of capitalist relations of production throughout the juridical structure.

Yet this pattern was only a matter of degree. Whether or not peasants had the option of wage labor to supplement production of subsistence or cash crops, and whether or not the pattern of landholding allowed them to revert to a lower level of commodity production, they emigrated in large numbers to the areas of new European settlement. Similarly, wage laborers in the cities of Europe emigrated, as did wage laborers in the declining capitalist wheat producing regions of Europe. Moreover, emigration was not stopped by direct state actions to protect wheat producers. Throughout the era of the world market both protected and unprotected juridical structures in Europe provided emigrants for the commercial formation in labor. The sole exception, France, had a declining rural fertility in this period (Price, 1975). Whether the wheat production being undermined was efficient or inefficient, some people were being made redundant relative to the means of employment within the juridical structure as a whole. And whether the simple commodity producers colonizing the new territories of the expansionist states in America and Oceania came from juridical structures with efficient or inefficient agricultural production, they continued to participate in the lowering of the world price.

The undermining of peasant and capitalist forms of wheat production, then, was closely tied to the movements of labor within the commercial formation as well as to the world price. The great movements of population from the different regions of Europe followed, as we have seen, a sequence: Great Britain, the Northern continental countries, and then the regions of eastern and southern Europe. To some extent emigration followed patterns of natural increase, but only insofar as they intersected with the re-organization of agricultural production, the alternative sources of employment within the juridical structure, and the recruitment activities of states and capital for agricultural colonists in the areas of new settlement (see Thomas, 1973: 155-174). The first great transformations of wheat production in Europe in the 19th century had been the emergence of capitalist production, particularly in Britain, but also in Germany. These countries were also the main source of people for the commercial formation in labor prior to the emergence of the world wheat market. As some of them began to produce wheat for the emergent world market, increasingly on a simple commodity production basis, the price fell. Peasant and capitalist producers who had done well in the period of the continental market were under increasing pressure, and the bases for their reproduction were increasingly undermined. As labor was freed from decomposing capitalist and peasant units of production, it faced different conditions in different juridical structures. In the national states of northern Europe wage labor in manufacturing was increasing at a much greater rate than in the imperial states of eastern Europe, or in the southern region of Italy. Labor had little opportunity in the latter regions to maintain partial agricultural production or to find employment in industry. The recruitment activities of the states and private groups seeking settlers in new territories were increasingly successful there, and decreasingly successful, despite policy to the contrary, in the countries of early emigration.

...Thesis Summaries, cont'd.

Yet the conditions for emigration long outlived the commercial formation in labor. The great migrations were directly and indirectly organized through the territorial expansions of national states into new territories. The simple commodity producers of wheat valiantly held the new territories against hostile natural and social conditions. In the process they produced wheat under conditions that could not be matched by producers with any other form of production. Any producer who had to pay rent or wages, any producer with too small a plot of land or insufficient commercial development to improve production, succumbed to the world price which fell continually as settlers desperately avoided the alternatives to failure. As new boundaries emerged for markets in wheat, labor power, and capital, and as these boundaries diverged one from the other, the production and distribution of the food of the Western world underwent a surprising transformation. These were the complex conditions for the rise of the family farm.

(continued from page 4)

NETWORK NOTEBOOK

We hope to publish a preliminary program in our next issue.

Two sessions have already been announced (contact the session organizers for more details):

Session 1--Development of Social Networks in Childhood and Adolescence. Organizers: Karen Smith Thiel, Dale A. Blyth and James Garbarino, Boys Town Center for the Study of Youth Development, Boys Town, Neb. 68130, USA, 402-498-1480.

Format: Round-table working session, with the possibility of an additional session for formal paper presentation.

The working session will focus on the theoretical, empirical and applied aspects of child and adolescent social networks, including: (1) strategies for the conceptualization and measurement of youth's social networks, (2) establishment of links between social network analysis and hypotheses and empirical findings of other work in child and adolescent development (3) review of illustrative studies on-going in the field, using a social network approach. Emphasis will be on the interaction of physical, psychological and social changes on the social networks of children and early adolescent-aged youth.

Potential round table participants are encouraged to submit a brief summary of their current work in the area of child/adolescent social networks and specific theoretical or empirical issues they would like to address or discuss. Proposals for formal papers dealing with any of the above topics are welcome.

Session 2--Kinship Structure, Household Organisation, and the State. Organizer: Y. Michael Bodemann, Dept. of Sociology, Univ. of Toronto, 563 Spadina Ave., Toronto, Ontario, Canada M5S 1A1; 416-978-8718.

Taking off, in part, from Friedrich Engels' work, The Origins of the Family, Private Property and the State, as well as from its recent critical reception especially in French Anthropology, this session will explore the functions and the transformations of the kinship structure with regard to relations of production, particularly in the context of the domestic economy. We will also try to analyse the mutual superstructural relationships of kinship and political structures, notably the state.

In more empirical terms, we would welcome especially papers on kinship and household systems in various social classes, the role of kinship for slavery, feudal, capitalist and socialist relations of production, the role of kinship in labour migration, as channel for patron-client relationships, capital mobilisation, etc. Finally, the session might address itself to such properties of household and kinship as family size, fertility and role diversity within different household types.

Individuals interested in presenting a paper in this session should prepare a one page abstract including: title of paper, and author's name and address. The tentative version of the selected papers will be expected by March 1978, and the final version by June 1978.

There is also a wholly separate World Congress session, "Interorganizational Networks and Systems Analysis", organized by INSA member, William Evan.

Computer Confercing

Thirty-eight networkers are in the process of becoming electronically linked to each other through a computer conference. This has exciting implications for the development of social network analysis. Details--and a list of participants--are available in this Newsletter's Research Reports section. Other network folk may powerfully use the computer conference to maintain indirect ties with each other.

Those interested in computer confercing should see the forthcoming Hiltz and Turoff book outlined in this issue. The October, 1977 issue of Transnational Associations is completely devoted to CC, with a number of articles on intellectual communities and scientific productivity through CC.

(Continued on page 60)

ABSTRACTS

Ethnicity Abstracts compiled by Richard Alba

Richard D. Alba and Ronald C. Kessler, 1977

Patterns of Interethnic Marriage
Presented at the annual meeting of the American Sociological Association,
Chicago, Ill., U.S.A.

In assessing the dynamics of ethnicity, it is important to examine the extent to which interethnic contact is selective, frequent between the members of some groups and rare between the members of others. In this paper, we carry out such an examination through the use of quasi-independence models. Developing these models for interethnic marriage among American Catholic nationality groups, there appears to be little selective intermarriage, although what little does exist is consistent with Bogardus' research on social distance. Overall and taken together with Alba's (1976) finding of sharply increasing intermarriage among Catholic nationality groups, our findings suggest an erosion of ethnic boundaries based on nationality among Catholics.

Martin Patchen, James Davidson, Gerhard Hofmann
and William Brown, 1977

Class Racial Composition, Friendliness of Interracial
Contact, and Student Performance
Presented at the annual meeting of the American Sociological Association,
Chicago, Ill., U.S.A.

The hypothesis that the academic achievement of students is related to the friendliness of interracial contact in school, rather than to the amount of such contact, is investigated. Data concerning academic performance, interracial contact, and a number of other variables relevant to student achievement were obtained from school records and from questionnaires, for large samples of black students and white students in all the public high schools of Indianapolis. There is some evidence that attending majority-black classes was associated with lower effort for both races, and lower achievement scores for blacks (after controlling for IQ scores and other relevant variables). However, there was little association between any of the criteria of academic performance in high school (effort, grades, achievement scores) and the friendliness of interracial contact in either grade school or high school. Further analyses show that while academic performance was related to the level of student aspirations and academic goals, such aspirations and goals were related little to either the opportunity for, or the friendliness of, interracial contact.

Peter Iadicola, 1977

Desegregation as a Model of Assimilation
Presented at the annual meeting of the American Sociological Association,
Chicago, Ill., U.S.A.

A theoretical model viewing the desegregated elementary school as an instrument for the assimilation of ethnic minority children was tested using a sample of 215 Mexican-American male and female elementary school students, grades 3 through 6. Data was from the Riverside School Study, collection year 1969. Milton Gordon's concepts of structural and cultural assimilation were operationalized in the model. The measure of structural assimilation was a sociometric measure. The students in the sample received a

... Abstracts, cont'd.

total score reflecting the number of seating choices received from Anglo classmates (Anglo peer group integration). Cultural assimilation was operationalized as academic grade point average. The test variable was a measure of the student's attitudes toward his or her own ethnic group (ethnic ingroup-outgroup orientation). Socioeconomic status and education of the head of the household served as basic control variables in the analysis.

It was hypothesized that Mexican-American elementary school students who were ingroup oriented would be less likely to integrate into the Anglo peer group (structural assimilation) and would receive lower academic grade point averages (cultural assimilation) and that those students who integrated into the Anglo peer group would have higher academic grade point averages.

Regression analysis was run separately for each sex; findings indicated a sex difference. For the female student, ethnic ingroup-outgroup orientation was negatively related to Anglo peer group integration, as hypothesized. However, ethnic ingroup-outgroup orientation was not directly related to academic grade point average but rather was mediated by Anglo peer group integration. For the Mexican-American student, the relationship between ethnic ingroup-outgroup orientation and academic grade point average was present, as hypothesized. However, the relationship between ethnic ingroup-outgroup orientation and Anglo peer group integration was not present. The relationship between Anglo peer group integration and academic grade point average was present for both sexes, as hypothesized.

Robert Schoen, 1977

Outgroup Marriage Among Spanish Surnamed Californians, 1962-1974
Presented at the annual meeting of the American Sociological Association,
Chicago, Ill., U.S.A.

The nature and extent of outgroup marriage among Mexican-Americans in California during the 1962-1974 period was investigated by means of marriage records coded to indicate the Spanish surname status of the bride and groom. A high level of outmarriage was found, on the order of one-third to two-fifths of those marrying. Differentials in outmarriage proportions by age and sex were examined and tended to be relatively small. More substantial differentials were found with regard to marriage order, where higher order marriages of Spanish surnamed persons were more likely than first marriages to involve a non-Spanish surnamed partner. The largest differentials were generational, with Spanish surnamed persons not born in Mexico much more likely to outmarry than were those born in Mexico.

To control for the effects of age composition, and to assess the level and pattern of the marriage rates in the Spanish surnamed group, nuptiality tables for males and females were constructed for California, 1970. It was found that in the absence of mortality, 99% of both the male and female population would marry before the age of 50. The proportions out-marrying were consistent with those found in the earlier analyses.

Despite the high level of outgroup marriage shown by the Spanish surnamed group, no evidence of a trend toward increased outmarriage was found. Much remains to be learned about the social context of outgroup marriage among Mexican-Americans, and future trends may well depend on future developments regarding United States migration policies and practices.

Steven M. Cohen, 1977

Socioeconomic Determinants of Intraethnic Marriage and Friendship

Social Forces 55 (June):997-1010

The melting pot view of ethnic assimilation suggests a direct relationship between ethnic assimilation and social class. The cultural pluralist orientation largely rejects such a hypothesis. Analysis of national (N=1469) and New York (N=1683) survey data shows that indicators of ethnic assimilation (interethnic marriage and friendship) and of social class are generally unrelated. However, associations in the hypothesized direction among the more recently arrived ethnic groups suggest social class (particularly education) is an important correlate of ethnic assimilation at earlier stages in the assimilation process.

... Abstracts, cont'd.

David J. Strauss, 1977

Measuring Endogamy

Social Science Research 6 (September):225-245

This paper is concerned with the description and statistical analysis of marriage patterns among a set of intermarrying groups. The statistic K is suggested as a reasonable measure to summarize the overall tendency to endogamy, and the measures proposed by Romney (1971; in Explorations in Mathematical Anthropology, M.I.T. Press, Cambridge) in his pioneering paper are critically evaluated. The marriages recorded in the data occur sequentially, and the probability of each might be assumed to depend only on the group membership of the two mates. These marriage probabilities, which are indicators of the preferences for different marriages, can be estimated simply if the data are assumed to be a sample from a large population. If we ask questions such as whether the tendency to endogamy is equally strong for each group, or whether there are preferences for some exogamous marriages over others, summary descriptive endogamy measures will not suffice. We describe a class of statistical models of great flexibility which permits us to test such hypotheses and measure the degree of departure of the data from them. Finally, the statistical procedures proposed in the paper are applied to some sets of empirical data from the literature, both to illustrate the techniques and to indicate what conclusions should be drawn in these instances.

Peter M. Blau, 1977

A Macrosociological Theory of Social Structure

American Journal of Sociology 83 (July):26-54

Social structure is conceptualized as the distributions of a population among social positions in a multidimensional space of positions. This quantitative conception of social structure is the basis for a deductive theory of the macrostructure of social associations in society. The likelihood that people engage in intergroup associations under specifiable structural conditions can be deduced from analytic propositions about structural properties without any assumption about sociopsychological dispositions to establish intergroup associations, indeed, on the assumption that people prefer ingroup relations. Group size governs the probability of intergroup relations, a fact that has paradoxical implications for discrimination by a majority against a minority. Inequality impedes and heterogeneity promotes intergroup relations. The major structural condition that governs intergroup relations is the degree of connection of parameters. Intersecting parameters exert structural constraints to participate in intergroup relations; consolidated parameters impede them. The more differentiation of any kind penetrates into the substructures of society, the greater is the probability that extensive social relations integrate various segments in society.

Social Work Abstracts, compiled by Diane Pancoast

Christopher C. Tolsdorf
Children's Psychiatric Center, Eatontown, N.J., U.S.A.

Social Networks, Support, and Coping: An Exploratory Study

Family Process 15 (12/76)

This paper reports a study that investigated the areas of stress, support, and coping, using the structural model of the social network. The social network model is borrowed from sociology and anthropology and is used to describe and quantify not only an individual's immediate family but also all of those with whom the individual has regular contact. By comparing the networks of a sample of "normal" and schizophrenic males, it was possible to identify differences in their relationships to their social networks, in the make-up of the networks themselves, and in the coping styles and recent histories of the

... Abstracts, cont'd

subjects. The results suggest, first, that the network model can be used to investigate the larger social system with which individuals interact and, second, that it may be a valuable approach to the expansion of family research.

Gerald D. Erickson

School of Social Work and Psychological Service Centre, University of Manitoba, Winnipeg, Man.R3T 2N2, Canada.

The Concept of Personal Network in Clinical Practice

Family Process 14 (12/76): 487-498

The practice of clinicians in all the helping professions has undergone wide-ranging change in the past two decades. This change has been uneven and halting, but an essential aspect has been a movement toward a wider arena of practice, including a variety of social network practices. The concept of personal network holds high promise for becoming a major unifying framework in clinical practice: as an analytic viewpoint, as a schema for problem location, and as an arena of practice and research. This paper will review the developing strands of network practice, examine some of the forms and characteristics of personal networks, and consider several theoretical and practice issues.

Beatrice Ferleger

Research Utilization Unit, Research and Program Planning Information Department, Community Council of Greater New York, 225 Park Avenue South, New York, N.Y. 10003, U.S.A.

Natural Helping Networks for the Elderly

Improving Service Delivery Through the Informal System

Research Utilization Briefs 1 (4/77)

The advent of the Great Society programs of the 1960's generated extensive efforts, by both public and voluntary institutions, to find innovative and far-reaching solutions to social problems. At times, in these efforts, already existing, informally structured systems that were functional and effective in meeting social needs were overlooked.

Recently researchers have determined that such informal systems function in almost all social communities. In particular, several studies have concluded that an informal social support system - a natural helping network - exists for the elderly. This network helps to sustain elderly people both emotionally and physically, and acts as a supplement to the formal system which often does not adequately meet their needs. Informal service providers - relatives, friends and neighbours - are frequently found to be the primary support system of elderly people. They provide the linkage between the older person and needed social and health services.

Given the existence of this informal system, the question is whether it can be strengthened and enhanced so as to provide improved human service delivery to the elderly. Can the natural network reach elderly people who are not reached by professionals? Can the expansion of this system assist in providing a greater number of elderly people with more needed services? Will strengthening the informal structure help to keep more elderly people living independently in their own homes and communities?

This paper will describe first the research studies that have documented the existence of the informal social support system, and then define and discuss an approach developed in a research and demonstration project which used consultation between the professional worker and the informal provider as a mechanism for strengthening the network.

While the research studies have shown that children and relatives are a vital element in the informal support system, the major emphasis in this paper will be on the helping neighbour who is often the primary provider of assistance in the day-to-day living of the elderly person.

Angela Finlayson
Greenloaning, Kingsbarns, St. Andrews, Scotland

Social Networks as Coping Resources:
Lay Help and Consultation Patterns Used by Women in
Husbands' Post-Infarction Career

Social Science and Medicine 10 (1976):97-103

This study forms part of a larger sociological study into ways in which families coped with the crisis presented by husbands' myocardial infarction. (A parallel study by McEwen deals with the men themselves.) Part of the purpose was to examine differences between families in relation to differences in outcome of the illness twelve months later. Outcome was classified as: "A" (favourable) in families where the man was working and his wife defined the illness as over; "B" (intermediate) in families where, although the man was working, the wife did not define the illness as over; and "C" (unfavourable) in families where the man was not working.

In the section of the study presented here the persons perceived by wives as helpers and lay consultants at the crisis and in the aftermath were identified and the categories of network which they represented were analysed. Not unexpectedly, differences associated with social class were found. However, differences also appeared to be associated with the outcome of the illness for both nonmanual and manual families considered separately: families where wives acknowledged fewer sources of network support, and where such sources were predominantly restricted to families of origin of either or both spouses, tended to experience less favourable outcomes (i.e. "B", and especially "C", as defined above). Perceptions of support at the crisis had sometimes proved unrealistic in the aftermath. Nearly one in four women, while acknowledging practical help, felt that they lacked lay consultants and this often appeared associated with unfavourable outcome. Adult children as a source of sustained help and, more unusually, as lay consultants seemed to be particularly valuable for wives of manual workers, sometimes compensating for difficulties experienced in consulting husbands.

It is suggested that professional workers concerned with the coping resources available to families may find it useful to check the presence or absence of perceived support from each of the categories used in this study (children, wife's kin, husband's kin, non-kin, spouse). By indicating the total range and type of support, this might help to reveal deficiencies pointing to a need for compensatory intervention.

Frank Gatti and Cathy Colman
Harvard Medical School, Boston, Mass., U.S.A.

Community Network Therapy:
An Approach to Aiding Families with Troubled Children

American Journal of Orthopsychiatry 46 (10/76):608-617

This paper outlines a method of working with troubled children that draws upon structural family therapy, school consultation, patient advocacy, and community mental health work. This blending of approaches is presented as the basis for an evolving mode of treatment referred to as community network therapy. Four of its principal dimensions are described, and examples of its clinical application are offered.

For three years, we have consulted to the public school system in a town we shall call Charter, Massachusetts. Charter is a small town of 13,000 people. It is principally a working-class community, without extremes of wealth or poverty, but with an average family income somewhat lower than that of surrounding communities. There is no significant ethnic diversity; the families are chiefly Caucasian, and of Protestant or Catholic background. The Charter school district adopted an active policy of working to meet the special needs of its school children, on an individualized basis. We were hired to help the school define and supply its mental health services.

During these three years, we have evolved an approach to these children that combines a family and a community focus. In part we employ traditional structural family therapy, working with entire families and family subsystems, focusing on alliances, boundaries, etc. We add to this our active involvement with the family in dealing with the community and its institutions. We use our knowledge of the community and our place in it to build networks that are supportive and helpful to the family in solving its problems.

... Abstracts, cont'd.

Kenneth N. Walker, Arlene MacBride and Mary L.S. Vachon
Community Resources Service, Clarke Institute of Psychiatry, Toronto, Ontario, Canada

Social Support Networks and the Crisis of Bereavement

Social Science and Medicine 11 (1977): 35-41

Selected social network and urban community literature is reviewed and various models of support structure are then assessed in terms of their adequacy in meeting the diverse needs of individuals under stress. The role of support networks during the bereavement crisis is examined specifically and a brief description of the Community Resources Service's project "A Preventive Intervention for the Newly Bereaved" illustrates how understanding of network supports can aid the mental health professional in crisis intervention.

Unpublished Papers and Papers which are not Abstracted:

Shirley L. Patterson, "Toward a Conceptualization of Natural Helping", Arete 4 (Spr./77)

Karen Gunn, "Support Systems Analysis: Impact for Designing Rehabilitation Programs for Heroin Addicts".
Paper presented at the 1977 Annual Meeting of the American Psychological Association.

Michael Phillips, "Social Work Practice as Community Service", (mimeo). Graduate School of Social Service, Fordham University at Lincoln Center, New York, N.Y. 10023.

Papers by

H. Russell Bernard,
Department of Sociology and
Anthropology,
West Virginia University,
Morgantown, W.Va. 26506
U.S.A.

Peter D. Killworth,
Silver Street,
Cambridge CB3 9EW,
England.

On the Structure of Affective and Effective
Sociometric Relations in a Closed Group Over Time
(mimeo.)

Using Catij (a new sociometric technique given elsewhere), the social structure of an oceanographic research vessel is described. Specifically, affective relations (how people feel about one another) and effective relations (how people say they interact with one another) are compared as they develop through time. In the beginning of the cruise, there are large gaps in the relational structure and these gaps close over time, as expected. Moreover, the affective relations tend to become a subset of the effective relations. A statistical and graphic description of these relations at three times are given for three levels of structure: global, clique, and local or individual interaction. The implications for network and sociometric studies of closed groups is considered. It appears that the properties of massive networks (i.e. a city, an aircraft carrier, or a whole country) will not turn out to be very different from those of miniature networks. Rather, the critical difference is probably the ability of persons to comprehend the nature of the network in which they are embedded, rather than in properties inherent to the networks themselves.

... Abstracts, cont'd

A Comparison of Structure in Behavioral and
Cognitive Social Network Data
(mimeo.)

This paper provides a comparison of the triadic-level structure inherent in behavioral and cognitive social network data taken on the same group, using a variety of groups whose communication could easily be monitored.

It is found that many types of structure occur significantly more or less than chance in both behavioral and cognitive data, and providing that these are treated in similar ways, there is good agreement between the two structures. However, there are several ways to treat behavioral data, and these produce at least two essentially different structures.

If cognitive and behavioral triads are compared triad by triad, then there is virtually no agreement between them (even though they may both display the same structure on an overall triad census).

Finally, the unlikely hypothesis is proposed that, under many circumstances, behavioral structure never alters. Change in structure over time apparently occurs because of informant error in the reporting of the cognitive data. A pseudo-transition matrix, giving the probability that a triad is reported as one type when data are first taken, and a different type at a later date, is calculated. More subtle data will be necessary to disprove this hypothesis.

The Reverse Small-World Experiment

This paper considers the reverse small-world technique. Many "starters" are presented with a very long list (1267) of "targets". Starters are instructed in the small-world experiment and asked to write down their choice for the first link in the chain from them to each of the 1267 targets. The location, occupation, sex, and ethnic background of targets was given, and starters indicated which (if any) of these pieces of information made them think of their choice. Seven conclusions are drawn from the data: (1) A mean of 210 choices control the world, but this number is an underestimate. Only 35 choices control half the world, however. (2) There appear to be three distinct, and mainly nonoverlapping, networks controlling U.S., local, and foreign areas. (3) Choices are mainly friends and acquaintances, with strong cleavages by sex. (4) Location is the usual reason for choices, with occupation second most popular. (5) The decision as to which choice is made depends primarily on the occupation of the trigger, and secondly on the distance (near/far) from Morgantown, West Virginia, where the experiment took place. (6) Half the states in the U.S. are controlled by a single person when choices are made on the basis of location. (7) As found in previous experiments, the accuracy of informants in estimating their networks is low.

Informant Accuracy in Social Network Data II

Human Communication Research, in press

This paper repeats and confirms the results of Killworth and Bernard, 1976, concerning informants' ability to report their communication accurately. A variety of self-monitoring, or nearly self-monitoring, networks are used for this study. The conclusion again appears that people do not know, with any accuracy, those with whom they communicate.

The expanded experimental design permits a variety of other, related questions to be answered: recall of past communication is not significantly more accurate than prediction of future communication; no one set of data is more accurate than any other; the maintenance of personal logs of communication does not improve accuracy; informants do not know if they are accurate or not; there is no reason to choose either rankings or scalings as a data instrument save for convenience.

It is suggested that future research should concentrate both on improving the accuracy of data-gathering instruments and on lessening the reliance of data-processing instruments on precise data.

A Comparison of Structure in Behavioral and Cognitive
Social Network Data
(mimeo.)

This paper provides a comparison of the triadic-level structure inherent in behavioral and cognitive social network data taken on the same group, using a variety of groups whose communication could easily be monitored.

It is found that many types of structure occur significantly more or less than chance in both behavioral and cognitive data, and providing that these are treated in similar ways, there is good agreement between the two structures. However, there are several ways to treat behavioral data, and these produce at least two essentially different structures.

If cognitive and behavioral triads are compared triad by triad, then there is virtually no agreement between them (even though they may both display the same structure on an overall triad census).

Finally, the unlikely hypothesis is proposed that, under many circumstances, behavioral structure never alters. Change in structure over time apparently occurs because of informant error in the reporting of the cognitive data. A pseudo-transition matrix, giving the probability that a triad is reported as one type when data are first taken, and a different type at a later date, is calculated. More subtle data will be necessary to disprove this hypothesis.

Ronald L. Breiger
Dept. of Sociology, Harvard Univ., Cambridge, Mass. 02138, U.S.A.

Toward an Operational Theory of Community Elite Structures

Quality & Quantity vol.12 (1978) In Press.

This paper presents a reanalysis of data on a West German community elite (Laumann and Pappi 1973, 1976) and identifies implications of a multiple network analytical strategy ("blockmodel analysis") for the study of community structures more generally. Section 1 offers a brief overview of the recent blockmodels literature. In Section 2 I suggest that diverse theoretical and empirical studies of community power structures may be unified as special cases of blockmodel images and role interlock tables, and I take some first steps in providing the necessary operational definitions. Section 3 is a demonstration that Laumann and Pappi's aggregation of elite actors, although it was constructed from a single network and with no reference to blockmodel analysis, nonetheless induces cogent blockmodel images across the multiple networks these investigators collected; blockmodel analysis broadens and extends their substantive treatment of the coalitional structure of a community elite. Section 4 reports application of an algorithm designed to aggregate social actors across all the networks simultaneously. The resulting blockmodel is compared in several critical respects to the one obtained from Laumann and Pappi's partition. In Section 5 the focus shifts from aggregates of actors and the patterns they induce to relations among networks and the coherent structures they form. Core features of role interlock captured by both models (those developed in Sections 3 and 4) are identified and interpreted. New possibilities for a theory of community structures are suggested.

Bonnie H. Erickson
Dept. of Sociology, University of Toronto, Toronto, Ontario, Canada

Some Problems of Inference from Chain Data

Four methods for generating data on interpersonal chains are discussed: snowball samples, Milgram's small world technique, sampling natural chains at endpoints, and sampling natural chains at any point. For each method, there is a discussion of advantages and problems in making inferences to each of four possible levels: individuals, chains, chaining processes, and networks. References to existing techniques are given, and inescapable ambiguities of inference are discussed. Overall, it is argued, chain studies are an important set of tools for relational analysis provided that inferential problems are allowed for.

... Abstracts, cont'd.

Richard V. Farace and Rolf T. Wigand

Dept. of Communication, Michigan State University, East Lansing, Michigan 48824, U.S.A.

The Communication Industry in Economic Integration:
The Case of West Germany

Paper presented to the International Communication Association,
Organizational Communication Division
Chicago, Ill., April 23-26, 1975

National economies can be viewed as networks of interdependent relations among the firms, industries and sectors that make up the total economic system. Within this economic system, the communication industry plays a central role by providing message and media products and services, i.e. the linking and coordinating infrastructure.

Some limited research has been done on the nature and importance of the communication industry in the total economic network of a nation. The study reported here, however, represents the first application of currently existing network analysis techniques to this problem on a large-scale basis. The data used for this study represent the interorganizational relationships among 365 West German firms, with a 1970-based stock value of \$333,000 or more. Interorganizational linkages are a function of (1) direction of ownership, and (2) magnitude of ownership (percentage of stock owned weighted by the value of the owned firm).

The data analysis reveals that there are a number of dominating industrial groups, including a communication industry. The inter-firm relationships of the communication industry have been mapped and measured. The analysis demonstrates that there is relatively little dominance in and widespread integration with other major economic clusters of the economy. These findings are considered as being preliminary since only publically reported data were available, i.e. privately controlled firms are not included in the analysis. A number of measures for connectedness and integrativeness are presented that suggest themselves in addition to the technique of network analysis per se as potential alternative measures.

Ove Frank

Dept. of Statistics, University of Lund, Lund, Sweden

Estimation of the Number of Connected
Components in a Graph by Using a Sampled Subgraph

The number of connected components of arbitrary of fixed node size in an unknown parent graph is to be estimated by using a sampled subgraph. This problem is first discussed for two kinds of parent graphs: a transitive graph and a forest. Some approaches pertaining to a general parent graph are then illustrated by simple computer experiments.

A Note on Bernoulli Sampling and Horvitz-
Thompson Estimation

Forthcoming in Scandinavian Journal of Statistics

The problem of estimating a total $T = \sum_{i \in V} \sum_{j \in V} y_{ij}$ using observations y_{ij} for $(i,j) \in S^2$, where S is a random sample selected from V , is dealt with. The random sample S is chosen as a Bernoulli sample with unequal or equal selection probabilities, and some earlier results by the author concerning Horvitz-Thompson estimators and variances are generalized.

... Abstracts, cont'd.

Survey Sampling in Graphs

Forthcoming in Journal of Statistical Planning and Inference.

The Horvitz-Thompson estimation theory is applied to snowball sampling and some other sampling procedures using a known or unknown graph structure in the survey population. In particular, simple graph-parameter estimators and variance estimators are obtained which are based on various kinds of partial information about the graph.

Estimation of Graph Totals

Scandinavian Journal of Statistics 4 (1977):81-89

A real variate is defined for the ordered pairs of nodes in a finite graph. We consider the problem of estimating the total of the variate values from the information provided by a node sample. The node sample is selected by a known probability sampling design, and the variate values are observed for the pairs of nodes in the sample. Several concrete interpretations of the estimation problem are indicated. Unbiased estimators and variance estimators are given. In particular the results are applied to arc frequency estimation in a simple directed or undirected graph.

Nick Axten and Thomas F. Fararo

Dept. of Sociology, Univ. of Pittsburgh, Pittsburgh, Pa. 15260, U.S.A.

The Information Processing Representation of Institutionalised Social Action

In: P. Krishnan (ed.) Mathematical Models of Sociology. Sociological Review Monograph No. 2. Keele, 1977.

The general idea proposed in this paper is that the fundamental properties of institutionalised social action may be understood in terms of the modelling of real systems of social action as information processing systems -- systems whose activity is controlled by symbolic processes. A key property of the models is their generative character: from a given model, with appropriate inputs, it is possible to derive explicitly the sequence of activity of the system. In this way the model is not a merely static description of a system, nor a history of its activity, but shows the activity flowing from the proposed structure of the system. Within this framework the paper explores the issue of the theoretical justification and generalisation of possible models, and proposes an approach based on the interrelationships among the patterns of activity characteristic of various institutions.

We discuss the idea of a generative theory in section 1, followed in section 2 by an explication of the formalism we employ based on the outstanding work of Newell and Simon in information processing theory. In section 3, we apply this formalism to the problem of representing the institutional aspects of a social action system, using a familiar institution -- the restaurant -- as a case study. In section 4 we discuss further aspects of the theory and method involved in this type of representation.

... Abstracts, cont'd.

Peter Kappelhoff
Universitat Wien, Vienna, Austria.

A Contribution to the Structural Analysis of Primary Environments

The paper first discusses some strategies for the decomposition of contexts with regard to multi-level analysis. The importance of primary environments as intervening variables in the classical two-level model is emphasized. Given a network of friendship relations various methods are available for the detection of cliques. After a critique of these methods on theoretical and practical grounds a new procedure is proposed which is based on a implicit clique definition. Zones of relative clustering (ZRCs) are determined by cutting procedures ("weak ties") and a corresponding algorithm is offered which is specially suited for large networks. A metric (modified path distance) based characterization of the sociometric structure of the ZRCs follows. An index characterizing the homogeneity of markings (individual attributes) in relation to the metric structure of the ZRCs on the basis of a random model is also discussed (a computer program for all these procedures written in Fortran is available from the author).

Strukturanalyse sozialer Netzwerke mit Hilfe von Blockmodellen
(Structural Analysis of Social Networks by Means of Blockmodels)

Original Language: German

This paper gives a summarizing discussion of blockmodel analysis developed by the H. White group. First it discusses the problem of aggregation in network analysis and various definitions of structural equivalence. The main theoretical idea of blockmodel analysis - the zeroblock criterion - is contrasted with the more traditional ways of network analysis, especially component analysis and clique analysis. After a brief example the various methods and algorithms for blockmodel analysis (Blocker, Concor, Principal components analysis) are introduced. It follows an outline of the analysis of role structures and the detection of stable structural kernels by means of joint homomorphic reductions. Finally, the potentiality of applications of blockmodel analysis in sociology is discussed.

Markt- und Netzwerkansatz bei der Analyse von Machtbeziehungen:
Kollektive Entscheidungen als Tausch von Kontrolle
(Market and Network Approach to the Analysis of Power Relations:
Collective Decisions as Exchange of Control.)

Original Language: German

This paper is a critique of the Coleman-model (CM) of collective action and an attempt to overcome some of the difficulties of the CM by integrating network concepts into the model. The assumptions of the model discussed are: fixed set of actors and events, "homo economicus"- concept, closed system, probabilistic decision rule, perfect market assumption, rule of proportional allocation of resources, and static equilibrium analysis. The implications of the assumed perfect market of control for the nation of power in the model are discussed in the light of results of social exchange theories. Other conceptualisations of power which differentiate between power resources and power positions lead to an incorporation of the network of potential exchange relations into the model. Various strategies for the determination of power positions in the extended model are proposed.

... Abstracts, cont'd.

Alden S. Klovdahl

Dept. of Sociology, Australian National Univ., Canberra, Australia.

Urban Social Networks: Two Tests of a Random Walk Strategy

The absence of research on urban social networks in the presence of increasing recognition of the potential fruitfulness of such research is clearly an anomalous situation, one that is largely attributable to the lack of proven methodological procedures for studying social networks of the scale found in urban areas.

A solution to this problem is proposed: The random walk strategy. A preliminary assessment of the feasibility of this strategy, based on two studies carried out in one city, is then presented.

The results of these studies were encouraging: In each study it was possible to complete all of the planned random walks, to do so within a reasonable period of time, and with response rates acceptable for social research. In each study, moreover, interviews with a small number of randomly selected persons made it possible to obtain information on a single connected component of a large-scale urban social network.

Thomas Koenig

Paper by

Thomas Koenig
Dept. of Sociology,
Northeastern Univ.,
Boston, Mass., U.S.A.

Robert Gogel and John Sonquist
Dept. of Sociology,
Univ. of California, Santa Barbara,
Santa Barbara, Calif., 93106, U.S.A.

Corporate Interlocking Directorates as a Social Network
(Mimeo.)

Four different models explaining the significance of the patterns of interlocking directorates in the American economy are delineated and examined to discover behavioral predictions inherent in each. Empirical tests are employed to examine the general pattern of replacement of interlocking relationships between the largest American firms when destroyed through the death of an outside director. The frequency of directors' memberships in exclusive social clubs suggests that those who interlock several large firms may have similar socialization patterns which lead to similar ideologies. From this grows an "establishment" of persons who cooperate both consciously and unconsciously to stabilize the socio-economic system.

We have continued our work on applying network concepts to interlocking directorates. Our data base has been expanded and updated to 1972. Work is currently in process correlating corporate clique position with political contributions in the 1972 election. This work is being carried out by Thomas Koenig. An additional piece of work, similar to this, looked at economic characteristics of corporations in relation to clique position. A recent dissertation by Robert Gogel entitled "Interlocking Directorships and the American Corporate Network" reported this work. Sonquist is in the process of putting together some ideas on data structures and software required to handle network data analyses.

Paper by

Edward Laumann, Joseph Galaskiewicz and Peter Marsden

Community Structure as Interorganizational Linkages

In The Annual Review of Sociology, Vol.4. ed. by
A. Inkeles, J. Coleman and N. Smelser. Palo
Alto, California: Annual Review. 1978.

The application of network metaphors to the study of community inter-organizational systems has become very popular among social scientists. This review article points out several of the difficulties involved in this type of analysis and suggests new directions for research in this area.

The article is organized into three main sections. First, elements of structure in interorganizational networks are discussed. These include problems of definition and selection of nodes, problems concerning linkages or media exchanged among nodes, and problems dealing with the modalities of network formation among organizations. Our second principal emphasis involves processes within networks. This includes discussion of processes of formation and regularization of interorganizational networks, processes leading to the mobilization of individual organizations or sub-networks around specific public policy concerns, and the transformative or combinatorial processes by which interorganizational action within networks affects policy outcomes. Our last section discusses the relation between organizations and the more traditional units of analysis in community studies, individuals and status groups. Here we are especially concerned with matters of interest formation, control, and accountability. Throughout, we attempt to delineate some avenues along which refinement of the metaphors of network and exchange might progress.

Robert L. Moxley
North Carolina State University

Marginality-Centrality, Household Differentiation, and
Generational Differences in a Communal Social Network in Peru

Forthcoming in International Journal of Contemporary
Sociology.

An hypothesis suggested by Frank and Ruth Young's study of families in Mexico is that an increase in a family's relative centrality in a communal network will lead to an increase in household differentiation relative to other families. Centrality is measured by family position in networks formed by linkages through godparenthood and affinal and generational kin ties. Differentiation of households is measured by a level-of-living index developed especially for peasant households. A path analytic diachronic model is used to test the relationship between relative centrality and differentiation to discover whether centrality predicts differentiation or whether the reverse may be true. The findings for older families indicate that neither predicts the other to a significantly greater degree. But for the younger families the differentiation variable is clearly the more predictive variable in the relationship. This is just the reverse of the Youngs' hypothesis. Even more unexpected is the finding that it is the marginal families which are more likely to differentiate than the relatively central families. Implications for an urgent reconsideration of research on the "marginal men" concept and for applied programs are discussed.

Elinor Ostrom, Roger B. Parks, and Gordon P. Whitaker

Patterns of Metropolitan Policing

Forthcoming in (Cambridge, Mass.) Ballinger Books

A volume devoted to a description of the interorganizational arrangements for policing in 80 U.S. metropolitan areas. Using service recipients and agencies as basic units of analysis, the pattern of exchange relationships among units is recorded in a structural matrix. From these matrices, measures of police industry structure are computed. Measures include fragmentation, multiplicity, independence, autonomy, coordination, alternation, and dominance. Two methodological chapters are included. One of them describes the matrix methodology developed for describing industry structure. The other discusses the data base and data collection methods. The data from this study are on file with the Inter-University Consortium for Political and Social Research at the University of Michigan, Ann Arbor. The remaining chapters are substantive, focussing on each of the police services included in the study and describing the organization and interorganization arrangements for their delivery.

... Abstracts, cont'd.

John P. McIver

Measures of Metropolitan Police Industry Structure - Service
Structure Matrices for the Albany/Georgia SMSA. Technical Report T-15

Bloomington, Indiana: Workshop in Political Theory and
Policy Analysis, Indiana University, 1976. (27 pages, \$1.00)

A technical report that presents the computational formulas for each of the structural measures used for describing police industry structure. Actual matrices are presented for ten police services for one SMSA.

Elinor Ostrom, Roger B. Parks and Gordon P. Whitaker

Defining and Measuring Structural Variations
in Interorganizational Arrangements

Publius Vol. 4 (Fall, 1974):87-108.

An earlier article describing our approach.

Three Abstracts by

Stephen B. Seidman
Dept. of Mathematics
George Mason Univ.
Fairfax, Va. 22030, U.S.A.

Brian L. Foster
Dept. of Anthropology
State Univ. of New York at Binghamton
Binghamton, N.Y., U.S.A.

The Use of Attribute Data in Network Modeling

Most social network formulations concentrate on the relational aspects of networks to the exclusion of attributes of the constituent individuals. In this paper, a method for utilizing attribute data is examined. The method rests on several types of operations for subsetting population lists or adjacency matrices of social relations; alternatively, dummy matrices of all ones can be subset for purposes of creating new relations from the attribute data. The procedures are incorporated in a larger package of computer programs which provide the capability for analysis of networks created by the attribute procedures.

A Graph-Theoretic Generalization of the Clique Concept

For at least twenty-five years, the concept of the clique has had a prominent place in sociometric and other kinds of sociological research. Recently, with the advent of large, fast computers and with the growth of interest in graph theoretic social network studies, research on the definition and investigation of the graph theoretic properties of clique-like structures has grown. In the present paper, several of these formulations are examined and their mathematical properties analyzed. A family of new clique-like structures is proposed which captures an aspect of cliques which is seldom treated in the existing literature. The new structures, when used to complement existing concepts, provide a new means of tapping several important properties of social networks.

... Abstracts by Stephen B. Seidman and Brian L. Foster, cont'd.

A Strategy for the Dissection and Analysis of Social Structures

One persistent impediment to the development of a productive graph theoretic method for structural analysis is the lack of a theoretically derived inventory of basic structural units and concepts useful for their classification and analysis. The outlines of such an inventory are presented, along with a procedure for analyzing the way in which the intrinsic and positional properties of basic structural units interact and combine to form a global social structure. Use of the concepts is illustrated by a brief examination of the problem of defining and classifying forms of domestic units.

Ben Zion Shapiro

Faculty of Social Work, Univ. of Toronto, Toronto, Ontario M5S 1A1, Canada.

Mutual Helping - A Neglected Theme in Social Work Practice Theory

Canadian Journal of Social Work Education Vol.3 No.1
(Spring 1977) pp.33-44.

Two major approaches to interpersonal helping are identified: mutual helping, in which helping roles are essentially interchangeable, and professional helping in which there is an essential asymmetry of roles. Self-help methods are seen as a derivative of the first and paraprofessional helping as a derivative of the second. The paper is addressed to the possibility of jointly using mutual and professional helping.

An attempt is made to clarify their differences as a basis for effective joint use, with the help of the family paradigm. This paradigm offers two sets of horizontal relationships (mates and siblings) and two sets of vertical relationships (parent-child and surrogate parent-child). In a broader social context, friendships and the patron-client relationship also offer paradigms which may influence initial, or later, behaviour by both help-seekers and help-givers.

The joint use of mutual and professional helping is discussed in the context of one-to-one, family, small group and community, and in relation to a variety of factors which might influence choice of approach and effective use of approach. Implications for research, policy, service delivery, and professional education are suggested. An extension of the role repertory of the professional helper is indicated, which is directed primarily to mobilizing mutual helping processes.

Friends and Helpers: When Ties Dissolve

The frequency of social interaction between friends in children's groups was reduced to a minimum in order to determine if, and under what conditions, decrease would lead to the dissolution of their friendship ties. A field study was conducted in a children's summer camp, where boys and girls between the ages of eight and fifteen spent four weeks. For four days in the second week, competitive games took place in which campers were assigned to teams on a random basis; forming an experimental group of 135 friendship ties, in which friends were assigned to different teams, with a reduced opportunity for mutual interaction for four days, and a control group of 64 ties, in which the friends were assigned to the same team. Questionnaires were administered to all campers and staff before and after the four-day period, and twelve days later, providing both sociometric and attitude measures.

No significant difference between experimental ties (friends separated) and control group ties (friends together) was found with respect to the frequency of dissolution; a slightly higher proportion of control ties dissolved. High attraction ties persisted and were even strengthened by separation. Similarly oriented ties tended to persist; discrepant ties tended to dissolve, especially when together! Younger ties and female ties dissolved more frequently. Exploratory analysis of additional variables provided consistent support for these findings. Processes had apparently been engendered which weakened or counteracted the expected dissolution of ties under conditions of reduced interaction, with implications for structuring social interaction in children's groups as a means of influencing patterns of interpersonal relationship.

... Abstracts by Ben Zion Shapiro, cont'd.

In a more speculative vein, commonalities and differences between friendship relationships and helping relationships are discussed, with attention to the problem of continuance to short-term helping, and to helping in the group context. It appears that "similarity" must be considered in conjunction with other factors, including interaction, group norms, and psychosocial factors such as age and sex, rather than alone.

Mutual Helpers, Volunteers and Professionals
-- A Study of the Israeli Experience
(Mimeo.)

Eight instances of mutual helping are discussed, based upon personal observation in Israel and review of the relevant literature; including Jewish and Arab, traditional and modern, rural and urban, "natural" and formal helping settings. The analysis attempts to relate the "degree of turbulence in the symbolic environment" to the frequency of use of mutual and/or professional helping in each of the above illustrations. Once the assumption of a stable symbolic environment is discarded, this dimension of analysis can make a contribution to the understanding of helping networks.

A redefinition of the concept of voluntarism offers a conceptual link between mutual helping and professional helping. This voluntarism involves a help-giver who shares some major understanding with the help-seeker about the nature of the need or problem and of the appropriate help and helping method. The process of building mutual helping networks through building (sometimes new) stable sets of shared meaning requires a more systematic form of exploration and discovery, even in small scale, current situations and experiences where past shared experiences are non-existent.

Francis M. Sim
Dept. of Sociology, Pennsylvania State University
Boundary Location in Multi-Relational Networks

All systems analyses recognize boundaries, which often are treated as empirically given, but for human systems their character and location are problematic. This paper explicates the idea of boundary, relates it to other important system concepts, and defines boundaries of differing generality.

The multigraph for any empirical system induces a graph of access, here taken as unilinear, though in general it may be multilinear. Definitions in terms of access are given for in-, out- and general boundaries for points, point sets, and components; alternative definitions are considered. Boundaries are distinguished from interfaces, the linkages between components and environments. Other concepts, such as the open/closed distinction, are clarified by the model.

"Loose Coupling": A Prospectus

At present, both the formal and substantive sides of the coupling notion are only sketchily developed. In addition to critical analysis of existing organization literature for the principal dimensions of the concept, the chief innovation here is to apply recent developments in social network theory which have emphasized the multi-relational nature of all social systems, and provide a possible model for the plural dimensions identified (Leinhardt, 1977; Journal of Mathematical Sociology, 5, 1977, entire issue). The idea of coupling also appears to be related to the concept of boundaries in systems. It is important to clarify different general types of loose coupling, in particular the difference between (a) absence of dyadic relations as such and (b) failure of cumulativity of such relations over a network, since these have quite different consequences. [Weick's differentiation of "loose coupling" and "loosely coupled systems" may be based on this distinction.]

... Abstracts, cont'd.

Peter Z. Snyder
Dept. of Anthropology, Univ. of California, Los Angeles, U.S.A.

Neighborhood Gatekeepers in the Process of Urban Adaptation:
Cross-Ethnic Commonalities

Urban Anthropology 5 (1), 1976

This study explores the role of gatekeeper in five ethnic neighborhoods in Los Angeles. The gatekeeper, though similar in function to Wolf's (1956) culture broker and Rollwagen's (1974) mediator, exhibits clear and significant differences. Like the culture broker-mediator, the gatekeeper provides a link between the local group and the wider urban society. Unlike the broker-mediator, the gatekeeper is not always an innovator, is integral rather than marginal to the group, and is not necessarily a leader within the group.

Personal networks and gatekeeper networks are separate aspects of the process of urban adaptation in each of the five neighborhoods. The study shows the existence of gatekeepers in each of the five neighborhoods and identifies the functions which they perform. These are job and housing location, health advice and aid, legal aid, and the provision of counseling and information. Gatekeepers have special talents and/or information which they readily share and apply in the aid of local coethnics. Although gatekeepers are used variably within and between the five neighborhoods studied, they are nevertheless centrally important to a significant minority of group they serve.

A.K.M. Stoneham

Dept. of Geography, Univ. of Cambridge, Downing Place, Cambridge CB2 3EN, England

The Small-World Problem in a Spatial Context

The small-world problem poses the question: "How many steps does it take to link any two people, selected at random?" A simulation model is built to examine this question, but focusing on the spatial side of the problem. Four aspects are investigated in detail: the general distribution of steps with parameter changes; channelling effects; the sensitivity of the overall structure to disconnection; and ghettoisation of an area. Some suggestions are made for further possible applications of the model.

2 Papers by

Stanley S. Wasserman

Dept. of Applied Statistics, Univ. of Minnesota, St. Paul, Minn. 55108, U.S.A.

Mathematical Models for Graphs
(Mimeo.)

The nature and development of both stochastic and deterministic models for directed and undirected binary graphs are discussed. The applications of such models are numerous. Here the focus is on representations of social networks as directed graphs.

Models from the natural sciences and from the social sciences are examined. Percolation processes, polymerization processes and random and biased nets are processes developed for structures other than directed graphs that can be used as time-dependent models for graphs. Also discussed are several stochastic models specifically developed for social networks, including a very recent paradigm that provides a framework for other models of directed graphs.

... Abstracts by Stanley S. Wasserman, cont'd.

Random Directed Graph Distributions and the
Triad Census in Social Networks

Journal of Mathematical Sociology 5 (1977):61-86

This paper uses the concept of the triad census as developed by Holland and Leinhardt, and describes several distributions on directed graphs. Methods are presented for calculating the mean and the covariance matrix of the triad census for the uniform distribution that conditions on the number of choices made by each individual in the social network. Several complex distributions on digraphs are approximated, and an application of these methods to a sociogram is given.

Barry Wellman

Centre for Urban & Community Studies, and Dept. of Sociology, Univ. of Toronto, Toronto, Ont., Canada

The Community Question: Intimate Ties in East York

(Offset; \$1.75 from the Centre)

Three approaches to the Community Question are evaluated: the Lost, Saved and Transformed arguments. Network analysis is proposed as a perspective on the Community Question, for by focusing on linkages, it avoids the a priori confinement of analysis to solidary units. Data are presented about the structure and use of 'intimate' networks of 845 adult residents of the Borough of East York, Toronto. The data provide broad support for the Community Transformed argument, but only as modified by some portions of the Saved and Lost arguments.

5 Papers by

Rolf T. Wigand

Communications Program, Arizona State Univ., Tempe, Ariz., 85281, U.S.A.

Communication Network Analysis in Urban Development

Pp.137-170 in W.E. Arnold and J.L. Byley (eds.)

Urban Communication: Survival in the City
(Cambridge, Mass.: Winthson, 1977):137-170.

This paper argues that future urban settlements will focus on the problems that arise when man becomes alienated because of his environmental conditions. Such problems are central to communication. The immediate social environment of urban families is not the geographical location where they live, but the network of social relations they maintain. Communities, then, can be viewed as networks of communication and constitute a functional prerequisite for the individual's integrated role into a Gemeinschaft and a Gesellschaft. Methods that allow for communication network analysis are described; some propositions and suggestions for future research are presented.

Communication and Interorganizational Relationships Among
Complex Organizations in Social Service Settings

Presented to the International Communication Association
Information Systems Division Annual Convention,
Portland, Oregon April 14-17, 1976

If communication researchers are to gain significant insight into certain aspects of organizational behavior, there is a need to consider interorganizational communication. In spite of the popularity of organizational development, group dynamics, organizational change, etc. as approaches to study 'organization', few studies have dealt with the organization per se, most of them have focused on the individuals within the organization.

This study explored the implications of communication and information flow in relation to various organizational concepts (particularly, social service referral and delivery) of more than 90 social service agencies in the Lansing, Michigan, area. Representatives at each hierarchical level within all of the 91 agencies were interviewed and completed a questionnaire. This questionnaire consisted of the agency's and the interviewee's demographics, various measures of integration and work satisfaction, organizational interdependence as well as a large set of attitudes and perceptions toward the organization and the organization-set. In addition, the perceived similarity with regard to the agency's services as compared to all other agencies was ascertained. Lastly, four communication networks were generated from the questionnaire responses of members of 65 social service agencies that allowed for the construction of communication maps with regard to topic areas such as client referrals, direct treatment/service delivery, planning/innovation and interpersonal relations. These four networks then allowed for the reconstruction of the actual communication patterns among 65 social service agencies.

The network analytic data were analyzed through an extended FORTRAN program for the CDC 6500 computer. The algorithm used far surpasses any other similar analytic technique (including matrix analysis) that the author is aware of in terms of utility, capacity and efficiency. Through network analysis any structure, or, in general, relationship can be (1) detected and (2) described at the dyadic, group or systems level of the network. The paper then describes the analysis of the identification and evaluation of the networks, the assessment of the interorganizational hierarchy and the evaluation of the individual agency's communication behavior. The interorganizational data -- in addition to standard correlational analyses -- were also analyzed via the BCTRY cluster analysis and the MDSCAL-5 program providing multidimensional solutions. The network analytic findings (frequency, and importance of communication) are analyzed in their relationship to numerous other organizational and interorganizational assessments of the set of agencies and are viewed in the light of past research findings. The author concludes by recommending the consolidation and application of current technology as well as consistent checks on communication flow by network-analytic techniques for badly needed coordination, client referral and other interorganizational efforts.

A Cybernetic Model of Communication and Interorganizational
Relationships Among Complex Organizations

To be published in Proceedings of the Eighth International
Cybernetics Congress, Section II: Cybernetics in Social Systems.

Interorganizational relationships are explored in a systemic fashion. From the literature review, four interorganizational class variables are identified that appear to subsume most other variables studies by scholars in the field of interorganizational research: communication, interdependence, goal attainment, and the environmental conditions. The first three variables are understood as endogenous to and the last variable is viewed as exogenous to the interorganizational system, respectively. These variables' interdependencies are expressed in the form of propositions.

Based on this discussion, various dynamic features of the model are explored thus exemplifying numerous aspects of the cybernetic relationships in interorganizational settings in the form of differential equations. Several control mechanisms are built into the model such as the interplay between a tolerable level of perceived pressure (organization-internal as well as external) and the environment, communication and stress as well as a self-recovery mechanism. The cybernetic model demonstrates that it permits the extraction of implications that are not easily, if at all, obtained otherwise from interorganizational behavior.

... Abstracts by Rolf T. Wigand, cont'd.

A Path-Analytic Evaluation of Communication Among
Social Service Organizations

Presented to the: International Communication
Association Organizational Communication Division Convention,
Berlin, Federal Republic of Germany,
May 29-June 4, 1977

This study explores the causal implications of communication and information flow in relation to various interorganizational concepts (particularly, joint goal attainment, client referral and delivery of social services) of more than 90 social service agencies. Four communication networks were generated that allowed for the interorganizational analysis of communication maps with regard to client referrals, direct treatment/service delivery, planning/innovation and interpersonal relations. A preliminary causal model is tested; comprised of four interorganizational class variables: communication, interdependence, goal attainment and the environmental conditions. This model is then revised and expanded in an attempt to adequately describe the causal antecedents of interorganizational goal attainment. The final path-analytic model suggests new causal insights as well as areas for additional needed research.

Communication Network Analysis: A Computerized Tool
for Organization Development and the Analysis of
Large Social Systems

Presented to: International Conference on Applied
General Systems Research, State University of New York
at Binghamton, August 15-19, 1977

Communication networks consist of the regular pattern of communication contacts which develop among people within a social system as they use various forms of communication (face-to-face conversations, memoranda, telephone calls, etc.) to accomplish certain tasks and activities. Information regarding the functioning of the various types of human communication networks is important and can be used to understand the system's process flow of information and to assess its effectiveness and efficiency.

A formal algorithm for analyzing communication networks has been implemented in an extended FORTRAN program for the CDC 6500 computer. This algorithm can be realized on any large, general purpose machine, and it far surpasses any other similar analytic technique, that the author is aware of, in terms of utility, capacity, and efficiency.

The goals of network analysis are, (1) to detect and (2) to describe any structure at the dyadic, group or systems level of the network. The FORTRAN program provides additional information with regard to indices such as connectedness, integrativeness, etc. of individual nodes as well as entire groups for networks of up to nearly 5,000 people.

The paper describes a set of procedures for analyzing such communication networks in large systems. These include (1) identification and evaluation of various kinds of networks, (2) assessment of the organizational hierarchy, (3) appraisal of various parts within the system, and (4) evaluating the individual and group communication behavior. Lastly, some implications of communication network analysis in regards to its utilization for organizational development are presented.

... Abstracts, cont'd.

Anne Lennarson Greer and Arlene A. Zakhar
Urban Research Center, Univ. of Wisconsin, Milwaukee, Wisc. 53201, U.S.A.

Hospital Adoption of Medical Technology: A Preliminary
Investigation into Hospital Decision-Making
(Mimeo.)

This paper reports on a case study analysis of the process through which selected hospitals in the Milwaukee area have arrived at a decision to adopt or not to adopt new medical technologies. The focus is on capital acquisitions which allow the exploitation of changes in medical science by physicians. The adoption process is traced through examination of three medical procedures: computerized axial tomography (CAT), phacoemulsification, and cardiac surgery, all of which require hospital acquisition of equipment but which differ in major respects including physician specialty or specialties involved, cost, and involvement of the planning agency. Seventy lengthy interviews were conducted with physicians, with hospital administrators, and with representatives of other professions, associations and organizations which are interested in the purchase of equipment or the introduction of medical procedures into hospitals. These interviews sought to draw out the motivations of various actors involved in adoption decisions, the relationships existing among interested parties and the structure of the decision process. Also examined were characteristics of innovations relevant to adoption and economic and other contextual factors affecting the process. The report is organized around a discussion of the four hospital groups which emerged in the interviews as most important to adoption of medical technologies: community physicians, hospital-based physicians, hospital boards and hospital administrators.

(continued from page 38)

NETWORK NOTEBOOK

ASA Meetings

We were intending to list all the likely-looking sessions at the forthcoming American Sociological Association annual meetings, San Francisco, September 4-8, but found that we were listing the majority of the program. Good news indeed! Interested attendees should see the recent ASA Newsletters for details. The official deadline for paper submissions has passed, but late entries are often accepted.

Networks and Structures--Two More Definitions

(Steve Johnson, "Networks" from RAINBOOK: Resources for Appropriate Technology. New York: Schocken Books, 1977; p. 70).

"Networks of people have a common language, even a private language. You know you are in the middle of a network when (1) it feels like everybody knows everybody else (especially weird and nice when great leaps of time and geography exist between people), (2) when everything is related to everything else, (3) when there are an equal number of people that you know as there are people you know about, people that you know so well you refer to them in conversations like old familiar sweaters, (4) when you find out about things before you see them in print, (5) when you know, by some kind of double time mental calculations--within minutes, whether or not someone is part of your network, karass or karma."

(Ed.'s note: The RAINBOOK article is one of a common genre, which may be new to insulated academics. There is a whole bevy of people who have seized upon the term "Network" to describe non-organized, non-hierarchical groupings. (In my sarcastic moments, I call this "the Peace Corps meets DECwriter.") "The Networker's Creed," published in the last CONNECTIONS issue, reflects such sentiments. I fear that such statements are well-meaning but wrong-headed. They ignore the point that with differential structural location you have differential structural access to various scarce resources, and, given any sort of division of labour, you have to have differential structural access. I doubt that any sort of revolution will be made by proclaiming that networks are wonderful because they do away with established hierarchies; clearly, the task is to use our networks insights to create structures which make power controllable and accountable. Any other thoughts on this?)

A more academically 'traditional' discussion is to be found in Joel Levine and Nicholas Mullins' new paper, "Structuralist Analysis of Data in Sociology" (July, 1977; mimeo), from which we excerpt the following:)

The special problems of structural analysis derive from the type and attributes of the unit being analyzed and from pre-existing theoretical considerations. The unit of analysis is a relation, e.g., the kinship relation among persons, the communication among officers of an organization, the friendship within a small group. The interesting feature of a relation is usually its pattern, e.g., the logical

(Continued on page 64)

COURSE OUTLINE

SOCIOLOGY 475 Workshop in Network Analysis
(seminar; 26 weeks)

1977-78

Bonnie H. Erickson

Dept. of Sociology, Univ. of Toronto

The network field includes a wide variety of work stressing patterns of relationships and their sources and consequences. In this course we begin with some of the major features of personal networks, such as their effects on opinion formation and access to resources. To help learn and critique this material students will gather and analyze data on their own networks, presenting results and comments from time to time in class and writing a brief report at the end of the first term. Most of the course will be spent on overall network structure and its causes and consequences, with some emphasis on work and politics. A detailed outline, with suggested readings, is attached.

Students should buy one book of readings and one module:

- Social Networks: A Developing Paradigm.
Samuel Leinhardt, ed.; Academic
Press 1977.
"Social Networks" J.S. Barnes, Addison-
Wesley Module 26, 1972.

About 60% of the grade will be based on a final paper on any relevant topic agreed to by student and instructor; the other 40% of the grade will depend on seminar participation and reports on the students' own networks. Details of the network reports suggested, plus some ideas for paper topics, will be provided in class.

Several members of the department are doing network research and will give talks. The suggested readings may be modified.

Several members of the department will be invited to speak on their current network research.

1. Ego-centric networks

We will begin with ego-centric networks, or networks anchored on a given individual (ego); these networks include both ego's ties to his contacts and their ties to each other. We start here because ego-centric networks are relatively familiar ones with obvious importance, and because you will begin by studying your own ego-centric networks.

SN 16 (Bott)

Edward O. Laumann, Bonds of Pluralism; New York, Wiley. Chapters 1,2,5,6.

J.S. Barnes, Social Networks module.

Barnes gives a useful overview of many of the major network themes, with more social anthropological emphasis than this course will provide. Bott looks at a few networks in depth while Laumann looks at very restricted segments of a lot of networks. Together they introduce different research strategies and some basic themes: density, overlapping, and class differences in networks especially.

2. Culture as a dependent variable

Behaviour is often explained in terms of values, norms, attitudes, cognitions and so on; but networkers tend to emphasize these as dependent variables shaped by a person's social environment, by his network. The readings in section 1 will be discussed in this light along with:

Walter L. Wallace, Student Culture; Aldine, Chicago, 1966.

Berelson, Lazarsfeld, and McPhee, Voting; Chicago, 1954. Chapters 6 and 7.

Jackman and Jackman, "An interpretation of the relation between objective and subjective social status;" ASR 38: 569-582 (1973).

3. Networks as resources and access to resources

Networks provide access to many kinds of resources (jobs, information flow, deviant opportunities, innovations, political decision-makers, etc.); also they are resources themselves in the sense that the people in them can be mobilized.

... Course Outline, cont'd.

SN 8,12, and 17; optionally, 9
Mark Granovetter, Getting a Job

Erickson and Kringas, "The small world of politics", Canadian Review of Sociology and Anthropology 12 (1975): 585-593.

Nancy (Howell) Lee, The Search for an Abortionist.

3. Networks as resources and access to resources continued

Barry Wellman, a mimeographed paper on East York and urban nets

H. Taylor Buckner, "A theory of rumor transmission", Public Opinion Quarterly 29 (1965): 54-70.

Lorne Tepperman, "Deviance as a search process", Canadian Journal of Sociology 1 (1975): 277-294.

B. Erickson et al., "The flow of crisis information as a probe of work relations", (Mimeo.; Canadian Journal of Sociology, forthcoming.

B. Erickson, "Some problems of inference from chain data", mimeo 1976.

4. Access and inbreeding

The quality of access which ego's network provides obviously depends on the kind of people he knows, with diverse high status contacts being most advantageous on the whole; but quality of access also depends on the structure of ego's network, especially the inbreeding of ties. Stronger ties tend to be more inbred and hence "weaker" in giving access.

Optional (classic references):

Anatol Rapoport and William J. Horvath, "A Study of a Large Sociogram", Behavioral Science 6: 279-291.

Additional references, not required:

Caxton C. Foster et al., "A Study...II", Beh. Sci. 8: 56-65.

Caxton and Horvath, "A Study...II", Beh. Sci. 16: 429-435.

MUST READ: SN 19

5. Some sources of network features

Ego is clearly much affected by several aspects of his network: its size, composition, inbreeding and so on. Where do such features come from? We will review relevant aspects of reading cited above plus:

Gurevitch, M. The Social Structure of Acquaintance Networks. MIT dissertation, 1961.

Kasarda and Janowitz, "Community Attachments in Mass Society;" ASR 39: 328-39, 1974.

6. "Categorical" variables redefined.

Most sociology stresses categorical, or individual attribute, variables: age, education, class, attitudes and so on. Variables defined this way are easily researched but conceal essential network aspects of social reality. We will discuss several readings cited above and: SN 15

7. Bases of orderliness in networks: balance and local order

Here we shift from ego-centric networks to overall networks without anchoring on a specific individual; it is position in the structure of overall networks which is crucial for ego, and now we want to examine overall network structures and their bases.

One basis of order, especially applicable in friendship groups, is social psychological: some patterns, called "unbalanced," make people feel uncomfortable and hence tend to be rare and impermanent.

SN 1,2,3,5, and/or Chapter 4 from

Leik and Meeker, Mathematical Sociology.

SN 13, 20.

A useful reference on a common problem with this sort of data:

Paul Holland and Samuel Leinhardt, "The structural implication of measurement error in sociometry", Journal of Mathematical Sociology 3 (1973): 195-212.

... Course Outline, cont'd.

8. Bases of orderliness: roles, relationships, and culture.

Nadel makes a superb analysis of what can and cannot be done with the rules governing role performances and relationships. He raises the problem of relational order with great clarity, setting the agenda for a lot of later work. Not an easy read but really worth it.

S.F. Nadel, The Theory of Social Structure, 1957.

9. Macrostructural bases: urbanization

Barry Wellman, mimeo paper

Claude S. Fischer, "Toward a subcultural theory of Urbanism", AJS 80: 1319-1341, 1975.

10. Macrostructural bases of orderliness: the overall division of labour.

As modernization progresses (according to one popular view) patterns of relationships are profoundly affected by increasing specialization, differentiation, and urbanization.

Required:

Georg Simmel, "The web of group affiliations", in Kurt Wolff, ed., Conflict and the Web of Group Affiliations.

Optional:

Emile Durkheim, The Division of Labour.

11. Macrostructural bases: the organization of work

Work status, technology and so on have effects on formal and informal networks on the job and effects seem to spill over into networks off the job.

Rogers, Everett M. and Rekha Agarwala-Rogers, Communication in Organizations; Free Press, New York, 1976

Form, William. "Technology and social behaviour", ASR 37:727-738, 1972; also relevant are his articles in AJS 80 (1975) and ASR 38 (1973).

Vanneman, "The occupational composition of American classes", AJS 82: 783-807.

12. Network structure and ideology

However networks acquire structure, that structure is related to the homogeneity and articulation of opinions and attitudes of network members.

S.M. Lipset, Political Man, 1963; pp. 196-207 ("Access to information"). A useful short introduction to the older literature.

Karl Marx, The 18th Brumaire

Jo Freeman, "The origins of the women's liberation movement", AJS 78: 792-811, 1973.

Carl Sheingold, "Social networks and voting", ASR 38: 712-720, 1973.

Mark Granovetter, "Network Sampling", AJS 1976 (May).

13. Different types of ties

By now it should be very clear that different kinds of relationships have different processes and structures so we should begin to talk less broadly and think more about specific kinds of networks. We will especially stress work ties, kinship, neighbouring and friendship.

SN 11, 18; 7

Jack Goody, ed., The Character of Kinship, section on "Nature of kinship"

Elliot Layton, ed., The Compact: Selected Dimensions of Friendship. Newfoundland Social and Economic Papers no. 3, 1974

14. How different types of ties fit together

Here we return in large part to major questions raised by Nadel. Different types of ties all exist at once and somehow fit together; how can we analyze this, how does it work?

Harrison C. White et al., "Social structure from multiple networks. I," American Journal of Sociology 81 (1976):730-780.

S.A. Boorman and H.C. White, "Social Structure...II", American Journal of Sociology (1976).

... Course Outline, cont'd.

15. Elite structures

This topic goes back to our earlier readings on networks and class, and also to section 13 and 14 since the possible connections between various links (e.g. corporate interlocks and "social" ties) is a recurrent issue here.

SN 23, 24

Barton and Kadushin (eds.) Opinion-Making Elites in Yugoslavia

Berkowitz, The Dynamics of Elite Structure, Chapter 3; a mimeo of part of a Brandeis Ph.D. dissertation.

Wallace Clement, The Canadian Corporate Elite

Charles Kadushin, "Power, Influence, and Social Circles", American Sociological Review 33 (1968): 685-699.

16. Ethnic "groups"

People in an ethnic category may or may not be a group; here we consider interpersonal ties in ethnic groups and the connection between such ties and work.

Grace Anderson, Networks of Contact: the Portuguese and Toronto, Wilfred Laurier, 1974.

Raymond Breton, "Institutional completeness and ethnic communities and the personal relations of immigrants", American Journal of Sociology 70 (1964):193-205.

Abner Cohen, "The lesson of ethnicity", from A. Cohen, ed., Urban Ethnicity, London, Tavistock, 1974.

Leo Driedger, "In search of cultural identity factors: a comparison of ethnic students", Canadian Review of Sociology and Anthropology 12 (1975): 150-162 (has many further references to earlier material).

C. Korte and S. Milgram, "Acquaintance networks between racial groups", Journal of Personality and Social Psychology 15 (1970): 101-108.

17. Secret Societies

Georg Simmel, "The secret and the secret society", from Kurt H. Wolff, ed., The Sociology of Georg Simmel, Free Press 1950.

Bonnie Erickson, "Secret Societies and Social Structure: Extensions to Simmel". Mimeo.

(continued from page 60)

NETWORK NOTEBOOK

consistency of a set of kin rules, the circularity of hierarchy of communication, the cliquishness of friendship. These fundamental definitions prevent structuralists from adopting measurement techniques or methodologies available to other sociologists (e.g., you cannot interview a friendship). A structuralist may ask whether and to what degree friendship is transitive or clustered. Simply defining such terms as "degree of transitivity" has proven difficult.

Structuralism in general and the methodological solutions to its peculiar problems have important theoretical implications because a structural analysis requires a shift in the units of analysis, the properties of units, and the rules of combination from those of more traditional sociological theory. Structuralists abstract sets of interactions, relations, bonds, ties and so forth between persons organizations, or collectivities. The rules for combining properties are syntactical rules. Finally, the structuralist intent is to construct generative explanations. The composition of the structure is explainable in terms of the set of rules by which it could be constructed, just as the composition of linguistic utterances might be explained by a generative grammar and an automaton that could have uttered them.

Call for Information on Social Network Mapping as an Action/Research Technique

For the past couple of years, we have been exploring the utility of mapping or charting social networks as an action/research technique. Our approach has been to include "network mapping" in a variety of workshops on natural support systems. We have given participants instructions for charting their social networks which allow them to represent closeness between network members and themselves, the connections and intensity of relationships among network members, the extent of connections between various "sectors" of their network, and recent or expected movement of network members toward or away from them. The technique has been used in forms which variously emphasized usefulness of the data to the participants, suitability of the data for systematic research (e.g., using matrix approaches rather than mapping), and attempts to combine general mapping with research-oriented in-depth interviewing. I am now at a point where I would like to review various approaches to collecting network data for

(Continued on page 65)

...Network Notebook cont'd

research purposes which are simultaneously understandable and useful to the respondent. My objective would be to compare existing approaches, summarize the methodological issues for action and research, and attempt to derive procedures which maximize the action and research value of data collection. Hopefully, some dialog around this issue could result in a relatively standardized approach which would enhance the comparability of studies conducted in different places and with different emphases. For example, I have recently seen a network mapping format developed by Carolyn Attneave which has many similarities to the approach we have been using, and some interesting differences. I invite other investigators who have been working in this area to send me whatever information you can provide about your work. In return, I will send you the materials we have been working with, as well as a draft of a review statement for your comment when it is completed. I would also welcome comments from others working with network methodology about research issues which ought to be addressed in the development of an action/research approach. Send materials or comments to: David M. Todd, Department of Psychology, University of Massachusetts, Amherst, Massachusetts 01003, USA.

A Proposal for a Network-Based Data Clearinghouse

Francis Sim (Dept of Sociology, Pennsylvania State University, University Park, Penna 16802, USA) has suggested the establishment of a "'clearinghouse' to put researchers in contact with others for assistance in gathering data." An available paper from Sims ("Small Group Research: Parceling Work and Sharing Facilities") "uses research in small group laboratories as the vehicle for presentation, but I believe that it might have some possibilities in the area of network analysis, especially since the cost of acquiring each case (i.e., whole net) is so high and sampling is so difficult. Professor (Michael P.) Johnson and I would be interested in discussing the idea with others."

Legal Links?

INSNA needs a lawyer so that it can look into the possibility of formally incorporating itself, in order to spare the present Coordinator from financial and legal liability problems. However, as almost all of our dues are spent on the direct costs of publishing the Newsletter, we cannot afford to hire a lawyer. Are there any lawyers in our midst willing to do the work gratis? Does anyone have a strong tie to a lawyer that they could mobilize on our behalf? If possible, given our international status, incorporation such as Liechtenstein or the Cayman Islands would be best? If this is not feasible, we will settle for Canadian incorporation.

Network Directory

This issue contains Directory listings for over 75 new members, plus some changes to the original Directory (1,1). It is located at the back of the issue. A wholly-new Directory will be in the August 1978 issue.

We want to give particular thanks to Peter Carrington, Assistant Coordinator, who has written a powerful computer program to maintain our Directory and mailing list. You will note that it can provide sorted lists according to members' country, disciplinary affiliation and keyword identifiers. These parameters can be used to provide lists and mailing labels for any subset of members. We are happy to provide access to this computerized directory to members. However, as the list cannot operate in a READ ONLY mode now, we ask that you request Peter to do it for you, paying him a modest service charge for his time. Address: Dept. of Sociology, Univ. of Toronto, Toronto, Ontario, Canada M5S 1A1; 519-833-9523.

Network of Networkers

All the members listed in our first Directory received a Network of Networkers questionnaire. One hundred completed it; seventy-five have not. The usefulness of this data very much depends on the completeness of the response rate. If you received a questionnaire and did not return it, please do so now. If you have lost your copy, write INSNA for a duplicate.

These data are available to all members for analysis on a non-exclusive basis. Nan Lin has already agreed to do one analysis.

Suggested Motto

"You scratch my back and I'll scratch theirs."

Suggested Slogans

"Don't take any wooden block models!"

"Be the first in your network to have your own block!"

(Continued on page 66)

...Network Notebook cont'd

Inter Organisational Relations

A new Newsletter (apparently free) is available to those "concerned with Inter Organisational Relations in providing community services." It's called LINKAGE. Write IOR, Tavistock Institute of Human Relations, Belsize Lane, London NW3 5BA, England.

Structural Criticism

"Urban sociology professors are confounding because their brains are sparsely knit, but narrowly defined, ramified networks that are dense, tightly bounded solidarities, which is to say their brains are scrambled." (Letter to the Editor, University of Toronto student newspaper, October 5, 1977).

DIRECTORY CHANGES

Temporary Sabbatical Addresses:

Harriet Friedmann, 197 Huntingdon Rd., Cambridge CB3 0DL, England

Nancy Howell, Quantitative Anthropology Laboratory, 220 Piedmont Ave., University of California, Berkeley, Ca. 94720, USA

Charles Tilly, Centre de Recherches Historiques, 54 Boulevard Raspail, 75006 Paris, France

Christopher Pickvance, Dept. of Sociology, Erindale College, Univ. of Toronto, Mississauga, Ontario, Canada L5L 1C6; tel. 416-828-5395

Other Changes:

J.A. Barnes' current disciplinary affiliation is sociology

Mitchell Pravatiner's correct zipcode is 60680. His correct telephone number is 312-996-3015

Thomas Koenig's new address is: Department of Sociology, Northeastern University, Boston, Mass, USA

NEW DIRECTORY LISTINGS

Ruth H. Allen
2398 Cloudcroft Sq.
Reston, Virginia 22091
U.S.A.
(703) 860-3942
Environmental Studies
friendship, inter-organizational
kinship
methods
Functions and consequences
of cohesive social networks
in children at camp, inter-
organizational study of
networks doing regional
water quality planning
173 B78

Sheila A. Ames
954 N. W. Sycamore, Apt. 7
Corvallis, Oregon 97330
U.S.A.
(503) 753-9289
Family Life, Gerontology
exchange systems, kinship
support, inter-generational
gerontology, children
Looking at how 3-generational
families living together handle
life changes and the stress
entailed in these changes.
174 B78

Robin P. Armstrong
Dept. of Geography
University of Guelph
Guelph, Ontario
Canada
(519) 824-4120, ext. 2176
Geography
community, phenomenology
Measurement of social inter-
action. Delineation of net-
work groups from sampled
data; taxonomic problems
network characteristics of
community vs. non-community
networks
175 B78

Andrew Baines
Principal
New College
University of Toronto
Toronto, Ontario
Canada
(416) 978-2461
Chemistry
co-sponsor of "New Directions

In Structural Analysis" con-
ference
176 B78

David C. Bell
Dept. of Sociology
University of Houston
Houston, Texas 77004
U.S.A.
(713) 749-4976
Sociology
elites, inter-organizational
political, authority flows
macro-structure
Investigating links between
and among economic and
political sectors. Links include
directorates, campaign contribu-
tions, investment and employment.
Nodes are corporate actors and
persons
177 B78

Dale A. Blyth
Boys Town Center for the Study
of Youth Development
Boys Town, Nebraska 68010
U.S.A.
(402) 498-1480
Sociology
organizational, children
inter-generational
Analysis of the social networks
of early adolescents in two
urban neighborhoods. Two year
project focuses on the changing
composition. Complexity, and
interconnectedness of children's
social networks as they make the
transition into early adolescence.
Emphasis on the impact of physical
development, dating behavior, extra-
curricular participation, independence
and school structures on the social
networks of this age group
178 B78

James Bohland
Dept. of Geography
University of Oklahoma
Norman, Oklahoma 73019
U.S.A.
(405) 325-5325
Geography
migration, mental health
ethnicity, community
Interested in the way in which
informal help networks help

urban immigrants cope with the urban environment, particularly in the case of American Indians. Also interested in the general question of psychological well-being and how help networks contribute to improved well-being.
179 B78

Elise Boulding
Institute of Behavioral Science
University of Colorado
Boulder, Colorado 80309
U.S.A.
(303) 492-8147
Sociology
ethnicity, inter-organizational kinship, technological impacts
Use of networks for self-help within families and ethnic groups; interlinkage of appropriate technology and peace and world order networks
180 B78

Ray Bradley
Dept. of Sociology
1114 Social Science Tower
University of Minnesota
Minneapolis, Minnesota 55455
U.S.A.
Sociology
community, religion
1) The identification of multiplex structural properties of relationships among the members of charismatic communes in six American cities.
2) Longterm goal is the development of a relational theory of social structure
258 B78

Ronald L. Breiger
Dept. of Sociology
Harvard University
Cambridge, Ma. 02138
U.S.A.
(617) 495-3898
Sociology
community, elites
exchange systems, friendship
information flows
macro-structure, methods
phenomenology, political
Community elites; economic interdependence among nations
network structure of self analytic groups; stability

of joint homomorphisms
181 B78

David Bunting
Dept. of Economics
Eastern Washington University
Cheney, Washington 99004
U.S.A.
(509) 359-7947
Economics
elites, inter-organizational political, macro-structure
research is generally focused on the development and nature of large US corporations before 1920, with occasional comparison to present day practices. Reprint of series "Corporate Interlocking" (money trust, modern money trust economic effects, prohibitions remedies) available for limited distribution. Currently examining Big Business interlocking before the 1898-1901 Trust Movement with respect to the development and existence of a "capitalistic" elite as well as the origins of corporate ownership and control separation
182 B78

Philip H., Jr. Burch
Bureau of Government Research
Rutgers University
New Brunswick, N.J. 08903
U.S.A.
Political Science
183 B78

Jairo Cano
1618-G Spartan Village
East Lansing, Michigan 48823
U.S.A.
authority flows, community dynamic changes, educational elites, exchange systems
friendship, information flows
inter-organizational, macro-structure
technological impacts
I am starting my Ph.D dissertation at Michigan State University about communication structures and processes in networks of agricultural researchers in latin America. In Colombia I had (the last seven years) responsibilities about training, conferences (planning and evaluating), documentation centers and follow-up for

networks of researchers and production specialists working in latin American countries with beans, cassavo, rice corn and beef production
184 B78

Donald Coates
6765 Dufferin Ave
West Vancouver B.C.
Canada
Community and Social Psychiatry
community, health, mental health support
East York Study, personal support systems and mental health support systems and personal helpseeking patterns
185 B78

Moncrieff Cochran
Room G-29 MVR
College of Human Ecology
Cornell University
Ithaca, New York 14853
U.S.A.
(607) 256-7610
Sociology
kinship, community
Co-directing large research project with U. Bronfenbrenner - "The Ecology of Human Development". Will gather partial network data from 320 families on annual schedule over 5 years, beginning with baseline in Sept., 1978
259 B78

James Danowski
Annenberg School of Communications
University of Southern California
Los Angeles, Ca. 90007
U.S.A.
(213) 741-7413
Communication Science
information flows, organizational community, friendship
inter-organizational
Research on the predictors of and effects of communication network structuration in organizations and communities, and on relationships between friendship networks and uses of the mass media
186 B78

James P. Dillard
Communication Program

Arizona State University
Tempe, Az. 85281
U.S.A.
(602) 965-4797
Communication Science
information flows, organizational
Transitivity in interpersonal networks
187 B78

Richard M. Emerson
Department of Sociology
University of Washington
Seattle, Wash. 98195
U.S.A.
(206) 543-5882
Sociology
exchange systems, political methods, authority flows
exchange networks and power there-in, studied both in laboratory and field/historical research in south Asia
188 B78

William M. Evan
Dept. of Sociology
University of Pennsylvania
442 McNeil Cr.
Philadelphia, Pa.
U.S.A.
Sociology, Management Studies
inter-organizational
macro-structure
organizational
Inter-organizational networks among hospitals
189 B78

Robert R. Faulkner
Dept. of Sociology
University of Massachusetts
Amherst, Ma. 01002
U.S.A.
(413) 256-8624
Sociology
inter-organizational
occupational, methods
information flows
Using archival records, all motion picture films released since 1964 allow determinations of producers' choices and actual work selections of Hollywood film composers. 1380 films yield 440 composers and 880 producers. This is a study of market structures in the film industry through a

detailed, empirical network approach mapping of the selections is in progress. This involves the development of a matrix to handle mxn. producer x composer data. The structure of ties and interlocks suggests that the film industry is four tiered--a highly active "center" made up of the top filmmakers and composers. Fifty interviews with the composers suggests that the interlocks are responses to uncertainty in a precarious market environment. Network and interview data thus enrich each other
190 B78

Gary A. Fine
Dept. of Sociology
University of Minnesota
Minneapolis, Minnesota 55455
U.S.A.
(612) 376-1591
Sociology
phenomenology, inter-organizational attempting to integrate network analysis with symbolic interaction and qualitative sociology. It is important to understand what is being communicated through network channels and how that communication becomes transformed. My current research deals with little league baseball leagues - viewed by means of participant observation and sociometric questionnaires
191 B78

Frederick W. Frey
Political Science Dept.
Ezo Dietrich Hall
University of Pennsylvania
Philadelphia, Pennsylvania 19104
U.S.A.
(215) 243-7654
Political Science, Sociology
Psychology
authority flows, elites methods, political
Power, communication and related structures. Large scale sociometric analysis
We have tried to discern the major dimensions of social structures, develop rigorous formulations of each and develop computer processing programs

for each, assuming appropriate matrix data
192 B78

James Garbarino
Boys Town Center for the Study of Youth Development
11414 West Center Road
Omaha, Nebraska 68144
U.S.A.
(402) 334-9505
Sociology
inter-generational, children mental health
Research on the role of networks 1) as a mediating factor in child abuse and neglect; and 2) as a resource for youth making the transition from childhood to adolescence
193 B78

Gerald M. Goldhaber
48 Jamstead Ct.
Williamsville, New York 14221
U.S.A.
(716) 634-9254
Communication Science
authority flows, educational information flows, macro-structure methods, occupational, organizational technological impacts
director of the international communication association's communication audit project
1 of our 5 instruments which we use in our "communication audits" of large corporations is network analysis. we use NEGOPY and NET PLOT (a new program) to analyse our data and feedback same to clients
194 B78

Michael Gordon
Dept. of Sociology
University of Connecticut
Storrs, Connecticut 06268
U.S.A.
(203) 486-3985
Sociology
kinship, community
Research on Bott hypothesis related issues in urban Irish context
196 B78

Georges Gueron
Fondation Internationale de
l'Innovation Sociale
20, rue Laffitte
75009 Paris
France
770 91 44
technological impacts
consultant (conseiller de
synthese)
president du centre d'etude des
consequences generales des
grandes techniques nouvelles (CTN)
president de la fondation inter-
nationale de l'innovation sociale
195 B78

Frank Harary
Research Center for Group
Dynamics
Institute for Social Research
The University of Michigan
Ann Arbor, Michigan 48106
U.S.A.
(313) 764-8362
Sociology
methods
Research in abstract graph
theory with applicability to
social networks
197 B78

J. David Hawkins
University of Washington
Seattle, Washington 98195
U.S.A.
(206) 543-1460, (206) 522-4844
Sociology
community, friendship, support
Social networks of drug abusers,
social networks and supports of
low income families
198 B78

Gerd-Michael Hellstem
Adolfstrasse 8
1 Berlin 41
West Germany
Sociology
community, political
Community Decision Making
Networks
199 B78

Lewellyn Hendrix
Dept. of Sociology
Southern Illinois University

Carbondale, Illinois 62901
U.S.A.
(618) 453-2494
Sociology
migration, community
Study of social networks and
integration of Ozark out-
migrants; study of social
networks and community satis-
faction in southern Illinois
200 B78

Robert H. Hingers
University of Kansas
Dept. of Sociology
725 Fraser Hall
Lawrence, Kansas 66045
U.S.A.
864-5239
Sociology
methods, phenomenology
Theory Construction re
ideology and social structure;
laboratory models
201 B78

John Jordan
The Co-operators
Priory Square
Guelph, Ontario N1H 6P8
Canada
(519) 824-4400
Planning
information flows
inter-organizational
macro-structure, methods
organizational, support
Working on networks in the
Canadian cooperative system,
networks in organizational
change and inter-organizational
planning and management for
complex and turbulent environ-
ments
202 B78

Stan Kaplowitz
Dept. of Sociology
Michigan State University
East Lansing, Michigan
U.S.A.
(517) 332-8163
Sociology
elites, political
None directly - but am
studying power by seeing how
closely public policy conforms
to the desires of various groups

204 B78

Peter Kappelhoff
Institut fuer Sociologie
Universitaet Wien
Alserstrasse 33
A-1080 Wien
Austria
424402 (222)
Sociology
methods
inter-organizational
Models of network analysis
panel analysis of sentiment
relations networks of inter-
organizational relations
203 B78

Gosta Karlsson
Dept. of Statistics
University of Lund
S-22005 Lund
Sweden
Statistics
methods
Statistical inference in graphs.
Network models and methods
205 B78

James G. Kelly
School of Community Service and
Public Affairs
University of Oregon
Eugene, Oregon 97403
U.S.A.
Social Work
support
I am developing research on social support
systems from an ecological point of view
206 B78

Jerrald D. Krause
Humboldt State University
Arcata, California 95521
U.S.A.
(707) 826-4342
Sociology
political, community
I have accumulated about 400 community
affiliation interviews randomly selected
from 12 neighborhoods in Arcata. In-
cluded are measures of town and
neighborhood attachment, local
organization participation, local
leader knowledge, local issue
knowledge and effective network
connectedness. Analysis through one and

two-way ANOVA as well as factor analysis
is being done
207 B78

Camille, Jr. Lambert
Faculty of Social Work
University of Toronto
246 Bloor St. West
Toronto, Ontario M5S 1A1
Canada
(416) 978-4176
Social Work, Sociology
community, exchange systems, friendship
information flows, inter-organizational
kinship, support
Coordinating development of series
of Faculty projects related to inter-
face between natural helping net
works and social service delivery
system
208 B78

Nancy Langton
Dept. of Social Relations
Price Hall No. 40
Lehigh University
Bethlehem, Pennsylvania 18015
U.S.A.
(215) 691-7000, ext. 462
Sociology
phenomenology, methods
Sociology of knowledge of Bavelas
Leavitt experiments; applied net-
working; networks as a way of solving
social problems
209 B78

Richard Leavy
Dept. of Psychology
St. Mary's College
Notre Dame, Indiana 46556
U.S.A.
(219) 284-4019
Psychology
community, educational, friendship
mental health, support
Research with college freshmen to
discover patterns in the process of
support network-building. Relationship
between support system development and
coping with the challenge of the first
year away from home. Also involves
variables which facilitate and inhibit
support system development: personality
environmental, and organizational
factors
210 B78

Richard H. Lesniak
Survey Research Center
4230 Ridge Lea Rd.
Amherst, New York 14226
U.S.A.
(716) 831-1675
Communication Science
information flows, methods
organizational
Development of a Graphics package
to aid in communication Network
Analysis to be implemented on both
a Line Plotter and GRAPHICS
TERMINAL or Mini-Micro Computer
Graphics screen. Routines to in-
clude a formal organization over-
view, prototype Sociograms and
functional Unit Analysis
211 B78

Michael M. Loukinen
Sociology Department
Northern Michigan University
Marquette, Michigan 49855
U.S.A.
(906) 227-2707
Sociology
support, exchange systems
dynamic changes, inter-generational
Life stages and support networks;
network structures generating
altruistic and self interest exchange
behavioral strategies; social change
and the transformation of exchange
networks
212 B78

Tim Mabee
Dept. of Communication
Michigan State University
East Lansing, Michigan 48824
U.S.A.
(517) 353-3789
Communication Science
dynamic changes, information flows
inter-organizational, methods
organizational, teaching
(a) Consulting on state project to
evaluate communication and
coordination among health care
organizations. (b) Co-teaching a
graduate seminar on networks. (c)
Preparing a chapter: "Comm. Net-
work Analysis Methods" for forth-
coming book (Academy Press, Monge
& Cappella, eds.) with R.V. Farace
213 B78

Peter Mariolis
Department of Sociology
University of Tennessee
Knoxville, Tennessee 37916
U.S.A.
(615) 974-2153
Sociology
elites, inter-organizational
methods
Interlocking directorates among
large U.S. corporations. Frame-
work for analyzing overlapping
group memberships
214 B78

Charles E. Marske
St. Louis University
221 No. Grand Blvd.
St. Louis, Missouri 63103
U.S.A.
(314) 535-3300, ext. 519
Sociology
community, exchange systems
friendship
Working on an analysis of social
solidarity and social structure
among the Tristan Da Cunha Islanders
by investigating the complex pattern
of selective but overlapping and
interlocking relationships that
forms the basis of this atomistic
community
215 B78

J. Hunter Mica
4010 Windsor St. Apt. 1
Pittsburgh, Pennsylvania 15217
U.S.A.
(412) 521-6556
Sociology
methods, occupational
dynamic changes, organizational
information flows
I am currently completing a pre-
dissertation paper on the social
structure of scientific research
groups. In it I am attempting to
construct block models of such
groups based upon co-authorship and
citation ties. My general interest
is in the possibilities for using
block models based upon public
(co-authorship, citation) and
informal ties to trace the develop-
ment and decay of the social
structure of such groups which is
thought to be concomitant with their
cognitive development. I am also
interested in the informal network

structure of Research organizations
216 B78

Karen L. Michaelson
Dept. of Anthropology
SUNY-Binghamton
Binghamton, New York 13901
U.S.A.
(607) 798-2737
Anthropology
217 B78

Vessiere Michel
European University Institute
Badia Fiesolana
Via Del Roccettini
50016 S. Domenico Di Fiesole
Italy
(055) 477-931, ext. 275
inter-organizational, elites
macro-structure
Crossnational network analysis
(interlocking directorates between
corporations and government in
Belgium and in the Netherlands)
218 B78

Jon Miller
Department of Sociology
University of Southern California
Los Angeles, California 91001
U.S.A.
(213) 741-2658
Sociology
organizational
inter-organizational
occupational
(1) Intra- and Inter-organizational
networks in a national criminal
justice service delivery system;
(2) Sociometric analysis of five
semi-professional organizations
219 B78

Robert J. Mokken
Institute for Political Science
University of Amsterdam
Herengracht 528
Amsterdam
Netherlands
(020) 5252089
Political Science
inter-organizational, elites
methods, political
macro-structure
Methodological developments and
research (some papers): applications

in empirical research: legislative
analysis, interlocking networks in
the corporate structure and govern-
ment (various papers, one book in
Dutch, one book in English in prepara-
tion); participation in software,
development (more specifically develop-
ment of standard package for general
use)
220 B78

Peter R. Monge
Department of Communication
Michigan State University
East Lansing, Michigan 48824
U.S.A.
(517) 355-6567
Communication Science
dynamic changes
information flows
inter-organizational
macro-structure, methods
organizational
technological impacts
Research supported by the U.S.
Office of Naval Research on the
determinants of communication
structure in large organizations;
research on location of informa-
tion processing organizations;
reviews of networks research in large
organizations; teaching a graduate
seminar in network analysis
221 B78

Gwen Moore
Dept. of Sociology
323 Uris Hall
Cornell University
Ithaca, New York 14853
U.S.A.
(607) 256-4266
Sociology
elites
Studies of national elite net-
works in U.S.A. and Australia
222 B78

David L. Morgan
Dept. of Sociology
Ballentine Hall
Indiana University
Bloomington, Indiana 47401
U.S.A.
(812) 334-2703
Sociology
community, methods
dynamic changes, gerontology

(1) Continuing work from dissertation which uses network data collected over time in an old age home to speak to issues of community life; (2) Use of block models to examine group structure in some experimental data; (3) Theoretical work on categories of contacts in large populations
223 B78

Michael M. Morris
Center for Individual Education
Saratoga Springs, New York 12866
U.S.A.

(518) 587-2100
Psychology, Education
community, dynamic changes
educational, health
inter-organizational
political
Coordination for a network of eight institutions (and their individual representatives) which is primarily concerned with non-traditional higher education, national networks on rural/small town problems and alternative health care programs, facilitator for the creation of personal networks at several workshops and conferences, concerned with integrating theory into practice and developing programs which help individuals/citizens understand how to be more intentional about building and maintaining networks for political, economic, and social change
224 B78

W. Lawrence Neumann
Dept. of Sociology
University of Wisconsin
Madison
Wisconsin 53706
U.S.A.

(608) 263-3887
Sociology
inter-organizational, elites
political
Corporate, political interlocks
225 B78

Joanne M. Nigg
Institute for Social Science
Research, UCLA
405 Hilgard
Los Angeles, California 90024
U.S.A.

(213) 825-0711
Sociology
community, friendship
information flows, kinship
phenomenology, political
recruitment
Currently engaged in dissertation research, part of which focuses on the pre-existing, informal and formal networks in various Southern California communities and their relationship to recently emerging grass roots groups/organizations
226 B78

Franz Urban Pappi
c/o Zuma
B2, 1
D-68 Mannheim
West Germany
(0621) 12003
Sociology
community, political, elites
inter-organizational
Research in community power structures and decision making, network approach in community sociology
227 B78

E. Mansell Pattison
Dept. of Psychiatry and Human
Behavior
University of California, Irvine
101 S.O. The City Drive
Orange, California 92668
U.S.A.
(714) 634-6027
Psychiatry
mental health
support
Research on networks vis-a-vis mental health diagnostic categories
228 B78

Mitchell A. Pravatiner
Dept. of Sociology
University of Illinois at Chicago
Circle
Box 4348
Chicago, Illinois
U.S.A.
(312) 996-5375
community, ethnicity
Dissertation research on social work patterns as indicators of the effect of urban milieu on social integration
229 B78

Stephen Radecki
255 Church Lane
Los Angeles, California 90049
U.S.A.

(213) 472-8057
Sociology
community, friendship
occupational
Ph.D. dissertation (in progress)
employs a sample survey to examine
the relationship between the
cohesiveness of individuals' primary
social networks and their ability
to relate to individual social
mobility and the concept of an
occupational "career". The study is
based in part on Herbert Gans'
THE URBAN VILLAGERS
230 B78

Anatol Rappoport
Institute of Advanced Studies
56 Stumpergasse
Vienna 1060
Austria
Mathematics, Psychology
Biology
231 B78

R. J. Richardson
67 Colin Avenue
Toronto, Ontario M5P 2C1
Canada
(416) 489-8113
Sociology
elites, information flows
inter-organizational
macro-structure, occupational
organizational
260 B78

Stephanie Riger
Dept. of Psychology
Lake Forest College
Lake Forest, Illinois 60045
U.S.A.
(312) 234-3100
Psychology
community, ethnicity, methods
organizational
sex differences
Co-principal investigator of NIMH
Grant, investigating the impact
of the fear of rape and other
crimes on the lives of women and
men in urban communities. Includes
investigation of the relationship
among social networks, fear levels,

and precautionary strategies to prevent
victimization
232 B78

Douglas Roeder
Social Relations Department
Price Hall
Lehigh University
Penna 18015
U.S.A.
(215) 691-7000, ext. 462
Sociology
methods, information flows
Centrality in social networks; structural
effects on small group communication
patterns
233 B78

Richard C. Roistacher
Center For Advanced Computation
University of Illinois
Urbana, Illinois 61801
U.S.A.
(217) 333-7164
Psychology
inter-organizational
dynamic changes, phenomenology
technological impacts
Sociology of Computer Network based
organizations. Setting up and
studying network linked groups as
criminal justice researchers
234 B78

Bonnie Rose
788 Dovercourt Road
Toronto, Ontario
Canada
(416) 537-9496
Sociology
authority flows, information flows
inter-organizational, organizational
Research in organizational
Networks between and within co-
operative and public organizations
261 B78

William G. Roy
Dept. of Sociology
UCLA
Los Angeles, California 90024
U.S.A.
(213) 825-3633
Sociology
dynamic changes, elites
macro-structure, political
Interlocking Directorates of major

U.S. corporations 1886-1905
and other organizational affiliations
of a sample of same directors
235 B78

Uri Rueveni
Eastern PA. Psychiatric Institute
Henry Avenue and Abbotsford Road
Philadelphia, Pennsylvania 19129
U.S.A.
(215) 842-4200
Psychiatry
friendship, mental health
support
Training clinical teams in family
and social network intervention
methods and strategies. Conducts
family network sessions with
families in emotional crisis. In
a forthcoming book published by
Human Sciences Press N.Y.C., titled
"Networking Families In Crisis", I
discuss the conceptual-theoretical
and clinical application of mobilizing
support networks for families in
crisis
236 B78

Jeffrey Colman Salloway
School of Basic Medical Sciences
University of Illinois
Urbana, Illinois 61801
U.S.A.
(217) 333-0440
Sociology
health, mental health
support, organizational
Role of Social Networks in Health
care Utilization
237 B78

Samuel F. Sampson
Department of Sociology
University of Vermont
31 S. Prospect Street
Burlington, Vermont 05401
U.S.A.
(802) 864-6751
Sociology
community, dynamic changes
political
The development of a general frame
of reference for the identification
and analysis of transformational
patterns and process outcomes of
social networks of differing
relationship forms and structural
properties. The analysis of

community network penetration as a
predictor of electoral outcomes in
a local-level election study.
238 B78

Richard K. Sellers
100 Robie Avenue
Buffalo, New York
U.S.A.
835-2567
Anthropology
community, dynamic changes
ethnicity, exchange systems
friendship, kinship
macro-structure, methods
occupational, organizational
political, recruitment, religion
support
Research in mathematical net theory,
and the use of Social Network
models in my field-work in
Buffalo, New York with Gospel and
Polka musicians
239 B78

Ben Zion Shapiro
Faculty of Social Work
University of Toronto
246 Bloor Street West
Toronto, Ontario
Canada
(416) 978-3268
Social Work
phenomenology, support
Study of the meaning of help in
natural and constructed helping
networks with a cross-cultural
division
240 B78

Laurence H. Shoup
1464 La Playa No. 105
San Francisco, California 94122
U.S.A.
(415-564-2219
History, Sociology
elites, political
A study of the elite network
which backed Jimmy Carter's
campaign for President
241 B78

Fremont A. Shull
Department of Management
College of Business Administration
University of Georgia
Athens, Georgia 30602

U.S.A.
(404) 541294
Management Studies, Sociology
dynamic changes, health
information flows
organizational
Inter-sending communications. Dis-
criminating, mutation, learning
evocation. Cross-cultural
commonalities in managerial
attitudes. Cultural sequencing
of symbolic aspirations
242 B78

Karen Li Simpkins
Dept. of Sociology and Anthropology
Marshall University
Huntington, West Virginia 25701
U.S.A.
(304) 696-6700
Anthropology
authority flows, ethnicity
inter-organizational, kinship
phenomenology, political
religion
Analysis of a local-level
religious confederation of
congregations in Appalachia which
exists outside a national denomina-
tional framework concentrating upon
dispute resolution
243 B78

Paul B. Slater
Regional Research Institute
West Virginia University
Morgantown, West Virginia
U.S.A.
(309) 292-2896
Regional Science, Mathematics
methods, migration
The structuring of transaction flow
tables - particularly internal
migration tables - with the use of
various clustering procedures. These
methods employ directed-graph theory
and maximum flow algorithms
244 B78

Ted C. Smith
Dept. of Sociology
303 Soc. Beh. Sci. Bldg.
University of Utah
Salt Lake City, Utah 84112
U.S.A.
(801) 581-7876
Sociology
community

inter-organizational
organizational
Community, inter-organizational
and associational networks, research
on network effects and capacities in
emerging new communities at develop-
ment sites; network characteristics
and effects of local settings
245 B78

Wolfgang Sodeur
Ostlandstrasse 72
D-5000 Cologne 40
West Germany
(02234) 71357
Sociology
authority flows, dynamic changes
information flows
Development of social networks;
information and influence processes
within social networks
246 B78

Michael Soref
Department of Sociology
University of Wis.-Madison
Madison, Wisconsin 53706
U.S.A.
(608) 262-4541
Sociology
elites, political
inter-organizational
macro-structure
Currently working on dissertation
dealing with the differentiation
of the monopoly segment of the
American capitalist class--am
studying it through corporate
interlocks
247 B78

Ross V. Speck, M.D.
120 Kenilworth Street
Philadelphia, Pennsylvania 19147
U.S.A.
(215) WA3 9399
Psychiatry
friendship, health
mental health, support
Social network intervention
network therapy, family networks,
psychoanalysis.
Senior author, Family Networks
(Vintage books, N.Y., 1974).
248 B78

Lois S. Steinberg

424 Melrose Street
Chicago, Illinois 60657
U.S.A.

(312) 871-8784

Sociology

community, educational
ethnicity, inter-organizational
migration, political, support
Completing Ph.D. thesis. Theoretical
Issue: Role of federal and state
educational policy in develop-
ment of multi-level political
networks. Substantive issue:
the implementation of federal
bilingual education policy by
Puerto Rican community in New York
City. Employment: Designs for
Change; Research Assoc. Study
of school-related advocacy groups
(Carnegie Corp. funded). Am looking
for methods for studying multi
level networks (primarily political)
249 B78

F. N. Stokman

Sociologisch Instituut
Oude Boteringestraat 23
9712 GC Groningen

Netherlands
(050) 117618

Political Science

political, methods
inter-organizational, elites
Empirical network analysis in the
field of interlocking directorates
among large corporations in The
Netherlands (together with Mokken),
and group formation in the United
Nations (F.N. Stokman, "Roll calls
and sponsorship. A methodological
analysis of Third World group
formation in the United Nations."
Leyden: Sijthoff, 1977). Development
of an appendix to SPSS for network
analysis, together with Mokken et al.
and Felling. Development of concepts
and measures for network analysis
250 B78

Gary Sykes

Room 815
National Institute of Education
1200 19th Street North West
Washington, D.C. 20208
U.S.A.

(202) 254-6090

Education

political, educational
Planning and monitoring forth-

coming program of research on
social networks and network inter-
vention in education
251 B78

Karen Smith Thiel

Boys Town Center for the Study
of Youth Development
Boys Town, Nebraska 68010
U.S.A.

(402) 498-1480

Sociology

organizational
children, inter-generational
Analysis of the social networks of
early adolescents in two urban
neighborhoods. Two year project
focuses on the changing composition
complexity, and interconnectedness
of children's social networks as
they make the transition into
early adolescence. Emphasis on the
impact of physical development,
dating behavior, extra-curricular
participation, independence, and
school structures on the social
networks of this age group
252 B78

Charles Tilly

Center for Research on Social
Organization

University of Michigan
Ann Arbor, Michigan

U.S.A.

Sociology, History
political, dynamic changes
elites, information flows
community, methods
macro-structure
253 B78

Donald Warren

2233 Delaware
Ann Arbor, Michigan 48103
U.S.A.

(313) 663-9831

Sociology

community, friendship
support, kinship
Research on the residential
areal bond in the U.S. and
Europe. Also examining types of
informal social bonds in urban
communities
254 B78

Stanley S. Wasserman
Dept. of Applied Statistics
University of Minnesota
352B Classroom Office Bldg.
St. Paul, Minneapolis 55108
U.S.A.
(612) 376-3920
Statistics
methods
Stochastic modelling; in general
Statistical analysis of networks
255 B78

J. Allen Whitt
Dept. of Sociology
Brown University
Providence, Rhode Island 02912
U.S.A.
(401) 863-2445
Sociology, Urban Affairs
elites, inter-organizational
political
Analyzing patterns of inter-
locking directorates among U.S.
corporations. Major goals are to
theoretically account for such
patterns and to relate patterns
to corporate, political or
economic behavior and
characteristics
256 B78

J. Dennis Willigan
Dept. of Sociology
The University of Utah
Salt Lake City, Utah 84112
U.S.A.
(801) 581-6153
Sociology, Demography
community, dynamic changes
elites, inter-organizational
kinship, macro-structure
mental health, methods
Algorithm development for unfol-
ding networks. Analysis of net-
works within different European
social classes during the process
of industrialization in the 18th and
19th centuries. Applications of net
work analysis to cognitive maps
257 B78

INSNA MEMBERS BY COUNTRY

Austria		211	Richard H. Lesniak
203	Peter Kappelhoff	212	Michael M. Loukinen
231	Anatol Rappoport	213	Tim Mabee
Canada		214	Peter Mariolis
175	Robin P. Armstrong	215	Charles E. Marske
176	Andrew Baines	216	J. Hunter Mica
185	Donald Coates	217	Karen L. Michaelson
202	John Jordan	219	Jon Miller
208	Camille, Jr. Lambert	221	Peter R. Monge
260	R. J. Richardson	222	Gwen Moore
261	Bonnie Rose	223	David L. Morgan
240	Ben Zion Shapiro	224	Michael M. Morris
France		225	W. Lawrence Neumann
195	Georges Gueron	226	Joanne M. Nigg
Italy		228	E. Mansell Pattison
218	Vessiere Michel	229	Mitchell A. Pravatiner
Netherlands		230	Stephen Radecki
220	Robert J. Mokken	232	Stephanie Riger
250	F. N. Stokman	233	Douglas Roeder
Sweden		234	Richard C. Roistacher
205	Gosta Karlsson	235	William G. Roy
U.S.A.		236	Uri Rueveni
173	Ruth H. Allen	237	Jeffrey Colman Salloway
174	Sheila A. Ames	238	Samuel F. Sampson
177	David C. Bell	239	Richard K. Sellers
178	Dale A. Blyth	241	Laurence A. Shoup
179	James Bohland	242	Fremont A. Shull
180	Elise Boulding	243	Karen Li Simpkins
258	Ray Bradley	244	Paul B. Slater
181	Ronald L. Breiger	245	Ted C. Smith
182	David Bunting	247	Michael Soref
183	Philip H., Jr. Burch	248	Ross V. Speck, M.D.
184	Jairo Cano	249	Lois S. Steinberg
259	Moncrieff Cochran	251	Gary Sykes
186	James Danowski	252	Karen Smith Thiel
187	James P. Dillard	253	Charles Tilly
188	Richard M. Emerson	254	Donald Warren
189	William M. Evan	255	Stanley S. Wasserman
190	Robert R. Faulkner	256	J. Allen Whitt
191	Gary A. Fine	257	J. Dennis Willigan
192	Frederick W. Frey	West Germany	
193	James Garbarino	199	Gerd-Michael Hellsten
194	Gerald M. Goldhaber	227	Franz Urban Pappi
196	Michael Gordon	246	Wolfgang Sodeur
197	Frank Harary		
198	J. David Hawkins		
200	Levellyn Hendrix		
201	Robert R. Hingers		
204	Stan Kaplowitz		
206	James G. Kelly		
207	Jerrald D. Krause		
209	Nancy Langton		
210	Richard Leavy		

INSNA MEMBERS BY DISCIPLINE

Anthropology

217 Karen L. Michaelson
239 Richard K. Sellers
243 Karen Li Simpkins

Biology

231 Anatol Rappoport

Chemistry

176 Andrew Baines

Communication Science

186 James Danowski
187 James P. Dillard
194 Gerald M. Goldhaber
211 Richard H. Lesniak
213 Tim Mabee
221 Peter R. Monge

Community and Social Psychiatry

185 Donald Coates

Demography

257 J. Dennis Willigan

Economics

182 David Bunting

Education

224 Michael M. Morris
251 Gary Sykes

Environmental Studies

173 Ruth H. Allen

Family Life

174 Sheila A. Ames

Geography

175 Robin P. Armstrong
179 James Bohland

Gerontology

174 Sheila A. Ames

History

241 Laurence H. Shoup
253 Charles Tilly

Political Science

183 Philip H., Jr. Burch
192 Frederick W. Frey
220 Robert J. Mokken
250 F. N. Stokman

Psychiatry

228 E. Mansell Pattison
236 Uri Rueveni
248 Ross V. Speck, M.D.

Psychology

192 Frederick W. Frey
210 Richard Leavy
224 Michael M. Morris
231 Anatol Rappoport
232 Stephanie Riger
234 Richard C. Roistacher

Regional Science

244 Paul B. Slater

Social Work

206 James G. Kelly
208 Camille, Jr. Lambert
240 Ben Zion Shapiro

Sociology

177 David C. Bell
178 Dale A. Blyth
180 Elise Boulding
258 Ray Bradley
181 Ronald L. Breiger
259 Moncrieff Cochran
188 Richard M. Emerson
189 William M. Evan
190 Robert R. Faulkner
191 Gary A. Fine
192 Frederick W. Frey
193 James Garbarino
196 Michael Gordon
197 Frank Harary
198 J. David Hawkins
199 Gerd-Michael Hellsten
200 Lewellyn Hendrix
201 Robert H. Hingers
204 Stan Kaplowitz
203 Peter Kappelhoff

Management Studies

189 William M. Evan
242 Fremont A. Shull

Mathematics

231 Anatol Rappoport
244 Paul B. Slater

Planning

202 John Jordan

207 Jerrald D. Krause
208 Camille, Jr. Lambert
209 Nancy Langton
212 Michael M. Loukinen
214 Peter Mariolis
215 Charles E. Marske
216 J. Hunter Mica
219 Jon Miller
222 Gwen Moore
223 David L. Morgan
225 W. Lawrence Neumann

226 Joanne M. Nigg
227 Franz Urban Pappi
230 Stephen Radecki
260 R. J. Richardson
233 Douglas Roeder
261 Bonnie Rose
235 William G. Roy
237 Jeffrey Colman Salloway
238 Samuel P. Sampson
241 Laurence H. Shoup
242 Fremont A. Shull
245 Ted C. Smith
246 Wolfgang Sodeur
247 Michael Soref
249 Lois S. Steinberg
252 Karen Smith Thiel
253 Charles Tilly
254 Donald Warren
256 J. Allen Whitt
257 J. Dennis Willigan

Statistics

205 Gosta Karlsson
255 Stanley S. Wasserman

Urban Affairs

256 J. Allen Whitt

INSNA MEMBERS BY KEYWORD

authority flows

177 David C. Bell
184 Jairo Cano
188 Richard M. Emerson
192 Frederick W. Frey
194 Gerald M. Goldhaber
261 Bonnie Rose
243 Karen Li Simpkins
246 Wolfgang Sodeur

children

174 Sheila A. Ames
178 Dale A. Blyth
193 James Garbarino
252 Karen Smith Thiel

community

175 Robin P. Armstrong
179 James Bohland
258 Ray Bradley
181 Ronald L. Breiger
184 Jairo Cano
185 Donald Coates
259 Moncrieff Cochran
196 James Danowski
196 Michael Gordon
198 J. David Hawkins
199 Gerd-Michael Hellsten
200 Lewellyn Hendrix
207 Jerrald D. Krause
208 Camille, Jr. Lambert
210 Richard Leavy
215 Charles E. Marske
223 David L. Morgan
224 Michael M. Morris
226 Joanne M. Nigg
227 Franz Urban Pappi
229 Mitchell A. Pravatiner
230 Stephen Radecki
232 Stephanie Riger
238 Samuel F. Sampson
239 Richard K. Sellers
245 Ted C. Smith
249 Lois S. Steinberg
253 Charles Tilly
254 Donald Warren
257 J. Dennis Willigan

dynamic changes

184 Jairo Cano
212 Michael M. Loukinen
213 Tim Mabee
216 J. Hunter Mica
221 Peter R. Monge
223 David L. Morgan
224 Michael M. Morris
234 Richard C. Roistacher
235 William G. Roy
238 Samuel F. Sampson

239 Richard K. Sellers
242 Fremont A. Shull
246 Wolfgang Sodeur
253 Charles Tilly
257 J. Dennis Willigan

educational

184 Jairo Cano
194 Gerald M. Goldhaber
210 Richard Leavy
224 Michael M. Morris
249 Lois S. Steinberg
251 Gary Sykes

elites

177 David C. Bell
181 Ronald L. Breiger
182 David Bunting
184 Jairo Cano
192 Frederick W. Frey
204 Stan Kaplowitz
214 Peter Mariolis
218 Vessiere Michel
220 Robert J. Mokken
222 Gwen Moore
225 W. Lawrence Neumann
227 Franz Urban Pappi
260 R. J. Richardson
235 William G. Roy
241 Laurence H. Shoup
247 Michael Soref
250 F. N. Stokman
253 Charles Tilly
256 J. Allen Whitt
257 J. Dennis Willigan

ethnicity

179 James Bohland
180 Elise Boulding
229 Mitchell A. Pravatiner
232 Stephanie Riger
239 Richard K. Sellers
243 Karen Li Simpkins
249 Lois S. Steinberg

exchange systems

174 Sheila A. Ames
181 Ronald L. Breiger
184 Jairo Cano
188 Richard M. Emerson
208 Camille, Jr. Lambert
212 Michael M. Loukinen
215 Charles E. Marske
239 Richard K. Sellers

friendship

173 Ruth H. Allen
181 Ronald L. Breiger
184 Jairo Cano
186 James Danowski
198 J. David Hawkins

208	Camille, Jr. Lambert	208	Camille, Jr. Lambert
210	Richard Leavy	213	Tim Mabee
215	Charles E. Marske	214	Peter Mariolis
226	Joanne M. Nigg	218	Vessiere Michel
230	Stephen Radecki	219	Jon Miller
236	Uri Rueveni	220	Robert J. Mokken
239	Richard K. Sellers	221	Peter R. Monge
248	Ross V. Speck, M.D.	224	Michael M. Morris
254	Donald Warren	225	W. Lawrence Neumann
gerontology		227	Franz Urban Pappi
174	Sheila A. Ames	260	R. J. Richardson
223	David L. Morgan	234	Richard C. Roistacher
health		261	Bonnie Rose
185	Donald Coates	243	Karen Li Simpkins
224	Michael M. Morris	245	Ted C. Smith
237	Jeffrey Colman Salloway	247	Michael Soref
242	Fremont A. Shull	249	Lois S. Steinberg
248	Ross V. Speck, M.D.	250	F. N. Stokman
information flows		256	J. Allen Whitt
181	Ronald L. Breiger	257	J. Dennis Willigan
184	Jairo Cano	kinship	
186	James Danowski	173	Ruth H. Allen
187	James P. Dillard	174	Sheila A. Ames
190	Robert R. Faulkner	180	Elise Boulding
194	Gerald M. Goldhaber	259	Moncrieff Cochran
202	John Jordan	196	Michael Gordon
208	Camille, Jr. Lambert	208	Camille, Jr. Lambert
211	Richard H. Lesniak	226	Joanne M. Nigg
213	Tim Mabee	239	Richard K. Sellers
216	J. Hunter Mica	243	Karen Li Simpkins
221	Peter R. Monge	254	Donald Warren
226	Joanne M. Nigg	257	J. Dennis Willigan
260	R. J. Richardson	macro-structure	
233	Douglas Roeder	177	David C. Bell
261	Bonnie Rose	181	Ronald L. Breiger
242	Fremont A. Shull	182	David Bunting
246	Wolfgang Sodeur	184	Jairo Cano
253	Charles Tilly	189	William M. Evan
inter-generational		194	Gerald M. Goldhaber
174	Sheila A. Ames	202	John Jordan
178	Dale A. Blyth	218	Vessiere Michel
193	James Garbarino	220	Robert J. Mokken
212	Michael M. Loukinen	221	Peter R. Monge
252	Karen Smith Thiel	260	R. J. Richardson
inter-organizational		235	William G. Roy
173	Ruth H. Allen	239	Richard K. Sellers
177	David C. Bell	247	Michael Soref
180	Elise Boulding	253	Charles Tilly
182	David Bunting	257	J. Dennis Willigan
184	Jairo Cano	mental health	
186	James Danowski	179	James Bohland
189	William M. Evan	185	Donald Coates
190	Robert R. Faulkner	193	James Garbarino
191	Gary A. Fine	210	Richard Leavy
202	John Jordan	228	E. Mansell Pattison
203	Peter Kappelhoff	236	Uri Rueveni
		237	Jeffrey Colman Salloway
		248	Ross V. Speck, M.D.

257 J. Dennis Willigan

methods

173 Ruth H. Allen
181 Ronald L. Breiger
188 Richard M. Emerson
190 Robert R. Faulkner
192 Frederick W. Frey
194 Gerald M. Goldhaber
197 Frank Harary
201 Robert H. Hingers
202 John Jordan
203 Peter Kappelhoff
205 Gosta Karlsson
209 Nancy Langton
211 Richard H. Lesniak
213 Tim Mabee
214 Peter Mariolis
216 J. Hunter Mica
220 Robert J. Mokken
221 Peter R. Monge
223 David L. Morgan
232 Stephanie Riger
233 Douglas Roeder
239 Richard K. Sellers
244 Paul B. Slater
250 F. N. Stokman
253 Charles Tilly
255 Stanley S. Wasserman
257 J. Dennis Willigan

migration

179 James Bohland
200 Levellyn Hendrix
244 Paul B. Slater
249 Lois S. Steinberg

occupational

190 Robert R. Faulkner
194 Gerald M. Goldhaber
216 J. Hunter Mica
219 Jon Miller
230 Stephen Radecki
260 R. J. Richardson
239 Richard K. Sellers

organizational

178 Dale A. Blyth
186 James Danowski
187 James P. Dillard
189 William M. Evan
194 Gerald M. Goldhaber
202 John Jordan
211 Richard H. Lesniak
213 Tim Mabee
216 J. Hunter Mica
219 Jon Miller
221 Peter R. Monge
260 R. J. Richardson
232 Stephanie Riger
261 Bonnie Rose

237 Jeffrey Colman Salloway
239 Richard K. Sellers
242 Fremont A. Shull
245 Ted C. Smith
252 Karen Smith Thiel

phenomenology

175 Robin P. Armstrong
181 Ronald L. Breiger
191 Gary A. Fine
201 Robert H. Hingers
209 Nancy Langton
226 Joanne M. Nigg
234 Richard C. Roistacher
240 Ben Zion Shapiro
243 Karen Li Simpkins

political

177 David C. Bell
181 Ronald L. Breiger
182 David Bunting
188 Richard M. Emerson
192 Frederick W. Frey
199 Gerd-Michael Hellstem
204 Stan Kaplowitz
207 Jerrald D. Krause
220 Robert J. Mokken
224 Michael M. Morris
225 W. Lawrence Neumann
226 Joanne M. Nigg
227 Franz Urban Pappi
235 William G. Roy
238 Samuel F. Sampson
239 Richard K. Sellers
241 Laurence H. Shoup
243 Karen Li Simpkins
247 Michael Soref
249 Lois S. Steinberg
250 F. N. Stokman
251 Gary Sykes
253 Charles Tilly
256 J. Allen Whitt

recruitment

226 Joanne M. Nigg
239 Richard K. Sellers

religion

258 Ray Bradley
239 Richard K. Sellers
243 Karen Li Simpkins

sex differences

232 Stephanie Riger

support

174 Sheila A. Ames
185 Donald Coates
198 J. David Hawkins
202 John Jordan
206 James G. Kelly

208 Camille, Jr. Lambert
210 Richard Leavy
212 Michael M. Loukinen
228 E. Mansell Pattison
236 Uri Rueveni
237 Jeffrey Colman Salloway
239 Richard K. Sellers
240 Ben Zion Shapiro
248 Ross V. Speck, M.D.
249 Lois S. Steinberg
254 Donald Warren

teaching

213 Tim Mabee

technological impacts

180 Elise Boulding
184 Jairo Cano
194 Gerald M. Goldhaber
195 Georges Gueron
221 Peter R. Monge
234 Richard C. Roistacher

Network Memberships & Subscriptions

_____ This is a membership renewal. My current Directory listing is accurate. Please send me the periodicals indicated below.

_____ This is a membership renewal. Please update my Directory information as indicated below and send me the indicated periodicals.

_____ This is a new membership. Please enter my Directory information and send me the indicated periodicals.

Periodicals

CONNECTIONS (Network Newsletter; 3 issues) alone

Vol 1 (1977-1978)

_____ \$7 (US or Cdn\$)

Vol 2 (1978-1979)

_____ \$8 (US or Cdn\$)

SOCIAL NETWORKS (journal; 4 issues) alone

_____ \$20(US\$ only)

Combination offers at a discount:

CONNECTIONS (vols. 1 & 2) + SOCIAL NETWORKS (vol. 1)

_____ \$33 (US \$ only)

CONNECTIONS (vol. 2) + SOCIAL NETWORKS (vol. 2)

_____ \$26 (US \$ only)

Make all checks out to INSNA. Send to Barry Wellman, INSNA, Centre for Urban & Community Studies, 150 St. George St., University of Toronto; Toronto, Ontario, Canada M5S 1A1.

The special INSNA discount rates for SOCIAL NETWORKS are available only to private members. Institutional subscribers should contact Elsevier-Sequoia, PO Box 851, CH-1001 Lausanne 1, Switzerland.

(name)

Please print or type all information

FOR THE DIRECTORY
(New Members and Updates)

Address

(last name)

(first name)

(postal code)

(country)

Telephone

(area code)

Disciplinary Affiliation (e.g. Sociology) _____

Keyword Descriptors of Work (please circle relevant items):

authority flows community children dynamic changes educational elites ethnicity exchange systems
friendship gerontology health information flows inter-generational inter-organizational kinship
macro-structure mental health methods migration occupational organizational phenomenology political
recruitment religion sex differences support teaching technological impacts other _____
(please specify)

Current network activity: _____

Toronto Conference Registration, March 16-18; Details on page 12

Registration fees: Student (\$2) _____ Regular (\$5) _____ (Cdn or US \$)

Make checks payable to NEW COLLEGE

An information brochure, including the names of suggested hotels, will be sent to all pre-registrants.

Attendees, not giving papers, are expected to make their own hotel arrangement.

If attending, would you participate in a Peking Duck banquet? (approx. cost \$10) _____ Y _____ N

Please send registration fees and requests for further information to Ms. Judith Birchall, Conference Coordinator, New College, 300 Huron St., Toronto, Ont. Canada M5S 1A1

